

**FEDERAL CLIMATE COMPLEX  
DATA DOCUMENTATION  
FOR  
INTEGRATED SURFACE DATA**

**February 9, 2011**

National Climatic Data Center  
Air Force Combat Climatology Center  
Fleet Numerical Meteorology and Oceanography Detachment  
151 Patton Avenue  
Asheville, NC 28801-5001 USA

**1. Data Set ID:**

DS3505

**2. Data Set Name:**

INTEGRATED SURFACE DATABASE (ISD)

**3. Data Set Aliases:**

N/A

**4. Access Method and Sort for Archived Data:**

The data files are derived from surface observational data, and are stored in ASCII character format. Data field definitions for elements transmitted are provided after this preface, providing definition of data fields, position number for mandatory data fields, field lengths for variable data fields, minimum/maximum values of transmitted data, and values for missing data fields. Data are accessible via NCDC's Climate Data Online system ([cdo.ncdc.noaa.gov](http://cdo.ncdc.noaa.gov)), FTP (<ftp://ftp.ncdc.noaa.gov/pub/data/noaa/>), GIS services ([gis.ncdc.noaa.gov](http://gis.ncdc.noaa.gov)), and by calling NCDC for off-line servicing (see section 12 below).

**Data Sequence** - Data will be sequenced using the following data item order:

1. FIXED-WEATHER-STATION identifier
2. GEOPHYSICAL-POINT-OBSERVATION date
3. GEOPHYSICAL-POINT-OBSERVATION time
4. GEOPHYSICAL-POINT-OBSERVATION latitude coordinate
5. GEOPHYSICAL-POINT-OBSERVATION longitude coordinate
6. GEOPHYSICAL-POINT-OBSERVATION type surface report code
7. GEOPHYSICAL-REPORT-TYPE code

**Record Structure** - Each record is of variable length and is comprised of a control and mandatory data section and may also contain additional, remarks, and element quality data sections.

**Maximum record size:** 2,844 characters

**Maximum block length:** 8,192 characters for data provided on tape

**Control Data Section** - The beginning of each record provides information about the report including date, time, and station location information. Data fields will be in positions identified in the applicable data definition. The control data section is fixed length and is 60 characters long.

**Mandatory Data Section** - The mandatory data section contains meteorological information on the basic elements such as winds, visibility, and temperature. These are the most commonly reported parameters and are available most of the time. The mandatory data section is fixed length and is 45 characters long.

**Additional Data Section** - Variable length data are provided after the mandatory data. These additional data contain information of significance and/or which are received with varying degrees of frequency. Identifiers are 3 used to note when data are present in the record. If all data fields in a group are missing, the entire group is usually not reported. If no groups are reported the section will be omitted. The additional data section is variable in length with a minimum of 0 characters and a maximum of 637 (634 characters plus a 3 character section identifier) characters.

Note: Specific information (where applicable) pertaining to each variable group of data elements is provided in the data item definition.

**Remarks Data** - The numeric and character (plain language) remarks are provided if they exist. The data will vary in length and are identified in the applicable data definition. The remarks section has a maximum length of 515 (512 characters plus a 3 character section identifier) characters.

**Element Quality Data Section** - The element quality data section contains information on data that have been determined erroneous or suspect during quality control procedures. Also, some of the original data source codes and flags are stored here. This section is variable in length and contains 16 characters for each erroneous or suspect parameter. The section has a minimum length of 0 characters and a maximum length of 1587 (1584 plus a 3 character section identifier) characters.

**Missing Values** - Missing values for any non-signed item are filled (i.e., 999). Missing values for any signed item are positive filled (i.e., +99999).

**Longitude and Latitude Coordinates** - Longitudes will be reported with negative values representing longitudes west of 0 degrees, and latitudes will be negative south of the equator. Although the data field allows for values to a thousandth of a degree, the values are often only computed to the hundredth of a degree with a 0 entered in the thousandth position.

**5. Access Method and Sort for Supplied Data:**

See #4 above.

**6. Element Names and Definitions:**

See documentation below.

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## Control Data Section

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Items in red are only used for selected stations and periods of time in the dataset.

### POS: 1-4

**TOTAL-VARIABLE-CHARACTERS (this includes remarks, additional data, and element quality section)**

The number of characters in the variable data section. The total record length = 105 + the value stored in this field.

MIN: 0000    MAX: 9999

DOM: A general domain comprised of the characters in the ASCII character set

This field includes all surface reporting stations, including ships, buoys, etc.

This is the text of the note; replace this text with your own wording.

### POS: 5-10

**FIXED-WEATHER-STATION USAF MASTER STATION CATALOG identifier**

The identifier that represents a FIXED-WEATHER-STATION.

MIN: 000000    MAX: 999999

DOM: A general domain comprised of the numeric characters (0-9)

COMMENT: This field includes all surface reporting stations, including ships, buoys, etc.

Note:

1) For data files obtained via FTP or from NCDC's archive, the filename convention uses the USAF identifier and the WBAN identifier in the filename.eg, 723150-03812-year (such as 2006).

2) As additional data sources are integrated into ISD, the 2 station number fields will be used as an 11-digit ID field, with the first 2 digits representing the WMO block number (if applicable). For example, with NWS Cooperative Station data, the convention will be as follows:

xx999yyyyyy where xx = the WMO block number for the site, 999 = a fixed numeric, and yyyyyy = the cooperative station number

used historically. However, Cooperative station data have not yet been integrated into ISD.

This is the text of the note; replace this text with your own wording.

### POS: 11-15

**FIXED-WEATHER-STATION NCDC WBAN identifier**

The identifier that represents a FIXED-WEATHER-STATION.

MIN: 00000    MAX: 99999  
DOM: A general domain comprised of the numeric characters (0-9)  
COMMENT: This field includes all surface reporting stations, including ships, buoys, etc.

**POS: 16-23**

**GEOPHYSICAL-POINT-OBSERVATION date**

The date of a GEOPHYSICAL-POINT-OBSERVATION.

MIN: 00000101    MAX: 99991231

DOM: A general domain comprised of integer values 0-9 in the format YYYYMMDD; YYYY can be any positive integer value; MM is restricted to values 01-12; and DD is restricted to values 01-31

**POS: 24-27**

**GEOPHYSICAL-POINT-OBSERVATION time**

The time of a GEOPHYSICAL-POINT-OBSERVATION based on Coordinated Universal Time Code (UTC).

MIN: 0000    MAX: 2359

DOM: A general domain comprised of integer values 0-9 in the format HHMM; HH is restricted to values 00-23; MM is restricted to values 00-59

Note: Latitude, longitude, elevation, and call letters for some locations with data from multiple sources (see data source flag above) will sometimes vary within a data file due to differences in the metadata from the originating source. This does not indicate that the station locations differ; only that the metadata have not yet been fully reflected in the data records.

\*used for selected stations and periods of time in the dataset

**POS: 28-28**

**GEOPHYSICAL-POINT-OBSERVATION data source flag**

The flag of a GEOPHYSICAL-POINT-OBSERVATION showing the source or combination of sources used in creating the observation.

MIN: 1    MAX: Z

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

1: USAF hourly observation, candidate for merge with NCDC Surface Hourly (not yet merged, failed element cross-checks)

2: NCDC hourly observation, candidate for merge with USAF Surface Hourly (not yet merged, failed element cross-checks)

3: USAF hourly/NCDC hourly merged observation

4: USAF Surface Hourly observation

5: NCDC hourly observation

6: ASOS/AWOS observation from NCDC\*

7: ASOS/AWOS observation merged with USAF Surface Hourly observation\*

- 8: MAPSO observation (NCDC)\*
- A: USAF hourly/NCDC hourly precipitation merged observation, candidate for merge with NCDC Surface Hourly (not yet merged, failed element cross-checks)
- B: NCDC hourly/NCDC hourly precipitation merged observation, candidate for merge with USAF Surface Hourly (not yet merged, failed element cross-checks)
- C: USAF hourly/NCDC hourly/NCDC hourly precipitation merged observation
- D: USAF hourly/NCDC hourly precipitation merged observation
- E: NCDC hourly/NCDC hourly precipitation merged observation
- F: Form OMR/1001 - Weather Bureau city office (keyed data)\*
- G: SAO surface airways observation, pre-1949 (keyed data)\*
- H: SAO surface airways observation, 1965-1981 format/period (keyed data)\*
- I: Climate Reference Network observation\*
- J: Cooperative Network observation\*
- K: Radiation Network observation\*
- L: Data from Climate Data Modernization Program (CDMP) data source\*
- M: National Renewable Energy Laboratory (NREL)\*
- N: NCAR / NCDC cooperative effort (various national datasets)\*

**POS: 29-34**

**GEOPHYSICAL-POINT-OBSERVATION latitude coordinate**

The latitude coordinate of a GEOPHYSICAL-POINT-OBSERVATION where southern hemisphere is negative.

MIN: -90000 MAX: +90000 UNITS: angular degrees

SCALING FACTOR: 1000

DOM: A general domain comprised of the numeric characters (0-9), a plus sign (+), and a minus sign (-)

+99999 = missing

**POS: 35-41**

**GEOPHYSICAL-POINT-OBSERVATION longitude coordinate**

The longitude coordinate of a GEOPHYSICAL-POINT-OBSERVATION where values west from 000000 to 179999 are signed negative.

MIN: -179999 MAX: +180000 UNITS: angular degrees

SCALING FACTOR: 1000

DOM: A general domain comprised of the numeric characters (0-9), a plus sign (+), and a minus sign (-)

+999999 = missing

\*used for selected stations and periods of time in the dataset

**POS: 42-46**

**GEOPHYSICAL-REPORT-TYPE code**

The code that denotes the type of geophysical surface observation.

DOM: A specific domain comprised of the characters in the ASCII character set

99999 = missing

AERO: Aerological report

AUST: Dataset from Australia\*

AUTO: Report from an automatic station

BOGUS: Bogus report

BRAZ: Dataset from Brazil\*

COOPD: US Cooperative Network summary of day report\*

COOPS: US Cooperative Network soil temperature report\*

CRB: Climate Reference Book data from CDMP\*

CRN05: Climate Reference Network report, with 5-minute reporting interval\*

CRN15: Climate Reference Network report, with 15-minute reporting interval\*

FM-12: SYNOP Report of surface observation from a fixed land station

FM-13: SHIP Report of surface observation from a sea station

FM-14: SYNOP MOBIL Report of surface observation from a mobile land station

FM-15: METAR Aviation routine weather report

FM-16: SPECI Aviation selected special weather report

FM-18: BUOY Report of a buoy observation

GREEN: Dataset from Greenland\*

MEXIC: Dataset from Mexico\*

NSRDB: National Solar Radiation Data Base

PCP15: US 15-minute precipitation network report\*

PCP60: US 60-minute precipitation network report\*

S-S-A: Synoptic, airways, and auto merged report

SA-AU: Airways and auto merged report

SAO: Airways report (includes record specials)

SAOSP: Airways special report (excluding record specials)

SMARS: Supplementary airways station report

SOD: Summary of day report from U.S. ASOS or AWOS station\*

SOM: Summary of month report from U.S. ASOS or AWOS station\*

SURF: Surface Radiation Network report\*

SY-AE: Synoptic and aero merged report

SY-AU: Synoptic and auto merged report

SY-MT: Synoptic and METAR merged report

SY-SA: Synoptic and airways merged report

WBO: Weather Bureau Office\*

WNO: Washington Naval Observatory

## **POS: 47-51**

### **GEOPHYSICAL-POINT-OBSERVATION elevation dimension**

The elevation of a GEOPHYSICAL-POINT-OBSERVATION relative to Mean Sea Level (MSL).

MIN: -0400    MAX: +8850    UNITS: meters

SCALING FACTOR: 1

DOM: A general domain comprised of the numeric characters (0-9), a plus sign (+), and a minus sign (-)

+9999 = missing

**POS: 52-56**

**FIXED-WEATHER-STATION call letter identifier**

The identifier that represents the call letters assigned to a FIXED-WEATHER-STATION.

DOM: A general domain comprised of the characters in the ASCII character set

99999 = missing

**POS: 57-60**

**METEOROLOGICAL-POINT-OBSERVATION quality control process name**

The name of the quality control process applied to a weather observation.

DOM: A general domain comprised of the characters in the ASCII character set

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## Mandatory Data Section

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Bold type below indicates that the element may include data originating from NCDC's NCDC Surface Hourly/ASOS/AWOS, NCDC Precipitation Hourly/Hourly Precip, or from AFCCC's USAF Surface Hourly. Otherwise, data originated from USAF Surface Hourly.

Items in red are only used for selected stations and periods of time in the dataset.

For the quality code fields with each data element, the following may appear in data which were processed through NCDC's Interactive QC system (manual interaction):

A - Data value flagged as suspect, but accepted as good value

U - Data value replaced with edited value

P - Data value not originally flagged as suspect, but replaced by validator

I - Data value not originally in data, but inserted by validator

### **POS: 61-63**

#### **WIND-OBSERVATION direction angle**

The angle, measured in a clockwise direction, between true north and the direction from which the wind is blowing.

MIN: 001 MAX: 360 UNITS: angular degrees

SCALING FACTOR: 1

DOM: A general domain comprised of the numeric characters (0-9)

999 = missing

999: Missing. If type code (below) = V, then 999 indicates variable wind direction.

### **POS: 64-64**

#### **WIND-OBSERVATION direction quality code**

The code that denotes a quality status of a reported WIND-OBSERVATION direction angle.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

0: Passed gross limits check

1: Passed all quality control checks

2: Suspect

3: Erroneous

4: Passed gross limits check, data originate from an NCDC data source

5: Passed all quality control checks, data originate from an NCDC data source

6: Suspect, data originate from an NCDC data source

7: Erroneous, data originate from an NCDC data source

9: Passed gross limits check if element is present

NOTE: If a value of 9 appears with a wind speed of 0000, this indicates calm winds.

This is the text of the note; replace this text with your own wording.

**POS: 65-65**

**WIND-OBSERVATION type code**

The code that denotes the character of the WIND-OBSERVATION.

DOM: A specific domain comprised of the characters in the ASCII character set

- 9 = missing
- A: Abridged Beaufort
- B: Beaufort
- C: Calm
- H: 5-Minute Average Speed
- N: Normal
- Q: Squall
- R: 60-Minute Average Speed
- T: 180 Minute Average Speed
- V: Variable

**POS: 66-69**

**WIND-OBSERVATION speed rate**

The rate of horizontal travel of air past a fixed point.

MIN: 0000 MAX: 0900 UNITS: meters per second

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9)

- 9999 = missing

**POS: 70-70**

**WIND-OBSERVATION speed quality code**

The code that denotes a quality status of a reported WIND-OBSERVATION speed rate.

DOM: A specific domain comprised of the characters in the ASCII character set

- 9 = missing
- 0: Passed gross limits check
- 1: Passed all quality control checks
- 2: Suspect
- 3: Erroneous
- 4: Passed gross limits check , data originate from an NCDC data source
- 5: Passed all quality control checks, data originate from an NCDC data source
- 6: Suspect, data originate from an NCDC data source
- 7: Erroneous, data originate from an NCDC data source
- 9: Passed gross limits check if element is present

**POS: 71-75**

**SKY-CONDITION-OBSERVATION ceiling height dimension**

The height above ground level (AGL) of the lowest cloud or obscuring phenomena layer aloft with 5/8 or more summation total sky cover, which may be predominantly opaque, or the vertical visibility into a surface-based obstruction.

MIN: 00000 MAX: 22000 UNITS: meters

SCALING FACTOR: 1

DOM: A general domain comprised of the numeric characters (0-9)

99999 = missing

22000: Unlimited

**POS: 76-76**

**SKY-CONDITION-OBSERVATION ceiling quality code**

The code that denotes a quality status of a reported ceiling height dimension.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

0: Passed gross limits check

1: Passed all quality control checks

2: Suspect

3: Erroneous

4: Passed gross limits check, data originate from an NCDC data source

5: Passed all quality control checks, data originate from an NCDC data source

6: Suspect, data originate from an NCDC data source

7: Erroneous, data originate from an NCDC data source

9: Passed gross limits check if element is present

**POS: 77-77**

**SKY-CONDITION-OBSERVATION ceiling determination code**

The code that denotes the method used to determine the ceiling.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

A: Aircraft

B: Balloon

C: Statistically derived

D: Persistent cirriform ceiling (pre-1950 data)

E: Estimated

M: Measured

P: Precipitation ceiling (pre-1950 data)

R: Radar

S: ASOS augmented

U: Unknown ceiling (pre-1950 data)

V: Variable ceiling (pre-1950 data)

W: Obscured

**POS: 78-78**

**SKY-CONDITION-OBSERVATION CAVOK code**

The code that represents whether the 'Ceiling And Visibility Okay' (CAVOK)

condition has been reported.

DOM: A specific domain comprised of the characters in the ASCII character set

N = missing

N: No

Y: Yes

**POS: 79-84**

**VISIBILITY-OBSERVATION distance dimension**

The horizontal distance at which an object can be seen and identified.

MIN: 000000 MAX: 160000 UNITS: meters

DOM: A general domain comprised of the numeric characters (0-9)

Missing: 999999

NOTE: Values greater than 160000 are entered as 160000

**POS: 85-85**

**VISIBILITY-OBSERVATION distance quality code**

The code that denotes a quality status of a reported distance of a visibility observation.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

0: Passed gross limits check

1: Passed all quality control checks

2: Suspect

3: Erroneous

4: Passed gross limits check , data originate from an NCDC data source

5: Passed all quality control checks, data originate from an NCDC data source

6: Suspect, data originate from an NCDC data source

7: Erroneous, data originate from an NCDC data source

9: Passed gross limits check if element is present

**POS: 86-86**

**VISIBILITY-OBSERVATION variability code**

The code that denotes whether or not the reported visibility is variable.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

N: Not variable

V: Variable

**POS: 87-87**

**VISIBILITY-OBSERVATION quality variability code**

The code that denotes a quality status of a reported

VISIBILITY-OBSERVATION variability code.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

0: Passed gross limits check

- 1: Passed all quality control checks
- 2: Suspect
- 3: Erroneous
- 4: Passed gross limits check , data originate from an NCDC data source
- 5: Passed all quality control checks, data originate from an NCDC data source
- 6: Suspect, data originate from an NCDC data source
- 7: Erroneous, data originate from an NCDC data source
- 9: Passed gross limits check if element is present

**POS: 88-92**

**AIR-TEMPERATURE-OBSERVATION air temperature**

The temperature of the air.

MIN: -0932 MAX: +0618 UNITS: degrees celsius

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9)  
+9999 = missing

**POS: 93-93**

**AIR-TEMPERATURE-OBSERVATION air temperature quality code**

The code that denotes a quality status of an

AIR-TEMPERATURE-OBSERVATION.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing

- 0: Passed gross limits check
- 1: Passed all quality control checks
- 2: Suspect
- 3: Erroneous
- 4: Passed gross limits check , data originate from an NCDC data source
- 5: Passed all quality control checks, data originate from an NCDC data source
- 6: Suspect, data originate from an NCDC data source
- 7: Erroneous, data originate from an NCDC data source
- 9: Passed gross limits check if element is present

**POS: 94-98**

**AIR-TEMPERATURE-OBSERVATION-DEWPOINT temperature**

The temperature to which a given parcel of air must be cooled at constant pressure and water vapor content in order for saturation to occur.

MIN: -0982 MAX: +0368 UNITS: degrees celsius

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9), a plus sign (+), and a minus sign (-)  
+9999 = missing

This is the text of the note; replace this text with your own wording.

**POS: 99-99**

**AIR-TEMPERATURE-OBSERVATION-DEWPOINT quality code**

The code that denotes a quality status of the reported dew point temperature.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

0: Passed gross limits check

1: Passed all quality control checks

2: Suspect

3: Erroneous

4: Passed gross limits check, data originate from an NCDC data source

5: Passed all quality control checks, data originate from an NCDC data source

6: Suspect, data originate from an NCDC data source

7: Erroneous, data originate from an NCDC data source

9: Passed gross limits check if element is present

**POS: 100-104**

**ATMOSPHERIC-PRESSURE-OBSERVATION sea level pressure**

The air pressure relative to Mean Sea Level (MSL).

MIN: 08600 MAX: 10900 UNITS: hectopascals

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9)

99999 = missing

**POS: 105-105**

**ATMOSPHERIC-PRESSURE-OBSERVATION sea level pressure quality code**

The code that denotes a quality status of the sea level pressure of an ATMOSPHERIC-PRESSURE-OBSERVATION.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

0: Passed gross limits check

1: Passed all quality control checks

2: Suspect

3: Erroneous

4: Passed gross limits check , data originate from an NCDC data source

5: Passed all quality control checks, data originate from an NCDC data source

6: Suspect, data originate from an NCDC data source

7: Erroneous, data originate from an NCDC data source

9: Passed gross limits check if element is present

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## Additional Data Section

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Bold type below indicates that the element may include data originating from NCDC's NCDC Surface Hourly/ASOS/AWOS, NCDC Precipitation Hourly/Hourly Precip, or from AFCCC's USAF Surface Hourly. Otherwise, data originated from USAF Surface Hourly.

Items in red are only used for selected stations and periods of time in the dataset.

For the quality code fields with each data element, the following may appear in data which were processed through NCDC's Interactive QC system (manual interaction):

A - Data value flagged as suspect, but accepted as good value

U - Data value replaced with edited value

P - Data value not originally flagged as suspect, but replaced by validator

I - Data value not originally in data, but inserted by validator

### **FLD LEN: 3**

#### **GEOPHYSICAL-POINT-OBSERVATION additional data identifier**

The identifier that denotes the beginning of the additional data section.

DOM: A specific domain comprised of the characters in the ASCII character set

ADD: Additional Data Section

### **Precipitation Data**

### **FLD LEN: 3**

#### **LIQUID-PRECIPIATION (Hourly) occurrence identifier**

The identifier that represents an episode of LIQUID-PRECIPIATION

DOM: A specific domain comprised of the characters in the ASCII character set

**AA4 - AA1:** An indicator of up to 4 repeating fields of the following items:

LIQUID-PRECIPIATION (Hourly) period quantity in hours

LIQUID-PRECIPIATION (Hourly) depth dimension

LIQUID-PRECIPIATION (Hourly) condition code

LIQUID-PRECIPIATION (Hourly) quality code

### **FLD LEN: 2**

#### **LIQUID-PRECIPIATION (Hourly) period quantity in hours**

The quantity of time over which the LIQUID-PRECIPIATION was measured.

MIN: 00 MAX: 98 UNITS: hours

SCALING FACTOR: 1

DOM: A specific domain comprised of the characters in the ASCII character set

99 = missing

**FLD LEN: 4****LIQUID-PRECIPIATION (Hourly) depth dimension**

The depth of LIQUID-PRECIPIATION that is measured at the time of an observation.

MIN: 0000 MAX: 9998 UNITS: millimeters

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9)  
9999 = missing

**FLD LEN: 1****LIQUID-PRECIPIATION (Hourly) condition code**

The code that denotes whether a LIQUID-PRECIPIATION depth dimension was a trace value.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing

1: Measurement impossible or inaccurate

2: Trace

3: Begin accumulated period (precip amount missing until end of accumulated period)

4: End accumulated period

5: Begin deleted period (precip amount missing due to data problem)

6: End deleted period

7: Begin missing period

8: End missing period

E: Estimated data value (eg, from nearby station)

I: Incomplete precipitation amount, excludes one or more missing reports, such as one or more 15-minute reports not included in the 1-hour precip total

J: Incomplete precipitation amount, excludes one or more erroneous reports, such as one or more 1-hour precip amounts excluded from the 24-hour total

**FLD LEN: 1****LIQUID-PRECIPIATION (Hourly) quality code**

The code that denotes a quality status of the reported LIQUID-PRECIPIATION data.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing

0: Passed gross limits check

1: Passed all quality control checks

2: Suspect

3: Erroneous

4: Passed gross limits check, data originates from an NCDC data source

5: Passed all quality control checks, data originate from an NCDC data source

6: Suspect, data originate from an NCDC data source

7: Erroneous, data originate from an NCDC data source

9: Passed gross limits check if element is present

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**FLD LEN: 3**

**LIQUID-PRECIPIATION MONTHLY TOTAL occurrence identifier**

The identifier that represents LIQUID-PRECIPIATION MONTHLY TOTAL data

DOM: A specific domain comprised of the characters in the ASCII character set

**AB1:** An indicator of the following items:

LIQUID-PRECIPIATION MONTHLY TOTAL depth dimension

LIQUID-PRECIPIATION MONTHLY TOTAL condition code

LIQUID-PRECIPIATION MONTHLY TOTAL quality code

**FLD LEN: 5**

**LIQUID-PRECIPIATION MONTHLY TOTAL depth dimension**

The depth of LIQUID-PRECIPIATION for the month.

MIN: 00000 MAX: 50000 UNITS: millimeters

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9)

99999 = missing

**FLD LEN: 1**

**LIQUID-PRECIPIATION MONTHLY TOTAL condition code**

The code that denotes whether a LIQUID-PRECIPIATION depth dimension was a trace value.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

1: Measurement impossible or inaccurate

2: Trace

**FLD LEN: 1**

**LIQUID-PRECIPIATION MONTHLY TOTAL quality code**

The code that denotes a quality status of the reported LIQUID-PRECIPIATION data.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

0: Passed gross limits check

1: Passed all quality control checks

2: Suspect

3: Erroneous

4: Passed gross limits check, data originate from an NCDC data source

5: Passed all quality control checks, data originate from an NCDC data source

6: Suspect, data originate from an NCDC data source

7: Erroneous, data originate from an NCDC data source

9: Passed gross limits check if element is present

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**FLD LEN: 3**

**PRECIPITATION-OBSERVATION-HISTORY occurrence identifier**

The identifier that indicates the occurrence of precipitation history information

DOM: A specific domain comprised of the characters in the ASCII character set

AC1: An indicator of the following items:

PRECIPITATION-OBSERVATION-HISTORY duration code

PRECIPITATION-OBSERVATION-HISTORY characteristic code

PRECIPITATION-OBSERVATION-HISTORY PRECIPITATION  
duration/characteristic quality code

**FLD LEN: 1**

**PRECIPITATION-OBSERVATION-HISTORY duration code**

The code that denotes the duration of precipitation.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

0: Lasted less than 1 hour

1: Lasted 1 - 3 hours

2: Lasted 3 - 6 hours

3: Lasted more than 6 hours

**FLD LEN: 1**

**PRECIPITATION-OBSERVATION-HISTORY characteristic code**

The code that denotes whether precipitation is continuous or intermittent.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

C: Continuous

I: Intermittent

**FLD LEN: 1**

**PRECIPITATION-OBSERVATION-HISTORY PRECIPITATION  
duration/characteristic quality code**

The code that denotes a quality status of the reported PRECIPITATION  
duration/characteristic.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

0: Passed gross limits check

1: Passed all quality control checks

2: Suspect

3: Erroneous

9: Passed gross limits check if element is present

---

**FLD LEN: 3**

**LIQUID-PRECIPITATION GREATEST AMOUNT IN 24 HOURS, FOR  
THE MONTH occurrence identifier**

The identifier that represents LIQUID-PRECIPITATION, GREATEST IN 24

HOURS, data

DOM: A specific domain comprised of the characters in the ASCII character set

**AD1:** An indicator of the following items:

LIQUID-PRECIPIATION GREATEST AMOUNT IN 24 HOURS, FOR THE MONTH depth dimension

LIQUID-PRECIPIATION GREATEST AMOUNT IN 24 HOURS, FOR THE MONTH condition code

LIQUID-PRECIPIATION GREATEST AMOUNT IN 24 HOURS, FOR THE MONTH dates of occurrence

LIQUID-PRECIPIATION GREATEST AMOUNT IN 24 HOURS, FOR THE MONTH dates of occurrence #2

LIQUID-PRECIPIATION GREATEST AMOUNT IN 24 HOURS, FOR THE MONTH dates of occurrence #3

LIQUID-PRECIPIATION GREATEST AMOUNT IN 24 HOURS, FOR THE MONTH quality code

**FLD LEN: 5**

**LIQUID-PRECIPIATION GREATEST AMOUNT IN 24 HOURS, FOR THE MONTH depth dimension**

The depth of LIQUID-PRECIPIATION for the 24-hour period.

MIN: 00000 MAX: 20000 UNITS: millimeters

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9)

99999 = missing

**FLD LEN: 1**

**LIQUID-PRECIPIATION GREATEST AMOUNT IN 24 HOURS, FOR THE MONTH condition code**

The code that denotes whether a LIQUID-PRECIPIATION depth dimension was a trace value.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

1: Measurement impossible or inaccurate

2: Trace

3: The amount occurred on other dates in addition to those listed

4: Trace amount occurred on other dates in addition to those listed

**FLD LEN: 4**

**LIQUID-PRECIPIATION GREATEST AMOUNT IN 24 HOURS, FOR THE MONTH dates of occurrence**

The dates of occurrence of LIQUID-PRECIPIATION, given as the begin-end date for the 24-hour period, for up to 3 occurrences; e.g., 0405 indicates 24-hour period on days 04-05.

MIN: 0101 MAX: 3131

DOM: A general domain comprised of the numeric characters (0-9)

9999 = missing

**FLD LEN: 4**

**LIQUID-PRECIPIATION GREATEST AMOUNT IN 24 HOURS, FOR THE MONTH dates of occurrence #2**

The dates of occurrence of LIQUID-PRECIPIATION, given as the begin-end date for the 24-hour period, for up to 3 occurrences; e.g., 0405 indicates 24-hour period on days 04-05.

MIN: 0101 MAX: 3131

DOM: A general domain comprised of the numeric characters (0-9)  
9999 = missing

**FLD LEN: 4**

**LIQUID-PRECIPIATION GREATEST AMOUNT IN 24 HOURS, FOR THE MONTH dates of occurrence #3**

The dates of occurrence of LIQUID-PRECIPIATION, given as the begin-end date for the 24-hour period, for up to 3 occurrences; e.g., 0405 indicates 24-hour period on days 04-05.

MIN: 0101 MAX: 3131

DOM: A general domain comprised of the numeric characters (0-9)  
9999 = missing

**FLD LEN: 1**

**LIQUID-PRECIPIATION GREATEST AMOUNT IN 24 HOURS, FOR THE MONTH quality code**

The code that denotes a quality status of the reported LIQUID-PRECIPIATION data.

DOM: A specific domain comprised of the characters in the ASCII character set

- 9 = missing
- 0: Passed gross limits check
- 1: Passed all quality control checks
- 2: Suspect
- 3: Erroneous
- 4: Passed gross limits check , data originate from an NCDC data source
- 5: Passed all quality control checks, data originate from an NCDC data source
- 6: Suspect, data originate from an NCDC data source
- 7: Erroneous, data originate from an NCDC data source
- 9: Passed gross limits check if element is present

---

**FLD LEN: 3**

**LIQUID-PRECIPIATION, NUMBER OF DAYS WITH SPECIFIC AMOUNTS, FOR THE MONTH occurrence identifier**

The identifier that represents NUMBER OF DAYS WITH LIQUID-PRECIPIATION data

DOM: A specific domain comprised of the characters in the ASCII character set

**AE1:** An indicator of the following items:

LIQUID-PRECIPIATION, NUMBER OF DAYS WITH SPECIFIC AMOUNTS, FOR THE MONTH Number of days with .01 inch (.25 mm) or more

LIQUID-PRECIPIATION, NUMBER OF DAYS WITH SPECIFIC AMOUNTS, FOR THE MONTH Number of days with .01 inch (.25 mm) or more quality code

LIQUID-PRECIPIATION, NUMBER OF DAYS WITH SPECIFIC AMOUNTS, FOR THE MONTH Number of days with .10 inch (2.5 mm) or more

LIQUID-PRECIPIATION, NUMBER OF DAYS WITH SPECIFIC AMOUNTS, FOR THE MONTH Number of days with .10 inch (2.5 mm) or more quality code

LIQUID-PRECIPIATION, NUMBER OF DAYS WITH SPECIFIC AMOUNTS, FOR THE MONTH Number of days with .50 inch (12.7 mm) or more

LIQUID-PRECIPIATION, NUMBER OF DAYS WITH SPECIFIC AMOUNTS, FOR THE MONTH Number of days with .50 inch (12.7 mm) or more quality code

LIQUID-PRECIPIATION, NUMBER OF DAYS WITH SPECIFIC AMOUNTS, FOR THE MONTH Number of days with 1.00 inch (25 mm) or more

LIQUID-PRECIPIATION, NUMBER OF DAYS WITH SPECIFIC AMOUNTS, FOR THE MONTH Number of days with 1.00 inch (25 mm) or more quality code

**FLD LEN: 2**

**LIQUID-PRECIPIATION, NUMBER OF DAYS WITH SPECIFIC AMOUNTS, FOR THE MONTH Number of days with .01 inch (.25 mm) or more**

The number of days with .01 inch (.25 mm) or more precipitation.

MIN: 00 MAX: 31

DOM: A general domain comprised of the numeric characters (0-9)  
99 = missing

**FLD LEN: 1**

**LIQUID-PRECIPIATION, NUMBER OF DAYS WITH SPECIFIC AMOUNTS, FOR THE MONTH Number of days with .01 inch (.25 mm) or more quality code**

The code that denotes a quality status of the reported days with .01 or more.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing

0: Passed gross limits check

1: Passed all quality control checks

2: Suspect

3: Erroneous

4: Passed gross limits check , data originate from an NCDC data source

5: Passed all quality control checks, data originate from an NCDC data

source

6: Suspect, data originate from an NCDC data source

7: Erroneous, data originate from an NCDC data source

9: Passed gross limits check if element is present

**FLD LEN: 2**

**LIQUID-PRECIPIATION, NUMBER OF DAYS WITH SPECIFIC AMOUNTS, FOR THE MONTH Number of days with .10 inch (2.5 mm) or more**

The number of days with .10 inch (2.5 mm) or more precipitation.

MIN: 00 MAX: 31

DOM: A general domain comprised of the numeric characters (0-9)

99 = missing

**FLD LEN: 1**

**LIQUID-PRECIPIATION, NUMBER OF DAYS WITH SPECIFIC AMOUNTS, FOR THE MONTH Number of days with .10 inch (2.5 mm) or more quality code**

The code that denotes a quality status of the reported days with .10 or more.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

0: Passed gross limits check

1: Passed all quality control checks

2: Suspect

3: Erroneous

4: Passed gross limits check , data originate from an NCDC data source

5: Passed all quality control checks, data originate from an NCDC data source

6: Suspect, data originate from an NCDC data source

7: Erroneous, data originate from an NCDC data source

9: Passed gross limits check if element is present

**FLD LEN: 2**

**LIQUID-PRECIPIATION, NUMBER OF DAYS WITH SPECIFIC AMOUNTS, FOR THE MONTH Number of days with .50 inch (12.7 mm) or more**

The number of days with .50 inch (12.7 mm) or more precipitation.

MIN: 00 MAX: 31

DOM: A general domain comprised of the numeric characters (0-9)

99 = missing

**FLD LEN: 1**

**LIQUID-PRECIPIATION, NUMBER OF DAYS WITH SPECIFIC AMOUNTS, FOR THE MONTH Number of days with .50 inch (12.7 mm) or more quality code**

The code that denotes a quality status of the reported days with .50 or more.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
0: Passed gross limits check  
1: Passed all quality control checks  
2: Suspect  
3: Erroneous  
4: Passed gross limits check , data originate from an NCDC data source  
5: Passed all quality control checks, data originate from an NCDC data source  
6: Suspect, data originate from an NCDC data source  
7: Erroneous, data originate from an NCDC data source  
9: Passed gross limits check if element is present

**FLD LEN: 2**

**LIQUID-PRECIPIATION, NUMBER OF DAYS WITH SPECIFIC AMOUNTS, FOR THE MONTH Number of days with 1.00 inch (25 mm) or more**

The number of days with 1.00 inch (25 mm) or more precipitation.

MIN: 00 MAX: 31

DOM: A general domain comprised of the numeric characters (0-9)  
99 = missing

**FLD LEN: 1**

**LIQUID-PRECIPIATION, NUMBER OF DAYS WITH SPECIFIC AMOUNTS, FOR THE MONTH Number of days with 1.00 inch (25 mm) or more quality code**

The code that denotes a quality status of the reported days with 1.00 or more.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
0: Passed gross limits check  
1: Passed all quality control checks  
2: Suspect  
3: Erroneous  
4: Passed gross limits check , data originate from an NCDC data source  
5: Passed all quality control checks, data originate from an NCDC data source  
6: Suspect, data originate from an NCDC data source  
7: Erroneous, data originate from an NCDC data source  
9: Passed gross limits check if element is present

---

**FLD LEN: 3**

**PRECIPITATION-ESTIMATED-OBSERVATION occurrence identifier**

The identifier that represents a

PRECIPITATION-ESTIMATED-OBSERVATION, from AFCCC

DOM: A specific domain comprised of the characters in the ASCII character set

**AG1:** An indicator of the following items:

PRECIPITATION-ESTIMATED-OBSERVATION discrepancy code  
PRECIPITATION-ESTIMATED-OBSERVATION estimated water depth  
dimension

**FLD LEN: 1**

**PRECIPITATION-ESTIMATED-OBSERVATION discrepancy code**

The code that denotes the type of discrepancy between a  
PRECIPITATION-OBSERVATION and other related observations at the same  
location.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing

- 0: Reported amount of precipitation and reported weather agree
- 1: Precipitation missing or not reported and none inferred by weather
- 2: Precipitation missing, but precipitation inferred by weather
- 3: Precipitation reported, but none inferred by weather
- 4: Zero precipitation reported, but precipitation inferred by weather
- 5: Zero precipitation reported, no precipitation inferred and precipitation not  
occurring at the reporting

**FLD LEN: 3**

**PRECIPITATION-ESTIMATED-OBSERVATION estimated water depth  
dimension**

The estimated depth of precipitation in water depth for a 3-hour synoptic period.

MIN: 000 MAX: 998 UNITS: millimeters

SCALING FACTOR: 1

DOM: A general domain comprised of the numeric characters (0-9)  
999 = missing

---

**FLD LEN: 3**

**LIQUID-PRECIPITATION MAXIMUM SHORT DURATION, FOR THE  
MONTH occurrence identifier**

The identifier that represents MAXIMUM SHORT DURATION  
PRECIPITATION data

DOM: A specific domain comprised of the characters in the ASCII character set

- AH6 - AH1:** An indicator of up to 6 repeating fields of the following items:
- LIQUID-PRECIPITATION MAXIMUM SHORT DURATION, FOR THE  
MONTH period quantity
  - LIQUID-PRECIPITATION MAXIMUM SHORT DURATION, FOR THE  
MONTH depth dimension
  - LIQUID-PRECIPITATION MAXIMUM SHORT DURATION, FOR THE  
MONTH condition code
  - LIQUID-PRECIPITATION MAXIMUM SHORT DURATION, FOR THE  
MONTH ending date-time
  - LIQUID-PRECIPITATION MAXIMUM SHORT DURATION, FOR THE  
MONTH quality code

**FLD LEN: 3**

**LIQUID-PRECIPIATION MAXIMUM SHORT DURATION, FOR THE MONTH period quantity**

The quantity of time over which the LIQUID-PRECIPIATION was measured.

MIN: 005 MAX: 180 UNITS: minutes

SCALING FACTOR: 1

DOM: A specific domain comprised of the characters in the ASCII character set  
999 = missing

**FLD LEN: 4**

**LIQUID-PRECIPIATION MAXIMUM SHORT DURATION, FOR THE MONTH depth dimension**

The depth of LIQUID-PRECIPIATION for the defined time period.

MIN: 0000 MAX: 3000 UNITS: millimeters

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9)  
9999 = missing

**FLD LEN: 1**

**LIQUID-PRECIPIATION MAXIMUM SHORT DURATION, FOR THE MONTH condition code**

The code that denotes whether a LIQUID-PRECIPIATION depth dimension was a trace value.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing

1: Measurement impossible or inaccurate

2: Trace

**FLD LEN: 6**

**LIQUID-PRECIPIATION MAXIMUM SHORT DURATION, FOR THE MONTH ending date-time**

The ending date of occurrence of the event , given as the date-time in GMT; e.g., 051010 indicates 1010 Z-time on day 05 of the month.

MIN: 010000 MAX: 312359

DOM: A general domain comprised of the numeric characters (0-9)  
999999 = missing

**FLD LEN: 1**

**LIQUID-PRECIPIATION MAXIMUM SHORT DURATION, FOR THE MONTH quality code**

The code that denotes a quality status of the reported LIQUID-PRECIPIATION data.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing

0: Passed gross limits check

1: Passed all quality control checks

- 2: Suspect
  - 3: Erroneous
  - 4: Passed gross limits check , data originate from an NCDC data source
  - 5: Passed all quality control checks, data originate from an NCDC data source
  - 6: Suspect, data originate from an NCDC data source
  - 7: Erroneous, data originate from an NCDC data source
  - 9: Passed gross limits check if element is present
- 

**FLD LEN: 3**

**LIQUID-PRECIPIATION MAXIMUM SHORT DURATION, FOR THE MONTH (continued) occurrence identifier**

The identifier that represents MAXIMUM SHORT DURATION PRECIPITATION data

DOM: A specific domain comprised of the characters in the ASCII character set

**AI6 - AI1:** An indicator of up to 6 repeating fields of the following items:

LIQUID-PRECIPIATION MAXIMUM SHORT DURATION, FOR THE MONTH (continued) period quantity

LIQUID-PRECIPIATION MAXIMUM SHORT DURATION, FOR THE MONTH (continued) depth dimension

LIQUID-PRECIPIATION MAXIMUM SHORT DURATION, FOR THE MONTH (continued) condition code

LIQUID-PRECIPIATION MAXIMUM SHORT DURATION, FOR THE MONTH (continued) ending date-time

LIQUID-PRECIPIATION MAXIMUM SHORT DURATION, FOR THE MONTH (continued) quality code

**FLD LEN: 3**

**LIQUID-PRECIPIATION MAXIMUM SHORT DURATION, FOR THE MONTH (continued) period quantity**

The quantity of time over which the LIQUID-PRECIPIATION was measured.

MIN: 060 MAX: 180 UNITS: minutes

SCALING FACTOR: 1

DOM: A specific domain comprised of the characters in the ASCII character set  
999 = missing

**FLD LEN: 4**

**LIQUID-PRECIPIATION MAXIMUM SHORT DURATION, FOR THE MONTH (continued) depth dimension**

The depth of LIQUID-PRECIPIATION for the defined time period.

MIN: 0000 MAX: 3000 UNITS: millimeters

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9)  
9999 = missing

**FLD LEN: 1**

**LIQUID-PRECIPIATION MAXIMUM SHORT DURATION, FOR THE MONTH (continued) condition code**

The code that denotes whether a LIQUID-PRECIPIATION depth dimension was a trace value.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
1: Measurement impossible or inaccurate  
2: Trace

**FLD LEN: 6**

**LIQUID-PRECIPIATION MAXIMUM SHORT DURATION, FOR THE MONTH (continued) ending date-time**

The ending date of occurrence of the event , given as the date-time in GMT; e.g., 051010 indicates 1010 Z-time on day 05 of the month.

MIN: 010000 MAX: 312359

DOM: A general domain comprised of the numeric characters (0-9)  
999999 = missing

**FLD LEN: 1**

**LIQUID-PRECIPIATION MAXIMUM SHORT DURATION, FOR THE MONTH (continued) quality code**

The code that denotes a quality status of the reported LIQUID-PRECIPIATION data.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
0: Passed gross limits check  
1: Passed all quality control checks  
2: Suspect  
3: Erroneous  
4: Passed gross limits check , data originate from an NCDC data source  
5: Passed all quality control checks, data originate from an NCDC data source  
6: Suspect, data originate from an NCDC data source  
7: Erroneous, data originate from an NCDC data source  
9: Passed gross limits check if element is present

---

**FLD LEN: 3**

**SNOW-DEPTH occurrence identifier**

The identifier that denotes the start of a SNOW-DEPTH data section

DOM: A specific domain comprised of the characters in the ASCII character set

**AJ1:** An indicator of the following items:

SNOW-DEPTH dimension  
SNOW-DEPTH condition code  
SNOW-DEPTH quality code

SNOW-DEPTH equivalent water depth dimension  
SNOW-DEPTH equivalent water condition code  
SNOW-DEPTH equivalent water condition quality code

**FLD LEN: 4**

**SNOW-DEPTH dimension**

The depth of snow and ice on the ground.

MIN: 0000 MAX: 1200 UNITS: centimeters

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9)  
9999 = missing

**FLD LEN: 1**

**SNOW-DEPTH condition code**

The code that denotes specific conditions associated with the measurement of snow in a PRECIPITATION-OBSERVATION.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
1: Measurement impossible or inaccurate  
2: Snow cover not continuous  
3: Trace  
4: End accumulated period (data include more than one day)  
5: End deleted period (data eliminated due to quality problems)  
6: End missing period  
E: Estimated data value (eg, from nearby station)

**FLD LEN: 1**

**SNOW-DEPTH quality code**

The code that denotes a quality status of the reported SNOW-DEPTH data.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
0: Passed gross limits check  
1: Passed all quality control checks  
2: Suspect  
3: Erroneous  
4: Passed gross limits check , data originate from an NCDC data source  
5: Passed all quality control checks, data originate from an NCDC data source  
6: Suspect, data originate from an NCDC data source  
7: Erroneous, data originate from an NCDC data source  
9: Passed gross limits check if element is present

**FLD LEN: 6**

**SNOW-DEPTH equivalent water depth dimension**

The depth of the liquid content of solid precipitation that has accumulated on the ground.

MIN: 000000 MAX: 120000 UNITS: millimeters  
SCALING FACTOR: 10  
DOM: A general domain comprised of the numeric characters (0-9)  
999999 = missing

**FLD LEN: 1**

**SNOW-DEPTH equivalent water condition code**

The code that denotes specific conditions associated with the measurement of the SNOW-DEPTH.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
1: Measurement impossible or inaccurate  
2: Trace  
9: Missing (no special code to report)

**FLD LEN: 1**

**SNOW-DEPTH equivalent water condition quality code**

The code that denotes a quality status of the reported SNOW-DEPTH equivalent water condition.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
0: Passed gross limits check  
1: Passed all quality control checks  
2: Suspect  
3: Erroneous  
4: Passed gross limits check , data originate from an NCDC data source  
5: Passed all quality control checks, data originate from an NCDC data source  
6: Suspect, data originate from an NCDC data source  
7: Erroneous, data originate from an NCDC data source  
9: Passed gross limits check if element is present

---

**FLD LEN: 3**

**SNOW-DEPTH GREATEST DEPTH ON THE GROUND, FOR THE MONTH occurrence identifier**

The identifier that represents SNOW-DEPTH GREATEST SNOW DEPTH ON THE GROUND, data

DOM: A specific domain comprised of the characters in the ASCII character set

**AK1:** An indicator of the following items:

SNOW-DEPTH GREATEST DEPTH ON THE GROUND, FOR THE MONTH depth dimension  
SNOW-DEPTH GREATEST DEPTH ON THE GROUND, FOR THE MONTH condition code  
SNOW-DEPTH GREATEST DEPTH ON THE GROUND, FOR THE MONTH dates of occurrence  
SNOW-DEPTH GREATEST DEPTH ON THE GROUND, FOR THE

MONTH quality code

**FLD LEN: 4**

**SNOW-DEPTH GREATEST DEPTH ON THE GROUND, FOR THE MONTH depth dimension**

The depth of GREATEST SNOW DEPTH FOR THE MONTH.

MIN: 0000 MAX: 1500 UNITS: centimeters

SCALING FACTOR: 1

DOM: A general domain comprised of the numeric characters (0-9)

9999 = missing

**FLD LEN: 1**

**SNOW-DEPTH GREATEST DEPTH ON THE GROUND, FOR THE MONTH condition code**

The code that denotes whether a SNOW-DEPTH dimension was a trace value.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

1: Measurement impossible or inaccurate

2: Trace

3: The amount occurred on other dates in addition to those listed

4: Trace amount occurred on other dates in addition to those listed

**FLD LEN: 6**

**SNOW-DEPTH GREATEST DEPTH ON THE GROUND, FOR THE MONTH dates of occurrence**

The dates of occurrence of SNOW-DEPTH, given as the date for each occurrence, for up to 3 occurrences; e.g., 041016 indicates days 04, 10, and 16.

MIN: 01 MAX: 31

DOM: A general domain comprised of the numeric characters (0-9)

99 = missing

99: missing for each of the 3 sub-fields.

**FLD LEN: 1**

**SNOW-DEPTH GREATEST DEPTH ON THE GROUND, FOR THE MONTH quality code**

The code that denotes a quality status of the reported SNOW-DEPTH data.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

0: Passed gross limits check

1: Passed all quality control checks

2: Suspect

3: Erroneous

4: Passed gross limits check , data originate from an NCDC data source

5: Passed all quality control checks, data originate from an NCDC data source

6: Suspect, data originate from an NCDC data source

- 7: Erroneous, data originate from an NCDC data source
  - 9: Passed gross limits check if element is present
- 

**FLD LEN: 3**

**SNOW-ACCUMULATION occurrence identifier**

The identifier that represents an episode of SNOW-ACCUMULATION

DOM: A specific domain comprised of the characters in the ASCII character set

**AL4 - AL1:** An indicator of up to 4 repeating fields of the following items:

- SNOW-ACCUMULATION period quantity
- SNOW-ACCUMULATION depth dimension
- SNOW-ACCUMULATION condition code
- SNOW-ACCUMULATION quality code

**FLD LEN: 2**

**SNOW-ACCUMULATION period quantity**

The quantity of time over which the SNOW-ACCUMULATION occurred.

MIN: 00 MAX: 72 UNITS: hours

SCALING FACTOR: 1

DOM: A general domain comprised of the characters in the ASCII character set  
99 = missing

**FLD LEN: 3**

**SNOW-ACCUMULATION depth dimension**

The depth of a SNOW-ACCUMULATION.

MIN: 000 MAX: 500 UNITS: centimeters

SCALING FACTOR: 1

DOM: A general domain comprised of the numeric characters (0-9)  
999 = missing

**FLD LEN: 1**

**SNOW-ACCUMULATION condition code**

The code that denotes specific conditions associated with the measurement of the depth of a SNOW-ACCUMULATION.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing

- 1: Measurement impossible or inaccurate
- 2: Snow cover not continuous
- 3: Trace
- 4: End accumulated period (data include more than one day)
- 5: End deleted period (data eliminated due to quality problems)
- 6: End missing period
- E: Estimated data value (eg, from nearby station)

**FLD LEN: 1**

**SNOW-ACCUMULATION quality code**

The code that denotes a quality status of the reported SNOW-ACCUMULATION.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

0: Passed gross limits check

1: Passed all quality control checks

2: Suspect

3: Erroneous

4: Passed gross limits check , data originate from an NCDC data source

5: Passed all quality control checks, data originate from an NCDC data source

6: Suspect, data originate from an NCDC data source

7: Erroneous, data originate from an NCDC data source

9: Passed gross limits check if element is present

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### **FLD LEN: 3**

#### **SNOW-ACCUMULATION GREATEST AMOUNT IN 24 HOURS, FOR THE MONTH occurrence identifier**

The identifier that represents SNOW-ACCUMULATION, GREATEST IN 24 HOURS, data

DOM: A specific domain comprised of the characters in the ASCII character set

**AM1:** An indicator of the following items:

SNOW-ACCUMULATION GREATEST AMOUNT IN 24 HOURS, FOR THE MONTH depth dimension

SNOW-ACCUMULATION GREATEST AMOUNT IN 24 HOURS, FOR THE MONTH condition code

SNOW-ACCUMULATION GREATEST AMOUNT IN 24 HOURS, FOR THE MONTH dates of occurrence

SNOW-ACCUMULATION GREATEST AMOUNT IN 24 HOURS, FOR THE MONTH dates of occurrence #2

SNOW-ACCUMULATION GREATEST AMOUNT IN 24 HOURS, FOR THE MONTH dates of occurrence #3

SNOW-ACCUMULATION GREATEST AMOUNT IN 24 HOURS, FOR THE MONTH quality code

### **FLD LEN: 4**

#### **SNOW-ACCUMULATION GREATEST AMOUNT IN 24 HOURS, FOR THE MONTH depth dimension**

The depth of SNOW-ACCUMULATION for the 24-hour period.

MIN: 0000 MAX: 2000 UNITS: centimeters

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9)

9999 = missing

### **FLD LEN: 1**

#### **SNOW-ACCUMULATION GREATEST AMOUNT IN 24 HOURS, FOR**

**THE MONTH condition code**

The code that denotes whether a SNOW-ACCUMULATION depth dimension was a trace value.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

1: Measurement impossible or inaccurate

2: Trace

3: The amount occurred on other dates in addition to those listed

4: Trace amount occurred on other dates in addition to those listed

**FLD LEN: 4**

**SNOW-ACCUMULATION GREATEST AMOUNT IN 24 HOURS, FOR THE MONTH dates of occurrence**

The dates of occurrence of SNOW-ACCUMULATION, given as the begin-end date for the 24-hour period, for up to 3 occurrences; e.g., 0405 indicates 24-hour period on days 04-05.

MIN: 0101 MAX: 3131

DOM: A general domain comprised of the numeric characters (0-9)

9999 = missing

**FLD LEN: 4**

**SNOW-ACCUMULATION GREATEST AMOUNT IN 24 HOURS, FOR THE MONTH dates of occurrence #2**

The dates of occurrence of SNOW-ACCUMULATION, given as the begin-end date for the 24-hour period, for up to 3 occurrences; e.g., 0405 indicates 24-hour period on days 04-05.

MIN: 0101 MAX: 3131

DOM: A general domain comprised of the numeric characters (0-9)

9999 = missing

**FLD LEN: 4**

**SNOW-ACCUMULATION GREATEST AMOUNT IN 24 HOURS, FOR THE MONTH dates of occurrence #3**

The dates of occurrence of SNOW-ACCUMULATION, given as the begin-end date for the 24-hour period, for up to 3 occurrences; e.g., 0405 indicates 24-hour period on days 04-05.

MIN: 0101 MAX: 3131

DOM: A general domain comprised of the numeric characters (0-9)

9999 = missing

**FLD LEN: 1**

**SNOW-ACCUMULATION GREATEST AMOUNT IN 24 HOURS, FOR THE MONTH quality code**

The code that denotes a quality status of the reported SNOW-ACCUMULATION data.

DOM: A specific domain comprised of the characters in the ASCII character set

- 9 = missing
  - 0: Passed gross limits check
  - 1: Passed all quality control checks
  - 2: Suspect
  - 3: Erroneous
  - 4: Passed gross limits check , data originate from an NCDC data source
  - 5: Passed all quality control checks, data originate from an NCDC data source
  - 6: Suspect, data originate from an NCDC data source
  - 7: Erroneous, data originate from an NCDC data source
  - 9: Passed gross limits check if element is present
- 

**FLD LEN: 3**

**SNOW-ACCUMULATION FOR THE MONTH occurrence identifier**

The identifier that represents SNOW-ACCUMULATION MONTHLY TOTAL

DOM: A specific domain comprised of the characters in the ASCII character set

AN1: An indicator of the following items:

- SNOW-ACCUMULATION FOR THE MONTH SNOW-ACCUMULATION period quantity
- SNOW-ACCUMULATION FOR THE MONTH SNOW ACCUMULATION FOR THE MONTH depth dimension
- SNOW-ACCUMULATION FOR THE MONTH condition code
- SNOW-ACCUMULATION FOR THE MONTH quality code

**FLD LEN: 3**

**SNOW-ACCUMULATION FOR THE MONTH**

**SNOW-ACCUMULATION period quantity**

The quantity of time over which the SNOW-ACCUMULATION occurred.

MIN: 001 MAX: 744 UNITS: hours

SCALING FACTOR: 1

DOM: A general domain comprised of the characters in the ASCII character set

999 = missing

**FLD LEN: 4**

**SNOW-ACCUMULATION FOR THE MONTH SNOW ACCUMULATION FOR THE MONTH depth dimension**

The depth of a SNOW-ACCUMULATION.

MIN: 0000 MAX: 9998 UNITS: centimeters

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9)

9999 = missing

**FLD LEN: 1**

**SNOW-ACCUMULATION FOR THE MONTH condition code**

The code that denotes specific conditions associated with the measurement of the

depth of a SNOW-ACCUMULATION.

DOM: A specific domain comprised of the characters in the ASCII character set

- 9 = missing
- 1: Measurement impossible or inaccurate
- 2: Snow cover not continuous
- 3: Trace
- 4: End accumulated period (data may include more than one month)
- 5: End deleted period (data eliminated due to quality problems)
- 6: End missing period
- 7: Data will be included in subsequent observation
- E: Estimated data value (eg, from nearby station)

**FLD LEN: 1**

**SNOW-ACCUMULATION FOR THE MONTH quality code**

The code that denotes a quality status of the reported SNOW-ACCUMULATION FOR THE MONTH.

DOM: A specific domain comprised of the characters in the ASCII character set

- 9 = missing
  - 0: Passed gross limits check
  - 1: Passed all quality control checks
  - 2: Suspect
  - 3: Erroneous
  - 4: Passed gross limits check , data originate from an NCDC data source
  - 5: Passed all quality control checks, data originate from an NCDC data source
  - 6: Suspect, data originate from an NCDC data source
  - 7: Erroneous, data originate from an NCDC data source
  - 9: Passed gross limits check if element is present
- 

**FLD LEN: 3**

**LIQUID-PRECIPIATION (By Minute) occurrence identifier**

The identifier that represents an episode of LIQUID-PRECIPIATION

DOM: A specific domain comprised of the characters in the ASCII character set

**AO4 - AO1:** An indicator of up to 4 repeating fields of the following items:

- LIQUID-PRECIPIATION (By Minute) period quantity in minutes
- LIQUID-PRECIPIATION (By Minute) depth dimension
- LIQUID-PRECIPIATION (By Minute) condition code
- LIQUID-PRECIPIATION (By Minute) quality code

**FLD LEN: 2**

**LIQUID-PRECIPIATION (By Minute) period quantity in minutes**

The quantity of time over which the LIQUID-PRECIPIATION was measured.

MIN: 00 MAX: 98 UNITS: minutes

SCALING FACTOR: 1

DOM: A specific domain comprised of the characters in the ASCII character set

- 99 = missing

**FLD LEN: 4**

**LIQUID-PRECIPIATION (By Minute) depth dimension**

The depth of LIQUID-PRECIPIATION that is measured at the time of an observation.

MIN: 0000 MAX: 9998 UNITS: millimeters

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9)  
9999 = missing

**FLD LEN: 1**

**LIQUID-PRECIPIATION (By Minute) condition code**

The code that denotes whether a LIQUID-PRECIPIATION depth dimension was a trace value.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing

1: Measurement impossible or inaccurate

2: Trace

3: Begin accumulated period (precip amount missing until end of accumulated period)

4: End accumulated period

5: Begin deleted period (precip amount missing due to data problem)

6: End deleted period

7: Begin missing period

8: End missing period

E: Estimated data value (eg, from nearby station)

I: Incomplete precipitation amount, excludes one or more missing reports, such as one or more 15-minute reports not included in the 1-hour precip total

J: Incomplete precipitation amount, excludes one or more erroneous reports, such as one or more 1-hour precip amounts excluded from the 24-hour total

**FLD LEN: 1**

**LIQUID-PRECIPIATION (By Minute) quality code**

The code that denotes a quality status of the reported LIQUID-PRECIPIATION data.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing

0: Passed gross limits check

1: Passed all quality control checks

2: Suspect

3: Erroneous

4: Passed gross limits check, from DSI-3260 or NCDC ASOS/AWOS

5: Passed all quality control checks, from DSI-3260 or NCDC ASOS/AWOS

6: Suspect, from DSI-3260 or NCDC ASOS/AWOS

7: Erroneous, from DSI-3260 or NCDC ASOS/AWOS

9: Passed gross limits check if element is present

---

**FLD LEN: 3**

**15 Minute LIQUID-PRECIPIATION occurrence identifier**

The identifier that represents an episode of LIQUID-PRECIPIATION

DOM: A specific domain comprised of the characters in the ASCII character set

**AP4 - AP1:** An indicator of up to 4 repeating fields of the following items:

15 Minute LIQUID-PRECIPIATION HPD (Hourly Precipitation Data network) gauge value

15 Minute LIQUID-PRECIPIATION HPD gauge value condition code

15 Minute LIQUID-PRECIPIATION HPD gauge value quality code

**FLD LEN: 4**

**15 Minute LIQUID-PRECIPIATION HPD (Hourly Precipitation Data network) gauge value**

The HPD Gauge value that is measured at the time indicated.

MIN: 0000 MAX: 9998 UNITS: millimeters

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9)

9999 = missing

**FLD LEN: 1**

**15 Minute LIQUID-PRECIPIATION HPD gauge value condition code**

Not used at this time. Value set to missing.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

**FLD LEN: 1**

**15 Minute LIQUID-PRECIPIATION HPD gauge value quality code**

The code that denotes a quality status of the reported gauge value.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

0: Passed gross limits check

1: Passed all quality control checks

2: Suspect

3: Erroneous

4: Passed gross limits check, data originate from an NCDC data source

5: Passed all quality control checks, data originate from an NCDC data source

6: Suspect, data originate from an NCDC data source

7: Erroneous, data originate from an NCDC data source

9: Passed gross limits check if element is present

---

**Weather Occurrence Data**

**FLD LEN: 3**

**Present Weather Observation Automated Occurrence (ASOS/AWOS only)  
occurrence identifier**

The identifier that signifies the reporting of present weather

DOM: A specific domain comprised of the characters in the ASCII character set

**AU9 - AU1:** An indicator of up to 9 repeating fields of the following items:

Present Weather Observation Automated Occurrence (ASOS/AWOS only) intensity and proximity code

Present Weather Observation Automated Occurrence (ASOS/AWOS only) descriptor code

Present Weather Observation Automated Occurrence (ASOS/AWOS only) precipitation code

Present Weather Observation Automated Occurrence (ASOS/AWOS only) obscuration code

Present Weather Observation Automated Occurrence (ASOS/AWOS only) Other weather phenomena code

Present Weather Observation Automated Occurrence (ASOS/AWOS only) Combination indicator code

Present Weather Observation Automated Occurrence (ASOS/AWOS only) quality code

**FLD LEN: 1**

**Present Weather Observation Automated Occurrence (ASOS/AWOS only)  
intensity and proximity code**

(missing)

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

0: Not Reported

1: Light (-)

2: Moderate or Not Reported (no entry in original observation)

3: Heavy (+)

4: Vicinity (VC)

**FLD LEN: 1**

**Present Weather Observation Automated Occurrence (ASOS/AWOS only)  
descriptor code**

(missing)

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

0: No Descriptor

1: Shallow (MI)

2: Partial (PR)

3: Patches (BC)

4: Low Drifting (DR)

5: Blowing (BL)

6: Shower(s) (SH)

7: Thunderstorm (TS)

8: Freezing (FZ)

**FLD LEN: 2**

**Present Weather Observation Automated Occurrence (ASOS/AWOS only)  
precipitation code**

(missing)

DOM: A specific domain comprised of the characters in the ASCII character set

- 99 = missing
- 00: No Precipitation
- 01: Drizzle (DZ)
- 02: Rain (RA)
- 03: Snow (SN)
- 04: Snow Grains (SG)
- 05: Ice Crystals (IC)
- 06: Ice Pellets (PL)
- 07: Hail (GR)
- 08: Small Hail and/or Snow Pellets (GS)
- 09: Unknown Precipitation (UP)

**FLD LEN: 1**

**Present Weather Observation Automated Occurrence (ASOS/AWOS only)  
obscuration code**

(missing)

DOM: A specific domain comprised of the characters in the ASCII character set

- 9 = missing
- 0: No Obscuration
- 1: Mist (BR)
- 2: Fog (FG)
- 3: Smoke (FU)
- 4: Volcanic Ash (VA)
- 5: Widespread Dust (DU)
- 6: Sand (SA)
- 7: Haze (HZ)
- 8: Spray (PY)

**FLD LEN: 1**

**Present Weather Observation Automated Occurrence (ASOS/AWOS only)  
Other weather phenomena code**

(missing)

DOM: A specific domain comprised of the characters in the ASCII character set

- 9 = missing
- 0: None Reported
- 1: Well-Developed Dust/Sand Whirls (PO)
- 2: Squalls (SQ)
- 3: Funnel Cloud, Tornado, Waterspout(FC)
- 4: Sandstorm (SS)
- 5: Duststorm (DS)

**FLD LEN: 1**

**Present Weather Observation Automated Occurrence (ASOS/AWOS only)  
Combination indicator code**

(missing)

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

1: Not part of combined weather elements

2: Beginning element of combined weather elements

3: Combined with previous weather element to form a single weather report

**FLD LEN: 1**

**Present Weather Observation Automated Occurrence (ASOS/AWOS only)  
quality code**

The code that denotes a quality status of the reported

PRESENT-WEATHER-OBSERVATION.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

0: Passed gross limits check

1: Passed all quality control checks

2: Suspect

3: Erroneous

4: Passed gross limits check , data originate from an NCDC data source

5: Passed all quality control checks, data originate from an NCDC data source

6: Suspect, data originate from an NCDC data source

7: Erroneous, data originate from an NCDC data source

9: Passed gross limits check if element is present

---

**FLD LEN: 3**

**PRESENT-WEATHER-OBSERVATION automated occurrence identifier**

The identifier that signifies the reporting of present weather

DOM: A specific domain comprised of the characters in the ASCII character set

**AW1:** An indicator of the following items:

PRESENT-WEATHER-OBSERVATION automated atmospheric condition code

PRESENT-WEATHER-OBSERVATION automated quality automated atmospheric condition code

**FLD LEN: 2**

**PRESENT-WEATHER-OBSERVATION automated atmospheric condition code**

The code that denotes a specific type of weather reported by an automated device.

DOM: A specific domain comprised of the characters in the ASCII character set

00: No significant weather observed

01: Clouds generally dissolving or becoming less developed

- 02: State of sky on the whole unchanged during the past hour
- 03: Clouds generally forming or developing during the past hour
- 04: Haze, smoke, or dust in suspension in the air, visibility equal to or greater than 1km
- 05: Smoke
- 07: Dust or sand raised by wind at or near the station at the time of observation, but no well-developed dust whirl(s) or sand whirl(s), and no duststorm or sandstorm seen or, in the case of ships, blowing spray at the station
- 10: Mist
- 11: Diamond dust
- 12: Distant lightning
- 18: Squalls
- 20: Fog
- 21: Precipitation
- 22: Drizzle (not freezing) or snow grains
- 23: Rain (not freezing)
- 24: Snow
- 25: Freezing drizzle or freezing rain
- 26: Thunderstorm (with or without precipitation)
- 27: Blowing or drifting snow or sand
- 28: Blowing or drifting snow or sand, visibility equal to or greater than 1 km
- 29: Blowing or drifting snow or sand, visibility less than 1 km
- 30: Fog
- 31: Fog or ice fog in patches
- 32: Fog or ice fog, has become thinner during the past hour
- 33: Fog or ice fog, no appreciable change during the past hour
- 34: Fog or ice fog, has begun or become thicker during the past hour
- 35: Fog, depositing rime
- 40: Precipitation
- 41: Precipitation, slight or moderate
- 42: Precipitation, heavy
- 43: Liquid precipitation, slight or moderate
- 44: Liquid precipitation, heavy
- 45: Solid precipitation, slight or moderate
- 46: Solid precipitation, heavy
- 47: Freezing precipitation, slight or moderate
- 48: Freezing precipitation, heavy
- 50: Drizzle
- 51: Drizzle, not freezing, slight
- 52: Drizzle, not freezing, moderate
- 53: Drizzle, not freezing, heavy
- 54: Drizzle, freezing, slight
- 55: Drizzle, freezing, moderate
- 56: Drizzle, freezing, heavy
- 57: Drizzle and rain, slight
- 58: Drizzle and rain, moderate or heavy
- 60: Rain

- 61: Rain, not freezing, slight
- 62: Rain, not freezing, moderate
- 63: Rain, not freezing, heavy
- 64: Rain, freezing, slight
- 65: Rain, freezing, moderate
- 66: Rain, freezing, heavy
- 67: Rain or drizzle and snow, slight
- 68: Rain or drizzle and snow, moderate or heavy
- 70: Snow
- 71: Snow, slight
- 72: Snow, moderate
- 73: Snow, heavy
- 74: Ice pellets, slight
- 75: Ice pellets, moderate
- 76: Ice pellets, heavy
- 80: Showers or intermittent precipitation
- 81: Rain showers or intermittent rain, slight
- 82: Rain showers or intermittent rain, moderate
- 83: Rain showers or intermittent rain, heavy
- 84: Rain showers or intermittent rain, violent
- 85: Snow showers or intermittent rain, slight
- 86: Snow showers or intermittent rain, moderate
- 87: Snow showers or intermittent rain, heavy
- 90: Thunderstorm
- 91: Thunderstorm, slight or moderate, with no precipitation
- 92: Thunderstorm, slight or moderate, with rain showers and/or snow showers
- 93: Thunderstorm, slight or moderate, with hail
- 94: Thunderstorm, heavy, with no precipitation
- 95: Thunderstorm, heavy, with rain showers and/or snow
- 96: Thunderstorm, heavy, with hail
- 99: Tornado

**FLD LEN: 1**

**PRESENT-WEATHER-OBSERVATION automated quality automated atmospheric condition code**

The code that denotes a quality status of a reported present weather observation from an automated station.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

0: Passed gross limits check

1: Passed all quality control checks

2: Suspect

3: Erroneous

4: Passed gross limits check , data originate from an NCDC data source

5: Passed all quality control checks, data originate from an NCDC data source

- 6: Suspect, data originate from an NCDC data source
  - 7: Erroneous, data originate from an NCDC data source
  - 9: Passed gross limits check if element is present
- 

**FLD LEN: 3**

**PAST-WEATHER-OBSERVATION summary of day occurrence identifier**

The identifier that signifies the reporting of past weather as summarized for the calendar day

DOM: A specific domain comprised of the characters in the ASCII character set

**AX6 - AX1:** An indicator of up to 6 repeating fields of the following items:

PAST-WEATHER-OBSERVATION summary of day Atmospheric condition code

PAST-WEATHER-OBSERVATION summary of day Quality manual atmospheric condition code

PAST-WEATHER-OBSERVATION summary of day Period quantity

PAST-WEATHER-OBSERVATION summary of day Period quality code

**FLD LEN: 2**

**PAST-WEATHER-OBSERVATION summary of day Atmospheric condition code**

The code that denotes a specific type of past weather observed.

DOM: A specific domain comprised of the characters in the ASCII character set

99 = missing

00: none to report

01: fog

02: fog reducing visibility to mile or less

03: thunder

04: ice pellets

05: hail

06: glaze or rime

07: blowing dust or sand, visibility mile or less

08: smoke or haze

09: blowing snow

10: tornado

11: high or damaging winds

**FLD LEN: 1**

**PAST-WEATHER-OBSERVATION summary of day Quality manual atmospheric condition code**

The code that denotes a quality status of a reported past weather observation from a manual station.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

4: Passed gross limits check, data originate from an NCDC data source

5: Passed all quality control checks, data originate from an NCDC data source

- 6: Suspect, data originate from an NCDC data source
- 7: Erroneous, data originate from an NCDC data source
- 9: Passed gross limits check if element is present

**FLD LEN: 2**

**PAST-WEATHER-OBSERVATION summary of day Period quantity**

The quantity of time over which a PAST-WEATHER-OBSERVATION occurred.

MIN: 24 MAX: 24 UNITS: hours

DOM: A general domain comprised of the characters in the ASCII character set  
99 = missing

**FLD LEN: 1**

**PAST-WEATHER-OBSERVATION summary of day Period quality code**

The code that denotes a quality status of a reported past weather period.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing

- 4: Passed gross limits check, data originate from an NCDC data source
  - 5: Passed all quality control checks, data originate from an NCDC data source
  - 6: Suspect, data originate from an NCDC data source
  - 7: Erroneous, data originate from an NCDC data source
  - 9: Passed gross limits check if element is present
- 

**FLD LEN: 3**

**PAST-WEATHER-OBSERVATION manual occurrence identifier**

The identifier that signifies the reporting of past weather

DOM: A specific domain comprised of the characters in the ASCII character set

**AY2 - AY1:** An indicator of up to 2 repeating fields of the following items:

- PAST-WEATHER-OBSERVATION manual atmospheric condition code
- PAST-WEATHER-OBSERVATION manual Quality manual atmospheric condition code
- PAST-WEATHER-OBSERVATION manual Period quantity
- PAST-WEATHER-OBSERVATION manual Period quality code

**FLD LEN: 1**

**PAST-WEATHER-OBSERVATION manual atmospheric condition code**

The code that denotes a specific type of past weather observed manually.

DOM: A specific domain comprised of the characters in the ASCII character set

- 0: Cloud covering 1/2 or less of the sky throughout the appropriate period
- 1: Cloud covering more than 1/2 of the sky during part of the appropriate period and covering 1/2 or less during part of the period
- 2: Cloud covering more than 1/2 of the sky throughout the appropriate period
- 3: Sandstorm, duststorm or blowing snow

- 4: Fog or ice fog or thick haze
- 5: Drizzle
- 6: Rain
- 7: Snow, or rain and snow mixed
- 8: Shower(s)
- 9: Thunderstorm(s) with or without precipitation

**FLD LEN: 1**

**PAST-WEATHER-OBSERVATION manual Quality manual atmospheric condition code**

The code that denotes a quality status of a reported past weather observation from a manual

DOM: A specific domain comprised of the characters in the ASCII character set

- 9 = missing
- 0: Passed gross limits check
- 1: Passed all quality control checks
- 2: Suspect
- 3: Erroneous
- 9: Passed gross limits check if element is present

**FLD LEN: 2**

**PAST-WEATHER-OBSERVATION manual Period quantity**

The quantity of time over which a PAST-WEATHER-OBSERVATION occurred.

MIN: 01 MAX: 24 UNITS: hours

DOM: A general domain comprised of the characters in the ASCII character set

- 99 = missing

**FLD LEN: 1**

**PAST-WEATHER-OBSERVATION manual Period quality code**

The code that denotes a quality status of a reported past weather period.

DOM: A specific domain comprised of the characters in the ASCII character set

- 9 = missing
- 0: Passed gross limits check
- 1: Passed all quality control checks
- 2: Suspect
- 3: Erroneous
- 9: Passed gross limits check if element is present

---

**FLD LEN: 3**

**PAST-WEATHER-OBSERVATION automated occurrence identifier**

The identifier that signifies the reporting of present weather

DOM: A specific domain comprised of the characters in the ASCII character set

**AZ2 - AZ1:** An indicator of up to 2 repeating fields of the following items:

- PAST-WEATHER-OBSERVATION automated atmospheric condition

code  
PAST-WEATHER-OBSERVATION automated Quality automated  
atmospheric condition code  
PAST-WEATHER-OBSERVATION automated Period quantity  
PAST-WEATHER-OBSERVATION automated Period quality code

**FLD LEN: 1**

**PAST-WEATHER-OBSERVATION automated atmospheric condition code**

The code that denotes a specific type of past weather reported by an automated device.

DOM: A specific domain comprised of the characters in the ASCII character set

- 0: No significant weather observed
- 1: Visibility reduced
- 2: Blowing phenomena, visibility reduced
- 3: Fog
- 4: Precipitation
- 5: Drizzle
- 6: Rain
- 7: Snow or ice pellets
- 8: Showers or intermittent precipitation
- 9: Thunderstorm

**FLD LEN: 1**

**PAST-WEATHER-OBSERVATION automated Quality automated atmospheric condition code**

The code that denotes a quality status of a reported past weather observation from an automated station.

DOM: A specific domain comprised of the characters in the ASCII character set

- 9 = missing
- 0: Passed gross limits check
- 1: Passed all quality control checks
- 2: Suspect
- 3: Erroneous
- 9: Passed gross limits check if element is present

**FLD LEN: 2**

**PAST-WEATHER-OBSERVATION automated Period quantity**

The quantity of time over which a PAST-WEATHER-OBSERVATION occurred.

MIN: 01 MAX: 24 UNITS: hours

DOM: A general domain comprised of the characters in the ASCII character set

99 = missing

**FLD LEN: 1**

**PAST-WEATHER-OBSERVATION automated Period quality code**

The code that denotes a quality status of a reported past weather period.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
0: Passed gross limits check  
1: Passed all quality control checks  
2: Suspect  
3: Erroneous  
9: Passed gross limits check if element is present

---

## **Climate Reference Network Unique Data**

### **FLD LEN: 3**

#### **Subhourly Observed Liquid Precipitation Section: Secondary Sensor (CRN) occurrence identifier**

The identifier that indicates the presence of a liquid precipitation measurement made by a secondary precipitation sensor

DOM: A specific domain comprised of the characters in the ASCII character set

**CB2 - CB1:** An indicator of up to 2 repeating fields of the following items:

Subhourly Observed Liquid Precipitation Section: Secondary Sensor (CRN) PRECIP period quantity

Subhourly Observed Liquid Precipitation Section: Secondary Sensor (CRN) PRECIP liquid depth

Subhourly Observed Liquid Precipitation Section: Secondary Sensor (CRN) QC quality code

Subhourly Observed Liquid Precipitation Section: Secondary Sensor (CRN) PRECIP\_FLAG quality code

### **FLD LEN: 2**

#### **Subhourly Observed Liquid Precipitation Section: Secondary Sensor (CRN) PRECIP period quantity**

The quantity of time for which the gauge depth was measured.

MIN: 05 MAX: 60 UNITS: minutes

DOM: A specific domain comprised of the characters in the ASCII character set  
99 = missing

### **FLD LEN: 6**

#### **Subhourly Observed Liquid Precipitation Section: Secondary Sensor (CRN) PRECIP liquid depth**

The observed liquid precipitation measurement from the secondary precipitation sensor.

MIN: -99999 MAX: +99999 UNITS: millimeters

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9)  
999999 = missing

### **FLD LEN: 1**

**Subhourly Observed Liquid Precipitation Section: Secondary Sensor (CRN)  
QC quality code**

The code that indicates ISD's evaluation of the quality status of the liquid precipitation measurement from the secondary precipitation sensor.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

1: Passed all quality control checks

3: Failed all quality control checks

**FLD LEN: 1**

**Subhourly Observed Liquid Precipitation Section: Secondary Sensor (CRN)  
PRECIP\_FLAG quality code**

The code that indicates the network's internal evaluation of the quality status of the reported LIQUID-PRECIPIATION data. Most users will find the preceding quality code DEPTH\_QC to be the simplest and most useful quality indicator.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

0: Passed all quality control checks

---

**FLD LEN: 3**

**Hourly Fan Speed Section (CRN) occurrence identifier**

The identifier that indicates an hourly observation of the fan speed from an aspirated shield housing the temperature sensor. Three instances of this section appear in the last ISD record of the hour

DOM: A specific domain comprised of the characters in the ASCII character set

**CF3 - CF1:** An indicator of up to 3 repeating fields of the following items:

Hourly Fan Speed Section (CRN) FAN The average fan speed for the hour.

Hourly Fan Speed Section (CRN) FAN\_QC quality code

Hourly Fan Speed Section (CRN) FAN\_QC\_FLAG quality code

**FLD LEN: 4**

**Hourly Fan Speed Section (CRN) FAN The average fan speed for the hour.**

MIN: - 0000 MAX: 9998 UNITS: rotations per second

MIN: 0000 MAX: 9998 UNITS: Rotations Per Second

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9)

9999 = missing

**FLD LEN: 1**

**Hourly Fan Speed Section (CRN) FAN\_QC quality code**

The code that indicates ISD's evaluation of the quality status of the average fan speed for the hour.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

1: Passed all quality control checks

3: Failed all quality control checks

**FLD LEN: 1**

**Hourly Fan Speed Section (CRN) FAN\_QC\_FLAG quality code**

A flag that indicates the network's internal evaluation of the quality status of the average fan speed for the hour. Most users will find the preceding quality code FAN\_QC to be the simplest and most useful quality indicator.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
0: Passed all quality control checks

---

**FLD LEN: 3**

**Subhourly Observed Liquid Precipitation Section: Primary Sensor (CRN) occurrence identifier**

The identifier that indicates the presence of three concurrent precipitation depth observations made by co-located sensors on the primary precipitation gauge. Three instances of this section (corresponding to the three precipitation sensors) appear in each of the twelve 5-minute data stream records

DOM: A specific domain comprised of the characters in the ASCII character set

**CG3 - CG1:** An indicator of up to 3 repeating fields of the following items:

Subhourly Observed Liquid Precipitation Section: Primary Sensor (CRN) DEPTH liquid depth

Subhourly Observed Liquid Precipitation Section: Primary Sensor (CRN) DEPTH\_QC quality code

Subhourly Observed Liquid Precipitation Section: Primary Sensor (CRN) DEPTH\_FLAG quality code

**FLD LEN: 6**

**Subhourly Observed Liquid Precipitation Section: Primary Sensor (CRN) DEPTH liquid depth**

The observed gauge depth.

MIN: -99999 MAX: +99999 UNITS: millimeters

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9)  
999999 = missing

**FLD LEN: 1**

**Subhourly Observed Liquid Precipitation Section: Primary Sensor (CRN) DEPTH\_QC quality code**

The code that indicates ISD's evaluation of the quality status of the observed depth.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
1: Passed all quality control checks  
3: Failed all quality control checks

**FLD LEN: 1**

**Subhourly Observed Liquid Precipitation Section: Primary Sensor (CRN)  
DEPTH\_FLAG quality code**

The code that indicates the network's internal evaluation of the quality status of the observed depth. Most users will find the preceding quality code DEPTH\_QC to be the simplest and most useful quality indicator.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
0: Passed all quality control checks

---

**FLD LEN: 3**

**Hourly Relative Humidity/Temperature Section (CRN) occurrence identifier**

The identifier that indicates an hourly observation of relative humidity and temperature measured at the relative humidity instrument. This section appears in the last ISD record of the hour

DOM: A specific domain comprised of the characters in the ASCII character set

**CH2 - CH1:** An indicator of up to 2 repeating fields of the following items:

Hourly Relative Humidity/Temperature Section (CRN) Period quantity in minutes

Hourly Relative Humidity/Temperature Section (CRN) AVG\_RH\_TEMP hourly average air temperature

Hourly Relative Humidity/Temperature Section (CRN) AVG\_RH\_TEMP\_QC quality code

Hourly Relative Humidity/Temperature Section (CRN) AVG\_RH\_TEMP\_FLAG quality code

Hourly Relative Humidity/Temperature Section (CRN) AVG\_RH hourly average relative humidity

Hourly Relative Humidity/Temperature Section (CRN) AVG\_RH\_QC quality code

Hourly Relative Humidity/Temperature Section (CRN) AVG\_RH\_FLAG quality code

**FLD LEN: 2**

**Hourly Relative Humidity/Temperature Section (CRN) Period quantity in minutes**

The quantity of time over which the RELATIVE HUMIDITY/TEMPERATURE was measured.

MIN: 00 MAX: 60 UNITS: minutes

SCALING FACTOR: 1

DOM: A specific domain comprised of the characters in the ASCII character set  
99 = missing

**FLD LEN: 5**

**Hourly Relative Humidity/Temperature Section (CRN) AVG\_RH\_TEMP  
hourly average air temperature**

The hourly average air temperature measured at the relative humidity instrument.  
MIN: -9999 MAX: +9998 UNITS: degrees celsius  
SCALING FACTOR: 10  
DOM: A general domain comprised of the numeric characters (0-9)  
+9999 = missing

**FLD LEN: 1**

**Hourly Relative Humidity/Temperature Section (CRN) AVG\_  
RH\_TEMP\_QC quality code**

The code that indicates ISD's evaluation of the quality status of the hourly average air temperature measured at the relative humidity instrument.  
DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
1: Passed all quality control checks  
3: Failed all quality control checks

**FLD LEN: 1**

**Hourly Relative Humidity/Temperature Section (CRN) AVG\_  
RH\_TEMP\_FLAG quality code**

The code that indicates the network's internal evaluation of the quality status of the hourly average air temperature measured at the relative humidity instrument. Most users will find the preceding quality code AVG\_RH\_TEMP\_QC to be the simplest and most useful quality indicator.  
DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
0: Passed all quality control checks

**FLD LEN: 4**

**Hourly Relative Humidity/Temperature Section (CRN) AVG\_RH hourly  
average relative humidity**

The hourly average relative humidity measured at the relative humidity instrument.  
MIN: 0000 MAX: 1000 UNITS: percent  
SCALING FACTOR: 10  
DOM: A general domain comprised of the numeric characters (0-9)  
9999 = missing

**FLD LEN: 1**

**Hourly Relative Humidity/Temperature Section (CRN) AVG\_RH\_QC  
quality code**

The code that indicates ISD's evaluation of the quality status of the hourly average relative humidity.  
DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
1: Passed all quality control checks  
3: Failed all quality control checks

**FLD LEN: 1**

**Hourly Relative Humidity/Temperature Section (CRN) AVG\_RH\_FLAG quality code**

The code that indicates the network's internal evaluation of the quality status of the hourly average relative humidity. Most users will find the preceding quality code AVG\_RH\_QC to be the simplest and most useful quality indicator.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

0: Passed all quality control checks

---

**FLD LEN: 3**

**Hourly Relative Humidity/Temperature Section (CRN) (continued) occurrence identifier**

The identifier that indicates an hourly observation of relative humidity and temperature measured at the relative humidity instrument. This section appears in the last ISD record of the hour

DOM: A specific domain comprised of the characters in the ASCII character set

**CII:** An indicator of the following items:

Hourly Relative Humidity/Temperature Section (CRN) (continued) MIN\_RH\_TEMP hourly air temperature

Hourly Relative Humidity/Temperature Section (CRN) (continued) MIN\_RH\_TEMP\_QC quality code

Hourly Relative Humidity/Temperature Section (CRN) (continued) MIN\_RH\_TEMP\_FLAG quality code

Hourly Relative Humidity/Temperature Section (CRN) (continued) MAX\_RH\_TEMP hourly air temperature

Hourly Relative Humidity/Temperature Section (CRN) (continued) MAX\_RH\_TEMP\_QC quality code

Hourly Relative Humidity/Temperature Section (CRN) (continued) MAX\_RH\_TEMP\_FLAG quality code

Hourly Relative Humidity/Temperature Section (CRN) (continued) STD\_RH\_TEMP hourly air temperature standard deviation

Hourly Relative Humidity/Temperature Section (CRN) (continued) STD\_RH\_TEMP\_QC quality code

Hourly Relative Humidity/Temperature Section (CRN) (continued) STD\_RH\_TEMP\_FLAG quality code

Hourly Relative Humidity/Temperature Section (CRN) (continued) STD\_RH hourly relative humidity standard deviation

Hourly Relative Humidity/Temperature Section (CRN) (continued) STD\_RH\_QC quality code

Hourly Relative Humidity/Temperature Section (CRN) (continued) STD\_RH\_FLAG quality code

**FLD LEN: 5**

**Hourly Relative Humidity/Temperature Section (CRN) (continued) MIN\_**

**RH\_TEMP hourly air temperature**

The minimum air temperature measured at the relative humidity instrument.

MIN: -9999 MAX: +9999 UNITS: degrees celsius

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9)

99999 = missing

**FLD LEN: 1**

**Hourly Relative Humidity/Temperature Section (CRN) (continued) MIN\_RH\_TEMP\_QC quality code**

The code that indicates ISD's evaluation of the quality status of the minimum hourly air temperature measured at the relative humidity instrument.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

1: Passed all quality control checks

3: Failed all quality control checks

**FLD LEN: 1**

**Hourly Relative Humidity/Temperature Section (CRN) (continued) MIN\_RH\_TEMP\_FLAG quality code**

The code that indicates the network's internal evaluation of the quality status of the minimum hourly air temperature measured at the relative humidity instrument. Most users will find the preceding quality code

AVG\_RH\_TEMP\_QC to be the simplest and most useful quality indicator.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

0: Passed all quality control checks

**FLD LEN: 5**

**Hourly Relative Humidity/Temperature Section (CRN) (continued) MAX\_RH\_TEMP hourly air temperature**

The maximum air temperature measured at the relative humidity instrument.

MIN: -9999 MAX: +9999 UNITS: degrees celsius

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9)

99999 = missing

**FLD LEN: 1**

**Hourly Relative Humidity/Temperature Section (CRN) (continued) MAX\_RH\_TEMP\_QC quality code**

The code that indicates ISD's evaluation of the quality status of the maximum hourly air temperature measured at the relative humidity instrument.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

1: Passed all quality control checks

3: Failed all quality control checks

**FLD LEN: 1**

**Hourly Relative Humidity/Temperature Section (CRN) (continued) MAX\_RH\_TEMP\_FLAG quality code**

The code that indicates the network's internal evaluation of the quality status of the maximum hourly air temperature measured at the relative humidity instrument. Most users will find the preceding quality code AVG\_RH\_TEMP\_QC to be the simplest and most useful quality indicator.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

0: Passed all quality control checks

**FLD LEN: 5**

**Hourly Relative Humidity/Temperature Section (CRN) (continued) STD\_RH\_TEMP hourly air temperature standard deviation**

The standard deviation for the hourly air temperature measured at the relative humidity instrument.

MIN: 00000 MAX: 99999 UNITS: degrees celsius

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9)

99999 = missing

**FLD LEN: 1**

**Hourly Relative Humidity/Temperature Section (CRN) (continued) STD\_RH\_TEMP\_QC quality code**

The code that indicates ISD's evaluation of the quality status of the standard deviation for the air temperature measured at the relative humidity instrument.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

1: Passed all quality control checks

3: Failed all quality control checks

**FLD LEN: 1**

**Hourly Relative Humidity/Temperature Section (CRN) (continued) STD\_RH\_TEMP\_FLAG quality code**

The code that indicates the network's internal evaluation of the quality status of the standard deviation for the air temperature measured at the relative humidity instrument. Most users will find the preceding quality code STD\_RH\_TEMP\_QC to be the simplest and most useful quality indicator.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

0: Passed all quality control checks

**FLD LEN: 5**

**Hourly Relative Humidity/Temperature Section (CRN) (continued) STD\_RH hourly relative humidity standard deviation**

The hourly relative humidity standard deviation.  
MIN: 00000 MAX: 99999  
SCALING FACTOR: 10  
DOM: A general domain comprised of the numeric characters (0-9)  
99999 = missing

**FLD LEN: 1**

**Hourly Relative Humidity/Temperature Section (CRN) (continued)**

**STD\_RH\_QC quality code**

The code that indicates ISD's evaluation of the quality status of the hourly relative humidity standard deviation.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
1: Passed all quality control checks  
3: Failed all quality control checks

**FLD LEN: 1**

**Hourly Relative Humidity/Temperature Section (CRN) (continued)**

**STD\_RH\_FLAG quality code**

The code that indicates the network's internal evaluation of the quality status of the hourly relative humidity standard deviation. Most users will find the preceding quality code STD\_RH\_QC to be the simplest and most useful quality indicator.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
0: Passed all quality control checks

---

**FLD LEN: 3**

**Hourly Battery Voltage Section (CRN) occurrence identifier**

The identifier that indicates an hourly observation of battery voltages. This section appears in the last ISD record of the hour

DOM: A specific domain comprised of the characters in the ASCII character set

**CN1:** An indicator of the following items:

- Hourly Battery Voltage Section (CRN) BATVOL average voltage
- Hourly Battery Voltage Section (CRN) BATVOL\_QC quality code
- Hourly Battery Voltage Section (CRN) BATVOL\_QC\_FLAG quality code
- Hourly Battery Voltage Section (CRN) BATVOL\_FL average voltage
- Hourly Battery Voltage Section (CRN) BATVOL\_FL\_QC quality code
- Hourly Battery Voltage Section (CRN) BATVOL\_FL\_QC\_FLAG quality code
- Hourly Battery Voltage Section (CRN) BATVOL\_DL average voltage
- Hourly Battery Voltage Section (CRN) BATVOL\_DL\_QC quality code
- Hourly Battery Voltage Section (CRN) BATVOL\_DL\_QC\_FLAG quality code

**FLD LEN: 4**

**Hourly Battery Voltage Section (CRN) BATVOL average voltage**

The hourly average voltage for the batteries powering the sensors and the transmitter.

MIN: 0000 MAX: 9999 UNITS: volts

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9)  
9999 = missing

**FLD LEN: 1**

**Hourly Battery Voltage Section (CRN) BATVOL\_QC quality code**

The code that indicates ISD's evaluation of the quality status of the hourly average station battery voltage.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
1: Passed all quality control checks  
3: Failed all quality control checks

**FLD LEN: 1**

**Hourly Battery Voltage Section (CRN) BATVOL\_QC\_FLAG quality code**

A flag that indicates the network's internal evaluation of the quality status of the hourly average station battery voltage. Most users will find the preceding quality code BATVOL\_QC to be the simplest and most useful quality indicator.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
0: Passed all quality control checks

**FLD LEN: 4**

**Hourly Battery Voltage Section (CRN) BATVOL\_FL average voltage**

The voltage for the batteries powering the observing station while the station is transmitting (full load).

MIN: 0000 MAX: 9999 UNITS: volts

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9)  
9999 = missing

**FLD LEN: 1**

**Hourly Battery Voltage Section (CRN) BATVOL\_FL\_QC quality code**

The code that indicates ISD's evaluation of the quality status of the battery voltage under full load.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
1: Passed all quality control checks  
3: Failed all quality control checks

**FLD LEN: 1**

**Hourly Battery Voltage Section (CRN) BATVOL\_FL\_QC\_FLAG quality code**

A flag that indicates the network's internal evaluation of the quality status of battery voltage under full load. Most users will find the preceding quality code BATVOL\_FL\_QC to be the simplest and most useful quality indicator.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
0: Passed all quality control checks

**FLD LEN: 4**

**Hourly Battery Voltage Section (CRN) BATVOL\_DL average voltage**

The voltage for the batteries powering the datalogger.

MIN: 0000 MAX: 9999 UNITS: volts

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9)  
9999 = missing

**FLD LEN: 1**

**Hourly Battery Voltage Section (CRN) BATVOL\_DL\_QC quality code**

The code that indicates ISD's evaluation of the quality status of the datalogger battery voltage.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
1: Passed all quality control checks  
3: Failed all quality control checks

**FLD LEN: 1**

**Hourly Battery Voltage Section (CRN) BATVOL\_DL\_QC\_FLAG quality code**

A flag that indicates the network's internal evaluation of the quality status of the datalogger battery voltage. Most users will find the preceding quality code BATVOL\_DL\_QC to be the simplest and most useful quality indicator.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
0: Passed all quality control checks

---

**FLD LEN: 3**

**Hourly Diagnostic Section (CRN) occurrence identifier**

The identifier that indicates an hourly observation of miscellaneous diagnostic data. This section appears in the last ISD record of the hour

DOM: A specific domain comprised of the characters in the ASCII character set

CN2: An indicator of the following items:

- Hourly Diagnostic Section (CRN) TPANEL equipment temperature
- Hourly Diagnostic Section (CRN) TPANEL\_QC quality code
- Hourly Diagnostic Section (CRN) TPANEL\_FLAG quality code

Hourly Diagnostic Section (CRN) TINLET\_MAX equipment temperature  
Hourly Diagnostic Section (CRN) TINLET\_MAX\_QC quality code  
Hourly Diagnostic Section (CRN) TINLET\_MAX\_FLAG quality code  
Hourly Diagnostic Section (CRN) OPENDOOR\_TM equipment status  
Hourly Diagnostic Section (CRN) OPENDOOR\_TM\_QC quality code  
Hourly Diagnostic Section (CRN) OPENDOOR\_TM\_FLAG quality code

**FLD LEN: 5**

**Hourly Diagnostic Section (CRN) TPANEL equipment temperature**

The temperature of the datalogger panel.

MIN: -9999 MAX: +9999 UNITS: degrees celsius

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9)  
99999 = missing

**FLD LEN: 1**

**Hourly Diagnostic Section (CRN) TPANEL\_QC quality code**

The code that indicates ISD's evaluation of the quality status of the datalogger panel temperature.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
1: Passed all quality control checks  
3: Failed all quality control checks

**FLD LEN: 1**

**Hourly Diagnostic Section (CRN) TPANEL\_FLAG quality code**

A flag that indicates the network's internal evaluation of the quality status of the datalogger panel temperature. Most users will find the preceding quality code TPANEL\_QC to be the simplest and most useful quality indicator.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
0: Passed all quality control checks

**FLD LEN: 5**

**Hourly Diagnostic Section (CRN) TINLET\_MAX equipment temperature**

The maximum temperature of the Geonor inlet for the hour.

MIN: -9999 MAX: +9999 UNITS: degrees celsius

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9)  
99999 = missing

**FLD LEN: 1**

**Hourly Diagnostic Section (CRN) TINLET\_MAX\_QC quality code**

The code that indicates ISD's evaluation of the quality status of the maximum temperature of the Geonor inlet for the hour.

DOM: A specific domain comprised of the characters in the ASCII character set

- 9 = missing
- 1: Passed all quality control checks
- 3: Failed all quality control checks

**FLD LEN: 1**

**Hourly Diagnostic Section (CRN) TINLET\_MAX\_FLAG quality code**

A flag that indicates the network's internal evaluation of the quality status of the maximum temperature of the Geonor inlet for the hour. Most users will find the preceding quality code TINLET\_QC to be the simplest and most useful quality indicator.

DOM: A specific domain comprised of the characters in the ASCII character set

- 9 = missing
- 0: Passed all quality control checks

**FLD LEN: 2**

**Hourly Diagnostic Section (CRN) OPENDOOR\_TM equipment status**

The time in minutes the datalogger door was open during the hour.

MIN: 00 MAX: 60 UNITS: minutes

DOM: A general domain comprised of the numeric characters (0-9)

- 99 = missing

**FLD LEN: 1**

**Hourly Diagnostic Section (CRN) OPENDOOR\_TM\_QC quality code**

The code that indicates ISD's evaluation of the quality status of the time the datalogger door was open.

DOM: A specific domain comprised of the characters in the ASCII character set

- 9 = missing
- 1: Passed all quality control checks
- 3: Failed all quality control checks

**FLD LEN: 1**

**Hourly Diagnostic Section (CRN) OPENDOOR\_TM\_FLAG quality code**

A flag that indicates the network's internal evaluation of the quality status of the time the datalogger door was open. Most users will find the preceding quality code OPENDOOR\_TM\_QC to be the simplest and most useful quality

DOM: A specific domain comprised of the characters in the ASCII character set

- 9 = missing
- 0: Passed all quality control checks

---

**FLD LEN: 3**

**Secondary Hourly Diagnostic Section (CRN) occurrence identifier**

The identifier that indicates an hourly observation of miscellaneous diagnostic data. This section appears in the last ISD record of the hour

DOM: A specific domain comprised of the characters in the ASCII character set

**CN3:** An indicator of the following items:

Secondary Hourly Diagnostic Section (CRN) REFRESAVG resistance  
Secondary Hourly Diagnostic Section (CRN) REFRESAVG\_QC quality  
code  
Secondary Hourly Diagnostic Section (CRN) REFRESAVG\_FLAG quality  
code  
Secondary Hourly Diagnostic Section (CRN) DSIGNATURE identifier  
Secondary Hourly Diagnostic Section (CRN) DSIGNATURE\_QC quality  
code  
Secondary Hourly Diagnostic Section (CRN) DSIGNATURE\_FLAG  
quality code

**FLD LEN: 6**

**Secondary Hourly Diagnostic Section (CRN) REFRESAVG resistance**

The reference resistor average.

MIN: 000000 MAX: 999999 UNITS: ohms

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9)  
999999 = missing

**FLD LEN: 1**

**Secondary Hourly Diagnostic Section (CRN) REFRESAVG\_QC quality code**

The code that indicates ISD's evaluation of the quality status of the datalogger  
reference resistor average.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
1: Passed all quality control checks  
3: Failed all quality control checks

**FLD LEN: 1**

**Secondary Hourly Diagnostic Section (CRN) REFRESAVG\_FLAG quality  
code**

A flag that indicates the network's internal evaluation of the quality status of the  
reference resistor average. Most users will find the preceding quality code  
REFRESAVG\_QC to be the simplest and most useful quality indicator.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
0: Passed all quality control checks

**FLD LEN: 6**

**Secondary Hourly Diagnostic Section (CRN) DSIGNATURE identifier**

A signature generated by the datalogger which changes if there is a content or  
sequence change in the datalogger programs.

MIN: 000000 MAX: 999999

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9)  
999999 = missing

**FLD LEN: 1**

**Secondary Hourly Diagnostic Section (CRN) DSIGNATURE\_QC quality code**

The code that indicates ISD's evaluation of the quality status of the datalogger signature.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
1: Passed all quality control checks  
3: Failed all quality control checks

**FLD LEN: 1**

**Secondary Hourly Diagnostic Section (CRN) DSIGNATURE\_FLAG quality code**

A flag that indicates the network's internal evaluation of the quality status of the datalogger signature. Most users will find the preceding quality code DSIGNATURE\_QC to be the simplest and most useful quality indicator.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
0: Passed all quality control checks

---

**FLD LEN: 3**

**Secondary Hourly Diagnostic Section (CRN) (continued) occurrence identifier**

The identifier that indicates another hourly observation of miscellaneous diagnostic data. This section appears in the last ISD record of the hour

DOM: A specific domain comprised of the characters in the ASCII character set

**CN4:** An indicator of the following items:

- Secondary Hourly Diagnostic Section (CRN)  
(continued) LIQUID-PRECIPITATION gauge heater flag bit field
- Secondary Hourly Diagnostic Section (CRN)  
(continued) LIQUID-PRECIPITATION gauge heater flag quality code
- Secondary Hourly Diagnostic Section (CRN)  
(continued) LIQUID-PRECIPITATION gauge heater flag quality code #2
- Secondary Hourly Diagnostic Section (CRN) (continued) DOORFLAG field
- Secondary Hourly Diagnostic Section (CRN) (continued) DOORFLAG field quality code
- Secondary Hourly Diagnostic Section (CRN) (continued) DOORFLAG field quality code #2
- Secondary Hourly Diagnostic Section (CRN) (continued) FORTTRANS wattage
- Secondary Hourly Diagnostic Section (CRN) (continued) FORTTRANS wattage quality code
- Secondary Hourly Diagnostic Section (CRN) (continued) FORTTRANS wattage quality code #2
- Secondary Hourly Diagnostic Section (CRN) (continued) REFLTRANS

wattage  
Secondary Hourly Diagnostic Section (CRN) (continued) REFLTRANS  
wattage quality code  
Secondary Hourly Diagnostic Section (CRN) (continued) REFLTRANS  
wattage quality code #2

**FLD LEN: 1**

**Secondary Hourly Diagnostic Section (CRN) (continued)**

**LIQUID-PRECIPIATION gauge heater flag bit field**

The code that indicates the gauge heater flag bit field setting.

MIN: 0 MAX: 9

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

0: Off

1: On

**FLD LEN: 1**

**Secondary Hourly Diagnostic Section (CRN) (continued)**

**LIQUID-PRECIPIATION gauge heater flag quality code**

The code that indicates ISD's evaluation of the quality status of the gauge heater flag code.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

1: Passed all quality control checks

3: Failed all quality control checks

**FLD LEN: 1**

**Secondary Hourly Diagnostic Section (CRN) (continued)**

**LIQUID-PRECIPIATION gauge heater flag quality code #2**

A flag that indicates the network's internal evaluation of the quality status of the gauge heater flag code. Most users will find the preceding quality code to be the simplest and most useful quality indicator.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

0: Passed all quality control checks

**FLD LEN: 1**

**Secondary Hourly Diagnostic Section (CRN) (continued) DOORFLAG field**

The code that indicates the datalogger door bit field setting. We have no idea what the heck this means.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

0: Off

1: On

MIN: 0 MAX: 9

**FLD LEN: 1**

**Secondary Hourly Diagnostic Section (CRN) (continued) DOORFLAG field quality code**

The code that indicates ISD's evaluation of the quality status of the datalogger door bit field setting.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
1: Passed all quality control checks  
3: Failed all quality control checks

**FLD LEN: 1**

**Secondary Hourly Diagnostic Section (CRN) (continued) DOORFLAG field quality code #2**

A flag that indicates the network's internal evaluation of the quality status of the datalogger door bit field setting code. Most users will find the preceding quality code to be the simplest and most useful quality indicator.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
0: Passed all quality control checks

**FLD LEN: 3**

**Secondary Hourly Diagnostic Section (CRN) (continued) FORTTRANS wattage**

Forward transmitter RF power in tenths of watts

MIN: 000 MAX: 500 UNITS: watts

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9)  
999 = missing

**FLD LEN: 1**

**Secondary Hourly Diagnostic Section (CRN) (continued) FORTTRANS wattage quality code**

The code that indicates ISD's evaluation of the quality status of the forward transmitter RF power.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
1: Passed all quality control checks  
3: Failed all quality control checks

**FLD LEN: 1**

**Secondary Hourly Diagnostic Section (CRN) (continued) FORTTRANS wattage quality code #2**

A flag that indicates the network's internal evaluation of the quality status of the forward transmitter RF power. Most users will find the preceding quality code to be the simplest and most useful quality indicator.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing  
0: Passed all quality control checks

**FLD LEN: 3**

**Secondary Hourly Diagnostic Section (CRN) (continued) REFLTRANS wattage**

Reflected transmitter RF power in tenths of watts

MIN: 000 MAX: 500 UNITS: watts

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9)  
999 = missing

**FLD LEN: 1**

**Secondary Hourly Diagnostic Section (CRN) (continued) REFLTRANS wattage quality code**

The code that indicates ISD's evaluation of the quality status of the reflected transmitter RF power.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
1: Passed all quality control checks  
3: Failed all quality control checks

**FLD LEN: 1**

**Secondary Hourly Diagnostic Section (CRN) (continued) REFLTRANS wattage quality code #2**

A flag that indicates the network's internal evaluation of the quality status of the reflected transmitter RF power. Most users will find the preceding quality code to be the simplest and most useful quality indicator.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
0: Passed all quality control checks

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**Cooperative Network Metadata**

**FLD LEN: 3**

**US-COOPERATIVE-NETWORK-METADATA occurrence identifier**

The identifier that indicates the occurrence of US Cooperative Network metadata, used in NCDC data processing

DOM: A specific domain comprised of the characters in the ASCII character set

**CO1:** An indicator of the following items:

US-COOPERATIVE-NETWORK-METADATA Climate division number  
US-COOPERATIVE-NETWORK-METADATA UTC-LST time  
conversion

**FLD LEN: 2**

**US-COOPERATIVE-NETWORK-METADATA Climate division number**

The climate division number, for this station, within the US state that it resides.

MIN: 00 MAX: 09

SCALING FACTOR: 1

DOM: A general domain comprised of the characters in the ASCII character set  
99 = missing

**FLD LEN: 3**

**US-COOPERATIVE-NETWORK-METADATA UTC-LST time conversion**

The UTC to LST time conversion for this station.

MIN: -12 MAX: +12

SCALING FACTOR: 1

DOM: A general domain comprised of the characters in the ASCII character set  
999 = missing

---

**FLD LEN: 3**

**US-COOPERATIVE-NETWORK-ELEMENT-TIME-OFFSET occurrence identifier**

The identifier that indicates a specified element's observation time differs from the time listed in "Control Section"

DOM: A specific domain comprised of the characters in the ASCII character set

**CO9 - CO2:** An indicator of up to 7 repeating fields of the following items:

US-COOPERATIVE-NETWORK-ELEMENT-TIME-OFFSET COOPERATIVE-NET'

US-COOPERATIVE-NETWORK-ELEMENT-TIME-OFFSET COOPERATIVE-NET'

**FLD LEN: 3**

**US-COOPERATIVE-NETWORK-ELEMENT-TIME-OFFSET COOPERATIVE-NETWORK-ELEMENT-ID**

The element identifier to be offset, based on the identifier as shown in this document.

DOM: A general domain comprised of the characters in the ASCII character set  
999 = missing

**FLD LEN: 5**

**US-COOPERATIVE-NETWORK-ELEMENT-TIME-OFFSET COOPERATIVE-NETWORK-TIME-OFFSET**

The offset in hours. To obtain the actual observation time of the element parameter indicated, add the value in this field to the date-time value in the "Control Section."

MIN: -9999 MAX: +9998 UNITS: hours

SCALING FACTOR: 10

DOM: A general domain comprised of the characters in the ASCII character set  
+9999 = missing

---

---

## **Climate Reference Network Unique Data**

### **FLD LEN: 3**

#### **CRN Control Section (CRN) occurrence identifier**

The identifier that indicates an occurrence of datalogger program information

DOM: A specific domain comprised of the characters in the ASCII character set

**CR1:** An indicator of the following items:

CRN Control Section (CRN) DL\_VN identifier

CRN Control Section (CRN) DL\_VN\_QC quality code

CRN Control Section (CRN) DL\_VN\_FLAG quality code

### **FLD LEN: 5**

#### **CRN Control Section (CRN) DL\_VN identifier**

The version number which uniquely identifies the datalogger program that produced the CRN observation for this hour. This section appears once in every ISD record.

MIN: 00000 MAX: 99999

SCALING FACTOR: 1000

DOM: A general domain comprised of the numeric characters (0-9)

### **FLD LEN: 1**

#### **CRN Control Section (CRN) DL\_VN\_QC quality code**

The code that indicates ISD's evaluation of the quality status of the reported datalogger program version number.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

1: Passed all quality control checks

3: Failed all quality control checks

### **FLD LEN: 1**

#### **CRN Control Section (CRN) DL\_VN\_FLAG quality code**

A flag that indicates the network's internal evaluation of the quality status of the reported datalogger program version number. Most users will find the preceding quality code DL\_VN\_QC to be the simplest and most useful quality indicator.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

0: Passed all quality control checks

---

### **FLD LEN: 3**

#### **Subhourly Temperature Section (CRN) occurrence identifier**

The identifier that indicates one of three concurrent air temperature observations made by co-located sensors. Three instances of this section (corresponding to the three temperature sensors) appear in each of the twelve 5-minute data stream records. In the 15-minute data stream, the three instances of this section appear in

the last record of the hour, and contain the average temperature for the last 5 minutes of the hour

DOM: A specific domain comprised of the characters in the ASCII character set

**CT3 - CT1:** An indicator of up to 3 repeating fields of the following items:

Subhourly Temperature Section (CRN) AVG\_TEMP air temperature

Subhourly Temperature Section (CRN) AVG\_TEMP\_QC quality code

Subhourly Temperature Section (CRN) AVG\_TEMP\_FLAG quality code

**FLD LEN: 5**

**Subhourly Temperature Section (CRN) AVG\_TEMP air temperature**

The average air temperature for a 5-minute period.

MIN: -9999 MAX: +9999 UNITS: degrees celsius

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9)

99999 = missing

**FLD LEN: 1**

**Subhourly Temperature Section (CRN) AVG\_TEMP\_QC quality code**

The code that indicates ISD's evaluation of the quality status of the 5-minute air temperature average.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

1: Passed all quality control checks

3: Failed all quality control checks

**FLD LEN: 1**

**Subhourly Temperature Section (CRN) AVG\_TEMP\_FLAG quality code**

A flag that indicates the network's internal evaluation of the quality status of the 5-minute air temperature average. Most users will find the preceding quality code AVG\_TEMP\_QC to be the simplest and most useful quality

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

0: Passed all quality control checks

---

**FLD LEN: 3**

**Hourly Temperature Section (CRN) occurrence identifier**

The identifier that indicates one of three concurrent air temperature observations made by co-located sensors. Three instances of this section (corresponding to the three temperature sensors) appear in the last ISD record of the hour

DOM: A specific domain comprised of the characters in the ASCII character set

**CU3 - CU1:** An indicator of up to 3 repeating fields of the following items:

Hourly Temperature Section (CRN) TEMP\_AVG air temperature

Hourly Temperature Section (CRN) TEMP\_AVG\_QC quality code

Hourly Temperature Section (CRN) TEMP\_AVG\_FLAG quality code

Hourly Temperature Section (CRN) TEMP\_STD air temperature standard

deviation

Hourly Temperature Section (CRN) TEMP\_STD\_QC quality code

Hourly Temperature Section (CRN) TEMP\_STD\_FLAG quality code

**FLD LEN: 5**

**Hourly Temperature Section (CRN) TEMP\_AVG air temperature**

The average air temperature for an hour.

MIN: -9999 MAX: +9999 UNITS: degrees celsius

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9)

99999 = missing

**FLD LEN: 1**

**Hourly Temperature Section (CRN) TEMP\_AVG\_QC quality code**

The code that indicates ISD's evaluation of the quality status of the hourly temperature average.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

1: Passed all quality control checks

3: Failed all quality control checks

**FLD LEN: 1**

**Hourly Temperature Section (CRN) TEMP\_AVG\_FLAG quality code**

A flag that indicates the network's internal evaluation of the quality status the hourly temperature average. Most users will find the preceding quality code TEMP\_AVG\_QC to be the simplest and most useful quality indicator.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

0: Passed all quality control checks

**FLD LEN: 4**

**Hourly Temperature Section (CRN) TEMP\_STD air temperature standard deviation**

The temperature standard deviation.

MIN: 0000 MAX: 9999

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9)

9999 = missing

**FLD LEN: 1**

**Hourly Temperature Section (CRN) TEMP\_STD\_QC quality code**

The code that indicates ISD's evaluation of the quality status of the hourly temperature standard deviation.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

1: Passed all quality control checks

3: Failed all quality control checks

**FLD LEN: 1**

**Hourly Temperature Section (CRN) TEMP\_STD\_FLAG quality code**

A flag that indicates the network's internal evaluation of the quality status the hourly temperature standard deviation. Most users will find the preceding quality code TEMP\_STD\_QC to be the simplest and most useful quality indicator.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

0: Passed all quality control checks

---

**FLD LEN: 3**

**Hourly Temperature Extreme Section (CRN) occurrence identifier**

The identifier that indicates one of three concurrent air temperature observations made by co-located sensors. Three instances of this section (corresponding to the three temperature sensors) appear in the last ISD record of the hour

DOM: A specific domain comprised of the characters in the ASCII character set

**CV3 - CV1:** An indicator of up to 3 repeating fields of the following items:

Hourly Temperature Extreme Section (CRN) TEMP\_MIN minimum air temperature

Hourly Temperature Extreme Section (CRN) TEMP\_MIN\_QC quality code

Hourly Temperature Extreme Section (CRN) TEMP\_MIN\_FLAG quality code

Hourly Temperature Extreme Section (CRN) TEMP\_MIN\_TIME time of minimum air temperature

Hourly Temperature Extreme Section (CRN) TEMP\_MIN\_TIME\_QC quality code

Hourly Temperature Extreme Section (CRN) TEMP\_MIN\_TIME\_FLAG quality code

Hourly Temperature Extreme Section (CRN) TEMP\_MAX maximum air temperature

Hourly Temperature Extreme Section (CRN) TEMP\_MAX\_QC quality code

Hourly Temperature Extreme Section (CRN) TEMP\_MAX\_FLAG quality code

Hourly Temperature Extreme Section (CRN) TEMP\_MAX\_TIME time of maximum air temperature

Hourly Temperature Extreme Section (CRN) TEMP\_MAX\_TIME\_QC quality code

Hourly Temperature Extreme Section (CRN) TEMP\_MAX\_TIME\_FLAG quality code

**FLD LEN: 5**

**Hourly Temperature Extreme Section (CRN) TEMP\_MIN minimum air temperature**

The minimum air temperature for the hour.

MIN: -9999 MAX: +9999 UNITS: degrees celsius  
SCALING FACTOR: 10  
DOM: A general domain comprised of the numeric characters (0-9)  
99999 = missing

**FLD LEN: 1**

**Hourly Temperature Extreme Section (CRN) TEMP\_MIN\_QC quality code**  
The code that indicates ISD's evaluation of the quality status of the minimum hourly temperature.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
1: Passed all quality control checks  
3: Failed all quality control checks

**FLD LEN: 1**

**Hourly Temperature Extreme Section (CRN) TEMP\_MIN\_FLAG quality code**

A flag that indicates the network's internal evaluation of the quality status the minimum hourly. Most users will find the preceding quality code TEMP\_MIN\_QC to be the simplest and most useful quality indicator.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
0: Passed all quality control checks

**FLD LEN: 4**

**Hourly Temperature Extreme Section (CRN) TEMP\_MIN\_TIME time of minimum air temperature**

The time at which the minimum temperature occurred, in z-time HHMM format

MIN: 0000 MAX: 2359

DOM: A general domain comprised of the characters in the ASCII character set  
9999 = missing

**FLD LEN: 1**

**Hourly Temperature Extreme Section (CRN) TEMP\_MIN\_TIME\_QC quality code**

The code that indicates ISD's evaluation of the quality status of the time of minimum hourly temperature.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
1: Passed all quality control checks  
3: Failed all quality control checks

**FLD LEN: 1**

**Hourly Temperature Extreme Section (CRN) TEMP\_MIN\_TIME\_FLAG quality code**

A flag that indicates the network's internal evaluation of the quality status of the time of minimum hourly temperature. Most users will find the preceding quality code TEMP\_MIN\_TIME\_QC to be the simplest and most useful quality indicator.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
0: Passed all quality control checks

**FLD LEN: 5**

**Hourly Temperature Extreme Section (CRN) TEMP\_MAX maximum air temperature**

The maximum air temperature for an hour.

MIN: -9999 MAX: +9999 UNITS: angular degrees

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9)  
99999 = missing

**FLD LEN: 1**

**Hourly Temperature Extreme Section (CRN) TEMP\_MAX\_QC quality code**

The code that indicates ISD's evaluation of the quality status of the maximum hourly.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
1: Passed all quality control checks  
3: Failed all quality control checks

**FLD LEN: 1**

**Hourly Temperature Extreme Section (CRN) TEMP\_MAX\_FLAG quality code**

A flag that indicates the network's internal evaluation of the quality status the maximum hourly. Most users will find the preceding quality code TEMP\_MAX\_QC to be the simplest and most useful quality indicator.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
0: Passed all quality control checks

**FLD LEN: 4**

**Hourly Temperature Extreme Section (CRN) TEMP\_MAX\_TIME time of maximum air temperature**

The time at which the maximum temperature occurred, in z-time HHMM format

MIN: 0000 MAX: 2359

DOM: A general domain comprised of the characters in the ASCII character set  
9999 = missing

**FLD LEN: 1**

**Hourly Temperature Extreme Section (CRN) TEMP\_MAX\_TIME\_QC quality code**

The code that indicates ISD's evaluation of the quality status of the time of maximum hourly temperature.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

1: Passed all quality control checks

3: Failed all quality control checks

**FLD LEN: 1**

**Hourly Temperature Extreme Section (CRN) TEMP\_MAX\_TIME\_FLAG quality code**

A flag that indicates the network's internal evaluation of the quality status of the time of maximum hourly temperature. Most users will find the preceding quality code TEMP\_MAX\_TIME\_QC to be the simplest and most useful quality indicator.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

0: Passed all quality control checks

---

**FLD LEN: 3**

**Subhourly Wetness Section (CRN) occurrence identifier**

The identifier that indicates a subhourly wetness sensor observation

DOM: A specific domain comprised of the characters in the ASCII character set

CW1: An indicator of the following items:

Subhourly Wetness Section (CRN) WET1 wetness indicator

Subhourly Wetness Section (CRN) WET1\_QC quality code

Subhourly Wetness Section (CRN) WET1\_FLAG quality code

Subhourly Wetness Section (CRN) WET2 wetness indicator

Subhourly Wetness Section (CRN) WET2\_QC quality code

Subhourly Wetness Section (CRN) WET2\_FLAG quality code

**FLD LEN: 5**

**Subhourly Wetness Section (CRN) WET1 wetness indicator**

Wetness sensor channel 1 value indicating the existence or non-existence of moisture on the sensor.

MIN: 00000 MAX: 99999

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9)

99999 = missing

**FLD LEN: 1**

**Subhourly Wetness Section (CRN) WET1\_QC quality code**

The code that indicates ISD's evaluation of the quality status of the wetness sensor channel 1 value.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
1: Passed all quality control checks  
3: Failed all quality control checks

**FLD LEN: 1**

**Subhourly Wetness Section (CRN) WET1\_FLAG quality code**

The code that indicates ISD's evaluation of the quality status of the wetness sensor channel 1 value. Most users will find the preceding quality code WET1\_QC to be the simplest and most useful quality indicator.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
0: Passed all quality control checks

**FLD LEN: 5**

**Subhourly Wetness Section (CRN) WET2 wetness indicator**

Wetness sensor channel 2 value indicating the existence or non-existence of moisture on the sensor.

MIN: 00000 MAX: 99999

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9)  
99999 = missing

**FLD LEN: 1**

**Subhourly Wetness Section (CRN) WET2\_QC quality code**

The code that indicates ISD's evaluation of the quality status of the wetness sensor channel 2 value.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
1: Passed all quality control checks  
3: Failed all quality control checks

**FLD LEN: 1**

**Subhourly Wetness Section (CRN) WET2\_FLAG quality code**

The code that indicates ISD's evaluation of the quality status of the wetness sensor channel 2 value. Most users will find the preceding quality code WET2\_QC to be the simplest and most useful quality indicator.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
0: Passed all quality control checks

---

**FLD LEN: 3**

**Hourly Geonor Vibrating Wire Summary Section (CRN) occurrence identifier**

The identifier that indicates the presence of summary data for three concurrent

precipitation observations made by co-located sensors. It appears in the last ISD record of the hour for the 15-minute data stream only. This section is not present for the 5-minute data stream

DOM: A specific domain comprised of the characters in the ASCII character set

**CX3 - CX1:** An indicator of up to 3 repeating fields of the following items:

Hourly Geonor Vibrating Wire Summary Section (CRN) PRECIP total hourly precipitation

Hourly Geonor Vibrating Wire Summary Section (CRN) PRECIP\_QC quality code

Hourly Geonor Vibrating Wire Summary Section (CRN) PRECIP\_FLAG quality code

Hourly Geonor Vibrating Wire Summary Section (CRN) FREQ\_AVG hourly average frequency

Hourly Geonor Vibrating Wire Summary Section (CRN) FREQ\_AVG\_QC quality code

Hourly Geonor Vibrating Wire Summary Section (CRN) FREQ\_AVG\_FLAG quality code

Hourly Geonor Vibrating Wire Summary Section (CRN) FREQ\_MIN hourly minimum frequency

Hourly Geonor Vibrating Wire Summary Section (CRN) FREQ\_MIN\_QC quality code

Hourly Geonor Vibrating Wire Summary Section (CRN) FREQ\_MIN\_FLAG quality code

Hourly Geonor Vibrating Wire Summary Section (CRN) FREQ\_MAX hourly maximum frequency

Hourly Geonor Vibrating Wire Summary Section (CRN) FREQ\_MAX\_QC quality code

Hourly Geonor Vibrating Wire Summary Section (CRN) FREQ\_MAX\_FLAG quality code

**FLD LEN: 6**

**Hourly Geonor Vibrating Wire Summary Section (CRN) PRECIP total hourly precipitation**

The total hourly precipitation amount for the sensor.

MIN: -99999 MAX: +99999 UNITS: millimeters

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9)

999999 = missing

**FLD LEN: 1**

**Hourly Geonor Vibrating Wire Summary Section (CRN) PRECIP\_QC quality code**

The code that indicates ISD's evaluation of the quality status of the hourly precipitation amount.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

1: Passed all quality control checks

3: Failed all quality control checks

**FLD LEN: 1**

**Hourly Geonor Vibrating Wire Summary Section (CRN) PRECIP\_FLAG  
quality code**

The code that indicates the network's internal evaluation of the quality status of the hourly precipitation amount. Most users will find the preceding quality code PRECIP\_QC to be the simplest and most useful quality indicator.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

0: Passed all quality control checks

**FLD LEN: 4**

**Hourly Geonor Vibrating Wire Summary Section (CRN) FREQ\_AVG  
hourly average frequency**

The hourly average frequency for the sensor.

MIN: 0000 MAX: 9999 UNITS: hertz

DOM: A general domain comprised of the numeric characters (0-9)

9999 = missing

**FLD LEN: 1**

**Hourly Geonor Vibrating Wire Summary Section (CRN) FREQ\_AVG\_QC  
quality code**

The code that indicates ISD's evaluation of the quality status of the hourly average frequency.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

1: Passed all quality control checks

3: Failed all quality control checks

**FLD LEN: 1**

**Hourly Geonor Vibrating Wire Summary Section (CRN)  
FREQ\_AVG\_FLAG quality code**

The code that indicates the network's internal evaluation of the quality status of the hourly average frequency. Most users will find the preceding quality code FREQ\_AVG\_QC to be the simplest and most useful quality indicator.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

0: Passed all quality control checks

**FLD LEN: 4**

**Hourly Geonor Vibrating Wire Summary Section (CRN) FREQ\_MIN  
hourly minimum frequency**

The minimum frequency during the hour for the sensor.

MIN: 0000 MAX: 9999 UNITS: hertz

DOM: A general domain comprised of the numeric characters (0-9)  
9999 = missing

**FLD LEN: 1**

**Hourly Geonor Vibrating Wire Summary Section (CRN) FREQ\_MIN\_QC quality code**

The code that indicates ISD's evaluation of the quality status of the hourly minimum frequency.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

1: Passed all quality control checks

3: Failed all quality control checks

**FLD LEN: 1**

**Hourly Geonor Vibrating Wire Summary Section (CRN) FREQ\_MIN\_FLAG quality code**

The code that indicates the network's internal evaluation of the quality status of the hourly minimum frequency. Most users will find the preceding quality code FREQ\_MIN\_QC to be the simplest and most useful quality indicator.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

0: Passed all quality control checks

**FLD LEN: 4**

**Hourly Geonor Vibrating Wire Summary Section (CRN) FREQ\_MAX hourly maximum frequency**

The minimum frequency during the hour for the sensor.

MIN: 0000 MAX: 9999 UNITS: hertz

DOM: A general domain comprised of the numeric characters (0-9)

9999 = missing

**FLD LEN: 1**

**Hourly Geonor Vibrating Wire Summary Section (CRN) FREQ\_MAX\_QC quality code**

The code that indicates ISD's evaluation of the quality status of the hourly maximum frequency.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

1: Passed all quality control checks

3: Failed all quality control checks

**FLD LEN: 1**

**Hourly Geonor Vibrating Wire Summary Section (CRN) FREQ\_MAX\_FLAG quality code**

The code that indicates the network's internal evaluation of the quality status of

the hourly maximum frequency. Most users will find the preceding quality code  
FREQ\_MAX\_QC to be the simplest and most useful quality indicator.  
DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
0: Passed all quality control checks

---

## **Runway Visual Range Data**

### **FLD LEN: 3**

#### **RUNWAY-VISUAL-RANGE-OBSERVATION occurrence identifier**

The identifier that indicates the occurrence of a runway visibility report  
DOM: A specific domain comprised of the characters in the ASCII character set  
**ED1:** An indicator of the following items:  
RUNWAY-VISUAL-RANGE-OBSERVATION direction angle  
RUNWAY-VISUAL-RANGE-OBSERVATION runway designator code  
RUNWAY-VISUAL-RANGE-OBSERVATION visibility dimension  
RUNWAY-VISUAL-RANGE-OBSERVATION quality code

### **FLD LEN: 2**

#### **RUNWAY-VISUAL-RANGE-OBSERVATION direction angle**

The angle as measured from magnetic north to the runway along which the  
visibility is observed.  
MIN: 01 MAX: 36 UNITS: tens of degrees  
SCALING FACTOR: 1/10  
DOM: A general domain comprised of the characters in the ASCII character set  
99 = missing

### **FLD LEN: 1**

#### **RUNWAY-VISUAL-RANGE-OBSERVATION runway designator code**

The code that denotes the left, right or center runway as the one to which the  
visibility applies.  
DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
C: center  
L: left  
R: right  
U: unknown

### **FLD LEN: 4**

#### **RUNWAY-VISUAL-RANGE-OBSERVATION visibility dimension**

The dimension of the horizontal distance that can be seen along the runway.  
MIN: 0000 MAX: 5000 UNITS: meters  
DOM: A general domain comprised of the characters in the ASCII character set  
9999 = missing

**FLD LEN: 1**

**RUNWAY-VISUAL-RANGE-OBSERVATION quality code**

The code that denotes a quality status of the reported RUNWAY-VISUAL-RANGE-OBSERVATION.

DOM: A specific domain comprised of the characters in the ASCII character set

- 9 = missing
  - 0: Passed gross limits check
  - 1: Passed all quality control checks
  - 2: Suspect
  - 3: Erroneous
  - 9: Passed gross limits check if element is present
- 

**Cloud and Solar Data**

**FLD LEN: 3**

**SKY-COVER-LAYER occurrence identifier**

The identifier that represents a SKY-COVER-LAYER

DOM: A specific domain comprised of the characters in the ASCII character set

**GA6 - GA1:** An indicator of up to 6 repeating fields of the following items:

- SKY-COVER-LAYER coverage code
- SKY-COVER-LAYER coverage quality code
- SKY-COVER-LAYER base height dimension
- SKY-COVER-LAYER base height quality code
- SKY-COVER-LAYER cloud type code
- SKY-COVER-LAYER cloud type quality code

**FLD LEN: 2**

**SKY-COVER-LAYER coverage code**

The code that denotes the fraction of the total celestial dome covered by a SKY-COVER-LAYER.

DOM: A specific domain comprised of the characters in the ASCII character set

- 99 = missing
- 00: None, SKC or CLR
- 01: One okta - 1/10 or less but not zero
- 02: Two oktas - 2/10 - 3/10, or FEW
- 03: Three oktas - 4/10
- 04: Four oktas - 5/10, or SCT
- 05: Five oktas - 6/10
- 06: Six oktas - 7/10 - 8/10
- 07: Seven oktas - 9/10 or more but not 10/10, or BKN
- 08: Eight oktas - 10/10, or OVC
- 09: Sky obscured, or cloud amount cannot be estimated
- 10: Partial obscuration

**FLD LEN: 1**

**SKY-COVER-LAYER coverage quality code**

The code that denotes a quality status of the reported SKY-COVER-LAYER coverage.

DOM: A specific domain comprised of the characters in the ASCII character set

- 9 = missing
- 0: Passed gross limits check
- 1: Passed all quality control checks
- 2: Suspect
- 3: Erroneous
- 9: Passed gross limits check if element is present

**FLD LEN: 6**

**SKY-COVER-LAYER base height dimension**

The height relative to a VERTICAL-REFERENCE-DATUM of the lowest surface of a cloud.

MIN: -00400 MAX: +35000 UNITS: meters

SCALING FACTOR: 1

DOM: A general domain comprised of the numeric characters (0-9)

- +99999 = missing

**FLD LEN: 1**

**SKY-COVER-LAYER base height quality code**

The code that denotes a quality status of the reported SKY-COVER-LAYER base height.

DOM: A specific domain comprised of the characters in the ASCII character set

- 9 = missing
- 0: Passed gross limits check
- 1: Passed all quality control checks
- 2: Suspect
- 3: Erroneous
- 4: Passed gross limits check , from NCDC Surface Hourly
- 5: Passed all quality control checks, from NCDC Surface Hourly
- 6: Suspect, from NCDC Surface Hourly
- 7: Erroneous, from NCDC Surface Hourly
- 9: Passed gross limits check if element is present

**FLD LEN: 2**

**SKY-COVER-LAYER cloud type code**

The code that denotes the classification of the clouds that comprise a SKY-COVER-LAYER.

DOM: A specific domain comprised of the characters in the ASCII character set

- 99 = missing
- 00: Cirrus (Ci)
- 01: Cirrocumulus (Cc)
- 02: Cirrostratus (Cs)
- 03: Altocumulus (Ac)
- 04: Altostratus (As)

- 05: Nimbostratus (Ns)
- 06: Stratocumulus (Sc)
- 07: Stratus (St)
- 08: Cumulus (Cu)
- 09: Cumulonimbus (Cb)
- 10: Cloud not visible owing to darkness, fog, duststorm, sandstorm, or other analogous phenomena / sky obscured
- 11: Not used
- 12: Towering Cumulus (Tcu)
- 13: Stratus fractus (Stfra)
- 14: Stratocumulus Lenticular (Scsl)
- 15: Cumulus Fractus (Cufra)
- 16: Cumulonimbus Mammatus (Cbmam)
- 17: Altocumulus Lenticular (Acsl)
- 18: Altocumulus Castellanus (Accas)
- 19: Altocumulus Mammatus (Acmam)
- 20: Cirrocumulus Lenticular (Ccsl)
- 21: Cirrus and/or Cirrocumulus
- 22: Stratus and/or Fracto-stratus
- 23: Cumulus and/or Fracto-cumulus

**FLD LEN: 1**

**SKY-COVER-LAYER cloud type quality code**

The code that denotes a quality status of the reported SKY-COVER-LAYER cloud type.

DOM: A specific domain comprised of the characters in the ASCII character set

- 9 = missing
- 0: Passed gross limits check
- 1: Passed all quality control checks
- 2: Suspect
- 3: Erroneous
- 4: Passed gross limits check , from NCDC Surface Hourly
- 5: Passed all quality control checks, from NCDC Surface Hourly
- 6: Suspect, from NCDC Surface Hourly
- 7: Erroneous, from NCDC Surface Hourly
- 9: Passed gross limits check if element is present

**FLD LEN: 3**

**SKY-COVER-SUMMATION-STATE occurrence identifier**

The identifier that denotes the availability of a

SKY-COVER-SUMMATION-STATE

DOM: A specific domain comprised of the characters in the ASCII character set

**GD6 - GD1:** An indicator of up to 6 repeating fields of the following items:

- SKY-COVER-SUMMATION-STATE coverage code
- SKY-COVER-SUMMATION-STATE Coverage code #2
- SKY-COVER-SUMMATION-STATE coverage quality code

SKY-COVER-SUMMATION-STATE height dimension  
SKY-COVER-SUMMATION-STATE height dimension quality code  
SKY-COVER-SUMMATION-STATE characteristic code

**FLD LEN: 1**

**SKY-COVER-SUMMATION-STATE coverage code**

The code that denotes the portion of the total celestial dome covered by all layers of clouds and other obscuring phenomena at or below a given height.

DOM: A specific domain comprised of the characters in the ASCII character set

- 9 = missing
- 0: Clear - No coverage
- 1: FEW - 2/8 or less coverage (not including zero)
- 2: SCATTERED - 3/8-4/8 coverage
- 3: BROKEN - 5/8-7/8 coverage
- 4: OVERCAST - 8/8 coverage
- 5: OBSCURED
- 6: PARTIALLY OBSCURED

**FLD LEN: 2**

**SKY-COVER-SUMMATION-STATE Coverage code #2**

The code that denotes the fraction of the total celestial dome covered by a by all layers of clouds and other obscuring phenomena at or below a given height, if reported by the station in oktas.

DOM: A specific domain comprised of the characters in the ASCII character set

- 99 = missing
- 00: None, SKC or CLR
- 01: One okta - 1/10 or less but not zero
- 02: Two oktas - 2/10 - 3/10, or FEW
- 03: Three oktas - 4/10
- 04: Four oktas - 5/10, or SCT
- 05: Five oktas - 6/10
- 06: Six oktas - 7/10 - 8/10
- 07: Seven oktas - 9/10 or more but not 10/10, or BKN
- 08: Eight oktas - 10/10, or OVC
- 09: Sky obscured, or cloud amount cannot be estimated
- 10: Partial obscuration
- 11: Thin Scattered
- 12: Scattered
- 13: Dark scattered
- 14: Thin Broken
- 15: Broken
- 16: Dark broken
- 17: Thin overcast
- 18: Overcast
- 19: Dark overcast

**FLD LEN: 1**

**SKY-COVER-SUMMATION-STATE coverage quality code**

The code that denotes a quality status of the reported SKY-COVER-SUMMATION-STATE coverage.

DOM: A specific domain comprised of the characters in the ASCII character set

- 9 = missing
- 0: Passed gross limits check
- 1: Passed all quality control checks
- 2: Suspect
- 3: Erroneous
- 4: Passed gross limits check , data originate from an NCDC data source
- 5: Passed all quality control checks, data originate from an NCDC data source
- 6: Suspect, data originate from an NCDC data source
- 7: Erroneous, data originate from an NCDC data source
- 9: Passed gross limits check if element is present

**FLD LEN: 6**

**SKY-COVER-SUMMATION-STATE height dimension**

The height above ground level (AGL) of the base of the cloud layer or obscuring phenomena.

MIN: -00400 MAX: +35000 UNITS: meters

DOM: A general domain comprised of the characters in the ASCII character set  
999999 = missing

**FLD LEN: 1**

**SKY-COVER-SUMMATION-STATE height dimension quality code**

The code that denotes a quality status of the reported SKY-COVER-SUMMATION-STATE height dimension.

DOM: A specific domain comprised of the characters in the ASCII character set

- 9 = missing
- 0: Passed gross limits check
- 1: Passed all quality control checks
- 2: Suspect
- 3: Erroneous
- 4: Passed gross limits check , data originate from an NCDC data source
- 5: Passed all quality control checks, data originate from an NCDC data source
- 6: Suspect, data originate from an NCDC data source
- 7: Erroneous, data originate from an NCDC data source
- 9: Passed gross limits check if element is present

**FLD LEN: 1**

**SKY-COVER-SUMMATION-STATE characteristic code**

The code that represents a characteristic of a specific cloud or other obscuring phenomena layer.

DOM: A specific domain comprised of the characters in the ASCII character set

- 9 = missing
  - 1: Variable height
  - 2: Variable amount
  - 3: Thin clouds
  - 4: Dark layer (reported in data prior to 1950)
- 

**FLD LEN: 3**

**SKY-CONDITION-OBSERVATION #2 occurrence identifier**

An indicator that denotes the start of a SKY-CONDITION-OBSERVATION data group

DOM: A specific domain comprised of the characters in the ASCII character set

**GF1:** An indicator of the following items:

- SKY-CONDITION-OBSERVATION #2 total coverage code
- SKY-CONDITION-OBSERVATION #2 total opaque coverage code
- SKY-CONDITION-OBSERVATION #2 quality total coverage code
- SKY-CONDITION-OBSERVATION #2 total lowest cloud cover code
- SKY-CONDITION-OBSERVATION #2 quality total lowest cloud cover code
- SKY-CONDITION-OBSERVATION #2 low cloud genus code
- SKY-CONDITION-OBSERVATION #2 quality low cloud genus code
- SKY-CONDITION-OBSERVATION #2 lowest cloud base height dimension
- SKY-CONDITION-OBSERVATION #2 lowest cloud base height quality code
- SKY-CONDITION-OBSERVATION #2 mid cloud genus code
- SKY-CONDITION-OBSERVATION #2 quality mid cloud genus code
- SKY-CONDITION-OBSERVATION #2 high cloud genus code
- SKY-CONDITION-OBSERVATION #2 quality high cloud genus code

**FLD LEN: 2**

**SKY-CONDITION-OBSERVATION #2 total coverage code**

The code that denotes the fraction of the total celestial dome covered by clouds or other obscuring phenomena.

DOM: A specific domain comprised of the characters in the ASCII character set

- 99 = missing
- 00: None, SKC or CLR
- 01: One okta - 1/10 or less but not zero
- 02: Two oktas - 2/10 - 3/10, or FEW
- 03: Three oktas - 4/10
- 04: Four oktas - 5/10, or SCT
- 05: Five oktas - 6/10
- 06: Six oktas - 7/10 - 8/10
- 07: Seven oktas - 9/10 or more but not 10/10, or BKN
- 08: Eight oktas - 10/10, or OVC
- 09: Sky obscured, or cloud amount cannot be estimated
- 10: Partial obscuration

- 11: Thin scattered
- 12: Scattered
- 13: Dark scattered
- 14: Thin broken
- 15: Broken
- 16: Dark broken
- 17: Thin overcast
- 18: Overcast
- 19: Dark overcast

**FLD LEN: 2**

**SKY-CONDITION-OBSERVATION #2 total opaque coverage code**

The code that denotes the fraction of the total celestial dome covered by opaque clouds or other obscuring phenomena. Only reported by selected U.S. stations during selected periods.

DOM: A specific domain comprised of the characters in the ASCII character set

- 99 = missing
- 00: None, SKC or CLR
- 01: One okta - 1/10 or less but not zero
- 02: Two oktas - 2/10 - 3/10, or FEW
- 03: Three oktas - 4/10
- 04: Four oktas - 5/10, or SCT
- 05: Five oktas - 6/10
- 06: Six oktas - 7/10 - 8/10
- 07: Seven oktas - 9/10 or more but not 10/10, or BKN
- 08: Eight oktas - 10/10, or OVC
- 09: Sky obscured, or cloud amount cannot be estimated
- 10: Partial obscuration
- 12: Scattered
- 13: Dark scattered
- 15: Broken
- 16: Dark broken
- 18: Overcast
- 19: Dark overcast

**FLD LEN: 1**

**SKY-CONDITION-OBSERVATION #2 quality total coverage code**

The code that denotes a quality status of a reported total sky coverage code.

DOM: A specific domain comprised of the characters in the ASCII character set

- 9 = missing
- 0: Passed gross limits check
- 1: Passed all quality control checks
- 2: Suspect
- 3: Erroneous
- 4: Passed gross limits check, data originate from an NCDC data source
- 5: Passed all quality control checks, data originate from an NCDC data source

- 6: Suspect, data originate from an NCDC data source
- 7: Erroneous, data originate from an NCDC data source
- 9: Passed gross limits check if element is present

**FLD LEN: 2**

**SKY-CONDITION-OBSERVATION #2 total lowest cloud cover code**

The code that represents the fraction of the celestial dome covered by all low clouds present. If no low clouds are present; the code denotes the fraction covered by all middle level clouds present.

DOM: A specific domain comprised of the characters in the ASCII character set

- 99 = missing
- 00: None
- 01: One okta or 1/10 or less but not zero
- 02: Two oktas or 2/10 - 3/10
- 03: Three oktas or 4/10
- 04: Four oktas or 5/10
- 05: Five oktas or 6/10
- 06: Six oktas or 7/10 - 8/10
- 07: Seven oktas or 9/10 or more but not 10/10
- 08: Eight oktas or 10/10
- 09: Sky obscured, or cloud amount cannot be estimated
- 10: Partial obscuration
- 11: Thin Scattered
- 12: Scattered
- 13: Dark Scattered
- 14: Thin Broken
- 15: Broken
- 16: Dark Broken
- 17: Thin Overcast
- 18: Overcast
- 19: Dark Overcast

**FLD LEN: 1**

**SKY-CONDITION-OBSERVATION #2 quality total lowest cloud cover code**

The code that denotes a quality status of a reported total lowest cloud cover code.

DOM: A specific domain comprised of the characters in the ASCII character set

- 9 = missing
- 0: Passed gross limits check
- 1: Passed all quality control checks
- 2: Suspect
- 3: Erroneous
- 4: Passed gross limits check , data originate from an NCDC data source
- 5: Passed all quality control checks, data originate from an NCDC data source
- 6: Suspect, data originate from an NCDC data source
- 7: Erroneous, data originate from an NCDC data source

9: Passed gross limits check if element is present

**FLD LEN: 2**

**SKY-CONDITION-OBSERVATION #2 low cloud genus code**

The code that denotes a type of low cloud.

DOM: A specific domain comprised of the characters in the ASCII character set

99 = missing

00: No low clouds

01: Cumulus humulis or Cumulus fractus other than of bad weather or both

02: Cumulus mediocris or congestus, with or without Cumulus of species fractus or humulis or Stratocumulus all having bases at the same level

03: Cumulonimbus calvus, with or without Cumulus, Stratocumulus or Stratus

04: Stratocumulus cumulogenitus

05: Stratocumulus other than Stratocumulus cumulogenitus

06: Stratus nebulosus or Stratus fractus other than of bad weather, or both

07: Stratus fractus or Cumulus fractus of bad weather, or both (pannus) usually below Altostratus or Nimbostratus

08: Cumulus and Stratocumulus other than Stratocumulus cumulogenitus, with bases at different levels

09: Cumulonimbus capillatus (often with an anvil), with or without Cumulonimbus calvus, Cumulus, Stratocumulus, Stratus or pannus

**FLD LEN: 1**

**SKY-CONDITION-OBSERVATION #2 quality low cloud genus code**

The code that denotes a quality status of a reported low cloud type.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

0: Passed gross limits check

1: Passed all quality control checks

2: Suspect

3: Erroneous

4: Passed gross limits check , data originate from an NCDC data source

5: Passed all quality control checks, data originate from an NCDC data source

6: Suspect, data originate from an NCDC data source

7: Erroneous, data originate from an NCDC data source

9: Passed gross limits check if element is present

**FLD LEN: 5**

**SKY-CONDITION-OBSERVATION #2 lowest cloud base height dimension**

The height, above ground level (AGL), of the base of the lowest cloud.

MIN: 00000 MAX: 21000 UNITS: meters

SCALING FACTOR: 1

DOM: A general domain comprised of the numeric characters (0-9)

99999 = missing

**FLD LEN: 1**

**SKY-CONDITION-OBSERVATION #2 lowest cloud base height quality code**

The code that denotes a quality status of a lowest cloud base height.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

0: Passed gross limits check

1: Passed all quality control checks

2: Suspect

3: Erroneous

4: Passed gross limits check , data originate from an NCDC data source

5: Passed all quality control checks, data originate from an NCDC data source

6: Suspect, data originate from an NCDC data source

7: Erroneous, data originate from an NCDC data source

9: Passed gross limits check if element is present

**FLD LEN: 2**

**SKY-CONDITION-OBSERVATION #2 mid cloud genus code**

The code that denotes a type of middle level cloud.

DOM: A specific domain comprised of the characters in the ASCII character set

99 = missing

00: No middle clouds

01: Altostratus translucidus

02: Altostratus opacus or Nimbostratus

03: Altocumulus translucidus at a single level

04: Patches (often lenticular) of Altocumulus translucidus, continually changing and occurring at one or more levels

05: Altocumulus translucidus in bands, or one or more layers of Altocumulus translucidus or opacus, progressively invading the sky; these Altocumulus clouds generally thicken as a whole

06: Altocumulus cumulogenitus (or cumulonimbogenitus)

07: Altocumulus translucidus or opacus in two or more layers, or Altocumulus opacus in a single layer, not progressively invading the sky, or Altocumulus with Altostratus or Nimbostratus

08: Altocumulus castellanus or floccus

09: Altocumulus of a chaotic sky; generally at several levels

**FLD LEN: 1**

**SKY-CONDITION-OBSERVATION #2 quality mid cloud genus code**

The code that denotes a quality status of a reported mid cloud type.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

0: Passed gross limits check

1: Passed all quality control checks

2: Suspect

- 3: Erroneous
- 4: Passed gross limits check , data originate from an NCDC data source
- 5: Passed all quality control checks, data originate from an NCDC data source
- 6: Suspect, data originate from an NCDC data source
- 7: Erroneous, data originate from an NCDC data source
- 9: Passed gross limits check if element is present

**FLD LEN: 2**

**SKY-CONDITION-OBSERVATION #2 high cloud genus code**

The code that denotes a type of high cloud.

DOM: A specific domain comprised of the characters in the ASCII character set

- 99 = missing
- 00: No High Clouds
- 01: Cirrus fibratus, sometimes uncinus, not progressively invading the sky
- 02: Cirrus spissatus, in patches or entangled sheaves, which usually do not increase and sometimes seem to be the remains of the upper part of a Cumulonimbus; or Cirrus castellanus or floccus
- 03: Cirrus spissatus cumulonimbogenitus
- 04: Cirrus uncinus or fibratus, or both, progressively invading the sky; they generally thicken as a whole
- 05: Cirrus (often in bands) and Cirrostratus, or Cirrostratus alone, progressively invading the sky; they generally thicken as a whole, but the continuous veil does not reach 45 degrees above the horizon
- 06: Cirrus (often in bands) and Cirrostratus, or Cirrostratus alone, progressively invading the sky; they generally thicken as a whole; the continuous veil extends more than 45 degrees above the horizon, without the sky being totally covered.
- 07: Cirrostratus covering the whole sky
- 08: Cirrostratus not progressively invading the sky and not entirely covering it
- 09: Cirrocumulus alone, or Cirrocumulus predominant among the High clouds

**FLD LEN: 1**

**SKY-CONDITION-OBSERVATION #2 quality high cloud genus code**

The code that denotes a quality status of a reported high cloud type.

DOM: A specific domain comprised of the characters in the ASCII character set

- 9 = missing
- 0: Passed gross limits check
- 1: Passed all quality control checks
- 2: Suspect
- 3: Erroneous
- 4: Passed gross limits check , data originate from an NCDC data source
- 5: Passed all quality control checks, data originate from an NCDC data source
- 6: Suspect, data originate from an NCDC data source

- 7: Erroneous, data originate from an NCDC data source
  - 9: Passed gross limits check if element is present
- 

**FLD LEN: 3**

**BELOW-STATION-CLOUD-LAYER occurrence identifier**

The identifier that represents a BELOW-STATION-CLOUD-LAYER

DOM: A specific domain comprised of the characters in the ASCII character set

**GG6 - GG1:** An indicator of up to 6 repeating fields of the following items:

- BELOW-STATION-CLOUD-LAYER coverage code
- BELOW-STATION-CLOUD-LAYER coverage quality code
- BELOW-STATION-CLOUD-LAYER top height dimension
- BELOW-STATION-CLOUD-LAYER top height dimension quality code
- BELOW-STATION-CLOUD-LAYER type code
- BELOW-STATION-CLOUD-LAYER type quality code
- BELOW-STATION-CLOUD-LAYER top code
- BELOW-STATION-CLOUD-LAYER top quality code

**FLD LEN: 2**

**BELOW-STATION-CLOUD-LAYER coverage code**

The code that denotes the extent of coverage of a

BELOW-STATION-CLOUD-LAYER.

DOM: A specific domain comprised of the characters in the ASCII character set

- 99 = missing
- 00: None
- 01: One okta - 1/10 or less but not zero
- 02: Two oktas - 2/10 - 3/10
- 03: Three oktas - 4/10
- 04: Four oktas - 5/10
- 05: Five oktas - 6/10
- 06: Six oktas - 7/10 - 8/10
- 07: Seven oktas - 9/10 or more but not 10/10
- 08: Eight oktas - 10/10
- 09: Sky obscured, or cloud amount cannot be estimated
- 10: Partial obscuration

**FLD LEN: 1**

**BELOW-STATION-CLOUD-LAYER coverage quality code**

The code that denotes a quality status of the reported

BELOW-STATION-CLOUD-LAYER coverage.

DOM: A specific domain comprised of the characters in the ASCII character set

- 9 = missing
- 0: Passed gross limits check
- 1: Passed all quality control checks
- 2: Suspect
- 3: Erroneous
- 9: Passed gross limits check if element is present

**FLD LEN: 5**

**BELOW-STATION-CLOUD-LAYER top height dimension**

The height above mean sea level (MSL) of the top of a  
BELOW-STATION-CLOUD-LAYER.

MIN: 00000 MAX: 35000 UNITS: meters

SCALING FACTOR: 1

DOM: A general domain comprised of the numeric characters (0-9)  
99999 = missing

**FLD LEN: 1**

**BELOW-STATION-CLOUD-LAYER top height dimension quality code**

The code that denotes a quality status of the reported  
BELOW-STATION-CLOUD-LAYER top height dimension.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
0: Passed gross limits check  
1: Passed all quality control checks  
2: Suspect  
3: Erroneous  
9: Passed gross limits check if element is present

**FLD LEN: 2**

**BELOW-STATION-CLOUD-LAYER type code**

The code that denotes the classification of the clouds that comprise a  
BELOW-STATION-CLOUD-LAYER.

DOM: A specific domain comprised of the characters in the ASCII character set  
99 = missing  
00: Cirrus (Ci)  
01: Cirrocumulus (Cc)  
02: Cirrostratus (Cs)  
03: Altocumulus (Ac)  
04: Altostratus (As)  
05: Nimbostratus (Ns)  
06: Stratocumulus (Sc)  
07: Stratus (St)  
08: Cumulus (Cu)  
09: Cumulonimbus (Cb)  
10: Cloud not visible owing to darkness, fog, dust storm, sandstorm, or other  
analogous

**FLD LEN: 1**

**BELOW-STATION-CLOUD-LAYER type quality code**

The code that denotes a quality status of the reported  
BELOW-STATION-CLOUD-LAYER type.

DOM: A specific domain comprised of the characters in the ASCII character set

- 9 = missing
- 0: Passed gross limits check
- 1: Passed all quality control checks
- 2: Suspect
- 3: Erroneous
- 9: Passed gross limits check if element is present

**FLD LEN: 2**

**BELOW-STATION-CLOUD-LAYER top code**

The code that denotes the characteristics of the upper surface of a BELOW-STATION-CLOUD-LAYER

DOM: A specific domain comprised of the characters in the ASCII character set

- 99 = missing
- 00: Isolated cloud or fragments of clouds
- 01: Continuous flat tops
- 02: Broken cloud - small breaks, flat tops
- 03: Broken cloud - large breaks, flat tops
- 04: Continuous cloud, undulation tops
- 05: Broken cloud - small breaks, undulating tops
- 06: Broken cloud - large breaks, undulating tops
- 07: Continuous or almost continuous with towering clouds above the top of the layer
- 08: Groups of waves with towering clouds above the top of the layer
- 09: Two or more layers at different levels

**FLD LEN: 1**

**BELOW-STATION-CLOUD-LAYER top quality code**

The code that denotes a quality status of the reported BELOW-STATION-CLOUD-LAYER top.

DOM: A specific domain comprised of the characters in the ASCII character set

- 9 = missing
- 0: Passed gross limits check
- 1: Passed all quality control checks
- 2: Suspect
- 3: Erroneous
- 9: Passed gross limits check if element is present

---

**FLD LEN: 3**

**Hourly Solar Radiation Section occurrence identifier**

The identifier that indicates an hourly observation of solar radiation. This section appears in the last ISD record of the hour

DOM: A specific domain comprised of the characters in the ASCII character set

**GHI:** An indicator of the following items:

- Hourly Solar Radiation Section SOLARAD hourly average solar radiation
- Hourly Solar Radiation Section SOLARAD\_QC quality code
- Hourly Solar Radiation Section SOLARAD\_FLAG quality code

Hourly Solar Radiation Section SOLARAD\_MIN minimum solar radiation  
Hourly Solar Radiation Section SOLARAD\_MIN\_QC quality code  
Hourly Solar Radiation Section SOLARAD\_MIN\_FLAG quality code  
Hourly Solar Radiation Section SOLARAD\_MAX maximum solar radiation  
Hourly Solar Radiation Section SOLARAD\_MAX\_QC quality code  
Hourly Solar Radiation Section SOLARAD\_MAX\_FLAG quality code  
Hourly Solar Radiation Section SOLARAD\_STD solar radiation standard  
deviation  
Hourly Solar Radiation Section SOLARAD\_STD\_QC quality code  
Hourly Solar Radiation Section SOLARAD\_STD\_FLAG quality code

**FLD LEN: 5**

**Hourly Solar Radiation Section SOLARAD hourly average solar radiation**

The hourly average solar radiation.

MIN: 0000 MAX: 99998 UNITS: watts per square meter

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9)

99999 = missing

**FLD LEN: 1**

**Hourly Solar Radiation Section SOLARAD\_QC quality code**

The code that indicates ISD's evaluation of the quality status of the hourly average solar radiation.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

1: Passed all quality control checks

3: Failed all quality control checks

**FLD LEN: 1**

**Hourly Solar Radiation Section SOLARAD\_FLAG quality code**

The code that indicates the network's internal evaluation of the quality status of the hourly average solar radiation. Most users will find the preceding quality code SOLARAD\_QC to be the simplest and most useful quality indicator.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

0: Passed all quality control checks

**FLD LEN: 5**

**Hourly Solar Radiation Section SOLARAD\_MIN minimum solar radiation**

The minimum 10 second solar radiation for the hour.

MIN: 00000 MAX: 99998 UNITS: watts per square meter

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9)

99999 = missing

**FLD LEN: 1**

**Hourly Solar Radiation Section SOLARAD\_MIN\_QC quality code**

The code that indicates ISD's evaluation of the quality status of the hourly minimum solar radiation.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

1: Passed all quality control checks

3: Failed all quality control checks

**FLD LEN: 1**

**Hourly Solar Radiation Section SOLARAD\_MIN\_FLAG quality code**

The code that indicates the network's internal evaluation of the quality status of the hourly minimum solar radiation. Most users will find the preceding quality code SOLARAD\_MIN\_QC to be the simplest and most useful quality

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

0: Passed all quality control checks

**FLD LEN: 5**

**Hourly Solar Radiation Section SOLARAD\_MAX maximum solar radiation**

The maximum 10 second solar radiation for the hour.

MIN: 00000 MAX: 99998 UNITS: watts per square meter

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9)

99999 = missing

**FLD LEN: 1**

**Hourly Solar Radiation Section SOLARAD\_MAX\_QC quality code**

The code that indicates ISD's evaluation of the quality status of the hourly maximum solar radiation.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

1: Passed all quality control checks

3: Failed all quality control checks

**FLD LEN: 1**

**Hourly Solar Radiation Section SOLARAD\_MAX\_FLAG quality code**

The code that indicates the network's internal evaluation of the quality status of the hourly maximum solar radiation. Most users will find the preceding quality code SOLARAD\_MAX\_QC to be the simplest and most useful quality

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

0: Passed all quality control checks

**FLD LEN: 5**

**Hourly Solar Radiation Section SOLARAD\_STD solar radiation standard**

**deviation**

The hourly 10 second hourly solar radiation standard deviation.

MIN: 00000 MAX: 99998

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9)  
99999 = missing

**FLD LEN: 1****Hourly Solar Radiation Section SOLARAD\_STD\_QC quality code**

The code that indicates ISD's evaluation of the quality status of the hourly solar radiation standard deviation.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
1: Passed all quality control checks  
3: Failed all quality control checks

**FLD LEN: 1****Hourly Solar Radiation Section SOLARAD\_STD\_FLAG quality code**

The code that indicates the network's internal evaluation of the quality status of hourly solar radiation standard deviation. Most users will find the preceding quality code SOLARAD\_STD\_QC to be the simplest and most useful quality indicator.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
0: Passed all quality control checks

---

**FLD LEN: 3****SUNSHINE-OBSERVATION occurrence identifier**

The identifier that denotes the availability of sunshine information

DOM: A specific domain comprised of the characters in the ASCII character set

**GJ1:** An indicator of the following items:

SUNSHINE-OBSERVATION sunshine duration quantity

SUNSHINE-OBSERVATION sunshine duration quality code

**FLD LEN: 4****SUNSHINE-OBSERVATION sunshine duration quantity**

The quantity of time sunshine occurred over the reporting period.

MIN: 0000 MAX: 6000 UNITS: minutes

DOM: A general domain comprised of the characters in the ASCII character set  
9999 = missing

**FLD LEN: 1****SUNSHINE-OBSERVATION sunshine duration quality code**

The code that denotes a quality status of the reported

SUNSHINE-OBSERVATION sunshine duration.

DOM: A specific domain comprised of the characters in the ASCII character set

- 0: Passed gross limits check
- 1: Passed all quality control checks
- 2: Suspect
- 3: Erroneous
- 4: Passed gross limits check , data originate from an NCDC data source
- 5: Passed all quality control checks, data originate from an NCDC data source
- 6: Suspect, data originate from an NCDC data source
- 7: Erroneous, data originate from an NCDC data source
- 9: Passed gross limits check if element is present

---

**FLD LEN: 3**

**SUNSHINE-OBSERVATION (continued) occurrence identifier**

The identifier that denotes the availability of percent of possible sunshine information

DOM: A specific domain comprised of the characters in the ASCII character set

**GK1:** An indicator of the following items:

SUNSHINE-OBSERVATION (continued) percent of possible sunshine quantity

SUNSHINE-OBSERVATION (continued) percent of possible sunshine quality code

**FLD LEN: 3**

**SUNSHINE-OBSERVATION (continued) percent of possible sunshine quantity**

The percent of possible sunshine that occurred over the previous 24-hour period.

MIN: 000 MAX: 100 UNITS: percent

DOM: A general domain comprised of the characters in the ASCII character set  
999 = missing

**FLD LEN: 1**

**SUNSHINE-OBSERVATION (continued) percent of possible sunshine quality code**

The code that denotes a quality status of the reported

SUNSHINE-OBSERVATION percent of possible sunshine.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing

4: Passed gross limits check, data originate from an NCDC data source

5: Passed all quality control checks, data originate from an NCDC data source

6: Suspect, data originate from an NCDC data source

7: Erroneous, data originate from an NCDC data source

9: Passed gross limits check if element is present

---

**FLD LEN: 3**

**SUNSHINE-OBSERVATION FOR THE MONTH occurrence identifier**

The identifier that denotes the availability of sunshine information

DOM: A specific domain comprised of the characters in the ASCII character set

**GL1:** An indicator of the following items:

SUNSHINE-OBSERVATION FOR THE MONTH sunshine duration  
quantity

SUNSHINE-OBSERVATION FOR THE MONTH sunshine duration  
quality code

**FLD LEN: 5**

**SUNSHINE-OBSERVATION FOR THE MONTH sunshine duration  
quantity**

The quantity of time sunshine occurred over the reporting period.

MIN: 00000 MAX: 30000 UNITS: minutes

DOM: A general domain comprised of the characters in the ASCII character set  
99999 = missing

**FLD LEN: 1**

**SUNSHINE-OBSERVATION FOR THE MONTH sunshine duration  
quality code**

The code that denotes a quality status of the reported

SUNSHINE-OBSERVATION sunshine duration.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing

0: Passed gross limits check

1: Passed all quality control checks

2: Suspect

3: Erroneous

4: Passed gross limits check, data originate from an NCDC data source

5: Passed all quality control checks, data originate from an NCDC data  
source

6: Suspect, data originate from an NCDC data source

7: Erroneous, data originate from an NCDC data source

9: Passed gross limits check if element is present

---

**FLD LEN: 3**

**Solar Irradiance Section occurrence identifier**

The identifier that indicates an observation of solar irradiance data

DOM: A specific domain comprised of the characters in the ASCII character set

**GM1:** An indicator of the following items:

Solar Irradiance Section Solar irradiance data time period

Solar Irradiance Section Global irradiance

Solar Irradiance Section Global irradiance data flag

Solar Irradiance Section Global irradiance quality code

Solar Irradiance Section Direct beam irradiance  
Solar Irradiance Section Direct beam irradiance data flag  
Solar Irradiance Section Direct beam irradiance quality code  
Solar Irradiance Section Diffuse irradiance  
Solar Irradiance Section Diffuse irradiance data flag  
Solar Irradiance Section Diffuse irradiance quality code  
Solar Irradiance Section UVB global irradiance  
Solar Irradiance Section UVB global irradiance quality code

**FLD LEN: 4**

**Solar Irradiance Section Solar irradiance data time period**

Time period in minutes, for which the data in this section (GM1) pertains eg,  
0060 = 60 minutes (1 hour).

MIN: 0001 MAX: 9998 UNITS: minutes

DOM: A general domain comprised of the numeric characters (0-9)  
9999 = missing

**FLD LEN: 4**

**Solar Irradiance Section Global irradiance**

Global horizontal irradiance measured using a precision spectral pyranometer.  
Unit is Watts per square meter (W/m<sup>2</sup>) in whole values. Waveband ranges from  
0.4 - 2.3 micrometers.

MIN: 0000 MAX: 9998 UNITS: watts per square meter

SCALING FACTOR: 1

DOM: A general domain comprised of the numeric characters (0-9)  
9999 = missing

**FLD LEN: 2**

**Solar Irradiance Section Global irradiance data flag**

The code that provides additional information regarding the global irradiance  
data.

DOM: A specific domain comprised of the characters in the ASCII character set  
99 = missing

00: Untested (raw data)

01: Passed one-component test; data fall within max-min limits of K<sub>t</sub>, K<sub>n</sub>, or  
K<sub>d</sub>

02: Passed two-component test; data fall within 0.03 of the Gompertz  
boundaries

03: Passed three-component test; data come within + 0.03 of satisfying K<sub>t</sub> =  
K<sub>n</sub> + K<sub>d</sub>

04: Passed visual inspection: not used by SERI\_QC1

05: Failed visual inspection: not used by SERI\_QC1

06: Value estimated; passes all pertinent SERI\_QC tests

07: Failed one-component test; lower than allowed minimum

08: Failed one-component test; higher than allowed maximum

09: Passed three-component test but failed two-component test by 0.05

- 98: Not used
- 99: Missing data

**FLD LEN: 1**

**Solar Irradiance Section Global irradiance quality code**

The code that denotes a quality status of the reported global irradiance value.

DOM: A specific domain comprised of the characters in the ASCII character set

- 9 = missing
- 0: Passed gross limits check
- 1: Passed all quality control checks
- 2: Suspect
- 3: Erroneous

**FLD LEN: 4**

**Solar Irradiance Section Direct beam irradiance**

Direct beam irradiance measured using a precision pyrhelimeter. Unit is Watts per square meter (W/m<sup>2</sup>) in whole values. Waveband ranges from 0.4 - 2.3 micrometers. Instrument is mounted on a sun tracker.

MIN: 0000 MAX: 9998 UNITS: watts per square meter

SCALING FACTOR: 1

DOM: A general domain comprised of the numeric characters (0-9)

- 9999 = missing

**FLD LEN: 2**

**Solar Irradiance Section Direct beam irradiance data flag**

The code that provides additional information regarding the direct beam irradiance data.

DOM: A specific domain comprised of the characters in the ASCII character set

- 99 = missing
- 00: Untested (raw data)
- 01: Passed one-component test; data fall within max-min limits of Kt, Kn, or Kd
- 02: Passed two-component test; data fall within 0.03 of the Gompertz boundaries
- 03: Passed three-component test; data come within + 0.03 of satisfying  $K_t = K_n + K_d$
- 04: Passed visual inspection: not used by SERI\_QC1
- 05: Failed visual inspection: not used by SERI\_QC1
- 06: Value estimated; passes all pertinent SERI\_QC tests
- 07: Failed one-component test; lower than allowed minimum
- 08: Failed one-component test; higher than allowed maximum
- 09: Passed three-component test but failed two-component test by 0.05
- 10-93: Failed two- or three- component tests in one of four ways.
- 94-97: Data fails into physically impossible region where  $K_n > K_t$  by K-space distances of 0.05 to 0.10 (94), 0.10 to 0.15 (95), 0.15 to 0.20 (96), and  $> 0.20$  (97).

98: Not used  
99: Missing data

**FLD LEN: 1**

**Solar Irradiance Section Direct beam irradiance quality code**

The code that denotes a quality status of the reported direct beam irradiance value.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
0: Passed gross limits check  
1: Passed all quality control checks  
2: Suspect  
3: Erroneous

**FLD LEN: 4**

**Solar Irradiance Section Diffuse irradiance**

Diffuse irradiance measured using a precision spectral pyranometer. Unit is Watts per square meter (W/m<sup>2</sup>) in whole values. Waveband ranges from 0.4 - 2.3 micrometers. Instrument is mounted under a shadowband.

MIN: 0000 MAX: 9998 UNITS: watts per square meter

SCALING FACTOR: 1

DOM: A general domain comprised of the numeric characters (0-9)  
9999 = missing

**FLD LEN: 2**

**Solar Irradiance Section Diffuse irradiance data flag**

The code that provides additional information regarding the diffuse irradiance data.

DOM: A specific domain comprised of the characters in the ASCII character set  
99 = missing  
00: Untested (raw data)  
01: Passed one-component test; data fall within max-min limits of K<sub>t</sub>, K<sub>n</sub>, or K<sub>d</sub>  
02: Passed two-component test; data fall within 0.03 of the Gompertz boundaries  
03: Passed three-component test; data come within + 0.03 of satisfying K<sub>t</sub> = K<sub>n</sub> + K<sub>d</sub>  
04: Passed visual inspection: not used by SERI\_QC1  
05: Failed visual inspection: not used by SERI\_QC1  
06: Value estimated; passes all pertinent SERI\_QC tests  
07: Failed one-component test; lower than allowed minimum  
08: Failed one-component test; higher than allowed maximum  
09: Passed three-component test but failed two-component test by 0.05  
10-93: Failed two- or three- component tests in one of four ways.  
94-97: Data fails into physically impossible region where K<sub>n</sub> > K<sub>t</sub> by K-space distances of 0.05 to 0.10 (94), 0.10 to 0.15 (95), 0.15 to 0.20 (96),

and > 0.20 (97).  
98: Not used  
99: Missing data

**FLD LEN: 1**

**Solar Irradiance Section Diffuse irradiance quality code**

The code that denotes a quality status of the reported diffuse irradiance value.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing  
0: Passed gross limits check  
1: Passed all quality control checks  
2: Suspect  
3: Erroneous

**FLD LEN: 4**

**Solar Irradiance Section UVB global irradiance**

Ultra-violet global irradiance measured using an Ultra-violet Biometer (Solar Light). Unit is milli-watts per square meter (mW/m<sup>2</sup>) of erythema effective irradiance in whole values. Waveband ranges from 290-320 nanometers.

MIN: 0000 MAX: 9998 UNITS: milliwatts per square meter

SCALING FACTOR: 1

DOM: A general domain comprised of the numeric characters (0-9)

9999 = missing

**FLD LEN: 1**

**Solar Irradiance Section UVB global irradiance quality code**

The code that denotes a quality status of the reported UVB global irradiance value.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing  
0: Passed gross limits check  
1: Passed all quality control checks  
2: Suspect  
3: Erroneous

---

**FLD LEN: 3**

**Solar Radiation Section occurrence identifier**

The identifier that indicates an observation of solar radiation data

DOM: A specific domain comprised of the characters in the ASCII character set

**GN1:** An indicator of the following items:

Solar Radiation Section Solar radiation data time period  
Solar Radiation Section Upwelling global solar radiation  
Solar Radiation Section Upwelling global solar radiation quality code  
Solar Radiation Section Downwelling thermal infrared radiation  
Solar Radiation Section Downwelling thermal infrared radiation quality

code  
Solar Radiation Section Upwelling thermal infrared radiation  
Solar Radiation Section Upwelling thermal infrared radiation quality code  
Solar Radiation Section Photosynthetically active radiation  
Solar Radiation Section Photosynthetically active radiation quality code  
Solar Radiation Section Solar zenith angle  
Solar Radiation Section Solar zenith angle quality code

**FLD LEN: 4**

**Solar Radiation Section Solar radiation data time period**

Time period in minutes, for which the data in this section (GN1) pertainseg, 0060 = 60 minutes (1 hour).

MIN: 0001 MAX: 9998 UNITS: minutes

DOM: A general domain comprised of the numeric characters (0-9)  
9999 = missing

**FLD LEN: 4**

**Solar Radiation Section Upwelling global solar radiation**

Global radiation measured using an Epply Precision Spectral Pyranometer mounted upside down ten meters above the surface on a meteorological tower. Unit is milli-watts per square meter (mW/m<sup>2</sup>). Waveband ranges from 270 to 3000 nanometers.

MIN: 0000 MAX: 9998 UNITS: milliwatts per square meter

SCALING FACTOR: 1

DOM: A general domain comprised of the numeric characters (0-9)  
9999 = missing

**FLD LEN: 1**

**Solar Radiation Section Upwelling global solar radiation quality code**

The code that denotes a quality status of the reported upwelling global solar radiation value.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
0: Passed gross limits check  
1: Passed all quality control checks  
2: Suspect  
3: Erroneous

**FLD LEN: 4**

**Solar Radiation Section Downwelling thermal infrared radiation**

Infrared radiation measured using an Epply Precision Infrared Radiometer mounted upright ten meters above the surface on a meteorological tower. Unit is milli-watts per square meter (mW/m<sup>2</sup>). Waveband ranges from 3000 to 50,000 nanometers.

MIN: 0000 MAX: 9998 UNITS: milliwatts per square meter

SCALING FACTOR: 1

DOM: A general domain comprised of the numeric characters (0-9)  
9999 = missing

**FLD LEN: 1**

**Solar Radiation Section Downwelling thermal infrared radiation quality code**

The code that denotes a quality status of the reported downwelling thermal infrared radiation value.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
0: Passed gross limits check  
1: Passed all quality control checks  
2: Suspect  
3: Erroneous

**FLD LEN: 4**

**Solar Radiation Section Upwelling thermal infrared radiation**

Infrared radiation measured using an Epply Precision Infrared Radiometer mounted upside-down ten meters above the surface on a meteorological tower. Unit is Watts per meter per meter (mW/m<sup>2</sup>). Waveband ranges from 3000 to 50,000 nanometers.

MIN: 0000 MAX: 9998 UNITS: watts per square meter  
SCALING FACTOR: 1

DOM: A general domain comprised of the numeric characters (0-9)  
9999 = missing

**FLD LEN: 1**

**Solar Radiation Section Upwelling thermal infrared radiation quality code**

The code that denotes a quality status of the reported upwelling thermal infrared radiation value.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
0: Passed gross limits check  
1: Passed all quality control checks  
2: Suspect  
3: Erroneous

**FLD LEN: 4**

**Solar Radiation Section Photosynthetically active radiation**

The PAR sensor measures global solar radiation from 400 to 700 nm in Watts per square meter (mW/m<sup>2</sup>), which approximates the spectral band active in photosynthesis.

MIN: 0000 MAX: 9998 UNITS: watts per square meter  
SCALING FACTOR: 1

DOM: A general domain comprised of the numeric characters (0-9)  
9999 = missing

**FLD LEN: 1**

**Solar Radiation Section Photosynthetically active radiation quality code**

The code that denotes a quality status of the reported photosynthetically active radiation value.

DOM: A specific domain comprised of the characters in the ASCII character set

- 9 = missing
- 0: Passed gross limits check
- 1: Passed all quality control checks
- 2: Suspect
- 3: Erroneous

**FLD LEN: 3**

**Solar Radiation Section Solar zenith angle**

The Solar Zenith Angle is the angle in degrees between the sun and the perpendicular to the earth's surface. At sunrise it is 90 degrees, at noon it is a function of latitude, and at sunset it is again 90 degrees. Below the horizon value is 100. Values are reported to the nearest tens of degrees (eg, 090).

MIN: 000 MAX: 998 UNITS: angular degrees

SCALING FACTOR: 1

DOM: A general domain comprised of the numeric characters (0-9)

- 999 = missing

**FLD LEN: 1**

**Solar Radiation Section Solar zenith angle quality code**

The code that denotes a quality status of the reported solar zenith angle value.

DOM: A specific domain comprised of the characters in the ASCII character set

- 9 = missing
- 0: Passed gross limits check
- 1: Passed all quality control checks
- 2: Suspect
- 3: Erroneous

---

**FLD LEN: 3**

**Net Solar Radiation Section occurrence identifier**

The identifier that indicates an observation of net solar radiation data

DOM: A specific domain comprised of the characters in the ASCII character set

**GO1:** An indicator of the following items:

- Net Solar Radiation Section Net solar radiation data time period
- Net Solar Radiation Section Net solar radiation
- Net Solar Radiation Section Net solar radiation quality code
- Net Solar Radiation Section Net infrared radiation
- Net Solar Radiation Section Net infrared radiation quality code
- Net Solar Radiation Section Net radiation
- Net Solar Radiation Section Net radiation quality code

**FLD LEN: 4**

**Net Solar Radiation Section Net solar radiation data time period**

Time period in minutes, for which the data in this section (GO1) pertainseg, 0060 = 60 minutes (1 hour).

MIN: 001 MAX: 9998 UNITS: minutes

DOM: A general domain comprised of the numeric characters (0-9)  
9999 = missing

**FLD LEN: 4**

**Net Solar Radiation Section Net solar radiation**

The difference between global radiation and upwelling global radiation measured in Watts per square meter (W/m<sup>2</sup>). If negative, left most position contains a "-" sign.

MIN: -999 MAX: 9998 UNITS: watts per square meter

SCALING FACTOR: 1

DOM: A general domain comprised of the numeric characters (0-9)  
9999 = missing

**FLD LEN: 1**

**Net Solar Radiation Section Net solar radiation quality code**

The code that denotes a quality status of the reported net solar radiation value.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
0: Passed gross limits check  
1: Passed all quality control checks  
2: Suspect  
3: Erroneous

**FLD LEN: 4**

**Net Solar Radiation Section Net infrared radiation**

The difference between downwelling infrared and upwelling infrared measured in Watts per square meter (W/m<sup>2</sup>). If negative, left most position contains a "-" sign.

MIN: -999 MAX: 9998 UNITS: watts per square meter

SCALING FACTOR: 1

DOM: A general domain comprised of the numeric characters (0-9)  
9999 = missing

**FLD LEN: 1**

**Net Solar Radiation Section Net infrared radiation quality code**

The code that denotes a quality status of the reported net infrared radiation value.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
0: Passed gross limits check  
1: Passed all quality control checks  
2: Suspect  
3: Erroneous

**FLD LEN: 4**

**Net Solar Radiation Section Net radiation**

The total of Net Solar and Net Infrared radiation measured in Watts per square meter (W/m<sup>2</sup>).

MIN: -999 MAX: 9998 UNITS: watts per square meter

SCALING FACTOR: 1

DOM: A general domain comprised of the numeric characters (0-9)  
9999 = missing

**FLD LEN: 1**

**Net Solar Radiation Section Net radiation quality code**

The code that denotes a quality status of the reported net radiation value.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
0: Passed gross limits check  
1: Passed all quality control checks  
2: Suspect  
3: Erroneous

---

**FLD LEN: 3**

**Modeled Solar Irradiance Section occurrence identifier**

The identifier that indicates modeled broadband solar irradiance data integrated over the specific time period.

DOM: A specific domain comprised of the characters in the ASCII character set

**GPI:** An indicator of the following items:

Modeled Solar Irradiance Section Data Time Period  
Modeled Solar Irradiance Section Modeled global horizontal  
Modeled Solar Irradiance Section Modeled global horizontal source flag  
Modeled Solar Irradiance Section Modeled global horizontal uncertainty  
Modeled Solar Irradiance Section Modeled direct normal  
Modeled Solar Irradiance Section Modeled direct normal source flag  
Modeled Solar Irradiance Section Modeled direct normal uncertainty  
Modeled Solar Irradiance Section Modeled diffuse horizontal  
Modeled Solar Irradiance Section Modeled diffuse horizontal source flag  
Modeled Solar Irradiance Section Modeled diffuse horizontal uncertainty

**FLD LEN: 4**

**Modeled Solar Irradiance Section Data Time Period**

Time period in minutes, for which the data in this section (GM1) pertains eg,  
0060 = 60 minutes (1 hour).

MIN: 0001 MAX: 9998 UNITS: minutes

SCALING FACTOR: 1

DOM: A general domain comprised of the characters in the ASCII character set  
9999 = missing

**FLD LEN: 4**

**Modeled Solar Irradiance Section Modeled global horizontal**

Total amount of direct and diffuse solar radiation (modeled) received on a horizontal surface.

MIN: 0000 MAX: 9998 UNITS: watts per square meter

SCALING FACTOR: 1

9999 = missing

**FLD LEN: 2**

**Modeled Solar Irradiance Section Modeled global horizontal source flag**

The code that provides source information regarding the global horizontal data.

DOM: A specific domain comprised of the characters in the ASCII character set

99 = missing

01: Value modeled from METSTAT model

02: Value time-shifted from SUNY satellite model

03: Value time-shifted from SUNY satellite model, adjusted to a minimum low-diffuse envelope

**FLD LEN: 3**

**Modeled Solar Irradiance Section Modeled global horizontal uncertainty**

The uncertainty values are based on model type and input data.

MIN: 000 MAX: 100 UNITS: percent

SCALING FACTOR: 1

DOM: A general domain comprised of the characters in the ASCII character set

999 = missing

**FLD LEN: 4**

**Modeled Solar Irradiance Section Modeled direct normal**

The amount of solar radiation (modeled) on a surface normal to the sun.

MIN: 0000 MAX: 9998 UNITS: watts per square meter

SCALING FACTOR: 1

DOM: A general domain comprised of the characters in the ASCII character set

9999 = missing

**FLD LEN: 2**

**Modeled Solar Irradiance Section Modeled direct normal source flag**

The code that provides source information regarding the direct normal data.

DOM: A specific domain comprised of the characters in the ASCII character set

99 = missing

01: Value modeled from METSTAT model

02: Value time-shifted from SUNY satellite model

03: Value time-shifted from SUNY satellite model, adjusted to a minimum low-diffuse envelope

**FLD LEN: 3**

**Modeled Solar Irradiance Section Modeled direct normal uncertainty**

The uncertainty values are based on model type and input data.

MIN: 000 MAX: 100 UNITS: percent

DOM: A general domain comprised of the characters in the ASCII character set  
999 = missing

**FLD LEN: 4**

**Modeled Solar Irradiance Section Modeled diffuse horizontal**

The amount of solar radiation (modeled) received from the sky (excluding the solar disk) on a horizontal surface.

MIN: 0000 MAX: 9998 UNITS: watts per square meter

SCALING FACTOR: 1

DOM: A general domain comprised of the characters in the ASCII character set  
9999 = missing

**FLD LEN: 2**

**Modeled Solar Irradiance Section Modeled diffuse horizontal source flag**

The code that provides source information regarding the diffuse horizontal data.

DOM: A specific domain comprised of the characters in the ASCII character set  
99 = missing

01: Value modeled from METSTAT model

02: Value time-shifted from SUNY satellite model

03: Value time-shifted from SUNY satellite model, adjusted to a minimum low-diffuse envelope

**FLD LEN: 3**

**Modeled Solar Irradiance Section Modeled diffuse horizontal uncertainty**

The uncertainty values are based on model type and input data.

MIN: 000 MAX: 100 UNITS: percent

SCALING FACTOR: 1

DOM: A general domain comprised of the characters in the ASCII character set  
999 = missing

---

**FLD LEN: 3**

**Hourly Solar Angle Section occurrence identifier**

The identifier that denotes the start of the Hourly Solar Angle Section

DOM: A specific domain comprised of the characters in the ASCII character set

**GQ1:** An indicator of the following items:

Hourly Solar Angle Section Hourly solar angle time period

Hourly Solar Angle Section Hourly mean zenith angle (for sunup periods)

Hourly Solar Angle Section Hourly mean zenith angle quality code

Hourly Solar Angle Section Hourly mean azimuth angle (for sunup periods)

#2

Hourly Solar Angle Section Hourly mean zenith angle quality code #2

**FLD LEN: 4**

**Hourly Solar Angle Section Hourly solar angle time period**

Time period in minutes for which the data in this section pertains-eg, 0060 = 60 minutes (1 hour).

MIN: 0001 MAX: 9998 UNITS: minutes

DOM: A general domain comprised of the characters in the ASCII character set  
9999 = missing

**FLD LEN: 4**

**Hourly Solar Angle Section Hourly mean zenith angle (for sunup periods)**

The angle between sun and the zenith as the mean of all 1-minute sunup zenith angle values.

MIN: 0000 MAX: 3600 UNITS: angular degrees

SCALING FACTOR: 10

DOM: A general domain comprised of the characters in the ASCII character set  
9999 = missing

**FLD LEN: 1**

**Hourly Solar Angle Section Hourly mean zenith angle quality code**

The code that denotes a quality status of the hourly mean zenith angle.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
0: Passed gross limits check  
1: Passed all quality control checks.  
2: Suspect  
3: Erroneous

**FLD LEN: 4**

**Hourly Solar Angle Section Hourly mean azimuth angle (for sunup periods)  
#2**

The angle between sun and north as the mean of all 1-minute sunup azimuth angle values.

MIN: 0000 MAX: 3600 UNITS: angular degrees

SCALING FACTOR: 10

DOM: A general domain comprised of the characters in the ASCII character set  
9999 = missing

**FLD LEN: 1**

**Hourly Solar Angle Section Hourly mean azimuth angle quality code #2**

The code that denotes a quality status of the hourly mean azimuth angle.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
0: Passed gross limits check  
1: Passed all quality control checks.  
2: Suspect  
3: Erroneous

---

**FLD LEN: 3**

**Hourly Extraterrestrial Radiation Section occurrence identifier**

The identifier that represents an episode of Hourly Extraterrestrial Radiation Section

DOM: A specific domain comprised of the characters in the ASCII character set

**GR1:** An indicator of the following items:

Hourly Extraterrestrial Radiation Section Time Period

Hourly Extraterrestrial Radiation Section Amount on a horizontal surface

Hourly Extraterrestrial Radiation Section Amount on a horizontal surface quality code

Hourly Extraterrestrial Radiation Section Normal to the sun

Hourly Extraterrestrial Radiation Section Normal to the sun quality code

**FLD LEN: 4**

**Hourly Extraterrestrial Radiation Section Time Period**

Time period in minutes for which the data in this section pertains-eg, 0060 = 60 minutes (1 hour).

MIN: 0001 MAX: 9998 UNITS: minutes

SCALING FACTOR: 1

DOM: A general domain comprised of the characters in the ASCII character set  
9999 = missing

**FLD LEN: 4**

**Hourly Extraterrestrial Radiation Section Amount on a horizontal surface**

The amount of solar radiation received (modeled) on a horizontal surface at the top of the atmosphere.

MIN: 0000 MAX: 9998 UNITS: watts per square meter

SCALING FACTOR: 1

DOM: A general domain comprised of the characters in the ASCII character set  
9999 = missing

**FLD LEN: 1**

**Hourly Extraterrestrial Radiation Section Amount on a horizontal surface quality code**

The code that denotes a quality status of the hourly Extraterrestrial Radiation on a horizontal surface value.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing

0: Passed gross limits check

1: Passed all quality control checks.

2: Suspect

3: Erroneous

**FLD LEN: 4**

**Hourly Extraterrestrial Radiation Section Normal to the sun**

The amount of solar radiation received (modeled) on a surface normal to the sun at the top of the atmosphere.

MIN: 0000 MAX: 9998 UNITS: watts per square meter

SCALING FACTOR: 1

DOM: A general domain comprised of the characters in the ASCII character set  
9999 = missing

**FLD LEN: 1**

**Hourly Extraterrestrial Radiation Section Normal to the sun quality code**

The code that denotes a quality status of the hourly Extraterrestrial Radiation normal to the sun value.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing

0: Passed gross limits check

1: Passed all quality control checks.

2: Suspect

3: Erroneous

---

**Hail Data**

**FLD LEN: 3**

**HAIL occurrence identifier**

The identifier that denotes the start of a HAIL data section

DOM: A specific domain comprised of the characters in the ASCII character set

**HL1:** An indicator of the following items:

HAIL size

HAIL size quality code

**FLD LEN: 3**

**HAIL size**

The diameter of the largest hailstone observed.

MIN: 000 MAX: 200 UNITS: centimeters

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9)  
999 = missing

**FLD LEN: 1**

**HAIL size quality code**

The code that denotes a quality status of the reported HAIL size.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing

0: Passed gross limits check

1: Passed all quality control checks

2: Suspect

- 3: Erroneous
  - 9: Passed gross limits check if element is present
- 

## **Ground Surface Data**

### **FLD LEN: 3**

#### **GROUND-SURFACE-OBSERVATION occurrence identifier**

The identifier that denotes the availability of a

GROUND-SURFACE-OBSERVATION

DOM: A specific domain comprised of the characters in the ASCII character set

IA1: An indicator of the following items:

GROUND-SURFACE-OBSERVATION code

GROUND-SURFACE-OBSERVATION quality code

### **FLD LEN: 2**

#### **GROUND-SURFACE-OBSERVATION code**

The code that denotes the physical condition of the ground's surface.

DOM: A specific domain comprised of the characters in the ASCII character set

99 = missing

00: Surface of ground dry (no appreciable amount of dust or loose sand)

01: Surface of ground dry (without cracks and no appreciable amount of dust or loose sand and without snow or measurable ice cover)

02: Extremely dry with cracks (without snow or measurable ice cover)

03: Loose dry dust or sand not covering ground completely (without snow or measurable ice cover)

04: Loose dry dust or sand covering more than one-half of ground (but not completely)

05: Loose dry dust or sand covering ground completely

06: Thin cover of loose dry dust or sand covering ground completely (without snow or measurable ice cover)

07: Moderate or thick cover of loose dry dust or sand covering ground completely (without snow or measurable ice cover)

08: Surface of ground moist

09: Surface of ground moist (without snow or measurable ice cover)

10: Surface of ground wet (standing water in small or large pools on surface)

11: Surface of ground wet (standing water in small or large pools on surface without snow or measurable ice cover)

12: Flooded (without snow or measurable ice cover)

13: Surface of ground frozen

14: Surface of ground frozen (without snow or measurable ice cover)

15: Glaze or ice on ground, but no snow or melting snow

16: Glaze on ground (without snow or measurable ice cover)

17: Ground predominantly covered by ice

18: Snow or melting snow (with or without ice) covering less than one-half of the ground

- 19: Snow or melting snow (with or without ice) covering more than one-half of the ground but ground not completely covered
- 20: Snow or melting snow (with or without ice) covering ground completely
- 21: Loose dry snow covering less than one-half of the ground
- 22: Loose dry snow covering at least one half of the ground (but not completely)
- 23: Even layer of loose dry snow covering ground completely
- 24: Uneven layer of loose dry snow covering ground completely
- 25: Compact or wet snow (with or without ice) covering less than one-half of the ground
- 26: Compact or wet snow (with or without ice) covering at least one-half of the ground but ground not completely covered
- 27: Even layer of compact or wet snow covering ground completely
- 28: Uneven layer of compact or wet snow covering ground completely
- 29: Snow covering ground completely; deep drifts
- 30: Loose dry dust or sand covering one-half of the ground (but not completely)
- 31: Loose dry snow, dust or sand covering ground completely

**FLD LEN: 1**

**GROUND-SURFACE-OBSERVATION quality code**

The code that denotes a quality status of the reported GROUND-SURFACE-OBSERVATION code.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

0: Passed gross limits check

1: Passed all quality control checks

2: Suspect

3: Erroneous

9: Passed gross limits check if element is present

**FLD LEN: 3**

**GROUND-SURFACE-OBSERVATION minimum-temperature occurrence identifier**

The identifier that denotes the availability of GROUND-SURFACE-OBSERVATION minimum temperature data

DOM: A specific domain comprised of the characters in the ASCII character set

**IA2:** An indicator of the following items:

GROUND-SURFACE-OBSERVATION minimum-temperature period quantity

GROUND-SURFACE-OBSERVATION minimum-temperature value

GROUND-SURFACE-OBSERVATION minimum-temperature quality code

**FLD LEN: 3**

**GROUND-SURFACE-OBSERVATION minimum-temperature period**

**quantity**

The quantity of time over which the ground temperature was sampled to determine the minimum temperature.

MIN: 001 MAX: 480 UNITS: hours

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9)  
999 = missing

**FLD LEN: 5**

**GROUND-SURFACE-OBSERVATION minimum-temperature value**

The minimum temperature of the ground's surface recorded during the observation period.

MIN: -1100 MAX: +1500 UNITS: degrees celsius

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9), a plus sign (+), and a minus sign (-)  
+9999 = missing

**FLD LEN: 1**

**GROUND-SURFACE-OBSERVATION minimum-temperature quality code**

The code that denotes a quality status of the reported

GROUND-SURFACE-OBSERVATION minimum temperature.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
0: Passed gross limits check  
1: Passed all quality control checks  
2: Suspect  
3: Erroneous  
9: Passed gross limits check if element is present

---

**FLD LEN: 3**

**Hourly Surface Temperature Section occurrence identifier**

The identifier that indicates an hourly observation of surface temperature as measured by a radiation sensor for the ground surface. This section appears in the last ISD record of the hour

DOM: A specific domain comprised of the characters in the ASCII character set

**IB1:** An indicator of the following items:

Hourly Surface Temperature Section SURFTEMP hourly average surface temperature

Hourly Surface Temperature Section SURFTEMP\_QC quality code

Hourly Surface Temperature Section SURFTEMP\_FLAG quality code

Hourly Surface Temperature Section SURFTEMP\_MIN hourly minimum surface temperature

Hourly Surface Temperature Section SURFTEMP\_MIN\_QC quality code

Hourly Surface Temperature Section SURFTEMP\_MIN\_FLAG quality code

Hourly Surface Temperature Section SURFTEMP\_MAX hourly maximum surface temperature

Hourly Surface Temperature Section SURFTEMP\_MAX\_QC quality code

Hourly Surface Temperature Section SURFTEMP\_MAX\_FLAG quality code

Hourly Surface Temperature Section SURFTEMP\_STD hourly surface temperature standard deviation

Hourly Surface Temperature Section SURFTEMP\_STD\_QC quality code

Hourly Surface Temperature Section SURFTEMP\_STD\_FLAG quality code

**FLD LEN: 5**

**Hourly Surface Temperature Section SURFTEMP hourly average surface temperature**

The hourly average surface temperature.

MIN: -9999 MAX: +9999 UNITS: degrees celsius

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9), a plus sign (+), and a minus sign (-)

+9999 = missing

**FLD LEN: 1**

**Hourly Surface Temperature Section SURFTEMP\_QC quality code**

The code that indicates ISD's evaluation of the quality status of the hourly average surface temperature.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing

1: Passed all quality control checks

3: Failed all quality control checks

**FLD LEN: 1**

**Hourly Surface Temperature Section SURFTEMP\_FLAG quality code**

The code that indicates the network's internal evaluation of the quality status of the hourly average surface temperature. Most users will find the preceding quality code SURFTEMP\_QC to be the simplest and most useful quality indicator.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing

0: Passed all quality control checks

**FLD LEN: 5**

**Hourly Surface Temperature Section SURFTEMP\_MIN hourly minimum surface temperature**

The minimum 10 second surface temperature for the hour.

MIN: -9999 MAX: +9999 UNITS: degrees celsius

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9), a plus sign

(+), and a minus sign (-)  
99999 = missing

**FLD LEN: 1**

**Hourly Surface Temperature Section SURFTEMP\_MIN\_QC quality code**

The code that indicates ISD's evaluation of the quality status of the hourly minimum surface temperature.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
1: Passed all quality control checks  
3: Failed all quality control checks

**FLD LEN: 1**

**Hourly Surface Temperature Section SURFTEMP\_MIN\_FLAG quality code**

The code that indicates the network's internal evaluation of the quality status of the hourly minimum surface temperature. Most users will find the preceding quality code SURFTEMP\_MIN\_QC to be the simplest and most useful quality indicator.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
0: Passed all quality control checks

**FLD LEN: 5**

**Hourly Surface Temperature Section SURFTEMP\_MAX hourly maximum surface temperature**

The maximum 10 second surface temperature for the hour.

MIN: -9999 MAX: +9999 UNITS: degrees celsius

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9), a plus sign (+), and a minus sign (-)  
99999 = missing

**FLD LEN: 1**

**Hourly Surface Temperature Section SURFTEMP\_MAX\_QC quality code**

The code that indicates ISD's evaluation of the quality status of the hourly maximum surface temperature.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
1: Passed all quality control checks  
3: Failed all quality control checks

**FLD LEN: 1**

**Hourly Surface Temperature Section SURFTEMP\_MAX\_FLAG quality code**

The code that indicates the network's internal evaluation of the quality status of the hourly maximum surface temperature. Most users will find the preceding quality code SURFTEMP\_MAX\_QC to be the simplest and most useful quality indicator.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
0: Passed all quality control checks

**FLD LEN: 4**

**Hourly Surface Temperature Section SURFTEMP\_STD hourly surface temperature standard deviation**

The hourly surface temperature standard deviation.

MIN: 0000 MAX: 9999 UNITS: degrees celsius

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9)  
9999 = missing

**FLD LEN: 1**

**Hourly Surface Temperature Section SURFTEMP\_STD\_QC quality code**

The code that indicates ISD's evaluation of the quality status of the hourly surface temperature standard deviation.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
1: Passed all quality control checks  
3: Failed all quality control checks

**FLD LEN: 1**

**Hourly Surface Temperature Section SURFTEMP\_STD\_FLAG quality code**

The code that indicates the network's internal evaluation of the quality status of hourly surface temperature standard deviation. Most users will find the preceding quality code SURFTEMP\_STD\_QC to be the simplest and most useful quality indicator.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
0: Passed all quality control checks

---

**FLD LEN: 3**

**Hourly Surface Temperature Sensor Section occurrence identifier**

The identifier that indicates an hourly observation of the equipment temperature for the sensor used to measure ground surface temperature. This section appears in the last ISD record of the hour

DOM: A specific domain comprised of the characters in the ASCII character set

**IB2:** An indicator of the following items:

Hourly Surface Temperature Sensor Section SURFTEMP\_SB equipment temperature

Hourly Surface Temperature Sensor Section SURFTEMP\_SB\_QC quality code

Hourly Surface Temperature Sensor Section SURFTEMP\_SB\_FLAG quality code

Hourly Surface Temperature Sensor Section SURFTEMP\_SB\_STD hourly sensor housing temperature standard deviation for the hour

Hourly Surface Temperature Sensor Section SURFTEMP\_SB\_STD\_QC quality code

Hourly Surface Temperature Sensor Section SURFTEMP\_SB\_STD\_FLAG quality code

**FLD LEN: 5**

**Hourly Surface Temperature Sensor Section SURFTEMP\_SB equipment temperature**

The average temperature of the surface temperature sensor housing (sensor body) for the hour.

MIN: -9999 MAX: +9999 UNITS: degrees celsius

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9), a plus sign (+), and a minus sign (-)

99999 = missing

**FLD LEN: 1**

**Hourly Surface Temperature Sensor Section SURFTEMP\_SB\_QC quality code**

The code that indicates ISD's evaluation of the quality status of the surface temperature sensor housing

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing

1: Passed all quality control checks

3: Failed all quality control checks

**FLD LEN: 1**

**Hourly Surface Temperature Sensor Section SURFTEMP\_SB\_FLAG quality code**

The code that indicates the network's internal evaluation of the quality status of the surface temperature sensor housing temperature. Most users will find the preceding quality code SURFTEMP\_SB\_QC to be the simplest and most useful quality indicator.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing

0: Passed all quality control checks

**FLD LEN: 4**

**Hourly Surface Temperature Sensor Section SURFTEMP\_SB\_STD hourly sensor housing temperature standard deviation for the hour**

The hourly 10 second hourly surface temperature standard deviation.  
MIN: 0000 MAX: 9999 UNITS: degrees celsius  
SCALING FACTOR: 10  
DOM: A general domain comprised of the numeric characters (0-9)  
9999 = missing

**FLD LEN: 1**

**Hourly Surface Temperature Sensor Section SURFTEMP\_SB\_STD\_QC  
quality code**

The code that indicates ISD's evaluation of the quality status of the hourly sensor housing temperature standard deviation.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
1: Passed all quality control checks  
3: Failed all quality control checks

**FLD LEN: 1**

**Hourly Surface Temperature Sensor Section SURFTEMP\_SB\_STD\_FLAG  
quality code**

The code that indicates the network's internal evaluation of the quality status of sensor housing temperature standard deviation.. Most users will find the preceding quality code SURFTEMP\_SB\_STD\_QC to be the simplest and most useful quality indicator.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
0: Passed all quality control checks

---

**FLD LEN: 3**

**GROUND-SURFACE-OBSERVATION pan evaporation data occurrence  
identifier**

The identifier that denotes the availability of  
GROUND-SURFACE-OBSERVATION evaporation data

DOM: A specific domain comprised of the characters in the ASCII character set

**ICI:** An indicator of the following items:

GROUND-SURFACE-OBSERVATION pan evaporation data Time period  
in hours

GROUND-SURFACE-OBSERVATION pan evaporation data Wind  
movement

GROUND-SURFACE-OBSERVATION pan evaporation data Wind  
movement condition code

GROUND-SURFACE-OBSERVATION pan evaporation data Wind  
movement quality code

GROUND-SURFACE-OBSERVATION pan evaporation data Evaporation  
data

GROUND-SURFACE-OBSERVATION pan evaporation data Evaporation  
condition code

GROUND-SURFACE-OBSERVATION pan evaporation data Evaporation quality code  
GROUND-SURFACE-OBSERVATION pan evaporation data Maximum pan water temperature  
GROUND-SURFACE-OBSERVATION pan evaporation data Maximum pan water temperature condition code  
GROUND-SURFACE-OBSERVATION pan evaporation data Maximum pan water temperature quality code  
GROUND-SURFACE-OBSERVATION pan evaporation data Minimum pan water temperature  
GROUND-SURFACE-OBSERVATION pan evaporation data Minimum pan water temperature condition code  
GROUND-SURFACE-OBSERVATION pan evaporation data Minimum pan water temperature quality code

**FLD LEN: 2**

**GROUND-SURFACE-OBSERVATION pan evaporation data Time period in hours**

The quantity of time over which the evaporation and related data were sampled.  
MIN: 01 MAX: 98 UNITS: hours  
SCALING FACTOR: 1  
DOM: A general domain comprised of the numeric characters (0-9)  
99 = missing

**FLD LEN: 4**

**GROUND-SURFACE-OBSERVATION pan evaporation data Wind movement**

The wind movement over the evaporation pan during the time period of the observation.  
MIN: 0000 MAX: 9998 UNITS: statute miles  
SCALING FACTOR: 1  
DOM: A general domain comprised of the numeric characters (0-9)  
9999 = missing

**FLD LEN: 1**

**GROUND-SURFACE-OBSERVATION pan evaporation data Wind movement condition code**

The code that denotes certain conditions or flags which describe the data.  
DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
1: No special conditions  
2: Data will be included in subsequent observation  
3: Data are accumulated from previous observation(s), so cover a longer than typical time period

**FLD LEN: 1**

**GROUND-SURFACE-OBSERVATION pan evaporation data Wind movement quality code**

The code that denotes a quality status of the reported wind movement data.

DOM: A specific domain comprised of the characters in the ASCII character set

- 9 = missing
- 4: Passed gross limits check, from NCDC Data source
- 5: Passed all quality control checks, from NCDC Data source
- 6: Suspect, from NCDC Data source
- 7: Erroneous, from NCDC Data source
- 9: Passed gross limits check if element is present

**FLD LEN: 3**

**GROUND-SURFACE-OBSERVATION pan evaporation data Evaporation data**

The total evaporation which was measured during the time period of the observation.

MIN: 000 MAX: 998 UNITS: inches

SCALING FACTOR: 100

DOM: A general domain comprised of the numeric characters (0-9)

- 999 = missing

**FLD LEN: 1**

**GROUND-SURFACE-OBSERVATION pan evaporation data Evaporation condition code**

The code that denotes certain conditions or flags which describe the data.

DOM: A specific domain comprised of the characters in the ASCII character set

- 9 = missing
- 1: No special conditions
- 2: Data will be included in subsequent observation
- 3: Data are accumulated from previous observation(s), so cover a longer than typical time period

**FLD LEN: 1**

**GROUND-SURFACE-OBSERVATION pan evaporation data Evaporation quality code**

The code that denotes a quality status of the reported evaporation data.

DOM: A specific domain comprised of the characters in the ASCII character set

- 9 = missing
- 4: Passed gross limits check, from NCDC Data source
- 5: Passed all quality control checks, from NCDC Data source
- 6: Suspect, from NCDC Data source
- 7: Erroneous, from NCDC Data source
- 9: Passed gross limits check if element is present

**FLD LEN: 4**

**GROUND-SURFACE-OBSERVATION pan evaporation data Maximum**

**pan water temperature**

The maximum temperature in the evaporation pan during the time period of the observation.

MIN: -100 MAX: +500 UNITS: degrees celsius

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9), a plus sign (+), and a minus sign (-)

9999 = missing

**FLD LEN: 1**

**GROUND-SURFACE-OBSERVATION pan evaporation data Maximum pan water temperature condition code**

The code that denotes certain conditions or flags which describe the data.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

1: No special conditions

2: Data will be included in subsequent observation

3: Data are accumulated from previous observation(s), so cover a longer than typical time period

**FLD LEN: 1**

**GROUND-SURFACE-OBSERVATION pan evaporation data Maximum pan water temperature quality code**

The code that denotes a quality status of the reported maximum water temperature data.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

4: Passed gross limits check, from NCDC Data source

5: Passed all quality control checks, from NCDC Data source

6: Suspect, from NCDC Data source

7: Erroneous, from NCDC Data source

9: Passed gross limits check if element is present

**FLD LEN: 4**

**GROUND-SURFACE-OBSERVATION pan evaporation data Minimum pan water temperature**

The maximum temperature in the evaporation pan during the time period of the observation.

MIN: -100 MAX: +500 UNITS: degrees celsius

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9), a plus sign (+), and a minus sign (-)

9999 = missing

**FLD LEN: 1**

**GROUND-SURFACE-OBSERVATION pan evaporation data Minimum**

**pan water temperature condition code**

The code that denotes certain conditions or flags which describe the data.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

1: No special conditions

2: Data will be included in subsequent observation

3: Data are accumulated from previous observation(s), so cover a longer than typical time period

**FLD LEN: 1**

**GROUND-SURFACE-OBSERVATION pan evaporation data Minimum**

**pan water temperature quality code**

The code that denotes a quality status of the reported minimum water temperature data.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

4: Passed gross limits check, from NCDC Data source

5: Passed all quality control checks, from NCDC Data source

6: Suspect, from NCDC Data source

7: Erroneous, from NCDC Data source

9: Passed gross limits check if element is present

---

**Temperature Data**

**FLD LEN: 3**

**EXTREME-AIR-TEMPERATURE occurrence identifier**

The identifier that denotes the start of an EXTREME-AIR-TEMPERATURE data section

DOM: A specific domain comprised of the characters in the ASCII character set

**KA2 - KA1:** An indicator of up to 2 repeating fields of the following items:

EXTREME-AIR-TEMPERATURE period quantity

EXTREME-AIR-TEMPERATURE code

EXTREME-AIR-TEMPERATURE temperature

EXTREME-AIR-TEMPERATURE temperature quality code

**FLD LEN: 3**

**EXTREME-AIR-TEMPERATURE period quantity**

The quantity of time over which temperatures were sampled to determine the EXTREME-AIR-TEMPERATURE

MIN: 001 MAX: 480 UNITS: hours

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9)

999 = missing

**FLD LEN: 1**

**EXTREME-AIR-TEMPERATURE code**

The code that denotes an EXTREME-AIR-TEMPERATURE as a maximum or a minimum

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

M: Maximum temperature

N: Minimum temperature

O: Estimated minimum temperature

P: Estimated maximum temperature

**FLD LEN: 5**

**EXTREME-AIR-TEMPERATURE temperature**

The temperature of the high or low air temperature for a given period

MIN: -1100 MAX: +0630 UNITS: degrees celsius

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9), a plus sign (+), and a minus sign (-)

+9999 = missing

**FLD LEN: 1**

**EXTREME-AIR-TEMPERATURE temperature quality code**

The code that denotes a quality status of the reported

EXTREME-AIR-TEMPERATURE temperature

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

0: Passed gross limits check

1: Passed all quality control checks

2: Suspect

3: Erroneous

4: Passed gross limits check , from NCDC Surface Hourly or NCDC

ASOS/AWOS

5: Passed all quality control checks, from NCDC Surface Hourly or NCDC

ASOS/AWOS

6: Suspect, from NCDC Surface Hourly or NCDC ASOS/AWOS

7: Erroneous, from NCDC Surface Hourly or NCDC ASOS/AWOS

9: Passed gross limits check if element is present

---

**FLD LEN: 3**

**AVERAGE-AIR-TEMPERATURE occurrence identifier**

The identifier that denotes the start of an AVERAGE-AIR-TEMPERATURE data section

DOM: A specific domain comprised of the characters in the ASCII character set

**KB3 - KB1:** An indicator of up to 3 repeating fields of the following items:

AVERAGE-AIR-TEMPERATURE period quantity

AVERAGE-AIR-TEMPERATURE code

AVERAGE-AIR-TEMPERATURE temperature

AVERAGE-AIR-TEMPERATURE temperature quality code

**FLD LEN: 3**

**AVERAGE-AIR-TEMPERATURE period quantity**

The quantity of time over which temperatures were sampled to determine the AVERAGE-AIR-TEMPERATURE

MIN: 001 MAX: 744 UNITS: hours

SCALING FACTOR: 1

DOM: A general domain comprised of the numeric characters (0-9)  
999 = missing

**FLD LEN: 1**

**AVERAGE-AIR-TEMPERATURE code**

The code that denotes an AVERAGE-AIR-TEMPERATURE as a mean, an average maximum, or an average minimum

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing

A: Mean temperature

M: Maximum temperature average

N: Minimum temperature average

**FLD LEN: 5**

**AVERAGE-AIR-TEMPERATURE temperature**

The mean air temperature for a given period, typically for the day or month, as reported by the station (ie, not derived from other data fields)

MIN: -9900 MAX: +6300 UNITS: degrees celsius

SCALING FACTOR: 100

DOM: A general domain comprised of the numeric characters (0-9), a plus sign (+), and a minus sign (-)  
+9999 = missing

**FLD LEN: 1**

**AVERAGE-AIR-TEMPERATURE temperature quality code**

The code that denotes a quality status of the reported AVERAGE-AIR-TEMPERATURE temperature

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing

0: Passed gross limits check

1: Passed all quality control checks

2: Suspect

3: Erroneous

4: Passed gross limits check, from NCDC ASOS/AWOS

5: Passed all quality control checks, from NCDC ASOS/AWOS

6: Suspect, from NCDC ASOS/AWOS

7: Erroneous, from NCDC ASOS/AWOS

9: Passed gross limits check if element is present

---

**FLD LEN: 3**

**EXTREME AIR-TEMPERATURE FOR THE MONTH occurrence identifier**

The identifier that denotes the start of an EXTREME AIR-TEMPERATURE data section

DOM: A specific domain comprised of the characters in the ASCII character set

**KC2 - KC1:** An indicator of up to 2 repeating fields of the following items:

EXTREME AIR-TEMPERATURE FOR THE MONTH code

EXTREME AIR-TEMPERATURE FOR THE MONTH condition code

EXTREME AIR-TEMPERATURE FOR THE MONTH temperature

EXTREME AIR-TEMPERATURE FOR THE MONTH dates of occurrence

EXTREME AIR-TEMPERATURE FOR THE MONTH temperature quality code

**FLD LEN: 1**

**EXTREME AIR-TEMPERATURE FOR THE MONTH code**

The code that denotes an EXTREME AIR-TEMPERATURE FOR THE MONTH as a maximum or a minimum

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

M: Maximum temperature

N: Minimum temperature

**FLD LEN: 1**

**EXTREME AIR-TEMPERATURE FOR THE MONTH condition code**

The code for EXTREME AIR-TEMPERATURE FOR THE MONTH

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

1: The value occurred on other dates in addition to those listed

**FLD LEN: 5**

**EXTREME AIR-TEMPERATURE FOR THE MONTH temperature**

The extremes air temperature for the month, as reported by the station (ie, not derived from other data fields)

MIN: -1100 MAX: +0630 UNITS: degrees celsius

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9), a plus sign (+), and a minus sign (-)

+9999 = missing

**FLD LEN: 6**

**EXTREME AIR-TEMPERATURE FOR THE MONTH dates of occurrence**

The dates of occurrence of EXTREME AIR-TEMPERATURE, given as the date for each occurrence, for up to 3 occurrences; e.g., 041016 indicates days 04, 10, and 16

MIN: 01 MAX: 31

DOM: A general domain comprised of the numeric characters (0-9)  
99 = missing

**FLD LEN: 1**

**EXTREME AIR-TEMPERATURE FOR THE MONTH temperature quality code**

The code that denotes a quality status of the reported EXTREME AIR-TEMPERATURE FOR THE MONTH

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing

0: Passed gross limits check

1: Passed all quality control checks

2: Suspect

3: Erroneous

4: Passed gross limits check, from NCDC ASOS/AWOS

5: Passed all quality control checks, from NCDC ASOS/AWOS

6: Suspect, from NCDC ASOS/AWOS

7: Erroneous, from NCDC ASOS/AWOS

9: Passed gross limits check if element is present

---

**FLD LEN: 3**

**HEATING-COOLING-DEGREE-DAYS occurrence identifier**

The identifier that denotes the start of an HEATING-COOLING-DEGREE-DAYS data section

DOM: A specific domain comprised of the characters in the ASCII character set

**KD2 - KD1:** An indicator of up to 2 repeating fields of the following items:

HEATING-COOLING-DEGREE-DAYS period quantity

HEATING-COOLING-DEGREE-DAYS code

HEATING-COOLING-DEGREE-DAYS value

HEATING-COOLING-DEGREE-DAYS quality code

**FLD LEN: 3**

**HEATING-COOLING-DEGREE-DAYS period quantity**

The quantity of time over which temperatures were sampled to determine the HEATING-COOLING-DEGREE-DAYS

MIN: 001 MAX: 744 UNITS: hours

SCALING FACTOR: 1

DOM: A general domain comprised of the numeric characters (0-9)  
999 = missing

**FLD LEN: 1**

**HEATING-COOLING-DEGREE-DAYS code**

The code that denotes the value as being heating degree days or cooling degree days

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
C: Cooling Degree Days  
H: Heating Degree Days

**FLD LEN: 4**

**HEATING-COOLING-DEGREE-DAYS value**

The total heating or cooling degree days for a given period, typically for the day or month, as reported by the station (ie, not derived from other data fields)

MIN: 0000 MAX: 5000 UNITS: Heating or Cooling Degree Days

SCALING FACTOR: 1

DOM: A general domain comprised of the numeric characters (0-9)  
9999 = missing

**FLD LEN: 1**

**HEATING-COOLING-DEGREE-DAYS quality code**

The code that denotes a quality status of the reported HEATING-COOLING-DEGREE-DAYS data

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing

0: Passed gross limits check

1: Passed all quality control checks

2: Suspect

3: Erroneous

4: Passed gross limits check , from NCDC ASOS/AWOS

5: Passed all quality control checks, from NCDC ASOS/AWOS

6: Suspect, from NCDC ASOS/AWOS

7: Erroneous, from NCDC ASOS/AWOS

9: Passed gross limits check if element is present

---

**FLD LEN: 3**

**EXTREME TEMPERATURES, NUMBER OF DAYS EXCEEDING CRITERIA, FOR THE MONTH occurrence identifier**

The identifier that represents NUMBER OF DAYS EXCEEDING CRITERIA data

DOM: A specific domain comprised of the characters in the ASCII character set

**KE1:** An indicator of the following items:

EXTREME TEMPERATURES, NUMBER OF DAYS EXCEEDING CRITERIA, FOR THE MONTH Number of days with maximum temperature 32 F (0.0 C) or lower

EXTREME TEMPERATURES, NUMBER OF DAYS EXCEEDING CRITERIA, FOR THE MONTH Number of days with maximum temperature 32 F (0.0 C) or lower quality code

EXTREME TEMPERATURES, NUMBER OF DAYS EXCEEDING CRITERIA, FOR THE MONTH Number of days with maximum temperature 90 F (32.2 C) or higher

EXTREME TEMPERATURES, NUMBER OF DAYS EXCEEDING  
CRITERIA, FOR THE MONTH Number of days with maximum  
temperature 90 F (32.2 C) or higher quality code

EXTREME TEMPERATURES, NUMBER OF DAYS EXCEEDING  
CRITERIA, FOR THE MONTH Number of days with minimum  
temperature 32 F (0.0 C) or lower

EXTREME TEMPERATURES, NUMBER OF DAYS EXCEEDING  
CRITERIA, FOR THE MONTH Number of days with minimum  
temperature 32 F (0.0 C) or lower quality code

EXTREME TEMPERATURES, NUMBER OF DAYS EXCEEDING  
CRITERIA, FOR THE MONTH Number of days with minimum  
temperature 0 F (-17.8 C) or lower

EXTREME TEMPERATURES, NUMBER OF DAYS EXCEEDING  
CRITERIA, FOR THE MONTH Number of days with minimum  
temperature 0 F (-17.8 C) or lower quality code

**FLD LEN: 2**

**EXTREME TEMPERATURES, NUMBER OF DAYS EXCEEDING  
CRITERIA, FOR THE MONTH Number of days with maximum  
temperature 32 F (0.0 C) or lower**

The number of days with maximum temperature 32 F (0.0 C) or lower

MIN: 00 MAX: 31

DOM: A general domain comprised of the numeric characters (0-9)  
99 = missing

**FLD LEN: 1**

**EXTREME TEMPERATURES, NUMBER OF DAYS EXCEEDING  
CRITERIA, FOR THE MONTH Number of days with maximum  
temperature 32 F (0.0 C) or lower quality code**

The code that denotes a quality status of the reported days with max temperature  
32 F (0.0 C) or lower

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing

0: Passed gross limits check

1: Passed all quality control checks

2: Suspect

3: Erroneous

4: Passed gross limits check, from NCDC ASOS/AWOS

5: Passed all quality control checks, from NCDC ASOS/AWOS

6: Suspect, from NCDC ASOS/AWOS

7: Erroneous, from NCDC ASOS/AWOS

9: Passed gross limits check if element is present

**FLD LEN: 2**

**EXTREME TEMPERATURES, NUMBER OF DAYS EXCEEDING  
CRITERIA, FOR THE MONTH Number of days with maximum**

**temperature 90 F (32.2 C) or higher**

The number of days with maximum temperature 90 F (32.2 C) or higher, except for Alaska 70 F (21.1 C) or higher

MIN: 00 MAX: 31

DOM: A general domain comprised of the numeric characters (0-9)  
99 = missing

**FLD LEN: 1**

**EXTREME TEMPERATURES, NUMBER OF DAYS EXCEEDING CRITERIA, FOR THE MONTH Number of days with maximum temperature 90 F (32.2 C) or higher quality code**

The code that denotes a quality status of the reported days with max temperature 90 F (32.2 C) or higher (70 F for Alaska)

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
0: Passed gross limits check  
1: Passed all quality control checks  
2: Suspect  
3: Erroneous  
4: Passed gross limits check, from NCDC ASOS/AWOS  
5: Passed all quality control checks, from NCDC ASOS/AWOS  
6: Suspect, from NCDC ASOS/AWOS  
7: Erroneous, from NCDC ASOS/AWOS  
9: Passed gross limits check if element is present

**FLD LEN: 2**

**EXTREME TEMPERATURES, NUMBER OF DAYS EXCEEDING CRITERIA, FOR THE MONTH Number of days with minimum temperature 32 F (0.0 C) or lower**

The number of days with minimum temperature 32 F (0.0 C) or lower

MIN: 00 MAX: 31

DOM: A general domain comprised of the numeric characters (0-9)  
99 = missing

**FLD LEN: 1**

**EXTREME TEMPERATURES, NUMBER OF DAYS EXCEEDING CRITERIA, FOR THE MONTH Number of days with minimum temperature 32 F (0.0 C) or lower quality code**

The code that denotes a quality status of the reported days with min temperature 32 F (0.0 C) or lower

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
0: Passed gross limits check  
1: Passed all quality control checks  
2: Suspect  
3: Erroneous

- 4: Passed gross limits check, from NCDC ASOS/AWOS
- 5: Passed all quality control checks, from NCDC ASOS/AWOS
- 6: Suspect, from NCDC ASOS/AWOS
- 7: Erroneous, from NCDC ASOS/AWOS
- 9: Passed gross limits check if element is present

**FLD LEN: 2**

**EXTREME TEMPERATURES, NUMBER OF DAYS EXCEEDING CRITERIA, FOR THE MONTH Number of days with minimum temperature 0 F (-17.8 C) or lower**

The number of days with minimum temperature 0 F (-17.8 C) or lower

MIN: 00 MAX: 31

DOM: A general domain comprised of the numeric characters (0-9)  
99 = missing

**FLD LEN: 1**

**EXTREME TEMPERATURES, NUMBER OF DAYS EXCEEDING CRITERIA, FOR THE MONTH Number of days with minimum temperature 0 F (-17.8 C) or lower quality code**

The code that denotes a quality status of the reported days with min temperature 0 F (-17.8 C) or lower

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing

- 0: Passed gross limits check
  - 1: Passed all quality control checks
  - 2: Suspect
  - 3: Erroneous
  - 4: Passed gross limits check, from NCDC ASOS/AWOS
  - 5: Passed all quality control checks, from NCDC ASOS/AWOS
  - 6: Suspect, from NCDC ASOS/AWOS
  - 7: Erroneous, from NCDC ASOS/AWOS
  - 9: Passed gross limits check if element is present
- 

**FLD LEN: 3**

**Hourly Calculated Temperature Section occurrence identifier**

The identifier that indicates a calculated hourly average air temperature derived by an algorithm whose inputs are hourly temperature averages from each of the 3 co-located temperature sensors. This section appears in the last ISD record of the hour for the 15-minute data stream only. Unlike the temperature value found in the mandatory data section which is produced using 5-minute values, this value is calculated using an hourly average

DOM: A specific domain comprised of the characters in the ASCII character set

**KF1:** An indicator of the following items:

- Hourly Calculated Temperature Section derived air temperature
- Hourly Calculated Temperature Section quality code

**FLD LEN: 5**

**Hourly Calculated Temperature Section derived air temperature**

The calculated hourly average air temperature

MIN: -9999 MAX: +9999 UNITS: degrees celsius

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9), a plus sign (+), and a minus sign (-)

+9999 = missing

**FLD LEN: 1**

**Hourly Calculated Temperature Section quality code**

The code that indicates ISD's evaluation of the quality status of the calculated hourly average air temperature

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

1: Passed all quality control checks

3: Failed all quality control checks

---

**Pressure Data**

**FLD LEN: 3**

**ATMOSPHERIC-PRESSURE-OBSERVATION (ALT/STP) occurrence identifier**

The identifier that denotes the start of an

ATMOSPHERIC-PRESSURE-OBSERVATION data section

DOM: A specific domain comprised of the characters in the ASCII character set

**MA1:** An indicator of the following items:

ATMOSPHERIC-PRESSURE-OBSERVATION (ALT/STP) altimeter setting rate

ATMOSPHERIC-PRESSURE-OBSERVATION (ALT/STP) altimeter quality code

ATMOSPHERIC-PRESSURE-OBSERVATION (ALT/STP) station pressure rate

ATMOSPHERIC-PRESSURE-OBSERVATION (ALT/STP) station pressure quality code

**FLD LEN: 5**

**ATMOSPHERIC-PRESSURE-OBSERVATION (ALT/STP) altimeter setting rate**

The pressure value to which an aircraft altimeter is set so that it will indicate the altitude relative to mean sea level of an aircraft on the ground at the location for which the value was determined.

MIN: 08635 MAX: 10904 UNITS: hectopascals

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9)

9 = missing

**FLD LEN: 1**

**ATMOSPHERIC-PRESSURE-OBSERVATION (ALT/STP) altimeter  
quality code**

The code that denotes a quality status of an altimeter setting rate.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

0: Passed gross limits check

1: Passed all quality control checks

2: Suspect

3: Erroneous

4: Passed gross limits check , data originate from an NCDC data source

5: Passed all quality control checks, data originate from an NCDC data source

6: Suspect, data originate from an NCDC data source

7: Erroneous, data originate from an NCDC data source

9: Passed gross limits check if element is present

**FLD LEN: 5**

**ATMOSPHERIC-PRESSURE-OBSERVATION (ALT/STP) station  
pressure rate**

The atmospheric pressure at the observation point.

MIN: 04500 MAX: 10900 UNITS: hectopascals

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9)

99999 = missing

**FLD LEN: 1**

**ATMOSPHERIC-PRESSURE-OBSERVATION (ALT/STP) station  
pressure quality code**

The code that denotes a quality status of the station pressure of an  
ATMOSPHERIC-PRESSURE-OBSERVATION.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

0: Passed gross limits check

1: Passed all quality control checks

2: Suspect

3: Erroneous

4: Passed gross limits check , data originate from an NCDC data source

5: Passed all quality control checks, data originate from an NCDC data source

6: Suspect, data originate from an NCDC data source

7: Erroneous, data originate from an NCDC data source

9: Passed gross limits check if element is present

---

**FLD LEN: 3**

**ATMOSPHERIC-PRESSURE-CHANGE occurrence identifier**

The identifier that denotes the start of an  
ATMOSPHERIC-PRESSURE-CHANGE data section

DOM: A specific domain comprised of the characters in the ASCII character set

**MD1:** An indicator of the following items:

- ATMOSPHERIC-PRESSURE-CHANGE tendency code
- ATMOSPHERIC-PRESSURE-CHANGE quality tendency code
- ATMOSPHERIC-PRESSURE-CHANGE three hour quantity
- ATMOSPHERIC-PRESSURE-CHANGE quality three hour code
- ATMOSPHERIC-PRESSURE-CHANGE twenty four hour quantity
- ATMOSPHERIC-PRESSURE-CHANGE quality twenty four hour code

**FLD LEN: 1**

**ATMOSPHERIC-PRESSURE-CHANGE tendency code**

The code that denotes the characteristics of an  
ATMOSPHERIC-PRESSURE-CHANGE that occurs over a period of three  
hours.

DOM: A specific domain comprised of the characters in the ASCII character set

- 9 = missing
- 0: Increasing, then decreasing; atmospheric pressure the same or higher than 3 hours ago
- 1: Increasing then steady; or increasing, then increasing more slowly; atmospheric pressure now higher than 3 hours ago
- 2: Increasing (steadily or unsteadily); atmospheric pressure now higher than 3 hours ago
- 3: Decreasing or steady, then increasing; or increasing, then increasing more rapidly; atmospheric pressure now higher than 3 hours ago
- 4: Steady; atmospheric pressure the same as 3 hours ago
- 5: Decreasing, then increasing; atmospheric pressure the same or lower than 3 hours ago
- 6: Decreasing, then steady; or decreasing, then decreasing more slowly; atmospheric pressure now lower than 3 hours ago
- 7: Decreasing (steadily or unsteadily); atmospheric pressure now lower than 3 hours ago
- 8: Steady or increasing, then decreasing; or decreasing, then decreasing more rapidly; atmospheric pressure now lower than 3 hours ago

**FLD LEN: 1**

**ATMOSPHERIC-PRESSURE-CHANGE quality tendency code**

The code that denotes a quality status of the tendency of an  
ATMOSPHERIC-PRESSURE-CHANGE.

DOM: A specific domain comprised of the characters in the ASCII character set

- 9 = missing
- 0: Passed gross limits check
- 1: Passed all quality control checks
- 2: Suspect

- 3: Erroneous
- 9: Passed gross limits check if element is present

**FLD LEN: 3**

**ATMOSPHERIC-PRESSURE-CHANGE three hour quantity**

The absolute value of the quantity of change in atmospheric pressure measured at the beginning and end of a three hour period.

MIN: 000 MAX: 500 UNITS: hectopascals

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9)

999 = missing

**FLD LEN: 1**

**ATMOSPHERIC-PRESSURE-CHANGE quality three hour code**

The code that denotes the quality status of the three hour quantity for an ATMOSPHERIC-

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

0: Passed gross limits check

1: Passed all quality control checks

2: Suspect

3: Erroneous

9: Passed gross limits check if element is present

**FLD LEN: 4**

**ATMOSPHERIC-PRESSURE-CHANGE twenty four hour quantity**

The quantity of change in atmospheric pressure measured at the beginning and end of a twenty four hour period.

MIN: -800 MAX: +800 UNITS: hectopascals

SCALING FACTOR: 10

+999 = missing

**FLD LEN: 1**

**ATMOSPHERIC-PRESSURE-CHANGE quality twenty four hour code**

The code that denotes a quality status of a reported twenty four hour ATMOSPHERIC-PRESSURE-

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

0: Passed gross limits check

1: Passed all quality control checks

2: Suspect

3: Erroneous

9: Passed gross limits check if element is present

---

**FLD LEN: 3**

**GEOPOTENTIAL-HEIGHT-ISOBARIC-LEVEL occurrence identifier**

The identifier that denotes the availability of

GEOPOTENTIAL-HEIGHT-ISOBARIC-LEVEL data

DOM: A specific domain comprised of the characters in the ASCII character set

**ME1:** An indicator of the following items:

GEOPOTENTIAL-HEIGHT-ISOBARIC-LEVEL code

GEOPOTENTIAL-HEIGHT-ISOBARIC-LEVEL height dimension

GEOPOTENTIAL-HEIGHT-ISOBARIC-LEVEL height dimension quality code

**FLD LEN: 1**

**GEOPOTENTIAL-HEIGHT-ISOBARIC-LEVEL code**

The code that denotes the isobaric surface used to represent geopotential height.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

1: 1000 hectopascals

2: 925 hectopascals

3: 850 hectopascals

4: 700 hectopascals

5: 500 hectopascals

**FLD LEN: 4**

**GEOPOTENTIAL-HEIGHT-ISOBARIC-LEVEL height dimension**

The height of a GEOPOTENTIAL-HEIGHT-ISOBARIC-LEVEL

MIN: 0000 MAX: 9998 UNITS: geopotential meters

SCALING FACTOR: 1

DOM: A general domain comprised of the numeric characters (0-9)

9999 = missing

**FLD LEN: 1**

**GEOPOTENTIAL-HEIGHT-ISOBARIC-LEVEL height dimension quality code**

The code that denotes a quality status of the reported

GEOPOTENTIAL-HEIGHT-ISOBARIC-LEVEL height dimension.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

0: Passed gross limits check

1: Passed all quality control checks

2: Suspect

3: Erroneous

9: Passed gross limits check if element is present

---

**FLD LEN: 3**

**ATMOSPHERIC-PRESSURE-OBSERVATION (STP/SLP) occurrence identifier**

The identifier that denotes the start of an  
ATMOSPHERIC-PRESSURE-OBSERVATION data section

DOM: A specific domain comprised of the characters in the ASCII character set

**MG1:** An indicator of the following items:

ATMOSPHERIC-PRESSURE-OBSERVATION (STP/SLP) average station  
pressure for the day

ATMOSPHERIC-PRESSURE-OBSERVATION (STP/SLP) average station  
pressure quality code

ATMOSPHERIC-PRESSURE-OBSERVATION (STP/SLP) minimum sea  
level pressure for the day

ATMOSPHERIC-PRESSURE-OBSERVATION (STP/SLP) minimum sea  
level pressure for the day quality code

**FLD LEN: 5**

**ATMOSPHERIC-PRESSURE-OBSERVATION (STP/SLP) average station  
pressure for the day**

The average pressure at the observation point for the day.

MIN: 04500 MAX: 10900 UNITS: hectopascals

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9)

99999 = missing

**FLD LEN: 1**

**ATMOSPHERIC-PRESSURE-OBSERVATION (STP/SLP) average station  
pressure quality code**

The code that denotes the quality status of an average station pressure.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

4: Passed gross limits check, data originate from an NCDC data source

5: Passed all quality control checks, data originate from an NCDC data  
source

6: Suspect, data originate from an NCDC data source

7: Erroneous, data originate from an NCDC data source

9: Passed gross limits check if element is present

**FLD LEN: 5**

**ATMOSPHERIC-PRESSURE-OBSERVATION (STP/SLP) minimum sea  
level pressure for the day**

The minimum sea level pressure for the day at the observation point.

MIN: 08600 MAX: 10900 UNITS: hectopascals

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9)

99999 = missing

**FLD LEN: 1**

**ATMOSPHERIC-PRESSURE-OBSERVATION (STP/SLP) minimum sea**

**level pressure for the day quality code**

The code that denotes the quality status of the minimum sea level pressure for the day.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

4: Passed gross limits check, data originate from an NCDC data source

5: Passed all quality control checks, data originate from an NCDC data source

6: Suspect, data originate from an NCDC data source

7: Erroneous, data originate from an NCDC data source

9: Passed gross limits check if element is present

---

**FLD LEN: 3**

**ATMOSPHERIC-PRESSURE-OBSERVATION FOR THE MONTH  
occurrence identifier**

The identifier that denotes the start of an  
ATMOSPHERIC-PRESSURE-OBSERVATION data section

DOM: A specific domain comprised of the characters in the ASCII character set

**MH1:** An indicator of the following items:

ATMOSPHERIC-PRESSURE-OBSERVATION FOR THE  
MONTH average station pressure for the month

ATMOSPHERIC-PRESSURE-OBSERVATION FOR THE  
MONTH average station pressure quality code

ATMOSPHERIC-PRESSURE-OBSERVATION FOR THE  
MONTH average sea level pressure for the month

ATMOSPHERIC-PRESSURE-OBSERVATION FOR THE  
MONTH average sea level pressure for the month quality code

**FLD LEN: 5**

**ATMOSPHERIC-PRESSURE-OBSERVATION FOR THE MONTH  
average station pressure for the month**

The average pressure at the observation point for the month.

MIN: 04500 MAX: 10900 UNITS: hectopascals

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9)

99999 = missing

**FLD LEN: 1**

**ATMOSPHERIC-PRESSURE-OBSERVATION FOR THE MONTH  
average station pressure quality code**

The code that denotes the quality status of an average station pressure.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

0: Passed gross limits check

1: Passed all quality control checks

2: Suspect

- 3: Erroneous
- 4: Passed gross limits check, data originate from an NCDC data source
- 5: Passed all quality control checks, data originate from an NCDC data source
- 6: Suspect, data originate from an NCDC data source
- 7: Erroneous, data originate from an NCDC data source
- 9: Passed gross limits check if element is present

**FLD LEN: 5**

**ATMOSPHERIC-PRESSURE-OBSERVATION FOR THE MONTH  
average sea level pressure for the month**

The average sea level pressure for the month at the observation point.

MIN: 08600 MAX: 10900 UNITS: hectopascals

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9)

99999 = missing

**FLD LEN: 1**

**ATMOSPHERIC-PRESSURE-OBSERVATION FOR THE MONTH  
average sea level pressure for the month quality code**

The code that denotes the quality status of the average sea level pressure for the month.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing

- 0: Passed gross limits check
- 1: Passed all quality control checks
- 2: Suspect
- 3: Erroneous
- 4: Passed gross limits check, data originate from an NCDC data source
- 5: Passed all quality control checks, data originate from an NCDC data source
- 6: Suspect, data originate from an NCDC data source
- 7: Erroneous, data originate from an NCDC data source
- 9: Passed gross limits check if element is present

**FLD LEN: 3**

**ATMOSPHERIC-PRESSURE-OBSERVATION FOR THE MONTH  
(continued) occurrence identifier**

The identifier that denotes the start of an  
ATMOSPHERIC-PRESSURE-OBSERVATION data section

DOM: A specific domain comprised of the characters in the ASCII character set

**MK1:** An indicator of the following items:

- ATMOSPHERIC-PRESSURE-OBSERVATION FOR THE MONTH  
(continued) maximum sea level pressure for the month
- ATMOSPHERIC-PRESSURE-OBSERVATION FOR THE MONTH  
(continued) maximum sea level pressure, date-time

ATMOSPHERIC-PRESSURE-OBSERVATION FOR THE MONTH  
(continued) maximum sea level pressure quality code  
ATMOSPHERIC-PRESSURE-OBSERVATION FOR THE MONTH  
(continued) minimum sea level pressure for the month  
ATMOSPHERIC-PRESSURE-OBSERVATION FOR THE MONTH  
(continued) minimum sea level pressure, date-time  
ATMOSPHERIC-PRESSURE-OBSERVATION FOR THE MONTH  
(continued) minimum sea level pressure quality code

**FLD LEN: 5**

**ATMOSPHERIC-PRESSURE-OBSERVATION FOR THE MONTH  
(continued) maximum sea level pressure for the month**

The maximum sea level pressure at the observation point for the month.

MIN: 08600 MAX: 10900 UNITS: hectopascals

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9)

99999 = missing

**FLD LEN: 6**

**ATMOSPHERIC-PRESSURE-OBSERVATION FOR THE MONTH  
(continued) maximum sea level pressure, date-time**

The date-time of occurrence of the pressure value, given as the date-time; e.g.,  
051500 indicates day 05, time 1500.

MIN: 010000 MAX: 312359

DOM: A general domain comprised of the numeric characters (0-9)

999999 = missing

**FLD LEN: 1**

**ATMOSPHERIC-PRESSURE-OBSERVATION FOR THE MONTH  
(continued) maximum sea level pressure quality code**

The code that denotes the quality status of an maximum sea level pressure.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

0: Passed gross limits check

1: Passed all quality control checks

2: Suspect

3: Erroneous

4: Passed gross limits check, data originate from an NCDC data source

5: Passed all quality control checks, data originate from an NCDC data source

6: Suspect, data originate from an NCDC data source

7: Erroneous, data originate from an NCDC data source

9: Passed gross limits check if element is present

**FLD LEN: 5**

**ATMOSPHERIC-PRESSURE-OBSERVATION FOR THE MONTH**

**(continued) minimum sea level pressure for the month**

The minimum sea level pressure at the observation point for the month.

MIN: 08600 MAX: 10900 UNITS: hectopascals

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9)

99999 = missing

**FLD LEN: 6**

**ATMOSPHERIC-PRESSURE-OBSERVATION FOR THE MONTH**

**(continued) minimum sea level pressure, date-time**

The date-time of occurrence of the pressure value, given as the date-time; e.g.,

051500 indicates day 05, time 1500.

MIN: 010000 MAX: 312359

DOM: A general domain comprised of the numeric characters (0-9)

999999 = missing

**FLD LEN: 1**

**ATMOSPHERIC-PRESSURE-OBSERVATION FOR THE MONTH**

**(continued) minimum sea level pressure quality code**

The code that denotes the quality status of a minimum sea level pressure.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

0: Passed gross limits check

1: Passed all quality control checks

2: Suspect

3: Erroneous

4: Passed gross limits check, data originate from an NCDC data source

5: Passed all quality control checks, data originate from an NCDC data source

6: Suspect, data originate from an NCDC data source

7: Erroneous, data originate from an NCDC data source

9: Passed gross limits check if element is present

---

**Weather Occurrence Data**

**FLD LEN: 3**

**PRESENT-WEATHER-IN-VICINITY-OBSERVATION occurrence identifier**

The identifier that signifies the reporting of present weather

DOM: A specific domain comprised of the characters in the ASCII character set

**MV7 - MV1:** An indicator of up to 7 repeating fields of the following items:

PRESENT-WEATHER-IN-VICINITY-OBSERVATION atmospheric condition code

PRESENT-WEATHER-IN-VICINITY-OBSERVATION quality atmospheric condition code

**FLD LEN: 2**

**PRESENT-WEATHER-IN-VICINITY-OBSERVATION atmospheric condition code**

The code that denotes a specific type of weather observed between 5 and 10 statute miles of the station at the time of observation. Observed at selected stations from July 1, 1996 to present.

DOM: A specific domain comprised of the characters in the ASCII character set

- 99 = missing
- 00: No observation
- 01: Thunderstorm in vicinity
- 02: Showers in vicinity
- 03: Sandstorm in vicinity
- 04: Sand / dust whirls in vicinity
- 05: Duststorm in vicinity
- 06: Blowing snow in vicinity
- 07: Blowing sand in vicinity
- 08: Blowing dust in vicinity
- 09: Fog in vicinity

**FLD LEN: 1**

**PRESENT-WEATHER-IN-VICINITY-OBSERVATION quality atmospheric condition code**

The code that denotes a quality status of a reported present weather in vicinity observation from a station.

DOM: A specific domain comprised of the characters in the ASCII character set

- 9 = missing
  - 4: Passed gross limits check , data originate from an NCDC data source
  - 5: Passed all quality control checks, data originate from an NCDC data source
  - 6: Suspect, data originate from an NCDC data source
  - 7: Erroneous, data originate from an NCDC data source
  - 9: Passed gross limits check if element is present
- 

**FLD LEN: 3**

**PRESENT-WEATHER-OBSERVATION manual occurrence identifier**

The identifier that signifies the reporting of present weather

DOM: A specific domain comprised of the characters in the ASCII character set

**MW7 - MW1:** An indicator of up to 7 repeating fields of the following items:

- PRESENT-WEATHER-OBSERVATION manual atmospheric condition code
- PRESENT-WEATHER-OBSERVATION manual Quality manual atmospheric condition code

**FLD LEN: 2**

**PRESENT-WEATHER-OBSERVATION manual atmospheric condition**

**code**

The code that denotes a specific type of weather observed manually.

DOM: A specific domain comprised of the characters in the ASCII character set

- 00: Cloud development not observed or not observable
- 01: Clouds generally dissolving or becoming less developed
- 02: State of sky on the whole unchanged
- 03: Clouds generally forming or developing
- 04: Visibility reduced by smoke, e.g. veldt or forest fires, industrial smoke or volcanic ashes
- 05: Haze
- 06: Widespread dust in suspension in the air, not raised by wind at or near the station at the time of observation
- 07: Dust or sand raised by wind at or near the station at the time of observation, but no well-developed dust whirl(s) or sand whirl(s), and no duststorm or sandstorm seen or, in the case of ships, blowing spray at the station
- 08: Well developed dust whirl(s) or sand whirl(s) seen at or near the station during the preceding or at the time of observation, but no duststorm or sandstorm
- 09: Duststorm or sandstorm within sight at the time of observation, or at the station during the preceding hour
- 10: Mist
- 11: Patches of shallow fog or ice fog at the station, whether on land or sea, not deeper than about 2 meters on land or 10 meters at sea
- 12: More or less continuous shallow fog or ice fog at the station, whether on land or sea, not deeper than about 2 meters on land or 10 meters at sea
- 13: Lightning visible, no thunder heard
- 14: Precipitation within sight, not reaching the ground or the surface of the sea
- 15: Precipitation within sight, reaching the ground or the surface of the sea, but distant, i.e., estimated to be more than 5 km from the station
- 16: Precipitation within sight, reaching the ground or the surface of the sea, near to, but not at the station
- 17: Thunderstorm, but no precipitation at the time of observation
- 18: Squalls at or within sight of the station during the preceding hour or at the time of observation
- 19: Funnel cloud(s) (Tornado cloud or waterspout) at or within sight of the station during the preceding
- 20: Drizzle (not freezing) or snow grains not falling as shower(s)
- 21: Rain (not freezing) not falling as shower(s)
- 22: Snow not falling as shower(s)
- 23: Rain and snow or ice pellets not falling as shower(s)
- 24: Freezing drizzle or freezing rain not falling as shower(s)
- 25: Shower(s) of rain
- 26: Shower(s) of snow or of rain and snow
- 27: Shower(s) of hail (Hail, small hail, snow pellets), or rain and hail
- 28: Fog or ice fog
- 29: Thunderstorm (with or without precipitation)

- 30: Slight or moderate duststorm or sandstorm has decreased during the preceding hour
- 31: Slight or moderate duststorm or sandstorm no appreciable change during the preceding hour
- 32: Slight or moderate duststorm or sandstorm has begun or has increased during the preceding hour
- 33: Severe duststorm or sandstorm has decreased during the preceding hour
- 34: Severe duststorm or sandstorm no appreciable change during the preceding hour
- 35: Severe duststorm or sandstorm has begun or has increased during the preceding hour
- 36: Slight or moderate drifting snow generally low (below eye level)
- 37: Heavy drifting snow generally low (below eye level)
- 38: Slight or moderate blowing snow generally high (above eye level)
- 39: Heavy blowing snow generally high (above eye level)
- 40: Fog or ice fog at a distance at the time of observation, but not at the station during the preceding hour, the fog or ice fog extending to a level above that of the observer
- 41: Fog or ice fog in patches
- 42: Fog or ice fog, sky visible, has become thinner during the preceding hour
- 43: Fog or ice fog, sky invisible, has become thinner during the preceding hour
- 44: Fog or ice fog, sky visible, no appreciable change during the preceding hour
- 45: Fog or ice fog, sky invisible, no appreciable change during the preceding hour
- 46: Fog or ice fog, sky visible, has begun or has become thicker during the preceding hour
- 47: Fog or ice fog, sky invisible, has begun or has become thicker during the preceding hour
- 48: Fog, depositing rime, sky visible
- 49: Fog, depositing rime, sky invisible
- 50: Drizzle, not freezing, intermittent, slight at time of observation
- 51: Drizzle, not freezing, continuous, slight at time of observation
- 52: Drizzle, not freezing, intermittent, moderate at time of observation
- 53: Drizzle, not freezing, continuous, moderate at time of observation
- 54: Drizzle, not freezing, intermittent, heavy (dense) at time of observation
- 55: Drizzle, not freezing, continuous, heavy (dense) at time of observation
- 56: Drizzle, freezing, slight
- 57: Drizzle, freezing, moderate or heavy (dense)
- 58: Drizzle and rain, slight
- 59: Drizzle and rain, moderate or heavy
- 60: Rain, not freezing, intermittent, slight at time of observation
- 61: Rain, not freezing, continuous, slight at time of observation
- 62: Rain, not freezing, intermittent, moderate at time of observation
- 63: Rain, not freezing, continuous, moderate at time of observation
- 64: Rain, not freezing, intermittent, heavy at time of observation

- 65: Rain, not freezing, continuous, heavy at time of observation
- 66: Rain, freezing, slight
- 67: Rain, freezing, moderate or heavy
- 68: Rain or drizzle and snow, slight
- 69: Rain or drizzle and snow, moderate or heavy
- 70: Intermittent fall of snowflakes, slight at time of observation
- 71: Continuous fall of snowflakes, slight at time of observation
- 72: Intermittent fall of snowflakes, moderate at time of observation
- 73: Continuous fall of snowflakes, moderate at time of observation
- 74: Intermittent fall of snowflakes, heavy at time of observation
- 75: Continuous fall of snowflakes, heavy at time of observation
- 76: Diamond dust (with or without fog)
- 77: Snow grains (with or without fog)
- 78: Isolated star-like snow crystals (with or without fog)
- 79: Ice pellets
- 80: Rain shower(s), slight
- 81: Rain shower(s), moderate or heavy
- 82: Rain shower(s), violent
- 83: Shower(s) of rain and snow mixed, slight
- 84: Shower(s) of rain and snow mixed, moderate or heavy
- 85: Show shower(s), slight
- 86: Snow shower(s), moderate or heavy
- 87: Shower(s) of snow pellets or small hail, with or without rain or rain and snow mixed, slight
- 88: Shower(s) of snow pellets or small hail, with or without rain or rain and snow mixed, moderate or heavy
- 89: Shower(s) of hail (hail, small hail, snow pellets) , with or without rain or rain and snow mixed, not associated with thunder, slight
- 90: Shower(s) of hail (hail, small hail, snow pellets), with or without rain or rain and snow mixed, not associated with thunder, moderate or heavy
- 91: Slight rain at time of observation, thunderstorm during the preceding hour but not at time of observation
- 92: Moderate or heavy rain at time of observation, thunderstorm during the preceding hour but not at time of observation
- 93: Slight snow, or rain and snow mixed or hail (Hail, small hail, snow pellets), at time of observation, thunderstorm during the preceding hour but not at time of observation
- 94: Moderate or heavy snow, or rain and snow mixed or hail(Hail, small hail, snow pellets) at time of observation, thunderstorm during the preceding hour but not at time of observation
- 95: Thunderstorm, slight or moderate, without hail (Hail, small hail, snow pellets), but with rain and/or snow at time of observation, thunderstorm at time of observation
- 96: Thunderstorm, slight or moderate, with hail (hail, small hail, snow pellets) at time of observation, thunderstorm at time of observation
- 97: Thunderstorm, heavy, without hail (Hail, small hail, snow pellets), but with rain and/or snow at time of observation, thunderstorm at time of observation

- 98: Thunderstorm combined with duststorm or sandstorm at time of observation, thunderstorm at time of observation  
99: Thunderstorm, heavy, with hail (Hail, small hail, snow pellets) at time of observation, thunderstorm at time of observation

**FLD LEN: 1**

**PRESENT-WEATHER-OBSERVATION manual Quality manual atmospheric condition code**

The code that denotes a quality status of a reported present weather observation from a manual station.

DOM: A specific domain comprised of the characters in the ASCII character set

- 9 = missing
  - 0: Passed gross limits check
  - 1: Passed all quality control checks
  - 2: Suspect
  - 3: Erroneous
  - 4: Passed gross limits check, data originate from an NCDC data source
  - 5: Passed all quality control checks, data originate from an NCDC data source
  - 6: Suspect, data originate from an NCDC data source
  - 7: Erroneous, data originate from an NCDC data source
  - 9: Passed gross limits check if element is present
- 

**Wind Data**

**FLD LEN: 3**

**SUPPLEMENTARY-WIND-OBSERVATION occurrence identifier**

The identifier that denotes the start of a SUPPLEMENTARY-WIND-OBSERVATION data section

DOM: A specific domain comprised of the characters in the ASCII character set

**OA3 - OA1:** An indicator of up to 3 repeating fields of the following items:

- SUPPLEMENTARY-WIND-OBSERVATION type code
- SUPPLEMENTARY-WIND-OBSERVATION period quantity
- SUPPLEMENTARY-WIND-OBSERVATION speed rate
- SUPPLEMENTARY-WIND-OBSERVATION speed rate quality code

**FLD LEN: 1**

**SUPPLEMENTARY-WIND-OBSERVATION type code**

The code that denotes a type of SUPPLEMENTARY-WIND-OBSERVATION.

DOM: A specific domain comprised of the characters in the ASCII character set

- 9 = missing
- 1: Average speed of prevailing wind
- 2: Mean wind speed
- 3: Maximum instantaneous wind speed
- 4: Maximum gust speed
- 5: Maximum mean wind speed

6: Maximum 1-minute mean wind speed

**FLD LEN: 2**

**SUPPLEMENTARY-WIND-OBSERVATION period quantity**

The quantity of time over which a SUPPLEMENTARY-WIND-OBSERVATION occurred.

MIN: 01 MAX: 48 UNITS: hours

DOM: A general domain comprised of the characters in the ASCII character set  
99 = missing

**FLD LEN: 4**

**SUPPLEMENTARY-WIND-OBSERVATION speed rate**

The rate of horizontal speed of air reported in the SUPPLEMENTARY-WIND-OBSERVATION.

MIN: 0000 MAX: 2000 UNITS: meters per second

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9)  
9999 = missing

**FLD LEN: 1**

**SUPPLEMENTARY-WIND-OBSERVATION speed rate quality code**

The code that denotes a quality status of the reported SUPPLEMENTARY-WIND-OBSERVATION speed rate.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
0: Passed gross limits check  
1: Passed all quality control checks  
2: Suspect  
3: Erroneous  
9: Passed gross limits check if element is present

---

**FLD LEN: 3**

**Hourly Wind Section occurrence identifier**

The identifier that indicates an hourly observation of wind speed at a height of 1.5 meters from the ground, typically used by Climate Reference Network stations. This section appears in the last ISD record of the hour. The wind average value in this section is a duplicate of the wind average value in the mandatory data section. It is included in this section so that all wind values are conveniently available in a single section

DOM: A specific domain comprised of the characters in the ASCII character set

**OB2 - OB1:** An indicator of up to 2 repeating fields of the following items:

Hourly Wind Section WIND\_AVG

Hourly Wind Section WIND\_MAX maximum gust

Hourly Wind Section WIND\_MAX\_QC quality code

Hourly Wind Section WIND\_MAX\_FLAG quality code

Hourly Wind Section WIND\_MAX direction of the maximum gust  
Hourly Wind Section WIND\_MAX\_QC direction quality code  
Hourly Wind Section WIND\_MAX\_FLAG direction quality code  
Hourly Wind Section WIND\_STD wind speed standard deviation  
Hourly Wind Section WIND\_STD\_QC quality code  
Hourly Wind Section WIND\_STD\_FLAG quality code  
Hourly Wind Section WIND\_DIR\_STD wind direction standard deviation  
Hourly Wind Section WIND\_DIR\_STD\_QC quality code  
Hourly Wind Section WIND\_DIR\_STD\_FLAG quality code

**FLD LEN: 3**

**Hourly Wind Section WIND\_AVG**

Time period in minutes, for which the data in this section (OB1) pertainseg, 060 = 60 minutes (1 hour).

MIN: 001 MAX: 998 UNITS: minutes

DOM: A general domain comprised of the numeric characters (0-9)  
999 = missing

**FLD LEN: 4**

**Hourly Wind Section WIND\_MAX maximum gust**

The maximum 10 second wind speed.

MIN: 0000 MAX: 9998 UNITS: meters per second

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9)  
9999 = missing

**FLD LEN: 1**

**Hourly Wind Section WIND\_MAX\_QC quality code**

The code that indicates ISD's evaluation of the quality status of the maximum gust.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing

1: Passed all quality control checks

3: Failed all quality control checks

**FLD LEN: 1**

**Hourly Wind Section WIND\_MAX\_FLAG quality code**

A flag that indicates the network's internal evaluation of the quality status of the maximum gust. Most users will find the preceding quality code

WIND\_MAX\_QC to be the simplest and most useful quality indicator.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing

0: Passed all quality control checks

**FLD LEN: 3**

**Hourly Wind Section WIND\_MAX direction of the maximum gust**

The direction measured in clockwise angular degrees from which the maximum 10 second wind speed occurred.

MIN: 001 MAX: 360 UNITS: angular degrees

SCALING FACTOR: 1

DOM: A general domain comprised of the numeric characters (0-9)  
999 = missing

**FLD LEN: 1**

**Hourly Wind Section WIND\_MAX\_QC direction quality code**

The code that indicates ISD's evaluation of the quality status of the maximum gust direction.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
1: Passed all quality control checks  
3: Failed all quality control checks

**FLD LEN: 1**

**Hourly Wind Section WIND\_MAX\_FLAG direction quality code**

A flag that indicates the network's internal evaluation of the quality status of the maximum gust direction. Most users will find the preceding quality code WIND\_MAX\_QC to be the simplest and most useful quality indicator.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
0: Passed all quality control checks

**FLD LEN: 5**

**Hourly Wind Section WIND\_STD wind speed standard deviation**

The wind speed standard deviation.

MIN: 00000 MAX: 99999

SCALING FACTOR: 100

DOM: A general domain comprised of the numeric characters (0-9)  
99999 = missing

**FLD LEN: 1**

**Hourly Wind Section WIND\_STD\_QC quality code**

The code that indicates ISD's evaluation of the quality status of the wind speed standard deviation.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
1: Passed all quality control checks  
3: Failed all quality control checks

**FLD LEN: 1**

**Hourly Wind Section WIND\_STD\_FLAG quality code**

A flag that indicates the network's internal evaluation of the quality status of the wind speed standard deviation. Most users will find the preceding quality code

WIND\_STD\_QC to be the simplest and most useful quality indicator.  
DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
0: Passed all quality control checks

**FLD LEN: 5**

**Hourly Wind Section WIND\_DIR\_STD wind direction standard deviation**

The wind direction standard deviation.

MIN: 00000 MAX: 99999

SCALING FACTOR: 100

DOM: A general domain comprised of the numeric characters (0-9)  
99999 = missing

**FLD LEN: 1**

**Hourly Wind Section WIND\_DIR\_STD\_QC quality code**

The code that indicates ISD's evaluation of the quality status of the wind direction standard deviation.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
1: Passed all quality control checks  
3: Failed all quality control checks

**FLD LEN: 1**

**Hourly Wind Section WIND\_DIR\_STD\_FLAG quality code**

A flag that indicates the network's internal evaluation of the quality status of the wind direction standard deviation. Most users will find the preceding quality code WIND\_STD\_QC to be the simplest and most useful quality indicator.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
0: Passed all quality control checks

---

**FLD LEN: 3**

**WIND-GUST-OBSERVATION occurrence identifier**

The identifier that denotes the start of a WIND-GUST-OBSERVATION data section

DOM: A specific domain comprised of the characters in the ASCII character set

**OC1:** An indicator of the following items:

WIND-GUST-OBSERVATION speed rate

WIND-GUST-OBSERVATION quality code

**FLD LEN: 4**

**WIND-GUST-OBSERVATION speed rate**

The rate of speed of a wind gust.

MIN: 0050 MAX: 1100 UNITS: meters per second

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9)  
9999 = missing

**FLD LEN: 1**

**WIND-GUST-OBSERVATION quality code**

The code that denotes a quality status of a reported  
WIND-GUST-OBSERVATION speed rate.

DOM: A specific domain comprised of the characters in the ASCII character set

- 9 = missing
- 0: Passed gross limits check
- 1: Passed all quality control checks
- 2: Suspect
- 3: Erroneous
- 4: Passed gross limits check , data originate from an NCDC data source
- 5: Passed all quality control checks, data originate from an NCDC data source
- 6: Suspect, data originate from an NCDC data source
- 7: Erroneous, data originate from an NCDC data source
- 9: Passed gross limits check if element is present

---

**FLD LEN: 3**

**SUMMARY-OF-DAY-WIND-OBSERVATION occurrence identifier**

The identifier that denotes the start of a  
SUMMARY-OF-DAY-WIND-OBSERVATION data section

DOM: A specific domain comprised of the characters in the ASCII character set

**OE3 - OE1:** An indicator of up to 3 repeating fields of the following items:

- SUMMARY-OF-DAY-WIND-OBSERVATION type code
- SUMMARY-OF-DAY-WIND-OBSERVATION period quantity
- SUMMARY-OF-DAY-WIND-OBSERVATION speed
- SUMMARY-OF-DAY-WIND-OBSERVATION direction of wind
- SUMMARY-OF-DAY-WIND-OBSERVATION time of occurrence in Z-time (UTC)
- SUMMARY-OF-DAY-WIND-OBSERVATION quality code

**FLD LEN: 1**

**SUMMARY-OF-DAY-WIND-OBSERVATION type code**

The code that denotes a type of SUMMARY-OF-DAY-WIND-OBSERVATION.

DOM: A specific domain comprised of the characters in the ASCII character set

- 9 = missing
- 1: Peak wind speed for the day
- 2: Fastest 2-minute wind speed for the day
- 3: Average wind speed for the day
- 4: Fastest 5-minute wind speed for the day
- 5: Fastest mile wind speed for the day

**FLD LEN: 2**

**SUMMARY-OF-DAY-WIND-OBSERVATION period quantity**

The quantity of time over which a

SUMMARY-OF-DAY-WIND-OBSERVATION occurred.

MIN: 24 MAX: 24 UNITS: hours

DOM: A general domain comprised of the characters in the ASCII character set  
99 = missing

**FLD LEN: 5**

**SUMMARY-OF-DAY-WIND-OBSERVATION speed**

The rate of horizontal wind speed of air reported in the

SUMMARY-OF-DAY-WIND-OBSERVATION.

MIN: 00000 MAX: 20000 UNITS: meters per second

SCALING FACTOR: 100

DOM: A general domain comprised of the numeric characters (0-9)  
99999 = missing

**FLD LEN: 3**

**SUMMARY-OF-DAY-WIND-OBSERVATION direction of wind**

The angle, measured in a clockwise direction, between true north and the direction from which the wind is blowing, for the summary of day wind report.

MIN: 001 MAX: 360 UNITS: angular degrees

SCALING FACTOR: 1

DOM: A general domain comprised of the numeric characters (0-9)  
999 = missing

Note: A direction of 999 with a speed of 00000 indicates calm conditions (0 wind speed).

**FLD LEN: 4**

**SUMMARY-OF-DAY-WIND-OBSERVATION time of occurrence in Z-time (UTC)**

The time of occurrence of the wind reported in the

SUMMARY-OF-DAY-WIND-OBSERVATION.

MIN: 0000 MAX: 2359

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9)  
9999 = missing

**FLD LEN: 1**

**SUMMARY-OF-DAY-WIND-OBSERVATION quality code**

The code that denotes a quality status of the reported

SUMMARY-OF-DAY-WIND-OBSERVATION.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing

4: Passed gross limits check, data originate from an NCDC data source

5: Passed all quality control checks, data originate from an NCDC data source

- 6: Suspect, data originate from an NCDC data source
- 7: Erroneous, data originate from an NCDC data source
- 9: Passed gross limits check if element is present

---

## **Relative Humidity Data**

### **FLD LEN: 3**

#### **RELATIVE-HUMIDITY-CALCULATION occurrence identifier**

The identifier that represents an episode of  
RELATIVE-HUMIDITY-CALCULATION

DOM: A specific domain comprised of the characters in the ASCII character set

**RHX:** An indicator of the following items:

RELATIVE-HUMIDITY-CALCULATION computed relative humidity

Formula used for calculating relative humidity:

$$RH = ((6.11 * 10^{(7.5 * D / 237.7 + D)}) / (6.11 * 10^{(7.5 * T / 237.3 + T)})) * 100$$

### **FLD LEN: 3**

#### **RELATIVE-HUMIDITY-CALCULATION computed relative humidity**

new field description

UNITS: percent

SCALING FACTOR: 1

DOM: A general domain comprised of the characters in the ASCII character set

999 = missing

---

## **Sea Surface Temperature Data**

### **FLD LEN: 3**

#### **SEA-SURFACE-TEMPERATURE-OBSERVATION occurrence identifier**

The identifier that denotes the start of a

SEA-SURFACE-TEMPERATURE-OBSERVATION temperature data section

DOM: A specific domain comprised of the characters in the ASCII character set

**SA1:** An indicator of the following items:

SEA-SURFACE-TEMPERATURE-OBSERVATION temperature

SEA-SURFACE-TEMPERATURE-OBSERVATION temperature quality  
code

### **FLD LEN: 4**

#### **SEA-SURFACE-TEMPERATURE-OBSERVATION temperature**

The temperature of the water at the surface.

MIN: -050 MAX: +450 UNITS: degrees celsius

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9), a plus sign  
(+), and a minus sign (-)

9999 = missing

**FLD LEN: 1**

**SEA-SURFACE-TEMPERATURE-OBSERVATION temperature quality code**

The code that denotes a quality status of the reported SEA-SURFACE-TEMPERATURE-OBSERVATION temperature.

DOM: A specific domain comprised of the characters in the ASCII character set

- 9 = missing
  - 0: Passed gross limits check
  - 1: Passed all quality control checks
  - 2: Suspect
  - 3: Erroneous
  - 9: Passed gross limits check if element is present
- 

**Soil Temperature Data**

**FLD LEN: 3**

**SOIL-TEMPERATURE occurrence identifier**

The identifier that denotes the start of a SOIL TEMPERATURE data section

DOM: A specific domain comprised of the characters in the ASCII character set

**ST1:** An indicator of the following items:

- SOIL-TEMPERATURE temperature type
- SOIL-TEMPERATURE soil temperature
- SOIL-TEMPERATURE quality code
- SOIL-TEMPERATURE temperature depth
- SOIL-TEMPERATURE depth quality code
- SOIL-TEMPERATURE soil cover
- SOIL-TEMPERATURE soil cover quality code
- SOIL-TEMPERATURE sub plot
- SOIL-TEMPERATURE sub plot quality code

**FLD LEN: 1**

**SOIL-TEMPERATURE temperature type**

The type of temperature reported.

MIN: 1 MAX: 9

DOM: A specific domain comprised of the characters in the ASCII character set

- 9 = missing
- 1: Maximum Temperature
- 2: Minimum Temperature
- 3: AM or Noon Temperature
- 4: PM or Midnight Temperature

**FLD LEN: 5**

**SOIL-TEMPERATURE soil temperature**

The temperature of the soil for the previous 24 hours.

MIN: -1100 MAX: +0630 UNITS: degrees celsius

SCALING FACTOR: 10

DOM: A specific domain comprised of the characters in the ASCII character set  
99999 = missing

**FLD LEN: 1**

**SOIL-TEMPERATURE quality code**

The code that denotes a quality status of the reported temperature data.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

4: Passed gross limits check, from NCDC Data source

5: Passed all quality control checks, from NCDC Data source

6: Suspect, from NCDC Data source

7: Erroneous, from NCDC Data source

9: Passed gross limits check if element is present

**FLD LEN: 4**

**SOIL-TEMPERATURE temperature depth**

The depth below ground level of the temperature reported.

MIN: 0000 MAX: 9998 UNITS: centimeters

SCALING FACTOR: 10

DOM: A specific domain comprised of the characters in the ASCII character set

9999 = missing

**FLD LEN: 1**

**SOIL-TEMPERATURE depth quality code**

The code that denotes a quality status of the reported temperature depth data.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

4: Passed gross limits check, from NCDC Data source

5: Passed all quality control checks, from NCDC Data source

6: Suspect, from NCDC Data source

7: Erroneous, from NCDC Data source

9: Passed gross limits check if element is present

**FLD LEN: 2**

**SOIL-TEMPERATURE soil cover**

The type of soil cover.

MIN: 01 MAX: 98

DOM: A specific domain comprised of the characters in the ASCII character set

99 = missing

01: Grass

02: Fallow

03: Bare Ground

04: Brome Grass

05: Sod

06: Straw Mulch

07: Grass Muck  
08: Bare Muck

**FLD LEN: 1**

**SOIL-TEMPERATURE soil cover quality code**

The code that denotes a quality status of the reported soil cover data.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

4: Passed gross limits check, from NCDC Data source

5: Passed all quality control checks, from NCDC Data source

6: Suspect, from NCDC Data source

7: Erroneous, from NCDC Data source

9: Passed gross limits check if element is present

**FLD LEN: 1**

**SOIL-TEMPERATURE sub plot**

The sub plot number for the reported temperature.

MIN: 0 MAX: 8

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

**FLD LEN: 1**

**SOIL-TEMPERATURE sub plot quality code**

The code that denotes a quality status of the reported sub plot data.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

4: Passed gross limits check, from NCDC Data source

5: Passed all quality control checks, from NCDC Data source

6: Suspect, from NCDC Data source

7: Erroneous, from NCDC Data source

9: Passed gross limits check if element is present

---

**Marine Data**

**FLD LEN: 3**

**WAVE-MEASUREMENT occurrence identifier**

The identifier that represents the availability of a WAVE-MEASUREMENT

DOM: A specific domain comprised of the characters in the ASCII character set

UA1: An indicator of the following items:

WAVE-MEASUREMENT method code

WAVE-MEASUREMENT wave period quantity

WAVE-MEASUREMENT wave height dimension

WAVE-MEASUREMENT quality code

WAVE-MEASUREMENT sea state code

WAVE-MEASUREMENT sea state code quality code

**FLD LEN: 1**

**WAVE-MEASUREMENT method code**

A code that represents the method used to obtain a WAVE-MEASUREMENT.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

I: Instrumental

M: Manual

**FLD LEN: 2**

**WAVE-MEASUREMENT wave period quantity**

The quantity of time required for two successive wave crests to pass a fixed point.

MIN: 00 MAX: 30 UNITS: seconds

SCALING FACTOR: 1

DOM: A general domain comprised of the numeric characters (0-9)

99 = missing

**FLD LEN: 3**

**WAVE-MEASUREMENT wave height dimension**

The height of a wave measured from trough to crest.

MIN: 000 MAX: 500 UNITS: meters

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9)

999 = missing

**FLD LEN: 1**

**WAVE-MEASUREMENT quality code**

The code that denotes a quality status of the reported WAVE-MEASUREMENT.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

0: Passed gross limits check

1: Passed all quality control checks

2: Suspect

3: Erroneous

9: Passed gross limits check if element is present

**FLD LEN: 2**

**WAVE-MEASUREMENT sea state code**

The code that denotes the roughness of the surface of the sea in terms of average wave height.

DOM: A specific domain comprised of the characters in the ASCII character set

99 = missing

00: Calm, glassy - wave height = 0 meters

01: Calm, rippled - wave height = 0-0.1 meters

02: Smooth, wavelets - wave height = 0.1-0.5 meters

03: Slight, wave height = 0.5-1.25 meters

- 04: Moderate - wave height 1.25-2.5 meters
- 05: Rough - wave height = 2.5-4.0 meters
- 06: Very rough - wave height = 4.0-6.0 meters
- 07: High - wave height = 6.0-9.0 meters
- 08: Very high - wave height 9.0-14.0 meters
- 09: Phenomenal - wave height = over 14.0 meters

**FLD LEN: 1**

**WAVE-MEASUREMENT sea state code quality code**

The code that denotes a quality status of the reported WAVE-MEASUREMENT sea state code.

DOM: A specific domain comprised of the characters in the ASCII character set

- 9 = missing
  - 0: Passed gross limits check
  - 1: Passed all quality control checks
  - 2: Suspect
  - 3: Erroneous
  - 9: Passed gross limits check if element is present
- 

**FLD LEN: 3**

**WAVE-MEASUREMENT primary swell occurrence identifier**

The identifier that denotes the availability of primary swell data

DOM: A specific domain comprised of the characters in the ASCII character set

**UG1:** An indicator of the following items:

- WAVE-MEASUREMENT primary swell period quantity
- WAVE-MEASUREMENT primary swell height dimension
- WAVE-MEASUREMENT primary swell direction angle
- WAVE-MEASUREMENT primary swell quality code

**FLD LEN: 2**

**WAVE-MEASUREMENT primary swell period quantity**

The quantity of time required for two successive primary swell wave crests to pass a fixed point.

MIN: 00 MAX: 14 UNITS: seconds

SCALING FACTOR: 1

DOM: A general domain comprised of the numeric characters (0-9)

- 99 = missing

**FLD LEN: 3**

**WAVE-MEASUREMENT primary swell height dimension**

The height of a primary swell wave measured from the trough to the crest.

MIN: 000 MAX: 500 UNITS: meters

SCALING FACTOR: 10

DOM: A general domain comprised of the numeric characters (0-9)

- 999 = missing

**FLD LEN: 3****WAVE-MEASUREMENT primary swell direction angle**

The angle measured clockwise from true north to the direction from which primary swell waves are coming.

MIN: 001 MAX: 360 UNITS: angular degrees

SCALING FACTOR: 1

DOM: A general domain comprised of the numeric characters (0-9)  
999 = missing

**FLD LEN: 1****WAVE-MEASUREMENT primary swell quality code**

The code that denotes a quality status of the reported WAVE-MEASUREMENT primary swell.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing

0: Passed gross limits check

1: Passed all quality control checks

2: Suspect

3: Erroneous

9: Passed gross limits check if element is present

---

**FLD LEN: 3****WAVE-MEASUREMENT secondary swell occurrence identifier**

An indicator that denotes the start of a WAVE-MEASUREMENT secondary swell group

DOM: A specific domain comprised of the characters in the ASCII character set

**UG2:** An indicator of the following items:

WAVE-MEASUREMENT secondary swell period quantity

WAVE-MEASUREMENT secondary swell height dimension

WAVE-MEASUREMENT secondary swell direction angle

WAVE-MEASUREMENT secondary swell quality code

**FLD LEN: 2****WAVE-MEASUREMENT secondary swell period quantity**

The quantity of time required for two successive secondary swell wave crests to pass a fixed point.

MIN: 00 MAX: 14 UNITS: seconds

SCALING FACTOR: 1

DOM: A general domain comprised of the numeric characters (0-9)  
99 = missing

**FLD LEN: 3****WAVE-MEASUREMENT secondary swell height dimension**

The height of a secondary swell wave measured from the trough to the crest.

MIN: 000 MAX: 500 UNITS: meters  
SCALING FACTOR: 10  
DOM: A general domain comprised of the numeric characters (0-9)  
999 = missing

**FLD LEN: 3**

**WAVE-MEASUREMENT secondary swell direction angle**

The angle measured clockwise from true north to the direction from which secondary swell waves are coming.

MIN: 001 MAX: 360 UNITS: angular degrees  
SCALING FACTOR: 1

DOM: A general domain comprised of the numeric characters (0-9)  
999 = missing

**FLD LEN: 1**

**WAVE-MEASUREMENT secondary swell quality code**

The code that denotes a quality status of the reported WAVE-MEASUREMENT secondary swell.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
0: Passed gross limits check  
1: Passed all quality control checks  
2: Suspect  
3: Erroneous  
9: Passed gross limits check if element is present

---

**FLD LEN: 3**

**PLATFORM-ICE-ACCRETION occurrence identifier**

The identifier that denotes the availability of PLATFORM-ICE-ACCRETION data

DOM: A specific domain comprised of the characters in the ASCII character set

**WA1:** An indicator of the following items:

PLATFORM-ICE-ACCRETION source code  
PLATFORM-ICE-ACCRETION thickness dimension  
PLATFORM-ICE-ACCRETION tendency code  
PLATFORM-ICE-ACCRETION quality code

**FLD LEN: 1**

**PLATFORM-ICE-ACCRETION source code**

The code that denotes the source of the ice that builds up on a marine platform=structure.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing  
1: Icing from ocean spray  
2: Icing from fog

- 3: Icing from spray and fog
- 4: Icing from rain
- 5: Icing from spray and rain

**FLD LEN: 3**

**PLATFORM-ICE-ACCRETION thickness dimension**

The thickness of the ice that has accumulated on a marine platform.

MIN: 000 MAX: 998 UNITS: centimeters

SCALING FACTOR: 10

DOM: A general domain comprised of the characters in the ASCII character set  
999 = missing

**FLD LEN: 1**

**PLATFORM-ICE-ACCRETION tendency code**

The code that denotes the rate of change of ice thickness on a marine platform.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing

- 0: Ice not building up
- 1: Ice building up slowly
- 2: Ice building up rapidly
- 3: Ice melting or breaking up slowly
- 4: Ice melting or breaking up rapidly

**FLD LEN: 1**

**PLATFORM-ICE-ACCRETION quality code**

The code that denotes a quality status of the reported

PLATFORM-ICE-ACCRETION.

DOM: A specific domain comprised of the characters in the ASCII character set  
9 = missing

- 0: Passed gross limits check
- 1: Passed all quality control checks
- 2: Suspect
- 3: Erroneous
- 9: Passed gross limits check if element is present

---

**FLD LEN: 3**

**WATER-SURFACE-ICE-OBSERVATION occurrence identifier**

The identifier that denotes the availability of a

WATER-SURFACE-ICE-OBSERVATION

DOM: A specific domain comprised of the characters in the ASCII character set

**WD1:** An indicator of the following items:

- WATER-SURFACE-ICE-OBSERVATION edge bearing code
- WATER-SURFACE-ICE-OBSERVATION uniform concentration rate
- WATER-SURFACE-ICE-OBSERVATION non-uniform concentration code

WATER-SURFACE-ICE-OBSERVATION	ship relative position code
WATER-SURFACE-ICE-OBSERVATION	ship penetrability code
WATER-SURFACE-ICE-OBSERVATION	ice trend code
WATER-SURFACE-ICE-OBSERVATION	development code
WATER-SURFACE-ICE-OBSERVATION	growler-bergy-bit presence code
WATER-SURFACE-ICE-OBSERVATION	growler-bergy-bit quantity
WATER-SURFACE-ICE-OBSERVATION	iceberg quantity
WATER-SURFACE-ICE-OBSERVATION	quality code

COM: 1. If more than one ice edge can be stated, the nearest or most important shall be reported

2. The bearing shall refer to the true and not to the magnetic north

This is the text of the note; replace this text with your own wording.

**FLD LEN: 2**

**WATER-SURFACE-ICE-OBSERVATION edge bearing code**

The code that denotes the true bearing, measured from the reporting platform to the closest point of the principal ice edge.

DOM: A specific domain comprised of the characters in the ASCII character set

99 = missing

00: Ship in shore or flaw lead

01: Principal ice edge towards NE

02: Principal ice edge towards E

03: Principal ice edge towards SE

04: Principal ice edge towards S

05: Principal ice edge towards SW

06: Principal ice edge towards W

07: Principal ice edge towards NW

08: Principal ice edge towards N

09: Not determined (ship in ice)

10: Unable to report, because of darkness, lack of visibility or because only ice of land origin is visible

**FLD LEN: 3**

**WATER-SURFACE-ICE-OBSERVATION uniform concentration rate**

The percent concentration (surface coverage) of ice on the water surface.

MIN: 000 MAX: 100 UNITS: percent

DOM: A general domain comprised of the characters in the ASCII character set

999 = missing

**FLD LEN: 2**

**WATER-SURFACE-ICE-OBSERVATION non-uniform concentration code**

The code that denotes the coverage arrangement of non-uniformly distributed ice.

DOM: A specific domain comprised of the characters in the ASCII character set

- 99 = missing
- 06: Strips and patches of pack ice with open water between
- 07: Strips and patches of close or very close pack ice with areas of lesser concentration between
- 08: Fast ice with open water, very open or open pack ice to seaward of the ice boundary
- 09: Fast ice with close or very close pack ice to seaward of the ice boundary
- 99: Unable to report, because of darkness, lack of visibility, or because ship is more than 0.5

**FLD LEN: 1**

**WATER-SURFACE-ICE-OBSERVATION ship relative position code**

The code that denotes the relative position of the reporting ship to the ice formation.

DOM: A specific domain comprised of the characters in the ASCII character set

- 9 = missing
- 0: Ship in open water with floating ice in sight
- 1: In open lead or fast ice
- 2: In ice or within 0.5 nautical miles of ice edge

**FLD LEN: 1**

**WATER-SURFACE-ICE-OBSERVATION ship penetrability code**

The code that denotes the degree of ease with which the reporting ship can proceed through the ice.

DOM: A specific domain comprised of the characters in the ASCII character set

- 9 = missing
- 1: Easy
- 2: Difficult
- 3: Beset (Surrounded so closely by sea ice that steering control is lost.)

**FLD LEN: 1**

**WATER-SURFACE-ICE-OBSERVATION ice trend code**

The code that denotes the trend of ice conditions.

DOM: A specific domain comprised of the characters in the ASCII character set

- 9 = missing
- 1: Conditions improving
- 2: Conditions static
- 3: Conditions worsening
- 4: Conditions worsening; ice forming and floes freezing together
- 5: Conditions worsening; ice under slight pressure
- 6: Conditions worsening; ice under moderate or severe pressure

**FLD LEN: 2**

**WATER-SURFACE-ICE-OBSERVATION development code**

The code that denotes the development stage of the ice.

DOM: A specific domain comprised of the characters in the ASCII character set

99 = missing  
00: New ice only (frazil ice, grease ice, slush, slugs)  
01: Nilas or ice rind, less than 10 cm thick  
02: Young ice (grey ice, grey-white ice), 10 - 30 cm thick  
03: Predominantly new and/or young ice with some first year ice  
04: Predominantly thin first year ice with some new and/or young ice  
05: All thin first year ice (30 - 70 cm thick)  
06: Predominantly medium first year ice (70 - 120 cm thick) and thick first year ice (> 120 cm thick) with some thinner (younger) first year ice  
07: All medium and thick first year ice  
08: Predominantly medium and thick first year ice with some old ice (usually more than 2 m thick)  
09: Predominantly old ice  
99: Unable to report, because of darkness, lack of visibility or because only ice of land origin is visible or because ship is more than .5 NM away from ice

**FLD LEN: 1**

**WATER-SURFACE-ICE-OBSERVATION growler-bergy-bit presence code**

The code that denotes the existence of growler and/or bergy bits.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing  
0: Not present  
1: Present  
2: Unknown

**FLD LEN: 3**

**WATER-SURFACE-ICE-OBSERVATION growler-bergy-bit quantity**

The quantity of growler and bergy bits observed in the area.

MIN: 000 MAX: 998

DOM: A general domain comprised of the characters in the ASCII character set

999 = missing

**FLD LEN: 3**

**WATER-SURFACE-ICE-OBSERVATION iceberg quantity**

The quantity of icebergs observed in the area.

MIN: 000 MAX: 998

DOM: A general domain comprised of the numeric characters (0-9)

999 = missing

**FLD LEN: 1**

**WATER-SURFACE-ICE-OBSERVATION quality code**

The code that denotes a quality status of the reported

WATER-SURFACE-ICE-OBSERVATION.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

- 0: Passed gross limits check
  - 1: Passed all quality control checks
  - 2: Suspect
  - 3: Erroneous
  - 9: Passed gross limits check if element is present
- 

**FLD LEN: 3**

**WATER-SURFACE-ICE-HISTORICAL-OBSERVATION occurrence identifier**

The identifier that denotes the availability of a

WATER-SURFACE-ICE-HISTORICAL-OBSERVATION

DOM: A specific domain comprised of the characters in the ASCII character set

**WG1:** An indicator of the following items:

WATER-SURFACE-ICE-HISTORICAL-OBSERVATION edge bearing code

WATER-SURFACE-ICE-HISTORICAL-OBSERVATION edge distance dimension

WATER-SURFACE-ICE-HISTORICAL-OBSERVATION edge orientation code

WATER-SURFACE-ICE-HISTORICAL-OBSERVATION formation type code

WATER-SURFACE-ICE-HISTORICAL-OBSERVATION navigation effect code

WATER-SURFACE-ICE-HISTORICAL-OBSERVATION quality code

**FLD LEN: 2**

**WATER-SURFACE-ICE-HISTORICAL-OBSERVATION edge bearing code**

The code that denotes the true bearing, measured from the reporting platform to the closest point of the principle ice edge.

DOM: A specific domain comprised of the characters in the ASCII character set

99 = missing

00: Ship in shore or flaw lead

01: Principal ice edge towards NE

02: Principal ice edge towards E

03: Principal ice edge towards SE

04: Principal ice edge towards S

05: Principal ice edge towards SW

06: Principal ice edge towards W

07: Principal ice edge towards NW

08: Principal ice edge towards N

09: Not determined (ship in ice)

10: Unable to report, because of darkness, lack of visibility or because only ice of land origin is visible

**FLD LEN: 2**

**WATER-SURFACE-ICE-HISTORICAL-OBSERVATION edge distance dimension**

The distance from the reporting ship=s location to the nearest point on the ice edge.

MIN: 00 MAX: 98 UNITS: kilometers

DOM: A general domain comprised of the characters in the ASCII character set  
99 = missing

**FLD LEN: 2**

**WATER-SURFACE-ICE-HISTORICAL-OBSERVATION edge orientation code**

The code that denotes the orientation of the principal ice edge and the direction relative to which the ice lies.

DOM: A specific domain comprised of the characters in the ASCII character set  
99 = missing

- 00: Orientation of ice edge impossible to estimate--ship outside the ice
- 01: Ice edge lying in a direction NE to SW with ice situated to the NW
- 02: Ice edge lying in a direction E to W with ice situated to the N
- 03: Ice edge lying in a direction SE to NW with ice situated to the NE
- 04: Ice edge lying in a direction S to N with ice situated to the E
- 05: Ice edge lying in a direction SW to NE with ice situated to the SE
- 06: Ice edge lying in a direction W to E with ice situated to the S
- 07: Ice edge lying in a direction NW to SE with ice situated to the SW
- 08: Ice edge lying in a direction N to S with ice situated to the W
- 09: Orientation of ice edge impossible to estimate--ship inside the ice

**FLD LEN: 2**

**WATER-SURFACE-ICE-HISTORICAL-OBSERVATION formation type code**

The code that denotes the type of ice formation reported in the

DOM: A specific domain comprised of the characters in the ASCII character set  
99 = missing

- 00: No ice (0 may be used to report ice blink and then a direction must be reported)
- 01: New ice
- 02: Fast ice
- 03: Pack-ice/drift-ice
- 04: Packed (compact) slush or sludge
- 05: Shore lead
- 06: Heavy fast ice
- 07: Heavy pack-ice/drift-ice
- 08: Hummocked ice
- 09: Icebergs-icebergs can be reported in plain language

**FLD LEN: 2**

**WATER-SURFACE-ICE-HISTORICAL-OBSERVATION navigation effect**

**code**

The code that denotes the effect of ice on navigation.

DOM: A specific domain comprised of the characters in the ASCII character set

99 = missing

00: Navigation unobstructed

01: Navigation unobstructed for steamers, difficult for sailing ships

02: Navigation difficult for low-powered steamers, closed to sailing ships

03: Navigation possible only for powerful steamers

04: Navigation possible only for steamers constructed to withstand ice pressure

05: Navigation possible with the assistance of ice-breakers

06: Channel open in the solid ice

07: Navigation temporarily closed

08: Navigation closed

09: Navigation conditions unknown, e.g., owing to bad weather

**FLD LEN: 1****WATER-SURFACE-ICE-HISTORICAL-OBSERVATION quality code**

The code that denotes a quality status of the reported

WATER-SURFACE-ICE-HISTORICAL-OBSERVATION.

DOM: A specific domain comprised of the characters in the ASCII character set

9 = missing

0: Passed gross limits check

1: Passed all quality control checks

2: Suspect

3: Erroneous

9: Passed gross limits check if element is present

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## Remarks Data Section

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**FLD LEN: 3**

**GEOPHYSICAL-POINT-OBSERVATION remarks data identifier**

The identifier that denotes the beginning of the remarks data section.

DOM: A specific domain comprised of the characters in the ASCII character set

REM: Remarks Data Section

**FLD LEN: 3**

**GEOPHYSICAL-POINT-OBSERVATION remark identifier occurrence identifier**

An indicator of the type of surface remarks data contained in the  
GEOPHYSICAL-POINT-OBSERVATION-REMARK text

DOM: A specific domain composed of the following qualitative data values

SYN - AWY: An indicator of up to 6 repeating fields of the following items:

GEOPHYSICAL-POINT-OBSERVATION remark identifier Remark  
length quantity

GEOPHYSICAL-POINT-OBSERVATION remark identifier Remark text

**FLD LEN: 3**

**GEOPHYSICAL-POINT-OBSERVATION remark identifier Remark length quantity**

A quantity that indicates the length of an individual

GEOPHYSICAL-POINT-OBSERVATION-REMARK text

MIN: 001 MAX: 999

DOM: A general domain comprised of the characters in the ASCII character set

**FLD LEN: 999**

**GEOPHYSICAL-POINT-OBSERVATION remark identifier Remark text**

The text of a GEOPHYSICAL-POINT-OBSERVATION-REMARK

DOM: A general domain comprised of the characters in the ASCII character set

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## Element Quality Data Section

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**FLD LEN: 3**

**GEOPHYSICAL-POINT-OBSERVATION element quality data identifier**

The identifier that denotes the beginning of the element quality data section.

DOM: A specific domain comprised of the characters in the ASCII character set

EQD: Element Quality Data Section

**FLD LEN: 3**

**ORIGINAL-OBSERVATION-ELEMENT-QUALITY identifier (cont.)  
occurrence identifier**

The identifier that denotes the existence of

ORIGINAL-OBSERVATION-ELEMENT-QUALITY data. These data will appear after the Q### data described above.

DOM: A specific domain comprised of the characters in the ASCII character set

**N99 - N01:** An indicator of up to 98 repeating fields of the following items:

ORIGINAL-OBSERVATION-ELEMENT-QUALITY identifier

(cont.) original value text

ORIGINAL-OBSERVATION-ELEMENT-QUALITY identifier

(cont.) units code

ORIGINAL-OBSERVATION-ELEMENT-QUALITY identifier

(cont.) parameter code

**FLD LEN: 6**

**ORIGINAL-OBSERVATION-ELEMENT-QUALITY identifier (cont.)  
original value text**

The original value text for elements which were rejected or recomputed during validation.

DOM: A general domain comprised of the characters in the ASCII character set

**FLD LEN: 1**

**ORIGINAL-OBSERVATION-ELEMENT-QUALITY identifier (cont.) units  
code**

The code that denotes the units for the data stored in this position, and the data quality flag is stored with the parameter code below.

DOM: A specific domain comprised of the characters in the ASCII character set

A: DT Wind direction in tens of degrees

B: F Whole degrees Fahrenheit

C: HF Hundreds of feet

D: HM Miles and hundredths

E: IH Inches and hundredths of mercury

F: IT Inches and thousandths of mercury

G: KD knots and direction in tens of degrees  
 H: KS knots and direction in 16 point WBAN code  
 I: MT Millibars and tenths  
 J: NA No units applicable (non-dimensional)  
 K: N1 No units applicable - element to tenths  
 L: N2 No units applicable - element to hundredths  
 M: P Whole percent  
 O: TC Degrees Celsius in tenths  
 P: TF Degrees Fahrenheit in tenths  
 Q: IS Miles per hour and sixteen-point wind compass  
 R: MS Meters per second and sixteen-point wind compass

First 4 characters = the element name as defined below. Position 5 = the Flag 1 value as defined below. Position 6 = the Flag 2 value as defined below.

This is the text of the note; replace this text with your own wording.

**FLD LEN: 6**

**ORIGINAL-OBSERVATION-ELEMENT-QUALITY identifier (cont.)  
 parameter code**

The code that denotes the type of parameter that the supplemental-level-element-quality applies to.

DOM: A specific domain comprised of the characters in the ASCII character set

- 0: Observed data has passed all internal consistency checks.
- 1: Validity indeterminable (primarily for pre-1984 data).
- 2: Observed data has failed an internal consistency check - subsequent edited value follows observed value
- 3: Data beginning Jan. 1, 1984 - observed data has failed a consistency check - No edited value follows. Data prior to Jan. 1, 1984 - observed data exceeded preselected climatological limits during conversion from historic TD-1440. No edited value follows.
- 4: Observed data value invalid - no edited value follows.
- 5: Data converted from historic TD-1440 exceeded known climatological extremes - no edited value follows.
- 6: Complex QA indicates datum is erroneous, and an edited value follows.
- A: Wind speed expressed in Beaufort scale, different from the day's given units
- ALC: Sky condition in tenths from ASOS
- ALM: Sky condition in eighths from ASOS
- ALTP: Altimeter setting
- C: Ceiling of cirriform clouds at unknown height (Sep 56 - Mar 70)
- C2C3: Total cloud cover by first 2 and first 3 layers
- CC51: Sky condition prior to 1951
- CLC: Sky condition in tenths
- CLHT: Ceiling height
- CLM: Sky condition in eighths
- CLT: Cloud type and height by layer

D: Derived value  
DPTC: Dew point temperature in Celsius  
DPTP: Dew point temperature in Fahrenheit  
E: Estimated value  
G: Visibility > or = 100 miles (data value = 10000)  
H: Hundredths precision only is indicated in the original (except as when found in SLVP with units code MT, this flag means original value is expressed in inches to hundredths, not hundredths of millibars)  
HZVS: Horizontal visibility  
I: Wind speed in miles per hour, different from the days given units  
K: Wind speed in knots, different from the days given units  
M: Visibility missing (data value = 99999)  
N: Unlimited visibility (data value = 99999)  
P: Wind speed in pounds per square foot perpendicular to the wind  
PRES: Station pressure  
PWTH: Present weather  
PWVC: Present weather in vicinity  
R: Dew point and/or relative humidity, originally calculated with respect to ice have been recomputed with respect to water. (DPTP, RHUM)  
RHUM: Relative humidity  
S: Wind speed in meters per second, different from the day's given units  
SCH: Sky condition (amount and modifier, e.g. thin broken) and height by layer  
SLVP: Sea level pressure  
TMCD: Dry bulb temperature in Celsius  
TMPD: Dry bulb temperature in Fahrenheit  
TMPW: Wet bulb temperature in Fahrenheit  
TSCE: Total sky cover in eighths  
TSKC: Total sky cover in tenths  
TSKY: Same as TSKC but expressed in terms of amount and modifier, e.g., thin broken  
U: Unlimited ceiling height (DATA-VALUE = 99999). (CLHT)  
W: Whole precision only is indicated in the original observation  
WD16: Wind direction and speed in 16 point code  
WIND: Wind direction and speed  
WND2: Wind direction and speed from ASOS  
b: (blank) Flag not needed. (All elements except CC51)

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### **FLD LEN: 3**

#### **ORIGINAL-OBSERVATION-ELEMENT-QUALITY identifier occurrence identifier**

The identifier that represents an episode of

ORIGINAL-OBSERVATION-ELEMENT-QUALITY identifier

DOM: A specific domain comprised of the characters in the ASCII character set

**R99 - P01:** An indicator of up to 297 repeating fields of the following items:

ORIGINAL-OBSERVATION-ELEMENT-QUALITY identifier original value text

ORIGINAL-OBSERVATION-ELEMENT-QUALITY identifier reason  
code  
ORIGINAL-OBSERVATION-ELEMENT-QUALITY identifier parameter  
code

**FLD LEN: 6**

**ORIGINAL-OBSERVATION-ELEMENT-QUALITY identifier original  
value text**

The original value text for elements which were rejected or recomputed during validation.

DOM: A general domain comprised of the characters in the ASCII character set

**FLD LEN: 1**

**ORIGINAL-OBSERVATION-ELEMENT-QUALITY identifier reason code**

The code that denotes the reason an element was identified as suspect, erroneous or recomputed or in the case of data originating from NCDC Surface Hourly, the units code for the data are stored in this position, and the data quality flag is stored with the parameter code (see N01-N99 below).

DOM: A specific domain comprised of the characters in the ASCII character set

- 0: Original value missing or corrupted
- 1: Gross error checks (range and/or domain check)
- 2: Geophysical checks (checking the validity against other parameters)
- 3: Consistency checks (checking the validity against the same type of parameter)
- 4: Gross error checks and geophysical checks
- 5: Gross error checks and consistency checks
- 6: Geophysical checks and consistency checks
- 7: Gross error checks and geophysical checks and consistency checks

**FLD LEN: 6**

**ORIGINAL-OBSERVATION-ELEMENT-QUALITY identifier parameter  
code**

The code that denotes the type of parameter that the supplemental-level-element-quality applies to.

DOM: A specific domain comprised of the characters in the ASCII character set

- 001: INVALID MSDP 5 MIN AMT
- 002: MSDP 5 MIN AMT OUT OF RANGE
- 003: INVALID MSDP 5 MIN DATE
- 004: MSDP 5 MIN DATE OUT OF RANGE
- 005: INVALID MSDP 5 MIN TIME
- 006: MSDP 5 MIN TIME OUT OF RANGE
- 007: INVALID MSDP 10 MIN AMT
- 008: MSDP 10 MIN AMT > 2 x 5 MIN AMT
- 009: INVALID MSDP 10 MIN DATE
- 010: MSDP 10 MIN DATE OUT OF RANGE
- 011: INVALID MSDP 10 MIN TIME

012: MSDP 10 MIN TIME OUT OF RANGE  
013: INVALID MSDP 15 MIN AMT  
014: MSDP 15 MIN AMT > 5 + 10 MIN AMT  
015: INVALID MSDP 15 MIN DATE  
016: MSDP 15 MIN DATE OUT OF RANGE  
017: INVALID MSDP 15 MIN TIME  
018: MSDP 15 MIN TIME OUT OF RANGE  
019: INVALID MSDP 20 MIN AMT  
020: MSDP 20 MIN AMT > 5 + 15 MIN AMT  
021: MSDP 20 MIN AMT > 2 x 10 MIN AMT  
022: INVALID MSDP 20 MIN DATE  
023: MSDP 20 MIN DATE OUT OF RANGE  
024: INVALID MSDP 20 MIN TIME  
025: MSDP 20 MIN TIME OUT OF RANGE  
026: INVALID MSDP 30 MIN AMT  
027: MSDP 30 MIN AMT > 10 + 20 MIN AMT  
028: MSDP 30 MIN AMT > 2 x 15 MIN AMT  
029: INVALID MSDP 30 MIN DATE  
030: MSDP 30 MIN DATE OUT OF RANGE  
031: INVALID MSDP 30 MIN TIME  
032: MSDP 30 MIN TIME OUT OF RANGE  
033: INVALID MSDP 45 MIN AMT  
034: MSDP 45 MIN AMT > 15 + 30 MIN AMT  
035: INVALID MSDP 45 MIN DATE  
036: MSDP 45 MIN DATE OUT OF RANGE  
037: INVALID MSDP 45 MIN TIME  
038: MSDP 45 MIN TIME OUT OF RANGE  
039: INVALID MSDP 60 MIN AMT  
040: MSDP 60 MIN AMT > 15 + 45 MIN AMT  
041: MSDP 60 MIN AMT > 2 x 30 MIN AMT  
042: INVALID MSDP 60 MIN DATE  
043: MSDP 60 MIN DATE OUT OF RANGE  
044: INVALID MSDP 60 MIN TIME  
045: MSDP 60 MIN TIME OUT OF RANGE  
046: INVALID MSDP 80 MIN AMT  
047: MSDP 80 MIN AMT > 20 + 60 MIN AMT  
048: INVALID MSDP 80 MIN DATE  
049: MSDP 80 MIN DATE OUT OF RANGE  
050: INVALID MSDP 80 MIN TIME  
051: MSDP 80 MIN TIME OUT OF RANGE  
052: INVALID MSDP 100 MIN AMT  
053: MSDP 100 MIN AMT > 20 + 80 MIN AMT  
054: INVALID MSDP 100 MIN DATE  
055: MSDP 100 MIN DATE OUT OF RANGE  
056: INVALID MSDP 100 MIN TIME  
057: MSDP 100 MIN TIME OUT OF RANGE  
058: INVALID MSDP 120 MIN AMT  
059: MSDP 120 MIN AMT > 20 + 100 MIN AMT

060: MSDP 120 MIN AMT > 2 X 60 MIN AMT  
061: INVALID MSDP 120 MIN DATE  
062: MSDP 120 MIN DATE OUT OF RANGE  
063: INVALID MSDP 120 MIN TIME  
064: MSDP 120 MIN TIME OUT OF RANGE  
065: INVALID MSDP 150 MIN AMT  
066: MSDP 10 MIN AMT > 30 + 120 MIN AMT  
067: INVALID MSDP 150 MIN DATE  
068: MSDP 150 MIN DATE OUT OF RANGE  
069: INVALID MSDP 150 MIN TIME  
070: MSDP 150 MIN TIME OUT OF RANGE  
071: INVALID MSDP 180 MIN AMT  
072: MSDP 180 MIN AMT > 60 + 120 MIN AMT  
073: INVALID MSDP 180 MIN DATE  
074: MSDP 180 MIN DATE OUT OF RANGE  
075: INVALID MSDP 180 MIN TIME  
076: MSDP 180 MIN TIME OUT OF RANGE  
077: MSDP 60 MIN VAL DISAGREES W/HR  
078: MSDP 120 MIN VAL DISAGREES W/HR  
079: MSDP 180 MIN VAL DISAGREES W/HR  
A01-A12: indicates this pertains to a precipitation amount, which is stored as the EQD original value  
APC3: ATMOSPHERIC-PRESSURE-CHANGE THREE HOUR CHANGE QUANTITY  
APCQ24: ATMOSPHERIC-PRESSURE-CHANGE TWENTY FOUR HOUR QUANTITY  
APCTEN: ATMOSPHERIC-PRESSURE-CHANGE TENDENCY CODE  
APOA: ATMOSPHERIC-PRESSURE-OBSERVATION ALTIMETER RATE  
APOLH: ATMOSPHERIC-PRESSURE-OBSERVATION-LEVEL HEIGHT DIMENSION  
APOLP: ATMOSPHERIC-PRESSURE-OBSERVATION-LEVEL PRESSURE RATE  
AOSLP: ATMOSPHERIC-PRESSURE-OBSERVATION SEA LEVEL PRESSURE  
AOSP: ATMOSPHERIC-PRESSURE-OBSERVATION STATION PRESSURE RATE  
ATMM: EXTREME AIR TEMPERATURE, MAXIMUM AND MINIMUM  
ATMN: EXTREME AIR TEMPERATURE, MINIMUM  
ATMX: EXTREME AIR TEMPERATURE, MAXIMUM  
ATOD: AIR-TEMPERATURE-OBSERVATION DEW POINT TEMPERATURE  
ATOLD: AIR-TEMPERATURE-OBSERVATION-LEVEL DEW POINT TEMPERATURE  
ATOLDS: AIR-TEMPERATURE-OBSERVATION-LEVEL DENSITY RATE  
ATOLT: AIR-TEMPERATURE-OBSERVATION-LEVEL AIR

TEMPERATURE

ATOT: AIR-TEMPERATURE-OBSERVATION AIR TEMPERATURE  
D01-D12: indicates this pertains to the ending day field, which is stored as the EQD original value

PRCP: LIQUID PRECIPITATION DEPTH DIMENSION

PRSM4: PRESENT-WEATHER-OBSERVATION MANUAL  
ATMOSPHERIC CONDITION CODE

PRSWA1: PRESENT-WEATHER-OBSERVATION AUTOMATED  
ATMOSPHERIC CONDITION CODE

PRSWA2: PRESENT-WEATHER-OBSERVATION AUTOMATED  
ATMOSPHERIC CONDITION CODE

PRSWA3: PRESENT-WEATHER-OBSERVATION AUTOMATED  
ATMOSPHERIC CONDITION CODE

PRSWA4: PRESENT-WEATHER-OBSERVATION AUTOMATED  
ATMOSPHERIC CONDITION CODE

PRSWM1: PRESENT-WEATHER-OBSERVATION MANUAL  
ATMOSPHERIC CONDITION CODE

PRSWM2: PRESENT-WEATHER-OBSERVATION MANUAL  
ATMOSPHERIC CONDITION CODE

PRSWM3: PRESENT-WEATHER-OBSERVATION MANUAL  
ATMOSPHERIC CONDITION CODE

PRSWM5: PRESENT-WEATHER-OBSERVATION MANUAL  
ATMOSPHERIC CONDITION CODE

PRSWM6: PRESENT-WEATHER-OBSERVATION MANUAL  
ATMOSPHERIC CONDITION CODE

PRSWM7: PRESENT-WEATHER-OBSERVATION MANUAL  
ATMOSPHERIC CONDITION CODE

PRSWOA: PRESENT-WEATHER-OBSERVATION AUTOMATED  
ATMOSPHERIC CONDITION CODE

PSTWA1: PAST-WEATHER-OBSERVATION AUTOMATED  
ATMOSPHERIC CONDITION CODE

PSTWA2: PAST-WEATHER-OBSERVATION AUTOMATED  
ATMOSPHERIC CONDITION CODE

PSTWM1: PAST-WEATHER-OBSERVATION MANUAL  
ATMOSPHERIC CONDITION CODE

PSTWM2: PAST-WEATHER-OBSERVATION MANUAL  
ATMOSPHERIC CONDITION CODE

PSTWOP: PAST WEATHER OBSERVATION PERIOD QUANTITY

SCOCIG: SKY-CONDITION-OBSERVATION CEILING HEIGHT  
DIMENSION

SCOHCG: SKY-CONDITION-OBSERVATION HIGH CLOUD GENUS  
CODE

SCOLCB: SKY-CONDITION-OBSERVATION LOWEST CLOUD BASE  
HEIGHT DIMENSION

SCOLCG: SKY-CONDITION-OBSERVATION LOW CLOUD GENUS  
CODE

SCOMCG: SKY-CONDITION-OBSERVATION MID CLOUD GENUS  
CODE

SCOTCV: SKY-CONDITION-OBSERVATION TOTAL COVERAGE  
CODE  
SCOTLC: SKY-CONDITION-OBSERVATION TOTAL LOWEST  
CLOUD COVER CODE  
SNDP: SNOW DEPTH DIMENSION  
SNWF: SNOW ACCUMULATION DEPTH DIMENSION  
T01-T12: indicates this pertains to the ending time field, which is stored as  
the EQD original value  
VODIS: VISIBILITY-OBSERVATION DISTANCE DIMENSION  
VOVAR: VISIBILITY-OBSERVATION VARIABILITY CODE  
WGOSPD: WIND-GUST-OBSERVATION SPEED RATE  
WODIR: WIND-OBSERVATION DIRECTION ANGLE

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## Original Observation Data Section

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Bold type below indicates that the element may include data originating from NCDC's NCDC Surface Hourly/ASOS/AWOS, NCDC Precipitation Hourly/Hourly Precip, or from AFCCC's USAF Surface Hourly. Otherwise, data originated from USAF Surface Hourly.

Items in red are only used for selected stations and periods of time in the dataset.

For the quality code fields with each data element, the following may appear in data which were processed through NCDC's Interactive QC system (manual interaction):

A - Data value flagged as suspect, but accepted as good value

U - Data value replaced with edited value

P - Data value not originally flagged as suspect, but replaced by validator

I - Data value not originally in data, but inserted by validator

### **FLD LEN: 3**

#### **GEOPHYSICAL-POINT-OBSERVATION original observation data identifier**

The identifier that denotes the beginning of the original observation data section.

DOM: A specific domain comprised of the characters in the ASCII character set

QNN: Original Observation Data Section

### **FLD LEN: 3**

#### **ORIGINAL-OBSERVATION-NCDC-Surface-Hourly occurrence identifier**

The identifier that represents the existence of

ORIGINAL-OBSERVATION-NCDC-Surface-Hourly information. This is used in specific instances where the original data from a previous format is stored for quality control purposes. In most cases, this section is not included, since the original input data sources are always maintained/archived at NCDC.

DOM: A specific domain comprised of the characters in the ASCII character set

QNN: An indicator of the following items:

ORIGINAL-OBSERVATION-NCDC-Surface-Hourly source codes and flags

ORIGINAL-OBSERVATION-NCDC-Surface-Hourly data value

For each original NCDC Surface Hourly data record, the source code 1 and 2, and flag 1 and 2 original values are stored as follows:

QNN@1234@1234@1234 where:

QNN = indicator for section

@ = element identifier (see below)

1234 = source code 1, source code 2, flag 1, flag 2 sequentially, for each element as defined in original NCDC Surface Hourly.

Element Identifiers (@) as mentioned above:

**FLD LEN: 5**

**ORIGINAL-OBSERVATION-NCDC-Surface-Hourly source codes and flags**

The original source codes and flags from NCDC Surface Hourly, for possible future use in ISH database quality control.

DOM: A general domain comprised of the characters in the ASCII character set

- A: ALC
- B: ALM
- C: ALTP
- D: CC51
- E: CLC
- F: CLM
- G: CLHT
- H: CLT
- I: C2C3
- J: DPTC
- K: DPTP
- L: HZVS
- M: PRES
- N: PWTH
- O: PWVC
- P: RHUM
- Q: SLVP
- R: TMCD
- S: TMPD
- T: TMPW
- U: TSCE
- V: TSKC
- W: WD16
- X: WIND
- Y: WND2

**FLD LEN: 6**

**ORIGINAL-OBSERVATION-NCDC-Surface-Hourly data value**

The original data value from NCDC Surface Hourly, as defined for the element above, for possible future use in ISH database quality control.

DOM: A general domain comprised of the characters in the ASCII character set

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