Remote Sensing Applications Division (RSAD)

CDR Program Office

Weekly Report for May 4, 2012
Ed Kearns, Chief

PREDECISIONAL DRAFT INFORMATION

CDR Program Office
FY12 Climate Data Records

Weekly Report – May 4, 2012

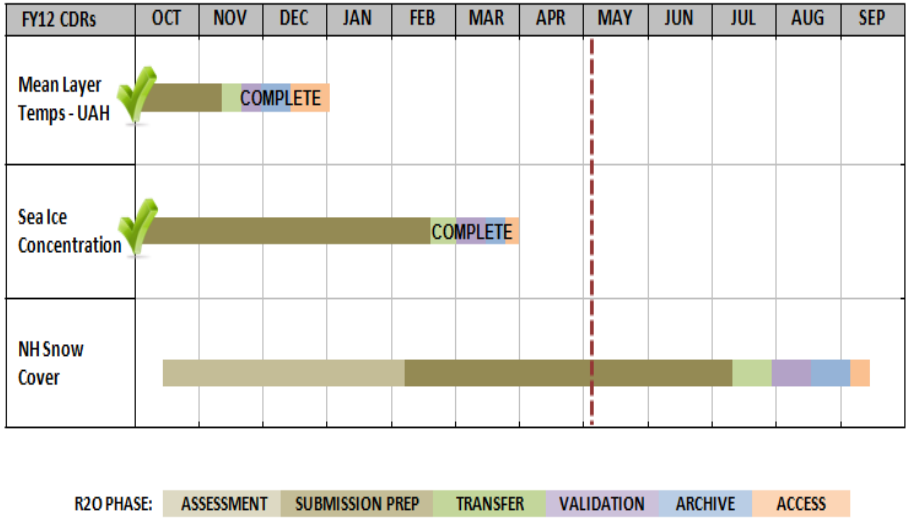
1. **Mean Layer Temperatures – Univ of Alabama Huntsville (UAH)**
   - Completed – Nov 17

2. **Sea Ice Concentration**
   - Completed – Mar 28

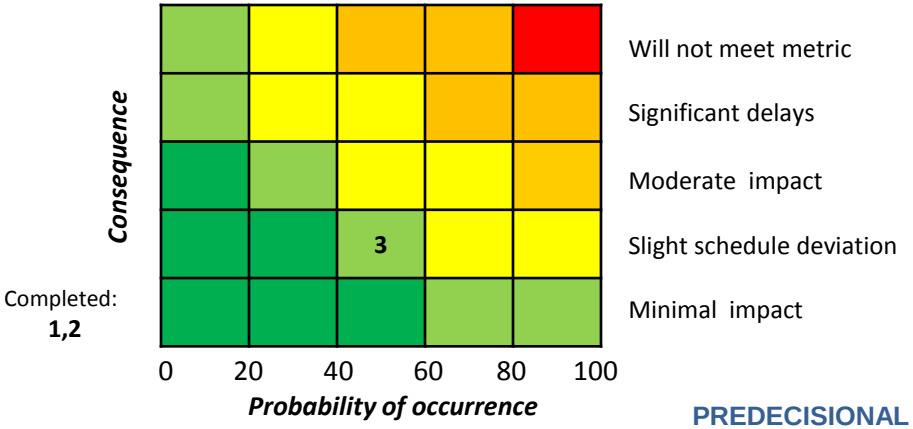
● 3. **Northern Hemisphere Snow Cover**
   - PI has reviewed schedule and is confident he can meet the deliveries. Received flow diagram, PI working on C-ATBD

● No change ↑ Increasing Risk ↓ Decreasing Risk *Candidate CDRs

R2O Schedule



Risk Matrix



Risk - Mitigation

- **Snow Cover PI has a lot to accomplish by the end of the FY**
  - **Gave PI a detailed schedule and he is working to maintain it**
  - **Continue to transition the MLT-RSS CDR as a back-up**

- **Minimal QA on product, software, and documentation**
  - **ORR will help alleviate some of the risks**
  - **Get reviews/input from in house experts as needed**
  - **Need to formally document the current QA steps being done**

PREDECISIONAL DRAFT INFORMATION

= On-track = Potential management action required = Management attention required

FY12 TCDR - NH Snow Cover

CDR Product: TCDR – NH Snow Cover, 1966-2012 (10 GB)
GEOSS Societal Benefit: Climate, Water, Ecosystems, Agriculture, Energy

Project Status

- **PI sent updated flow chart – looks good, easy to follow**
- **PI working on C-ATBD**
- PI sent updated Readme – still needs netCDF conversion piece
- AB working on SA draft

SOW in work for:
1) Monthly updates for one year
2) QC tools and training

Next Action/Milestone

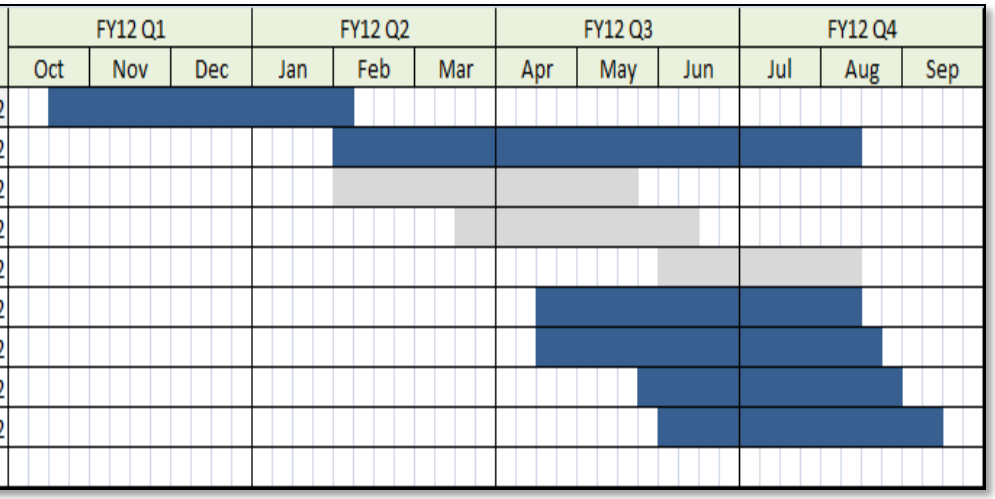
- Initial Assessment (2/9) – done
- Sample of source code (4/9) – done
- Sample flow diagram (4/27) – done
- Draft C-ATBD (5/21)

G

Project Risks

- Funding (SDS 2008)
  - SOW in development to get additional funds to PI
- Input data is made with a person in the loop (daily IMS data)
  - Metadata and documentation will detail how the product is created and identify its strengths/weaknesses

ID	Task Name	Status	Start	Stop
1	Initial Assessment	100	10/17/2011	2/9/2012
2	Transfer Prep	20	2/6/2012	8/7/2012
2a	Comment Source Code	25	2/6/2012	5/22/2012
2b	Create Docs (CATBD, Flow Chart, MM, Readme)	25	3/19/2012	6/11/2012
2c	Create NetCDF Dataset	10	5/30/2012	8/7/2012
3	Tranfer Code, Docs, and Data	10	4/18/2012	8/16/2012
4	Verify Code, Docs, and Data	10	4/19/2012	8/23/2012
5	Archive Code, Docs, and Data	0	5/31/2012	8/31/2012
6	Provide Access to Code, Docs, and Data	0	6/1/2012	9/10/2012



PREDECISIONAL DRAFT INFORMATION

PI: Robinson (Rutgers Univ, SDS 2008) RSAD TM: Young

Backup FY12 CDR - Mean Layer Temperature - RSS

CDR Product: TCDR – Atmospheric Temperature at Four Layers, 1978-2011 (140 MB)
GEOSS Societal Benefit: Energy, Climate, Ecosystems

Project Status

- **No Change**
- About 25% of the code has been documented
  - PI will adjust copyright statement to maintain ©, but grant CDRP unrestricted license
- PI working on netCDF conversion and metadata
- PI found some issues with MLT-UAH metadata on THREDDS
  - Will work with Access Branch to resolve

SOW developed for:
1) Monthly updates for one year
2) QC tools and training

Next Action/Milestone

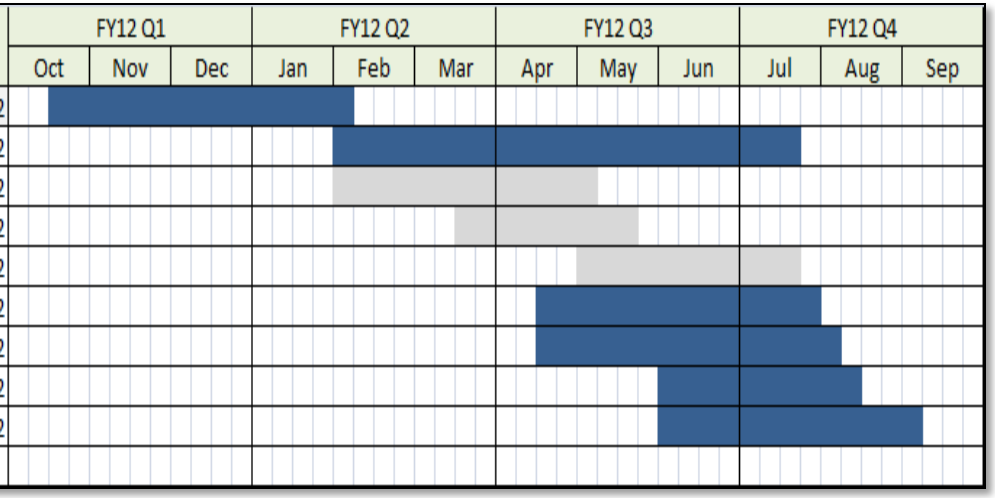
- Initial Assessment (2/3) – done
- PI sends drafts: Documented code (3/19), Readme (4/2), Flow Diagram (4/9), C-ATBD (4/30)

G

Project Risks

- Funding (SDS 2008)
  - SOW in development to get additional funds to PI

ID	Task Name	Status	Start	Stop
1	Initial Assessment	100	10/17/2011	2/3/2012
2	Transfer Prep	25	2/6/2012	7/24/2012
2a	Comment Source Code	25	2/6/2012	5/1/2012
2b	Create Docs (CATBD, Flow Chart, MM, Readme)	25	3/19/2012	5/22/2012
2c	Create NetCDF Dataset	25	5/3/2012	7/24/2012
3	Tranfer Code, Docs, and Data	15	4/18/2012	7/26/2012
4	Verify Code, Docs, and Data	15	4/19/2012	8/9/2012
5	Archive Code, Docs, and Data	0	5/31/2012	8/17/2012
6	Provide Access to Code, Docs, and Data	0	6/1/2012	9/3/2012



PREDECISIONAL DRAFT INFORMATION

PI: Mears (RSS, SDS 2008) RSAD TM: Dongsoo Kim

Backup FY12 CDR - Vegetation Bundle

CDR Product: TCDR – Vegetation Bundle, 1981-2012 (2.5 TB)
GEOSS Societal Benefit: Agriculture, Ecosystems, Climate, Biodiversity

Project Status

- **PI sent sample netCDF data**
  - IPT will review and send feedback
- PI sent an updated flow diagram
  – much better than first one

- Two CDRs in transition:
  - Deliver Surface Reflectance and NDVI in FY12
  - Postpone LAI and FPAR until more mature (FY13)

Next Action/Milestone

- Initial Assessment (3/22) – done
- Revised Flow Diagram (4/20) - done
- Samples of documented source code (4/27)
- Draft C-ATBD (6/1)

Y

Project Risks

- Lots of work to be completed and progress is slow
  – sent PI a detailed task schedule, will push PI to stay on track

ID	Task Name	Status	Start	Stop
1	Initial Assessment	100	10/17/2011	4/6/2012
2	Transfer Prep	10	3/1/2012	8/21/2012
2a	Comment Source Code	5	3/1/2012	6/1/2012
2b	Create Docs (CATBD, Flow Chart, MM, Readme)	15	3/15/2012	6/30/2012
2c	Create NetCDF Dataset	15	4/30/2012	8/21/2012
3	Tranfer Code, Docs, and Data	0	5/15/2012	8/21/2012
4	Verify Code, Docs, and Data	0	5/15/2012	8/30/2012
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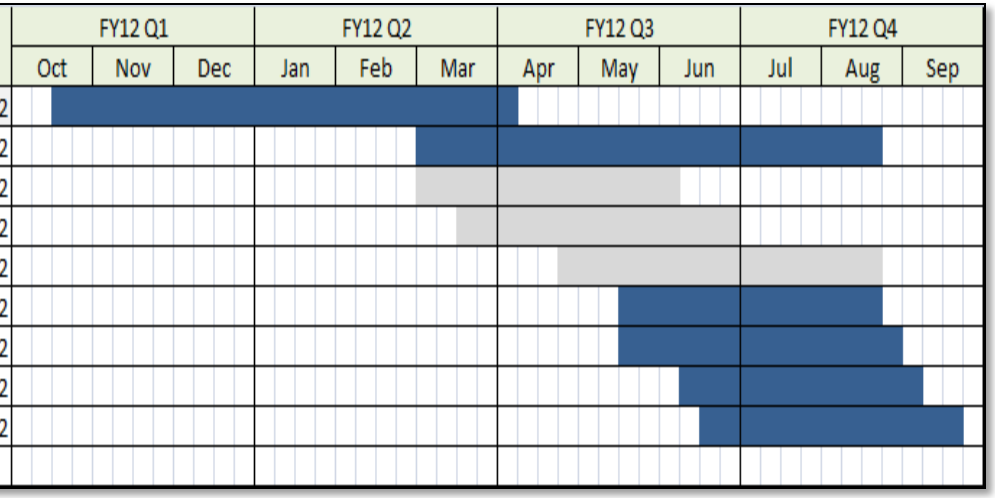


PREDECISIONAL DRAFT INFORMATION

PI: Vermote (U of Md, CDR Grant 2009) **RSAD TM: Nelson**

FY12 TCDR - Sea Ice

CDR Product: TCDR - Sea ice concentration, 1979-2007 (20 GB)
GEOSS Societal Benefit: Climate, Water, Ecosystems, Agriculture

Project Status

- **No Change**
- Released daily sea ice CDR – March 28, **ORR checklist complete**
- NSIDC will deliver the monthly product by the end of June
  - NSIDC has started processing the entire POR

SOW in work for:
1) Adding F17 data to daily and monthly
2) Extending POR from 2008 – current
3) Quarterly updates for one year
4) QC tools and training
5) Quarterly access reports

Next Action / Milestone

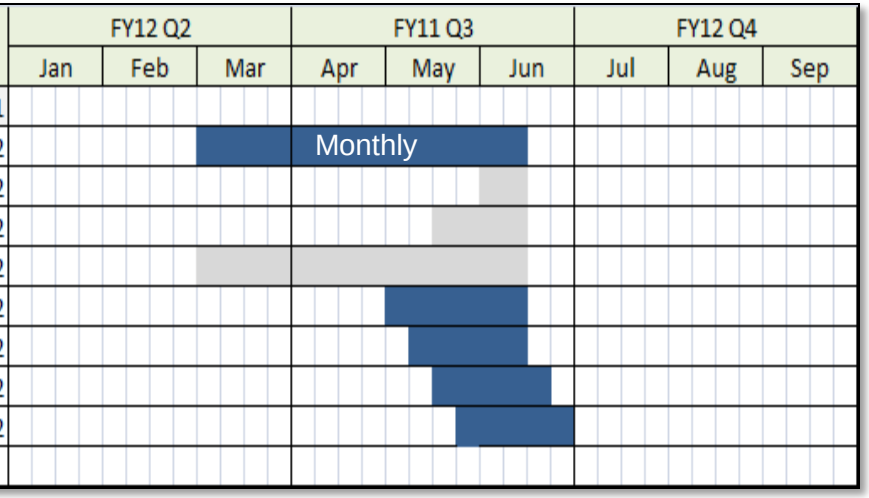
- Release daily CDR product (3/28) - done
- Create new monthly product (6/8)
- Archive new data and documentation updates (6/22)
- Add monthly product to web (6/29)

G

Project Risks

- No Funding to separate the CDR (modularize production code)

ID	Task Name	Status	Start	Stop
1	Initial Assessment	100	12/7/2010	1/7/2011
2	Transfer Prep	80	3/1/2012	6/15/2012
2a	Comment Source Code	75	6/1/2012	6/15/2012
2b	Create Docs (CATBD, Flow Chart, MM, Readme)	75	5/15/2012	6/15/2012
2c	Convert data from binary to NetCDF	90	3/1/2012	6/15/2012
3	Tranfer Code, Docs, and Data	25	5/1/2012	6/8/2012
4	Verify Code, Docs, and Data	25	5/8/2012	6/15/2012
5	Archive Code, Docs, and Data	0	5/15/2012	6/22/2012
6	Provide Access to Code, Docs, and Data	0	5/21/2012	6/29/2012



PREDECISIONAL DRAFT INFORMATION

PI: Meier (NSIDC, SDS 2007) RSAD Transition Manager: Peng

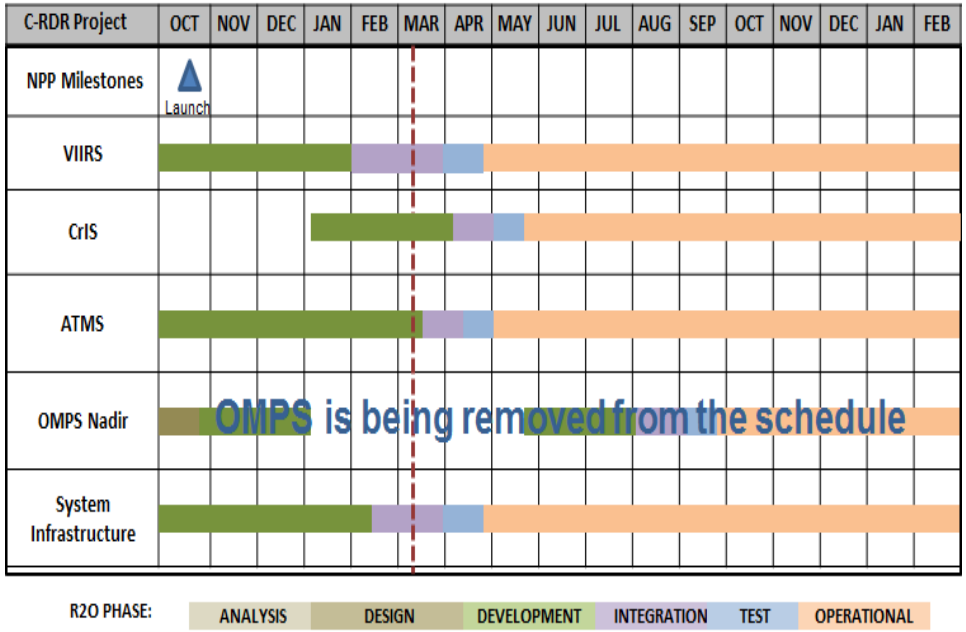
CDR Program Office

NPP/JPSS Climate Raw Data Records (C-RDRs) Project

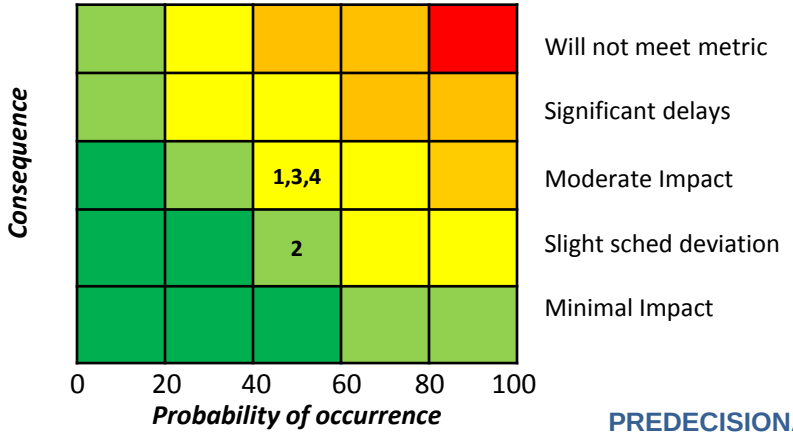
Weekly Report – May 4, 2012

1. **VIIRS**
   - Integrating the with the system infrastructure.
2. **CrIS**
   - Developing code to write the CrIS C-RDR.
3. **ATMS**
   - Developing code to write the ATMS C-RDR.
4. **System Infrastructure**
   - Integrating with the VIIRS C-RDR.

- **Working to create a stable integration environment on NCDC Blade Center and resolve a Java runtime issue.**
- **ADL is built on the CentOS 6.2 development environment on CICS network.**
- **Need to rework the schedule when stable environments are established. Meeting scheduled for Monday.**



Risk Matrix



Risk and Mitigation

VIIRS, CrIS, ATMS –

- Operational software is under maintenance, updated versions may affect C-RDR ported version.

System Infrastructure –

Instability of development and integration environments.

- Reliability of NPP RDRs from CLASS. Need to test ingest of RDRs from CLASS and develop an automated mechanism for re-requesting data.
- Ability of CLASS to handle the frequency and volume of NPP data. CLASS has been successful during system tests.
- Archive in CLASS is currently cost prohibitive. Need to identify alternate archive. Plan to store C-RDRs on HPSS until migration to CLASS.

PREDECISIONAL DRAFT INFORMATION

= On-track = Potential management action required = Management attention required

Visible Infrared Imaging Radiometer Suite (VIIRS)

C-RDR Product: Raw sensor measurements with usage and provenance metadata in easily accessible netCDF4 format
GEOSS Societal Benefit: Climate, Water, Ecosystems, Agriculture, Biodiversity, Energy

Project Status

- **Preparing for integration with system infrastructure.**
- Updated CrdrPacker software for Crdr file naming.
- Modified the supporting data metadata.
- Implemented and verified netCDF compression.
- Verifying (IDPS) documentation and code changes with DEWG.
- Wrote a test application to dump data from RDR APIDs.
- Completed writing science and spacecraft diary data.
- Completed test of code that writes VIIRS Support Data.
- Tracked down inconsistencies with PC files (docs vs code).
- Completed C-RDR Packer and UnPacker framework for VIIRS Supporting Data.
- Completed release of netCDF4 file creation toolset.

Next Action / Milestone

- Integrating the VIIRS C-RDR software and the system infrastructure.

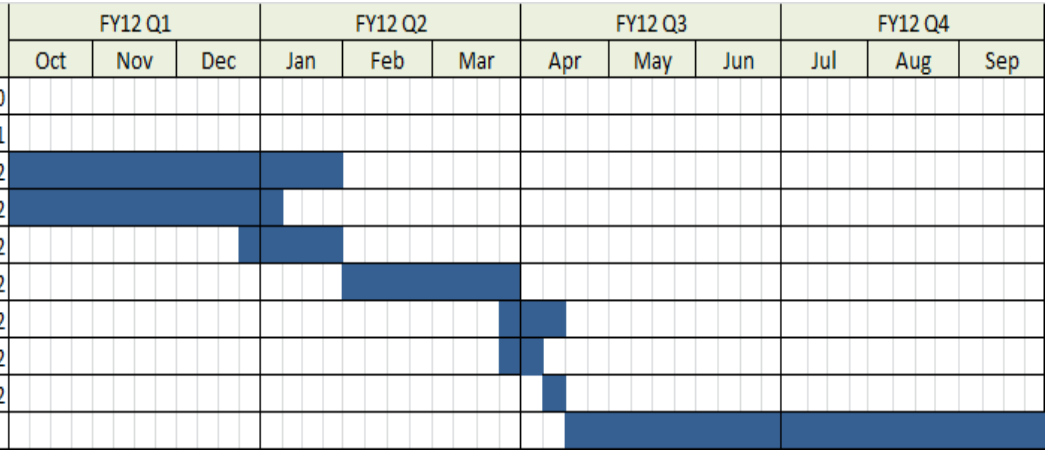
Y

Project Risks

- Complexity of the NPP/JPSS RDRs and operational software
- Operational software is under maintenance, updated versions may affect C-RDR ported version

Project Schedule

ID	Task Name	Status	Start	Stop
1	Analysis	Completed	10/23/2009	5/4/2010
2	Design	Completed	5/6/2010	1/5/2011
3	Development	95.00%	1/6/2011	1/30/2012
3a	Develop VIIRS processing component	95.00%	1/6/2011	1/12/2012
3b	Test VIIRS processing component	95.00%	12/28/2011	1/30/2012
4	Integration	10.00%	1/31/2012	3/26/2012
5	Test		3/23/2012	4/12/2012
5a	Dry Runs		3/23/2012	4/11/2012
5b	System Acceptance Test		4/12/2012	4/12/2012
6	Operational		4/13/2012	



Cross-track Infrared Sounder (CrIS)

C-RDR Product: Raw sensor measurements with usage and provenance metadata in easily accessible netCDF4 format
GEOSS Societal Benefit: Climate, Water, Energy

Project Status

- **Writing code for collecting and writing engineering data.**
- Completing draft of CrIS C-RDR Product Specification.
- Built and executing CrIS software in ADL 3.1.
- CrIS proprietary code issues have been resolved.
- Obtained the ADL version of the CrIS code.
- Developing code to create data structures for writing the C-RDR.
- Creating a MATLAB reader for the C-RDR to provide easy access.
- Evaluating processing of C-RDR with MATLAB and IDL
- Defining the netCDF4 structure for the C-RDR and developing software for writing the C-RDR.
- Ported operational algorithms (Space Dynamics Lab at Utah State)

Next Action / Milestone

- Develop code to write CrIS C-RDR.

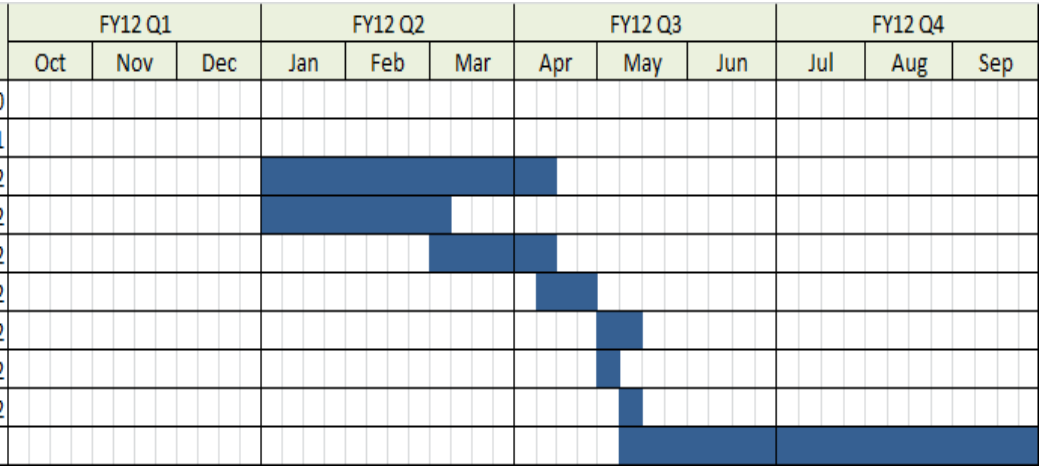
G

Project Risks

- Complexity of the NPP/JPSS RDRs and operational software
- Operational software is under maintenance, updated versions may affect C-RDR ported version. Mitigated by using ADL.

Project Schedule

ID	Task Name	Status	Start	Stop
1	Analysis	Completed	8/16/2010	11/24/2010
2	Design	90.00%	11/26/2010	2/15/2011
3	Development (Phase 2)	30.00%	1/3/2012	4/7/2012
3a	Develop CrIS processing component	60.00%	1/3/2012	3/8/2012
3b	Test CrIS processing component		3/2/2012	4/7/2012
4	Integration		4/2/2012	4/27/2012
5	Test		4/30/2012	5/9/2012
5a	Dry Runs		4/30/2012	5/8/2012
5b	System Acceptance Test		5/9/2012	5/9/2012
6	Operational		5/10/2012	



Advanced Technology Microwave Sounder (ATMS)

C-RDR Product: Raw sensor measurements with usage and provenance metadata in easily accessible netCDF4 format
GEOSS Societal Benefit: Climate, Water, Energy

Project Status

- **Creating a stable laptop environment for development.**
- Developing code to write science data.
- Working on ATMS C-RDR Product Specification.
- Testing the software framework for the Support Data Packer and Unpacker.
- Updating C-RDR data format.
- Defining the C-RDR format, contents, and metadata
- Identifying code and data structures required for C-RDR processing.
- Verified processing of ATMS algorithms
- IDPS ATMS algorithm executing in ADL at NCDC
- Obtained ported algorithms (SDL at Utah State)

Next Action / Milestone

- Develop the code to produce the C-RDR.

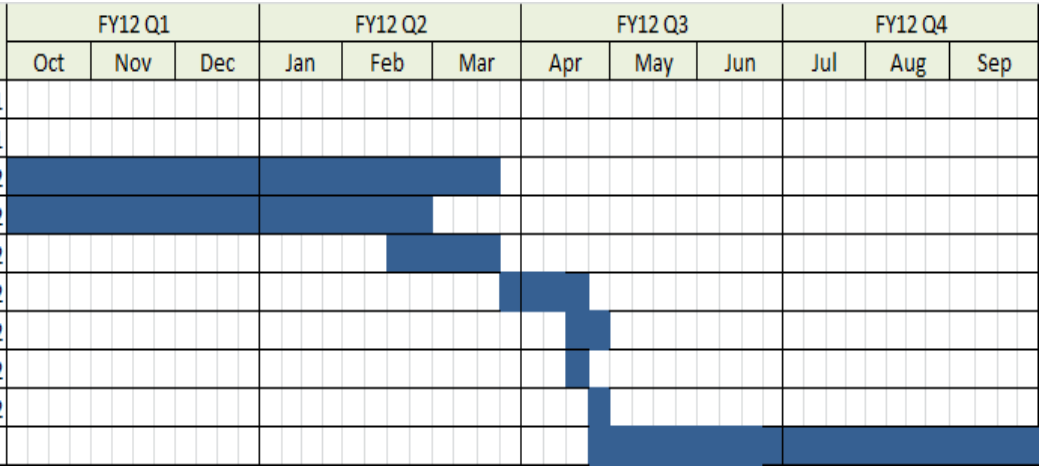
Y

Project Risks

- Complexity of the NPP/JPSS RDRs and operational software
- Operational software is under maintenance, updated versions may affect C-RDR ported version.
- Developer shares time working NPP and branch management issues.

Project Schedule

ID	Task Name	Status	Start	Stop
1	Analysis	Complete	10/29/2010	2/10/2011
2	Design	95.00%	2/11/2011	4/29/2011
3	Development	35.00%	5/2/2011	3/25/2012
3a	Develop ATMS processing component	70.00%	5/2/2011	2/29/2012
3b	Test ATMS processing component	5.00%	2/18/2012	3/25/2012
4	Integration		3/26/2012	4/18/2012
5	Test		4/19/2012	4/26/2012
5a	Dry Runs		4/19/2012	4/25/2012
5b	System Acceptance Test		4/26/2012	4/26/2012
6	Operational		4/27/2012	



C-RDR System Infrastructure

C-RDR Product: Infrastructure to automate the production of the C-RDRs.
GEOSS Societal Benefit: None

Project Status

- **Setting up a development environment on the CICS network.**
- **IT is reconfiguring the NCDC VM access.**
- **Defining and creating the C-RDR Virtual Machine environment.**
- Working on managing queues and processing jobs.
- Locating, validating, and statusing files for processing.
- Developing code for ingest detection and processing.
- C-RDR needs to handle CLASS manifests. SIPGenSys will not.
- Completed NPP 14 day Ground Operations Exercise (GOE).
- Completed throughput testing for SIPGenSys.
- Creating database tables and access procedures for config files.
- Setting up configuration files and software for the ingest test.

Next Action / Milestone

- Integrating and testing the system infrastructure.

Y

Project Risks

- Need to develop an automated re-request mechanism for CLASS.

Project Schedule

ID	Task Name	Status	Start	Stop
1	Analysis	Completed	9/29/2010	4/22/2011
2	Design	90.00%	4/25/2011	7/8/2011
3	Development	80.00%	5/31/2011	2/28/2012
3a	Develop infrastructure	90.00%	5/31/2011	2/14/2012
3b	Test infrastructure	70.00%	9/27/2011	2/28/2012
4	Integration (Phase 2)	5.00%	1/31/2012	3/26/2012
5	Test		3/23/2012	4/12/2012
5a	Dry Runs		3/23/2012	4/11/2012
5b	System Acceptance Test		4/12/2012	4/12/2012
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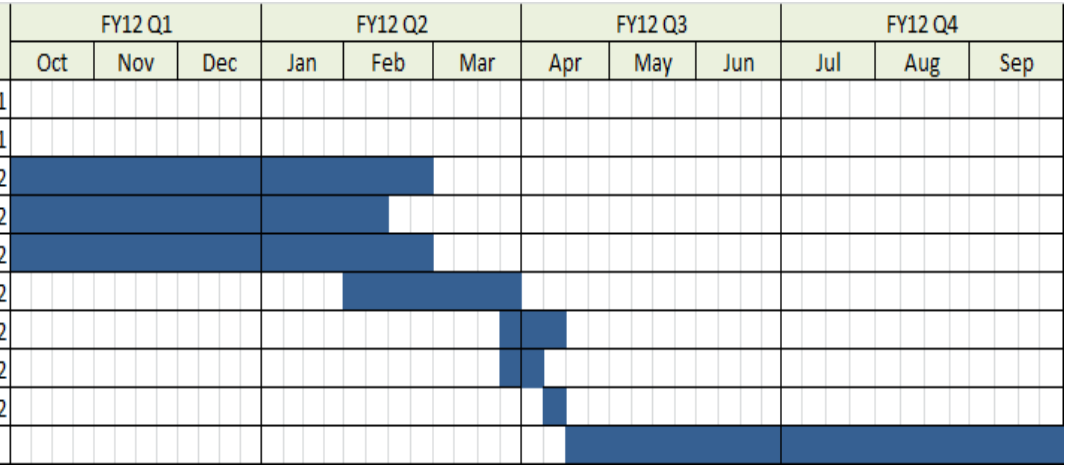
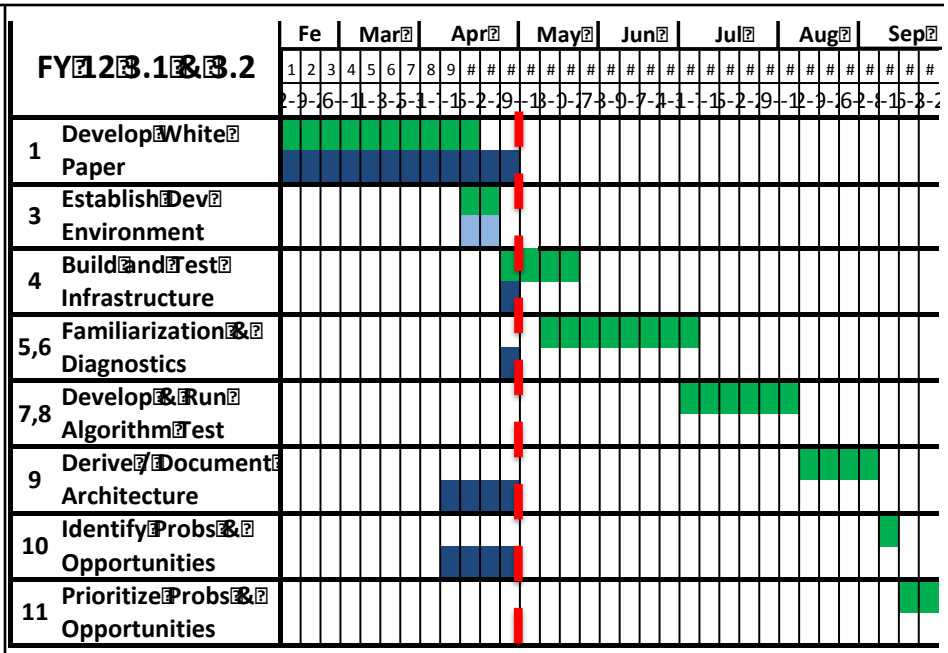


CDR Program Office

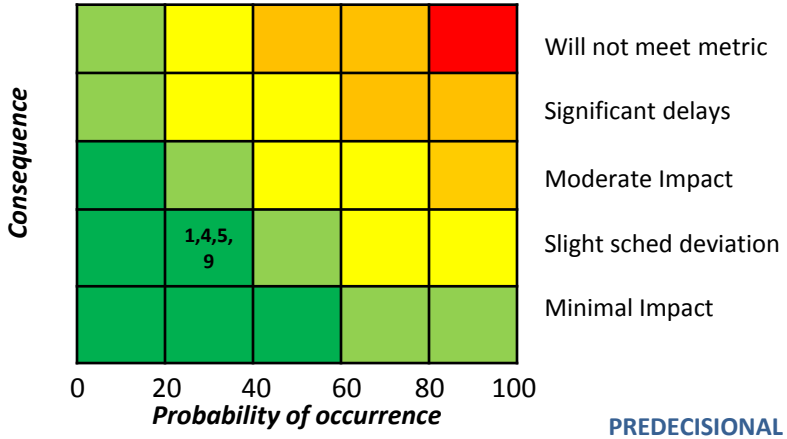
IOC to FOC using PATMOS-X as prototype

Weekly Report – May 4, 2012

1. **1. White Paper (was April 21)**
   - Final draft received, will be baselined as Rev.1 and distributed.
1. **4. Build and Test Infrastructure (May 26)**
   - GST private cloud: Installed Subversion with uberSVN web GUI for administration. Check in/out from command line. Developing workaround for minor issue with repository permissions.
   - Work from NCDC delayed by slow/intermittent internet connection via CICS wireless last week, even though signal strength improved. (**R11/12)**
   - Baseline of 01-11-2012 code from Wisconsin pending.
1. **5. Familiarization Runs (June 9)**
   - Transferred 2005 AVHRR data from RSAD to portable disk, to be staged on CICS for transfer to GST cloud.
1. **9. Derive and Document Architecture (September 8)**
   - Code reformatted for readability (indenting and whitespace) has been successfully built and will be committed to version control on GST cloud once original code has been baselined there.



Risk Matrix



Top Risks and Mitigation

R3. Ongoing parallel development by PI
- Use good differencing tool. Incorporate only those changes that have a good justification from the CDR perspective.

R4. Undocumented dependencies on 3rd party software
- Dependency list with new dependencies added as soon as known; use defect tracking tool to track additional issues with 3rd party software.

R10. No sustainable commitment for independent Quality Assurance
- Short term financial resources available. GST has potential consultant to assist with development of CDR Program Quality Assurance Plan.

R11/R12. Internet access from NCDC, direct or via CICS Wireless
- Use contractor owned and personal equipment to access GST cloud via CICS wireless and internet connection. Otherwise use contractor or personal equipment via personal internet connection. Only using SSH at present.

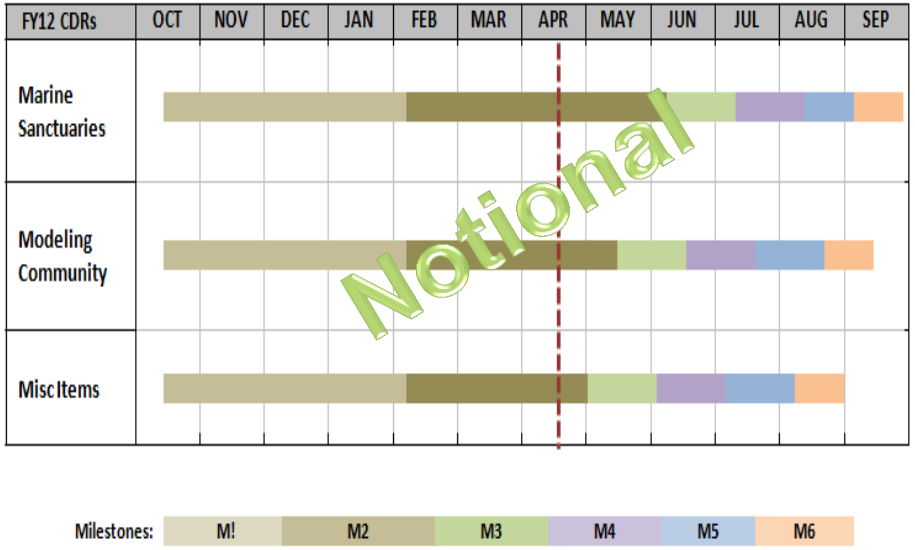
CDR Program Office
Applications and Advocacy

Weekly Report – Apr 26, 2012

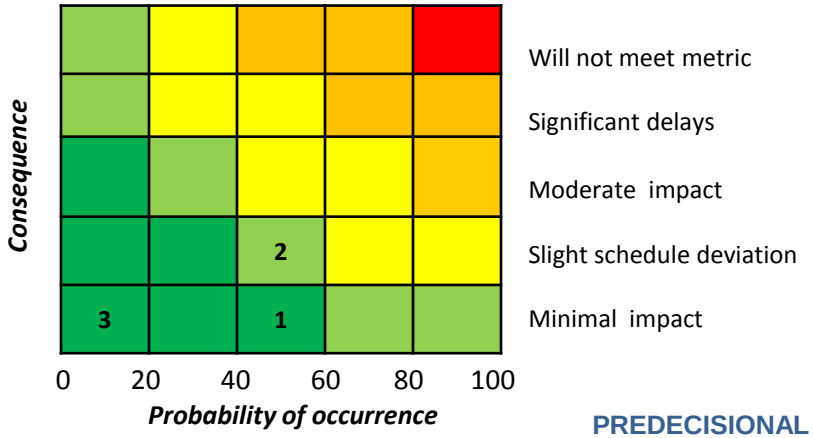
1. **National Marine Sanctuaries: Gulf of the Farallones, Florida Keys**
   - Develop work plan for applications demo utilizing SST, OLR, and GEO clouds as first cut for planning/implementation purposes
   - SST, OLR, and GEO clouds CDRs as an input into IMPACT assessment tool
2. **Modeling Community**
   - Working to ensure output formats match IPCC standards
   - MC needs satellite data for global verification of model output
3. **Misc Items**
   - John S. and Steve A. have done some prototype visualizations
   - Outreach opportunity at the "New Normals Workshop"

● No change ↑ Increasing Risk ↓ Decreasing Risk

Schedule



Risk Matrix



Risk and Mitigation

- **User needs may not match readily available NCDC CDRs**
  - **Identify users, analyze their needs, and develop CIRs /applications to meet these needs.**
  - **Prioritize the CDR pipeline to maximize user support**
- **NCDC CDRs are not easily discernible from similar products available elsewhere**
  - **Improve documentation and QA/QC efforts so they rise to the top of any list**

PREDECISIONAL DRAFT INFORMATION

= On-track = Potential management action required = Management attention required