

# Climate of 2005 Annual Review

## Significant U.S. and Global Events

### Significant U.S. Weather and Climate Events for 2005



[larger image](#)

### *Review of U.S. Events*

\*Compiled from both NOAA and non-NOAA sources, including U.S. and international news media reports

#### **January 2005**

Wet weather in areas of the western United States which began during November 2004 continued into January 2005. The parade of Pacific storm systems ameliorated drought conditions in parts of the region, with areas of the Southwest (including California) receiving some of the most beneficial (but in some cases, excessive) precipitation. While heavy rain fell in coastal and lower elevation locations, several feet of snow accumulated in the Cascades southward into the Sierra Nevada mountain ranges. Resulting from the rainfall associated with these Pacific storms, a deadly mudslide near La Conchita, California on January 10 claimed 10 lives. For complete details on the impacts of heavy precipitation throughout the western U.S., see the special [storm summary page](#). Extreme to exceptional drought persisted farther north throughout portions of the northern and central Rockies.

A line of severe thunderstorms preceding a strong cold front brought wind damage and a few tornadoes to parts of the Deep South and Southeast on the 13th. [A tornado in Laurens, South Carolina](#) produced damage to frame structures, and was responsible for igniting a large industrial fire (NOAA/NWS). The tornado was rated as F2 intensity on the [Fujita Tornado Scale](#).

A major winter snowstorm, referred to as the "Blizzard of 2005", affected the metropolitan areas of the Northeastern United States during January 22-23. Snowfall accumulations exceeding one foot covered much of southern New England in the storm's aftermath, with over two feet in some areas of Massachusetts. Strong winds created blizzard conditions with low visibilities and considerable blowing and drifting of snow. By the 27th, month-to-date snowfall at the Boston Logan International Airport totaled 43.1 inches, making January the snowiest month on record. The same storm system deposited

heavy accumulations of snow on Halifax, Nova Scotia and much of Atlantic Canada, canceling most flights on the 23rd (Reuters). Additional information on this event may be found on the [Northern Hemisphere Snow and Ice](#) page.

A significant ice storm struck parts of northern Georgia on the 30th-31st. Ice accretion was as great as 2 inches in Monroe County, located southeast of Atlanta. Power outages in the area at the height of the storm affected nearly 320,000 homes and businesses (Associated Press).

## **February 2005**

A storm system impacted parts of Arizona on February 12th, causing portions of four highways near the city of Globe, AZ to be closed due to rock slides and flooding. The heavy rain and snowmelt also forced several residents to evacuate their homes as a result of the flooding. No injuries or fatalities were reported. On February 21, Las Vegas reported a winter (December-February) total of 5.81 inches of rain, breaking the record for their wettest winter. This was more than twice the normal amount of rainfall (1.68 inches) that falls during the entire December-February winter season.

Heavy rains fell in Hawaii, with over 5 inches causing flooding that backed up traffic on Oahu on February 2. Two days later, 7.90 inches of rain fell in Hilo on the Big Island in only 12 hours.

## **March 2005**

Showers and thunderstorms affected the southeastern United States during March 27-28 with rainfall totals of 50-100 mm (~2-4) inches common in parts of Georgia, South Carolina, Mississippi and Alabama. Flooding forced some people from their homes, washing out roads and flooding rivers (Associated Press).

A line of strong to severe thunderstorms [affected the eastern portions of North and South Carolina on March 8](#), with wind damage and a few tornadoes reported. Winds gusted over 110 km/hr (70 mph) with some of the stronger storms.

A powerful storm system brought a variety of weather impacts to the eastern United States on March 8. Strong thunderstorms affected the eastern Carolinas, while strong winds, heavy rain and heavy snow affected areas of the Mid-Atlantic and Northeast. Minimum central pressure with the storm dropped to near 960 mb (28.35 inches of mercury) just off the coast of Maine and New Brunswick. Wind gusts over 95 km/hr (60 mph) were reported, along with heavy accumulations of snow in some areas.

A stormier weather pattern began across the Pacific Northwest and into the High Plains, and began to alleviate severe drought conditions that had developed during the winter months.

## **April 2005**

Heavy rainfall in the Northeast produced flooding in parts of New York, New Jersey and Pennsylvania. Severe flooding along the Delaware River forced the evacuation of 6,000 residents

in New Jersey and over 5,700 in Pennsylvania during the weekend of the 2nd-3rd. Around 3,200 homes in New Jersey were damaged, while one fatality was reported in New York (Associated Press).

Thunderstorms erupted on April 6 and produced severe weather including 32 reports of tornadoes, most of which touched down in [Mississippi and Louisiana](#). Between 20 and 25 homes were destroyed and 7 people were injured. Mississippi governor Haley Barbour declared a state of emergency (CNN).

Heavy snow affected the Colorado Rockies during April 10-11, 2005, as up to 76 cm (30 inches) of snow affected the mountains around Denver. In the Denver metro area, 25-38 cm (10-15 inches) of snow accumulated.

Snow fell across portions of the Great Lakes southeastward into the central and southern Appalachians on April 24. In the greater Cleveland, OH area, [locally one foot \(30 cm\) of snow accumulated](#)

## **May 2005**

While severe to extreme drought conditions persisted throughout much of the U.S. northern Rockies, heavy amounts of rain and snow since March provided significant relief throughout parts of Idaho, Montana and Wyoming.

Strong thunderstorms affected [parts of the U.S. Great Plains](#) on May 11, 2005. In the Hastings, Nebraska area, [significant severe weather occurred](#), including very large hail, damaging winds and widespread flooding. [Radar estimated rainfall](#) accumulation locally exceeded 25 cm (10 inches).

A late-season Nor'easter affected the Eastern Seaboard of the United States during May 5-7, 2005. In North Carolina, winds gusted over 95 km/hr (60 mph) and rainfall locally exceeded 150 mm (6 inches).

## **June 2005**

Beneficial spring rain and snowfall ameliorated drought conditions throughout portions of the northern and central Rockies. Despite the welcome precipitation, severe drought lingered along the Idaho/Montana border, through northeastern Wyoming and in parts of Oregon and Washington during June. Numerous [wildfires developed across the Southwest](#) by late in the month. Farther to the east, drought conditions expanded across the Mississippi Valley region.

A slow-moving thunderstorm dumped up to a foot (30 cm) of hail on June 21 in southeastern portions of Colorado Springs, Colorado. Snowplows had to be used to clear a route through a major thoroughfare in the city. Heavy rainfall from the storm left up to 1.2 meters (~4 feet) of water in city streets, trapping dozens of motorists (Associated Press).

Tropical Storm [Arlene](#) developed as a depression in the western Caribbean off the coast of

Honduras on June 8 and reached tropical storm intensity by June 9. The storm passed over the western tip of Cuba on the 10th before moving northward across the Gulf of Mexico and making landfall in the United States just west of Pensacola, Florida on the 11th. Maximum sustained winds at the time of landfall were estimated near 95 km/hr (50 knots or 60 mph). The primary impact from Arlene was [heavy rainfall that affected parts of the lower Mississippi Valley](#) northward into the Tennessee Valley.

## **July 2005**

Drought conditions expanded throughout portions of the Mississippi Valley by early July 2005. By late in the month, the U.S. Department of Agriculture declared all of Illinois a disaster area due to the general crop failure caused by drought (Reuters).

Throughout the southwestern United States, a severe heat wave gripped the region during early to mid-July. Maximum temperatures above 40°C (104°F) affected parts of Nevada, California, Arizona and southern Utah. Numerous temperature records were set around the region, and Las Vegas, NV tied their all-time record high temperature of 47.2°C (117°F) on the 19th, equalling the old record set on July 24, 1942. Death Valley had 7 consecutive days (July 14-20) with high temperatures equal to or above 51.7°C (125°F). At least 13 deaths were blamed on the heat wave in Arizona (Associated Press). The heat wave had spread to the East Coast by the 25th.

Tropical Storm [Cindy](#) developed as a depression in the far western Caribbean on the 3rd, tracking across the Yucatan Peninsula before entering the Gulf of Mexico and reaching tropical storm strength by the 5th. [Cindy made landfall near Grand Isle, Louisiana](#) late the same day with maximum sustained winds near 110 km/hr (60 knots or 70 mph). More than 300,000 homes and businesses lost electricity in Louisiana, Alabama and Mississippi (Associated Press).

Hurricane Dennis moved into the southeastern Gulf of Mexico after passing over Cuba. The hurricane re-attained category-four strength over the eastern Gulf of Mexico by the 9th, but weakened to category-three intensity at the time of a final landfall near Pensacola, Florida on the 10th. Maximum sustained winds at the time of landfall were near 195 km/hr (105 knots or 120 mph). There were 9 hurricane-related fatalities in the U.S. (Florida, Mississippi and Georgia), and preliminary estimates of insured losses ranged from \$1 to \$1.5 billion (USD). [Heavy rainfall affected a wide area](#) from the Gulf Coast, Southeast and Mississippi Valley.

## **August 2005**

Across the United States, moderate to severe drought persisted throughout parts of the Pacific Northwest eastward into the northern Rockies. Meanwhile, severe to extreme drought expanded across the Mississippi Valley region during August, where some of the worst conditions were observed in Illinois.

In the United States, severe thunderstorms produced a tornado that affected the town of Wright, Wyoming on the afternoon of August 12. The tornado destroyed or damaged more than 80 homes at a mobile home park, rendering 85 families homeless. There were two fatalities (Associated Press).

Severe thunderstorms in Wisconsin generated tornadoes that killed one person and injured at least 30 others [on the evening of August 18, 2005](#). Some of the worst damage was reported around Stoughton, Wisconsin.

For comprehensive information on Hurricane Katrina and the associated U.S. impacts, please see the [Hurricane Katrina summary page](#) and the [Hurricane Katrina technical report](#).

## September 2005

[Severe thunderstorms in the central United States](#) on the 13th resulted in numerous reports of wind damage and as many as four tornadoes in Michigan, Wisconsin, Iowa, Missouri, Kansas and Oklahoma.

Hurricane [Ophelia](#) initially developed as tropical depression near Freeport, Bahamas on the 6th, reaching tropical storm strength by the 7th. While remaining offshore, the storm brought gusty winds and heavy rains to the east-central coast of Florida before moving to the northeast. Ophelia reached [category-1](#) hurricane status by the 8th, and skirted the North Carolina coast during September 14-15, with hurricane-force wind gusts along the coastline from Cape Fear to Cape Lookout. Around 100,000 people lost power, and [rainfall amounts of 250-305 mm \(10-12 inches\)](#) were common along the immediate coastal areas.

For comprehensive information on Hurricane Rita and the associated U.S. impacts, please see the [Hurricane Rita summary page](#).

## October 2005

Torrential rains in the Northeast United States caused extensive flooding in parts of Maine, New Hampshire, Massachusetts, Connecticut, New York and New Jersey between October 7-12. There were at least 10 reported deaths attributed to the flooding (Associated Press). Rainfall amounts of 150-250 mm (~6 to 10 inches) were common in the affected areas. Additional rainfall during October 14-16 caused further flooding from New Jersey northward into New England. Totals ranged from 100 to 200 mm (4 to 8 inches) in parts of the region, flooding rivers and streams, and placing considerable strain on reservoir and lake dams (Reuters). It was the wettest October on record in 15 cities throughout the Northeast United States. Five of those cities experienced their all-time record wettest months: Concord, NH, Islip, NY, Newark, NJ, Allentown, PA and Providence, RI.

A complete listing of significant rainfall records in the United States during October can be found on the [city and state extremes page](#).

Heavy rains in Las Vegas, Nevada on the 17th-18th totaled 36.1 mm (1.42 inches), breaking the record for the entire month of October. The old record was 31 mm (1.22 inches) set in 1992. The rainfall overwhelmed flood channels, swamped roadways and knocked out power (Associated Press).

Tropical Storm [Tammy](#) developed just off the U.S. Florida east coast on the 5th, coming inland

near Jacksonville with maximum sustained winds near 85 km/hr (45 knots or 50 mph). The primary impact from Tammy was heavy rainfall across Florida, Georgia and the Carolinas.

For comprehensive information on Hurricane Wilma and the associated U.S. impacts, please see the [Hurricane Wilma summary page](#).

A powerful extratropical storm system trekked up the Eastern Seaboard of the United States on the 25th, producing a variety of weather conditions. Strong winds gusted to 85 km/hr (52 mph) at Boston's Logan Airport along with heavy rainfall. Rainfall from the storm teamed up with an already wet October to break monthly rainfall records at Providence, Rhode Island and Worcester, Massachusetts. Mount Washington, New Hampshire received 729 mm (28.7 inches) of precipitation during October, or the all-time wettest month. Heavy snow fell throughout interior New England southward into the central Appalachians.

An early-season winter storm dumped as much as 2 feet (61cm) of snow on parts of North Dakota on the 5th. In southeastern Montana, around 28 cm (11 inches) accumulated. At least 11,000 utility customers in the region were affected by power outages from the heavy snowfall (Associated Press). The snow occurred just a few days after high temperatures over 32.2°C (90°F) in areas of the Dakotas.

Heavy snowfall affected the Colorado Rockies, including the greater Denver area, on the 10th. [Snowfall amounts of 25-50 cm \(10 to 20 inches\) were common](#), and the heavy amounts of snow were blamed for power outages which affected about 80,000 homes and businesses. There were three fatalities blamed on the early-season winter storm (Associated Press).

## **November 2005**

Across the United States, moderate to severe long-term drought persisted throughout parts of the Pacific Northwest eastward into the northern Rockies. Meanwhile, severe to extreme drought affected areas of the Great Lakes region, where some of the worst conditions were observed in northwestern Illinois. More extreme drought plagued areas of northeast Texas.

Severe thunderstorms [produced a deadly tornado near Evansville, Indiana](#) during the early morning hours of November 6. There were 23 fatalities from the tornado, with 19 of the deaths occurring in the Eastbrook Mobile Home Park located just to the southeast of the city (Associated Press). It was Indiana's deadliest tornado since the "Super Outbreak" on April 3, 1974.

More severe weather [impacted the same region of the United States on the 15th](#). Severe thunderstorms produced over 30 tornadoes in 6 states, resulting in one fatality and at least 35 injuries (Associated Press). Some of the worst damage occurred in Henry County, Tennessee, where numerous homes and businesses were damaged or destroyed. Preliminary information on this storm is available [from reports provided by the National Weather Service](#).

A major winter storm affected parts of Nebraska and the Dakotas during the 27th-28th. Snowfall accumulations of 41-51 cm (16-20 inches) were observed in parts of eastern South Dakota, while

wind gusts exceeding 97 km/hr (60 mph) also accompanied the snow, creating blizzard conditions. Thousands of power outages were caused by the combination of strong winds and heavy snow. In South Dakota, about 8,000 utility poles and 10,000 miles of transmission line were brought down by the storm (Associated Press).

## **December 2005**

Lingering areas of moderate to severe drought persisted over parts of the Rockies. More significant drought plagued northern Illinois while exceptional drought classification was noted over parts of the Arklatex region. Grassfires affected areas of Texas and Oklahoma due to the tinder-dry conditions.

An outbreak of severe thunderstorms across portions of the southeast United States on the 28th produced hail, high winds and a few tornadoes. The states of Georgia and Tennessee were the most affected.

Freezing rain and ice pellets fell throughout portions of the southeast U.S. on the 15th. The accumulation of ice caused about 683,000 utilities customers to lose power from northern Georgia northward through the western Carolinas. The power outages were the result of ice accretions of up to 1.9 cm (three-quarter inch) in thickness. The ice storm was blamed for at least 4 deaths (Associated Press). Elsewhere in the United States, [snow covered a large area](#) extending from the Rockies eastward through the northern Plains, Great Lakes region and eastward over a large part of the Northeast and Mid-Atlantic states.

*For more information on Weather and Climate Extremes, refer to ...*

[The Climate of 2005](#)

[Extreme Weather and Climate Events](#)

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In Saudi Arabia, heavy rains produced some of the worst flooding in 20 years in the city of Medina. The rainfall caused a dam to collapse, isolating many villages and forcing many residents from their homes. Eight people were killed by floodwaters on the 24th (BBC News).

Tropical Cyclone [Ernest](#) developed in the Mozambique Channel between Madagascar and the coast of Mozambique on the 20th. The cyclone reached the coast of southern Madagascar on the 23rd, with maximum sustained winds at the time of landfall near 100 km/hr (60 mph). There were at least 17 fatalities, with the southern city of Tulear inundated by severe flooding (Reuters/AFP).

A powerful storm system brought strong winds to the United Kingdom on the 12th. Across Northern Ireland and Scotland, winds gusted as high as 200 km/hr (125 mph), producing 60,000 power outages. Three fatalities were blamed on the storm system (Reuters).

In Algeria, a winter storm deposited the heaviest snowfall since 1950 on the 27th (Algiers Meteorological Services). The snowstorm paralyzed the capital city of Algiers and more than a third of the country. More than 100 roads were closed, and the severe winter weather was blamed on 13 deaths (Reuters/BBC News). Northward across the Balearic Islands in the western Mediterranean, snow fell for the first time in decades, with 8 cm (3 inches) of snow at Mahon on Menora on the 26th (BBC News).

## **February 2005**

Across Australia, Victoria recorded its highest statewide February rainfall since 1973. Many stations within the state received record 24-rainfall totals on the 2nd-3rd, including 120 mm (4.72 inches) at Melbourne (Australian BOM).

Across Venezuela and Colombia, flooding rains on the 9th struck the mountainous central coast, triggering landslides, destroying homes and washing out roads. There were at least 86 deaths attributed to flooding and landslides, with tens of thousands displaced from their homes (Associated Press).

In Pakistan; heavy rains in the south and snow in the north, triggered flooding and avalanches, killing at least 486 people during the second week of the month. Several dams throughout the country collapsed washing away homes, livestock, and entire villages, leaving thousands homeless. The air force, navy and army rescued hundreds of survivors and provided drinking water and food to many of the devastated villagers (OCHA/Associated Press).

In the South Pacific, Tropical Cyclone [Olaf](#) passed within 97 km (60 miles) of coastal areas of Samoa, American Samoa and the Cook and Manua Islands on February 15-16. Sustained wind speeds of 258 km/hr (140 knots or 160 mph) were reported, with gusts up to 306 km/hr (165 knots or 190 mph), downing power lines, trees and ripping roofs from houses. Heavy rains and high storm surge also impacted the islands, causing coastal flooding and displacing thousands of people. No injuries or fatalities were reported, although American Samoa was declared a disaster area. On the island of Ta'u, nearly every house in the village of Fitiuata was destroyed

(Associated Press/Reuters).

Tropical Cyclone [Percy](#) developed on the 25th in the South Pacific Ocean, and affected Tokelau on the 26th with maximum sustained winds near 175 km/hr (95 knots or 110 mph). Percy produced widespread damage to the three atolls of Atafu, Nukunonu and Fakaofu. Percy passed through American Samoa and the northern Cook Islands on the 28th, causing widespread damage to Pukapuka on the 28th as maximum sustained winds were near 240 km/hr (130 knots or 150 mph). On Pukapuka (population 600), only 10 houses weathered the cyclone intact, with the remaining structures severely damaged or destroyed (OCHA).

Heavy snow that began January in Tajikistan continued in early February. Significant snowfall accumulations caused roofs to collapse on hospitals, schools and private homes. In mountainous areas of the country, key populated valleys were completely cut off from the rest of the country. In Tavildara, as much as two meters of snow (6.6 feet) had accumulated by February 10. In the Rasht Valley, over a hundred major avalanches affected populated areas, trapping hundreds of vehicles, and killing 9 people (OCHA).

Heavy snow fell in parts of Europe during the first few days of the month, including portions of Austria, Germany, Albania, Bulgaria and Greece. In Bulgaria, authorities declared a state of emergency for eastern regions of the country, as heavy snowfall closed airports and produced 1-meter (~6-foot) drifts that trapped around 100 vehicles near the city of Varna. There were 4 deaths in Bulgaria blamed by the cold and snow (Associated Press).

Extremely cold temperatures affected much of the Balkan region for the first half of the month. In Sevlievo, Bulgaria, a 50-year temperature record was broken when temperatures reached as low as -34°C (-29°F). At least 12 fatalities occurred in the region. Hospitals in central Bosnia were closed when heating systems malfunctioned due to -29°C (-20°F) temperatures. The surviving snowbound villagers had to fight off hungry wolves and wild boar searching for food (Reuters).

In the Kashmir region along the India/Pakistan border, snowfall described as the worst in two decades affected parts of the Himalayan region during February 16-20. In India, at least 230 people were killed due to the extreme winter weather (OCHA/Reuters). Snowfall accumulations reached 2 meters (6.6 feet) in some parts of Jammu and Kashmir states in India.

In Iran, nearly a week of snowfall occurring during the first half of February brought accumulations of up to 50 cm (20 inches) in the northern parts of the city of Tehran. This was most snow accumulation in the city since 1964.

### **March 2005**

Severe drought conditions affected southern Brazil during March. The southernmost state of Rio Grande do Sul, which typically is one of Brazil's most prolific agricultural states, was the worst-affected. With little to no rainfall since December 2004, 440 cities and towns declared a state of emergency due to water shortages, where major economic impacts were reported (Associated Press/CNN).

Heavy rain caused flooding in parts of Pakistan and Afghanistan during March. Flooding which began in February in Pakistan continued into March, affecting the particularly hard-hit Balochistan province. There were more than 30 fatalities during the month in southwestern Pakistan. In neighboring Afghanistan, at least 24 deaths were blamed on flooding from rainfall and snowmelt (Associated Press/AFP).

Flooding in Madagascar during the first week of March claimed 25 lives, displaced more than 8,000 from their homes, and flooded 35,500 hectares (88,000 acres) of agricultural land (OCHA).

In New Zealand, a tornado tore through the town of Greymouth on the West Coast on the 9th. While no injuries were reported, the tornado cut a 300-meter (~1,000 feet) wide path of destruction through the town (AFP).

A severe thunderstorm brought significant hail and a tornado to northern Bangladesh on March 20. The storm destroyed 3,000 houses and killed at least 56 people in the districts of Gaibandha and Rangpur, where severe damage was reported in 20 villages (AFP/BBC/OCHA).

Tropical Cyclone [Ingrid](#) developed in the Coral Sea on the 6th and reached Australia's northern coast of Queensland on the 10th. The storm made landfall near the town of Lockhart River with maximum sustained winds near 185 km/hr (115 mph). This was reportedly the strongest tropical cyclone to strike the coastline of Queensland in more than three decades (CNN/BBC). Ingrid continued westward into the open waters of the Gulf of Carpentaria, skirting the northern coast of the Northern Territory during the 11th-13th, with peak sustained winds during this time period near 250 km/hr (135 knots or 155 mph). Ingrid passed north of Darwin and lashed relatively isolated areas of the Arnhem Land region. Croker Island, located in the Arafura Sea, sustained damage to trees, powerlines and roofs on buildings, although no injuries were reported (AFP/Reuters). The cyclone entered the Timor Sea before making a third and final landfall in the remote northern tip of Western Australia near Kalumburu on the 15th. Maximum sustained winds near the time of landfall were around 240 km/hr (130 knots or 150 mph). Ingrid is the only cyclone in recorded history to impact the coastline of three different States or Territories as a severe tropical cyclone (Australian Bureau of Meteorology).

Above average snow cover occurred throughout much of Europe and Asia during the early part of March, as unusually cold and snowy conditions throughout the boreal winter season persisted through the 9th. Across Serbia and Montenegro, snow depths exceeding 2 meters (6.5 feet) were reported in some areas, cutting off some residents (IFRC).

### ***April 2005***

Drought in Australia was exacerbated by hot weather. Averaged across the country, it was the warmest April on record (Australian Bureau of Meteorology). There were [numerous daily maximum temperature records](#) set across the country.

Drought across Thailand was reportedly the worst in seven years. Two million hectares (5.2

million acres) of farmland have been damaged, while causing \$191 million (USD) in economic losses. More than 9 million people in 71 of Thailand's 76 provinces have been affected by water shortages. Government-sponsored cloud seeding operations were employed as an attempt to mitigate the drought conditions (Associated Press).

Across Zanzibar Island off the coast of Tanzania, heavy rains associated with showers and thunderstorms during April 17-19 produced heavy flooding described as the worst in 40 years. At least 150 families lost their homes due to the flooding (IFRC).

In Romania, flooding in the northern and western parts of the country damaged thousands of homes and submerged 30,000 hectares (75,000 acres) of farmland. More than 140 towns were affected by the flooding, which prompted government officials to issue a regional state of emergency (AFP).

Heavy rain in the Somali region of Ethiopia during April 21-30 produced flooding that caused 134 fatalities and displaced nearly 250,000 (AFP/OCHA).

Severe thunderstorms affected the eastern China province of Jiangsu on the 20th, producing a deadly tornado near the city of Yancheng. There were seven people killed and at least 60 injured (AFP/Associated Press).

## **May 2005**

In India, dozens were feared dead in the eastern state of Orissa due to a heatwave that affected much of the country. Maximum temperatures on May 17 reached as high as 50°C (122°F) in some sections of the country (Reuters). Extremely hot weather is common in India during late spring preceding the climatological onset of the monsoon season in June.

Across Australia, exceptionally warm and dry weather prevailed during March-May 2005. The Australian mean temperature during March-May was 1.62°C (2.92°F) above the long-term average, which is the warmest on record. The previous record anomaly for the austral fall was +1.10°C (1.98°F) set in 1958 (Australian Bureau of Meteorology). According to the Australian Bureau of Meteorology, most of Australia had below-normal rainfall in May. No rain fell over large areas (many of them seasonally dry), including most of the Northern Territory (except the north-east corner), the north-east of Western Australia, and northern South Australia. It was a particularly dry month in much of the southeast, with totals in the lowest 10% of recorded years occurring in northern Tasmania, almost all of Victoria and most of the agricultural areas of South Australia. Records were set locally in central New South Wales and coastal South Australia, particularly on Kangaroo Island and the Yorke Peninsula. It was the second-driest May on record in Victoria and South Australia. See the Bureau's [drought statement](#) for more information on drought across Australia. (An [Australia reference map](#) is available.)

Across southeastern Ethiopia, thunderstorm rains caused flooding in the town of Dire Dawa, located about 520 km (320 miles) from the capital. There were 32 fatalities from the flooding (AFP).

In Bangladesh, heavy rains produced flooding that killed 10 people in the town of Moulvi Bazar (Reuters). The Dholai, Khowai and Manu Rivers all surpassed their flood stages from heavy rainfall during May 22-26.

Across western Romania, flooding during the first two weeks of May damaged 4,400 houses and destroyed 650. The flooding, considered to be the worst in 50-years in this part of Romania, also inundated around 113,000 hectares (280,000 acres) of agricultural land (OCHA).

Hurricane [Adrian](#), the first named tropical system of the 2005 Eastern Pacific hurricane season, developed about 700 km (440 miles) southwest of Guatemala and El Salvador on the 17th. Adrian reached hurricane intensity by the 19th, and made landfall along the west coast of El Salvador near San Salvador late the same night. Maximum sustained winds at the time of landfall were near 120 km/hr (65 knots or 75 mph). Heavy rainfall over mountainous areas of El Salvador and Honduras produced localized flooding, with one flooding-related death in neighboring Nicaragua (Associated Press).

In Chile, a heavy snowstorm in the Los Barros range of the Andes Mountains affected a Chilean army exercise. Authorities described the snowstorm as the area's worst in three decades. A total of 45 Chilean soldiers died due to the exposure to the cold and snow (Associated Press/BBC News).

## **June 2005**

Long-term drought continued in eastern Kenya, northeastern Tanzania, southern Somalia and Ethiopia's Somali region. Reduced crop yields in portions of Mozambique, Zimbabwe and Malawi were the result of a below average 2004-2005 wet season. In Malawi, an estimated 4 million of the total population of 12 million was in need of food aid, while in neighboring Zambia, an estimated 1.2 million required food assistance (OCHA/Xinhua).

A heat wave, which commenced in May 2005 across areas of South Asia, continued into late June. More than 400 people died as a result of temperatures reaching 45°C to 50°C (113°F-122°F) in parts of India, Pakistan, Bangladesh and Nepal. From these heat-related deaths, at least 100 died in India's state of Orissa, while 100 fatalities were reported in Bangladesh and about 175 in Pakistan (Reuters).

A heat wave in Italy in late-June was the most severe in the northern part of the country, where at least 5 elderly people died as a result of the heat. Drought conditions were also affecting northern regions of Italy, with the river Po at historical low levels. The last major heat wave in Italy occurred in 2003 when at least 8,000 people died (Reuters).

Seasonal flooding which began in May 2005 across southern China continued in June. By June, flooding affected over 9 million people in sections of Hunan, Guangdong, Chongqing, Sichuan, Guizhou and Guangxi provinces. There were more than 116 fatalities blamed on the flooding in early June (OCHA). In far northeast China, flash flooding on the 10th affected a primary school in Heilongjiang province. At the Shalan Central Primary School, there were 117 fatalities from flash flooding that originated in nearby mountains. The flooding was reportedly the area's worst

in 200 years, with 20 cm (8 inches) of rain falling in a 40-minute period (Reuters/Associated Press).

In Afghanistan, strong thunderstorms in mid-June produced flooding that killed as many as 48 people (AFP). The hardest-hit area was the province of Badakhshan where as many as 36 perished and more than 1,000 residential dwellings were destroyed (OCHA).

In Guatemala, mudslides brought on by heavy rain killed at least 22 people and injured 40 in the northern part of the country during mid-June (IFRC). Flooding in adjacent areas of El Salvador and Honduras claimed 39 lives in the two countries during June 25-27. Of these fatalities, 21 people were killed when a bus was carried away by flood waters about 55 km (35 miles) west of San Salvador, El Salvador (Associated Press).

In the Canadian province of Manitoba, incessant wet weather prevented more than 400,000 hectares (one million acres) of agricultural land from being planted as of late-June. Rainfall of 20 to 125 mm (0.8 to 5 inches) was common throughout the province during the first half of the month, hampering agricultural activities (Reuters). Farther west, heavy rainfall in Alberta around June 20 caused flooding in the city of Drumheller, while in Calgary, residents were ordered to restrict drinking water use because of silt and debris clogging up water treatment plants (Reuters).

Heavy rains affected drought-stricken areas of eastern Australia during mid to late June, producing extensive flooding over areas of Queensland and New South Wales. Over 3,000 people were evacuated from the town of Lismore, located about 600 km (370 miles) north of Sydney, as the Wilson River peaked at more than 10 meters (33 feet) on the 30th (Reuters/BBC News).

In western India, heavy monsoon-related downpours during the last week of June in the Gujarat state inundated more than 7,200 villages, leaving 175,000 homeless and claiming at least 130 lives (Associated Press).

Tropical Storm [Bret](#) developed in the Gulf of Mexico's Bay of Campeche on June 28, moving inland near Tuxpan, Mexico on the 29th with maximum sustained winds near 65 km/hr (35 knots or 40 mph). The primary impact from Bret was heavy rainfall that locally exceeded 125 mm (~5 inches) near the point of landfall.

## **July 2005**

Heat and drought affected much of southern Europe and North Africa during July. In France, water rationing was in place throughout half of the country, with western areas the most acutely affected by drought. Neighboring Spain and Portugal experienced the worst drought conditions since the late 1940s, with 97 percent of Portugal affected by severe to extreme drought. In Algeria, a heat wave pushed temperatures as high as 50°C (121°F) and claimed more than a dozen lives. Throughout the entire region, forest fires charred thousands of hectares (acres) (BBC News).

In Romania, flooding affected the northeastern part of the country during the first half of July with 23 fatalities reported along with destruction of more than 2,300 homes. The flooding was reportedly the worst in 30 years, with preliminary damage estimates near \$1.2 billion (USD) (Reuters). Romania also experienced flooding [during the month of May 2005](#). In addition, flooding affected adjacent areas of Bulgaria where around 48,000 residential and public buildings had been flooded throughout the country (OCHA).

Seasonal flooding which began in May 2005 across southern China continued into July. In the Sichuan province, 49 people were killed and over 400,000 evacuated due to flooding and landslides by July 13 (OCHA).

In India's western state of Maharashtra, exceptionally heavy rainfall was recorded on July 26 when 944 mm (37.1 inches) of rain fell in the state capital of Mumbai (Bombay), breaking the city's 24-hour rainfall record. This unprecedented monsoon rainfall produced widespread, massive flooding that was responsible for the deaths of over 1,000 people in the Maharashtra state, including at least 429 in the city of Mumbai (Bombay). Estimated economic losses were near \$3.5 billion (USD) (Associated Press/CBS News/BBC News/Reuters).

Severe thunderstorms that affected portions of the United Kingdom produced a tornado that struck the city of Birmingham on the afternoon of July 28. The tornado damaged buildings and cars, uprooted trees and tore roofs off houses in an area south of the city's center. There were 23 injuries but no fatalities (BBC News/AFP).

Hurricane [Dennis](#) developed as a depression in the southeastern Caribbean Sea on the 4th, reaching tropical storm strength on the 5th. This was the earliest date on record for four named storms to have formed in the Atlantic Ocean. The storm intensified into a hurricane by the 6th, passing just north of Jamaica on the 7th and dumping very heavy rainfall on the island. Dennis [made landfall in south-central Cuba](#) on the 8th as a [category-four hurricane](#), which was the strongest hurricane on record for so early in the season. There were 16 deaths in Cuba and 25 in Haiti. Damage estimates in Cuba were near \$1.4 billion (USD), with 120,000 houses damaged or destroyed. It was Cuba's highest death toll from a hurricane since Flora in October 1963 when over 1,100 people perished (Reuters/Associated Press).

Hurricane [Emily](#) developed in the central tropical Atlantic Ocean on the 10th as a depression and reached tropical storm strength by the 11th. Emily became a hurricane late on the 13th and slammed into Grenada early on the 14th with winds near 150 km/hr (80 knots or 90 mph). Emily passed south of Haiti on the 15th and was blamed for 6 deaths (AFP). Jamaica received heavy rainfall from the hurricane on the 16th, although the center passed south of the island. Emily continued westward, reaching Mexico's Yucatan Peninsula near Cozumel on the 18th as a category-four hurricane with maximum sustained winds near 215 km/hr (120 knots or 135 mph). ) The hurricane [entered the Gulf of Mexico](#) and continued westward, [reaching the northeastern coast of Mexico](#) near Boca Madre, or about 120 km (75 miles) south of Brownsville, Texas, on the 20th. Maximum sustained winds at the time of landfall were near 205 km/hr (110 knots or 125 mph), or a category-three hurricane. In Mexico, there was one fatality reported, with many houses damaged and agricultural fields flooded (Associated Press).

Typhoon [Haitang](#) developed in the western Pacific Ocean on the 11th and reached typhoon status on the 13th. Haitang made an initial landfall in Taiwan on the 18th with maximum sustained winds near 195 km/hr (105 knots or 120 mph). Flooding and mudslides accompanied the typhoon, with up to one meter (over three feet) of rainfall reported in some mountainous areas of Taiwan (CNN). Haitang then continued westward, reaching Huangqi, China on the 19th with top sustained winds near 120 km/hr (65 knots or 75 mph). There were 12 deaths in Taiwan and 1 in China's Zhejiang province (Associated Press).

In the northwest Pacific Ocean, Tropical Storm [Washi](#) developed in the South China Sea on the 28th and moved across the island of Hainan on the 30th. The depression emerged in the Gulf of Tonkin and made landfall in northern Vietnam on the 31st with maximum sustained winds near 85 km/hr (45 knots or 50 mph). The primary impact from Washi was locally heavy rainfall along its path.

### ***August 2005***

A multi-month drought continued into August in much of Western Europe. Since the beginning of October 2004, rainfall has been less than half of normal in areas of the United Kingdom, France, Spain and Portugal. Dry conditions also aggravated wildfires in the region, and nearly 3,000 firefighters battled blazes in Portugal during late August (AFP).

Flooding affected parts of Bulgaria; for the second time in the last two months. A State of Disaster declaration was issued for 22 municipalities in 7 districts located in the western part of the country (OCHA). There were 12,000 people evacuated from their homes in early August, along with a total of 20 fatalities since the flooding began in June 2005 (AFP/OCHA/DPA).

Heavy rainfall affected other areas of central and Eastern Europe during August, with flooding reported in sections of neighboring Romania, Hungary and Macedonia. The hardest-hit area of Europe was Romania, where 31 flood-related fatalities were reported. Farther to the west, flooding also affected areas of Germany, Austria and Switzerland. At least one death was reported in Germany, with four in Austria and also in Switzerland. Preliminary damage was estimated at over \$1 billion (USD) in both Switzerland and Romania (Reuters/AFP).

In Sudan, flooding in early August affected the Darfur and Khartoum states, displacing thousands of people and resulting in at least 8 deaths. Rainfall in Elfashir, North Darfur state on August 3, 2005 totaled 133 mm (5.24 inches), a new daily record since 1918 (IFRC).

In the Central African Republic (CAR), heavy rain caused the collapse of 3,000 houses and left up to 20,000 people homeless in the capital city of Bangui during early August. The rainy season in the CAR typically begins in mid-July (AFP).

In northeastern Iran, flooding in the Golestan province killed at least 43 people during August 9-10, 2005 (AFP/BBC News).

Flooding and landslides in China were blamed for the deaths of 32 people in the central province of Hubei during late August (Reuters).

Across northern Thailand, heavy rains produced severe flooding in the latter half of August. More than 4,500 villagers' homes were inundated due to flooding along the Ping River. There were at least 11 fatalities (IFRC).

In Canada, severe thunderstorms produced at least two tornadoes in an area just outside of Guelph, Ontario on the 19th. Cars were overturned and trees downed, although no injuries were reported (Reuters).

Typhoon [Matsa](#) originated in the northwest Pacific Ocean on July 31 and reached typhoon strength by August 2. Matsa reached the coast of China's Zhejiang province (near Huangyan) early on the 6th with maximum sustained winds near 140 km/hr (75 knots or 85 mph). The typhoon forced the evacuation of 1.24 million people along the coast, and there were 13 deaths reported (Associated Press/Reuters).

Typhoon [Sanvu](#) developed as a depression in the Philippine Sea before reaching typhoon intensity by the 13th as it trekked across the South China Sea. Sanvu made landfall near Shantou in China's Guangdong province on the 13th with maximum sustained winds near 120 km/hr (65 knots or 75 mph). There were two deaths attributed to the typhoon (Reuters).

Typhoon [Talim](#) developed on the 25th in the western Pacific Ocean, reaching typhoon strength by the 29th. Talim made landfall in Taiwan late on the 31st with maximum sustained winds near 195 km/hr (105 knots or 120 mph). The typhoon shut down businesses, schools and financial markets and caused 1.48 million power outages. There were 2 deaths and 39 injuries in Taiwan (Reuters/The China Post).

In Uruguay, a powerful storm system on the 23rd-24th produced strong winds in excess of 160 km/hr (100 mph) in the departments of Canelones, Montevideo, San Jose, Colonia and Maldonado, where nearly 70 percent of the country's population live. Thousands of homes were damaged and around 20,000 people lost electricity and telephone service. Montevideo's international airport was temporarily shut down late on the 23rd due to the high winds and heavy rainfall. There were seven people killed and dozens injured (Associated Press/OCHA).

Across southern Australia, snow fell in parts of Victoria, New South Wales and Tasmania on August 10, 2005. It was the first snowfall in Melbourne since July 1986, and the heaviest and most widespread snowfall event since July 19-20, 1951. Numerous records for daily maximum temperatures were also set around the region, as high temperatures struggled to reach between 5 and 8°C (41 and 46°F) in many areas (ABC/BBC News/Australian Bureau of Meteorology).

## **September 2005**

Long-term drought continued in parts of the Greater Horn and southern Africa, including Southern Somalia southward into Mozambique, southern Malawi and eastern Zimbabwe. Water levels on Lake Victoria were 88 cm (~3 feet) below normal as of mid-September (near 45-year lows), due to below normal rainfall during the past year.

In West Sumatra, Indonesia, heavy rainfall produced landslides near Padang on the 2nd. There were 16 fatalities and at least 10 injuries. Over 200 people were evacuated from their homes (OCHA).

Days of heavy rainfall during mid-September from a storm system in the Bay of Bengal caused extensive flooding along the east coast of India northeastward into Bangladesh. There were at least 66 fatalities in the Indian state of Andhra Pradesh (Reuters).

In Burma, heavy monsoon-related rainfall affected the southern coastal areas during the second week of September. Flooding and landslides affected the Thanintaryi division during the 14th-15th, resulting in at least 27 deaths (IFRC).

In Costa Rica, heavy rains in the latter half of the month produced flooding that resulted in 8 fatalities (OCHA).

Typhoon [Talim](#) developed in [August and affected Taiwan](#) before making landfall in southeast China's Fujian province on September 1st as a tropical storm. Maximum sustained winds at the time of landfall were near 100 km/hr (55 knots or 65 mph). The storm caused significant flooding across the provinces of Fujian, Zhejiang, Anhui, Jiangxi, Henan and Hubei during September 1-3. There were at least 129 deaths from the storm and over 100,000 housing units destroyed. The storm and its associated flooding was responsible for the evacuation of 1.84 million people and the loss of over 260,000 hectares (640,000 acres) of crops (OCHA).

Typhoon [Khanun](#) developed as a depression in the western Pacific Ocean before reaching typhoon intensity on the 8th as it tracked to the northwest. Khanun moved into the East China Sea on the 10th, making landfall in China's Zhejiang province on the 11th with maximum sustained winds near 165 km/hr (90 knots or 105 mph).

Typhoon [Damrey](#) developed east of the northern Philippines in the Philippine Sea on the 20th, skirting the northern part of that country on the 21st. Typhoon status was achieved by the 24th as Damrey moved across the South China Sea. The typhoon passed over Hainan island on the 25th, reaching the coast with maximum sustained winds near 160 km/hr (85 knots or 100 mph). Chinese officials described Damrey as the worst typhoon to strike Hainan in decades (BBC News). Damrey continued westward, making a second and final landfall as a tropical storm in northern Vietnam on the 27th near Thanh Hoa with maximum sustained winds near 100 km/hr (55 knots or 65 mph). Flooding was responsible for the majority of the loss of life, with a total of 145 deaths from the storm (59 in Vietnam, 16 in the Philippines, 16 in southern China, 3 in Thailand and 51 in Nepal) (OCHA/AFP).

In southern Brazil on September 12-13, snow and freezing rain fell in the city of Sao Joaquim in Santa Catarina state. The last occurrence of freezing rain in Sao Joaquim was in 1984. Farther north in Rio Grande do Sul state, a trace of snow was recorded in Barra do Quaraí. This was the first recorded snowfall in the southwestern portion of Rio Grande do Sul state during the month of September.

## October 2005

Long-term drought in Brazil's Amazon region has resulted in the lowest water levels in at least 30 years along the world's second longest river. Downstream, the city of Iquitos, Peru experienced long delays in the delivery of food as the Amazon River became increasingly difficult to navigate due to the very low water levels (BBC News). Some portions of northern Brazil were experiencing the worst drought conditions in nearly 60 years. Drought conditions extended further south into neighboring Paraguay, where the northern departments of Boqueron, Presidente Hayes and Alto Paraguay were adversely affected (IFRC).

Across northern China, heavy rainfall in the Shaanxi province during late September to early October 2005 produced extensive river flooding. The most significant flooding in a decade occurred along sections of the Weihe River and Hanjiang River. At least 16 deaths were reported, with flooding prompting the evacuation of over 350,000 people. Direct economic losses were estimated near \$239 million (USD) (AFP).

Heavy rains during October across central Vietnam produced flooding that killed at least 67 people (OCHA). The most severely-affected area was the Binh Dinh province where 3,200 houses were damaged and most of the fatalities occurred.

Typhoon [Longwang](#) developed in the western Pacific Ocean on September 25, reaching typhoon strength by the 27th. Longwang moved across Taiwan on October 2 with maximum sustained winds near 215 km/hr (115 knots or 130 mph). The typhoon crossed the Formosa Strait and reached the southeast China coast in Fujian province later the same day with maximum sustained winds at landfall near 150 km/hr (80 knots or 90 mph). Longwang was responsible for one death in Taiwan and caused a half-million power-outages to homes and businesses. In southeast China, 65 deaths were attributed to the storm (CNN/AFP).

Hurricane [Stan](#) developed as a depression to the east of the Yucatan Peninsula on October 1, reaching tropical storm strength before tracking across the Yucatan on the 2nd. Stan emerged into the Bay of Campeche on the 3rd and reached hurricane strength the next day. Stan came ashore to the southeast of Veracruz, Mexico at Punta Roca Partida on the 4th with maximum sustained winds near 130 km/hr (70 knots or 80 mph). Torrential rain (250-400 mm/~10-15 inches) caused flooding and mudslides over portions of Mexico, Nicaragua, Honduras and El Salvador around the time of Stan's existence and led to hundreds of deaths. It is impossible to relate the rainfall directly to Hurricane Stan, however.

Hurricane [Vince](#) developed from a non-tropical low-pressure system that acquired tropical characteristics on the 9th approximately 225 km (140 miles) northwest of the Madeira Islands. Vince weakened into a tropical depression before landfall near Huelva, Spain at 0900 UTC on the 11th. Winds at Jerez De La Frontera gusted to 81 km/hr (51 mph) as the depression came ashore. This was the first documented tropical depression to ever make landfall in Spain.

Hurricane [Wilma](#) developed as a depression to the southeast of the Cayman Islands on the 15th. Wilma reached tropical storm status on the 17th and hurricane strength the next day. With the formation of Hurricane Wilma, the 2005 Atlantic hurricane season tied the record for the most

named storms for any season (21 storms in 1933), and also tied the record for the most hurricanes in a single season (12 in 1969). Wilma peaked at category-5 intensity on the 19th, with a minimum central pressure falling to 882 millibars (26.05 inches of mercury), the lowest pressure ever recorded in the Atlantic Basin. Wilma also became the most rapidly-intensifying storm on record, with a maximum-sustained surface wind speed increase of 169 km/hr (105 mph) in a 24-hour period (NOAA/NHC).

Wilma reached Cozumel, Mexico on the 21st with maximum sustained winds near 225 km/hr (120 knots or 140 mph, category-4), causing widespread destruction. The hurricane crossed the Yucatan Peninsula near Playa del Carmen on the 22nd with highest sustained winds near 210 km/hr (115 knots or 130 mph). Wilma forced more than 70,000 people into emergency shelters, rendered 300,000 homeless and caused severe damage to the dwellings of nearly 700,000 people. In Mexico, at least 7 deaths were blamed on the storm (OCHA). Wilma entered the Gulf of Mexico late on the 22nd, tracking to the northeast. A powerful storm surge breached the storm wall protecting Havana, Cuba, flooding the coastal highway and inundating Havana's western neighborhoods with waist-high water on the 23rd (BBC News).

Tropical Storm [Alpha](#) developed on the 22nd to the southeast of Hispaniola, crossing the coast of the Dominican Republic near Barahona early on the 23rd with maximum sustained winds near 85 km/hr (45 knots or 50 mph). Heavy rainfall produced flooding that was blamed for 12 deaths in Haiti (Associated Press). Alpha became the 22nd named storm in the 2005 Atlantic hurricane season, breaking the record for the most storms in a single season (21 storms set in 1933). Exhausting the list of names for the 2005 season after 'Wilma', the NOAA/National Hurricane Center began using the Greek alphabet.

Hurricane [Beta](#) formed as a depression in the southwestern Caribbean to the southeast of Nicaragua on the 26th, but reached tropical storm status by the next day. Beta became the 13th hurricane of the 2005 Atlantic season on the 29th, breaking the old record for the most hurricanes in a single season (12 set in 1969), and the 7th major hurricane (category-three or greater) during 2005. Landfall occurred in Nicaragua near La Barra on the 30th as a category-two hurricane with maximum sustained winds near 175 km/hr (95 knots or 110 mph). Although no deaths or injuries were reported, strong winds damaged houses near the coast and heavy rains caused widespread flooding and mudslides across Nicaragua as well as neighboring Honduras (Associated Press/Reuters).

Two short-lived tropical storms which formed in the Bay of Bengal during the month of October brought significant rainfall to eastern areas of India. Tropical Storm [03B](#) affected Orissa and West Bengal states during the first few days of the month. Tropical Storm [04B](#) developed on the 27th and came ashore in Andhra Pradesh state the next day. While maximum sustained winds with both cyclones only reached 65 km/hr (35 knots or 40 mph), torrential rains produced widespread flooding. In the southern portion of the country, 04B caused flooding in the states of Tamil Nadu, Karnataka and Andhra Pradesh, resulting in at least 100 deaths (Reuters/OCHA).

## November 2005

Long-term drought continued in parts of the Greater Horn of Africa, including southern Somalia, eastern Kenya and southeastern Ethiopia. Across southeastern Africa, long-term drought affected parts of Mozambique, southern Malawi and Zimbabwe. In Malawi, the World Food Programme (WFP) estimated that nearly 5 million people would need food aid until March 2006 (OCHA).

In Sri Lanka, floods triggered by heavy rains killed 6 people and damaged thousands of homes during mid-November. Flooding affected areas that had been devastated by the tsunami that occurred on December 26, 2004 (Reuters).

Heavy rains brought flooding in adjacent areas of southern India during the last two weeks of the month. In the state of Tamil Nadu, over 2 million people were affected by the flooding with at least 162 fatalities. Two of the worst-affected districts in the state were Cuddalore and Nagapattinam (IFRC).

Typhoon [Kai-Tak](#) developed on October 29 in the South China Sea and attained typhoon strength the next day. Kai-Tak moved parallel to the coast of northern Vietnam while slowly weakening, finally coming ashore near Vinh on November 2nd with maximum sustained winds near 85 km/hr (45 knots or 50 mph). Up to 737 mm (29 inches) of rain drenched Quang Ngai province, resulting in massive flooding. There were at least 15 deaths in Vietnam (Reuters).

Tropical Storm [Gamma](#) developed off the north coast of Honduras on the 18th from the regenerated Tropical Depression #27 which had initially formed on the 13th in the eastern Caribbean Sea. Gamma dissipated on the 20th, however, heavy rains in parts of Central America produced a significant impact. In Honduras, flooding and mudslides killed 34 people, while 3 deaths were reported in Belize (AFP).

[Delta](#) existed as a tropical storm in the open waters of the central Atlantic Ocean during November 23-28. Delta lost its tropical characteristics on the 28th, transforming into an extratropical cyclone. This storm system tracked across the Canary Islands and into Morocco on the 29th. Winds gusted as high as 200 km/hr (124 mph) in parts of Tenerife, causing wind damage. At least 7 deaths were attributed to the storm (BBC News).

## December 2005

A heat wave affected eastern Australia during the last 10 days of December, extending to the major coastal cities by the 31st. Melbourne reached 42.9°C (109°F) on December 31, the highest December temperature in the city since 1898. Averaged across Australia, it was the 7th warmest December on record. Additional information is available from the Australian Bureau of Meteorology.

The northeast monsoon produced extremely heavy rainfall in parts of the Malay Peninsula during mid-December. In Thailand, 52 deaths were attributed to flooding in what was described as the region's worst flooding in nearly 30 years, according to Thailand's Interior Ministry (Associated Press/Reuters). The floods (associated with the heavy seasonal tropical rains) damaged 14 bridges, cut 463 roads and inundated 15,000 hectares (37,000 acres) of agricultural land, including many rubber plantations. In

Vietnam, flooding claimed at least 69 lives (Associated Press). Farther south in Malaysia, at least nine people were killed by flooding, and over 17,000 people were driven into relief shelters. (Associated Press/AFP).

Tropical Cyclone Fanoos developed in the Bay of Bengal on the 6th and moved ashore in southern India in flood-ravaged Tamil Nadu state on 10th. The cyclone peaked with maximum sustained winds near 120 km/hr (65 knots or 75 mph) on the 9th, but weakened prior to landfall. The primary effect from Fanoos was heavy rainfall in southern India, where flooding in October and November had caused considerable socio-economic impact.

In Japan, very heavy snowfall affected parts of the country during December 20-31, where 6 fatalities were blamed on the severe winter weather, with additional fatalities occurring after the end of the month (Reuters). Some of the heaviest snowfall on record for the month of December occurred in parts of the country. An express train derailed in northern Japan on the 25th due to the snow, while in the western prefecture of Fukui, more than 200 cm (78 inches) of snow had accumulated. In the northern prefecture of Niigata, as many as 650,000 homes and businesses suffered snow-related power outages. During December, much of Japan, Korea, China, Mongolia and parts of eastern Russia experienced significantly colder than average temperatures.

*For more information on Weather and Climate Extremes, refer to ...*

[The Climate of 2005  
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