

DISASTERS BULLETIN 8: August 8th 2005 to February 23rd 2006

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Summary for the period

The period from early August 2005 to mid-February 2006 has proved to be one of the costliest and lethal of all time, contributing - in 2005 as a whole – to record insured losses of around US\$75 billion. The defining event was an unprecedented Atlantic hurricane season, which proved to be the most active and destructive ever. In total, 27 tropical storms were generated (the previous record was 21 in 1933), of which 14 achieved hurricane status. Of these, three (Katrina, Rita and Wilma) were classified as Category 5 storms (the previous record was 2 in each of 1960 and 1961). Other noteworthy records broken were (i) the most intense Atlantic hurricane on record (Wilma), (ii) the most (4) major (Category 3-5) hurricanes to make US landfall, (iii) the first hurricane (Vince) to strike the Iberian Peninsula, and (iv) the latest end to a hurricane season (January 5th 2006). The climax of the season saw Hurricane Katrina strike New Orleans as a Category 4 storm, causing major flooding and taking 1300 lives. Losses related to Katrina are estimated at US\$125 (economic) and US\$38 billion (insured), making the storm the costliest US natural disaster of all time. For 2005 as a whole, the ISO estimates that US insurers paid out US\$56.8 billion (of which US\$8.9 billion in the 4th quarter) in response to 24 catastrophic events. Hurricanes Katrina, Wilma, Rita, Ophelia and Dennis accounted for US\$52.7 billion of this. The other major catastrophe during the period was the magnitude 7.6 earthquake that struck the Kashmir region of Pakistan and India in December 2005. This resulted in massive and widespread building collapse and the triggering of many landslides, leading to an estimated death toll of 87,000. Other notable events over the period included severe flooding in August in Alpine regions of Germany, Austria and central Switzerland, leading to 11 deaths and losses of US3 billion (economic) and US\$1.5 billion (Insured). Serious flooding also occurred in Bolivia, Bosnia-Herzegovina, Fiji, Guyana, India and Iraq, with floods and landslides causing damage and taking lives in Indonesia, Papua New Guinea and the Philippines. In the latter, a major debris flow killed an estimated thousand people in February 2006, when torrential rains triggered the collapse of a mountainside. A cold wave affected Afghanistan and persistent cold weather in Europe brought heavy snow that led to roof collapse of an exhibition centre in Poland, killing 66 people, an ice rink in Germany, taking 11 lives, and a market in Moscow, killing a further 12 people. In Tajikistan, exceptional snow fall triggered numerous avalanches that took 20 lives. Geologically, the period was quiet, with a magnitude 5.7 earthquake causing substantial building damage in China and a volcanic eruption in Vanuatu requiring evacuation of the local population the only significant events. For 2005 as a whole, Munich Re. estimates that economic losses arising from natural catastrophes exceeded US\$200 billion, while more than 100,000 lives were claimed. . The latter toll has only been surpassed twice in the last quarter of a century; in 1991 and again in 2004. The immense impact of natural hazards on China was once again demonstrated in figures published for 2005 as a whole. These showed the cost of natural disasters – mainly floods and windstorms – to be US\$25.2 billion (1.3 percent of GDP), with 2,475 lives lost, 15 million people displaced and more than 2 million buildings destroyed Three technological disasters worthy of note were the November 2005 explosion and resulting widespread contamination from a Chinese benzene plant, the destruction of the UK's Buncefield oil depot in December 2005, and the Egyptian ferry disaster that took close to 1,000 lives in February 2006.

Selected events

Territory:	United States
Region:	Florida, Gulf Coast
Date:	25 – 29 August 2005
Event:	Hurricane Katrina
Impact:	Hurricane Katrina broke many records, including – with losses estimated at US\$125 billion – the costliest natural catastrophe ever. At US\$38 billion, insured losses arising from the storm also represent a record high. An unprecedented storm surge, of more than 8 m in places, led to breaching of the levees protecting New Orleans,

causing flooding of 80 percent of the city, with water depths of up to 7m. Key lifelines were also destroyed or disrupted, including highways into and through New Orleans, bridges across the northern Gulf, and the Interstate 10 Twin Span Bridge, linking New Orleans and Slidell. Massive destruction was also caused by wind, not only due to velocities in excess of 230 km h, but also due to the great size of the storm. Peak force winds occurred across an area as wide as 55 km, while hurricane force winds extended out to distances of 140 km from the centre of the storm. In addition, Katrina produced 30 cm or more of rain in eastern Florida, and more than 20 cm across much of SE Louisiana and SW Mississippi. The storm also spawned 33 tornadoes in Florida, Mississippi, Alabama and Georgia. The death toll (as of December 2005) is set at 1,336, with most in Louisiana (1,090) and Mississippi (228). Most deaths were the result of the storm surge and subsequent flooding. Major damage was also caused by wind, which blew out the windows of high-rise buildings and peeled off part of the Superdome roof. The storm surge completely destroyed many communities along the Mississippi coastline, leaving little standing. Katrina had a major impact on the oil and gas industry, shutting down most offshore platforms and wells in a region that supplies 25 percent of the country's domestic oil. Refining capacity, totalling 10 percent of the US total was also interrupted for varying lengths of time. 108 oil and gas platforms were destroyed and 53 seriously damaged. Over 300 spills poured around eight million gallons of oil into the Louisiana marshes. The storm suspended 95 percent of Gulf Oil production and 88 percent of offshore gas production. Deliveries of foreign oil to the Louisiana Offshore Oil Platform were also temporarily disrupted, while the state's Port Fourchon refinery, which processes 18 percent of domestic oil and gas, and 13 percent of US energy imports, was also closed down due to wind and flood damage. A number of serious oil spills resulted from damage to oil and gas facilities, while oil prices rose worldwide in response to the shortages arising from the event. Floating casinos were also badly hit, with many destroyed or severely damaged, leading to huge losses in tax revenue for the state of Mississippi, which – in 2004 – were valued at US\$2.4 billion. 1.2 million people were placed under evacuation order prior to the storm's arrival, and tens of thousands remain displaced.

Summary: Katrina developed as a tropical depression south-east of the Bahamas on August 23rd, strengthening as it moved westwards and achieving hurricane strength two days later. Katrina made landfall, close to Hallandale, SE Florida, on the 25th as a category 1 storm, with average wind speeds of 130 km h. After crossing the state and heading into the Gulf, very high sea surface temperatures led to the storm strengthening rapidly to category 5 by the 28th. On the 29th, Katrina made a second devastating landfall, this time as a category 4 storm, near Buras-Triumph in Louisiana, with wind speeds of 230 km h causing massive destruction and major loss of life. Katrina made a third landfall, this time as a category 3 storm with wind speeds of around 200 km h, near Waveland in Mississippi., before weakening as it headed inland towards Tennessee. At its height, a central pressure of 902 mb made Katrina the fourth most intense hurricane ever recorded.

Data sources: NOAA Hurricane Katrina report
http://www.nhc.noaa.gov/pdf/TCR-AL122005_Katrina.pdf
Colorado State University summary of 2005 Atlantic tropical cyclone activity
<http://hurricane.atmos.colostate.edu/Forecasts/2005/nov2005/>

Additional sources

TSR Summary of 2005 Atlantic tropical cyclone season
<http://forecast.mssl.ucl.ac.uk/docs/TSRATL2005Verification.pdf>

Image: Eye of Hurricane Katrina viewed from a NOAA Hurricane Hunter aircraft on 28 August 2005. Courtesy: NOAA

Territory: US, Cuba

Region: Texas, Louisiana, Florida

Date: 18 – 24 September 2005

Event: Hurricane Rita

Impact: Economic losses arising from Hurricane Rita are estimated at US\$15 billion, with insured losses set at US\$10 billion. 340,000 people were ordered to evacuate in Cuba and the Florida Keys, where – in the latter case – storm surge flooding led to the closure of the Overseas Highway segment of US1. Precipitation from Rita’s outer rain bands compounded the flood problem in New Orleans, a month after Katrina, leading to water level rise and further severe flooding. Several communities in SW Louisiana were destroyed or seriously damaged as a result of strong winds, a 7m storm surge and levee breaches, and 700,000 people were left without power. Mississippi was also affected, particularly by tornadoes spawned from the outer parts of the storm, but east Texas bore the brunt of the storm. Massive destruction was caused in the Beaumont, Orange and Port Arthur region of east Texas, but the Port Arthur levee system held. Large areas of Pecan trees were destroyed and the Lake Livingston dam was badly damaged by wave action. Power supplies were disrupted for up to 6 weeks, with 1.4 million people affected. Houston escaped relatively lightly, barring window and traffic signal damage and extensive power loss. Seven major refineries in east Texas and west Louisiana were forced to temporarily cease operations due to storm damage and loss of power, resulting in the loss of 1.5 million barrels a day. Total losses due to Katrina and Rita are estimated at 34.8 million barrels, accounting for 6.4 percent of the Gulf’s annual oil production. 119 deaths were reported, 113 of these in Texas.

Summary: Rita developed on September 18th from a tropical disturbance east of the Turks and Caicos Islands. It achieved hurricane status two days later and passed between Cuba and the Florida Keys as a category 1 storm on the same day. Once in the Gulf, high sea-surface temperatures caused rapid intensification to a category 5 storm on September 21st. The central pressure dropped as low as 897 mb, making Rita the third most intense hurricane on record at the time. Rita continued to travel north-westwards, weakening to a category 3 storm, before making landfall close to Sabine Pass (Jefferson County) in eastern Texas early on September 24th. Wind speeds at landfall were estimated at close to 200 km h. After landfall the storm was downgraded to a tropical depression, although it went on to spawn numerous damaging tornadoes in Arkansas.

Data sources: Global Security.Org
<http://www.globalsecurity.org/security/ops/hurricane-rita.htm>
Colorado State University summary of 2005 Atlantic tropical cyclone activity
<http://hurricane.atmos.colostate.edu/Forecasts/2005/nov2005/>

Additional sources: OilOnline
<http://www.oilonline.com/news/headlines/rita/>

Image: Hurricane Rita as a category 5 storm in the central Gulf of Mexico. Courtesy NOAA.

Territory: Pakistan, India

Region: Kashmir (northern Pakistan and NW India)

Date: 8 October 2005

Event: Earthquake

Impact: The 2005 Kashmir earthquake has proved to be one of the most destructive and lethal in modern times, with current estimates pointing to a death toll of 87,000 – the vast majority in Pakistan-administered Kashmir and Pakistan’s North West Frontier Province - and more than 106,000 injured. The totals include 1,350 killed and 6,000 injured in the Indian-administered western and southern parts of the Kashmir Valley. More than 3.3 million people have been left homeless, with over 4 million people affected in total. The death toll is expected to rise throughout the long winter as a result of severe cold and disease. Total economic losses are estimated at more than US\$5 billion. Structural damage to buildings was extremely severe with countless buildings experiencing complete failure. The heaviest damage occurred in the Muzaffarabad region, where entire communities were obliterated by a combination of building collapse and extensive landsliding. Eighty percent of the town of Uri (India) was flattened, while in excess of 35,000 buildings were reported destroyed in the towns of Anantnag, Baramula, Jammu and Srinagar. Collapsed buildings were also reported as far afield as Islamabad, Lahore and Rawalpindi. The maximum intensity of shaking (Modified Mercalli Scale) was VIII in the vicinity of the epicentre, VI in Islamabad and Rawalpindi and IV in New Delhi. Assessment of damaged buildings showed that most were made of un-reinforced masonry and around 60 percent of these had collapsed. In towns like Belakot, very few properties were left standing. The total number of collapsed buildings is estimated at several hundred thousand. These include two high rise buildings in Islamabad, each containing 60 apartments. More than 1,400 schools were also destroyed, buried or suffered serious damage, killing many thousands of children. In India, more than 2,500 homes were reported destroyed. The Karakoram Highway was cut in several places by landslides and rock falls, hindering relief efforts.

Summary: A major earthquake, registering 7.6 on the Moment Magnitude Scale, struck the Pakistan-administered region of the disputed territory of Kashmir at 08.50 local time on October 8th, 2005, causing massive damage and loss of life. The quake was shallow, with the focus located at just 26 km beneath the surface. The epicentre was 19 km NE of the city of Muzaffarabad, and 100 km NNE of the Pakistan capital, Islamabad. By the end of October, almost a thousand aftershocks had followed the main quake, including a number approaching – and one exceeding – magnitude 6. The earthquake occurred in the region where the northward moving (at ~ 40mm y) Indian Plate is in collision with the Eurasian Plate to the north. The end product of this process is the Himalaya Mountain Belt, together with periodic large earthquakes that act to release accumulated stresses. Several earthquake of similar magnitude are expected along the Himalayan front extending from Pakistan across northern India and into Bangladesh. The last major earthquake in Pakistan occurred at Quetta in 1983, when a magnitude 8.1 event killed an estimated 35,000 people. Due to the mountainous nature of the terrain, the Kashmir earthquake triggered a large number of landslides, which raised the death toll, cut lifelines and hampered rescue efforts.

Data sources: Geological Survey of India
<http://www.gsi.gov.in/pokeq/pokeq.htm>

United States Geological Survey
<http://earthquake.usgs.gov/eqcenter/eqinthenews/2005/usdya/>

Additional sources:

Earthquake Engineering Research Institute
<http://www.eeri.org/lfe/clearinghouse/kashmir/observ1.php>

ReliefWeb

<http://www.reliefweb.int/rw/dbc.nsf/doc100?OpenForm>

- Image:** Massive landslide near Muzafferabad provides a backdrop to the ruins of a village.
Courtesy: Paul Burton
- Territory:** US, Mexico, Cuba (also Bahamas, Jamaica, Haiti, Cayman Islands, Honduras, Belize, Nicaragua)
- Region:** South Florida (US), Yucatán peninsula (Mexico)
- Date:** 15 – 25 October 2005
- Event:** Hurricane Wilma
- Impact:** Wilma brought torrential rain, extreme winds and storm surge to 11 countries; more than any other hurricane. Total economic losses are estimated at US\$16 billion, with insured losses set at around US\$10 billion. Mexico and South Florida bore the brunt of the storm. Wilma drifted particularly slowly across the Yucatán Peninsula, resulting in some parts being battered by hurricane strength winds for over 24 hours. The region sustained extensive structural damage alongside severe flooding caused by torrential rains. Rainfall approached 60 cm in several areas and an extraordinary 163 cm at Isla Mujeres. Many tourists were stranded for several days in Cancun and neighbouring resorts, and looting appears to have been prevalent in the resort areas. Playa del Carmen, Cozumel and Cancun have all suffered a major loss of tourist income as a result of the storm. Economic losses may be as high as US\$6 billion, with insured losses estimated at up to US\$3 billion. In South Florida, damage was widespread as a result of both wind and storm surge. Major flooding, up to 2m deep, was reported throughout the Keys, while public buildings and high rises were seriously damaged in Fort Lauderdale. The town of Naples was worst hit, with extreme and widespread damage to many buildings leading to thousands of homeless. Ninety percent of all mobile homes in East Naples were destroyed. Power, water and sewerage services were badly affected across the south of the state, with six million people without power for a time. Damage to orange trees led to orange juice futures climbing to a six year high, while the sugar cane crop was also severely affected. Economic losses in Florida could be as high as US\$10 billion, with insured losses reaching US\$7 billion. Cuba sustained 140 km h winds, causing damage and loss of power to Havana, while in the Bahamas, Grand Bahama suffered coastal damage due to a 5m storm surge. The total death toll is estimated at 62, more than half in Florida.
- Summary:** Wilma developed in the Caribbean on October 15th, from a tropical depression SW of Jamaica. Tropical storm status was achieved on October 17th and hurricane status the following day. Late on the 18th, over the warm waters of the western Caribbean, Wilma intensified at an almost unprecedented rate to a category 5 storm, with the central pressure falling by 61 mb in 6 hours (98 mb in 24 hours). The final central pressure of 882 mb is the lowest ever recorded, while the rate of intensification is the second most rapid of any tropical cyclone. At one point, the eye was just little more than 3 km across, one of the smallest ever recorded. Wilma weakened to a category 4 storm on the 19th as it continued to track north-westwards, maintaining this strength until landfall near Cozumel on the Yucatán on the 21st. After causing massive damage and flooding in the Cancun region, where wind speeds exceeded 240 km h, Wilma veered to the north east and weakened to a category 2 storm as it lingered over land. On the 23rd it moved back into the Gulf, strengthened to category three and accelerated towards southern Florida, which it struck early the following day. Wilma made landfall as a category 3 storm in the sparsely inhabited region between Marco Island and Everglades City on the SE coast of the state, with sustained winds of

almost 200 km h. The storm again weakened to category 2 as it crossed the state, but picked up to category 3 status again when it reached the Atlantic, causing heavy damage in the northern Bahamas.

Data sources: Colorado State University summary of 2005 Atlantic tropical cyclone activity
<http://hurricane.atmos.colostate.edu/Forecasts/2005/nov2005/>

NOAA report on Hurricane Wilma
http://www.nhc.noaa.gov/pdf/TCR-AL242005_Wilma.pdf

Additional sources:

University of Wisconsin Tropical Cyclones Research Team
<http://cimss.ssec.wisc.edu/tropic/archive/2005/storms/wilma/wilma.html>

The Disaster Center
<http://www.disastercenter.com/Tropical%20Storm%20-%20Hurricane%20-%20Wilma.html>

Image: Cancun at the height of Hurricane Wilma's passage. Courtesy: Kevin Alexander Murcko

Territory: Philippines

Region: Southern Leyte

Date: 17 February 2006

Event: Landslide

Impact: This major landslide obliterated and almost entirely buried the village of Guinsaugon. As of February 21st, the Philippines National Disaster Coordinating Council (NDCC) report 84 dead, 19 injured and 1,023 missing. 415 people are reported as surviving the event, but with little hope for this number increasing, the final death toll is likely to be more than a thousand. The dead and missing include the majority of 200 staff and students in the village school.

Summary: At 10am local time on February 17th, a major landslide struck the village of Guinsaugon (population ~ 1,400), close to the town of St. Bernard in Southern Leyte province. A second landslide hit the area 12 hours later, resulting in the evacuation of eleven neighbouring communities. Both slides were sourced in hills overlooking the village, following extreme precipitation that had dumped 200 cm rain on the region over the preceding 10 days. A magnitude 2.6 earthquake that occurred just before the first slide may have been the trigger that detached the already weakened and water saturated mass. Heavy rains and landslide activity are unusual at this time of year, and may be a consequence of the prevailing La Niña conditions in the Pacific. Deforestation, leading to increased surface runoff and infiltration, has also been blamed, as has the replacement of natural vegetation with coconut palms whose shallow roots are less effective at binding the soil. The slide deposit is around 4 m deep and covers an area of 3 km². In addition to burying Guinsaugon, the slide has also blocked tributaries of a local river providing the potential for future flooding.

Data sources: ReliefWeb
<http://www.reliefweb.int/rw/dbc.nsf/doc100?OpenForm>

The Manila Bulletin Online
<http://www.mb.com.ph/MAIN2006022256928.html>

Additional sources:

Center for Satellite Based Crisis Information
http://www.zki.caf.dlr.de/applications/2006/philippines/philippines_2006_en.html

Image: *No public domain image found.*
Good images at: http://news.bbc.co.uk/1/hi/in_pictures/4731266.stm

Territory: Mexico, Central America

Region: Southern and eastern Mexico, Guatemala, El Salvador, Nicaragua, Honduras, Costa Rica

Date: 1 – 5 October

Event: Hurricane Stan and associated non-tropical rainstorms

Impact: The larger weather system that contained Stan dumped up to 50 cm of rain across Mexico, Guatemala, El Salvador, Nicaragua, Honduras and Costa Rica, triggering major flash flooding and countless landslides, particularly in mountainous terrain. Stan itself brought winds of up to 130 km h. Guatemala bore the brunt of the damage, with flash floods and over 900 landslides taking 669 lives and affecting or displacing close to half a million people across a third of the country. In Mexico, 1.5 million people were affected (including 370,000 displaced) and 15 killed. In El Salvador, 68 lives were lost, hundreds of roads cut by landslides and countless homes in 300 communities destroyed. 70 percent of the grain harvest and 5 percent of the coffee crop were also wiped out. Damage cost estimates for Guatemala are at least US\$400 million, while crop losses alone in El Salvador are thought to be around US\$10 million. The total death toll for the event may be as high as 1,600.

Summary: Stan was a relatively weak tropical storm that only briefly achieved hurricane status. Nevertheless, it contributed to major damage in Mexico and Central America, and was the sixth of seven tropical cyclones and storms to strike Mexico in the 2005 season. Stan's structure was also unusual in that the storm itself was embedded in a large, non-tropical rainstorm system that produced torrential rains over southern Mexico, Guatemala and El Salvador. Stan developed on October 1st, from a large area of low pressure in the NW Caribbean and organised itself into a tropical depression on the same day. Moving westwards, the storm made landfall on the Yucatán on October 2nd as a tropical storm, weakening to a tropical depression as it crossed the peninsula. On reaching the Bay of Campeche to the north, it once again became a tropical storm before achieving hurricane status on October 4th. On the same day, Stan made a second landfall as a category 1 hurricane south of Veracruz on the east-central coast of Mexico, before dissipating over the mountains.

Data sources: USAID
http://www.usaid.gov/locations/latin_america_caribbean/ca_flooding/

Colorado State University summary of 2005 Atlantic tropical cyclone activity
<http://hurricane.atmos.colostate.edu/Forecasts/2005/nov2005/>

Additional sources:

ReliefWeb
<http://www.reliefweb.int/rw/dbc.nsf/doc100?OpenForm>

Image: Rainfall from Hurricane Stan for the period 29 September – 5 October. Courtesy: NASA.

Territory: UK

Region: Hertfordshire

Date: 11 December 2005

Event: Oil storage terminal explosion and fire

Impact: 43 people injured and 80 business premises destroyed or badly damaged. Structural damage occurred to buildings up to 800m away and cars were burnt out in nearby streets. Due to the early-morning timing of the blast, nearby business premises were empty, otherwise deaths and many more injuries would have occurred. One of the buildings destroyed in the blast was the HQ of Northgate Information Solutions. Its loss meant several of its hosted were inaccessible, including that of the ruling Labour Party. More than 2,000 people in the vicinity of the blasts and fire were temporarily evacuated, and schools and public buildings across the counties of Hertfordshire and Buckinghamshire were closed for two days for health safety reasons. The event destroyed five percent of the UK's petrol stocks and disrupted fuel supplies to London and the South East England. Fuel rationing at Heathrow airport – which Buncfield supplied with 30 percent of its aviation fuel – is continuing, with long-haul flights having to refuel at other London and European airports and short-haul flights fuelling for a round trip before travelling to Heathrow. This is having a serious impact on some airlines, with South African Airlines – for example – losing US\$2.3 a month through having to refuel in Milan. Panic buying occurred for a time at petrol stations in SE England. Business interruption and other knock-on effects are blamed for threatening up to 4,000 jobs in the local area. Figures for economic loss are not available, but estimates of insured loss are on the order of US\$200 million. This includes the cost of the facility, US\$50 million in property claims and business interruption.

Summary: A series of massive explosions obliterated 20 large fuel storage tanks and triggered a three-day fire that destroyed much of the Hertfordshire Oil Storage Terminal (Buncefield Oil Depot) located 7km from the Hertfordshire town of Hemel Hempstead and 40 km north of London. The site – jointly owned by Total Oil and Texaco - was used to store a range of fuels including leaded and unleaded petrol, kerosene, gas oil and aviation fuel, the latter of which took up 50 percent of the storage capacity. In 2004, around 2.34 million tonnes of fuel passed through the terminal, involving the loading of 400 road tankers every day. Total capacity of the terminal was 273 million litres (60 million imperial gallons). The event is probably the largest of its kind in Europe since World War II, and took 180 fire fighters more than 72 hours to bring under control. The initial blast registered 2.4 on the Richter Scale for earthquake magnitude and was heard up to 160km away. There are also unconfirmed reports that it was heard in France and the Netherlands. A cloud of black smoke quickly reached 2750m and drifted westwards. After 2 days the plume reached France and later northern Spain. The precise cause of the blast remains to be established, but it appears to have been initiated by ignition of a large (200m wide) cloud of fuel and water vapour arising from a major leak. A small leak was investigated a few weeks before the blast, but it is not known if the two were connected.

Image: The smoke plume from the Buncefield explosion from Dunsmore (Buckinghamshire) 32km away. Courtesy: Peter Dean.

Satellite image showing the location of Buncefield and the extent of the smoke plume. Courtesy NOAA.

Data sources: Total Oil: Buncefield Terminal Fast Facts
<http://www.total.gb.com/media/mediatool.cfm?page=1>

UK Health & Safety Executive
<http://www.buncefieldinvestigation.gov.uk/>

Additional sources: UK Natural Environment Research Council
http://www.nerc.ac.uk/publications/latestpressrelease/2005_58oil.asp

Other notable and unusual events (selected)

Date	Country/region	Event	Fatalities	Economic losses (mil US\$)	Insured losses (mil US\$)
Feb 23 rd 2006	Russia (Moscow)	Market roof collapse (snow)	>12		
Feb 2 nd 2006	Egypt (Red Sea)	Ferry fire and sinking	~ 1,000		
Jan – Feb 2006	Afghanistan, northern India, Bangladesh, NW China	Cold wave and snow	> 300		
Jan 28 th 2006	Poland (Katowice)	Exhibition hall roof collapse (snow)	66		
Jan 5 th	Indonesia (central and eastern Java)	Mudslides	~ 300		
Jan 2 nd 2006	Germany (Bad Reichenhall)	Ice rink roof collapse	15		
Jan 2006	Bolivia (Potosi, Santa Cruz, La Paz, Beni and Cochabamba)	Floods and mudslides	23		
Early December 2005 – January 2006	Japan (Nagano and Niigata)	Unprecedented snowfall; >500 collapsed buildings	72 + 1200 injured		
Nov 27 th 2005	Vanuatu	Volcanic eruption	0		
Nov 26 th 2005	China (Jiangxi province)	Earthquake	16	37	
Nov 23 – 28 2005	Spain (Canary Islands), Morocco	Tropical Storm Delta	20	375	
Nov 18 – 21 2005	Honduras, Belize	Tropical Storm Gamma	37		
Nov 13 th 2005	China (Jilin province)	Chemical explosion and toxic spill	5	3,000 +	
Nov - Dec	India (Tamil	Floods	180		

2005	Nadu, West Bengal, Andhra Pradesh)				
Oct 27 – 31 2005	Nicaragua, Colombia, Honduras	Hurricane Beta		10	
Oct 22 – 24 2005	Haiti, Dominican Republic	Tropical Storm Alpha	28		
Oct 1 st 2005	El Salvador	Volcanic eruption			
Sept 27 2005	Vietnam (Quang Ninh, Da Nang, Yen Bai, Lao Cai, Phu Tho)	Typhoon Damrey	68	210	
Sept 6 - 18	US (North Carolina, South Carolina)	Hurricane Ophelia	1	50	35
Aug 26 2005	Peru (Moyobamba city)	Earthquake	5		