

March 2017

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Executive Summary

- Extensive US severe weather leads to multi-billion cost to insurers
- Cyclone Debbie makes landfall in eastern Australia and leads to severe wind and flood damage
- Proclaimed 'coastal El Niño' causes catastrophic flood damage in South America's Peru & Colombia

An extremely active period for severe weather continued in the United States throughout the month of March, as four separate significant outbreaks led to extensive damage in central and eastern sections of the country. The most prolific outbreak was noted from March 6-10 as major damage resulted from tornadoes, large hail and straight-lines winds in the Plains, Midwest and Southeast. In the aftermath, very gusty synoptic winds led to widespread damage in parts of the Midwest, Mid-Atlantic, and Northeast. Total economic losses for this event alone were estimated at USD1.7 billion; while public and private insurance entities listed payouts at USD1.2 billion.

The aggregated cost to the insurance industry from the four events was expected to exceed USD2.0 billion. Through the first quarter of 2017, the US has seen an above-average number of storm reports.

Elsewhere, separate severe weather outbreaks claimed 19 lives in Ghana, damaged thousands of homes in Thailand, and caused extensive damage to property and agriculture in China's Yunnan province.

Cyclone Debbie made landfall in Australia that prompted widespread and deadly flooding in southeastern Queensland and northern New South Wales. Ten people were killed. The Insurance Council of Australia declared an insurance catastrophe following the extensive wind and flood damage. Preliminary data indicated that 35,370 claims had already been filed with payouts exceeding USD310 million. These totals were expected to rise. The overall economic cost will be even higher.

Cyclone Enawo made landfall in Madagascar and claimed nearly 100 lives. As many as 85,000 homes were damaged or destroyed and 434,000 people were directly affected.

Windstorm Zeus came ashore in France and led to widespread wind damage in the country. At least two people died. Total economic and insured losses were expected to well exceed USD100 million.

Catastrophic flooding – associated with what scientists are deeming a 'coastal El Niño' – led to continued damage in Peru and Colombia. The death toll from flooding and landslides in Peru topped 100 as more than 245,000 homes and structures were damaged or destroyed. Economic losses were listed at upward of USD3.1 billion. In Colombia, rains led to a massive debris flow in the town of Mocoa that left at least 293 people dead and hundreds more injured. As many as 300 people were listed as missing.

Other major floods were recorded in New Zealand, Indonesia, Angola, and Zimbabwe.

Severe drought conditions worsened in Africa's Somalia, Ethiopia, and Kenya, as the United Nations appealed for USD1.9 billion in aid.

Sub-freezing temperatures led to an expected USD1.0 billion cost to agriculture in the US states of South Carolina and Georgia. Winter storm damage was also noted in Canada's Newfoundland.

Wildfires claimed seven lives in the US, following major fires in Oklahoma, Texas, Kansas, and Colorado.

A magnitude-5.0 earthquake in China's Yunnan province damaged nearly 45,000 structures.

United States

Date	Event	Location	Deaths	Structures/ Claims	Economic Loss (USD)
03/06-03/10	Severe Weather	Midwest, Plains, Southeast	0	200,000+	1.7+ billion
03/07-03/09	Wildfires	Plains, Rockies, Florida	7	Hundreds	100+ million
03/13-03/15	Winter Weather	Plains, Midwest, Southeast, Northeast	11	Thousands	1.0+ billion
03/20-03/22	Severe Weather	Southeast, Midwest	1	Thousands	100+ million
03/26-03/28	Severe Weather	Plains, Southeast, Midwest	0	Thousands	100s of Millions
03/28-03/31	Severe Weather	Plains, Southeast, Midwest, Mid-Atlantic	1	Thousands	100s of Millions

An outbreak of severe weather swept across central sections of the United States on March 6-10, leaving roughly two-dozen people injured. The storms, which were most significant in parts of Missouri, Iowa, Minnesota, Kansas, Arkansas, Oklahoma, and Illinois, caused extensive tornado, wind and hail damage. Dozens of tornado touchdowns combined with up to baseball sized hail and straight-line winds to cause major damage to residential and commercial properties, and vehicles. In the aftermath, very gusty synoptic winds led to widespread damage in parts of the Midwest, Mid-Atlantic, and Northeast. Total economic losses were estimated at USD1.7 billion; while public and private insurance entities listed payouts at USD1.2 billion.

Wildfires claimed at least seven lives in the United States as several major blazes burned across parts of Oklahoma, Texas, Kansas, and Colorado from March 7-9. The fires damaged or destroyed dozens of homes and structures, and left major damage to the farming and agricultural sectors. A preliminary estimate of agriculture damage in Texas was listed at USD21 million. Elsewhere, additional fires were also reported in portions of southern Florida.

A powerful late season Nor'easter brought blizzard-like conditions to the east coast of the United States from March 13-15, leaving at least 11 people dead and dozens of others injured. Heavy accumulating snow and sub-freezing temperatures were registered in the Midwest, Mid-Atlantic, Northeast, and the Deep South. Severe disruption to travel and transportation was reported, including more than 7,000 flight cancellations, as well as numerous school and business closures. Preliminary reports in South Carolina and Georgia indicated that crop losses due to the freeze would near USD1.0 billion alone.

Severe thunderstorms tracked across parts of the Midwest and Southeast from March 20-22, killing at least one person and injuring several others. Widespread damage occurred to residential and commercial properties and vehicles as up to golf ball-sized hail and winds gusting to 70 mph (110 kph) accompanied clusters of storms. Among the hardest-hit states included Tennessee, Georgia, and the Carolinas. Total economic losses were expected to exceed USD100 million.

An outbreak of severe weather left extensive damage in portions of the Plains, Southeast and Midwest from March 26-28. Among the hardest-hit areas included Texas, Oklahoma and Kansas after up to softball-sized hail left homes, vehicles, and business with shattered windows and dented roofs. Isolated tornadoes and straight-line winds also left damage. Additional impacts were noted in parts of Kentucky, Tennessee, Mississippi, Alabama, and Georgia. Total economic and insured losses were expected in the hundreds of millions of dollars (USD). The Insurance Council of Texas cited insurable losses of USD300 million for the March 26 storms alone.

Another outbreak of severe thunderstorms impacted parts of the Plains, Southeast, Midwest, and Mid-Atlantic from March 28-31, leaving at least one person dead. The most prolific damage resulted from large hail and straight-line winds in Texas, Oklahoma, Louisiana, Arkansas, Mississippi, Missouri, Illinois, Indiana, and Virginia. At least 25 confirmed tornadoes also touched down, including an EF2 that left damage in the Virginia Beach, VA metro area. Several areas during the event also reported isolated flash flooding. Total economic and insured losses are estimated into the hundreds of millions (USD).

Remainder of North America (Non-U.S.)

Date	Event	Location	Deaths	Structures/ Claims	Economic Loss (USD)
03/08	Severe Weather	Canada	1	Thousands	Millions
03/11	Winter Weather	Canada	0	Thousands	Millions

A broad area of low pressure led to extremely gusty synoptic winds across parts of Canada's Ontario province on March 8, leading to widespread damage and at least one fatality. With winds gusting to 110 kph (70 mph), it led to a high volume of reports of downed trees and power lines onto homes, businesses and vehicles throughout the province. At the peak of the event, nearly 70,000 customers in Ontario lost electricity. Total economic and insured losses were estimated well into the millions of dollars (USD).

A deep low pressure system tracked across Newfoundland on March 11, bringing blizzard conditions to Canada's easternmost island. Heavy snowfall and powerful wind gusts caused widespread and significant damage and disruption, particularly on the Avalon Peninsula where 70,000 homes and business were left without power. Total economic and insured losses were estimated well into the millions of dollars (USD).

South America

Date	Event	Location	Deaths	Structures/ Claims	Economic Loss (USD)
01/01-04/01	Flooding	Peru	120	245,000+	3.1+ billion
02/17-04/01	Flooding	Colombia	313+	Thousands	Millions+

Heavy rainfall returned to parts of central and northern Peru mid-March, leading to major mudslides and river flooding. At least 120 people were left dead or missing from flooding that has been ongoing since January. An additional 353 people were injured. Local authorities cited that more than 245,000 homes and other structures had been damaged or destroyed across the country. Heavy impacts to infrastructure and agriculture was also prevalent. Total economic losses were estimated at PEN10.2 billion (USD3.14 billion).

A series of strong thunderstorms impacted portions of Colombia from the second half of February into early April, bringing flooding rains across 11 departments. The most significant event occurred very late on March 31 into early on April 1 as torrential rains led to a massive debris flow in the town of Mocoa. At least 301 people were killed and 332 others were injured after 17 neighborhoods were destroyed. An estimated 314 others were left missing. A separate incident left at least 12 people dead and nearly 600 homes damaged.

Europe

Date	Event	Location	Deaths	Structures/ Claims	Economic Loss (USD)
03/06-03/07	WS Zeus	France	2	Thousands	100+ million

Windstorm Zeus swept across France on March 6-7 impacting numerous departments from Brittany to Provence and generating record-breaking wind gusts on the Atlantic coast. Widespread disruption due to falling trees and power lines was reported across the country. At least two people died and eleven were injured, while more than 600,000 households endured power outages. Total economic and insured losses were expected to be in excess of USD100 million.

Middle East

Date	Event	Location	Deaths	Structures/ Claims	Economic Loss (USD)
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There were no significant natural disaster events in the Middle East during the month of March.

Africa

Date	Event	Location	Deaths	Structures/ Claims	Economic Loss (USD)
01/01-03/31	Drought	Somalia, Ethiopia, Kenya	100s	N/A	1.9+ billion
01/01-03/31	Flooding	Zimbabwe	271	Thousands	200+ million
03/07	Cyclone Enawo	Madagascar	99	85,000+	20+ million
03/19	Severe Weather	Ghana	19	0	N/A
03/21-03/24	Flooding	Angola	11	5,300+	Millions

Multi-year drought conditions that have gripped the east African nations of Somalia, Ethiopia, and Kenya since the second half of 2015 worsened during the first quarter of 2017. The United Nations appealed for USD1.9 billion in aid as severe food shortages and heavy agricultural damage was reported.

A series of catastrophic flood events during the course of the current rainy season have left at least 271 people dead in Zimbabwe and prompted the local government to declare a state of national disaster as they appealed to the international community for USD200 million to fund the country's recovery.

Cyclone Enawo made landfall in drought-stricken Madagascar on March 7 as a powerful Category 4 strength tropical cyclone impacting some 434,000 people. At least 99 people were left dead or missing, and 253 others were injured. In total 250,000 people were displaced as roughly 85,000 homes were damaged or destroyed. An additional 105 health facilities and more than 3,900 classrooms were damaged as well. The United Nations requested USD20 million for recovery efforts.

Nineteen people were killed by falling trees while swimming under the Kintampo Waterfalls in Brong-Ahafo region, Ghana on March 19. The destabilization of the trees was likely caused by heavy rains and high winds during a violent storm. Authorities reported that an additional 22 people sustained injuries.

Heavy rainfall triggered flooding in northwestern portions of Angola on March 21-22 which killed at least 11 people and destroyed hundreds of homes. Approximately 5,300 homes were flooded, of which nearly 750 were destroyed. More than 3,400 people were displaced and electricity and drinking water supplies were severely affected.

Asia

Date	Event	Location	Deaths	Structures/ Claims	Economic Loss (USD)
01/01-05/01	Drought	Sri Lanka	N/A	N/A	10s of millions
03/01	Severe Weather	China	7	13,700+	28+ million
03/03	Flooding	Indonesia	8	3,482+	19+ million
03/14-03/29	Severe Weather	Thailand	3	6,000+	Millions
03/27	Earthquake	China	0	45,000+	50+ million

Sri Lanka's Disaster Management Center reported that more than 1.2 million people in the country were suffering from the effects of drought in March. Significant damages to paddy cultivation were reported as the country prepared for its worst rice harvest in 40 years. The drought began in November 2016 and is expected to continue through April 2017 or until the monsoon rains arrive.

Rounds of severe weather led to the deaths of seven people in eastern China on March 1. An additional 33 people were injured as the result of strong wind gusts and large hail in Jiangsu and Henan provinces. The Ministry of Civil Affairs indicated that 13,700 homes were damaged or destroyed in addition to vast areas of agricultural land. Economic losses were listed at CNY192 million (USD28 million).

Indonesia's Western Sumatra province was hit by flooding following heavy rainfall on March 3. Eleven districts were impacted as the floods claimed eight lives. Indonesia's National Board for Disaster Management reported that 3,482 homes were damaged as economic losses reached INR253 billion (USD19 million); primarily due to damaged educational institutions, agricultural land, public works, fisheries, health care facilities, and infrastructure.

From March 14-29 three people were killed as the result of powerful thunderstorms that affected 28 provinces of Thailand. Damage to nearly 6,000 homes was reported across Northeast (17 provinces), Central (five provinces), North (four provinces), and East (two provinces) regions.

A magnitude-5.0 earthquake struck China's Yunnan Province on March 27, causing widespread damage and one injury. The Ministry of Civil Affairs reported that nearly 45,000 homes, schools, and other structures were damaged or destroyed while additional damage was noted to local infrastructure and agriculture. Total economic losses were listed at CNY350 million (USD50 million).

Oceania (Australia, New Zealand, South Pacific Islands)

Date	Event	Location	Deaths	Structures/ Claims	Economic Loss (USD)
03/07-03/12	Flooding	New Zealand	0	2,000+	10s of millions
03/28-04/05	CY Debbie	Australia	10	35,370+	100s of Millions+

A powerful area of low pressure lashed New Zealand's North Island with torrential rainfall from March 7-12. The system drew abundant tropical moisture over parts of Northland, Auckland region, Wakaito, and the Bay of Plenty leading to widespread damaging floods. In some areas the rain was described as a "one-in-100 year" event. There were no reports of any casualties.

Cyclone Debbie made landfall in Queensland, Australia, on March 28 as a Category 3 cyclone on the Saffir-Simpson Hurricane Wind Scale. At least 10 people were killed. Extensive wind-related damage was reported from the Whitsunday Islands and the towns of Bowen, Mackay, Proserpine, and Airlie Beach. However, the worst damage was incurred in southeastern Queensland and northern New South Wales where the storm's remnants prompted torrential rainfall. Widespread severe flooding inundated several towns and communities and caused extensive damage to infrastructure and the agricultural sector. Preliminary data from the Insurance Council of Australia cited 35,370 claims filed with an estimated value of AUD410 million (USD310 million). These totals were expected to rise in the coming weeks. The overall economic cost will be even higher.

Appendix

Updated 2017 Data: January – February

United States

Date	Event	Location	Deaths	Structures/ Claims	Economic Loss (USD)
01/01-01/03	Severe Weather	Southeast, Plains	6	10,000+	250+ million
01/06-01/13	Winter Weather	Pacific Northwest, Southwest, Rockies	5	40,000+	700+ million
01/06-01/08	Winter Weather	Southeast, East Coast	5	Thousands	Millions
01/13-01/18	Winter Weather	Plains, Midwest	7	Thousands	Millions
01/17-01/19	Winter Weather	West, Rockies	4	Thousands	Millions
01/18-01/23	Severe Weather	Southeast, Plains, West, Northeast	21	100,000+	1.3+ billion
01/19-01/25	Winter Weather	West, Rockies, Plains, Midwest	5	Thousands	Millions
02/07-02/08	Severe Weather	Southeast	1	10,000+	175+ million
02/08-02/09	Winter Weather	Mid-Atlantic, Northeast	1	Unknown	Millions+
02/12-02/14	Flooding	California	0	N/A	200+ million
02/12-02/14	Winter Weather	Upper Mid-Atlantic, Northeast	1	Thousands	Millions+
02/14	Severe Weather	Texas	0	Hundreds	Millions+
02/16-02/18	Flooding	California	7	25,000+	400+ million
02/19-02/21	Flooding	California	1	10,000+	200+ million
02/19-02/20	Severe Weather	Texas	0	20,000+	225+ million
02/24-02/25	Severe Weather	Northeast, Mid-Atlantic	0	Thousands	Millions+
02/27-03/02	Severe Weather	Midwest, Southeast, Mid-Atlantic	4	130,000+	1.3+ billion

Remainder of North America (Non-U.S.)

Date	Event	Location	Deaths	Structures/ Claims	Economic Loss (USD)
01/24-01/27	Winter Weather	Canada	2	Hundreds	10s of Millions

South America

Date	Event	Location	Deaths	Structures/ Claims	Economic Loss (USD)
01/01-02/01	Wildfire	Chile	11	2,500+	870+ million
01/01-04/01	Flooding	Peru	120	245,000+	3.1+ billion
02/24-02/26	Flooding	Chile	6	Hundreds	Millions

Europe

Date	Event	Location	Deaths	Structures/ Claims	Economic Loss (USD)
01/02-01/13	Winter Weather	Central, Eastern, Southeastern Europe	76	Thousands	10s of millions
01/12-01/13	WS Dieter & Egon	France, Germany, Belgium	0	Thousands	350+ million
01/18	Earthquake	Italy	30	Hundreds	TBD
01/20-01/24	Severe Weather	Spain, France, Italy	3	Hundreds	Millions
02/03-02/06	EU Windstorms	Spain, France	2	Thousands	Millions+
02/23-02/24	WS Thomas	Western & Central Europe	3	Thousands	100s of Millions

Middle East

Date	Event	Location	Deaths	Structures/ Claims	Economic Loss (USD)
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Africa

Date	Event	Location	Deaths	Structures/ Claims	Economic Loss (USD)
01/05-01/12	Flooding	South Africa, Angola	7	5,000+	Millions
01/01-03/01	Flooding	Zimbabwe	246	2,000+	100+ million
02/15-02/16	CY Dineo	Mozambique	7	107,204+	17+ million

Asia

Date	Event	Location	Deaths	Structures/ Claims	Economic Loss (USD)
01/01-01/31	Flooding	Thailand	96	585,000+	860+ million
01/01-01/23	Flooding	Malaysia	0	Thousands	132+ million
01/12-01/16	Flooding	Philippines	11	Hundreds	Unknown
01/16-01/31	Flooding	Philippines	11	1,000+	8.1+ million
01/20	Landslide	China	12	One	Unknown
01/22-01/24	Flooding	Pakistan	5	Hundreds	Unknown
01/24-01/25	Winter Weather	Afghanistan	31	N/A	Unknown
01/25-01/26	Winter Weather	India	11	N/A	Unknown
01/25-01/30	Flooding	Indonesia	1	2,000+	Millions
01/28	Earthquake	China	0	14,000+	55+ million
02/01-02/05	Winter Weather	Afghanistan, Pakistan	159	325+	Unknown
02/09-02/12	Flooding	Indonesia	12	18,000+	Millions+
02/10	Earthquake	Philippines	8	7,200+	40+ million
02/17-02/19	Winter Weather	Afghanistan, Pakistan	58	N/A	N/A

Oceania (Australia, New Zealand, South Pacific Islands)

Date	Event	Location	Deaths	Structures/ Claims	Economic Loss (USD)
01/20-01/23	Flooding	French Polynesia	0	1,000+	Millions
02/09-02/13	Wildfires	Australia	0	1,200+	10s of Millions
02/09-02/16	Flooding	Australia	2	Thousands	100s of Millions
02/17-02/19	Severe Weather	Australia	1	48,000+	350+ million

Additional Report Details

TD = Tropical Depression, TS = Tropical Storm, HU = Hurricane, TY = Typhoon, STY = Super Typhoon, CY = Cyclone

Fatality estimates as reported by public news media sources and official government agencies.

Structures defined as any building – including barns, outbuildings, mobile homes, single or multiple family dwellings, and commercial facilities – that is damaged or destroyed by winds, earthquakes, hail, flood, tornadoes, hurricanes or any other natural-occurring phenomenon. Claims defined as the number of claims (which could be a combination of homeowners, commercial, auto and others) reported by various public and private insurance entities through press releases or various public media outlets.

Damage estimates are obtained from various public media sources, including news websites, publications from insurance companies, financial institution press releases and official government agencies. Damage estimates are obtained from various public media sources, including news websites, publications from insurance companies, financial institution press releases and official government agencies. Economic loss totals include any available insured loss estimates, which can be found in the corresponding event text. Specific events may include modeled loss estimates determined from utilizing Impact Forecasting's suite of catastrophe model products.

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