Global Catastrophe Recap
First Half of 2021
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Executive Summary

**Severe Weather: Main Loss Driver**
- Western & Central Europe: USD4.5+ billion insured loss from major storms during June 17-25 & June 28-30
- United States: Nine separate events with USD500+ million insured loss

**Earth & Climate: New Records**
- NOAA: Globally 8th warmest 1H on record: 0.79°C / 1.42°F above 20th Century mean
- Spain min temperature record set in León on January 7
- 49.6°C / 121.3°F Canada max temperature record set in Lytton, BC on June 29
- Africa recorded its warmest January & June on record

**Winter Weather: Historic Peril Losses**
- U.S. Polar Vortex event in mid-February resulted in USD22 billion economic loss; up to USD15 billion covered by insurance
- Costliest event ever recorded for the peril; including highest event losses for insurers

**Asia - Pacific: EQs, Floods, and Cyclones**
- Offshore M7.1 earthquake prompts multi-billion-dollar insured loss in Japan
- Four insurance catastrophe events declared in Australia
- Cyclone Yaas landfall in India the costliest 1H tropical cyclone

**Lives Lost:**
- 3,000+

**Total Economic Losses (USD)**
- 93 bn (16% Below 21st Century 1H Avg)

**Total Insured Losses (USD)**
- 42 bn (39% Above 21st Century 1H Avg)

- 45% portion of insured losses caused by Severe Weather
- 55% preliminary estimate of global protection gap
- 72% global insured losses incurred in the United States

- 163 notable events, 28 below average; 152 were weather-related
- 22 billion-dollar events, 22 economic / 10 insured
  - **United States:** Eco (10) / Ins (7)

**Global Catastrophe Recap: First Half of 2021**
Overview

Global natural disaster losses during the first half (1H) of 2021 were slightly below average when compared against a 10-year (2011-2020) and 21st Century (2000-2020) baseline, but above the longer-term view (1980-2020). As seen in Exhibit 1, economic losses were estimated at USD93 billion; or 32 percent lower compared to the previous decade (USD136 billion), 16 percent lower since 2000 (USD110 billion), but 9 percent higher since 1980 (USD85 billion)\(^1\). Insured losses were estimated at USD42 billion; 2 percent higher than the 10-year average (USD41 billion), 39 percent higher than the 21st Century average (USD30 billion), and a substantial 101 percent higher since 1980 (USD21 billion). **These numbers are preliminary and will change as losses continue to develop.** To offset any outlier years, median analysis shows that 1H economic losses were higher than 1980-2020 (USD63 billion) and 2000-2019 (USD86 billion), but lower than the 10-year median (USD101 billion). Insured losses were higher versus the longer- (USD15 billion), mid- (USD30 billion), and short-term (USD33 billion) view.

EXHIBIT 1: 1H Global Natural Disaster Losses\(^2\)

<table>
<thead>
<tr>
<th>Year</th>
<th>Economic Loss (USD bn)</th>
<th>Insured Loss (USD bn)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>439</td>
<td>114</td>
</tr>
<tr>
<td>2012</td>
<td>99</td>
<td>30</td>
</tr>
<tr>
<td>2013</td>
<td>130</td>
<td>33</td>
</tr>
<tr>
<td>2014</td>
<td>81</td>
<td>32</td>
</tr>
<tr>
<td>2015</td>
<td>84</td>
<td>24</td>
</tr>
<tr>
<td>2016</td>
<td>138</td>
<td>38</td>
</tr>
<tr>
<td>2017</td>
<td>87</td>
<td>31</td>
</tr>
<tr>
<td>2018</td>
<td>80</td>
<td>30</td>
</tr>
<tr>
<td>2019</td>
<td>116</td>
<td>34</td>
</tr>
<tr>
<td>2020</td>
<td>103</td>
<td>40</td>
</tr>
<tr>
<td>2021</td>
<td>93</td>
<td>42</td>
</tr>
</tbody>
</table>

EXHIBIT 2: 1H Natural Disaster Events\(^3\)

- Drought
- Earthquake
- EU Windstorm
- Flooding
- Severe Weather
- Tropical Cyclone
- Wildfire
- Winter Weather
- Other

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\(^2\) Loss totals in billions USD and adjusted to today’s dollars using the U.S. Consumer Price Index. Gray band represents 21st-Century average

\(^3\) An event must meet at least one of the following criteria to be classified as a natural disaster: economic loss of USD50M, insured loss of USD25M, 10 fatalities, 50 injured, or 2,000 homes/structures damaged and/or filed insurance claims
EXHIBIT 3: 1H Natural Disaster Events by Region

There was a minimum of 163 natural disaster events that occurred in 1H 2021, which was below the 21st Century average (191) and median (197). As a reminder, an event must meet pre-established criteria to be entered into the Aon’s Catastrophe Insight Database. The first six months of the year were marked by fewer event occurrences, though dominated by several large-scale, billion-dollar, and high-impact events. The number of events were notably below the 21st Century average in all regions except the United States. From a natural peril standpoint, there was a relative lack of significant earthquakes (beyond the February 13 offshore magnitude-7.1 tremor near Japan’s Fukushima Prefecture) and a less severe start to flood / monsoon seasons in parts of Africa and Asia.

Weather Events

EXHIBIT 4: 1H Global Weather Disaster Losses

Weather-only economic losses were estimated at USD84 billion, above medium-, and long-term averages. Insured losses were preliminarily estimated at USD39 billion and were also higher than all three thresholds.

Fatalities

Natural disasters claimed roughly 3,000 lives during the first half of 2021; this number was significantly below the long-term average (since 1980) of 38,900 and the median of 7,600. Fatalities tied to temperature extremes were the deadliest type of disaster during the first six months of 2021, being responsible for nearly one third of the toll. More than 800 fatalities alone were directly linked to a historic heatwave which affected parts of Western Canada and the U.S. Pacific Northwest in late-June. Overall, the Asia-Pacific region recorded slightly less than half of the global death toll (1,400+).

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4 An event must meet at least one of the following criteria to be classified as a natural disaster: economic loss of USD50M, insured loss of USD25M, ≥10 fatalities, ≥50 injured, or ≥2,000 homes/structures damaged and/or filed insurance claims.
5 Weather events are catastrophes initiated by atmospheric or oceanic-influenced scenarios. It does not include earthquakes, tsunamis or volcanoes.
6 Loss totals in billions USD and adjusted to today’s dollars using the U.S. Consumer Price Index. Gray band represents 21st-Century average.
Economic Loss

Losses by Region

Economic losses resulting from natural catastrophes were above the 21st Century 1H average for the United States, up 54 percent, and EMEA, up 12 percent. APAC and the Americas (Non-US) were below average by 38 and 22 percent, respectively. The spike in U.S. losses were driven by record costs from the winter weather peril. Please note that rounding might result in a difference between the global total and the sum of regional values.

EXHIBIT 5: 1H Natural Disaster Economic Losses by Region (USD bn)

Costliest Events

There were at least 22 separate billion-dollar events in 1H 2020. All but one of the events were weather-related, with the exception being the February 13 earthquake near the coast of Japan. The billion-dollar events were led by the U.S. (10) and APAC (6), followed by EMEA (4), and the Americas (2).

The table below lists the eight events which reached the multi-billion-dollar threshold (economic loss of USD2.0 billion or greater). These loss totals are preliminary and subject to change.

EXHIBIT 6: 1H Multi-Billion-Dollar Economic Loss Events (USD bn)

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
<th>Location</th>
<th>Deaths</th>
<th>Economic Loss (USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>February 12-20</td>
<td>Polar Vortex / Extended Freeze</td>
<td>United States</td>
<td>217</td>
<td>23 billion</td>
</tr>
<tr>
<td>February 13</td>
<td>Fukushima Earthquake</td>
<td>Japan</td>
<td>1</td>
<td>7.5 billion</td>
</tr>
<tr>
<td>April 5-8</td>
<td>Winter Weather</td>
<td>Western &amp; Central Europe</td>
<td>N/A</td>
<td>5.6 billion</td>
</tr>
<tr>
<td>June 17-25</td>
<td>Severe Weather</td>
<td>Western &amp; Central Europe</td>
<td>7</td>
<td>4.8 billion</td>
</tr>
<tr>
<td>April 27 – May 2</td>
<td>Severe Weather</td>
<td>United States</td>
<td>0</td>
<td>3.3 billion</td>
</tr>
<tr>
<td>May 25-29</td>
<td>Cyclone Yaas</td>
<td>India</td>
<td>19</td>
<td>3.0 billion</td>
</tr>
<tr>
<td>March 13-25</td>
<td>East Coast Low</td>
<td>Australia</td>
<td>2</td>
<td>2.1 billion</td>
</tr>
<tr>
<td>January 1-12</td>
<td>Winter Weather</td>
<td>Japan</td>
<td>22</td>
<td>2.0 billion</td>
</tr>
</tbody>
</table>

7 Loss totals in billions USD and adjusted to today’s dollars using the U.S. Consumer Price Index.
Insured Loss

Losses by Region

Insured losses resulting from natural catastrophes were notably above average in the United States (+76 percent) and EMEA (+32 percent) compared to the 21st Century 1H average. The higher than average industry payouts in the U.S. were tied to the record winter storm losses, plus another high-cost six months for severe convective storms. Conversely, losses were near normal in APAC (-1 percent), but a much lower -54 percent in the Americas (Non-U.S.).

EXHIBIT 7: 1H Natural Disaster Insured Losses by Region (USD bn)

Costliest Events

There were at least 10 separate billion-dollar events in 1H 2021, all but one of which were weather-related. Severe convective storms generated 6 billion-dollar events in the United States alone, while two occurred in Europe within a two-week span in late June. The costliest event, by far, was the Polar Vortex-induced prolonged period of extreme cold in the United States. This event was expected to continue showing loss development for months to come.

EXHIBIT 8: 1H Billion-Dollar Insured Loss Events (USD bn)

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
<th>Location</th>
<th>Deaths</th>
<th>Insured Loss (USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>February 12-20</td>
<td>Polar Vortex / Extended Freeze</td>
<td>United States</td>
<td>217</td>
<td>15 billion</td>
</tr>
<tr>
<td>June 17-25</td>
<td>Severe Weather</td>
<td>Western &amp; Central Europe</td>
<td>7</td>
<td>3.4 billion</td>
</tr>
<tr>
<td>February 13</td>
<td>Fukushima Earthquake</td>
<td>Japan</td>
<td>1</td>
<td>2.5 billion</td>
</tr>
<tr>
<td>April 27 – May 2</td>
<td>Severe Weather</td>
<td>United States</td>
<td>0</td>
<td>2.5 billion</td>
</tr>
<tr>
<td>March 24-26</td>
<td>Severe Weather</td>
<td>United States</td>
<td>6</td>
<td>1.3 billion</td>
</tr>
<tr>
<td>April 15-16</td>
<td>Severe Weather</td>
<td>United States</td>
<td>0</td>
<td>1.1 billion</td>
</tr>
<tr>
<td>June 17-21</td>
<td>Severe Weather</td>
<td>United States</td>
<td>1</td>
<td>1.1 billion</td>
</tr>
<tr>
<td>June 24-July 1</td>
<td>Severe Weather</td>
<td>United States</td>
<td>2</td>
<td>1.1 billion</td>
</tr>
<tr>
<td>June 28-30</td>
<td>Severe Weather</td>
<td>Central Europe</td>
<td>1</td>
<td>1.1 billion</td>
</tr>
<tr>
<td>March 27-29</td>
<td>Severe Weather</td>
<td>United States</td>
<td>8</td>
<td>1.0 billion</td>
</tr>
</tbody>
</table>

* Loss totals in billions USD and adjusted to today’s dollars using the U.S. Consumer Price Index.
Natural Perils

Loss Breakout by Peril

EXHIBIT 9: 1H 2020 Economic & Insured Losses by Peril (USD bn)

For the first time in the Catastrophe Insight database, the winter weather peril was the leading driver of economic losses during a six-month analysis. The more than USD34 billion in direct damage or net loss business interruption – driven by major events in the United States and Europe – represents the highest total ever recorded for the peril. Severe convective storm was another active peril during 1H 2021. The two perils accounted for 85 percent of global insured losses and were the only two above average perils for insurers. Tropical cyclone was the only other peril with above-average economic losses. This was driven by cyclones Yaas and Tauktae (India); Cyclone Seroja (Indonesia, Australia); and Tropical Storm Claudette (United States).

Cumulative Losses by Peril

EXHIBIT 10: 1H Cumulative Economic & Insured Loss by Peril (USD bn)

The cumulative charts in Exhibit 10 shows the earthquake peril as the costliest economic loss peril due to major events in Japan (2011 & 2016), China (2008), Chile (2010), and New Zealand (2011). For the insurance industry, however, the growth of the severe weather peril shows the continued acceleration in its annual loss cost.

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* Loss totals in billions USD and adjusted to today’s dollars using the U.S. Consumer Price Index.
Weather & Climate Anomalies: 1H 2021 Review

Daily station data from NOAA’s GHCN (Global Historical Climatology Network) allows us to visualize anomalous spatial and temporal global weather and climate trends during 1H 2021. It is important to note that while the GHCN dataset contains daily weather and climate observations from 180+ countries, the spatial and temporal coverage is not uniform and often skewed. The highest concentration of stations with the longest and most complete records are primarily located in the United States, western Europe, and Australia; with the lowest station concentrations in Africa and South America. The maps below indicate stations which tied or broke an all-time or monthly maximum or minimum temperature records and/or tied or broke a monthly total precipitation record during 1H 2021. The final dataset only included stations which had a total record of at least 30 years with 90 percent or higher data completeness during the most recent 30-year period.

EXHIBIT 11: All-time and monthly temperature records broken/tied in 1H 2021

For maximum temperatures, 190 unique stations tied or broke an all-time record during 1H 2021, of which 36 had a record length greater than 100 years. For minimum temperatures, 84 unique stations tied or broke an all-time record during 1H 2021, of which 26 had a record length greater than 100 years. Most of the all-time records were set in North America and tied to either the February Polar Vortex or the June Western North American Heat Wave.

EXHIBIT 12: Precipitation records broken/tied in 1H 2021

For precipitation, 241 unique stations tied or broke a cumulative monthly precipitation record during 1H 2021, of which 57 stations had a record length greater than 100 years and 7 reported a record in more than one month.
Analysis: How 1H Losses Evolve

As mentioned earlier in this document, the 1H 2021 economic and insured losses are to be considered preliminary and subject to change. This loss view is essentially a “snapshot in time” view of direct financial impacts from noted natural disaster events. As a rule, the full financial account of large-scale events can take months or years to completely settle. This happens for various reasons, including loss development (also known as “loss creep”), a delayed release of official damage assessments, claims litigation, or data reveals by various governmental or private sector agencies or companies on a quarterly or annual basis.

The Catastrophe Insight group puts a high emphasis on a constant historical “reanalysis”, which consists of revisiting, updating and adding historical events, or expanding the database to previously under-reported countries to ensure our analyses are based on the most robust and up-to-date data available.

For reference, this topic was addressed much more extensively in the Weather, Climate, and Catastrophe Insight: 2020 Annual Report.

The charts below show nominal economic & insured losses (not adjusted for inflation) as reported in previous Impact Forecasting’s 1H reports and visualizes how the estimates changed over time during the following years due to subsequent research and loss updates. The largest additions to the database in recent months featured estimates of underreported perils in countries such as Brazil or China. Underinsurance of those perils is also one of the reasons why there was no similar increase in terms of nominal insured loss. One of the significant changes in the database was also a split of several large multi-month drought or flood events, which were previously bucketed as 2H events, into 1H and 2H breakouts.

EXHIBIT 13: Updates of 1H Nominal Economic and Insured Loss (USD bn)
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 determined based on various public media sources, including news websites, publications from insurance companies, financial institution press releases, and official government agencies. Economic loss totals are separate from any available insured loss estimates. An insured loss is the portion of the economic loss covered by public or private insurance entities. In rare instances, specific events may include modeled loss estimates determined from utilizing Impact Forecasting’s suite of catastrophe model products.
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