

HTML CODE FOR NATURAL DISATSTER

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[illegible]

202.82z"></path></svg>Reuse our work freely<svg aria-hidden="true" focusable="false" data-prefix="fas" data-icon="book" class="svg-inline--fa fa-book " role="img" xmlns="http://www.w3.org/2000/svg" viewBox="0 0 448 512"><path fill="currentColor" d="M96 0C43 0 0 43 0 96V416c0 53 43 96 96 96H384h32c17.7 0 32-14.3 32-32s-14.3-32-32-32V384c17.7 0 32-14.3 32-32V32c0-17.7-14.3-32-32-32H384 96zm0 384H352v64H96c-17.7 0-32-14.3-32-32s14.3-32 32-32zm32-240c0-8.8 7.2-16 16-16H336c8.8 0 16 7.2 16 16s-7.2 16-16 16H144c-8.8 0-16-7.2-16-16zm16 48H336c8.8 0 16 7.2 16 16s-7.2 16-16 16H144c-8.8 0-16-7.2-16-16s7.2-16 16-16z"></path></svg>Cite this research</div></header></div><div class="content-wrapper"><div class="toc-wrapper"><aside class="entry-sidebar"><nav class="entry-toc">Natural Disasters<li class="section">Summary<li class="section">Natural disasters kill tens of thousands each year<li class="section">What share of deaths are from natural disasters?<li class="section">Number of deaths from natural disasters<li class="subsection">Annual deaths from natural disasters<li class="subsection">Average number of deaths by decade<li class="subsection">Number of deaths by type of natural disaster<li class="section">Injuries and displacement from disasters<li class="section">Natural disasters by type<li class="subsection">Earthquakes<li class="subsection">Volcanoes<li class="subsection">Landslides<li class="subsection">Famines & Droughts<li class="subsection">Hurricanes, Tornados, and Cyclones<li class="subsection">Extreme precipitation and flooding<li class="subsection"><a href="#extreme-temperature-heat-cold"

data-track-note="toc-link">Extreme Temperature (Heat & Cold)<li class="subsection">Wildfires<li class="subsection">Lightning<li class="section">Economic costs<li class="subsection">Global disaster costs<li class="subsection">Disaster costs by country<li class="section">Not all deaths are equal: How many deaths make a natural disaster newsworthy?<li class="section">Link between poverty and deaths from natural disasters<li class="section">Definitions & Metrics<li class="section">Data Quality<li class="section">Data Sources<li class="section">Endnotes<li class="section">Licence<li class="section">Citation</nav><div class="toggle-toc"><button data-track-note="page-toggle-toc" aria-label="Open table of contents"><svg aria-hidden="true" focusable="false" data-prefix="fas" data-icon="bars" class="svg-inline--fa fa-bars " role="img" xmlns="http://www.w3.org/2000/svg" viewBox="0 0 448 512"><path fill="currentColor" d="M0 96C0 78.3 14.3 64 32 64H416C416 64 448 96 448 128 448 160 416 192 32 192 32 224 416 224 416 256 448 288 448 320 416 320 384 416 416 416 448 416 448 448 416 448 384 416 416 352 416 320 320 320 288 320 256 320 224 320 192 320 160 320 128 320 96 320 64 320 32 32 32 0 32 0 32 32 32 64 32 96 32 128 32 160 32 192 32 224 32 256 32 288 32 320 32 352 32 384 32 416 32 448 32 480 32 512 32 544 32 576 32 608 32 640 32 672 32 704 32 736 32 768 32 800 32 832 32 864 32 896 32 928 32 960 32 992 32 1024 32 1056 32 1088 32 1120 32 1152 32 1184 32 1216 32 1248 32 1280 32 1312 32 1344 32 1376 32 1408 32 1440 32 1472 32 1504 32 1536 32 1568 32 1600 32 1632 32 1664 32 1696 32 1728 32 1760 32 1792 32 1824 32 1856 32 1888 32 1920 32 1952 32 1984 32 2016 32 2048 32 2080 32 2112 32 2144 32 2176 32 2208 32 2240 32 2272 32 2304 32 2336 32 2368 32 2400 32 2432 32 2464 32 2496 32 2528 32 2560 32 2592 32 2624 32 2656 32 2688 32 2720 32 2752 32 2784 32 2816 32 2848 32 2880 32 2912 32 2944 32 2976 32 3008 32 3040 32 3072 32 3104 32 3136 32 3168 32 3200 32 3232 32 3264 32 3296 32 3328 32 3360 32 3392 32 3424 32 3456 32 3488 32 3520 32 3552 32 3584 32 3616 32 3648 32 3680 32 3712 32 3744 32 3776 32 3808 32 3840 32 3872 32 3904 32 3936 32 3968 32 4000 32 4032 32 4064 32 4096 32 4128 32 4160 32 4192 32 4224 32 4256 32 4288 32 4320 32 4352 32 4384 32 4416 32 4448 32 4480 32 4512 32 4544 32 4576 32 4608 32 4640 32 4672 32 4704 32 4736 32 4768 32 4800 32 4832 32 4864 32 4896 32 4928 32 4960 32 4992 32 5024 32 5056 32 5088 32 5120 32 5152 32 5184 32 5216 32 5248 32 5280 32 5312 32 5344 32 5376 32 5408 32 5440 32 5472 32 5504 32 5536 32 5568 32 5600 32 5632 32 5664 32 5696 32 5728 32 5760 32 5792 32 5824 32 5856 32 5888 32 5920 32 5952 32 5984 32 6016 32 6048 32 6080 32 6112 32 6144 32 6176 32 6208 32 6240 32 6272 32 6304 32 6336 32 6368 32 6400 32 6432 32 6464 32 6496 32 6528 32 6560 32 6592 32 6624 32 6656 32 6688 32 6720 32 6752 32 6784 32 6816 32 6848 32 6880 32 6912 32 6944 32 6976 32 7008 32 7040 32 7072 32 7104 32 7136 32 7168 32 7200 32 7232 32 7264 32 7296 32 7328 32 7360 32 7392 32 7424 32 7456 32 7488 32 7520 32 7552 32 7584 32 7616 32 7648 32 7680 32 7712 32 7744 32 7776 32 7808 32 7840 32 7872 32 7904 32 7936 32 7968 32 8000 32 8032 32 8064 32 8096 32 8128 32 8160 32 8192 32 8224 32 8256 32 8288 32 8320 32 8352 32 8384 32 8416 32 8448 32 8480 32 8512 32 8544 32 8576 32 8608 32 8640 32 8672 32 8704 32 8736 32 8768 32 8800 32 8832 32 8864 32 8896 32 8928 32 8960 32 8992 32 9024 32 9056 32 9088 32 9120 32 9152 32 9184 32 9216 32 9248 32 9280 32 9312 32 9344 32 9376 32 9408 32 9440 32 9472 32 9504 32 9536 32 9568 32 9600 32 9632 32 9664 32 9696 32 9728 32 9760 32 9792 32 9824 32 9856 32 9888 32 9920 32 9952 32 9984 32 10016 32 10048 32 10080 32 10112 32 10144 32 10176 32 10208 32 10240 32 10272 32 10304 32 10336 32 10368 32 10400 32 10432 32 10464 32 10496 32 10528 32 10560 32 10592 32 10624 32 10656 32 10688 32 10720 32 10752 32 10784 32 10816 32 10848 32 10880 32 10912 32 10944 32 10976 32 11008 32 11040 32 11072 32 11104 32 11136 32 11168 32 11200 32 11232 32 11264 32 11296 32 11328 32 11360 32 11392 32 11424 32 11456 32 11488 32 11520 32 11552 32 11584 32 11616 32 11648 32 11680 32 11712 32 11744 32 11776 32 11808 32 11840 32 11872 32 11904 32 11936 32 11968 32 12000 32 12032 32 12064 32 12096 32 12128 32 12160 32 12192 32 12224 32 1225

disasters">Globally, disasters were responsible for 0.1% of deaths over the past decade. This was highly variable, ranging from 0.01% to 0.4%.Deaths from natural disasters have seen a large decline over the past century – from, in some years, millions of deaths per year to an average of 60,000 over the past decade.Historically, droughts and floods were the most fatal disaster events. Deaths from these events are now very low – the most deadly events today tend to be earthquakes.Disasters affect those in poverty most heavily: high death tolls tend to be centered in low-to-middle income countries without the infrastructure to protect and respond to events.

</div></div><div class="wp-block-column"><div class="wp-sticky-container"></div></div></div><div class="block-wrapper" data-reactroot=""><div data-variation="full-width" data-default-open="false" class="wp-block-owid-additional-information"><h3 class="additional-information_heading" data-track-note="additional-information-toggle"><svg aria-hidden="true" focusable="false" data-prefix="fas" data-icon="angle-right" class="svg-inline--fa fa-angle-right" role="img" xmlns="http://www.w3.org/2000/svg" viewBox="0 0 320 512"><path fill="currentColor" d="M278.6 233.4c12.5 12.5 12.5 32.8 0 45.3l-160 160c-12.5 12.5-32.8 12.5-45.3 0s-12.5-32.8 0-45.3l210.7 256 73.4 118.6c-12.5-12.5-12.5-32.8 0-45.3s32.8-12.5 45.3 0l160 160z"></path></svg>All our interactive charts on Natural Disasters</h3><div aria-hidden="true" class="rah-static rah-static--height-zero" style="height:0;overflow:hidden"><div style="transition:opacity 250ms ease 0ms;-webkit-transition:opacity 250ms ease 0ms;opacity:0"><div class="content">

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affected-by-natural-disasters">Global number affected by natural disasters<li class="">Global precipitation anomaly<li class="">Global reported natural disasters by type<li class="">Global weather disaster losses as a share of GDP<li class="">How many deaths does it take for a disaster in different continents to receive news coverage?<li class="">How many deaths does it take for a disaster to receive news coverage?<li class="">Hurricane landfalls in the United States<li class="">Intensity error<li class="">Largest confirmed impact craters on Earth by diameter<li class="">Near-Earth asteroids discovered over time<li class=""><img src="https://ourworldindata.org/grapher/exports/news-coverage-of-disasters.svg" loading="lazy" data-

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Click to open interactive version

</div>

</figure></div></div></div></section>

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76,64,142.76,142.76a142.17,142.17,0,0,1-24.13,79.43A27.47,27.47,0,0,1,239.76,234.78Z"
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Click to open interactive version

</div>

</figure></div></div></div></section>

<section><div class="section-heading"><div class="wrapper"><div><h2 id="number-of-deaths-from-natural-disasters">Number of deaths from natural disasters</h2></div><div class="in-this-section"><div class="label">In this section</div><div class="border"></div></div><ul class="subheadings"><svg aria-hidden="true" focusable="false" data-prefix="fas" data-icon="arrow-down" class="svg-inline--fa fa-arrow-down " role="img" xmlns="http://www.w3.org/2000/svg" viewBox="0 0 384 512"><path fill="currentColor" d="M169.4 470.6c12.5 12.5 32.8 12.5 45.3 0l160-160c12.5-12.5 12.5-32.8 0-45.3s-32.8-12.5-45.3 0L224 370.8 224 64c0-17.7-14.3-32-32-32s-32 14.3-32 32l0 306.7L54.6 265.4c-12.5-12.5-32.8-12.5-45.3 0s-12.5 32.8 0 45.3l160 160z"></path></svg>Annual deaths from natural disasters<svg aria-hidden="true" focusable="false" data-prefix="fas" data-icon="arrow-down" class="svg-inline--fa fa-arrow-down " role="img" xmlns="http://www.w3.org/2000/svg" viewBox="0 0 384 512"><path fill="currentColor" d="M169.4 470.6c12.5 12.5 32.8 12.5 45.3 0l160-160c12.5-12.5 12.5-32.8 0-45.3s-32.8-12.5-45.3 0L224 370.8 224 64c0-17.7-14.3-32-32-32s-32 14.3-32 32l0 306.7L54.6 265.4c-12.5-12.5-32.8-12.5-45.3 0s-12.5 32.8 0 45.3l160 160z"></path></svg>Average number of deaths by decade<svg aria-hidden="true" focusable="false" data-prefix="fas" data-icon="arrow-down" class="svg-inline--fa fa-arrow-down " role="img" xmlns="http://www.w3.org/2000/svg" viewBox="0 0 384 512"><path fill="currentColor" d="M169.4 470.6c12.5 12.5 32.8 12.5 45.3 0l160-160c12.5-12.5 12.5-32.8 0-45.3s-32.8-12.5-45.3 0L224 370.8 224 64c0-17.7-14.3-32-32-32s-32 14.3-32 32l0 306.7L54.6 265.4c-12.5-12.5-32.8-12.5-45.3 0s-12.5 32.8 0 45.3l160 160z"></path></svg>Number of deaths by type of natural disaster</div></div><h3 id="annual-deaths-from-natural-disasters">Annual deaths from natural disasters</h3><div class="wp-block-columns is-style-sticky-right"><div class="wp-block-column"><p>In the visualization shown here we see the long-term global trend in natural disaster deaths. This shows the estimated annual number of deaths from disasters from 1900 onwards from the EMDAT International Disaster Database. ¹</p><p>What we see is that in the early-to-mid 20th century, the annual death toll from disasters was high, often reaching over one million per year. In recent decades we have seen a substantial decline in deaths. In most years fewer than 20,000 die (and in the most

recent decade, this has often been less than 10,000). Even in peak years with high-impact events, the death toll has not exceeded 500,000 since the mid-1960s. </p><p>This decline is even more impressive when we consider the rate of population growth over this period. When we correct for population – showing this data in terms of death rates (measured per 100,000 people) – we see an even greater decline over the past century. This chart can be viewed here.</p><p>The annual number of deaths from natural disasters is also available by country since 1990. This can be explored in the interactive map.</p></div><div class="wp-block-column"><div class="wp-sticky-container"><figure data-explorer-src="https://ourworldindata.org/explorers/natural-disasters?facet=none&Disaster+Type=All+disasters&Impact=Deaths&Timespan=Annual&Per+capita=false&country=~OWID_WRL&hideControls=true" style="width: 100%; height: 600px; border: 0px none;"><div class="loading-indicator"></div></figure><figure data-explorer-src="https://ourworldindata.org/explorers/natural-disasters?tab=map&facet=none&Disaster+Type=All+disasters&Impact=Deaths&Timespan=Annual&Per+capita=false&country=~OWID_WRL&hideControls=true" style="width: 100%; height: 600px; border: 0px none;"><div class="loading-indicator"></div></figure></div></div></div><h3 id="average-number-of-deaths-by-decade">Average number of deaths by decade</h3><div class="wp-block-columns is-style-sticky-right"><div class="wp-block-column"><p>In the chart we show global deaths from natural disasters since 1900, but rather than reporting annual deaths, we show the annual average by decade. The data for this chart can be found in the table presented here.</p><p>As we see, over the course of the 20th century there was a significant decline in global deaths from natural disasters. In the early 1900s, the annual average was often in the range of 400,000 to 500,000 deaths. In the second half of the century and into the early 2000s, we have seen a significant decline to less than 100,000 – at least five times lower than these peaks.

This decline is even more impressive when we consider the rate of population growth over this period. When we correct for population – showing this data in terms of death rates (measured per 100,000 people) – then we see a more than 10-fold decline over the past century. This chart can be viewed here.</p></div><div class="wp-block-column"><div class="wp-sticky-container"><figure data-grapher-src="https://ourworldindata.org/grapher/decadal-deaths-disasters-type?country=OWID_WRL~" class="grapherPreview">

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</svg>

Click to open interactive version

</div>

</figure></div></div><h3 id="number-of-deaths-by-type-of-natural-disaster">Number of deaths by type of natural disaster</h3><div class="wp-block-columns is-style-sticky-right">

<div class="wp-block-column">

<p>With almost minute-by-minute updates on what's happening in the world, we are constantly reminded of the latest disaster. These stories are, of course, important but they do not give us a sense of how the toll of disasters has changed over time. </p>

<p>For most of us, it is hard to know whether any given year was a particularly deadly one in the context of previous years.</p>

p>To understand the devastating toll of disasters today, and in the past, we have built a Natural Disasters Data Explorer

which provides estimates of fatalities, displacement and economic damage for every country since 1900. This is based on data sourced from EM-DAT; a project that undertakes the important work of building these incredibly detailed histories of disasters.²

In this visualization I give a sense of how the global picture has evolved over the last century. It shows the estimated annual death toll – from all disasters at the followed by a breakdown by type. The size of the bubble represents the total death toll for that year.

I've labeled most of the years with the largest death tolls. This usually provokes the follow-up question: "Why? What event happened?". So I've also noted large-scale events that contributed to the majority – but not necessarily all – of the deaths in that year.

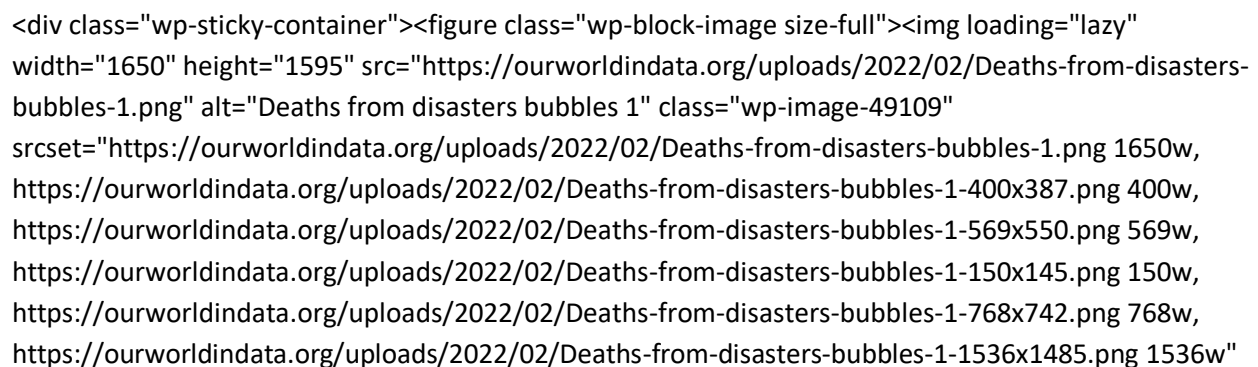
For example, the estimated global death toll from storms in 2008 was approximately 141,000. 138,366 of these deaths occurred in Cyclone Margis, which struck Myanmar, and is labeled on the chart.

What we see is that in the 20th century, it was common to have years where the death toll was in the millions. This was usually the result of major droughts or floods. Often these would lead to famines. My colleague Joe Hasell looks at the long history of famines [here](https://ourworldindata.org/famines).

Improved food security, resilience to other disasters, and better national and international responses mean that the world has not experienced death tolls of this scale in many decades. Famines today are usually driven by civil war and political unrest.

In most years, the death toll from disasters is now in the range of 10,000 to 20,000 people. In the most fatal years – which tend to be those with major earthquakes or cyclones – this can reach tens to hundreds of thousands.

This trend does not mean that disasters have become less frequent, for less intense. It means the world today is much better at preventing deaths from disasters than in the past. This will become increasingly important in our response and adaptation to [climate change](https://ourworldindata.org/climate-change).

A visualization showing the estimated annual death toll from disasters from 1900 to the present. The chart uses bubbles of varying sizes to represent the death toll for each year. The size of the bubble indicates the total death toll, and the position on the x-axis represents the year. The chart shows a significant increase in death tolls in the early 20th century, peaking in the 1940s and 1950s, followed by a decline and then a sharp increase in the late 20th century, peaking in the 1990s and 2000s. The chart is titled 'Deaths from disasters bubbles 1'.

sizes="(max-width: 1650px) 100vw, 1650px" data-high-res-
src="https://ourworldindata.org/uploads/2022/02/Deaths-from-disasters-bubbles-
1.png"></figure></div></div>

</div></section><section><div class="section-heading"><div class="wrapper"><div><h2 id="injuries-and-displacement-from-disasters">Injuries and displacement from disasters</h2></div></div></div><div class="wp-block-columns is-style-sticky-right"><div class="wp-block-column"><p>Human impacts from natural disasters are not fully captured in mortality rates. Injury, homelessness, and displacement can all have a significant impact on populations.</p><p>The visualisation below shows the number of people displaced internally (i.e. within a given country) from natural disasters. Note that these figures report on the basis of new cases of displaced persons: if someone is forced to flee their home from natural disasters more than once in any given year, they will be recorded only once within these statistics.</p><p>Interactive charts on the following global impacts are available using the links below:</p>Injuries: number of people injured is defined as “People suffering from physical injuries, trauma or an illness requiring immediate medical assistance as a direct result of a disaster.”Homelessness: number of people homeless is defined as “Number of people whose house is destroyed or heavily damaged and therefore need shelter after an event.”Affected: number of people affected is defined as “People requiring immediate assistance during a period of emergency, i.e. requiring basic survival needs such as food, water, shelter, sanitation and immediate medical assistance.”Total number affected: total number of people affected is defined as “the sum of the injured, affected and left homeless after a disaster.”</div><div class="wp-block-column"><div class="wp-sticky-container"><figure data-grapher-src="https://ourworldindata.org/grapher/internally-displaced-persons-from-disasters" class="grapherPreview">

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</svg>

Click to open interactive version

</div>

</figure></div></div></section><section><div class="section-heading"><div class="wrapper"><div><h2 id="natural-disasters-by-type">Natural disasters by type</h2></div><div class="in-this-section"><div class="label">In this section</div><div class="border"></div></div><ul class="subheadings"><svg aria-hidden="true" focusable="false" data-prefix="fas" data-icon="arrow-down" class="svg-inline--fa fa-arrow-down " role="img" xmlns="http://www.w3.org/2000/svg" viewBox="0 0 384 512"><path fill="currentColor" d="M169.4 470.6c12.5 12.5 32.8 12.5 45.3 0l160-160c12.5-12.5 12.5-32.8 0-45.3s-32.8-12.5-45.3 0l224 370.8 224 64c0-17.7-14.3-32-32-32s-32 14.3-32 32l0 306.7l54.6 265.4c-12.5-12.5-32.8-12.5-45.3 0s-12.5 32.8 0 45.3l160 160z"/></path></svg>Earthquakes<svg aria-hidden="true" focusable="false" data-prefix="fas" data-icon="arrow-down" class="svg-inline--fa fa-arrow-down " role="img" xmlns="http://www.w3.org/2000/svg" viewBox="0 0 384 512"><path fill="currentColor" d="M169.4 470.6c12.5 12.5 32.8 12.5 45.3 0l160-160c12.5-12.5 12.5-32.8 0-45.3s-32.8-12.5-45.3 0l224 370.8 224 64c0-17.7-14.3-32-32-32s-32 14.3-32 32l0 306.7l54.6 265.4c-12.5-12.5-32.8-12.5-45.3 0s-12.5 32.8 0 45.3l160 160z"/></path></svg>Volcanoes<a

[<svg aria-hidden="true" focusable="false" data-prefix="fas" data-icon="arrow-down" class="svg-inline--fa fa-arrow-down" role="img" xmlns="http://www.w3.org/2000/svg" viewBox="0 0 384 512"><path fill="currentColor" d="M169.4 470.6c12.5 12.5 32.8 12.5 45.3 0l160-160c12.5-12.5 12.5-32.8 0-45.3s-32.8-12.5-45.3 0l224 370.8 224 64c0-17.7-14.3-32-32-32s-32 14.3-32 32l0 306.7l54.6 265.4c-12.5-12.5-32.8-12.5-45.3 0s-12.5 32.8 0 45.3l160 160z"></path></svg>Landslides<svg aria-hidden="true" focusable="false" data-prefix="fas" data-icon="arrow-down" class="svg-inline--fa fa-arrow-down" role="img" xmlns="http://www.w3.org/2000/svg" viewBox="0 0 384 512"><path fill="currentColor" d="M169.4 470.6c12.5 12.5 32.8 12.5 45.3 0l160-160c12.5-12.5 12.5-32.8 0-45.3s-32.8-12.5-45.3 0l224 370.8 224 64c0-17.7-14.3-32-32-32s-32 14.3-32 32l0 306.7l54.6 265.4c-12.5-12.5-32.8-12.5-45.3 0s-12.5 32.8 0 45.3l160 160z"></path></svg>Famines & Droughts<svg aria-hidden="true" focusable="false" data-prefix="fas" data-icon="arrow-down" class="svg-inline--fa fa-arrow-down" role="img" xmlns="http://www.w3.org/2000/svg" viewBox="0 0 384 512"><path fill="currentColor" d="M169.4 470.6c12.5 12.5 32.8 12.5 45.3 0l160-160c12.5-12.5 12.5-32.8 0-45.3s-32.8-12.5-45.3 0l224 370.8 224 64c0-17.7-14.3-32-32-32s-32 14.3-32 32l0 306.7l54.6 265.4c-12.5-12.5-32.8-12.5-45.3 0s-12.5 32.8 0 45.3l160 160z"></path></svg>Hurricanes, Tornados, and Cyclones<svg aria-hidden="true" focusable="false" data-prefix="fas" data-icon="arrow-down" class="svg-inline--fa fa-arrow-down" role="img" xmlns="http://www.w3.org/2000/svg" viewBox="0 0 384 512"><path fill="currentColor" d="M169.4 470.6c12.5 12.5 32.8 12.5 45.3 0l160-160c12.5-12.5 12.5-32.8 0-45.3s-32.8-12.5-45.3 0l224 370.8 224 64c0-17.7-14.3-32-32-32s-32 14.3-32 32l0 306.7l54.6 265.4c-12.5-12.5-32.8-12.5-45.3 0s-12.5 32.8 0 45.3l160 160z"></path></svg>Extreme precipitation and flooding<svg aria-hidden="true" focusable="false" data-prefix="fas" data-icon="arrow-down" class="svg-inline--fa fa-arrow-down" role="img" xmlns="http://www.w3.org/2000/svg" viewBox="0 0 384 512"><path fill="currentColor" d="M169.4 470.6c12.5 12.5 32.8 12.5 45.3 0l160-160c12.5-12.5 12.5-32.8 0-45.3s-32.8-12.5-45.3 0l224 370.8 224 64c0-17.7-14.3-32-32-32s-32 14.3-32 32l0 306.7l54.6 265.4c-12.5-12.5-32.8-12.5-45.3 0s-12.5 32.8 0 45.3l160 160z"></path></svg>Extreme Temperature \(Heat & Cold\)<svg aria-hidden="true" focusable="false" data-prefix="fas" data-icon="arrow-down" class="svg-inline--fa fa-arrow-down" role="img" xmlns="http://www.w3.org/2000/svg" viewBox="0 0 384 512"><path fill="currentColor" d="M169.4 470.6c12.5 12.5 32.8 12.5 45.3 0l160-160c12.5-12.5 12.5-32.8 0-45.3s-32.8-12.5-45.3 0l224 370.8 224 64c0-17.7-14.3-32-32-32s-32 14.3-32 32l0 306.7l54.6 265.4c-12.5-12.5-32.8-12.5-45.3 0s-12.5 32.8 0 45.3l160 160z"></path></svg>Wildfires<svg aria-hidden="true" focusable="false" data-prefix="fas" data-icon="arrow-down" class="svg-inline--fa fa-arrow-down" role="img" xmlns="http://www.w3.org/2000/svg" viewBox="0 0 384 512"><path fill="currentColor" d="M169.4 470.6c12.5 12.5 32.8 12.5 45.3 0l160-160c12.5-12.5 12.5-32.8 0-45.3s-32.8-12.5-45.3 0l224 370.8 224 64c0-17.7-14.3-32-32-32s-32 14.3-32 32l0 306.7l54.6 265.4c-12.5-12.5-32.8-12.5-45.3 0s-12.5 32.8 0 45.3l160 160z"></path></svg>Lightning</div></div><h3 id="earthquakes">Earthquakes</h3><div class="wp-](#landslides)

block-columns is-style-sticky-right"><div class="wp-block-column"><h4 id="earthquake-events">Earthquake events</h4></div><div class="wp-block-column"><div class="wp-sticky-container"></div></div></div><div class="wp-block-columns is-style-sticky-right"><div class="wp-block-column"><p>Earthquake events occur across the world every day. The US Geological Survey (USGS) tracks and reports global earthquakes, with (close to) real-time updates which you can find here.</p><p>However, the earthquakes which occur most frequently are often too small to cause significant damage (whether to human life, or in economic terms).</p><p>In the chart below we show the long history of known earthquakes classified by the National Geophysical Data Center (NGDC) of the NOAA as ‘significant’ earthquakes. Significant earthquakes are those which are large enough to cause notable damage. They must meet at least one of the following criteria: caused deaths, moderate damage (\$1 million or more), magnitude 7.5 or greater, Modified Mercalli Intensity (MMI) X or greater, or generated a tsunami.</p><p>Available data — which you can explore in the chart below — extends back to 2150 BC. But we should be aware that most recent records will be much more complete than our long-run historic estimates. An increase in the number of recorded earthquakes doesn’t necessarily mean this was the true trend over time. By clicking on a country in the map below, you can view it’s full series of known significant earthquakes.</p></div><div class="wp-block-column"><div class="wp-sticky-container"><figure data-grapher-src="https://ourworldindata.org/grapher/significant-earthquakes" class="grapherPreview">

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76,64,142.76,142.76a142.17,142.17,0,0,1-24.13,79.43A27.47,27.47,0,0,1,239.76,234.78Z"
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Click to open interactive version

</div>

</figure></div></div></div><div class="wp-block-columns is-style-sticky-right"><div class="wp-block-column"><h4 id="deaths-from-earthquakes">Deaths from earthquakes</h4></div><div class="wp-block-column"><div class="wp-sticky-container"></div></div></div><div class="wp-block-columns is-style-sticky-right"><div class="wp-block-column"><p>Alongside estimates of the number of earthquake events, the National Geophysical Data Center (NGDC) of the NOAA also publish estimates of the number of deaths over this long-term series. In the chart below we see the estimated mortality numbers from 2000 BC through to 2017.</p><p>These figures can be found for specific countries using the “change country” function in the bottom-left of the chart, or by selecting the “map” on the bottom-right.</p><p>At the global level we see that earthquake deaths have been a persistent human risk through time.</p></div><div class="wp-block-column"><div class="wp-sticky-container"><figure data-grapher-src="https://ourworldindata.org/grapher/earthquake-deaths" class="grapherPreview">

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<tr class="row-1 odd">

<th class="column-1">Ranking</th><th class="column-2">Location</th><th class="column-3">Year</th><th class="column-4">Estimated death toll</th><th class="column-5">Earthquake magnitude </th><th class="column-6">Additional information</th>

</tr>

</thead>

<tbody class="row-hover">

<tr class="row-2 even">

<td class="column-1">1</td><td class="column-2">Shaanxi, China</td><td class="column-3">1556</td><td class="column-4">830,000</td><td class="column-5">8</td><td class="column-6">More than 97 counties in China were affected. A 520-mile wide area destroyed. In some counties it's estimated that up to 60% of the population died. Such catastrophic losses are attributed to loess cave settlements, which collapsed as a result.</td>

</tr>

<tr class="row-3 odd">

<td class="column-1">2</td><td class="column-2">Port-au-Prince, Haiti</td><td class="column-3">2010</td><td class="column-4">316,000</td><td class="column-5">7</td><td class="column-6">Death toll is still disputed. Here we present the adopted figure by the NGDC of the NOAA (for consistency with other earthquakes); this is the figure————— reported by the Haitian government. Some sources suggest a lower figure of 220,000. In the latter case, this event would fall to 7th place in the above rankings.</td>

</tr>

<tr class="row-4 even">

3	Antakya, Turkey	115	260,000	7.5	Antioch (ancient ruins which lie near the modern city Antakya) and surrounding areas suffered severe damage. Apamea was also destroyed and Beirut suffered severe damage. A local tsunami was triggered causing damage to the coast of Lebanon.
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4	Antakya, Turkey	525	250,000	7	Severe damage to the area of the Byzantine Empire. The earthquake caused severe damage to many buildings. However, severe damage was also caused by fires in the aftermath combined with strong wind.
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5	Tangshan, China	1976	242,769	7.5	Reported that the earthquake risk had been greatly underestimated meaning almost all buildings and structures were designed and built without seismic considerations. Estimated that up to 85% of buildings collapsed . Tangshan therefore large comprised of unreinforced brick buildings which resulted in a large death toll.
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6	Gyzndzha, Azerbaijan	1139	230,000	Unknown	Often termed the Ganja earthquake . Much less is documented on the specific details of this event.
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<td class="column-1">7</td><td class="column-2">Sumatra, Indonesia</td><td class="column-3">2004</td><td class="column-4">227,899</td><td class="column-5">9.1</td><td class="column-6">Earthquake in Indian Ocean off the coast of Sumatra resulted in a series of large tsunamis (ranging 15 to 30 metres in height). Victims across 14 countries in the regions with Indonesia being the hardest-hit, followed by Sri Lanka, India and Thailand. There was no tsunami warning system in place.</td>

</tr>

<tr class="row-9 odd">

<td class="column-1">8</td><td class="column-2">Damghan, Iran</td><td class="column-3">856</td><td class="column-4">200,000</td><td class="column-5">7.9</td><td class="column-6">Estimated that extent of the damage area was 220 miles long. It's also hypothesised that the ancient city of Šahr-e Qumis was so badly damaged that it was abandoned after the earthquake.</td>

</tr>

<tr class="row-10 even">

<td class="column-1">8</td><td class="column-2">Gansu, China</td><td class="column-3">1920</td><td class="column-4">200,000</td><td class="column-5">8.3</td><td class="column-6">Damage occurred across 7 provinces and regions. In some cities almost all buildings collapsed, or were buried by landslides. It was reported that additional deaths occurred due to cold exposure: fear from aftershocks meant survivors tried to rely only on temporary shelters which were unsuitable for the harsh winter.</td>

</tr>

<tr class="row-11 odd">

<td class="column-1">9</td><td class="column-2">Dvin, Armenia</td><td class="column-3">893</td><td class="column-4">150,000</td><td class="column-5">Unknown</td><td class="column-6">City of Dvin was destroyed, with the collapse of most buildings, defensive walls and palaces; estimated that only 100 buildings were left standing. With its city defences ruined, Dvin was taken over and turned into a military base by Muhammad ibn Abi'l-Saj, the Sajid emir of Adharbayjan.</td>

</tr>

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</svg>

Click to open interactive version

</div>

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significant volcanic eruptions across the world. Using the timeline on the map we can see the frequency
of volcanic activity deaths over time.

If we look at deaths over the past century we see several
high-impact events: the Nevado del Ruiz
eruption in Colombia in 1985; the Mount Pelée eruption in Martinique in 1902; and 1883 eruption of Krakatoa in
Indonesia.</p></div><div class="wp-block-column"><div class="wp-sticky-container"><figure data-
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</figure></div></div></div><h3 id="landslides">Landslides<a class="deep-link"
href="#landslides"></a></h3><div class="wp-block-columns is-style-sticky-right"><div class="wp-block-
column"><p>This visualization – sourced from the NASA Socioeconomic Data And Applications Center
(SEDAC) – shows the distribution of mortality risk from landslides across the world.<br><br>As we would
expect, the risks of landslides are much greater close to highly mountainous regions with dense
neighbouring populations. This makes the mortality risk highest across the Andes region in South
America, and the Himalayas across Asia.</p></div><div class="wp-block-column"><div class="wp-sticky-
container"><div class="wp-block-image"><figure class="aligncenter"><figcaption>Global landslide mortality risk distribution –&nbsp;SEDAC
(NASA)<a id="ref-7" class="ref" href="#note-
7"><sup>7</sup></a></figcaption></figure></div></div></div></div><h3 id="famines-
droughts">Famines & Droughts<a class="deep-link" href="#famines-droughts"></a></h3><div
```

class="wp-block-columns is-style-sticky-right"><div class="wp-block-column"><p>We cover the history of Famines in detail in our dedicated entry here. For this research we assembled a new global dataset on famines from the 1860s until 2016.</p><p>In the visualization shown here we see trends in drought severity in the United States. Given is the annual data of drought severity, plus the 9-year average.

This is measured by the The Palmer Drought Severity Index: the average moisture conditions observed between 1931 and 1990 at a given location is given an index value of zero. A positive value means conditions are wetter than average, while a negative value is drier than average. A value between -2 and -3 indicates moderate drought, -3 to -4 is severe drought, and -4 or below indicates extreme drought.</p></div><div class="wp-block-column"><div class="wp-sticky-container"><figure data-grapher-src="https://ourworldindata.org/grapher/drought-severity-index-us" class="grapherPreview">

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</svg>

Click to open interactive version

</div>

</figure></div></div></div><h3 id="hurricanes-tornados-and-cyclones">Hurricanes, Tornados, and Cyclones</h3><div class="wp-block-columns is-style-sticky-right"><div class="wp-block-column"><h4 id="long-term-trends-in-deaths-from-us-weather-events">Long-term trends in deaths from US weather events</h4></div><div class="wp-block-column"><div class="wp-sticky-container"></div></div></div><div class="wp-block-columns is-style-sticky-right"><div class="wp-block-column"><p>Trends in the US provide some of the most complete data on impacts and deaths from weather events over time.

This chart shows death rates from lightning and other weather events in the United States over time. Death rates are given as the number of deaths per million individuals. Over this period, we see that on average each has seen a significant decline in death rates. This is primarily the result of improved infrastructure, predicted and response systems to disaster events.</p></div><div class="wp-block-column"><div class="wp-sticky-container"><figure data-grapher-src="https://ourworldindata.org/grapher/fatality-rates-in-the-us-due-to-weather-events" class="grapherPreview">

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Click to open interactive version

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</figure></div></div></div><div class="wp-block-columns is-style-sticky-right"><div class="wp-block-column"><h4 id="intensity-of-north-atlantic-hurricanes">Intensity of North Atlantic Hurricanes</h4></div><div class="wp-block-column"><div class="wp-sticky-container"></div></div></div><div class="wp-block-columns is-style-sticky-right"><div class="wp-block-column"><p>A key metric for assessing hurricane severity is their intensity, and the power they carry.

The visualizations here use two metrics to define this: the accumulated cyclone energy (ACE), an index that measures the activity of a cyclone season; and the power dissipation index of cyclones.</p></div><div class="wp-block-column"><div class="wp-sticky-container"></div></div></div><div class="wp-block-columns is-style-side-by-side"><div class="wp-block-column"><figure data-grapher-src="https://ourworldindata.org/grapher/ace-north-atlantic-hurricanes" class="grapherPreview">

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</svg>

Click to open interactive version

</div>

</figure></div></div><h3 id="extreme-precipitation-and-flooding">Extreme precipitation and flooding</h3><div class="wp-block-columns is-style-sticky-right"><div class="wp-block-column"><h4 id="precipitation-anomalies">Precipitation anomalies</h4></div><div class="wp-block-column"><div class="wp-sticky-container"></div></div></div><div class="wp-block-columns is-style-sticky-right"><div class="wp-block-column"><p>In the visualization shown we see the global precipitation anomaly each year; trends in the US-specific anomaly can be found <a href="https://ourworldindata.org/grapher/precipitation-

anomaly">here. </p><p>This precipitation anomaly is measured relative to the century average from 1901 to 2000. Positive values indicate a wetter year than normal; negative values indicate a drier year.</p><p>Also shown is US-specific data on the share of land area which experiences unusually high precipitation in any given year. </p></div><div class="wp-block-column"><div class="wp-sticky-container"></div></div><div class="wp-block-columns is-style-side-by-side"><div class="wp-block-column"><figure data-grapher-src="https://ourworldindata.org/grapher/global-precipitation-anomaly" class="grapherPreview">

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Click to open interactive version

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</div>

</figure></div></div></div><h3 id="extreme-temperature-heat-cold">Extreme Temperature (Heat & Cold)</h3><div class="wp-block-columns is-style-sticky-right"><div class="wp-block-column"><p>Extreme temperature risks to human health and mortality can result from both exposure to extreme heat and cold.</p></div><div class="wp-block-column"><div class="wp-sticky-container"></div></div></div><div class="wp-block-columns is-style-sticky-right"><div class="wp-block-column"><h4 id="heatwaves-and-high-temperatures">Heatwaves and high temperatures</h4></div><div class="wp-block-column"><div class="wp-sticky-container"></div></div></div><div class="wp-block-columns is-style-sticky-right"><div class="wp-block-column"><p>In the visualizations shown here we see long-term data on heatwaves and unusually high temperatures in the United States.</p><p>Overall we see there is significant year-to-year variability in the extent of heatwave events. What stands out over the past century of data was the 1936 North American heatwave – one of the most extreme heat wave events in modern history, which coincided with the Great Depression and Dust Bowl of the 1930s.

When we look at the trajectory of unusually high

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</figure></div></div><div class="wp-block-columns is-style-sticky-right"><div class="wp-block-column"><h4 id="cold-temperatures">Cold temperatures</h4></div><div class="wp-block-column"><div class="wp-sticky-container"></div></div></div><div class="wp-block-columns is-style-sticky-right"><div class="wp-block-column"><p>Whilst we often focus on heatwave and warm temperatures in relation to weather extremes, extremely low temperatures can often have a high toll on human health and mortality.

In the visualization here we show trends in the share of US land area experiencing unusually low winter temperatures. In recent years there appears to have been a declining trend in the extent of the US experiencing particularly cold winters.</p></div><div class="wp-block-column"><div class="wp-sticky-container"><figure data-grapher-src="https://ourworldindata.org/grapher/low-winter-temps-usa" class="grapherPreview">

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</svg>

Click to open interactive version

</div>

</figure></div></div></div><h3 id="wildfires">Wildfires</h3><div class="wp-block-columns is-style-sticky-right"><div class="wp-block-column"><h4 id="us-wildfires">US Wildfires</h4></div><div class="wp-block-column"><div class="wp-sticky-container"></div></div></div><div class="wp-block-columns is-style-sticky-right"><div class="wp-block-column"><p>How are the frequency and extent of wildfires in the United States changing over time?</p><p>In the charts below we provide three overviews: the number of wildfires, the total acres burned, and the average acres burned per wildfire. This data is shown from 1983 onwards, when comparable data recording began.</p><p>Over the past 30-35 years we notice three general trends in the charts below (although there is significant year-to-year variability):</p>on average, the annual number of wildfires has not changed much;on average, the total acres burned has increased from the 1980s and 1990s into the 21st century;the combination of these two factors suggest that the average acres burned *per wildfire* has increased.<p>There has been significant media coverage of the long-run statistics of US wildfires reported by the National Interagency Fire Center (NIFC). The original statistics are available back to the year 1926. When we look at this long-term series it suggests there has been a significant decline in acres burned over the past century. However, the NIFC explicitly state:</p><blockquote class="wp-block-quote"><p>Prior to 1983, sources of these figures are not known, or cannot be confirmed, and were not derived from the current situation reporting process. As a result the figures prior to 1983 should not be compared to later data.</p></blockquote><p>Representatives from the NIFC have again confirmed (see the Carbon Brief's

coverage **here) that these historic statistics are not comparable to those since 1983. The lack of reliable methods of measurement and reporting mean some historic statistics may in fact be double or triple-counted in national statistics.</p><p>This means we cannot compare the recent data below with old, historic records. But it also doesn't confirm that acres burned today are higher than the first half of the 20th century. Historically, fires were an <a rel="noopener noreferrer"**

href="https://www.fs.fed.us/research/sustain/docs/national-reports/2003/data/documents/Indicator%2015/Indicator%2015.pdf" target="_blank">often-used method of clearing land for agriculture, for example. It's not implausible to expect that wildfires of the past may have been larger than today but the available data is not reliable enough to confirm this.</p></div><div class="wp-block-column"><div class="wp-sticky-container"></div></div></div><div class="wp-block-columns is-style-side-by-side"><div class="wp-block-column"><figure data-grapher-src="https://ourworldindata.org/grapher/wildfire-numbers-usa" class="grapherPreview">

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</svg>

Click to open interactive version

</div>

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Click to open interactive version

</div>

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</svg>

Click to open interactive version

</div>

</figure></div></div><div class="wp-block-column"></div></div><h3 id="lightning">Lightning</h3><div class="wp-block-columns is-style-sticky-right"><div class="wp-block-column"><h4 id="long-term-trends-in-us-lightning-strikes">Long-term trends in US lightning strikes</h4></div><div class="wp-block-column"><div class="wp-sticky-container"></div></div></div><div class="wp-block-columns is-style-sticky-right"><div class="wp-block-column"><p>This chart shows the declining death rate due to lightning strikes in the US.

In the first decade of the 20th century the average annual rate of deaths was 4.5 per million people in the US. In the first 15 years of the 21st century the death rate had declined to an average of 0.12 deaths per million. This is a 37-fold reduction in the likelihood of being killed by lightning in the US.</p></div><div class="wp-block-column"><div class="wp-sticky-container"><figure data-grapher-src="https://ourworldindata.org/grapher/fatality-rates-due-to-lightning-in-the-us" class="grapherPreview">

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https://ourworldindata.org/uploads/2014/06/ourworldindata_world-map-of-frequency-of-lightning-strikes—wikipedia-nasa-data0.png 1290w" sizes="(max-width: 750px) 100vw, 750px" data-high-res-src="https://ourworldindata.org/uploads/2014/06/ourworldindata_world-map-of-frequency-of-lightning-strikes—wikipedia-nasa-data0.png"><figcaption>World map of frequency of lightning strikes – Wikipedia (NASA data)⁸</figcaption></figure></div></div></div><section><div class="section-heading"><div class="wrapper"><div><h2 id="economic-costs">Economic costs</h2></div><div class="in-this-section"><div class="label">In this section</div><div class="border"></div></div><ul class="subheadings"><svg aria-hidden="true" focusable="false" data-prefix="fas" data-icon="arrow-down" class="svg-inline--fa fa-arrow-down" role="img" xmlns="http://www.w3.org/2000/svg" viewBox="0 0 384 512"><path fill="currentColor" d="M169.4 470.6c12.5 12.5 32.8 12.5 45.3 0l160-160c12.5-12.5 12.5-32.8 0-45.3s-32.8-12.5-45.3 0l224 370.8 224 64c0-17.7-14.3-32-32-32 14.3-32 32-32 32-32l0 306.7l54.6 265.4c-12.5-12.5-32.8-12.5-45.3 0s-12.5 32.8 0 45.3l160 160z"></path></svg>Global disaster costs<svg aria-hidden="true" focusable="false" data-prefix="fas" data-icon="arrow-down" class="svg-inline--fa fa-arrow-down" role="img" xmlns="http://www.w3.org/2000/svg" viewBox="0 0 384 512"><path fill="currentColor" d="M169.4 470.6c12.5 12.5 32.8 12.5 45.3 0l160-160c12.5-12.5 12.5-32.8 0-45.3s-32.8-12.5-45.3 0l224 370.8 224 64c0-17.7-14.3-32-32-32 14.3-32 32-32 32-32l0 306.7l54.6 265.4c-12.5-12.5-32.8-12.5-45.3 0s-12.5 32.8 0 45.3l160 160z"></path></svg>Disaster costs by country</div></div><h3 id="global-disaster-costs">Global disaster costs</h3><div class="wp-block-columns is-style-sticky-right"><div class="wp-block-column"><p>Natural disasters not only have devastating impacts in terms of the loss of human life, but can also cause severe destruction with economic costs.

When we look at global economic costs over time in absolute terms we tend to see rising costs. But, importantly, the world – and most countries – have also gotten richer. Global gross domestic product has increased more than four-fold since 1970. We might therefore expect that for any given disaster, the absolute economic costs could be higher than in the past. </p><p>A more appropriate metric to compare economic costs over time is to look at them in relation to GDP. This is the indicator adopted by all countries as part of the UN Sustainable Development Goals to monitor progress on resilience to disaster costs.

In the chart shown here we see global direct disaster losses given as a share of GDP. There is notable year-to-year variability in costs – ranging from 0.15% to 0.5% of global GDP. In recent decades there has been no clear trending increase in damages when we take account of economic growth over this period.</p><p>This is also true when we look at damages specifically for weather-related disasters. This trend in damages relative to global GDP is also shown in the interactive chart. </p></div><div class="wp-

block-column"><div class="wp-sticky-container"></div></div></div><div class="wp-block-columns is-style-side-by-side"><div class="wp-block-column"><figure data-grapher-src="https://ourworldindata.org/grapher/global-disaster-losses-gdp-share" class="grapherPreview">

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</svg>

Click to open interactive version

</div>

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</svg>

Click to open interactive version

</div>

</figure></div></div><h3 id="disaster-costs-by-country">Disaster costs by country</h3><div class="wp-block-columns is-style-sticky-right"><div class="wp-block-column"><p>Since economic losses from disasters in relation to GDP is the indicator adopted by all countries within the UN Sustainable Development Goals, this data is also now reported for each country.

The map shows direct disaster costs for each country as a share of its GDP. Here we see large variations by country – a 100-fold difference ranging from less than 0.05% to 5%. This data can be found in absolute terms here. </p></div><div class="wp-block-column"><div class="wp-sticky-container"><figure data-grapher-src="https://ourworldindata.org/grapher/direct-disaster-loss-as-a-share-of-gdp" class="grapherPreview">

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</svg>

Click to open interactive version

</div>

</figure></div></div></div></section> <section><div class="section-heading"><div class="wrapper"><div><h2 id="not-all-deaths-are-equal-how-many-deaths-make-a-natural-disaster-newsworthy">Not all deaths are equal: How many deaths make a natural disaster newsworthy?</h2></div></div></div><div class="wp-block-columns is-style-sticky-right"><div class="wp-block-column"><p>How many deaths does it take for a natural disaster to be newsworthy?</p><p>This is a question researchers Thomas Eisensee and David Strömberg asked in a 2007 study.⁹ </p><p>The two authors found that for every person killed by a volcano, nearly 40,000 people have to die of a food shortage to get the same probability of coverage in US televised news.¹⁰ </p></div><div class="wp-block-column"><div class="wp-sticky-container"></div></div></div><div class="wp-block-columns is-style-sticky-right"><div class="wp-block-column"><h4 id="the-type-of-disaster-matters">The type of disaster matters</h4></div><div class="wp-block-column"><div class="wp-sticky-container"></div></div></div><div class="wp-block-columns is-style-sticky-right"><div class="wp-block-column"><p>In other words, the type of disaster matters to how newsworthy networks find it to be. The visualizations show the extent of this observed “news effect”. The chart shows the proportion of each type of disaster that receives news coverage, and the second shows the “casualties ratio”, which tells us—all else equal—how many casualties would make media coverage equally likely for each type of disaster.</p></div><div class="wp-block-column"><div class="wp-sticky-

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Click to open interactive version

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</svg>

Click to open interactive version

</div>

</figure></div></div><div class="wp-block-columns is-style-sticky-right"><div class="wp-block-column"><p>The study, which primarily set out to examine mass media’s influence on US natural disaster response, considered over 5,000 natural disasters¹¹ and 700,000 news stories from the major US national broadcast networks (ABC, CBS, NBC, and CNN) between 1968 and 2002. </p><p>The findings tells us, among other important things, that networks tend to be selective in their coverage and attention is not reflecting the severity and number of people killed or affected by a natural disaster.
</p><p>Instead of considering the objective damage caused by natural disasters, networks tend to look for disasters that are “rife with drama”, as one New York Times article put it¹²—hurricanes, tornadoes, forest fires, earthquakes all make for splashy headlines and captivating visuals. </p><p>Thanks to this selectivity, less “spectacular” but often times more deadly natural disasters tend to get passed over. Food shortages, for example, result in the most casualties and affect the most people per incident¹³ but their onset is more gradual than that of a volcanic explosion or sudden earthquake. As a result, food shortages are covered only 3% of the time while a comparatively indulgent

30% of earthquakes and volcanic events get their time in the spotlight. </p><p>Additionally, when the researchers “hold all else equal” by controlling for factors such as yearly trends in news intensity and the number of people killed and affected, the difference in coverage is even more pronounced.</p><p>This bias for the spectacular is not only unfair and misleading, but also has the potential to misallocate attention and aid. Disasters that happen in an instant leave little time for preventative intervention. On the other hand, the gradual disasters that tend to affect more lives build up slowly, allowing more time for preventative measures to be taken. However, in a Catch-22 situation, the gradual nature of these calamities is also what prevents them from garnering the media attention they deserve.</p></div><div class="wp-block-column"><div class="wp-sticky-container"></div></div><div class="wp-block-columns is-style-sticky-right"><div class="wp-block-column"><h4 id="and-the-location-of-the-disaster-matters-too">And the location of the disaster matters too</h4></div><div class="wp-block-column"><div class="wp-sticky-container"></div></div></div><div class="wp-block-columns is-style-sticky-right"><div class="wp-block-column"><p>There are other biases, too. Eisensee and Strömberg found that while television networks cover more than 15% of the disasters in Europe and South Central America, they show less than 5% of the disasters in Africa and the Pacific. Disasters in Africa tend to get less coverage than ones in Asia because they are less “spectacular”, with more droughts and food shortages occurring there relative to Asia. </p><p>However, after controlling for disaster type, along with other factors such as the number killed and the timing of the news, there is no significant difference between coverage of African and Asian disasters. Instead, a huge difference emerges between coverage of Africa, Asia, and the Pacific on the one hand, and Europe and South and Central America, on the other. </p><p>According to the researchers’ estimates, 45 times as many people would have to die in an African disaster for it to garner the same media attention as a European one. The two visualizations show the extent of this bias.</p><p>ABC News’s slogan is “See the whole picture” and CNN’s is “Go there”, but good follow-up questions might be: what exactly, and where?
</p></div><div class="wp-block-column"><div class="wp-sticky-container"></div></div></div><div class="wp-block-columns is-style-side-by-side"><div class="wp-block-column"><figure data-grapher-src="https://ourworldindata.org/grapher/news-coverage-of-disasters-by-continent" class="grapherPreview">

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76,64,142.76,142.76a142.17,142.17,0,0,1-24.13,79.43A27.47,27.47,0,0,1,239.76,234.78Z"
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</a>
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</figure></div><div class="wp-block-column"><figure data-grapher-
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</svg>

Click to open interactive version

</div>

</figure></div></div></section><div class="section-heading"><div class="wrapper"><div><h2 id="link-between-poverty-and-deaths-from-natural-disasters">Link between poverty and deaths from natural disasters</h2></div></div><div class="wp-block-columns is-style-sticky-right"><div class="wp-block-column"><p>One of the major successes over the past century has been the dramatic decline in global deaths from natural disasters – this is despite the fact that the human population has increased rapidly over this period.</p><p>Behind this improvement has been the improvement in living standards; access to and development of resilient infrastructure; and effective response systems. These factors have been driven by an increase in incomes across the world.</p><p>What remains true today is that populations in low-income countries – those where a large percentage of the population still live in extreme poverty, or score low on the Human Development Index – are more vulnerable to the effects of natural disasters. </p><p>We see this effect in the visualization shown. This chart shows the death rates from natural disasters – the number of deaths per 100,000 population – of countries grouped by their socio-demographic index (SDI). SDI is a metric of development, where low-SDI denotes countries with low standards of living.</p><p>What we see is that the large spikes in death rates occur almost exclusively for countries with a low or low-middle SDI. Highly developed countries are much more resilient to disaster events and therefore have a consistently low death rate from natural disasters.</p><p>Note that this does not mean low-income countries have high death tolls from disasters year-to-year: the data here shows that in most years they also have very low death rates. But when low-frequency, high-impact events do occur they are particularly vulnerable to its effects.</p><p>Overall development, poverty alleviation, and knowledge-sharing of how to increase resilience to natural disasters will therefore be key to reducing the toll of disasters in the decades to come.</p></div><div class="wp-block-column"><div class="wp-sticky-container"><figure data-grapher-src="https://ourworldindata.org/grapher/death-rates-natural-disasters" class="grapherPreview">

tropical cyclone is a weather event which originates over tropical or subtropical waters and results in a rotating, organized system of clouds and thunderstorms. Its circulation patterns should be closed and low-level.

The choice of terminology is location-specific and depends on where the storm originates. The term *hurricane* is used to describe a tropical cyclone which originates in the North Atlantic, central North Pacific, and eastern North Pacific. When it originates in the Northwest Pacific, we call it *typhoon*. In the South Pacific and Indian Ocean the general term *tropical cyclone* is used.

In other words, the only difference between a hurricane and typhoon is where it occurs.

When does a storm become a hurricane?

When does a storm become a hurricane? [When does a storm become a hurricane?](#when-does-a-storm-become-a-hurricane)

The characteristics of a hurricane are described in detail at the [NASA website](https://www.nasa.gov/audience/forstudents/k-4/stories/nasa-knows/what-are-hurricanes-k4.html)

A hurricane evolves from a tropical disturbance or storm based on a threshold of wind speed.

A tropical disturbance arises over warm ocean waters. It can grow into a tropical depression which is an area of rotating thunderstorms with winds up to 62 kilometres (38 miles) per hour. From there, a depression evolves into a tropical storm if its wind speed reaches 63 km/hr (39 mph).

Finally a hurricane is formed when a tropical storm reaches a wind speed of 119 km/hr (74 mph).

Difference between hurricanes and tornadoes

Difference between hurricanes and tornadoes [Difference between hurricanes and tornadoes](#difference-between-hurricanes-and-tornadoes)

But, hurricanes/typhoons/cyclones *are* distinctly different from tornadoes.

Whilst hurricanes and tornadoes have a characteristic circulatory wind patterns, they are very different weather systems. The main difference between the systems is scale (tornadoes are small-scale circulatory systems; hurricanes are large-scale). These differences are highlighted in the table below:

	Hurricanes/typhoons	Tornadoes

<thead>

<tr class="row-1 odd">

<th class="column-1"> </th><th class="column-2">Hurricanes/typhoons</th><th class="column-3">Tornadoes</th>

```

</tr>

</thead>

<tbody class="row-hover">

<tr class="row-2 even">

    <td class="column-1"><strong>Diameter</strong></td><td class="column-2">60 to 1000s
miles</td><td class="column-3">Up to 1 - 1.5 miles (usually less)</td>

</tr>

<tr class="row-3 odd">

    <td class="column-1"><strong>Wind speed</strong></td><td class="column-2">74 to 200
mph</td><td class="column-3">40 to 300 mph</td>

</tr>

<tr class="row-4 even">

    <td class="column-1"><strong>Lifetime</strong></td><td class="column-2">Long (usually
days)</td><td class="column-3">Very short (usually minutes)</td>

</tr>

<tr class="row-5 odd">

    <td class="column-1"><strong>Travel distance</strong></td><td class="column-2">Long (100
metres to 100 miles)</td><td class="column-3">Short distances</td>

</tr>

<tr class="row-6 even">

    <td class="column-1"><strong>Environmental impact</strong></td><td class="column-2">Can
have impact on wider environment and atmospheric patterns.</td><td class="column-3">Local
(although can be very high impact). Little wider impact on atmospheric systems or environment.</td>

</tr>

</tbody>

</table></div></div></div></div><div class="wp-block-columns is-style-sticky-right"><div class="wp-
block-column"><h4 id="volcanic-explosivity-index-vei">Volcanic Explosivity Index (VEI)<a class="deep-
link" href="#volcanic-explosivity-index-vei"></a></h4></div><div class="wp-block-column"><div
class="wp-sticky-container"></div></div></div><div class="wp-block-columns is-style-sticky-right"><div

```

The intensity or size of volcanic eruptions are most commonly defined by a metric termed the ‘volcanic explosivity index (VEI)’. The VEI is derived based on the erupted mass or deposit of an eruption. The scale for VEI was outlined by Newhall & Self (1982), but is now commonly adopted in geophysical reporting.

The table below provides a summary (from the NOAA’s National Geophysical Data Center) of the characteristics of eruptions of different VEI values. A ‘Significant Volcanic Eruption’ is often defined as an eruption with a VEI value of 6 or greater. Historic eruptions that were definitely explosive, but carry no other descriptive information are assigned a default VEI of 2.

Volcanic Explosivity Index (VEI)	General description	Cloud Column Height (km)	Volume (m ³)	Qualitative Description	Classification	How frequent?	Example
0	Non-explosive	< 0.1 km	1x10 ⁴	Gentle	Hawaiian	daily	Kilauea
1	Small	0.1 - 1 km	1x10 ⁶	Effusive	Haw/Strombolian	daily	Stromboli


```
<td class="column-1">2</td><td class="column-2">Moderate</td><td class="column-3">1 - 5
km</td><td class="column-4">1x107</td><td class="column-5">Explosive</td><td class="column-
6">Strom/Vulcanian</td><td class="column-7">weekly</td><td class="column-8">Galeras, 1992</td>
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<td class="column-1">3</td><td class="column-2">Moderate-Large</td><td class="column-
3">3 - 15 km</td><td class="column-4">1x108</td><td class="column-5">Explosive</td><td
class="column-6">Vulcanian</td><td class="column-7">annually</td><td class="column-8">Ruiz,
1985</td>
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</tr>
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<td class="column-1">4</td><td class="column-2">Large</td><td class="column-3">10 - 25
km</td><td class="column-4">1x109</td><td class="column-5">Explosive</td><td class="column-
6">Vulc/Plinian</td><td class="column-7">10's of years</td><td class="column-8">Galunggung,
1982</td>
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</tr>
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<tr class="row-7 odd">
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<td class="column-1">5</td><td class="column-2">Very Large</td><td class="column-3">&gt; 25
km</td><td class="column-4">1x1010</td><td class="column-5">Cataclysmic</td><td class="column-
6">Plinian</td><td class="column-7">100's of years</td><td class="column-8">St.
Helens, 1981</td>
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<td class="column-1">6</td><td class="column-2"></td><td class="column-3">&gt; 25
km</td><td class="column-4">1x1011</td><td class="column-5">Paroxysmal</td><td class="column-
6">Plin/Ultra-Plinian</td><td class="column-7">100's of years</td><td class="column-8">Krakatau,
1883</td>
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<td class="column-1">7</td><td class="column-2"></td><td class="column-3">&gt; 25
km</td><td class="column-4">1x1012</td><td class="column-5">Colossal</td><td class="column-
```

6">Ultra-Plinian</td><td class="column-7">1000's of years</td><td class="column-8">Tambora, 1815</td>

</tr>

<tr class="row-10 even">

<td class="column-1">8</td><td class="column-2"></td><td class="column-3">> 25 km</td><td class="column-4">>1x10¹²</td><td class="column-5">Colossal</td><td class="column-6">Ultra-Plinian</td><td class="column-7">10,000's of years</td><td class="column-8">Yellowstone, 2 Ma</td>

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</table></div></div></div></div></section><div class="section-heading"><div class="wrapper"><div><h2 id="data-quality">Data Quality</h2></div></div></div><div class="wp-block-columns is-style-sticky-right"><div class="wp-block-column"><h4 id="number-of-reported-disaster-events">Number of reported disaster events</h4></div><div class="wp-block-column"><div class="wp-sticky-container"></div></div></div><div class="wp-block-columns is-style-sticky-right"><div class="wp-block-column"><p>A key issue of data quality is the consistency of even reporting over time. For long-term trends in natural disaster events we know that reporting and recording of events today is much more advanced and complete than in the past. This can lead to significant underreporting or uncertainty of events in the distant past.

In the chart here we show data on the number of reported natural disasters over time.

This change over time can be influenced by a number of factors, namely the increased coverage of reporting over time. The increase over time is therefore not directly reflective of the actual trend in disaster events.</p></div><div class="wp-block-column"><div class="wp-sticky-container"><figure data-grapher-src="https://ourworldindata.org/grapher/number-of-natural-disaster-events" class="grapherPreview">

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<em>reported</em> disaster events by type. Again, the incompleteness of historical data can lead to
significant underreporting in the past. The increase over time is therefore not directly reflective of the
<em>actual</em> trend in disaster events.</p></div><div class="wp-block-column"><div class="wp-
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Click to open interactive version

</div>

</figure></div></div></div><section><div class="section-heading"><div
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class="wp-block-column"><p>Wikipedia has several lists of disasters, and an overview of these lists can
be found at List of
Disasters.</p></div><div class="wp-block-column"><div class="wp-sticky-
container"></div></div></div><div class="wp-block-columns is-style-sticky-right"><div class="wp-block-
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Disease</h5>Data: IHME provides data on deaths and death rates from
natural disastersGeographical coverage: Global – country and regional
levelTime span: 1990 onwardsAvailable
at: IHME, GBD</div><div class="wp-
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Database</h5>Data: EM-DAT is a catalogue of disasters listing detailed
information on natural disasters: droughts (famines), earthquakes, epidemics, extreme temperatures,
floods, insect infestations, mass movement (dry & wet), storms, volcanos, and wildfires. There is
also a data section on technological disasters.Geographical
coverage: Global – country and regional level (primarily cross-country data set, but also
contains the name of the sub-national regions affected by disasters)Time

span:1900 onwards

- Available at: [EM-DAT](http://www.emdat.be) Raw data has to be requested but the [section on disaster trends](http://web.archive.org/web/20150829055006/http://www.emdat.be:80/disaster-trends) encompasses a number of visualizations (time series and maps).
- EM-DAT is maintained by the [Center for Research on the Epidemiology of Disasters \(CRED\)](https://web.archive.org/web/20190922043847/https://www.cred.be/)
- EM-DAT data on the annual number of deaths and number of affected by drought, epidemics, earthquakes, extreme temperature, flood, storm, tsunami, plane crash by country is available at [Here](http://www.gapminder.org/world/#$majorMode=chart$;shi=t;ly=2003;lb=f;il=t;fs=11;al=30;stl=t;st=t;ns1=t;se=t$wst;tts=C$;sp=5.35870967741936;ti=2008$zpv;v=0$inc_x;mmid=XCOORDS;iid=phAwcNAVuyj1jiMAkmq1iMg;by=ind$inc_y;mmid=YCOORDS;iid=rvbbs7uxQc7swJ4RR2BcQfA;by=ind$inc_s;uniValue=8.21;iid=phAwcNAVuyj0XOoBL_n5tAQ;by=ind$inc_c;uniValue=255;gid=CATID0;by=grp$map_x;scale=log;dataMin=282;dataMax=119849$map_y;scale=lin;dataMin=0;dataMax=242000$map_s;sma=49;smi=2.65$cd;bd=0$inds=i239_t001980,,,,,i44_t001980,,,,) is the data on the number of people killed in earthquakes during a year.

Earth Observatory by NASA – Natural Hazards

- Data:** Up to date information and satellite images on fires, storms, floods, volcanoes, earthquakes, and droughts
- Geographical coverage:** Global
- Time span:** Recent years – very up to date
- Available at:** earthobservatory.nasa.gov/NaturalHazards

Natural Hazards Data – U.S. National Oceanic and Atmospheric Administration’s National Geophysical Data Center (NGDC)

- Data:** Data and maps on many natural hazards including cyclones, tsunamis, earthquakes, volcanoes, and wildfires. It includes the ‘Global Significant Earthquake Database, 2150 B.C. to present’ (5500 events) and ‘The Significant Volcanic Eruption Database’ and ‘Global Historical Tsunami Events and Runups’ among many other datasets.
- Geographical coverage:** Global – exact location
- Time span:** Millennia
- Available at:** Online [here](http://www.ngdc.noaa.gov/hazard/hazards.shtml)
- Download maps as pdf or ArcIMS interactive maps, and data in tab-delimited data files or html.**

Global Risk Data Platform

- Data:** Spatial data on tropical cyclones and related storm surges, drought, earthquakes, biomass fires, floods, landslides, tsunamis and volcanic eruptions.
- Geographical coverage:** Global
- Time span:** Recent past
- Available at:** The website can be found [here](http://preview.grid.unep.ch)
- Users can visualize, download or extract data on past hazardous events, human & economical hazard exposure and risk from natural hazards.**

Socioeconomic Data and Applications Center (SEDAC) – by NASA

- Data:** Maps of natural hazards
- Geographical coverage:** Global
- Time span:** Recent years
- Available at:** Online [here](http://sedac.ciesin.columbia.edu/data/sets/browse?facets=theme:hazards) at the SEDAC

website at Colombia University

Center for Hazards & Risk Research at Columbia University

Hotspots: Risk levels calculated by combining hazard exposure with historical vulnerability for two indicators of elements at risk—gridded population and Gross Domestic Product (GDP) per unit area—for six major natural hazards: earthquakes, volcanoes, landslides, floods, drought, and cyclones

Natural disaster profiles: Profiles for 13 countries provide information on sub-national areas at risk from natural hazards including cyclones, droughts, earthquakes, volcanoes, floods, and landslides.

Geographical coverage: Global for hotspots data

Time span: Recent past

Available at: Online [here](http://www.ldeo.columbia.edu/chrr/research/profiles/)

Global Earthquake Model (GEM)

Data: GEM Global Historical Earthquake Catalogue (1000-1900) and the ISC-GEM Global Instrumental Earthquake Catalogue (1900-2009)

Geographical coverage: Global

Time span: 1000 onwards

Available at: Online [here](http://web.archive.org/web/20130106062157/http://www.globalquakemodel.org:80/risk-global-components/exposure-database/)

Fire

ATSR World Fire Atlas – by the European Space Agency (ESA)

Data: Monthly global fire maps

Geographical coverage: Global

Time span: 1995 onwards

Available at: Online at the website of ESA [here](http://due.esrin.esa.int/page_wfa.php)

Tsunami

The **Center for International Earth Science Information Network** at the Earth Institute at Columbia University publishes data on the [Population Affected by the Indian Ocean Tsunami](http://www.ciesin.columbia.edu/tsunami2004.html) (December 2004).

Floods

Wikipedia has a

[List of Deadliest Floods](http://en.wikipedia.org/wiki/List_of_deadliest_floods) and a [List of Floods](http://en.wikipedia.org/wiki/List_of_floods).

Hurricanes

Unisys Data on Hurricanes

- Data:** Data on the track of the storm plus a text-based table of tracking information. The table includes position in latitude and longitude, maximum sustained winds in knots, and central pressure in millibars.
- Geographical coverage:** Atlantic, East Pacific, West Pacific, South Pacific, South Indian, and North Indian
- Time span:** 1851 until now
- Available at:** Online [here](http://weather.unisys.com/hurricanes)
- This data set was used by Dean Yang (2008) – Coping with Disaster: The Impact of Hurricanes on International Financial Flows, 1970-2002. The B.E. Journal of Economic Analysis & Policy. Volume 8, Issue 1, ISSN (Online) 1935-1682, DOI: 10.2202/1935-1682.1903, June 2008. Online [here](http://www.degruyter.com/view/j/bejeap.2008.8.1/bejeap.2008.8.1.1903/bejeap.2008.8.1.1903.xml?format=INT).**

National Climatic Data Center (NOAA)

- Data:** Data on the track of storms
- Geographical coverage:** Global
- Time span:** 1848 until now
- Available at:** Online at [NOAA here](http://www.ncdc.noaa.gov/ibtracs/index.php?name=wmo-data)

Volcanoes

National Geophysical Data Center (NGDC)

- Data:** Global listing of over 500 significant eruptions which includes information on the latitude, longitude, elevation, type of volcano, and last known eruption.
- Geographical coverage:** Global
- Time span:** 1750BC onwards
- Available at:** Online at the [Significant Volcanic Eruption Database](https://www.ngdc.noaa.gov/nndc/servlet/ShowDatasets?dataset=102557&search_look=50&display_look=50).

Smithsonian Institution's Global Volcanism Program (GVP)

- Data:** Complete list of current and past activity for all volcanoes on the planet active during the last 10,000 years. Data includes eruption type, maximum Volcanic Explosivity Index, start and end dates (when known), and the type of evidence for the eruption.
- Geographical coverage:** Global
- Time span:** Past 10,000 years to present day
- Available at:** Online at [the Volcanoes of the World Database](http://volcano.si.edu/search_eruption.cfm##)
- Full reference:** Global Volcanism Program, 2013.

Volcanoes of the World, v. 4.7.3. Venzke, E (ed.). Smithsonian Institution.

<https://doi.org/10.5479/si.GVP.VOTW4-2013>

Lightning

Lightning Maps

- Data:** Real-time tracking of lightning strikes
- Geographical coverage:** Global
- Time span:** Real-time
- Available at:** Online [here](http://www.lightningmaps.org/#m=oss;t=3;s=0;o=0;b=;ts=0;)

Endnotes

- EMDAT (2019): OFDA/CRED International Disaster Database, Université catholique de Louvain – Brussels – Belgium
- EM-DAT, CRED / UCLouvain, Brussels, Belgium – www.emdat.be (D. Guha-Sapir)
- Since two events are ranked equally in 8th place, a total of 11 are included.
- National Geophysical Data Center / World Data Service (NGDC/WDS): Significant Earthquake Database. National Geophysical Data Center, NOAA. Available at: <https://www.ngdc.noaa.gov/nndc/struts/form?t=101650&s=1&d=1>
- The death toll of the Haitian earthquake is still disputed. Here we present the adopted figure by the NGDC of the NOAA (for consistency with other earthquakes); this is the figure—reported by the Haitian government. Some sources suggest a lower figure of 220,000. In the latter case, this event would fall to 7th place in the above rankings.
- This data is sourced from the [The Significant Volcanic Eruption Database](https://www.ngdc.noaa.gov/nndc/servlet/ShowDatasets?dataset=102557&search_look=50&display_look=50) is a global listing of over 500 significant eruptions.
- This is from the NASA Socioeconomic Data And Applications Center (SEDAC) hosted by the Center for International Earth Science Information Network (CIESIN) at Columbia University. This map is online at their website [here](http://sedac.ciesin.columbia.edu/data/set/ndh-landslide-mortality-risks-distribution/maps).
This document is licensed under a [Creative Commons 3.0 Attribution License](http://creativecommons.org/licenses/by/3.0/).
- This map is taken from [Wikipedia](http://en.wikipedia.org/wiki/File:Global_lightning_strikes.png) [here](http://en.wikipedia.org/wiki/File:Global_lightning_strikes.png).
This file is licensed under the Creative Commons Attribution-Share Alike 3.0 Unported license.
- Eisensee, T., & Strömberg, D. (2007). News droughts, news floods, and US disaster relief. The Quarterly Journal of Economics, 122(2), 693-728. Online here: <http://perseus.iies.su.se/~dstro/wpdisasters.pdf>
- As is mentioned below in more detail, this figure is controlled for other factors (i.e. country, year, month,


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