HTML CODE FOR NATURAL DISATSTER

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natural disasters?"/><link rel="canonical" href="https://ourworldindata.org/natural-disasters"/><link
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content="Our World in Data"/><meta name="citation_journal_abbrev" content="Our World in
Data"/><meta name="citation_author" content="Hannah Ritchie"/><meta name="citation_author"
content="Max Roser"/></head><body class=""><header class="site-header"><div class="wrapper site-
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Latest
About
Donate
</div><div class="site-secondary-navigation"><ul class="site-secondary-links">
All charts
Sustainable Development Goals Tracker
</div></div></nav><div class="header-logos-wrapper"></div><div class="mobile-site-navigation"><button data-track-note="mobile-search-button"><svg aria-hidden="true" focusable="false" data-prefix="fas" data-icon="magnifying-glass" class="svg-inline--fa fa-magnifying-glass " role="img" xmlns="http://www.w3.org/2000/svg" viewBox="0 0 512 512"><path fill="currentColor" d="M416 208c0 45.9-14.9 88.3-40 122.7L502.6 457.4c12.5 12.5 12.5 32.8 0 45.3s-32.8 12.5-45.3 0L330.7 376c-34.4 25.2-76.8 40-122.7 40C93.1 416 0 322.9 0 208S93.1 0 208 0S416 93.1 416 208zM208 352c79.5 0 144-64.5 144-144s-64.5-144-144-144S64 128.5 64 208s64.5 144 144 144z"></path></svg></button><button data-track-note="mobile-newsletter-button"><svg aria-hidden="true" focusable="false" data-prefix="fas" data-icon="envelope-open-text" class="svg-inline--fa fa-envelope-open-text " role="img" xmlns="http://www.w3.org/2000/svg" viewBox="0 0 512 512"><path fill="currentColor" d="M215.4 96H144 107.8 96v8.8V144v40.4 89L.2 202.5c1.6-18.1 10.9-34.9 25.7-45.8L48 140.3V96c0-26.5 21.5-48 48-48h76.6l49.9-36.9C232.2 3.9 243.9 0 256 0s23.8 3.9 33.5 11L339.4 48H416c26.5 0 48 21.5 48 48v44.3l22.1 16.4c14.8 10.9 24.1 27.7 25.7 45.8L416 273.4v-89V144 104.8 96H404.2 368 296.6 215.4zM0 448V242.1L217.6 403.3c11.1 8.2 24.6 12.7 38.4 12.7s27.3-4.4 38.4-12.7L512 242.1V448v0c0 35.3-28.7 64-64 64H64c-35.3 0-64-28.7-64-64v0zM176 160H336c8.8 0 16 7.2 16 16s-7.2 16-16 16H176c-8.8 0-16-7.2-16-16s7.2-16 16-16zm0 64H336c8.8 0 16 7.2 16 16s-7.2 16-16 16H176c-8.8 0-16-7.2-16-16s7.2-16 16-16z"></path></svg></button><button data-track-note="mobile-hamburger-button"><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 64H416c17.7 0 32 14.3 32 32s-14.3 32-32 32H32C14.3 128 0 113.7 0 96zM0 256c0-17.7 14.3-32 32-32H416c17.7 0 32 14.3 32 32s-14.3 32-32 32H32c-17.7 0-32-14.3-32-32zM448 416c0 17.7-14.3 32-32 32H32c-17.7 0-32-14.3-32-32s14.3-32 32-32H416c17.7 0 32 14.3 32 32z"></path></svg></button></div></div></header><div class="alert-banner"><div class="content"><div class="text">COVID-19 vaccinations, cases, excess mortality, and much more</div>Explore our COVID-19 data</div></div><main><article class="page with-sidebar large-banner"><div class="offset-header"><header class="article-header"><div class="article-titles"><h1 class="entry-title">Natural Disasters</h1></div><div class="authors-byline">by Hannah Ritchie and Max Roser</div><div class="blog-info">This article was first published in 2014. It was last updated in November 2021.</div><div class="tools"><a

href="#licence"><svg aria-hidden="true" focusable="false" data-prefix="fab" data-icon="creative-commons" class="svg-inline--fa fa-creative-commons " role="img" xmlns="http://www.w3.org/2000/svg" viewBox="0 0 496 512"><path fill="currentColor" d="M245.83 214.87l-33.22 17.28c-9.43-19.58-25.24-19.93-27.46-19.93-22.13 0-33.22 14.61-33.22 43.84 0 23.57 9.21 43.84 33.22 43.84 14.47 0 24.65-7.09 30.57-21.26l30.55 15.5c-6.17 11.51-25.69 38.98-65.1 38.98-22.6 0-73.96-10.32-73.96-77.05 0-58.69 43-77.06 72.63-77.06 30.72-.01 52.7 11.95 65.99 35.86zm143.05 0l-32.78 17.28c-9.5-19.77-25.72-19.93-27.9-19.93-22.14 0-33.22 14.61-33.22 43.84 0 23.55 9.23 43.84 33.22 43.84 14.45 0 24.65-7.09 30.54-21.26l31 15.5c-2.1 3.75-21.39 38.98-65.09 38.98-22.69 0-73.96-9.87-73.96-77.05 0-58.67 42.97-77.06 72.63-77.06 30.71-.01 52.58 11.95 65.56 35.86zM247.56 8.05C104.74 8.05 0 123.11 0 256.05c0 138.49 113.6 248 247.56 248 129.93 0 248.44-100.87 248.44-248 0-137.87-106.62-248-248.44-248zm.87 450.81c-112.54 0-203.7-93.04-203.7-202.81 0-105.42 85.43-203.27 203.72-203.27 112.53 0 202.82 89.46 202.82 203.26-.01 121.69-99.68 202.82-202.84 202.82z"></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 64H416c17.7 0 32 14.3 32 32s-14.3 32-32 32H32C14.3 128 0 113.7 0 96zM0 256c0-17.7 14.3-32 32-32H416c17.7 0 32 14.3 32 32s-14.3 32-32 32H32c-17.7 0-32-14.3-32-32zM448 416c0 17.7-14.3 32-32 32H32c-17.7 0-32-14.3-32-32s14.3-32 32-32H416c17.7 0 32 14.3 32 32z"></path></svg>Contents</button></div></aside></div><div class="offset-content"><div class="content-and-footnotes"><div class="article-content"><section><figure data-explorer-src="https://ourworldindata.org/explorers/natural-disasters?facet=none&Disaster+Type=All+disasters&Impact=Deaths&Timespan=Decadal+average&Per+capita=false&country=~OWID_WRL" class="wp-block-full-content-width" style="width: 100%; min-height: 740px; max-height: 950px; height: 100vh; border: 0px none !important;"><div class="loading-indicator"></div></figure><div class="wp-block-columns is-style-sticky-right"><div class="wp-block-column"><p>→ Open the Data Explorer in a new tab.</p><hr class="wp-block-separator"><div class="wp-block-owid-summary">

<h2 id="summary">Summary</h2>

Natural disasters kill on average 45,000 people per year, globally.
<a href="https://ourworldindata.org/natural-disasters#what-share-of-deaths-are-from-natural-

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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<li class=""><img src="https://ourworldindata.org/grapher/exports/heat-wave-index-usa.svg" loading="lazy" data-no-lightbox="true" data-no-img-formatting="true" width="850" height="600">Annual Heat Wave Index in the United States
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width="850" height="600">Deaths from natural disasters by type
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disasters.svg" loading="lazy" data-no-lightbox="true" data-no-img-formatting="true" width="850"
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disasters.svg" loading="lazy" data-no-lightbox="true" data-no-img-formatting="true" width="850"
height="600">Direct economic loss attributed to disasters
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href="https://ourworldindata.org/grapher/disaster-risk-reduction-progress"><img

src="https://ourworldindata.org/grapher/exports/disaster-risk-reduction-progress.svg" loading="lazy" data-no-lightbox="true" data-no-img-formatting="true" width="850" height="600">Disaster risk reduction progress score
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<li class=""><img src="https://ourworldindata.org/grapher/exports/fatality-rates-in-the-us-due-to-weather-events.svg" loading="lazy" data-no-lightbox="true" data-no-img-formatting="true" width="850" height="600">Fatality rates in the US due to weather events
<li class=""><img src="https://ourworldindata.org/grapher/exports/frequency-north-atlantic-hurricanes.svg" loading="lazy" data-no-lightbox="true" data-no-img-formatting="true" width="850" height="600">Frequency of North Atlantic hurricanes
<li class=""><img src="https://ourworldindata.org/grapher/exports/damage-costs-from-natural-disasters.svg" loading="lazy" data-no-lightbox="true" data-no-img-formatting="true" width="850" height="600">Global damage costs from natural disasters
<li class=""><img src="https://ourworldindata.org/grapher/exports/global-disaster-losses-gdp-share.svg" loading="lazy" data-no-lightbox="true" data-no-img-formatting="true" width="850" height="600">Global disaster losses as a share of GDP
<li class=""><img src="https://ourworldindata.org/grapher/exports/economic-losses-from-disasters-share-gdp.svg" loading="lazy" data-no-lightbox="true" data-no-img-formatting="true" width="850" height="600">Global economic losses from disasters as a share of GDP
<li class=""><img src="https://ourworldindata.org/grapher/exports/number-injured-from-disasters.svg" loading="lazy" data-no-lightbox="true" data-no-img-formatting="true" width="850" height="600">Global injuries from natural disasters
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affected-by-natural-disasters"><img src="https://ourworldindata.org/grapher/exports/total-affected-by-natural-disasters.svg" loading="lazy" data-no-lightbox="true" data-no-img-formatting="true" width="850" height="600">Global number affected by natural disasters
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<li class=""><img src="https://ourworldindata.org/grapher/exports/natural-disasters-by-type.svg" loading="lazy" data-no-lightbox="true" data-no-img-formatting="true" width="850" height="600">Global reported natural disasters by type
<li class=""><img src="https://ourworldindata.org/grapher/exports/weather-losses-share-gdp.svg" loading="lazy" data-no-lightbox="true" data-no-img-formatting="true" width="850" height="600">Global weather disaster losses as a share of GDP
<li class=""><img src="https://ourworldindata.org/grapher/exports/how-many-deaths-does-it-take-for-a-disaster-in-different-continents-to-receive-news-coverage.svg" loading="lazy" data-no-lightbox="true" data-no-img-formatting="true" width="850" height="600">How many deaths does it take for a disaster in different continents to receive news coverage?
<li class=""><img src="https://ourworldindata.org/grapher/exports/how-many-deaths-does-it-take-for-a-disaster-to-receive-news-coverage.svg" loading="lazy" data-no-lightbox="true" data-no-img-formatting="true" width="850" height="600">How many deaths does it take for a disaster to receive news coverage?
<li class=""><img src="https://ourworldindata.org/grapher/exports/hurricane-landfalls-us.svg" loading="lazy" data-no-lightbox="true" data-no-img-formatting="true" width="850" height="600">Hurricane landfalls in the United States
<li class=""><img src="https://ourworldindata.org/grapher/exports/intensity-error.svg" loading="lazy" data-no-lightbox="true" data-no-img-formatting="true" width="850" height="600">Intensity error
<li class=""><img src="https://ourworldindata.org/grapher/exports/largest-impact-craters.svg" loading="lazy" data-no-lightbox="true" data-no-img-formatting="true" width="850" height="600">Largest confirmed impact craters on Earth by diameter
<li class=""><img src="https://ourworldindata.org/grapher/exports/near-earth-asteroids-discovered-over-time.svg" loading="lazy" data-no-lightbox="true" data-no-img-formatting="true" width="850" height="600">Near-Earth asteroids discovered over time
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no-lightbox="true" data-no-img-formatting="true" width="850" height="600">News coverage of disasters
<li class=""><img src="https://ourworldindata.org/grapher/exports/news-coverage-of-disasters-by-continent.svg" loading="lazy" data-no-lightbox="true" data-no-img-formatting="true" width="850" height="600">News coverage of disasters, by continent
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<li class=""><img src="https://ourworldindata.org/grapher/exports/natural-disaster-deaths-ihme.svg" loading="lazy" data-no-lightbox="true" data-no-img-formatting="true" width="850" height="600">Number of deaths from natural disasters
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<li class=""><img src="https://ourworldindata.org/grapher/exports/number-of-natural-disaster-events.svg" loading="lazy" data-no-lightbox="true" data-no-img-formatting="true" width="850" height="600">Number of recorded natural disaster events
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lightbox="true" data-no-img-formatting="true" width="850" height="600">Number of wildfires in the United States
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<li class=""><img src="https://ourworldindata.org/grapher/exports/precipitation-anomaly.svg" loading="lazy" data-no-lightbox="true" data-no-img-formatting="true" width="850" height="600">Precipitation anomaly in the United States
<li class=""><img src="https://ourworldindata.org/grapher/exports/legislative-provisions-for-managing-disaster-risk.svg" loading="lazy" data-no-lightbox="true" data-no-img-formatting="true" width="850" height="600">Score of adoption and implementation of national strategies for managing disaster risk
<li class=""><img src="https://ourworldindata.org/grapher/exports/extreme-one-day-precipitation-usa.svg" loading="lazy" data-no-lightbox="true" data-no-img-formatting="true" width="850" height="600">Share of US land area that experienced extreme one-day precipitation
<li class=""><img src="https://ourworldindata.org/grapher/exports/unusually-high-precipitation-usa.svg" loading="lazy" data-no-lightbox="true" data-no-img-formatting="true" width="850" height="600">Share of US land area with unusually high annual precipitation
<li class=""><img src="https://ourworldindata.org/grapher/exports/high-summer-temp-usa.svg" loading="lazy" data-no-lightbox="true" data-no-img-formatting="true" width="850" height="600">Share of US land area with unusually high summer temperatures
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usa"><img src="https://ourworldindata.org/grapher/exports/acres-burned-usa.svg" loading="lazy" data-no-lightbox="true" data-no-img-formatting="true" width="850" height="600">Wildfire acres burned in the United States
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</div></div></div></div></div></sec<section><div class="section-heading"><div class="wrapper"><div><h2 id="natural-disasters-kill-tens-of-thousands-each-year">Natural disasters kill tens of thousands each year</h2></div></div></div><div class="wp-block-columns is-style-sticky-right"><div class="wp-block-column"><p>The number of deaths from natural disasters can be highly variable from year-to-year; some years pass with very few deaths before a large disaster event claims many lives.

If we look at the average over the past decade, approximately 45,000 people globally died from natural disasters each year. This represents around 0.1% of global deaths.</p><p>In the visualizations shown here we see the annual variability in the number and share of deaths from natural disasters in recent decades.</p><p>What we see is that in many years, the number of deaths can be very low – often less than 10,000, and accounting for as low as 0.01% of total deaths. But we also see the devastating impact of shock events: the 1983-85 famine and drought in Ethiopia; the 2004 Indian Ocean earthquake and tsunami; Cyclone Nargis which struck Myanmar in 2008; and the 2010 Port-au-Prince earthquake in Haiti. All of these events pushed global disasters deaths over 200,000 – more than 0.4% of deaths in these years.</p><p>Low-frequency, high-impact events such as earthquakes and tsunamis are not preventable, but such high losses of human life are. We know from historical data that the world has seen a significant reduction in disaster deaths through earlier prediction, more resilient infrastructure, emergency preparedness, and response systems.

Those at low incomes are often the most vulnerable to disaster events: improving living standards, infrastructure and response systems in these regions will be key to preventing deaths from natural disasters in the coming decades.</p></div><div

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</svg>

Click to open interactive version

</div>

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<section><div class="section-heading"><div class="wrapper"><div><h2 id="what-share-of-deaths-are-from-natural-disasters">What share of deaths are from natural disasters?</h2></div></div></div><div class="wp-block-columns is-style-sticky-right"><div class="wp-block-column"><p>Globally, over the past decade, natural disasters accounted for an average of 0.1% of total deaths. This was, however, highly variable to high-impact events and ranged from 0.01% to 0.4% of total deaths.</p><p>In the map shown here you can explore these trends by country over the past few decades. Using the timeline on the chart you can observe changes across the world over time, or by clicking on a country you can see its individual trend.</p><p>What we observe is that for most countries the share of deaths from natural disasters are very low in most years. Often it can be zero – with no loss of life to disasters – or well below 0.01%. But we also see clearly the effects of low-frequency but high-impact events: in 2010, more than 70% of deaths in Haiti were the result of the Port-au-Prince earthquake. </p></div><div class="wp-block-column"><div class="wp-sticky-container"><figure data-grapher-src="https://ourworldindata.org/grapher/share-deaths-from-natural-disasters" 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" transform="translate(0 -0.41)"></path>

</svg>

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">
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<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></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 </p><p>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 thfollowed by a breakdown by type. The size of the bubble represents the total death toll for that year.</p>

<p>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. </p>

<p>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.</p>

<p>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.</p>

<p>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.</p>

<p>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.</p>

<p>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.</p>

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</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.”
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<a href="https://ourworldindata.org/grapher/internally-displaced-persons-from-disasters" target="_blank">

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</svg></span>

<span class="label">Click to open interactive version</span>

</div>

</a>

</figure></div></div></div></section<section><div class="section-heading"><div class="wrapper"><div><h2 id="natural-disasters-by-type">Natural disasters by type<a class="deep-link" href="#natural-disasters-by-type"></a></h2></div><div class="in-this-section"><div class="label">In this section</div><div class="border"></div></div><ul class="subheadings"><li><a href="#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><span>Earthquakes</span></a></li><li><a href="#volcanoes"><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><span>Volcanoes</span></a></li><li><a
```

href="#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>Landslides
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<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
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</div></div><h3 id="earthquakes">Earthquakes</h3><div class="wp-

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" transform="translate(0 -0.41)"></path>

</svg>

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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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" transform="translate(0 -0.41)"></path>

</svg>

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="what-were-the-world-s-deadliest-earthquakes">What were the world’s deadliest 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>The number of people dying in natural disasters is lower today than it was in the past, the world has become more resilient.</p><p>Earthquakes, however, can still claim a large number of lives. Whilst historically floods, droughts and epidemics dominated disaster deaths, a high annual death toll now often results from a major earthquake and possibly a tsunami caused by them. Since 2000, the two peak years in annual death tolls (reaching 100s of thousands) were 2004 and 2010. Earthquake deaths accounted for 93 percent and 69 percent of such deaths, respectively. In fact, both events (the Sumatra earthquake and tsunami of 2004, and Port-au-Prince earthquake in 2010) are in the deadliest earthquake rankings below.</p><p>What have been the most deadly earthquakes in human history? In the visualization we have mapped the top 10 rankings of known earthquakes which resulted in the largest number of deaths.³ This ranking is based on mortality estimates from the NOAA’s National Geophysical Data Center (NGDC).⁴</p><p> Clicking on the visualization will open it in higher-resolution. This ranking is also summarized in table form.</p><p>The most deadly earthquake in history was in Shaanxi, China in 1556. It’s estimated to have killed 830,000 people. This is more than twice that of the second most fatal: the recent Port-au-Prince earthquake in Haiti in 2010. It’s reported that 316,000 people died as a result.⁵</p><p>Two very recent earthquakes — the Sumatra earthquake and tsunami of 2004, and 2010 Port-au-Prince earthquake — feature amongst the most deadly in human history. But equally, some of the most fatal occurred in the very distant past. Making the top three was the earthquake in Antakya (Turkey) in the year 115. Both old and very recent feature near the top the list. The deadly nature earthquakes has been a persistent threat throughout our history.</p></div><div class="wp-block-column"><div class="wp-sticky-container"><div class="wp-block-image"><figure class="aligncenter"><img loading="lazy" width="750" height="508" src="https://ourworldindata.org/uploads/2018/10/Deadliest-earthquakes-750x508.png" alt="Deadliest earthquakes" class="wp-image-20882"

srcset="https://ourworldindata.org/uploads/2018/10/Deadliest-earthquakes-750x508.png 750w, https://ourworldindata.org/uploads/2018/10/Deadliest-earthquakes-150x102.png 150w, https://ourworldindata.org/uploads/2018/10/Deadliest-earthquakes-400x271.png 400w, https://ourworldindata.org/uploads/2018/10/Deadliest-earthquakes-768x520.png 768w" sizes="(max-width: 750px) 100vw, 750px" data-high-res-src="https://ourworldindata.org/uploads/2018/10/Deadliest-earthquakes.png"></figure></div><div class="tableContainer"><table id="tablepress-100" class="tablepress tablepress-id-100">

<thead>

<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">

<td class="column-1">3</td><td class="column-2">Antakya, Turkey</td><td class="column-3">115</td><td class="column-4">260,000</td><td class="column-5">7.5</td><td class="column-6">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.</td>

</tr>

<tr class="row-5 odd">

<td class="column-1">4</td><td class="column-2">Antakya, Turkey</td><td class="column-3">525</td><td class="column-4">250,000</td><td class="column-5">7</td><td class="column-6">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.</td>

</tr>

<tr class="row-6 even">

<td class="column-1">5</td><td class="column-2">Tangshan, China</td><td class="column-3">1976</td><td class="column-4">242,769</td><td class="column-5">7.5</td><td class="column-6">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.</td>

</tr>

<tr class="row-7 odd">

<td class="column-1">6</td><td class="column-2">Gyzndzha, Azerbaijan</td><td class="column-3">1139</td><td class="column-4">230,000</td><td class="column-5">Unknown</td><td class="column-6">Often termed the Ganja earthquake. Much less is documented on the specific details of this event.</td>

</tr>

<tr class="row-8 even">

<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 than 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>

<tr class="row-12 even">

<td class="column-1">10</td><td class="column-2">Tokyo, Japan</td><td class="column-3">1923</td><td class="column-4">142,807</td><td class="column-5">7.9</td><td class="column-6">More than half of brick buildings, and 10% of reinforced structures collapsed. Caused a tsunami with height up to 12m. Large fires broke out; combined with a large tornado, these spread quickly. </td>

</tr>

</tbody>

</table></div></div></div></div><h3 id="volcanoes">Volcanoes</h3><div class="wp-block-columns is-style-sticky-right"><div class="wp-block-column"><h4 id="number-of-significant-volcanic-eruptions">Number of significant volcanic eruptions</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 a large number of volcanoes across the world which are volcanically active, but display little or only very low-level activity.

In the map we see the number of significant volcanic eruptions which occur in each country in a given year. A significant eruption is classified as one that meets at least one of the following criteria: caused fatalities, caused moderate damage (approximately $1 million or more), with a Volcanic Explosivity Index of 6 or larger, caused a tsunami, or was associated with a major earthquake.⁶</p><p>Estimates of volcanic eruptions are available dating back as early as 1750 BCE, however, the data completeness for long historic events will be much lower than in the recent past.</p></div><div class="wp-block-column"><div class="wp-sticky-container"><figure data-grapher-src="https://ourworldindata.org/grapher/significant-volcanic-eruptions" class="grapherPreview">

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24a40,40,0,1,1,80,0v24h8a40,40,0,1,1,80,0Zm-256,80h-8v96h8Zm88,0h-8v96h8Zm88,0h-8v96h8Z" transform="translate(0 -0.41)"></path>

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</svg>

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-volcanic-eruptions">Deaths from volcanic eruptions</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 we see the number of deaths from 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-grapher-src="https://ourworldindata.org/grapher/deaths-from-volcanic-eruptions" class="grapherPreview">

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transform="translate(0 -0.41)"></path>

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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"
transform="translate(0 -0.41)"></path>

</svg></span>

                        <span class="label">Click to open interactive version</span>

                    </div>

                  </a>

                </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-
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height="550" src="https://ourworldindata.org/uploads/2014/06/ourworldindata_global-landslide-
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(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 &amp; 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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<path fill="currentColor" opacity="0.6" d="M239.76,234.78A27.5,27.5,0,0,1,217,192a87.76,87.76,0,1,0-145.9,0A27.5,27.5,0,1,1,25.37,222.6,142.17,142.17,0,0,1,1.24,143.17C1.24,64.45,65.28.41,144,.41s142.76,64,142.76,142.76a142.17,142.17,0,0,1-24.13,79.43A27.47,27.47,0,0,1,239.76,234.78Z" transform="translate(0 -0.41)"></path>

</svg>

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</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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</svg>

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="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 class="wp-block-column"><figure data-grapher-src="https://ourworldindata.org/grapher/cyclone-power-dissipation-index" class="grapherPreview">

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</svg>

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</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><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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<path fill="currentColor" opacity="0.6" d="M239.76,234.78A27.5,27.5,0,0,1,217,192a87.76,87.76,0,1,0-145.9,0A27.5,27.5,0,1,1,25.37,222.6,142.17,142.17,0,0,1,1.24,143.17C1.24,64.45,65.28.41,144,.41s142.76,64,142.76,142.76a142.17,142.17,0,0,1-24.13,79.43A27.47,27.47,0,0,1,239.76,234.78Z" transform="translate(0 -0.41)"></path>

</svg>

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</div>

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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"><h4 id="precipitation-extremes">Precipitation extremes</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>We can look at precipitation anomalies over the course of year, however, flooding events are often caused by intense rainfall over much shorter periods. Flooding events tend to occur when there is extremely high rainfall over the course of hours or days.</p><p>The visualization here shows the extent of extreme one-day precipitation in the US. What we see is a general upwards trend in the extent of extreme rainfall in recent decades.</p></div><div class="wp-block-column"><div class="wp-sticky-container"><figure data-grapher-src="https://ourworldindata.org/grapher/extreme-one-day-precipitation-usa" class="grapherPreview">

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</svg>

Click to open interactive version

</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

summer temperatures over time (defined as ‘unusually high’ in the context of historical records) we see an upward trend in recent decades.</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/heat-wave-index-usa" class="grapherPreview">

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</svg>

Click to open interactive version

</div>

</figure></div><div class="wp-block-column"><figure data-grapher-src="https://ourworldindata.org/grapher/high-summer-temp-usa" class="grapherPreview">

<div><img src="https://ourworldindata.org/exports/high-summer-temp-usa_v5_850x600.svg" width="850" height="600" loading="lazy" data-no-lightbox="" alt="High summer temp usa v5 850x600"></div>

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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"><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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<path fill="currentColor" opacity="0.6" d="M239.76,234.78A27.5,27.5,0,0,1,217,192a87.76,87.76,0,1,0-145.9,0A27.5,27.5,0,1,1,25.37,222.6,142.17,142.17,0,0,1,1.24,143.17C1.24,64.45,65.28.41,144,.41s142.76,64,142.76,142.76a142.17,142.17,0,0,1-24.13,79.43A27.47,27.47,0,0,1,239.76,234.78Z" transform="translate(0 -0.41)"></path>

</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 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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<path fill="currentColor" opacity="0.6" d="M239.76,234.78A27.5,27.5,0,0,1,217,192a87.76,87.76,0,1,0-145.9,0A27.5,27.5,0,1,1,25.37,222.6,142.17,142.17,0,0,1,1.24,143.17C1.24,64.45,65.28.41,144,.41s142.76,64,142.76,142.76a142.17,142.17,0,0,1-24.13,79.43A27.47,27.47,0,0,1,239.76,234.78Z" transform="translate(0 -0.41)"></path>

</svg>

Click to open interactive version

</div>

</figure></div><div class="wp-block-column"><figure data-grapher-src="https://ourworldindata.org/grapher/acres-burned-usa" class="grapherPreview">

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</svg>

Click to open interactive version

</div>

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</svg></span>

<span class="label">Click to open interactive version</span>

</div>

</a>

</figure></div></div><div class="wp-block-column"></div></div><h3 id="lightning">Lightning<a class="deep-link" href="#lightning"></a></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<a class="deep-link" href="#long-term-trends-in-us-lightning-strikes"></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 class="wp-block-column"><p>This chart shows the declining death rate due to lightning strikes in the US.<br><br>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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</svg>

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="lightning-strikes-across-the-world">Lightning strikes across the world</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>The map here shows the distribution of lightning strikes across the world. This is given as the lightning strike density – the average strikes per square kilometer each year.

In particular we see the high frequency of strikes across the Equatorial regions, especially across central Africa.</p></div><div class="wp-block-column"><div class="wp-sticky-container"><div class="wp-block-image"><figure class="aligncenter"><img loading="lazy" width="750" height="465" src="https://ourworldindata.org/uploads/2014/06/ourworldindata_world-map-of-frequency-of-lightning-strikes-–-wikipedia-nasa-data0-750x465.png" alt="World Map of Frequency of lightning strikes – Wikipedia [NASA data]0" class="wp-image-4334" srcset="https://ourworldindata.org/uploads/2014/06/ourworldindata_world-map-of-frequency-of-lightning-strikes-–-wikipedia-nasa-data0-750x465.png 750w, https://ourworldindata.org/uploads/2014/06/ourworldindata_world-map-of-frequency-of-lightning-

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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">
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</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-

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Click to open interactive version

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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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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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</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><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?
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Click to open interactive version

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145.9,0A27.5,27.5,0,1,1,25.37,222.6,142.17,142.17,0,0,1,1.24,143.17C1.24,64.45,65.28.41,144,.41s142.
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"
transform="translate(0 -0.41)"></path>

</svg></span>

<span class="label">Click to open interactive version</span>

</div>

</a>

</figure></div></div></div></section> <section><div class="section-heading"><div
class="wrapper"><div><h2 id="definitions-metrics">Definitions &amp; Metrics<a class="deep-link"
href="#definitions-metrics"></a></h2></div></div></div><div class="wp-block-columns is-style-sticky-
right"><div class="wp-block-column"><h4 id="hurricanes-cyclones-typhoons">Hurricanes, cyclones
&amp; typhoons<a class="deep-link" href="#hurricanes-cyclones-typhoons"></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 class="wp-block-column"><p>There are multiple terms used to
describe extreme weather events: hurricanes, typhoons, cyclones and tornadoes. What is the difference
between these terms, and how are they defined?</p><p>The
terms <strong>hurricane</strong>, <strong>cyclone</strong>
and <strong>typhoon</strong> all refer to the same thing; they can be used interchangeably.
Hurricanes and typhoons are both described as the weather phenomenon ‘tropical cyclone’. A
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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.</p><p>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.</p><p>In other words, the only difference between a hurricane and typhoon is where it occurs.</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="when-does-a-storm-become-a-hurricane">When does a storm become a hurricane?</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>The characteristics of a hurricane are described in detail at the NASA website.</p><p>A hurricane evolves from a tropical disturbance or storm based on a threshold of wind speed.</p><p>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).</p><p>Finally a hurricane is formed when a tropical storm reaches a wind speed of 119 km/hr (74 mph).</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="difference-between-hurricanes-and-tornadoes">Difference between hurricanes and tornadoes</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>But, hurricanes/typhoons/cyclones are distinctly different from tornadoes.</p><p>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:</p></div><div class="wp-block-column"><div class="wp-sticky-container"><div class="tableContainer"><table id="tablepress-99" class="tablepress tablepress-id-99">

<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">Diameter</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">Wind speed</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">Lifetime</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">Travel distance</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">Environmental impact</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)</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>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.¹⁴</p><p>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.</p></div><div class="wp-block-column"><div class="wp-sticky-container"><div class="tableContainer"><table id="tablepress-98" class="tablepress tablepress-id-98">

<thead>

<tr class="row-1 odd">

<th class="column-1">Volcanic Explosivity Index (VEI)</th><th class="column-2">General description</th><th class="column-3">Cloud Column Height (km)</th><th class="column-4">Volume (m^3)</th><th class="column-5">Qualititative Description</th><th class="column-6">Classification</th><th class="column-7">How frequent?</th><th class="column-8">Example</th>

</tr>

</thead>

<tbody class="row-hover">

<tr class="row-2 even">

<td class="column-1">0</td><td class="column-2">Non-explosive</td><td class="column-3">< 0.1 km</td><td class="column-4">$1x10^4$</td><td class="column-5">Gentle</td><td class="column-6">Hawaiian</td><td class="column-7">daily</td><td class="column-8">Kilauea</td>

</tr>

<tr class="row-3 odd">

<td class="column-1">1</td><td class="column-2">Small</td><td class="column-3">0.1 - 1 km</td><td class="column-4">$1x10^6$</td><td class="column-5">Effusive</td><td class="column-6">Haw/Strombolian</td><td class="column-7">daily</td><td class="column-8">Stromboli</td>

</tr>

<tr class="row-4 even">

<td class="column-1">2</td><td class="column-2">Moderate</td><td class="column-3">1 - 5 km</td><td class="column-4">1x10^{7}</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>

</tr>

<tr class="row-5 odd">

<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">1x10^{8}</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>

</tr>

<tr class="row-6 even">

<td class="column-1">4</td><td class="column-2">Large</td><td class="column-3">10 - 25 km</td><td class="column-4">1x10^{9}</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>

</tr>

<tr class="row-7 odd">

<td class="column-1">5</td><td class="column-2">Very Large</td><td class="column-3">> 25 km</td><td class="column-4">1x10^{10}</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>

</tr>

<tr class="row-8 even">

<td class="column-1">6</td><td class="column-2"></td><td class="column-3">> 25 km</td><td class="column-4">1x10^{11}</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>

</tr>

<tr class="row-9 odd">

<td class="column-1">7</td><td class="column-2"></td><td class="column-3">> 25 km</td><td class="column-4">1x10^{12}</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">>1x10^{12}</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>

</tr>

</tbody>

</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">

<a href="https://ourworldindata.org/grapher/number-of-natural-disaster-events" target="_blank">

<div><img src="https://ourworldindata.org/exports/number-of-natural-disaster-events_v5_850x600.svg" width="850" height="600" loading="lazy" data-no-lightbox="" alt="Number of natural disaster events v5 850x600"></div>

<div class="interactionNotice">

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<path fill="currentColor" d="M448,344.59v96a40.36,40.36,0,0,1-1.06,9.16l-32,136A40,40,0,0,1,376,616.59H168a40,40,0,0,1-32.35-16.47l-128-176a40,40,0,0,1,64.7-47.06L104,420.58v-276a40,40,0,0,1,80,0v200h8v-40a40,40,0,1,1,80,0v40h8v-24a40,40,0,1,1,80,0v24h8a40,40,0,1,1,80,0Zm-256,80h-8v96h8Zm88,0h-8v96h8Zm88,0h-8v96h8Z" transform="translate(0 -0.41)"></path>

<path fill="currentColor" opacity="0.6" d="M239.76,234.78A27.5,27.5,0,0,1,217,192a87.76,87.76,0,1,0-145.9,0A27.5,27.5,0,1,1,25.37,222.6,142.17,142.17,0,0,1,1.24,143.17C1.24,64.45,65.28.41,144,.41s142.76,64,142.76,142.76a142.17,142.17,0,0,1-24.13,79.43A27.47,27.47,0,0,1,239.76,234.78Z" transform="translate(0 -0.41)"></path>

</svg></span>

<span class="label">Click to open interactive version</span>

</div>

</a>

</figure></div></div></div><div class="wp-block-columns is-style-sticky-right"><div class="wp-block-column"><h4 id="number-of-reported-disasters-by-type">Number of reported disasters by type<a class="deep-link" href="#number-of-reported-disasters-by-type"></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 class="wp-block-column"><p>This same data is shown here as the number of <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-sticky-container"><figure data-grapher-src="https://ourworldindata.org/grapher/natural-disasters-by-type" class="grapherPreview">

<a href="https://ourworldindata.org/grapher/natural-disasters-by-type" target="_blank">

<div><img src="https://ourworldindata.org/exports/natural-disasters-by-type_v10_850x600.svg" width="850" height="600" loading="lazy" data-no-lightbox="" alt="Natural disasters by type v10 850x600"></div>

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<path fill="currentColor" d="M448,344.59v96a40.36,40.36,0,0,1-1.06,9.16l-32,136A40,40,0,0,1,376,616.59H168a40,40,0,0,1-32.35-16.47l-128-176a40,40,0,0,1,64.7-
```

47.06L104,420.58v-276a40,40,0,0,1,80,0v200h8v-40a40,40,0,1,1,80,0v40h8v-24a40,40,0,1,1,80,0v24h8a40,40,0,1,1,80,0Zm-256,80h-8v96h8Zm88,0h-8v96h8Zm88,0h-8v96h8Z" transform="translate(0 -0.41)"></path>

<path fill="currentColor" opacity="0.6" d="M239.76,234.78A27.5,27.5,0,0,1,217,192a87.76,87.76,0,1,0-145.9,0A27.5,27.5,0,1,1,25.37,222.6,142.17,142.17,0,0,1,1.24,143.17C1.24,64.45,65.28.41,144,.41s142.76,64,142.76,142.76a142.17,142.17,0,0,1-24.13,79.43A27.47,27.47,0,0,1,239.76,234.78Z" transform="translate(0 -0.41)"></path>

</svg>

Click to open interactive version

</div>

</figure></div></div></div<section><div class="section-heading"><div class="wrapper"><div><h2 id="data-sources">Data Sources</h2></div></div></div><div class="wp-block-columns is-style-sticky-right"><div 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-column"><h4 id="deaths-from-natural-disasters">Deaths from natural disasters</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"><h5>Institute for Health Metrics and Evaluation (IHME), Global Burden of Disease</h5>
Data: IHME provides data on deaths and death rates from natural disasters
Geographical coverage: Global – country and regional level
Time span: 1990 onwards
Available at: IHME, GBD
</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="multiple-types-of-disasters">Multiple Types of Disasters</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"><h5>EM-DAT – The International Disaster 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: <a
href="http://www.emdat.be">EM-DAT
Raw data has to be requested but the <a
href="http://web.archive.org/web/20150829055006/http://www.emdat.be:80/disaster-trends">section on disaster trends encompasses a number of visualizations (time series and
maps).
EM-DAT is maintained by the <a
href="https://web.archive.org/web/20190922043847/https://www.cred.be/">Center for Research on
the Epidemiology of Disasters (CRED)
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 Gapminder. <a
href="http://www.gapminder.org/world/#$majorMode=chart$is;shi=t;ly=2003;lb=f;il=t;fs=11;al=30;stl=t;st=t;nsl=t;se=t$wst;tts=C$ts;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,,,,">Here is the data on the number of people
killed in earthquakes during a year.
<h5>Earth Observatory by NASA – Natural
Hazards</h5>
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: <a
href="http://earthobservatory.nasa.gov/NaturalHazards/">earthobservatory.nasa.gov/NaturalHazards
<h5>Natural Hazards Data – U.S. National Oceanic and Atmospheric Administration’s
National Geophysical Data Center (NGDC)</h5>
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
<li
class="no-bullet">Download maps as pdf or ArcIMS interactive maps, and data in tab-delimited
data files or html.
<h5>Global Risk Data
Platform</h5>
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 <a
href="http://preview.grid.unep.ch">here.
<li class="no-bullet">Users can visualize,
download or extract data on past hazardous events, human & economical hazard exposure and risk
from natural hazards.
<h5>Socioeconomic Data and Applications Center (SEDAC) – by
NASA</h5>
Data: Maps of natural hazards
Geographical
coverage: Global
Time span: Recent years
Available
at: Online <a
href="http://sedac.ciesin.columbia.edu/data/sets/browse?facets=theme:hazards">here at the SEDAC

website at Colombia University
<h5>Center for Hazards & Risk Research at Columbia University</h5>
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
</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="data-sources-earthquakes"> 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"><h5>Global Earthquake Model (GEM)</h5>
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
</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="fire">Fire</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"><h5>ATSR World Fire Atlas – by the European Space Agency (ESA)</h5>
Data: Monthly global fire maps
Geographical coverage: Global
Time span: 1995 onwards
Available at: Online at the website of ESA here
</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="tsunami">Tsunami</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>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 (December 2004).</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="floods">Floods</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>Wikipedia has a <a

href="http://en.wikipedia.org/wiki/List_of_deadliest_floods">List of Deadliest Floods and a List of Floods.</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="hurricanes">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"><h5>Unisys Data on Hurricanes</h5>
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
<li class="no-bullet"> 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.
<h5>National Climatic Data Center (NOAA)</h5>
Data: Data on the track of storms
Geographical coverage: Global
Time span: 1848 until now
Available at: Online at NOAA here
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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.
<h5>Smithsonian Institution’s Global Volcanism Program (GVP)</h5>
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
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
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Data: Real-time tracking of lightning strikes
Geographical coverage: Global
Time span: Real-time
Available at: Online here
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<li id="note-2"><p>EM-DAT, CRED / UCLouvain, Brussels, Belgium – www.emdat.be (D. Guha-Sapir)</p>
<li id="note-3"><p>Since two events are ranked equally in 8th place, a total of 11 are included.</p>
<li id="note-4"><p>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.</p>
<li id="note-5"><p>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.</p>
<li id="note-6"><p>This data is sourced from the The Significant Volcanic Eruption Database is a global listing of over 500 significant eruptions.</p>
<li id="note-7"><p>
 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.
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<li id="note-8"><p>
 This map is taken from Wikipedia here.
 This file is licensed under the Creative Commons Attribution-Share Alike 3.0 Unreported license.</p>
<li id="note-9"><p>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</p>
<li id="note-10"><p>As is mentioned below in more detail, this figure is controlled for other factors (i.e. country, year, month,

and number of people affected).</p>
<li id="note-11"><p>The study used a database compiled by the Centre for Research on the Epidemiology of Disasters, where an event qualifies as a disaster if at least one of the following criteria are fulfilled: ten or more people are reported, killed; 100 or more people are reported affected, injured, and/or homeless; there has been a declaration of a state of emergency; or there has been a call for international assistance.</p>
<li id="note-12"><p>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</p>
<li id="note-13"><p>Based on the study’s analysis of data compiled by the Centre for Research on the Epidemiology of Disasters.</p>
<li id="note-14"><p>Newhall, C.G. and Self, S (1982). The volcanic explosivity index (VEI): an estimate of explosive magnitude for historical volcanism.Jour Geophys Res (Oceans & Atmospheres), 87:1231-1238. Available at: https://agupubs.onlinelibrary.wiley.com/doi/abs/10.1029/JC087iC02p01231.</p>
<h3 id="citation" class="h3-bold">Cite this work</h3><p>Our articles and data visualizations rely on work from many different people and organizations. When citing this entry, please also cite the underlying data sources. This entry can be cited as:</p><div><div class="wp-code-snippet"><pre class="wp-block-code"><code>Hannah Ritchie and Max Roser (2014) - "Natural Disasters". Published online at OurWorldInData.org. Retrieved from: 'https://ourworldindata.org/natural-disasters' [Online Resource]</code></pre><button class="code-copy-button" aria-label="Copy to clipboard"><svg aria-hidden="true" focusable="false" data-prefix="fas" data-icon="copy" class="svg-inline--fa fa-copy " role="img" xmlns="http://www.w3.org/2000/svg" viewBox="0 0 512 512"><path fill="currentColor" d="M224 0c-35.3 0-64 28.7-64 64V288c0 35.3 28.7 64 64 64H448c35.3 0 64-28.7 64-64V64c0-35.3-28.7-64-64-64H224zM64 160c-35.3 0-64 28.7-64 64V448c0 35.3 28.7 64 64 64H288c35.3 0 64-28.7 64-64V384H288v64H64V224h64V160H64z"></path></svg></button></div></div><p>BibTeX citation</p><div><div class="wp-code-snippet"><pre class="wp-block-code"><code>@article{owidnaturaldisasters,

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