



The economic costs of natural disasters globally from 1900-2015: historical and normalised floods, storms, earthquakes, volcanoes, bushfires, drought and other disasters

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For the first time, a breakdown of natural disaster losses from 1900-2015 based on over 30,000 event economic losses globally is given based on increased analysis within the CATDAT Damaging Natural Disaster databases. Using country-CPI and GDP deflator adjustments, over \$7 trillion (2015-adjusted) in losses have occurred; over 40% due to flood/rainfall, 26% due to earthquake, 19% due to storm effects, 12% due to drought, 2% due to wildfire and under 1% due to volcano. Using construction cost indices, higher percentages of flood losses are seen.

Depending on how the adjustment of dollars are made to 2015 terms (CPI vs. construction cost indices), between \$6.5 and 14.0 trillion USD (2015-adjusted) of natural disaster losses have been seen from 1900-2015 globally. Significant reductions in economic losses have been seen in China and Japan from 1950 onwards. An AAL of around \$200 billion in the last 16 years has been seen equating to around 0.25% of Global GDP or around 0.1% of Net Capital Stock per year.

Normalised losses have also been calculated to examine the trends in vulnerability through time for economic losses. The normalisation methodology globally using the exposure databases within CATDAT that were undertaken previously in papers for the earthquake and volcano databases, are used for this study.

The original event year losses are adjusted directly by capital stock change, very high losses are observed with respect to floods over time (however with improved flood control structures). This shows clear trends in the improvement of building stock towards natural disasters and a decreasing trend in most perils for most countries.