



Record losses caused by weather disasters – what are the driving factors

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For more than 30 years Munich Re scientists have been analysing natural hazards throughout the world. Munich Re's *NatCatSERVICE* now has records of more than 20,000 single natural events having caused damages. Analyses of these data show very clearly that natural catastrophes have increased dramatically and are causing more and more damage. The trend curve of great natural catastrophes worldwide per year reveals an increase from two per year at the beginning of the 1950s to a current figure of seven. Inflation adjusted economic and insured losses from these great natural catastrophes have risen even more steeply – to US\$ 165bn in economic losses and US\$ 80bn in insured losses in the record year of 2005. These steep increases in losses are due to many factors, above all to population growth, accumulation of values, development and industrialisation of highly-exposed regions, and the elevated vulnerability of modern technologies. As the upward trend in numbers of natural catastrophes is mainly due to weather-related events like windstorms and floods and is not apparent in the same way for events with geophysical causes like earthquakes, tsunamis, and volcanic eruptions, there is some justification for assuming that it is the result of changes in the atmosphere, most probably global warming. More evidence for this comes from an increasing number of scientific publications in recent years indicating that there is a connection between climate change and the frequency and intensity of natural catastrophes. Our own analyses of the hurricane frequency in recent decades e.g. taking also into account the natural climate cycles (Multidecadal Atlantic Oscillation) indicates that about two-thirds of the increase in the frequencies of strong hurricanes (SS 3 to 5) in recent years is due to the natural cycle, but already one-third probably is due to global warming.