Geophysical Research Abstracts
Vol. 20, EGU2018-10203, 2018
EGU General Assembly 2018


# The top ten natural disasters of all time and how they shaped global risk modelling and prevention practices as we know it

James Daniell (1,2), Friedemann Wenzel (1,2), Andreas Schaefer (1,2), and Trevor Daniell (3)

(1) Geophysical Institute, Karlsruhe Institute of Technology, Karlsruhe, Germany (j.e.daniell@gmail.com), (2) Center for Disaster Management and Risk Reduction Technology, Karlsruhe Institute of Technology, Karlsruhe, Germany, (3) Faculty of Engineering, Computing and Mathematical Sciences, The University of Adelaide, Adelaide, Australia

Over the past 15 years, the CATDAT Damaging Natural Disasters Database has been created from many sources globally. Hazard footprints, fatalities, economic losses and many more parameters have been gleaned, digitised, converted and created from the many books, journal articles, news articles and reports about each event. Although over 58,000 damaging events have been collected, a few main events dominate the overall percentages of fatalities and economic losses since the beginning of time. For earthquake, the top 100 events ranked for fatality since 1900 contribute to around 95% of deaths. Similarly for flood, similar contributions can be seen. The Shaanxi 1556 earthquake (ca. 825,000 deaths) and the 1931 Chinese floods (>1 million deaths) are two events that shaped risk prevention in China and indeed across Asia; but are also two events where risk modelling today would show far lower losses.

In this study, the top 10 natural disasters of all time are examined looking at volcanoes, earthquakes, floods and tropical cyclones/typhoons/hurricanes. The criteria used to select them has been a fuzzy one with a hybrid index created using the deaths, homeless, economic losses and relative impact on the region. Their impact on risk modelling for insurance and governments is discussed with concepts like maximum magnitude, “black swan” theories and resilience.