



On the occurrence of fatal landslides in 2008

D. Petley

International Landslide Centre, University of Durham, Durham, United Kingdom (d.n.petley@durham.ac.uk / +44 191 334 1801)

This paper represents the latest in an annual review of fatal landslide events worldwide, based upon the Durham Fatal Landslide Database. Landslide events were inevitably dominated by the occurrence of the 12th May Wenchuan Earthquake in Sichuan Province of China, which triggered very extensive landsliding. Whilst it will be very difficult to estimate the true impact of this event in terms of landslides, the Chinese authorities estimate that about 29,000 people were killed by landslides, with several thousand more losing their lives whilst trapped in rubble due to the inability of rescuers to pass through landslide affected areas. Considerable work is needed to understand the reasons for the intensity of the landslide processes.

Elsewhere the number of fatal landslides recorded totalled 405 worldwide. These caused 3526 fatalities, giving a total for the year of about 32,526 people. To put this into context, according to the CRED EM-DAT database the recorded number of fatalities from volcanic eruptions in the period 2000 to 2008 inclusive is 221! The distribution of fatal landslides followed the familiar patterns observed in previous years, with distinct clusters in Central China, along the southern edge of the Himalayas, in the Caribbean, in Central America, western S. America, along the western edge of the Philippine Sea plate and in Indonesia, plus a scattering elsewhere. The temporal distribution shows strong seasonality, with the peak occurring during the northern hemisphere summer. Unusually however, the peak month was September (usually it is in July), and there were large numbers of landslide events right through to November. The November landslide clusters occurred in SE. Asia and in Central / S. America, reflecting very heavy rains in these regions at that time. The reasons for this are not clear at present, although may be linked to weakening La Nina conditions that have prevailed through much of the year.

An analysis is made of the relationship between global scale climatic systems and the occurrence of landslides in 2008. When this is compared with previous years the causes of the observed behaviour become clear, with the role of variations in monsoon and tropical cyclone behaviour in particular being key.