

## EARTHQUAKES IN NEPAL

The earthquake on 12 May comes less than two weeks after a 7.9-magnitude quake that struck less than 50 miles from Nepal's capital city of Kathmandu **on April 25 and left more than 8,000 dead and 18,000 injured.**

The U.S. Geological Society (USGS) reported it a 7.3-magnitude earthquake. It also happened less than 50 miles from Kathmandu and had its epicentre near the town of Namche Bazaar, near Mount Everest.

The quake struck at a depth of 15 km, according to the USGS. This is the same depth as the April 25 quake.

According to the Nepali government at least 29 people have been killed in this latest quake and 1,006 injured.

**There have been hundreds of aftershocks in this region since the April 25 quake.**

Why do such powerful earthquakes occur in this region? Nepal sits on a part of Earth where one of our planet's great land plates – called the India plate by scientists – is pushing beneath another (the Eurasia plate to the north). At the location of this earthquake, the India plate is converging with Eurasia at a rate of 45 mm/year towards the north-northeast, driving an uplift of the Himalayan mountain range. **For example, Mount Everest – highest mountain on Earth – is still growing taller at 3-5mm per year.**

The preliminary location, size and focal mechanism of the April 25 earthquake are consistent with its occurrence on the main subduction thrust interface between the India and Eurasia plates. Four major earthquakes have happened there over the past century. The largest, an M 8.0 event known as the 1934 Nepal-Bihar earthquake, severely damaged Kathmandu, and is thought to have caused around 10,600 fatalities.

### The science of earthquakes

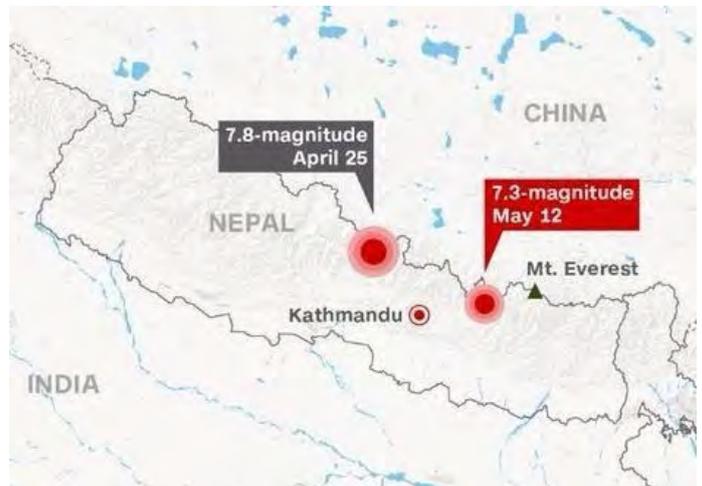
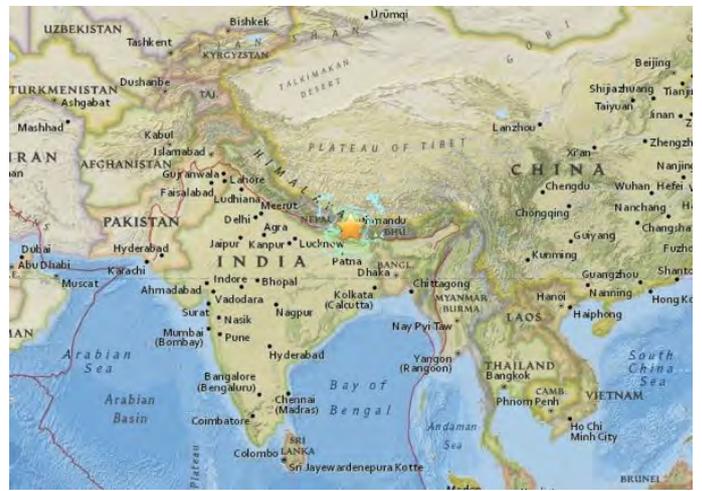
From the preliminary analysis of the seismic records we already know that the rupture initiated in an area about 70km north west of Kathmandu, with slip on a shallow dipping fault that gets deeper as you move further north. Over about a minute, the rupture propagated east by some 130km and south by around 60km, breaking a fault segment some 15,000 square kilometres in area, with as much as 3m slip in places.

The quakes are but one reminder of the hazards faced by the communities that live in these mountains. Other ongoing hazards include floods and monsoonal landslides, as exemplified by the Kedarnath disaster of 2013 which killed more than 5,000 people.

### Predicting Earthquakes

Questions as to why such a large earthquake, in this specific location at this time, and not elsewhere along the Himalaya, continue to baffle the research community, and make for problematic challenge of better targeted hazard preparedness and mitigation strategies.

AK from EarthSky Notes



Map of April-May 2015 earthquake epicentres



A crack in a road near Kathmandu caused by the earthquake.



Belts of earthquakes surround the Indo-Australian plate