

## Tectonics of Nepal Earthquake, 2015 and soft underground in Kathmandu basin

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Epicenters of Gorka earthquake (M 7.8) on April 24 and its maximum aftershock (M 7.3) at Kodari area on May 12 in central Nepal are located on the ductile shear zone of the Main Central Thrust, so called MCT zone (1~3 km thick). Total thickness of MCT zone and underlying Lesser Himalayan sediments is ca. 15 km, and it corresponds to the estimated depth of the focus. It suggests that the rupture and slip on the Main Himalayan Thrust (MHT), which is a boundary thrust between Eurasian plate of hangingwall and Indian plate of footwall, caused the earthquakes.

Core-drilling data obtained by the Paleo-Kathmandu Lake drilling project (2000~2005) revealed that underground of the Kathmandu basin is comprised of unconsolidated soft, middle to late Pleistocene lacustrine deposits called Kalimati clay and overlying fluvial-deltaic sandy deposits. Natural gas mainly methane was emitted from unconsolidated and water-saturated Kalimati clay beneath the sandy deposits at 20 to 45 m in depth. Those unconsolidated and water-saturated sand and organic lacustrine clay under densely populated urban area must have amplified shaking by the earthquake.

### References

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