

Seismology from the Roof of the World to the Irrawaddy Delta

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The active tectonics of the Himalaya and Indo-Burman regions produce some of the highest earthquake hazards and risks in the world. Efforts to improve seismic monitoring and earthquake hazard characterization face logistical, financial, and political challenges in developing and maintaining the high-quality real-time sensor networks and specialized staff needed to monitor local seismicity and to record and analyze strong ground motions. I will present an overview of recent projects to expand and densify seismic networks and characterize ground motions for hazard assessment. In Myanmar, an upgraded national seismic network comprising 19 broadband and strong-motion stations (Thiam et al., 2017, SRL) has recorded three $M \geq 6$ earthquakes in its first three years of operation, and continues to record 2-4 $M \geq 4.5$ earthquakes per month. In Nepal, a network of low-cost Raspberry Shake sensors installed around the Kathmandu Valley is improving monitoring of local seismicity and furthering investigation of basin effects observed during the 2015 M7.8 Gorkha earthquake. Waveforms and metadata from these rapidly-developing seismic networks are largely freely available from IRIS or the Raspberry Shake data center. The expansion and operation of these networks is made possible by a dedicated and skilled group of scientists, engineers, and station hosts.

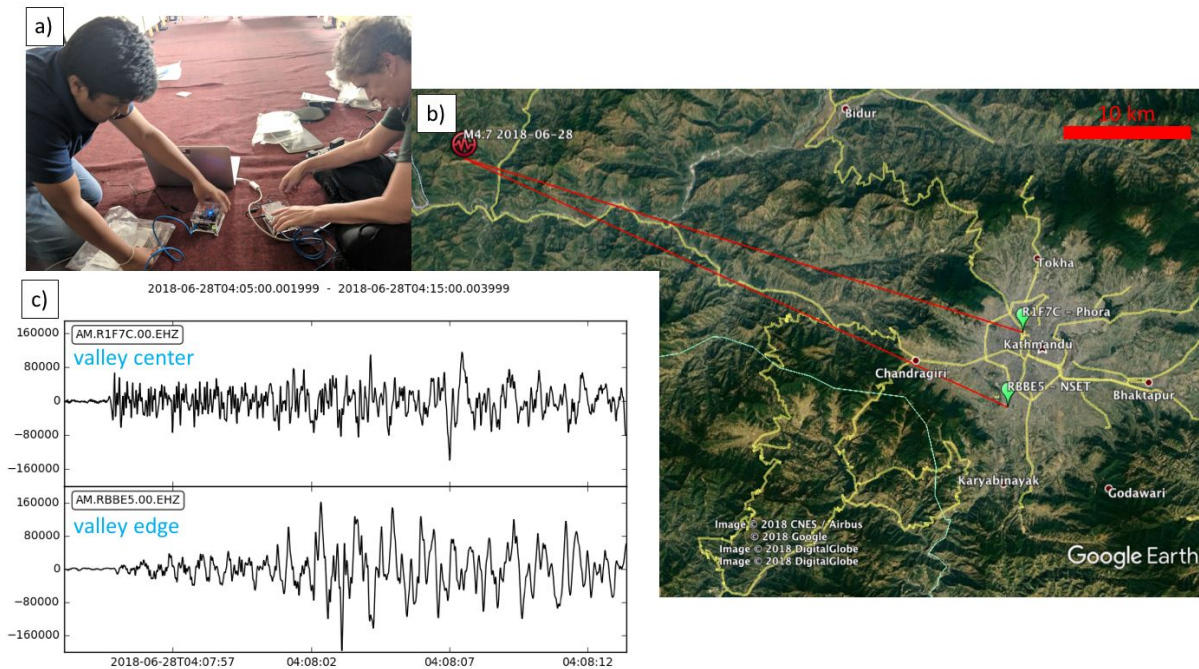


Figure 1. Low-cost sensors installed around the Kathmandu Valley will provide valuable data for basin response studies. (a) Earthquake scientists and engineers at the National Society for Earthquake Technology - Nepal have been trained to install Raspberry Shake sensors. (b) Shortly after installation, the first two stations recorded a M4.7 earthquake at approximately 50 km epicentral distance. (c) Waveforms demonstrate different site response at a site near the valley center versus the valley edge.