

Field Deployment of a Multi-Instrument Monitoring Network for “SLIDE” project in Nepal: Technical and Community Insights

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Abstract:

Monitoring slow-moving landslides requires continuous, high-quality geophysical and environmental data collected directly from unstable slopes. As part of the “SLIDE” project in Nepal, we deployed a network combining geophones, broadband seismometers, GNSS stations, and two meteorological stations to study the slow-moving landslide near the village of Bolde.

As the field engineer responsible for the installation phase, I will present the practical aspects of deploying and maintaining these instruments in remote Himalayan terrain. Each system required specific installation techniques and careful site selection to ensure stable measurements and long-term performance. Field operations were challenged by difficult access, variable road conditions, limited power availability, and unpredictable weather. Transporting fragile equipment to steep and isolated locations often relied on local porters and improvised logistics. A particular challenge was installing 14 stations in just one week, in addition to the 3 stations already in place, requiring careful planning, efficient coordination, and rapid adaptation to on-site constraints.

Heavy and bulky equipment was purchased locally, while scientific instruments and accessories were shipped from Luxembourg, requiring careful advance planning to minimize unforeseen issues on site. Beyond technical challenges, community engagement proved essential to the project’s success. Close collaboration with local residents guided several site choices and ensured the protection and maintenance of the stations over time.

Preliminary results focus on data recovery and quality assessment. The quality of the GNSS and meteorological data, as well as initial interpretations related to the landslide, will be presented. This presentation highlights the lessons learned from deploying a complex multi-sensor network in challenging field conditions, emphasizing the importance of local cooperation and adaptive engineering in long-term landslide monitoring.



Figure 3: Seismic station deployed on the Bolde landslide, central Nepal, showing the broadband sensor, solar power system, and GNSS antenna.