

## Broadband Microtremor Array Exploration at and around Tribhuvan International Airport, Kathmandu, Nepal

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Strong ground motion of long duration and long predominant period around four seconds were observed during the 2015 Gorkha earthquake at the central part of the Kathmandu Valley (KTV), Nepal (Dixit et al. 2015, Bhattarai et al. 2015, Takai et al. 2016, Rajaure et al. 2017), a tectonic basin formed during the Himalayan orogeny due to the collision of the Indian plate to the Eurasian plate (e.g., Sakai et al. 2016). Aimed to reveal the cause of this phenomenon and to make possible the seismic hazard assessment considering on the structure of deep sedimentary layers, the research group to which the authors belong (Group3-SATREPS) has conducted the deep exploration by deploying microtremor arrays (Maximum inter station distance about 1400 m) at few sites using four sets of broadband seismographs (CMG40T, Guralp) for estimating the shear wave velocity structure of deep sediments from Dec. 2016 to Feb. 2018, together with shallow exploration using 2 Hz seismometers (L22D, Sercel) and 4.5 Hz geophones (GS11D, GeoSpace) (Yokoi et al. 2018, SSJ-Fall). In KTV as a whole, the gravity survey had been performed in 2017 by the OYO corp. team which belongs the same research group (Pradhan et al. 2018 (JpGU)) and the reflection survey has been conducted Nov. 2018 by OYO corp. also at the Tribhuvan International Airport (TIA) and at the National Agriculture Research Institute (NARI) located at around 2 km SW of TIA. The deep structure of KTV is gradually getting revealed (Koshika et al. 2019 (JpGU) submitted). In this poster session, we will report the results of analysis of the microtremor array exploration at and around TIA and NAST, and a hard rock site (Chobar) that we have conducted Dec. 2018 following the above mentioned activities.

The attached figure shows the configuration of observation sites and a summary of the dispersion curves of Rayleigh waves. In the legend, *BDR* (red circles) shows the results given by Hayashida et al. (2018, SSJ-Fall) using tele-seismic surface waves, *CHB* (red “x” s): the phase velocities estimated on the outcropped bedrock of the Chobar hill. *SDB*: Singhadurbar, *DMG*: Department of Mines and Geology-Narayanhiti Royal Palace Museum, *TEKU*: Teku Gas well of DMG, *KIR*: Kirtipur Campus of the Tribhuvan Univ., *BLJ*: Department of Nepal Bureau of Standard and Metrology at Balaju, *GAU*: Gaucharan, *TIA*: Tribhuvan International Airport, *NAST*: National Academy of Science and Technology-National Agriculture Research Institute.

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