

## Study on characteristics of ground vibration during times of flooding in mountainous rivers

Nagazumi Takezawa<sup>1\*</sup>, YAMAKOSHI Takao<sup>2</sup>, ISHIZUKA Tadanori<sup>3</sup>, NAKAYA Hiroaki<sup>4</sup>

<sup>1</sup>Public Works Research Institutes, <sup>2</sup>Public Works Research Institutes, <sup>3</sup>Public Works Research Institutes, <sup>4</sup>Ministry of Land, Infrastructure, Transport and Tourism

Large scale sediment movement phenomenon such as deep catastrophic landslide generates ground vibration. So previous studies showed, analytical results of the data based on high-sensitivity seismometer networks can have higher resolution in time and location of landslide.

On the other hand, it is confirmed that the amplitude vibration of seismometer during heavy rain or flooding is large in related to amplitude of vibration during without rain or flood. This phenomenon has influence on lowering of Signal-Noise ratio. It means, accuracy of detecting the large scale sediment movement phenomenon using these networks is reduced.

We examined microtremor in seismometer during heavy rain or flooding and compared the amplitude of microtremor with discharge of mountainous river. Also we estimated seismic wave by the sediment movement phenomenon during flooding. At a result, it was found that amplitude of microtremor and discharge before observing the peak discharge reveals correlation.

Keywords: Vibration sensor, Flood, Discharge, Amplitude of velocity, sediment movement phenomenon