


S012-0005 - A Huddle Test with Multiple 6C Rotational and Translational Instruments in Fürstenfeldbruck, Germany

 Tuesday, 8 December 2020

 13:00 - 05:59

Live Chat with Presenter Ended 9 December 06:00

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Abstract

To fully describe the seismic wavefield, one needs to measure both 3 translational and 3 rotational components of the ground motion. Until recent years, it was not possible to directly measure the rotational components due to the lack of instrumentation. With the recent developments of new sensors such as fiber-optic gyroscopes it is now also possible to measure the rotation for broadband seismology applications. The first available and portable fiber-optic gyroscope, blueSeis-3A (iXblue), provides high sensitivity for measuring rotation.

In order to investigate the data from these special sensors, a huddle test was performed in the Geophysical Observatory Fürstenfeldbruck, Germany by the University of Potsdam (UP), the Ludwig-Maximilians University of Munich (LMU) and the Federal Institute for Geosciences and Natural Resources (BGR) from 26 August to 02 September 2019. We deployed 6 rotational sensors and 3 seismometers close to each other on the basement of the observatory.

In this study, we discuss self-noise of the instruments in terms of correlation, coherency and probabilistic power spectral densities. Furthermore, we present coherent noise spectrograms which were grouped into four main categories in terms of their similarities in frequency content and shape of the waveform. Furthermore, we present observations from the 29 August 2019 ML 3.4 Dettingen earthquake and compare our results with data from the ring laser ROMY which has 4 rings to add redundancy.

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