

## **A Method to Minimize Errors in Seismic Differential Measurements**

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### **A b s t r a c t**

The seismic differential signal is measured as a difference between two seismic recordings made by seismometers placed in the same direction close to each other. The purpose of our study was to verify possible inherent errors in the measurement technique, especially in far-field measurements.

We present a model of errors resulting from small differences in 3D responses of seismometers. While constructing this model, we singled out two sources of error. These are: the previously known error resulting from differences in seismometer's response, and a component due to motion in transverse direction. The evaluation of errors on the differential signal measurement was made for distances between horizontal seismometers varying from 16 cm to 97 m.

A new method to assess the above-mentioned errors in differential signal measurement is proposed. This method is based on estimating a dynamical correlation between the differential and translational signals.

**Key words:** differential measurements, seismic rotation.