

Toward a study of the effect of rotational motions on linear seismic measurements

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Linear seismometers like all inertial accelerometers and gravimeters are inherently sensitive to changes in the projection of gravity vector along their sensing axis as these results in changes in the equilibrium of their proof mass. Consequently linear seismometers are inherently sensitive to rotational motion around the axes that are orthogonal to their sensing axis. Then, measuring the response of a seismometer to a three-axis rotational motion is a fundamental action to quantify the effect of rotation and estimate the bias on the seismic translation measurement. Two different approaches will be used: a dynamic study based on the Ixblue's testing equipment and a static study based on the CEA's seismic calibration table. After an overview of the subject, a preliminary approach will be presented with a short period mono-axe seismometer then the sensitivity to rotational effects of a 3 axes seismometer like trillium 120 will be considered.