

1.4 WHAT ACTUALLY ROTATIONAL SEISMOLOGY MEANS TO A SEISMOLOGIST?

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ABSTRACT

Rotational seismology is a branch of seismology that focuses on the measurement and analysis of rotational ground motion caused by seismic events. Traditional seismology primarily deals with the study of translational (vertical and horizontal) ground motion, but rotational seismology extends this focus to include the rotation of the ground about a vertical axis. This rotational motion can provide valuable insights into the dynamics of seismic events and the Earth's subsurface properties. Rotational seismology involves the use of specialized sensors, known as rotational seismometers, to record the angular motion of the ground in response to seismic waves. These sensors are designed to measure the rate of rotation (angular velocity) and sometimes the angle of rotation (orientation) of the ground based on Sagnac's effect. Although being relatively new and evolving field, and its integration with traditional translational seismology has the potential to provide a more comprehensive understanding of seismic phenomena. Researchers and seismologists use rotational data alongside translational data to gain insights into earthquake sources, ground motion, and seismic hazard assessments.

Keywords: Rotational seismology, gradient, full wavefield