Geophysical Research Abstracts, Vol. 7, 07218, 2005
SRef-ID: 1607-7962/gra/EGU05-A-07218

Rotation field components of the seismic field - preliminary results

Krzysztof P. Teisseyre

Institute of Geophysics, Polish Academy of Science, Warszawa, Poland

kt@igf.edu.pl

Rotation components of the seismic field - preliminary results

Rotation motions – the rotation and twist, both of them having three-dimensional character – accompany the classical seismic waves, although it is hard to detect them. In these motions, certain grains of rock or parts of the continuous medium rotate and undergo twist-bend deformation, the latter relates to the deformation tensor. Moreover, these motions should be divided into two categories: rotation of displacement motions and real rotation motions as the independent deformation fields.

Rotation and twist of displacement motions are simply an outcome from space-derivatives of the displacements in the medium rocked with seismic oscillations. The real or micromorphic rotation motions are excluded by most seismologists from consideration, nevertheless they are postulated in some theories: of micromorphic continuum, continuum with defects and the continuum with internal stresses as well.

Presented are some results of the search for rotation motions in the seismic data collected in Italy, Greece and Poland.