Geophysical Research Abstracts
Vol. 13, EGU2011-2034, 2011
EGU General Assembly 2011
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# An investigation into oscillations polarization in the geodetic and fluid excitation functions of polar motion

Wieslaw Kosek (1,2), Waldemar Popiński (1), Tomasz Niedzielski (1,3)

(1) Space Research Centre, Polish Academy of Sciences, Warsaw, Poland (kosek@cbk.waw.pl), (2) Environmental Engineering and Land Surveying, University of Krakow, Poland, (3) Oceanlab, University of Aberdeen, Scotland, UK

Wavelet analysis techniques enable to detect instantaneous amplitudes and phases of oscillations in complex-valued time series. High frequency variations in the geodetic and fluid excitation functions have variable amplitudes and phases which entail a change in flattening and polarization of the elliptic oscillations occurring in these functions. A comparison of these excitation functions is carried out by examining common variations in flattening and polarization of the elliptic oscillations as well as differences between them using the wavelet transform coefficients. It has been already shown that the oscillations with periods less than 35 days in these functions are more retrograde than prograde. In this paper, the considered fluid excitation functions comprise: the atmospheric, oceanic and land hydrology excitation functions from ECMWF atmospheric data produced by IERS Associated Product Centre Deutsches GeoForschungsZentrum, Potsdam. The geodetic excitation functions have been computed from the IERS combined pole coordinates data. A similar analysis has also been conducted on pole coordinates data and pole coordinates model data computed from the fluid excitation functions using a trapezoidal rule of numerical integration.