Geophysical Research Abstracts
Vol. 16, EGU2014-13225, 2014
EGU General Assembly 2014

Temporal Variation of Tidal Parameters

Bruno Meurers (1), Michel Van Camp (2), and Vojtech Palinkas (3)

(1) University of Vienna, Department of Meteorology and Geophysics, Wien, Austria (bruno.meurers@univie.ac.at, +43 1 4277-9537), (2) Royal Observatory of Belgium, 3 avenue Circulaire, BE-1180 Brussels, Belgium, (3) Research Institute of Geodesy, Topography and Cartography, Geodetic Observatory Pecný, Czech Republic

This paper investigates temporal variations of tidal parameters at 4 European stations within the framework of the Global Geodynamics Project (GGP): Vienna (VI), Pecny (PE) and Conrad observatory (CO) represent intra-continental sites, while Membach (MB) is closer to the sea. All stations are equipped with superconducting gravimeters (SGs). Observation periods are as long as 17 yrs (MB), 12 yrs (VI) and 5 yrs (PE and CO) involving 3 different SGs. We analyze successive and overlapping intervals of 1 y and 3 months, respectively.

Both the M2 amplitude factors and phases derived from the 3 months periods show a clear annual variation, which is stronger at MB. The variations disappear when analyzing 1 y intervals. This well-known phenomenon is due to non-linear ocean tides. Besides the annual, common short-term features can be observed, especially at the stations PE and CO which are separated by 230 km. These variations are not present in the MB results. This might be due to local common forcing.

We also investigate if long-term (i.e. trend) features are visible in the tidal parameter variations at all SG stations. The result can also be used to control the quality of the transfer function (scale factor, time lag) of the involved SGs.