



Geophysical loading models and their impact on geodetic observation techniques

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High quality Earth observations require an accurate, stable and global reference frame. One GGOS goal is to provide the observational basis for such a frame with 1 mm accuracy. In order to reach this ambitious goal the technique specific functional models must be improved. Beside the well known tidal effects associated with the geophysical fluids the non tidal part has to be taken into account too. The non tidal mass redistribution in the atmosphere, the oceans and the hydrology leads to changes in the shape of the Earth and the Earth's gravity field. For modeling these effects, special data sets are mandatory. A broad variety of models with different parameters for e.g., the special resolution are available at the Global Geophysical Fluid Centre (GGFC). This makes model tests necessary to see which model performs best.

We performed model comparisons to study the differences for the modeled displacements. Additionally, we analyzed eleven years of LAGEOS and Etalon data using different model combinations to study the impact on the estimated stations coordinates and other parameters e.g., the geocenter and the Earth rotation parameters.