

On the comparison of observed tidal parameters with tidal models in central Europe

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Superconducting gravimeters at three central European GGP stations of Pecný (Czech Republic), Vienna and Conrad (Austria) have been carefully recalibrated by means of extensive numbers of simultaneous absolute measurements. At the precision of 0.05% a correct evaluation of the ocean tide loading effect is of primary importance to allow comparison with body tides models and provide an external check of the claimed precision of the calibrations. This study is focusing on the choice of the best Ocean Tide Models (OTM) for the concerned area, using different computation tools for tidal loading evaluations i.e. ICET (Melchior et al, 1980), NLOADF (Agnew, 1997) and Free Ocean Tide Loading Provider (<http://holt.oso.chalmers.se/loading/>). The standard deviation on the corrected tidal parameters due to the scattering of the OTMs reaches 0.03% in amplitude and 0.015° in phase. However the disagreement between different providers using the same OTM set may reach 0.05%. We propose an optimal solution. The corrected amplitude factors at the three stations, which mutually agree at the level below 0.05%, reach agreement better than 0.05% with the DDW99/NH and MAT01/NH models for O1 and M2. For K1 the agreement is much better with MAT01/NH due to a better choice of the FCN model. The corrected phases do not differ significantly from zero except for K1 (0.04° or 10s), which requires a 3D computation for the atmospheric pressure corrections. The same is true for long-period tides.