



## Modelling Hydrological Effects on Gravity

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Hydrological effects on gravity have sizeable impact on the accurate terrestrial gravity observations with superconducting (SG) and absolute gravimeters (AG). These effects, that contain strong seasonal signals, represent important problem in AG and SG observation feasibility in current geodynamic studies (Earth recent dynamics, post-glacial rebound, long-period tides, etc.).

At present, hydrological effects are reliably estimated only at few SG stations, where detailed hydro-geological studies of station vicinity and many hydro-meteorological observations are being realized. However, the knowledge of hydrological effects with an accuracy of about 1 microgal are also very important at many sites, where accurate repeated absolute gravity measurements are performed. Unfortunately, very expensive detailed hydrological studies of such stations are unrealistic.

Presented are the results of hydrological effects on gravity computed on basis of widespread WGHM and LaDWorld hydrological models. For Europe a global contribution of hydrological effects (distance>2 km) is computed. The local contribution of hydrological effects (distance<2 km) is modelled for the station Pecný based on the nearest WGHM data and variable information about station vicinity. The modelled hydrological effects are compared with combined SG and AG gravity series at the station.