



Interannual variability in GPS height and gravity time series

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Multiyear time series of continuous GPS height data show significant interannual variability. In northern Italy, we have compared, for each station, the observed GPS seasonal oscillations with the mean seasonal cycle derived by stacking of the observations. Models describing the vertical displacements of the Earth's crust due to the loadings induced by the seasonal variations of atmospheric pressure, local hydrology and non-tidal oceanic effects were also realized and compared to the mean observed seasonal cycle. The relative contribution of each of the three loads to the total observed annual signal was also investigated. Multiyear time series of continuous gravity data collected by superconducting gravimeters are also available. We have studied the interannual variability of the gravity data at the Medicina and Wettzell stations in a similar way to that described for the GPS height time series. Particular emphasis is given to understanding the role played by the local/regional hydrology.