

**EFFECTS OF ENVIRONMENTAL PARAMETERS ON HEIGHT AND GRAVITY VARIATIONS.**

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Continuous GPS and gravity measurements by means of a cryogenic gravimeter started in mid 1996 at Medicina, in Italy. The time variability of gravity and GPS heights in relation to variations of several environmental parameters has been investigated. A marked seasonal signal, of comparable amplitude and phase, has been identified in both data series. It has been interpreted as the sum of different loading and Newtonian attraction effects. Seasonal loading effects induced by air pressure, the ocean and surficial water table were estimated and modeled for both data sets. Mass effects due to the surficial water table and the ocean were also estimated and accounted for. For the gravity series, 12-hour data of balloon radio sounding launches have been used to estimate the attraction effect of the seasonal vertical density distribution of the air pressure column above the station. It is demonstrated the importance of collecting continuous, high-accuracy, multi-parameter data series for an appropriate interpretation of signals related to environmental variability.