



Atmospheric pressure effect on gravity data for Tehran's base station

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Variations of Atmospheric pressure imply changes in the mass of the air column above the Earth's surface and so it changes the gravity observed in the gravity base stations. An increase in Atmospheric pressure will cause a decrease in the observed gravity. The approximate relationship between these changes is given experimentally by Merriam (1992) as -0.36 microgal/milibar. Therefore, the changes in Atmospheric pressure by 5 milibar yields in $+1.8$ microgal changes in gravity. For precise gravity measurements, this effect must be considered. This study focuses on the computation of the Atmospheric pressure effect using the air pressure data in order to correct the gravity measurements. Continuous gravity data in Tehran's gravity base station is used for this purpose. Gravity data is already reduced for other effects like instrumental drift and tidal effects. The obtained residuals are analyzed at the end to show the efficiency of the process.