

On selection of interpretation method for the GPS geodynamic Earth surface point movements in high frequencies range

A.A. Iljuchin, V.N. Koneshov

¹ *Vladimir State University named after Alexander and Nikolay Stoletov, Vladimir, Russia*

² *Schmidt Institute of Physics of the Earth, Russian Academy of Sciences, Moscow, Russia*

Abstract. Different method variants for the GPS vertical and horizontal channels measurements data interpretation were examined during experimental works. In the conditions of geophysical observatory, the observation point movement imitation experiments were carried out separately in vertical and horizontal directions. The experiments were carried out on a pedestal with original benchmarks in the both directions. The movements in the high frequency branch with different movement time values from one point to another were imitated. The movement time value did not exceed one hour. The errors of point movement measurement imageries according to GPS receivers data interpretation were estimated in relation to the reference data. This data was processed in differential and PPP regimes. The experimental results confirm the lack of potential possibility to image vertical movements of the Earth surface caused by tidal changes in accordance to GPS receiver data.

Keywords: gravimetry, long term tidal gravimetric observations, geodynamic movements, vertical and horizontal channels of GPS measurements, the errors of measurements by GPS receiver; high frequency vertical and horizontal movements.