COMPARISON OF COORDINATES AND CURRENT RATES ESTIMATIONS BY DUAL FREQUENCY RECEIVERS OBSERVATION

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Dual frequency geodesy receivers with different antennas are used for precise data on coordinates and velocity measurement of stations on the Earth surface. Current rates data used for Earth Plate Tectonic calculation and for study of geology structure deformation. Rates analysis usually developed by different equipment data. Due to millimeter accuracy monitoring some peculiar properties, concerning usage and change of different antennas and space geodesy receivers, were used. We analyze annual measurement at West Siberia stations (Kluchi – Novosibirsk – NVSK, Artybash, Ust-Kan) and in Primorye (Gamov peninsula, Shults cape). Different types of hardware was used: TRIMBLE 4700 (antenna Trimble MicroCentered L1/L2, P/N), Sokkia Radian GePos 24 (antenna Nova Tel 600-G L1/L2), JAVAD TRE_G3T SIGMA (antenna

JAV_GRANT-G3T, External GPS L1/L2/L5, GLO L1/L2, GAL E1/E5A) and Trimble R7 GNSS (антенна Zephyr Model2, L1/L2/L5, G1/G2 Geodetic). Coordinates of different epochs was calculated with GAMIT-GLOBK software. Coordinate differences, due to different receivers and antennas are 2–10 mm. Estimation of position for neighbouring marks differ from 1 to 3 mm. Vertical measurement divergences is 10–30 mm, caused by different phase centers locations for various antennas types. Long term horizontal rates display good convergence. Horizontal variance rates at south Primorye, according to Eurasian Tectonic plate is a result of catastrophic earthquake in Japan 03.11.2011 (M = 9,1) post-seismic relaxation.

Key words: space geodesy, dual frequency receiver, station coordinates, horizontal movement velocity, current rates, tectonic plate models.

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