

SGD001-P01

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## Development of the GPS observation system based on the low-cost dual-frequency GPS receiver and data logger

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The Geographical Survey Institute has operated the dense continuous GPS network of Japan, now called GEONET, since 1994. Now, the GEONET have 20 to 25 km spatial coverage, it is basically enough to detect the crustal displacements pattern for the large earthquake over the M 7 class. However, there are not enough GEONET sites near the mountainous topography area. For moderately size inland earthquakes with magnitude between 6-7, the spatial density of GEONET is insufficient for determining detailed coseismic and related fault motion (e.g. Ohta et al., EPS, 2008). It is extremely important for the understanding the inland earthquake occurrence processes. For such purpose, there are societal and scientifically demand of the build up of the more dense GPS network in and around the inland active fault areas. Furthermore, the real-time kinematic GPS data also get a lot of attention for the crustal deformation monitoring (e.g. Blewitt et al., 2009).

Based on these backgrounds, we are developing the low-cost GPS observation system. It is composed low-cost dual frequency GPS receiver and LINUX data logger. Now we used the Leica GMX902 GG dual frequency receiver. It is not include the internal memory and just output the LB 2 (Leica binary format) streaming data via serial port. One of the main features of this receiver is low power consumption which less than 2W. We receive the LB2 format data by LINUX data logger and convert to RINEX format by sequentially. The LINUX data logger is s a lot of flexibility for the data handling and network connections. We also are developing the real-time data streaming via this LINUX data logger.

Keywords: low-cost GPS observation system, RTK-GPS