

SVC050-12

Room:302

Time:May 23 11:30-11:45

## Development of the near real-time analyzing system for GPS observation data of the volcano monitoring network in NIED

Seiichi Shimada<sup>1\*</sup>, Hideki Ueda<sup>1</sup>

<sup>1</sup>NIED

We develop the near real-time automated analyzing system of GPS observation data to obtain every three-hourly updated site coordinates of volcano observation network introducing in NIED. In the present GPS analyzing system of volcano observation network in NIED, GPS site coordinates are estimated once per day using 24-hourly data. In the system developed in this study, GPS observation data in the network sites are analyzed near real-time with the nearby GEONET fiducial sites every three-hour using 24 hourly, 12 hourly, 8 hourly data and so on.

In the present analyzing system, GPS observation raw data of the volcano observation network are telemetered to NIED in Tsukuba one per hour, transformed to RINEX format file once per day, and the site coordinates are estimated automatically every day. In the system in this study, at first we develop the automated RINEX transformation program from GPS observation raw data every three-hour. Next we develop the program to estimate the best-fitting site coordinates of GEONET fiducial sites near volcano observation network, analyzing GEONET sites with around 20 IGS fiducial sites in and around Eastern Asia once per day to estimate daily GEONET site coordinates, then estimating updated best-fitting GEONET site coordinates applying recent 30 days daily coordinates solutions. In the last, GPS data of the volcano observation network sites are analyzed with the GEONET fiducial sites data automatically and estimated the latest site coordinates applying 24 hourly data or the data less than 24 hour (for instance, 12 hourly, 8 hourly, and 6 hourly data). For the RINEX converting program we adopt teqc program, for the GPS analyzing software we adopt GAMIT program, and we develop the programs to control those software adopting perl language. For from GSI data server GEONET data are available every three-hour with about 70 minutes delay, in this system we download RINEX files of the GEONET sites automatically just after the release of GEONET data, then begin to analyze GPS data, and obtain the latest site coordinates solutions around 90 minutes delay.

In this paper we also present the stability of site coordinates solutions obtained in the system automatically applying short (less than 24 hour) observation data.

Keywords: near real-time analysis, GPS observation, volcano monitoring network