

Ultra-rapid EOP measurement with e-VLBI system

KOKADO, Kensuke^{1*}, KURIHARA Shinobu¹, KAWABATA Ryoji¹, NOZAWA Kentaro²

¹GSI of Japan, ²Advanced Engineering Service Co.,Ltd

Earth Orientation Parameter (EOP) is essential data for orbit control of an artificial satellite, space exploration or analysis of GPS data. Although the EOP values are calculated by international VLBI observations operated by International VLBI Service for Geodesy and Astrometry (IVS), IVS needs a lot of time (from several hours to several weeks) to obtain EOP values, because it takes a lot of time to process the VLBI data.

Although we conduct some data analysis, we use the final solution of EOP which is calculated using the observed EOP values on VLBI observation. The final solution includes the prediction EOP values, of which accuracies decrease with time. Therefore, many users of the EOP solution require submission of observed UT1 value as soon as possible after the observation.

Geospatial Information Authority of Japan (GSI) has implemented a number of experiments for quasi real-time estimation of UT1 value, which is one of parameters of EOP, since 2007. We introduced the system for quasi real-time estimation into an international VLBI session, and it enabled us to obtain and submit the UT1 results within a few minutes after the observing session of regular VLBI session. In 2011, we have implemented test observation on East-West and South-North baseline and succeeded in ultra-rapid measurement of XY coordinate of polar motion as well as UT1. We will report our recent activities in the presentation.

Keywords: VLBI, UT1, EOP, e-VLBI