

## e-VLBI application for Earth Rotation Observation

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e-VLBI is a VLBI technology with electronic(photonic) data transfer and data processing. The essential advantages of e-VLBI are three points: (1) Quick turn around, (2) Flexibility and easiness of automatic pipeline processing, and (3) Easy data compatibility between different VLBI backend systems. Particularly in the viewpoint (3), the network technology has been established on layer structure as well known OSI's 7 layers model, which enables independent development for low level hardware, communication protocol, and applications. Thus exchanging VLBI data over the network can relatively easily eliminate the hardware difference between specific VLBI data acquisition systems (DAS).

NICT has developed K5 VLBI system for DAS and for data processing with software correlation. Also we are developing a dynamic network resource allocation system by using GMPLS (Generalized Multi-Protocol Label Switching) and a light path control system. Since e-VLBI is suitable application to the dynamic allocation, we try joint experiment of e-VLBI and the allocation system.

The data exchange and compatibility is particularly important for international VLBI experiments. We and D. Lapsley, A. Whitney on MIT have proposed a specification of VLBI data exchange protocol with RTP and RTCP (VSI-E) for standardization. In Europe, Metsahovi radio observatory of Helsinki University of Technology has developed a VLBI DAS interface for PC and it is routinely used in European VLBI Network (EVN) for daily observation and started call for proposal of real-time VLBI observation.

We are preparing steady e-VLBI observation for UT1 measurement with Wettzell station in Germany and Onsala observatory in Sweden. VLBI is a unique technique that can measure the UT1 stably in long time span. Tsukuba VLBI station of Geographical Survey Institute (GSI) in Japan and Wettzell station has already doing regular VLBI observation for rapid UT1 measurement by FTP-based data transfer. Though there are spaces to improve the turn around time by e-VLBI technique such as simultaneous data transfer with observation and hopefully simultaneous data processing. This paper will present the status of the e-VLBI collaboration for rapid UT1 measurement.