

# NICT Data Center Biennial Report for 2015-2016

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**Abstract** The Data Center at the National Institute of Information and Communications Technology (NICT) archives and releases the databases and analysis results processed at NICT. Regular VLBI sessions of the Key Stone Project VLBI Network were the primary objective of the Data Center. These regular sessions continued until the end of November 2001. In addition to the Key Stone Project VLBI sessions, NICT has been conducting geodetic VLBI sessions for various purposes, and these data are also archived and released by the Data Center.

## 1 General Information

The IVS Data Center at National Institute of Information and Communications Technology (NICT) archives and releases the databases and analysis results processed at NICT. Major parts of the data are from the Key Stone Project (KSP) VLBI sessions [1], but other regional and international VLBI sessions conducted by NICT are also archived and released. Since routine observations of the KSP network terminated at the end of November 2001, there have been no additional data from the KSP regular sessions since 2002.

The analysis results in SINEX (Solution INdependent EXchange) format as well as in other formats are available on the WWW server. Database files of non-KSP sessions, i.e. other domestic and international geodetic VLBI sessions, are also available on the

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1. National Institute of Information and Communications Technology (NICT)

NICT Data Center

IVS 2013 Annual Report

WWW server. Table 1 lists the WWW server locations maintained by the NICT Data Center.

## 2 Activities during the Past Year

### 2.1 KSP VLBI Sessions

The KSP sessions had been performed with four VLBI Stations at Kashima, Koganei, Miura, and Tateyama on a daily or bi-daily basis until May 1999. The high-speed ATM (Asynchronous Transfer Mode) network line to the Miura station became unavailable in May 1999, and real-time VLBI observations with the Miura station became impossible. Thereafter, the real-time VLBI sessions were performed with the three other stations. Once every six days (every third session), the observed data had been recorded to the K4 data recorders at three stations, and the Miura station participated in the sessions with the tape-based VLBI technique. In this case, the observed data at the three stations other than the Miura station were processed in real-time, and the analysis results were released promptly after the observations completed. A day later, the observed tapes were transported from the Kashima, Miura, and Tateyama stations to the Koganei station for tape-based correlation processing with all six baselines. After the tape-based correlation processing was completed, the data set produced with the real-time VLBI data processing was replaced by the new data set.

In July 2000, unusual site motion of the Tateyama station was detected from the KSP VLBI data series, and the frequency of the sessions was increased from bi-daily to daily on July 22. The daily sessions were continued until November 11, 2000, and the site mo-

**Table 1** URL of the WWW server systems. The URL has slightly changed.

Service	URL
KSP WWW pages	<a href="http://ksp.nict.go.jp/">http://ksp.nict.go.jp/</a>
IVS WWW mirror pages	<a href="http://ivs.nict.go.jp/mirror/">http://ivs.nict.go.jp/mirror/</a>
Database files	<a href="http://www2.nict.go.jp/sts/stmg/www3/database/">http://www2.nict.go.jp/sts/stmg/www3/database/</a>
e-VLBI UT1 Exp.	<a href="http://www2.nict.go.jp/sts/stmg/research/e-VLBI/UT1/">http://www2.nict.go.jp/sts/stmg/research/e-VLBI/UT1/</a>

tions of the Tateyama and Miura stations were monitored in detail. During the period, it was found that Tateyama station moved about 5 cm to the northeast direction. The Miura station also moved about 3 cm to the north. The unusual site motions of these two stations gradually settled, and the current site velocities seem to be almost the same as those before June 2000. By investigating the time series of the site positions, the unusual site motion started sometime between the end of June 2000 and the beginning of July 2000. At the same time, volcanic and seismic activities near the Miyakejima and Kozushima Islands began. These activities was finally found to be the cause of the regional crustal deformation in the area.

## 2.2 UT1 e-VLBI Sessions

In the period from 2007 till to 2008, experimental e-VLBI session for rapid UT1 sessions were conducted by collaboration among NICT, GSI, Onsala Observatory, and Metsahovi VLBI stations. Observed VLBI data were transferred to Kashima(NICT) or Tsukuba(GSI) via high speed Internet network, then succeeding correlation and bandwidth synthesis processes were applied in pipeline scheme to make quick estimation results of UT1-UTC. VLBI data of these experiments are saved in Mk3 database format, and available from this data center.

## 3 Current Status

VLBI project of our group is currently focused on development of broadband system and its application to frequency transfer. Two sets of small diameter VLBI stations are placed at NICT Headquarter in Tokyo and National Metrology Institute of Japan in Tsukuba city. Kashima 34m VLBI station has been upgraded to enable broadband observation. In addition to these three

stations, Ishioka 13m VGOS station (GSI) have been used for domestic broadband R&D experiments [2]. These data are also saved in Mk3DB and analyzed by CALC/SOLVE system. These data will be placed in the NICT Data Center in near future.

## References

1. Special issue for the Key Stone Project, J. Commun. Res. Lab., Vol. 46, No. 1, March 1999.
2. Mamoru Sekido, "NICT VLBI Analysis Center Report for 2015-2016", International VLBI Service for Geodesy and Astrometry 2015+2016 Biennial Report, edited by K. D. Baver, D. Behrend, and K. L. Armstrong, NASA/TP-2017-?????, 2017.