

Data Center at Communications Research Laboratory

Yasuhiro Koyama

Abstract

The Data Center at Communications Research Laboratory archives and releases the analysis results processed at the Analysis Center at Communications Research Laboratory. Regular VLBI sessions with the Key Stone Project VLBI Network are the primary objects of the Data Center. In addition, JPNTI and K4TIE series of geodetic VLBI sessions were processed and archived. Recent changes and future plans of the Data Center will be described.

1. Introduction

The IVS Data Center at the Communications Research Laboratory (CRL) archives and releases the analysis results processed by the IVS Analysis Center at CRL. Major parts of the data are from the Key Stone Project (KSP) VLBI sessions [1] but other regional and international VLBI sessions are also archived and released. Such additional sessions include JPNTI series and K4TIE series. The former series have been repeatedly performed with Tsukuba 32m, Kashima 26m, Kashima 34m, and KSP stations to precisely determine site coordinates of the Tsukuba 32m and KSP stations on the International Terrestrial Reference Frame (ITRF) by using the site positions of Kashima 26m and 34m stations on the ITRF. The later series were performed twice with the Fairbanks, Kashima 26m, Kashima 34m, and KSP stations to demonstrate international geodetic VLBI observations with the K4 observation systems.

2. Data Products

The KSP VLBI sessions were performed with four KSP IVS Network Stations at Kashima, Koganei, Miura, and Tateyama in a daily or bi-daily (once every two days) basis until May 1999. Duration of each session is about 23.5 hours. Daily observations were performed from March 1 until April 1, 1999 to obtain continuous VLBI data series for various investigations such as studies about the atmospheric delay models and for the improvements of the data analysis technique. The high-speed ATM (Asynchronous Transfer Mode) network line to the Miura station became unavailable in May 1999 and the real-time VLBI observations with the Miura station became impossible. After this time, the real-time VLBI sessions were performed with three stations at Kashima, Koganei, and Tateyama. Once every six days (one session per three sessions), the observed data were 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 three stations except for 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 to the Koganei station and the data were correlated. After the correlation processing 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 since July 22, 2000. The daily sessions were continued until November 11, 2000, and the site motion 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. 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 are almost the same as the site velocities before June 2000. By investigating the time series of the site positions, the unusual site motion started from 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 are thought to have caused the regional crustal deformation near the area, and the unusual site motions at Tateyama and Miura can be explained by the event.

Table 1 and Figure 1 show the number of geodetic VLBI sessions and number of valid observed delays used in the data analysis for each year.

Table 1. Number of sessions and observed delays used in the data analysis for each year up to December 2001.

Year	Number of sessions	Number of valid observed delays
1994	2	261
1995	172	15837
1996	344	66005
1997	306	287452
1998	183	474783
1999	196	351162
2000	241	342660
2001	114	192026
Total	1558	1730186

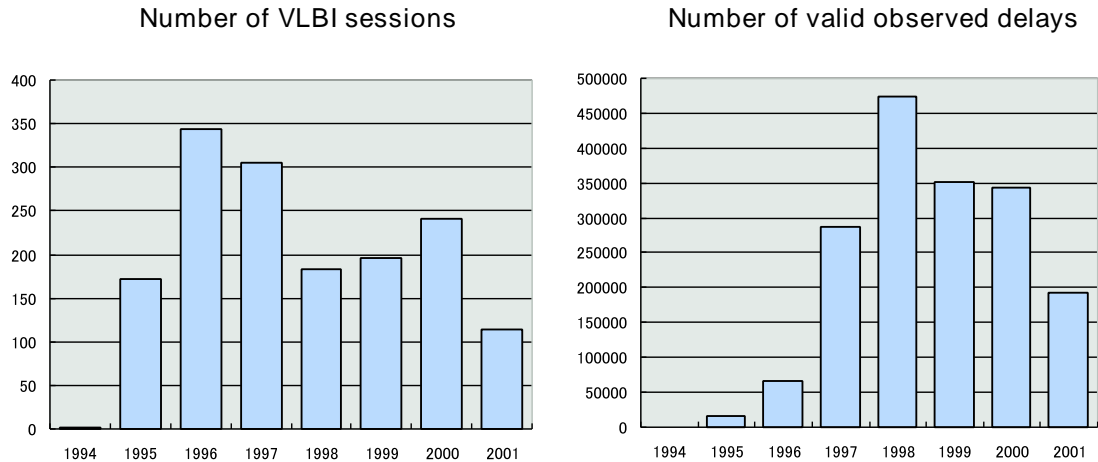


Figure 1. Number of sessions and observed delay used in the data analysis for each year up to the year 2001.

Effective from October 1, 2001, the server system for FTP (File Transfer Protocol) accesses was changed. The URL (Unified Resource Locator) of the WWW service remained the same, but the URL for the FTP service was changed as shown in the Table 2. Data analysis results are available in SINEX (Solution Independent Exchange) file format and in various formats including ASCII data and data plots.

Table 2. URL of the WWW and FTP server system.

Service	URL
WWW	http://ksp.crl.go.jp/
FTP	ftp://ftp.crl.go.jp/pub/dk/ivs/

3. Future Plans

The operation of the Miura KSP VLBI station was terminated in January 2001. The antenna and the observation facilities at the site were transported to the Tomakomai Experimental Forest of Hokkaido University. The Tateyama station was also closed after the last session on November 30, 2001. The 11-m antenna and the observation facilities were transported to the campus of the Gifu University and are waiting to be reconstructed in early 2002. The regular KSP VLBI sessions completed by the last session on November 30, 2001. All the databases and analysis results in various formats are available from WWW and anonymous FTP servers. CD-ROM disc with the analysis results in the machine readable form will be made available to public users and it will be sent upon requests. The IVS Data Center at CRL will continue its service and will archive and release the analysis results accumulated by the IVS Analysis Center at CRL.

References

- [1] Special issue for the Key Stone Project, J. Commun. Res. Lab., Vol. 46, No. 1, March 1999