

Status Report of Seshan VLBI Station

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Abstract

This report summarizes the status of the Seshan VLBI Station.

1. Introduction

The Seshan VLBI Station for astrophysical, astrometric and geodetic applications which is located near Sheshan Town about 30 km far way from the downtown of Shanghai was established in 1987 and is operated by Shanghai Astronomical Observatory (SHAO), Chinese Academy of Sciences (CAS). The first S/X dual band astrometric and geodetic VLBI experiment was carried out in April, 1988. At present, it is a member of the EVN, APT and IVS. Recently, Seshan station also is one of observational bases of the National Astronomical Observatory which was formed in this year.

2. Facilities

The Seshan station is equipped with a 25 m radiotelescope with the capability of S/X dual band observations. A cryogenic receiver with noise temperature of 15 K is used for X-band. The SEFD is 700 Jy at X-band. The upgrade of the extension of the bandwidth from 400 MHz to 800 MHz for X-band receiver is being performed. The SEFD is 2000 Jy for S-band and the higher SEFD is caused by higher noise temperatures of both receiver and antenna. A room temperature receiver with noise temperature of about 50 K is used for S-band. The 25 m antenna was adopted with a waveguide system and it is not good for lower frequency observations, such as 2.2 GHz. The improvement for S-band is under consideration. There also are L-, C- and K-band receivers available at Seshan station which are mainly used for astronomical VLBI and single dish observations.

There are both VLBA Data Acquisition Terminal with 14 BBCs and Canadian Recording Terminal at Seshan station. The upgrade from VLBA to Mark IV in cooperation with JIVE is under way and it is expected that the completion of the Mark IV upgrade will be in the first half of 2000.

Two hydrogen masers manufactured by SHAO are used as a frequency standard for VLBI observations. The stability of the SHAO masers is about 10^{-14} with the time scale of 100-1000 sec.

3. Personnel

The main staff members at Seshan VLBI Station are listed as follows:

Hong Xiaoyu	Research Professor and Chief Scientist
Liang Shiguang	Research Professor and Chief Engineer
Yu Zhiyao	Research Professor
Qian Zhihan	Research Professor
Huang Xinyong	Senior Engineer
Wei Wenren	Senior Engineer
Xue Zhuhe	Senior Engineer

The email accounts for the station are: seshan@center.shao.ac.cn; vlbish@online.sh.cn.

4. Future Plans

In general, it will take one day or more for the frequency switch, especially, the switch between S/X band and C- or K-band. The improvement of the frequency switch is difficult, but it is being considered.

The upgrade of the data acquisition terminal from VLBA to Mark IV and the extension of the bandwidth for X-band receiver is under way mentioned above. It will be completed in the first half of 2000, we expect.

The improvement for S-band is also under consideration. The upgrade of the receiver from room temperature to cryogenic is no technical problem, but budget limitation. The main problems are that the upgrade of the antenna with waveguide system and S/X dual band feed is not so convenient. We are still trying to find a good way to do the improvement.