Seshan VLBI Station Report

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Abstract

The following reports the status of the Seshan VLBI station, including its facilities, personnel, observations made during the reporting period and its future plans.

1. Introduction

The Seshan 25 meter radio telescope is an alt-az antenna run by Shanghai Astronomical Observatory (SHAO), Chinese Academy of Sciences (CAS). The telescope is located about 30 km west of Shanghai. It is one of the five main astronomical facilities of Chinese National Astronomical Observatories. The VLBI station is a member of the EVN, APT and IVS.

2. Facilities

2.1. Receivers

Five bands of VLBI observations are available at Seshan Station. The parameters of the receivers are listed in Table 1.

Table 1. VLBI Receivers of Seshan Satation

Band (cm)	**Bandwidth** (MHz)	**Efficiency** (%)	**Type**	**System temperature** (K)
18	1620-1680	40	Room Temperature	$\sim$ 100
13	2150-2350	45	Room Temperature	$\sim$ 100
6	4700-5100	58	Cryogenic	45-50
3.6	8200-9000	48	Cryogenic	$\sim$ 50
1.3	22100-22600	$\sim$20	Cryogenic	$\sim$110

The Seshan station is equipped with S/X dual band receivers for astrometric and geodetic observations.

The X-band system has been upgraded to the wideband system, from 8200 MHz to 9000 MHz, successfully last year. We will join wideband experiments this year. The test experiment C3006 has been done on Dec. 13, 2000. The correlated results showed good quality of data. The results also showed the large increase in SEFD's from low to high frequency. The situation will be improved.

2.2. Recording System

VLBA, MK4 (VLBA4), and S2 recording systems are available now at Seshsan VLBI station. Upgrade of Seshan MKIV recording system had been done successfully in the end of Aug. 2000.

MKIV upgrade of Seshan station has been carried out with the great help of Team China # 2 in April, 2000. Team China # 2 was composed of six experts from Europe and US. They are Dr.

Ralph Spencer, Dr. Les Parry, Dr. Michael Wunderlich, Dr. Gino Tucarri, Dr. Chopo Ma, and Dr. Ed Himwich.

The first fringe test experiment was done on Apr. 14 with VLBA4 rack and recorder. It failed to find good fringes, several tracks were dead, and the parity errors of several tracks were very high because of problems with the flat cables of the read/write modules, bad connectors, capacitors and soldering. The problems were solved later on.

Fringes were found in the second fringe test with VLBA and MK4 formatters on Aug. 27. Fringes were found also on FT003 and C00C3 experiments later. Seshan MKIV participated in experiments of EVN, NASA, VSOP, APSG etc. since the end of Aug. 2000. Many thanks to JIVE, EVN, NASA, Team China #2, Dan Smythe, and all people who worked on our upgrade.

3. Personnel

There are some changes of the staff in Seshan station. The main staff members at Seshan VLBI Station are listed in Table 2.

Table 2 - The main staff in Seshan VLBI Station

Name	**Position**	**email address**
Xiaoyu Hong	Research Professor and Chief Scientist	xhong@center.shao.ac.cn
Shi-guang Liang	Research Professor and Chief Engineer	sgliang@center.shao.ac.cn
Zhihan Qian	Research Professor	qzh@center.shao.ac.cn
Xinyong Huang	Senior Engineer	xhuang@center.shao.ac.cn
Wenren Wei	Senior Engineer	wwr@center.shao.ac.cn
Zhuhe Xue	Senior Engineer	zhxue@center.shao.ac.cn
Jiazheng He	Senior Engineer	jzhe@center.shao.ac.cn
Qing-yuan Fan	Senior Engineer	qyfan@center.shao.ac.cn
Song-lin Chen	Engineer	slchen@center.shao.ac.cn
Xiu-ling Chen	Engineer	xlchen@center.shao.ac.cn

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

4. Geodetic Observations

13 geodetic experiments have been run by the Seshan Station from March 1999 to the end of 2000. The experiments are listed in Table 3.

5. Future Plans

The improvement of quickly switching frequencies of Seshan station will be implemented in this year. After that, it will be easy to switch between S/X band and L- or C- or K-bands.

The Geodetic VLBI observation plan of Seshan VLBI station for 2001 is listed in Table 4.

Table 3 List of Geodetic VLBI observations From Mar. 1999 to Dec. 2000

DATE	EXPERIMENT	HOUR
07-APR 1999	CORE-B502	24.0
21-APR 1999	CORE-B503	24.0
26-JUL 1999	CRF-08	25.0
28-JUL 1999	CORE-B504	24.0
01-NOV 1999	APSG05	11.0
03-NOV 1999	APSG06	25.0
04-NOV 1999	CORE-B505	24.0
29-DEC 1999	CORE-B506	24.0
12-JAN 2000	CORE-B801	24.0
26-SEP 2000	CORE-1004	06.0
02-OCT 2000	APSG7	24.0
02-NOV 2000	CORE-B802	24.0
14-NOV 2000	CORE-3006	06.0

Table 4 The Geodetic observation plan of Seshan VLBI station for 2001

DATE	EXPERIMENT	HOUR
05-Feb 2001	CORE-1009	24.0
05-Mar 2001	CORE-1010	24.0
26-Mar 2001	CONT-M3	24.0
27-Mar 2001	CONT-M4	24.0
28-Mar 2001	CONT-M5	24.0
16-Apr 2001	CORE-1011	24.0
14-May 2001	CORE-1012	24.0
25-Jun 2001	CORE-1013	24.0
09-Jul 2001	CORE-1014	24.0
20-Aug 2001	CORE-1015	24.0
10-Sep 2001	CORE-1016	24.0
22-Oct 2001	CORE-1017	24.0
05-Nov 2001	CORE-1018	24.0
12-Nov 2001	APSG-8	24.0
19-Nov 2001	APSG-9	24.0
03-Dec 2001	CORE-1019	24.0