Nanshan VLBI Station Report

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Abstract

This report summarises the VLBI activities, parameters and staff changes at Nanshan station of the Urumqi Astronomical Observatory from 1st March 1999 to the end of 2000.

1. The VLBI Activities

The VLBI geodesy experiments of NASA CORE-B and APSG projects were operated during the time period; they are CB502, CB503, CB504, APSG5, APSG6, CB505, CB506, CB801, CB802, APSG7.

A new horn for 13 cm band was installed; the system temperature at this band is 130 K. The cables from the IF devices to the backend were replaced with new ones. The communication between the Nanshan station and outside world has been much improved with the installation of a new optical fiber link to Urumqi. Thus, it is now possible to reach Nanshan via telephone and email (tel: 86-0991-5933075, e-mail: uao@mail.wl.xj.cn). The station was evaluated by a Visiting Board of the Chinese Academy of Sciences in September of 1999. The L-band dual-polarization system with the frequency range 1380-1700 MHz has been completed and installed at the 25 meter radio telescope. A new horn for three bands 30 cm, 49 cm and 92 cm and their receivers are under construction here.

A new FS computer from U.S. arrived at Nanshan station in 1999. With help from Ed Himwich and Xue Zhuhe, Liu Xiang and Yang Wenjun have installed a new Y2K-compliant Field System (version 9.4), adapted for the specific hardware configuration at Nanshan. In early 2000, with help from Himwich, Wang Na, Chen Maozheng, Liu Xiang worked on the communication between the FS computer and the antenna control computer. It was nearly finished when TeamChina came. In April, TeamChina came and worked on upgrading Nanshan to thin tape and MKIV. The team members were Ralph Spencer, Chopo Ma, Ed Himwich, Les Parry, Michael Wunderlich and Gino Tuccari. First, Michael worked on the recorder, then the others came and joined the work on recorder, installing formatter, modifying Field System and inspecting baseband convertors, and later, Gino Tuccari continued to work on the system at Urumqi. The local staff Zhang Hongbo and Yang Wenjun were involved in the work. Ed Himwich also worked on the communication between the FS computer and the antenna PC with the staff here, and they completed it in time. Now the antenna can be controlled by FS and also can do pointing and on-off measurement via FS. The MKIV upgrade of Nanshan was successful; it gives fringes from experiments EVN: C00C3, C00L4 and NASA: CB802. But some problems took place after that experiment in the recorder; investigation and fixing are now under way.

The problems of the MKIV recorder are expected to be resolved, and also minor problems of phase-cal and cable measurement. One H-maser will be sent to Shanghai for evaluation and upgrade. In 2001, we will participate in the CB901, CB902, CB903, CB904, APSG8, APSG9 experiments of geodesy.

Table 1. Receiver parameters

Band	Frequency range	LO	Pol.	Tsys	SEFD
1.3 cm	22100-24000 MHz	22000 MHz	LCP	180 K	2732 Jy
3.6 cm	8200-8600	8080	RCP	40	330
6 cm	4750-5150	4620	LCP	35	320
13 cm	2150-2450	2020	RCP	130	1762
18 cm	1380-1700	1300	LCP+RCP	85	1394
30+49 cm	under construction				
92 cm	317-337	0		90	1265

Table 2. Nanshan staff

Prof. Zhang Jin	chief scientist and general engineer, zhangj@ms.xjb.ac.cn
Zhang Hongbo	vice general engineer, zhanghb@ms.xjb.ac.cn
Liu Xiang	scientist, head of vlbi operation group, liux@ms.xjb.ac.cn
Wang Na	scientist, mainly working on single dish observation
Aili Yusup	engineer, vice general engineer
Dong Yousuo	engineer, vice general engineer
Shao Minhui	engineer, responsible for H-masers
Wang Weixia	engineer, responsible for receivers
Sun Zhengwen	engineer, responsible for receivers
Chen Maozheng	engineer, responsible for receivers
Aili E	staff of the operation group
Jarken Y	staff of the operation group
Yang Wenjun	staff of the operation group
Ma Lu	secretary
Wang Meifang	secretary