

# Nanshan VLBI Station Report for 2006

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## Abstract

The Nanshan 25-meter radio telescope is operated by Urumqi Observatory. This report describes the activities and status of Nanshan VLBI station as an IVS network station in 2006.

## 1. Introduction

The station is located 70 km south of Urumqi, the capital city of Xinjiang Uygur Autonomous Region of China. The station is affiliated to Urumqi Observatory of National Astronomical Observatories, CAS. We contribute to IVS in geodetic VLBI observations. Urumqi also participated in domestic VLBI experiments between Urumqi and Shanghai, and successfully completed several test e-VLBI observations with Shanghai and Kashima, respectively. Urumqi Observatory will continue the collaboration in international e-VLBI activities.

## 2. Telescope Status

### 2.1. Antenna

- Diameter: 25 meter
- Antenna type: Cassegrain beam wave-guide
- Seat-rack type: Azimuth-pitching ring
- Main surface precision: 0.40 mm (rms)
- Pointing precision: 15" (rms)
- Rolling range: Azimuth:  $-270^\circ$  to  $270^\circ$ ; Elevation:  $5^\circ$  to  $88^\circ$
- Maximum rolling speed: Azimuth:  $1.0^\circ/\text{sec}$ ; Elevation:  $0.5^\circ/\text{sec}$

### 2.2. Receiver

The basic specifications of the receivers are given in Table 1.

### 2.3. Recording System

Mark IV, Mark 5 and Mark II recording systems are available at Nanshan VLBI station. The performance of the observing system has been improved over the last year. New FS computer is in use at Nanshan and the Field System has been upgraded to version 9.9.0 and it works well. The p-cal control system has been updated and the parameters of S/X band receivers are sampled from the FS software.

Table 1. Specifications of receivers

		Parameters		Freq. Range
1.3 cm	LCP	T <sub>sys</sub> =190K	DPFU=0.057	22100–24000
3.6 cm	RCP	T <sub>sys</sub> =110K	DPFU=0.093	8100–8900
6 cm	dual	T <sub>sys</sub> =22K	DPFU=0.105	4700–5110
13 cm	RCP	T <sub>sys</sub> =75K	DPFU=0.096	2150–2320
18 cm	dual	T <sub>sys</sub> =21K	DPFU=0.088	1400–1720
30 cm	LCP	T <sub>sys</sub> =160K	DPFU=0.06	800–1200

## 2.4. Time and Frequency System

A new time and frequency system was established at Nanshan station and it works well. We also upgraded the GPS time receiver.

## 3. Personnel

Table 2. The main staff at Nanshan VLBI Station

Name	Position	Working area	e-mail
Wang Na	Professor	Station chief	na.wang@ms.xjb.ac.cn
Aili Yusup	Professor	Chief engineer	aliyu@ms.xjb.ac.cn
Sun ZhengWen	Senior engineer	Microwave, Receiver	sunzw@ms.xjb.ac.cn
Liu Xiang	VLBI scientist	VLBI friend	liux@ms.xjb.ac.cn
Aili Esamdin	Scientist	Astronomy	aliyi@ms.xjb.ac.cn
Jarken Yesembek	Scientist	Astronomy	jerken@ms.xjb.ac.cn
Dong YouSuo	Senior engineer	Antenna control	dongys@ms.xjb.ac.cn
Chen Maozheng	Senior engineer	Microwave, Receiver	mzchen@ms.xjb.ac.cn
Wang Weixia	Senior engineer	Microwave, Receiver	wangwx@ms.xjb.ac.cn
Shao Minghui	Senior engineer	Time and Freq., Terminal	shaomh@ms.xjb.ac.cn
Yang Wenjun	Engineer	Terminal	yangwj@ms.xjb.ac.cn
Wang Shiqiang	Engineer	Antenna	Wangshq@ms.xjb.ac.cn
Zhang Hua	Engineer	Terminal, Time and Freq.	zhangh@ms.xjb.ac.cn
Li Guanghui	Engineer	Network, Computer	ligh@ms.xjb.ac.cn
Ma Jun	Engineer	Microwave, Receiver	majun@ms.xjb.ac.cn
Chen Chenyu	Engineer	Antenna	chency@ms.xjb.ac.cn

#### 4. Nanshan VLBI Observations during 2006

Table 3. Geodetic VLBI experiments observed by Urumqi Observatory during 2006.

Experiment	Date	Remarks (problems)
T2043	02.08	ok
T2044	05.24	ok
T2045	06.28	ok
T2046	08.02	ok
APSG18	09.13	ok
APSG19	10.11	ok
QUAK06	11.09	ok
T2047	11.29	ok
T2048	12.06	ok

#### 5. Future Plan

A new 1.3-cm dual polarization cryogenic receiver will be built in 2007. A band for both 92 cm and 49 cm receiver systems will be built in April of 2007.