

# VLBI in Mainland China

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## 1. Current Status

- Seshan station, Shanghai
- Nashan station, Urumqi
- VLBI Technique Laboratory  
2 stations VLBA-type Correlator

### Shanghai station

- Location : 30 km from the city  
 $\lambda=121^{\circ}11'59''\text{E}$                        $\phi=31^{\circ}05'57''\text{N}$   
5 m above the sea
- Antenna diameter : 25 m
- Opening date : 1987; EVN member (1994)
- VLBI terminal: S2 (128M bps),  
VLBA (256M bps), MKIV (512M bps)
- H masers and GPS TAC

$\lambda(\text{cm})$	92	18	13	6	3.6	1.3
Band		L	S	C	X	K
$\nu(\text{GHz})$		1.62- 1.68	2.15- 2.45	4.70- 5.10	8.10- 8.60	22.1- 22.6
$\eta(\%)$		40	45	50	48	25(?)
$T_{\text{sys}}(\text{K})$		100	100	45-50	50	110
		room	room	cooled	cooled	cooled
Pol.		LCP RCP	RCP	LCP	RCP	LCP RCP





## Urumqi station

- Location: 50 km from the city  
 $\lambda=87^{\circ}10'41''\text{E}$                        $\phi=43^{\circ}28'16''\text{N}$   
 2080m above the sea
- Antenna diameter : 25 m
- Opening date: Oct. 1994; EVN member (1994)
- VLBI terminal : MKII, K4, MKIV (1999)
- H masers and GPS TAC

$\lambda(\text{cm})$	92	49	18		13	6	3.6	1.3
Pol.	LCP	LCP	LCP	RCP	RCP	LCP	RCP	LCP
$\nu$ (GHz)	0.314- 0.340	0.605- 0.615	1.38-- 1.70	1.38-- 1.70	2.15-- 2.45	4.75-- 5.15	8.18-- 8.67	22-- 24
T(K) Ant.Feed	90	80	30	30	49	27.7	29.1	90
T (K) Receiver	28	80	50	65	65	<12	<15	50
Tsys	125	160	86	95	116	40	45	175
L.O. (GHz)	non	0.285	1.3	1.3	2.02	4.62	8.08	22
$\eta(\%)$	20-30	40 ?	51	51	52	59	50	32
	Room	Room	Room	Room	Room	Cooled	cooled	cooled



## VLBI Correlator

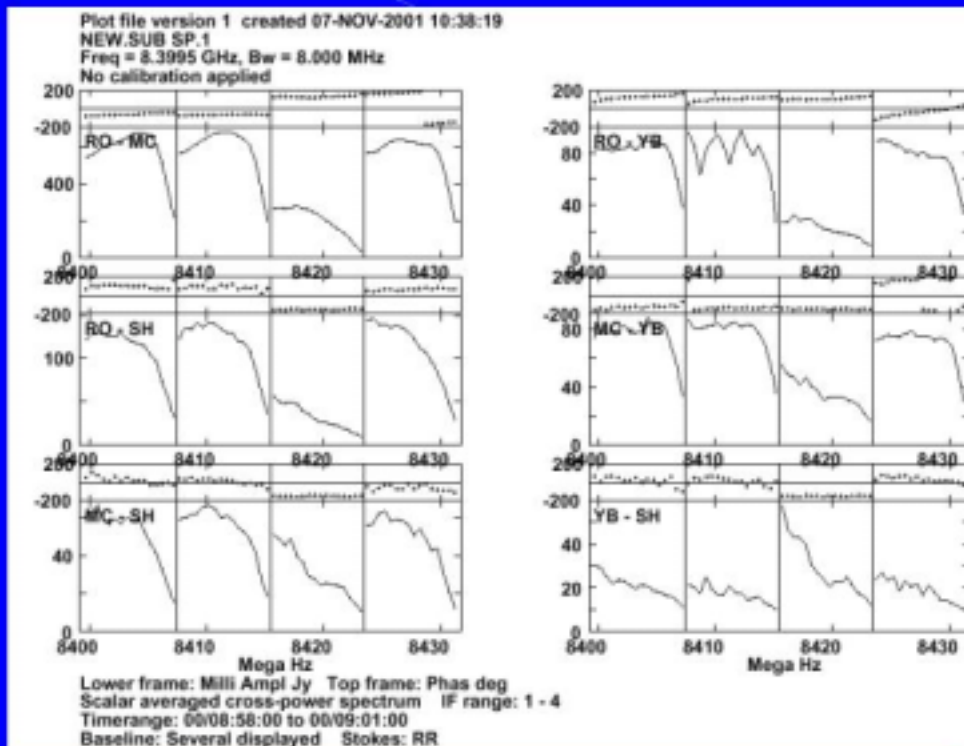
- 2 stations
- FX type
- 8 IFs      max. 2048 Channels / IF
- Thin tape



# VLBI Correlator in SHAO



## Fringes from Correlator



## 2. Main VLBI observations

- EVN sessions ( 3---4 sessions/yr )
- VSOP observation ( Shanghai station)
- NASA CORE project (13/3.6cm)
- APSG observation (13/3.6cm)
- Others
  - Domestic VLBI
  - Chinese-Russian VLBI (18 cm and 6 cm)

## 3. Upgrade Projects

- Cooled Dual Polarization receivers  
Feed change (Shanghai station)
- New H masers
- Surface of the antennas  
higher efficiency at 1.3 cm  
and possibility for 7 mm VLBI
- MK V upgrade ( with EVN)
- e - VLBI

## 4. Single dish capability

- Urumqi station
  - spectral lines
  - Pulsar

- Shanghai station  
spectral lines  
( correlator autocorrelation)

## 5. Scientific project

- Astrophysics
  - Shanghai AGNs group:
    1. VLBI observation
      - EGRET sub-sample
      - Intermediate BL Lac Objects
      - Broad Absorption Line Quasars
    2. Statistical investigation (multi-band)
    3. Jet formation and links with disk
  - Beijing group
    - AGNs Polarization
  - Urumqi group
    - Compact Symmetric Objects (CSOs)
- 2 stations----- single baseline for  
monitoring masers and AGNs  
( in preparation)
- Geodynamics and Astrometry
  - Shanghai Observatory
    - Celestial Reference Frame
    - Terrestrial Reference Frame
    - Crustal Motions
    - Earth Orientation Parameters
- Single dish
  - 5 GHz dual-polarization Galactic plane survey



Pulsar  
Galactic masers

## 6. Possible Regional Cooperation

- Participate in tracking for Japanese lunar satellites in SELENE
- Participate the VLBI observation with VERA project