



Nanshan (Ur) Station Report



中国科学院新疆天文台
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Bird's-eye View of Nanshan Station



new 13-m Telescope for Geodesy VLBI

old 25-m Antenna

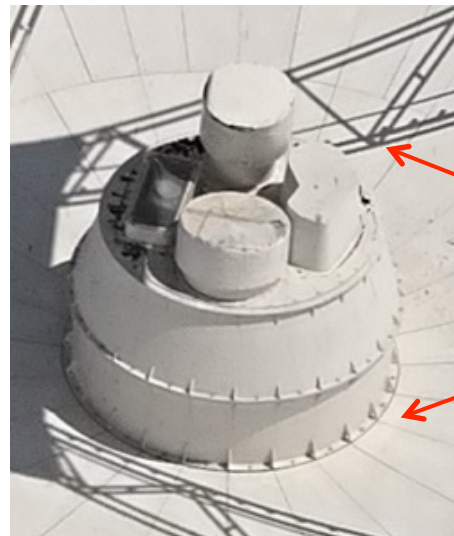
the EVN member
- Ur telescope



Reconstruction of NanShan Radio Telescope (NSRT or Ur)

- Built in late 1993,
- Reconstructed in 2014 & 2015

Old Ur vs. New Ur
25-m → 26-m
feed up-down → sub-reflector rotating

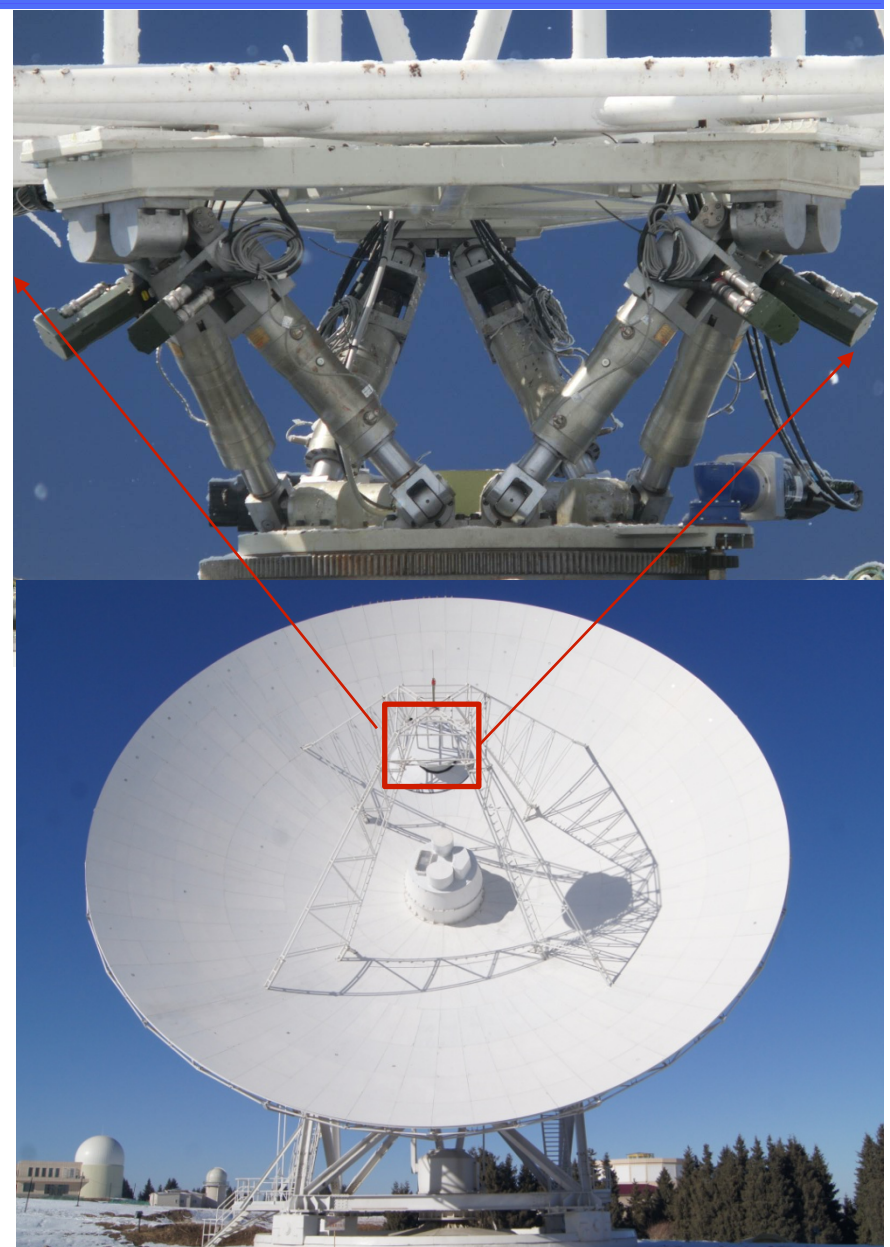




The New Ur Telescope

| | |
|----------------------------|--------------------------------|
| Telescope Name | NanShan Radio Telescope (NSRT) |
| Coordinates | 87°10.67' E, +43°28.27' N |
| Antenna Mount | Azimuthal (El. Over Az.) |
| Telescope type | Shaped Cass. |
| Diameter of main reflector | 26 m |
| Diameter of sub-reflector | 3 m |
| Seat-rack type | Azimuth-pitching ring |
| Surface accuracy | 0.4 mm (rms) |
| Pointing precision | 10''(rms) |

✓ **Band-switch in 5 min: Fast switching observations**





Ur Receivers & Backends: **Current Status**

- **Receivers:**

- 4 working receivers covering 5 RF bands: L, S/X, C, K

- **VLBI Backends:**

- **DBBC2 + MK5B+:** working for EVN, EAVN, IVS...

- **CDAS1&2** for CLEP

- **RDBE + MK6** for test

| BAND | RF(GHz) | LO(MHz) | IF(MHz) | T _{sys} (K) |
|------|---------------------|-----------------------|----------------------|----------------------|
| L | 1.4~1.72 | 1300 | 100~420 | 22 |
| S/X | 2.1~2.6/ 8.2~9.1 | 2000/ 8100 | 100~600/ 100~1000 | 60/40 |
| C | 4.5~5.1 | LO1=2850 | 100~600 | 20 |
| K | 22~24.2 | LO1=18050 LO2=2850 | 100~600 | 40 |



DBBC2 & MK5B+ @ Ur



Ur Receivers & Backend: **Update Plan**

- **Receiver Update Plan:**

- 2021: new L-band Rx (1-2GHz) development finished, new C-band Rx (4-8 GHz) test observations

- 2022: new L-band Rx (1-2GHz) test observations

- **VLBI Backend Plan:**

- DBBC3+Flexbuff: coming in year-end of 2020

- DBBC3+Flexbuff: test observation in mid. of 2021

✓ **Very interested in higher bit rate VLBI observations in future**



New C-band Rx testing in Lab.



Thank you!



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