



Recent VLBI Activities at XAO

Guanghai Li (李光辉)

on behalf of the VLBI Group

Xinjiang Astronomical Observatory (XAO), CAS

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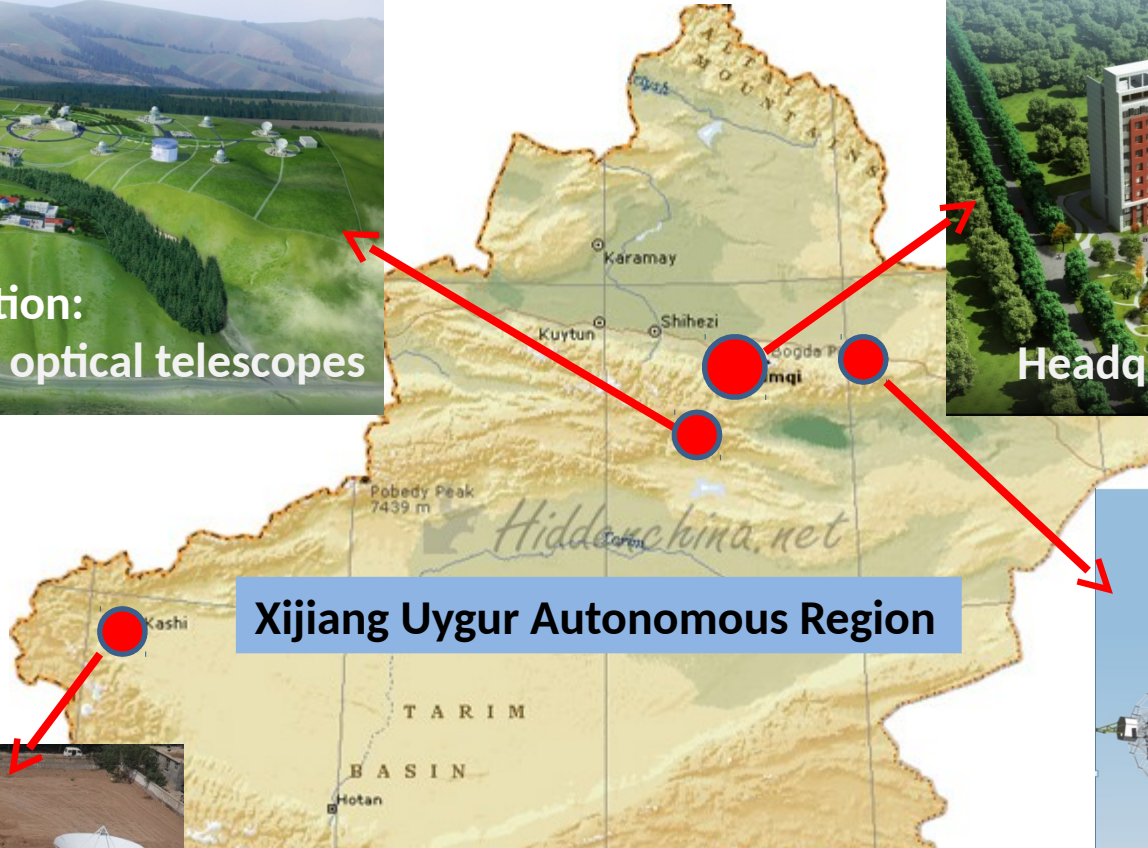
Overview of Xinjiang Astronomical Observatory (XAO)



Nanshan Station:
NSRT + small optical telescopes



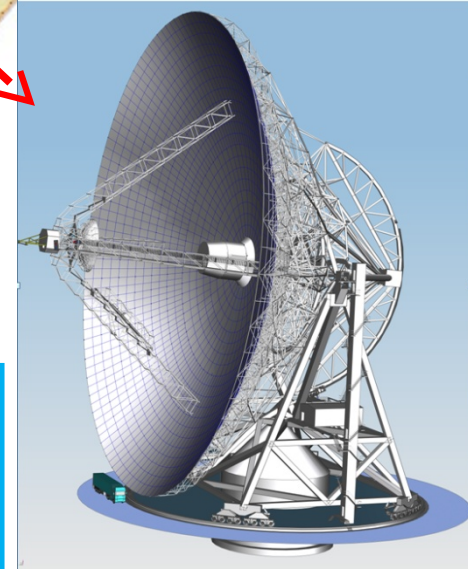
Headquarters in Urumqi



Xinjiang Uygur Autonomous Region



Kashi Station:
13m antenna +
small radio telescopes



Qitai Station: **QTT**

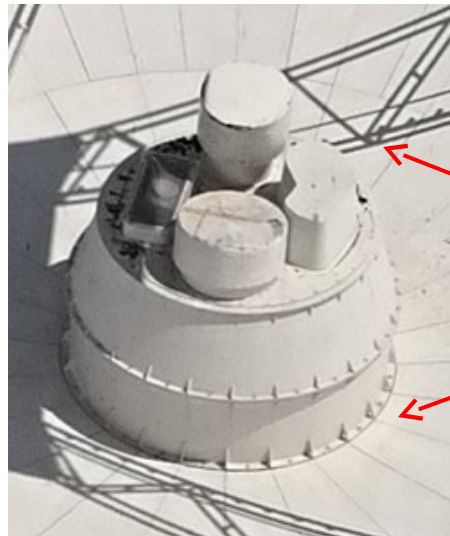
- XAO: **1** Headquarters, **3** Astron. Stations
- **4** Research Departments: Radio, Optical, Applied Astronomy and Computer Application
- Staff: 170

Reconstruction of NanShan Radio Telescope (NSRT)



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

Old NSRT	vs.	New NSRT
25-m	□	26-m
feed up-down	□	sub-reflector rotating
K-band	□	Q-band



The new NSRT by now

before 2014



Dismantling stage on 20 April 2014



Hoisting stage on 31 July 2014





Status of new NSRT

- **Backend:** DBBC2 was set up in late 2016, DBBC2+MK5B in good condition, ready for all kinds of VLBI obs.
- **Field System:** upgraded to version FS-9.11.8, and Mark5B/B+ software up to SDK9.4.0
- **Receiver:** A new Q-band Rx installed at the telescope, with a down converter under development. Expected that the Q-band receiver will be available for test observations in the second half of 2018.
- **Antenna:** Upgrading of Steward Adjustment Platform of the sub-reflector was finished last month, making preparations for high-frequency obs.
- **VLBI Obs. Time:** \sim 1000h in 2017, including EVN, IVS, CVN, EAVN ...
 - 3 normal EVN sessions and additional out of session observations
 - \sim 20 IVS epochs, 6 AOV epochs
 - CVN observations with highest priority
 - 3 epochs EAVN commissioning @ K-band in 2017, total of 21 hrs



DBBC2+MK5B

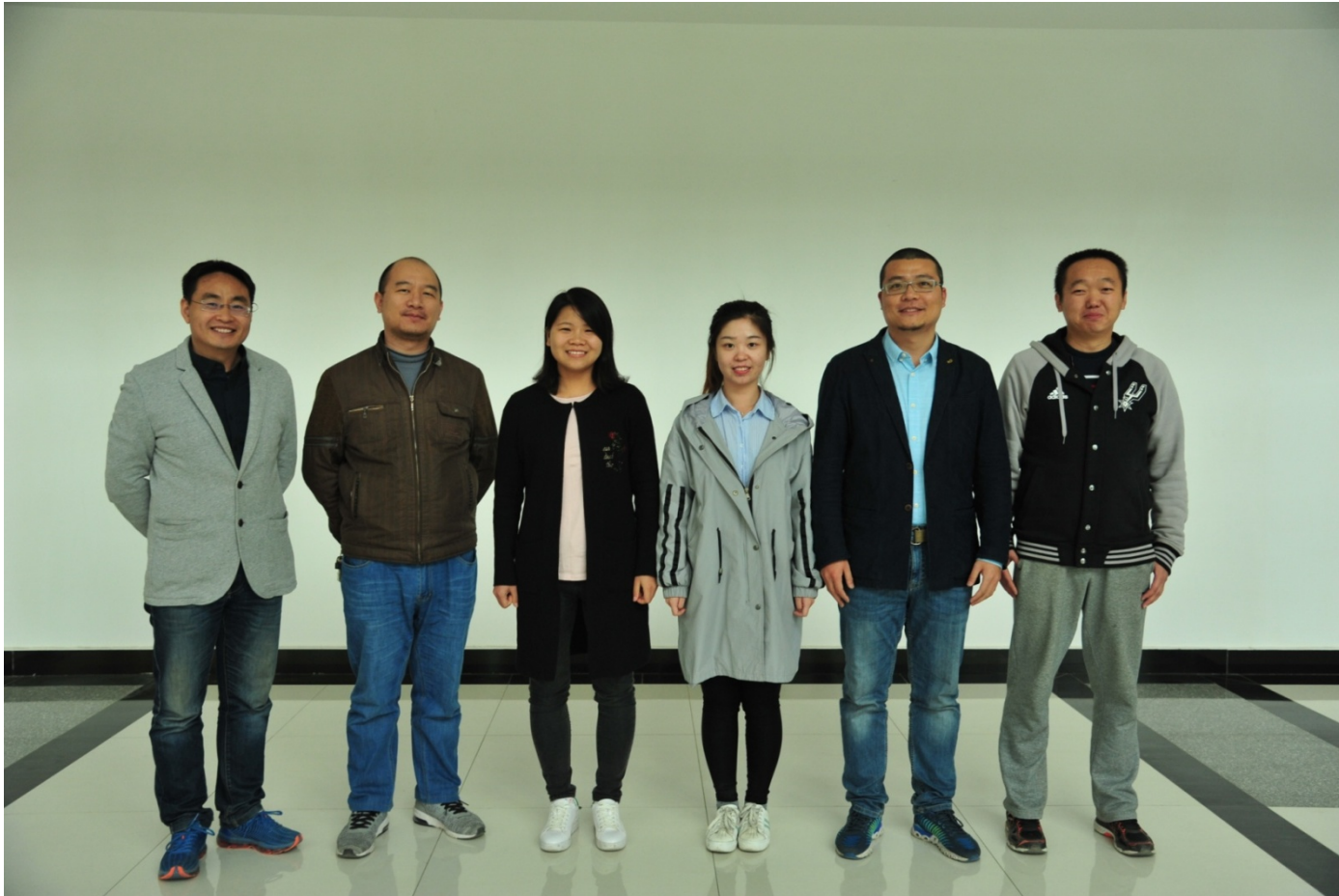


Q-band receiver installing

The VLBI Group at XAO



- ✓ **Established:** Nov. 2015
- ✓ **Staff:** 9 members= 4 astronomers + 4 engineers + 1 secretary
- ✓ **Research interests:** AGN jet structure & flux monitoring, VLBI astrometry
- ✓ **Service:** EVN, CVN, EAVN & IVS observations





Summary

- After the overall reconstruction, NSRT is now back to involve in various VLBI observations.
- DBBC2+MK5B in good condition, ready for all kinds of VLBI obs.
- A new Q-band receiver is expected to be available for test observations in the second half of 2018.
- The newly established VLBI Group is in charge of all the VLBI activities at XAO.

A wide-angle photograph of the XAO station. In the foreground, a large herd of cattle grazes in a green valley. In the middle ground, several white buildings with red roofs are scattered across the valley floor. A prominent feature is a large, white, parabolic radio telescope dish mounted on a metal structure. In the background, dark, forested hills rise against a clear sky. The text 'Thanks for listening!' is overlaid in a large, blue, serif font on the right side of the image.

Thanks for listening!