

# Shanghai Station Report

## 1. Observations

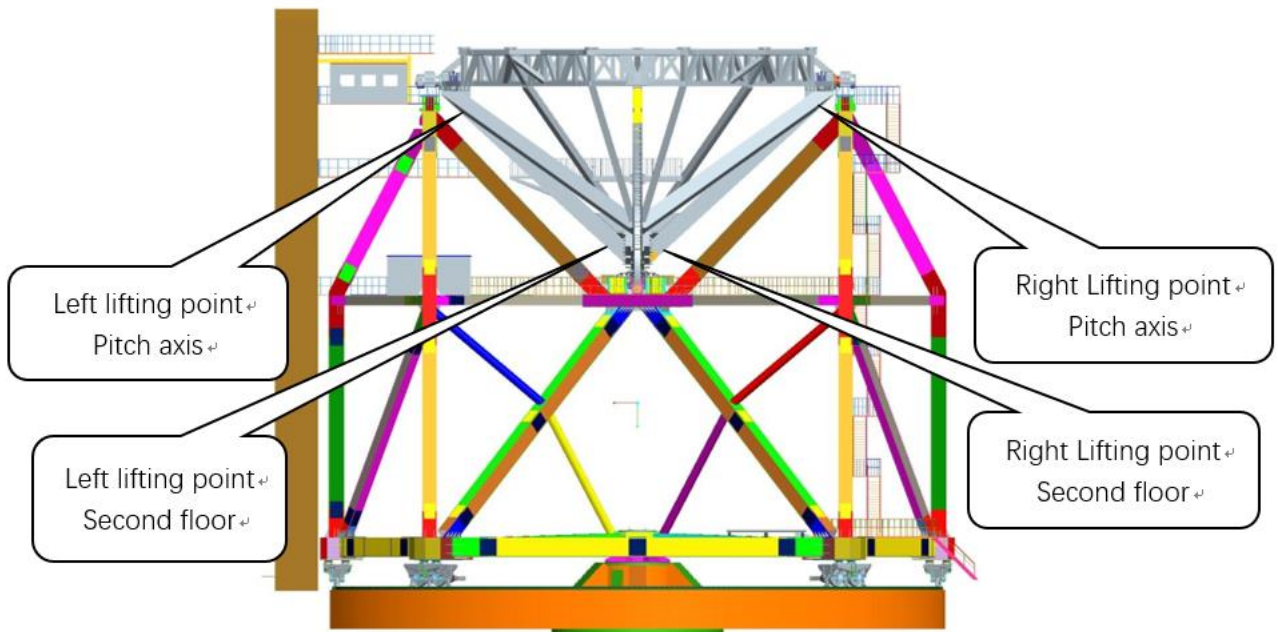
Tianma 65m has participated in the EVN session III in 2019, session I 2020. Most of the observations were successful. Some observations were not observed (N20C1, EM144A) because of the problem with fibre transmission unit or had to break short due to our Chinese Lunar mission.

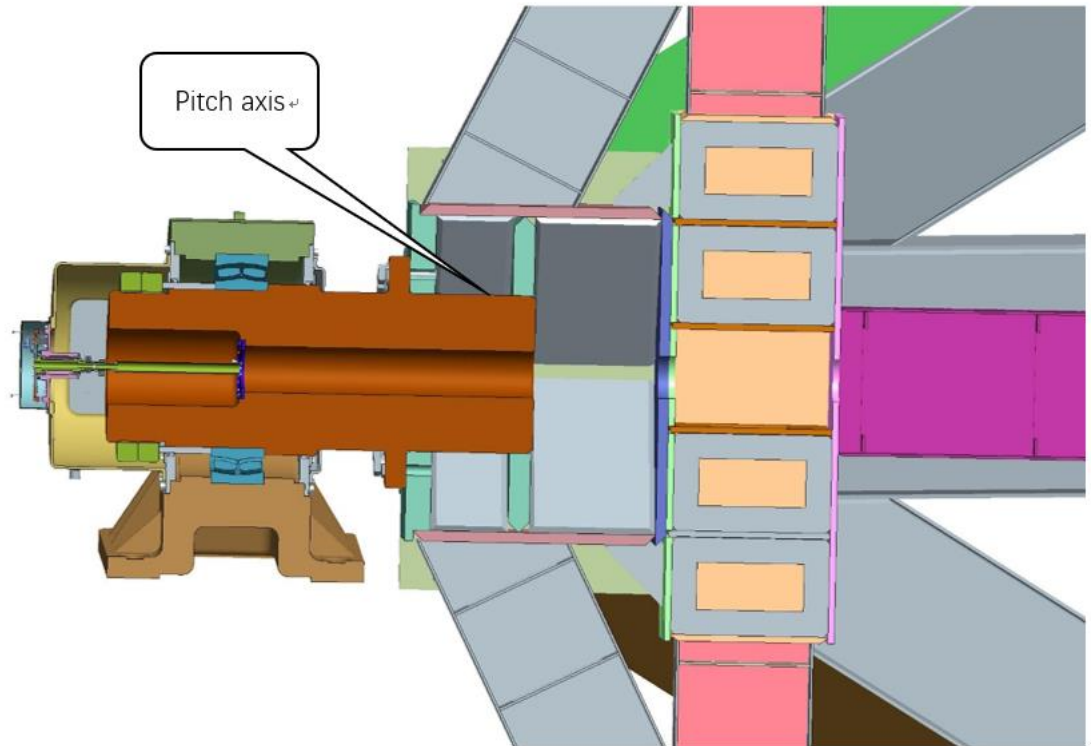
Tianma 65 uses the DBBC2, Fila10G and a Flexbuff recorder for all EVN, global, and geodetic VLBI observations. Most of the recorded data is e-transferred to the correlators in JIVE, and SHAO. A new Flexbuff recorded for us has been used in session III in 2019. The total capacity is 240 TB. But we still have a small amount of packet loss problem with data recording in the NME test in session II in 2019. The problem is solved by optimizing the parameters of the network port and setting the parameters of the jive5ab optimization program.

## 2. Development and maintenance activities in 2020

### 2.1 Antenna Maintenance with Tianma radio telescope

The upper structures of the Tianma radio telescope with around 1300 tons include the rational pitch mechanism, back-up structure, quadripod and sub-reflector. We are preparing for lifting the upper structures and welding the pitch axes. This work will last about 35 days, from 15<sup>th</sup> April to 20<sup>th</sup> May.





## 2.2 TMRT New X-Band Receiver

The new X-band cryogenic receiver is installed on TianMa Radio Telescope (TMRT) on April 17, 2020 as shown. The radio frequency range of the new receiver is from 8.2 GHz to 9 GHz and the intermediate frequency range is from 0.1 GHz to 0.9 GHz with the fixed local oscillator of 8.1 GHz, which is same with the old version. More importantly, the new average system noise temperature is roughly 25 K over the entire band with about 5 K lower than the old system.



New X-band cryogenic receiver

## 3. e-VLBI

More than ten e-VLBI experiments among the EVN have been carried out at a data rate of 1024 Mbps or 2048 Mbps for each e-VLBI session.

#### **4. Prospects**

For the upcoming session II & III, Tianma 65 will participate in L ,C, X, K and Q band observations.