



Progress Report of Mingantu Observing Station

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Mingantu Observing Station of National Space Science Center, Chinese Academy of Sciences (NSSC) is a dedicated observatory for solar physics and space weather studies, located in Mingantu Town, Inner Mongolia of China, about 400 km northwest from Beijing.

The main facilities at Mingantu Observing Station include the Mingantu Spectral Radioheliograph (MUSER), which is upgraded to have three arrays of MUSER-I: 40×4.5m antennas covering 400MHz -2 GHz, MUSER-II: 60×2m antennas covering 2 - 15 GHz, and MUSER-L: 224 log-periodic dipole antennas (LPDA) covering 30-400 MHz with 124 LPDAs as a calibration array. The 16m and 20m calibration systems for MUSER-I & II have been recently built. A new 3-site Interplanetary Scintillation (IPS) telescope array is under construction with three 140 m by 40 m cylinder antennas in main site at Mingantu Observing Station [2]. One 140 m by 40 m cylinder antenna and 2 sub-sites having 30 m parabolic antennas ~200 km apart have been constructed.

While MUSER-I & II are for daily observations, the MUSER-L is in commissioning observations now and the IPS telescope with its partial reflector has successfully observed the IPS signal for radio source 3C84 during the test observations. The IPS telescope is due to finish this year under the Meridian II project. We report the recent progresses of these newly upgraded or constructed radio facilities for solar and heliospheric physics.

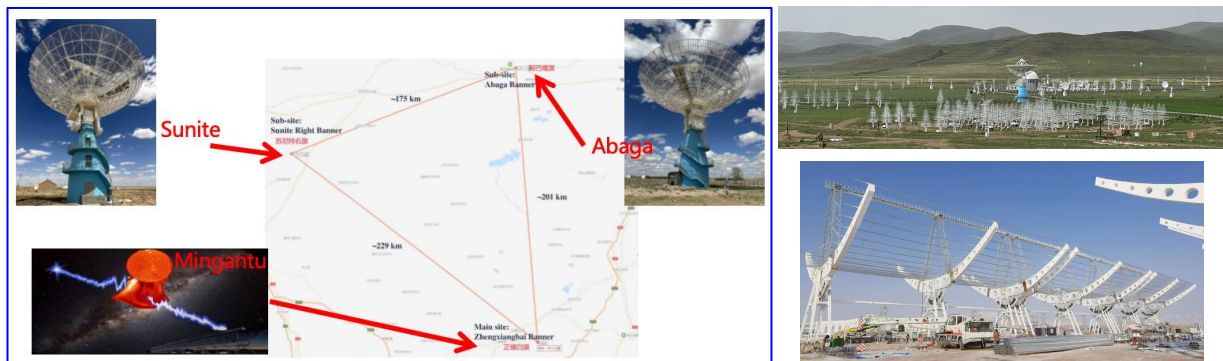


Figure 1. The Mingantu Observing Station and two sub-sites for the Chinese IPS telescope array (*left panel*). At the main site, some antennas of MUSER arrays and the newly-built 16 m calibration antenna for MUSER-II with blue basement in the center position of the panel (*right top panel*), as well as one constructed cylinder antenna for the IPS array (*right bottom panel*).

1. Y. H. Yan, Z. J. Chen, W. Wang, F. Liu, L. H. Geng, L. J. Chen, C. M. Tan, X. Y. Chen, C. Su, and B. L. Tan, “Mingantu spectral radioheliograph for solar and space weather studies,” *Frontiers in Astronomy and Space Sciences*, **8**, March 2021, 584043. doi:10.3389/fspas.2021.584043.

2. Y. H Yan, W. Wang, L. J. Chen, F. Liu, L. H. Geng, and Z. J. Chen, “New Interplanetary Scintillation Array in China for Space Weather,” *Sun and Geosphere*, **13**, December 2018, pp.153-155, doi:10.31401/SunGeo.2018.02.05.