

The MeerKAT S-band: early science on the DEEP2 field and prospects for MeerKAT+

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The integration of S-band receivers into MeerKAT significantly enhances the telescope's spectral coverage and angular resolution, allowing for the detailed study of morphologically interesting AGN and star-forming galaxies. In addition, it enables deeper observations for population studies of such sources, given the significantly lower confusion limit. We present the first continuum imaging results with the MeerKAT S-band, observations of the DEEP2 field in the S1 (1.96 – 2.84 GHz) and S4 (2.62 – 3.50 GHz) sub-bands using a total of 55 antennas. With an on-source integration time of just 65 min, the S1 (S4) image has an angular resolution of 7.1" x 3.2" (5.0" x 2.2") and a combined image sensitivity of 4.5 μ Jy/beam. We present the Euclidean-normalised source counts for this field, as well as an in-depth morphological comparison of resolved sources in both the L-band (Mauch+2020) and S-band images. These observations provide an important demonstration of the capabilities of the MeerKAT S-band with relatively short integration times, in comparison with existing S-band surveys, and speak to the rich scientific potential of future MeerKAT and MeerKAT+ full-Stokes S-band surveys.

keywords

Imaging, source counts, survey overview

In-person or online?

in-person

Career level

Student

Primary author: RANCHOD, Shilpa (Max Planck Institute for Radio Astronomy)

Presenter: RANCHOD, Shilpa (Max Planck Institute for Radio Astronomy)

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