



VLBI National Radio Astronomy Facility

www.e-merlin.ac.uk

Invitation for proposals: Cycle-10

Deadline for Receipt of Proposals: 23:59:59 UT on 15th January 2020

e-MERLIN requests proposals from the international astronomical community for observations to be made during *Cycle-10*. Proposals are competitively peer-reviewed under standard STFC rules by the e-MERLIN PATT Time Allocation Committee. Awards will be made on the basis of scientific merit and technical feasibility alone.

The *enhanced Multi Element Remotely Linked Interferometer Network* provides high resolution (12-150 mas), high sensitivity (microJy) imaging at cm wavelengths as well as spectroscopy, astrometry and polarimetry. e-MERLIN is an 'SKA-pathfinder' instrument providing observations with resolutions and frequencies comparable to those that will be provided by SKA1-mid.

Cycle-10 e-MERLIN Observations: **February 10th to September 1st 2020**

Observing frequencies available:-

L-Band:	1.23 GHz to 1.74 GHz
C-Band:	4.3 GHz to 7.5 GHz
K-Band:	19 GHz to 25 GHz

System parameters for observations of a continuum source in optimum conditions:-

	1.23 - 1.74 GHz (L-band)	4.3 - 7.5 GHz (C-band)	19 - 25 GHz (K-band)	
Maximum angular resolution	~150	~40	~12	(milli-arcsec)
RMS level for 12 hour observation including calibration (based on Cycle-8 results)	~24/12 [*]	~16/10 [*]	~120 ^{**}	(μJy/beam)
Maximum bandwidth/polarisation	512 [†]	512 [†]	512 [†]	(MHz)

^{*} The use of the Lovell telescope at L-Band, and at C-Band with the new receiver systems, reduces the 12 hr rms noise level in the central part of the field of view by ~50% compared with the array not including the Lovell Telescope.

^{**} The sensitivity of e-MERLIN K-band observations is weather and elevation dependent. K-band observations will be dynamically scheduled to optimise for the most ideal weather conditions.

[†] Frequency flexibility allows the positioning a number of 512MHz sub-bands within the frequency ranges shown for C- and K-Band. This may be used to observe with increased fractional bandwidth and/or spectral coverage at the expense of required observing times since only a single 512 MHz sub-band may be observed at any one time.

The e-MERLIN Observing Tool & Sensitivity Calculator is available at: <http://www.e-merlin.ac.uk/calc.html>.

Proposals should be submitted via the e-MERLIN web-based *NorthStar* Proposal Tool:
<http://proposal.merlin.ac.uk>.

The proposal tool will be opened for proposal submission from 3rd December 2019.

- Proposers must make a detailed case for the inclusion of the Lovell telescope in their proposed observations.
- Proposers should consult the allocated e-MERLIN legacy programme to avoid conflicts. In cases where PATT proposals directly replicate portions of allocated legacy projects, legacy projects will normally be given priority.
- Details of available spectral line configurations are available at <http://www.e-merlin.ac.uk/observe.html>
- **e-MERLIN user support:** Support is available throughout the full life-cycle (proposal to publication) of projects for all users via both face-to-face and remote assistance; and online tools. The e-MERLIN science support team are happy to tailor levels of assistance dependent on the requirements of individual users or projects.
- Access and financial support for e-MERLIN Scientists and Users: e-MERLIN is one of the participating infrastructures in the RadioNet project from which transnational access (TA) within the EU to existing observing facilities is financially supported. RadioNet has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 730562. This includes travel reimbursement for data reduction visits to the e-MERLIN support facility in JBCA Manchester for TA-eligible programmes.

e-MERLIN Science: e-MERLIN observations address a broad range of scientific questions. Its unique combination of angular resolution (>12 mas) and micro-Jansky sensitivity provide crucial insights in multiple science areas. See <http://www.e-merlin.ac.uk/science.html> for further details.

e-MERLIN+EVN Observations:

The full integration of e-MERLIN telescopes within the European VLBI Network (EVN) is also available for proposals. This mode of observations provides 'short-spacing' (10-200 km spacing) component to VLBI. This allows imaging of a wider range of spatial scales. Proposals for EVN+e-MERLIN observations should be made via the EVN-Programme Committee.

- During Cycle-10 the VLBI disk-recording sessions are 20th February – 12th March and 21st May – 11th June 2020 during which time e-MERLIN is available for joint EVN/e-MERLIN observations. These e-MERLIN+EVN proposals should be submitted to the EVN Programme Committee - details for proposing for e-MERLIN+EVN time can be found via the [EVN web pages \(http://www.evlbi.org\)](http://www.evlbi.org).
- The current EVN Call for Proposals (including combined e-MERLIN + EVN Observations) is detailed at <https://www.evlbi.org/>. The current deadline for EVN+e-MERLIN proposals is **1st February 2020**.

For assistance or you have any queries please contact emerlin.support@jb.man.ac.uk.

e-MERLIN VLBI National Facility,
The University of Manchester,
Jodrell Bank Observatory,
Macclesfield, Cheshire
SK11 9DL, United Kingdom

Telephone: +44 (0)161 306 9400,
emerlin@jb.man.ac.uk, emerlin.support@jb.man.ac.uk
www.e-merlin.ac.uk