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**European VLBI Network**  
**Call for Proposals**  
**Deadline: 1 October 2018**

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This text is also available on the web at  
[EVN Call for Proposals](#)

Observing proposals are invited for the EVN, a VLBI network of radio telescopes spread throughout Europe and beyond, operated by an international consortium of institutes (<http://www.evlbi.org/>).

The observations may be conducted with disk recording (standard EVN) or in real-time (e-VLBI). Proposals can be submitted for the following main classes of observations.

- **Standard EVN observing sessions** including global observations, see dates below.
- **e-VLBI observing sessions**, see dates below.
- **Out-of-Session**, user defined dates outside standard or e-VLBI regular sessions, see page 6.
- **Target of Opportunity (ToO)**, extremely rare and/or unpredictable events where there is an opportunity to make scientifically important observations. See the relevant paragraph at: [Guidelines for Proposal Submission](#).
- **Short observations**, during either disk recording sessions (maximum 4 hours) or e-VLBI sessions (maximum 2 hours), see: [Guidelines for Proposal Submission](#).

The first 3 classes have deadlines at 1 February, 1 June or 1 October each year. ToO and short observations can be submitted at any time.

The EVN facility is open to all astronomers. Use of the Network by astronomers not specialised in the VLBI technique is encouraged.

The Joint Institute for VLBI ERIC (JIVE) can provide support and advice on proposal preparation, scheduling, correlation and analysis. See EVN User Support at <http://www.jive.eu>.

### **Standard EVN Observing Sessions (disk recording)**

2019 Session 1	Feb 21 - Mar 14	18/21 cm, 6 cm ...
2019 Session 2	May 23 - Jun 13	18/21 cm, 6 cm ...
2019 Session 3	Oct 17 - Nov 07	18/21 cm, 6 cm ...

Proposals received by 1 October 2018 will be considered for scheduling in Session 1, 2019 or later. Finalisation of the planned observing wavelengths will depend on proposal pressure.

### **e-VLBI Observing Sessions (real-time correlation)**

2018 Nov 20-Nov 21 (start at 13 UTC)	18/21 cm, 6 cm, 5 cm or 1.3 cm
2018 Dec 04-Dec 05 (start at 13 UTC)	18/21 cm, 6 cm, 5 cm or 1.3 cm
2019 Jan 22-Jan 23 (start at 13 UTC)	18/21 cm, 6 cm, 5 cm or 1.3 cm
2019 Feb 14-Feb 15 (start at 13 UTC)	18/21 cm, 6 cm, 5 cm or 1.3 cm
2019 Mar 19-Mar 20 (start at 13 UTC)	18/21 cm, 6 cm, 5 cm or 1.3 cm

Please consult the e-VLBI web page at [http://www.evlbi.org/evlbi/e-vlbi\\_status.html](http://www.evlbi.org/evlbi/e-vlbi_status.html) to check for possible updates, and for the available array.

Successful proposals with an e-VLBI component submitted by the October 1st deadline will be considered for scheduling in the above e-VLBI sessions starting from 20 November 2018. Note that only one wavelength will be run in each e-VLBI session, selected based on proposal priorities.

See <http://www.jive.eu/jivewiki/doku.php?id=evn:guidelines> for details concerning the e-VLBI observation classes and observing modes.

### **Features for the Next Standard EVN and e-VLBI Sessions**

e-VLBI at 2 Gbps is available at 6 cm and 1.3 cm at a subset of the EVN telescopes. The remaining telescopes will observe at 1 Gbps or highest possible bit-rate (mixed mode observation). The current status is given here:

[http://www.evlbi.org/evlbi/e-vlbi\\_status.html](http://www.evlbi.org/evlbi/e-vlbi_status.html)

Disk recording at 2 Gbps is available at 6 cm, 3.6 cm, 1.3 cm and 0.7 cm at a subset of the EVN telescopes. The remaining telescopes will record at 1 Gbps (mixed mode observation). The current status is given here:

[https://deki.mpifr-bonn.mpg.de/Working\\_Groups/EVN\\_TOG/2Gbps](https://deki.mpifr-bonn.mpg.de/Working_Groups/EVN_TOG/2Gbps)

Use of the 2Gbps data rate should be clearly justified and limited to projects which really need it.

Detailed information about the time available on US antennae (VLBA, GBT, JVLA) is included in the call in order to optimally plan Global proposals (see below). Given the constraints in the availability, particularly of the large aperture telescopes in the US, proposers are asked to clearly justify the need for and illustrate the plan of use for these antennae.

The EVN CBD decided, based on requests from the EVN user community, that abstracts of any proposal that receive observing time (including ToOs and Short observations) submitted since the October 1 2017 deadline, become public at the [EVN Data Archive](#).

Please consult [http://www.evlbi.org/evlbi/e-vlbi\\_status.html](http://www.evlbi.org/evlbi/e-vlbi_status.html) and the EVN User Guide [http://www.evlbi.org/user\\_guide/user\\_guide.html](http://www.evlbi.org/user_guide/user_guide.html) for updates on the current EVN and e-VLBI array, availability of different stations per observing band and for the dates of the e-VLBI observing sessions.

### **Global VLBI Proposals**

Global proposals can be proposed up to 2 Gbps including VLBA, GBT and the JVLA.

The Green Bank Observatory (GBO) makes available the 100m Green Bank Telescope for global VLBI for a limited amount of time (VLBI typically accounts for 10% of Open Skies observing at the GBT), hence only the most highly rated proposals across all GBT observation types will be awarded time. Additionally, proposers should be aware that long scheduling blocks (more than 6 hours) will be very difficult to schedule owing to constraints coming from non-NSF GBO partners. Proposers are encouraged to make clear in the technical justification section any constraints about how observing time could be broken into smaller pieces without adversely affecting the proposed science; include information as relevant regarding maximum elapsed time of a split schedule and minimum scheduling block lengths.

Observations using the GBT 6 cm receiver must be taken, correlated, and calibrated in full Stokes mode. Due to the large cross talk between polarisations, only total intensity (Stokes I) data will be usable.

The VLBA has no limit to hours spent performing global VLBI. Use of VLBA for Open Skies observing (50% of the time) is guided by scientific merit of the proposal. Currently there are practical constraints such that within any 1 month period the VLBA can only schedule approximately 200-250 hours of Open Skies time of approximately uniform LST coverage.

The JVLA follows the same model as VLBA in that there are no restrictions on total hours of joint observing time but telescope time access is quite competitive so a good justification is required.

Some modes may require different bandwidth channels at different telescopes; correlation at JIVE can handle this.

JIVE support staff will work with Socorro to assist you during the scheduling process of such observations.

Global observations will be correlated at the SFXC correlator at JIVE (default) or at the DiFX correlator in Bonn or at the DiFX correlator in Socorro (if appropriate justification is given in the proposal).

### **RadioAstron Observations**

Proposals requesting the EVN as ground array support or correlation at JIVE for RadioAstron AO6 observations in the period after the end of 28 February 2019 (the end of Session 1, 2019) to 30 June 2019, may be submitted at this deadline.

### **Large EVN Projects**

The EVN Program Committee (PC) also encourages larger projects (>48 hrs); these will be subject to more detailed scrutiny, and the EVN PC may, in some cases, attach conditions on the release of the data. There is in principle no upper limit to the size of an EVN large proposal that can be proposed and projects of more than one hundred hours have been granted (see below). Large proposals can also be proposed as Globals (although note the different levels of availability of VLBA, versus VLA and GBT, see 'Global VLBI proposals' above.)

### **Availability of EVN and affiliated Antennae**

The SRT is again available for VLBI operations scheduled in Session 3/2018 and beyond.

The 65m telescope at Tianma (T6), is the default telescope of Shanghai Astronomical Observatory to observe at 21, 18, 13, 6, 5, 3.6, 3.6/13, 1.3 and 0.7 cm at both disk-recorded and e-VLBI projects. The older 25m Seshan telescope (Sh), about 6 km away, can observe at 18, 13, 6, 5, 3.6 and 3.6/13 cm and will be used if the T6 is not available for some reason. If you select both, you should discuss the motivation for the very short baseline in the proposal.

The Arecibo Observatory is again available for VLBI observations. However, severe flooding following Hurricane Maria, has caused a

deformation of a localised area of the dish affecting its exact sphericity. This has resulted in a drop of Arecibo's high-frequency gain that can be quantified at 18cm as an SEFD of ~3.1-3.5 Jy (cf. an SEFD of ~2.2-2.5 Jy normally expected for zenith angles less than 16 deg) and at 6cm as an SEFD of ~7.3 Jy (cf. an expected SEFD of ~3.5 Jy between zenith angles 3 and 15 deg). The dish deformation has been surveyed, and the readjustment to return the surface to be truly spherical is expected to be realised in 2019.

Telescopes of the **Korean VLBI Network (KVN)**, an Associate Member of the EVN, may be requested for EVN observations at 1.3 cm and 7 mm wavelengths. For more details regarding the KVN, see:

[http://radio.kasi.re.kr/kvn/main\\_kvn.php](http://radio.kasi.re.kr/kvn/main_kvn.php)

The **Kunming 40 m telescope**, an affiliated EVN station situated on Phoenix Mountain, about 10 km east of the city of Kunming, China, may be requested (and will participate on a best efforts basis) for EVN disk-recording observations at 13, 6, 5 and 3.6 cm wavelengths.

### **Integration of e-MERLIN Telescopes into the EVN**

Integration of e-MERLIN outstation antennas into the EVN is now possible following recent software upgrades on the e-MERLIN correlator at Jodrell Bank on a shared risk basis. EVN experiments can now include multiple e-MERLIN outstation antennas in addition to an antenna at Jodrell Bank. The total recorded bandwidth for the outstations will be limited to 1 Gbps but can be divided between 1, 2 or 4 e-MERLIN antennas. PIs of proposals should indicate in the scientific justification which e-MERLIN antennas they wish to record. These data will then be available for correlation with all other EVN stations in mixed mode, providing a fully integrated additional set of short spacing EVN data. For example, within e-MERLIN, the baseline coverage from Jb + Da, Kn, De, and Cm would span separations of 11 to 220 km.

Proposers can alternatively still request a full bandwidth e-MERLIN observation for high sensitivity lower surface brightness imaging where the e-MERLIN telescopes are correlated at JBO. This contemporaneous mode will be offered as a fall back to simultaneous observations. For any technical queries contact: [vlbi@jb.man.ac.uk](mailto:vlbi@jb.man.ac.uk)

### **Use of Australian VLBI Network Antennas**

Some Australian Long Baseline Array (LBA) time will be made available for simultaneous scheduling with the EVN, thus enabling the possibility of joint LBA/EVN observations. The easternmost stations of the EVN are in a similar longitude range to the LBA telescopes, and for sources in equatorial regions, baselines to western European stations are also achievable for a brief period of time. Joint LBA

time is likely to be heavily oversubscribed, and authors are requested to note whether they are prepared to accept scheduling without LBA antennas being present.

Any proposals for joint EVN+LBA observations submitted to the EVN by its 1 October 2018 deadline should also be submitted to the LBA by their (provisional) 15 December 2018 deadline and will first be eligible for scheduling in EVN Session 1/2019.

For more details regarding proposing time on the LBA, see:

<http://www.atnf.csiro.au/observers/apply/avail.html>

&

<http://www.atnf.csiro.au/vlbi/index.html>

EVN+LBA observations should be possible at all principal EVN wavebands from 21 cm to 1.3 cm.: See:

[http://www.evlbi.org/user\\_guide/freq\\_cov.html](http://www.evlbi.org/user_guide/freq_cov.html) and

[http://www.evlbi.org/user\\_guide/EVNstatus.txt](http://www.evlbi.org/user_guide/EVNstatus.txt).

### **Out of Session Observing**

Out-of-Session observing time on user specified dates (up to a maximum of 144 hours/year), is available for both disk recording and e-VLBI modes. Proposals requesting Out-of-Session observing time must provide full scientific (and technical if appropriate) justification as to why observations must be made outside standard sessions.

Out-of-session observing will be scheduled in blocks of no less than 12 hours in duration (although proposals may request shorter observations), and occur no more than 10 times per year.

Proposals should specify which dates/GST ranges are being requested and indicate the minimum requirement in terms of numbers of telescopes (and any particular telescopes).

Proposals will only be considered for dates occurring after the regular EVN session that follows EVN proposal review.

Urgent observations requiring much shorter lead times should be submitted as "Target-of-Opportunity" (ToO) proposals.

### **Joint observations with other facilities**

For joint observations with other facilities, e.g., EVN+XMM, separate proposals should be submitted to the EVN and to the other facility. Such proposals will be considered by the EVN PC on a case-by-case basis.

### **How to Submit**

All EVN and Global proposals must be submitted using the NorthStar online proposal submission tool. For Target of Opportunity (ToO) and short-observation, see

<http://www.jive.eu/jivewiki/doku.php?id=evn:guidelines>.

Global proposals will be forwarded to NRAO automatically and should not be submitted to NRAO separately.

New proposers should register at <http://proposal.jive.eu>.

Proposals must include the following sections:

1. Science & technical justification
2. Figures, tables and references (optional)

These sections shall be submitted as a single PDF document. The total length of this document is limited to 4 pages (A4 or US Letter format), with a font size no smaller than 11 points. Proposers are free to adjust the length of the various proposal sections within this overall length limit.

The strongly recommended breakdown is 2 pages for the Science & technical justification and 2 pages for Figures, tables and references.

Figures and tables may be interleaved with the science justification, so that e.g. figures appear close to the location in the text where references are made to them.

When specifying requested antennas from the LBA, please specify 'LBA' under the "other" row in the telescope-selection box - this selects all that are available for joint observations.

***The deadline for submission is 23:59:59 UTC on 1st October 2018.***

### **Support for access to the EVN**

Access to the EVN is supported, for eligible users, by the Trans-national Access programme of the [RadioNet project](#), which is funded by the EC Horizon 2020 Research and Innovation Programme under grant agreement No 730562. This trans-national access support, includes also travel reimbursement for visits to JIVE in order to analyse and process EVN, EVN-MERLIN or global VLBI Data.

Further information can be found at:

<http://www.evlbi.org/access/access.html>

### **Additional information**

Further information on EVN, EVN+MERLIN, Global VLBI and e-VLBI observations, and guidelines for proposal submission are available at: <http://www.jive.eu/jivewiki/doku.php?id=evn:guidelines>

The EVN User Guide ([http://www.evlbi.org/user\\_guide/user\\_guide.html](http://www.evlbi.org/user_guide/user_guide.html)) describes the network and provides general information on its capabilities.

The current antenna capabilities can be found in the status tables. For the standard EVN see [http://www.evlbi.org/user\\_guide/EVNstatus.txt](http://www.evlbi.org/user_guide/EVNstatus.txt)

For the e-EVN array see [http://www.evlbi.org/evlbi/e-vlbi\\_status.html](http://www.evlbi.org/evlbi/e-vlbi_status.html)

The On-line VLBI catalogue (<http://db.ira.inaf.it/evn>) lists sources observed by the EVN and Global VLBI.

A selection of recent highlights is presented here: [http://www.jive.eu/jivewiki/doku.php?id=evn:evn\\_science](http://www.jive.eu/jivewiki/doku.php?id=evn:evn_science)

A selection of recent refereed EVN publications is presented here: [http://www.jive.eu/jivewiki/doku.php?id=evn:evn\\_publications](http://www.jive.eu/jivewiki/doku.php?id=evn:evn_publications)