
European VLBI Network
Call for Proposals
Deadline: 1 October 2017

This text is also available on the web at
[http://www.chalmers.se/en/centres/oso/radio-astronomy/vlbi/Documents/
EVN_CfP.pdf](http://www.chalmers.se/en/centres/oso/radio-astronomy/vlbi/Documents/EVN_CfP.pdf)

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 <http://www.evlbi.org/proposals/proposals.html>.
- **Short observations**, during either disk recording sessions (maximum 4 hours) or e-VLBI sessions (maximum 2 hours), see: <http://www.jive.eu/jivewiki/doku.php?id=evn:guidelines>.

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)

2018 Session 1 Feb 22 - Mar 15 18/21 cm, 6 cm ...
2018 Session 2 May 24 - Jun 14 18/21 cm, 6 cm ...
2018 Session 3 Oct 18 - Nov 08 18/21 cm, 6 cm ...

Proposals received by 1 October 2017 will be considered for scheduling in Session 1, 2018 or later. Finalisation of the planned observing wavelengths will depend on proposal pressure.

e-VLBI Observing Sessions (real-time correlation)

2017 Dec 14-Dec 15 (start at 13 UTC) 18/21 cm, 6 cm, 5 cm or 1.3 cm
2018 Jan 16-Jan 17 (start at 13 UTC) 18/21 cm, 6 cm, 5 cm or 1.3 cm
2018 Feb 06-Feb 07 (start at 13 UTC) 18/21 cm, 6 cm, 5 cm or 1.3 cm
2018 Mar 27-Mar 28 (start at 13 UTC) 18/21 cm, 6 cm, 5 cm or 1.3 cm
2018 Apr 10-Apr 11 (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 to check for possible updates, and for the available array.

Successful proposals with an e-VLBI component submitted by the October 1 deadline will be considered for scheduling in the above e-VLBI sessions starting from 14 December 2017. 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.

New Features for the Next Standard EVN and e-VLBI Sessions

The 65 m telescope at Tianma has been equipped with receivers for the 1.3 and 0.7 cm bands. The SEFDs are 70 Jy at 1.3 cm and 120 Jy at 0.7 cm at an elevation of 50 degrees.

More detailed information about the time available on US antennas (VLBA, GBT, VLA) is included in the call in order to optimally plan Global proposals.

Information on rules for large projects (>48 hours) have been clarified. 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. Note also that large projects can also be global.

Based on requests from the EVN user community, the EVN CBD has decided that the abstracts of any proposal (including ToOs and Short observations) submitted starting from the October 1 2017 deadline that receive observing time will become public at the EVN Data Archive (<http://jive.eu/select-experiment>).

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

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

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

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

Please consult http://www.evlbi.org/evlbi/e-vlbi_status.html and the EVN User Guide 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 Telescope, like the VLBA, has transitioned into a new partnership arrangement, the Green Bank Observatory (GBO). Time available for global VLBI on the GBT is small (VLBI typically accounts for 10 % of Open Skies observing at the GBT), and 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.

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. With their new partners, 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 VLA 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 A05 observations in the period: 22 February 2018 to 30 June 2018, may be submitted at this deadline.

Large EVN Projects

Most EVN/Global proposals request 12-48 hrs observing time. 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 availability of VLBA, versus VLA and GBT, see 'Global VLBI proposals' above.)

Examples of recent accepted large projects (48-112 hours) are:

- **Fenech:** High-resolution, multi-frequency mapping of the compact sources in M82 (Global project)
- **Gomez:** Probing the Innermost Regions of AGN Jets and their Magnetic Fields, Global project (Global project + RadioAstron)
- **Hessels:** FRB121102 monitoring (EVN only project)
- **Moscadelli:** A 3-D View of high-mass star formation: gas kinematics and magnetic Fields (EVN only project)

Availability of EVN Antennas

The SRT will be offline for at least the whole of 2017, and VLBI operations are expected to restart at some time in 2018. The exact date will be communicated at a later stage, closer to the resumption of VLBI operations.

Tm65 is the 65 m telescope at Tianma, about 6 km away from the 25 m Seshan telescope (Sh). The 2-letter abbreviation for Tm65 telescope is T6. Both of these telescopes can observe at 18, 13, 6, 5, 3.6 and 3.6/13 cm. Tm65 can also observe at 21, 1.3 and 0.7 cm. Tm65 is the default telescope; Sh will be used if the Tm65 is not available for some reason. If you select both, you should also discuss the motivation for the very short baseline in the proposal.

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 the first time. 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

Use of Korean VLBI Network Antennas

The Korean VLBI Network (KVN) is an Associate Member of the EVN. KVN telescopes 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

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 2017 deadline should also be submitted to the LBA by their (provisional) 15 December 2017 deadline and will first be eligible for scheduling in EVN Session 1/2018.

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 and

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 on-line 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 2017.

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) 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

For the e-EVN array see 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

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