
NRAO Call for Proposals: Semester 2011B

The NRAO announces the Call for Proposals for the 1 February deadline. The call is open now and will close on 1 February 2011 at 17:00 EST (22:00 UTC).

Proposal preparation and submission are via the NRAO Proposal Submission Tool (PST) available through the **NRAO Interactive Services** (<http://my.nrao.edu/>). Several modifications to the PST have been made and will be in place starting 12:00 EST (17:00 UTC) Friday, 7 January 2011. (See **PST Release Notes Jan 2011** (<https://safe.nrao.edu/wiki/bin/view/Software/PSTReleaseNotesFeb2011>) for details of recent changes.) The principal investigator, the contact author and any students who will use the proposed observations for their dissertation thesis must be registered users. On the registration form you will be asked for contact information that will be used for notification about proposal status, telescope scheduling, funding, etc. We encourage proposers to register early.

The first call for proposals to use ALMA will be released by the Joint ALMA Observatory, JAO, by the end of March. A Pre-announcement of the plans for early ALMA science will be posted to the JAO website within the next few days, and additional information for the North American community will be released by NRAO.

General News for Proposers

The End of the Trimester-Based Proposal Cycle

The 1 October 2010 proposal cycle was the last such cycle under the old trimester proposal submission system. Henceforth, the NRAO will consider proposals on a semester basis, on 1 February and 1 August each year. See the **article in the NRAO eNews issue of September 1, 2010** (<http://science.nrao.edu/enews/3.8/index.shtml#proposals>) for an overview. Further details about proposal submission, proposal evaluation, and time allocation are available **here** ([../observing/peta.shtml](http://science.nrao.edu/enews/3.8/observing/peta.shtml)). Please note that as the NRAO transitions to the semester system, this call for proposals will be for proposals requesting time on the **EVLA** (<http://science.nrao.edu/evla/index.shtml>) (Expanded Very Large Array), **VLBA** (<http://science.nrao.edu/vlba/index.shtml>) (Very Long Baseline Array), and **GBT** (<http://science.nrao.edu/gbt/index.shtml>) (Green Bank Telescope) for the period 1 July 2011 through 31 January 2011. Thereafter, the 1 February proposal submission deadline will normally apply to requests for time from 1 August through 31 January, and the 1 August proposal submission deadline will normally apply to requests for time from 1 February through 31 July. Note that for this first semester cycle, the EVLA has already scheduled the A configuration through September 2011. In future proposal cycles, proposers should be aware of the EVLA configurations as they plan their programs. Requests can be made for a configuration that spans a semester boundary and for multiple configurations. Please consult **EVLA Configuration Plans** (<http://science.nrao.edu/evla/proposing/configpropdeadlines.shtml>) when planning such requests.

ALMA Preparatory Science Programs on NRAO Telescopes

With ALMA early science operations slated to begin in 2011, we continue to encourage the community to propose for ALMA Preparatory Science observing programs on the GBT, the VLBA and the EVLA. Proposals will be considered for all NRAO telescopes, and for both **Large** (<http://science.nrao.edu/observing/largeproppolicy.shtml>) and Regular proposals. There will be no limits on

the fraction of time that NRAO will allocate for these proposals. Such proposals should be identified as ALMA preparatory science in the proposal title or in the abstract. As usual, these proposals will be subject to normal review process.

Opportunities for Joint Observations with Fermi or Chandra

We remind observers that it is possible to propose for observing time on NRAO facilities through the Fermi Gamma-ray Space Telescope *Joint Proposal Opportunity* or the *Cooperative Proposal Opportunity*. For Fermi, which is primarily in sky-survey mode, potential observers may propose for NRAO observations that make use of the Fermi survey data even without re-pointing of the Fermi satellite. The actual amount of NRAO observing time allocated via the Joint Fermi Process depends on the amount of proposal pressure and the scientific quality of the proposals. A maximum of 10% of the NRAO scientific observing time is made available on EVLA, VLBA, and GBT or up to 400-650 hours per year on each telescope. Details about joint observations with Fermi and the EVLA, VLBA, or the GBT may be found [here](http://fermi.gsfc.nasa.gov/ssc/proposals/nrao.html) (<http://fermi.gsfc.nasa.gov/ssc/proposals/nrao.html>). The **Fermi Cycle 4** (<http://fermi.gsfc.nasa.gov/ssc/proposals/cycle4/>) proposal deadline is 21 January.

Similarly, observers may propose for observing time on NRAO facilities through joint programs with the Chandra X-ray Observatory. For Chandra, proposals must be for observations that require both Chandra pointing and NRAO observations to carry out a scientific investigation. NRAO has allocated up to 3% of the observing time on EVLA, VLBA, and GBT for Chandra joint proposals. Section 4.5.5 of the Chandra Cycle 13 **call for proposals** (<http://cxc.harvard.edu/proposer/CfP/>) gives specifics of the joint NRAO/Chandra program. The Chandra proposal deadline is 15 March.

PhD Dissertations using NRAO Facilities

Students planning to use one or more NRAO telescopes for their PhD dissertation (particularly if more than one proposal will be required) must submit a "Plan of Dissertation Research" of no more than 1000 words with their first proposal. This plan can be referred to in later proposals. At a minimum it should contain a thesis time line and an estimate of the level of NRAO telescope resources needed. The plan provides some assurance against a dissertation being impaired by an adverse review of one proposal when the full scope of the project is not seen. The plan can be submitted via **NRAO Interactive Services** (<http://my.nrao.edu/>). Proposers are reminded to prepare the plan comfortably in advance of the proposal deadline.

Student Observing Support Program

NRAO maintains a program to support research by students, both graduate and undergraduate, at U.S. universities and colleges. This program is intended to strengthen the proactive role of the Observatory in training new generations of telescope users. Regular proposals submitted for the EVLA, VLBA, and GBT are eligible. Large proposals for the EVLA, VLBA, GBT, and any combination of these telescopes are also eligible. New applications to the program may be submitted along with new observing proposals at any proposal deadline. A general overview of the program can be found [here](http://science.nrao.edu/opportunities/student-support-intro.shtml) (<http://science.nrao.edu/opportunities/student-support-intro.shtml>); additional details can be found [here](http://science.nrao.edu/opportunities/sos.shtml) (<http://science.nrao.edu/opportunities/sos.shtml>).

Key Science Projects

Proposals for time on the VLBA, the GBT and the EVLA are being considered for designation as "Key Science Projects." Key Science Projects should be those that have high science impact, addressing fundamental and forefront issues in astronomy and astrophysics. Key Science Project status will be based on scientific rank, recommendation by the NRAO Time Allocation Committee (TAC), and approval by the

NRAO Director. For further details please see the [Key Science Project \(http://science.nrao.edu/science/keysciproj.shtml\)](http://science.nrao.edu/science/keysciproj.shtml) policy web page.

EVLA Proposals

Observing Capabilities for EVLA Early Science

For the EVLA the 1 February deadline primarily covers the observing period beginning September 30 2011 through January 17 2012 (D and DnC configurations), although proposals to use all EVLA configurations through the end of A configuration, January 2013, will also be considered. Future proposal deadlines will also cover the C, B, and A configurations, and associated hybrids (see the [EVLA Configuration Plans and Proposal Deadlines \(http://science.nrao.edu/evla/proposing/configpropdeadlines.shtml\)](http://science.nrao.edu/evla/proposing/configpropdeadlines.shtml) for further information).

All antennas now employ EVLA-style electronics, and most of the new receiver systems will be installed by the beginning of the EVLA D configuration in September 2011. EVLA Early Science continues to be enabled by two programs for the user community: the [Open Shared Risk Observing \(OSRO\) \(http://science.nrao.edu/evla/earlyscience/osro.shtml\)](http://science.nrao.edu/evla/earlyscience/osro.shtml) program and the [Resident Shared Risk Observing \(RSRO\) \(http://science.nrao.edu/evla/earlyscience/rsro.shtml\)](http://science.nrao.edu/evla/earlyscience/rsro.shtml) program. These programs have been announced previously in [NRAO eNews \(http://www.nrao.edu/news/newsletters/enews/enews_2_8/enews_2_8.shtml#evla\)](http://www.nrao.edu/news/newsletters/enews/enews_2_8/enews_2_8.shtml#evla). Note, however, that the RSRO program is being extended through the end of 2012, and will continue to provide the community with access to wider bandwidths and greater correlator flexibility in return for a period of residence in Socorro to help with EVLA commissioning.

For the array configuration cycle covered by the September 2011 through January 2013 observing period the capabilities offered for both the OSRO and RSRO programs will be greatly enhanced in both the receiver availability and the correlator capabilities to be offered. Correlator capabilities are described at the [OSRO \(http://science.nrao.edu/evla/earlyscience/osro.shtml\)](http://science.nrao.edu/evla/earlyscience/osro.shtml) and [RSRO \(http://science.nrao.edu/evla/earlyscience/rsro.shtml\)](http://science.nrao.edu/evla/earlyscience/rsro.shtml) web pages; OSRO capabilities are also detailed at the [EVLA Observational Status Summary \(http://evlaguides.nrao.edu/index.php?title=Category:Status\)](http://evlaguides.nrao.edu/index.php?title=Category:Status). We remind users that access to the EVLA is on a shared-risk basis, and that the EVLA is undergoing commissioning through the end of 2012. Nevertheless, NRAO will make every effort to ensure high-quality EVLA data during this period.

For this proposal call we will be offering continuous frequency coverage from 1 to 50 GHz for the majority of the antenna/receiver systems (i.e., the extended EVLA tuning ranges at L, S, C, X, Ku, K, Ka, and Q-bands). Some L-band systems are "interim," which means they use old VLA polarizers. The ranges outside the nominal VLA frequencies for L-band have poor sensitivity and polarization performance for the interim receivers, as compared with the nominal VLA frequencies. In addition, a subset of antennas will continue to have narrowband VLA X-band receivers until the EVLA X-band retrofit is complete, at the end of the construction project. Further details of the sensitivity as a function of frequency is available in the new [EVLA Observational Status Summary \(http://evlaguides.nrao.edu/index.php?title=Category:Status\)](http://evlaguides.nrao.edu/index.php?title=Category:Status).

The numbers of receiver systems available at the beginning of the EVLA D-configuration are expected to be approximately as follows:

Band	Tuning range	Receiver availability: Sep 2011
L	1-2 GHz	17 (EVLA) + 9 (interim)

S	2-4 GHz	19
C	4-8 GHz	27
X	8-12 (8.0-8.8) GHz	13 (EVLA) + 15 (VLA)
Ku	12-18 GHz	15
K	18-26.5 GHz	27
Ka	26.5-40 GHz	27
Q	40-50 GHz	27

New EVLA-style X-band receivers will be included in astronomical observations along with the existing narrow-band VLA receivers as soon as they have been tested. However, observers should continue to assume the tuning range of the VLA receivers at X-band for this proposal cycle. For those EVLA antennas whose receivers support the wide bandwidths it is now possible to separate the two IF pairs by up to 10 GHz. There are some limitations on the tuning of the IFs for the Ka-band receiver. Please consult the [EVLA Observational Status Summary \(http://evlaguides.nrao.edu/index.php?title=Category:Status\)](http://evlaguides.nrao.edu/index.php?title=Category:Status) for details.

This is the first call for proposals to use the new EVLA Ku-band receivers. The expected resolution and sensitivity of this band are posted in the Observational Status Summary. No proposals to use frequencies lower than 1 GHz will be considered for this call.

Subarrays and VLBI observing modes are not currently available with the EVLA correlator. Users will be notified when these observing modes have been commissioned.

All EVLA observations are set up using the [Observation Preparation Tool \(OPT\) \(http://science.nrao.edu/evla/observing/opt.shtml\)](http://science.nrao.edu/evla/observing/opt.shtml). Use of the OPT requires registration in the NRAO User Database. Most, if not all, projects will be observed dynamically with a 0.5 hour granularity, so scheduling blocks should be submitted early in the configuration to maximize the opportunity of being observed.

Proposal preparation and submission are via the Proposal Submission Tool at [NRAO Interactive Services \(http://my.nrao.edu\)](http://my.nrao.edu). The different capabilities available for the OSRO and RSRO programs may be selected in the "resources" section of VLA proposals.

EVLA Impact and Availability

- **2011**

The wideband Q-, Ka-, K-, and C-band receiver systems will be completed. More than half of the wideband L-, S-, and Ku-band receiver systems should also be available by September 2011; approximately half of the wideband X-band receivers will be available. For D-configuration observers will routinely have access to to use two independently-tuned basebands, each up to 1 GHz wide. Each baseband can be split up into up to 8 contiguous sub-bands, with sub-band bandwidths selectable in powers of two between 31.25 kHz and 128 MHz.

- **2012**

The fast 3-bit samplers will be commissioned throughout 2011 and 2012, and access to wide bandwidths (up to 8 GHz BW) for general use is expected for the beginning of D-configuration in January 2013, or earlier for participants of the RSRO program. For those not requiring the maximum bandwidth, correlator recirculation, tested through the RSRO program, will offer set-ups with options

for millions of spectral channels. In addition, greater flexibility in the sub-band bandwidths, tuning and channelization will be available. The remaining receiver bands will be completed by Q4, 2012.

Updated EVLA Observational Status Summary

An updated [EVLA Observational Status Summary \(http://evlaguides.nrao.edu/index.php?title=Category:Status\)](http://evlaguides.nrao.edu/index.php?title=Category:Status) is available that summarizes the OSRO capabilities and expected sensitivities of the EVLA for the 1 February proposal deadline.

GBT Proposals

The 1 February 2011 deadline is for the Semester 2011B observing period: **1 July 2011 through 31 January 2012**. Proposals will be considered for the following receivers: 290-920 MHz (PF1), 910-1230 MHz (PF2), 1.15-1.73 GHz (L), 1.73-2.60 GHz (S), 3.8-6.1 GHz (C), 8.0-12.0 GHz (X), 12.0-15.4 GHz (Ku), 18.0-26.0 (KFPA), 26.0-39.5 GHz (Ka), 38.2-49.8 GHz (Q) receivers, MUSTANG (80-100 GHz Bolometer Array) and shared-risk 68-92 GHz (W).

Available observing modes include spectral line (including cross-polarization), continuum, pulsar, and VLBI/VLBA. The VLBA back end with Mark5A disk recorder may be used as a high-time resolution (> 2 ns) backend for single-dish observing.

Details of all GBT observing modes are in the [GBT Proposer's Guide \(http://www.gb.nrao.edu/gbtprops/man/GBTpg.pdf\)](http://www.gb.nrao.edu/gbtprops/man/GBTpg.pdf). Proposers should also consult the more general document "[The Performance of the GBT: A Guide for Planning Observations \(http://www.gb.nrao.edu/%7Ermaddale/GBT/ReceiverPerformance/PlaningObservations.htm\)](http://www.gb.nrao.edu/%7Ermaddale/GBT/ReceiverPerformance/PlaningObservations.htm)".

4mm Receiver: The new 68-92 GHz 4mm (W-band) receiver will be commissioned in the fall of 2011. The receiver may become available for shared-risk observations in January of 2012. Note that observations with this receiver are expected to be limited to night-time only. For more information see the [GBT 4mm Receiver \(http://www.gb.nrao.edu/4mm/prop_11b.shtml\)](http://www.gb.nrao.edu/4mm/prop_11b.shtml) web page.

18-26 GHz: The original GBT K-band receiver has been retired. All observations in the 18-26 GHz range should use the K-band Focal Plane Array (KFPA) receiver. Observers should take note of the more restrictive instantaneous bandwidth of the KFPA. The Time Allocation Committee will take this into account when considering 18-26 GHz proposals such that these proposals are not harmed by this limitation.

Proposers requesting GBT participation in High Sensitivity Array (HSA), Very Long Baseline Array (VLBA), or global Very Long Baseline Interferometry (VLBI) observations should consult the "[VLBA, HSA, and VLBI \(/enews/4.1/index.shtml#3\)](/enews/4.1/index.shtml#3)" section below.

The GBT will be scheduled by the [Dynamic Scheduling System \(DSS\) \(http://www.gb.nrao.edu/DSS\)](http://www.gb.nrao.edu/DSS) in Semester 2011B. Note that the DSS will result in no change to the proposal preparation and submission process: when the review process is complete, project investigators will be contacted on how to modify any information brought over from the PST which they desire to have changed before the semester begins. GBT staff will, as always, be available to help observers in working with the observing information in the DSS database and also with understanding the new dynamic scheduling scheme. Note that the DSS alters only the scheduling process for the GBT and will not affect the observing interface (e.g. Astrid) in any way. The [GBT observing policies \(https://safe.nrao.edu/wiki/bin/view/GB/Observing/GbtObservingPolicies\)](https://safe.nrao.edu/wiki/bin/view/GB/Observing/GbtObservingPolicies) describe the remote observing restrictions.

Technical questions or questions about the proposal process may be addressed to Toney Minter (+1-304-456-2275 or tminter@nrao.edu (<mailto:tminter@nrao.edu>)). Questions about the PST should be sent to the [NRAO helpdesk](http://help.nrao.edu/) (<http://help.nrao.edu/>).

VLBA, HSA, & VLBI Proposals

The 1 February 2011 deadline applies to regular observing proposals requesting:

- Very Long Baseline Array (VLBA), alone or with affiliate(s)
 - [VLBA details](http://science.nrao.edu/vlba/) (<http://science.nrao.edu/vlba/>)
 - Proposal submission is via the NRAO [Proposal Submission Tool](http://science.nrao.edu/vlba/obsprop/pst.shtml) (<http://science.nrao.edu/vlba/obsprop/pst.shtml>)
- High Sensitivity Array (HSA), including VLBA+Effelsberg (only)
 - [HSA details](http://www.nrao.edu/HSA/) (<http://www.nrao.edu/HSA/>)
 - Proposal submission is via the NRAO [Proposal Submission Tool](http://science.nrao.edu/vlba/obsprop/pst.shtml) (<http://science.nrao.edu/vlba/obsprop/pst.shtml>)
- Global mm VLBI (using the VLBA) in the October 6-11, 2011, or later, sessions
 - [Proposal submission](http://www.nrao.edu/admin/do/vlba-gvlbi.shtml) (<http://www.nrao.edu/admin/do/vlba-gvlbi.shtml>) instructions

This deadline also applies to [large observing proposals](http://science.nrao.edu/observing/largeproppolicy.shtml) (<http://science.nrao.edu/observing/largeproppolicy.shtml>) requesting the VLBA, alone or with other NRAO resources.

The observing period is July 2011 through January 2012.

Global cm VLBI ([VLBA](http://science.nrao.edu/vlba/) (<http://science.nrao.edu/vlba/>) + [European VLBI Network](http://www.evlbi.org/) (<http://www.evlbi.org/>)) proposals should continue to be submitted at the EVN deadlines of February 1/June 1/October 1 through the EVN [NorthStar](http://proposal.jive.nl/) (<http://proposal.jive.nl/>) tool. Proposals received by the February 1, 2011, deadline will be considered for scheduling in Session 2 (May 26 through June 16) 2011 or later.

Please see [here](http://www.nrao.edu/admin/do/vlba-gvlbi.shtml) (<http://www.nrao.edu/admin/do/vlba-gvlbi.shtml>) for further details and proposal submission instructions for VLBA, HSA, and global VLBI proposals.

VLBA capabilities

New 2-Gbps Recording Capability

The first phase of the VLBA's transition to wider-band operation will be available for approved proposals submitted at this deadline. Proposals can request a 2-Gigabit per second recording rate, corresponding to 256 MHz per IF input in a typical 2-IF case. In its current configuration, the new equipment supports only this fixed bandwidth, in a total of sixteen 32-MHz sub-bands. Flexible selection of the IF inputs and sub-band frequencies will be commissioned before observing begins. It will not be possible initially to support a sustained 2 Gbps recording rate for all projects. The use of the 2 Gbps recording rate should therefore be explicitly justified in the proposal.

Wideband observing is selected via a checkbox labelled "Wideband Observing System" in the NRAO Proposal Submission Tool's resources section. That checkbox causes the appropriate fixed values to be filled throughout the resource segment, with the only exception being that either single- or dual-polar modes can also be specified. Alternatively, current proposals can continue to request the original VLBA data acquisition system.

The basic performance of the new equipment has already been validated in internal VLBA test observations, and scientific commissioning has begun. Installation across the VLBA continues, with six stations outfitted as of this date. Support for the new capabilities in the VLBI scheduling program SCHED is largely complete, with a new release planned for the near future.

C-band availability

A project has begun to replace the VLBA 6cm (C-band) receivers, which currently have a tuning range of 4.6-5.1 GHz, with wideband systems having a tuning range of approximately 4.1-7.9 GHz. Outfitting the array with production receivers will begin as early as June 2011, with the final system to be installed by mid-2012. During this period the number of available C-band receivers on the VLBA is expected to be 8 or 9 at any one time. Observations requiring 9 (or 10) antennas should be explicitly justified in the proposal, since they may require special scheduling.

VLBA Observational Status Summary

An updated version of the VLBA Observational Status Summary is available in [html](http://www.vlba.nrao.edu/astro/obstatus/current/) (<http://www.vlba.nrao.edu/astro/obstatus/current/>), [pdf](http://www.vlba.nrao.edu/astro/obstatus/current/obssum.pdf) (<http://www.vlba.nrao.edu/astro/obstatus/current/obssum.pdf>), or [postscript](http://www.vlba.nrao.edu/astro/obstatus/current/obssum.ps) (<http://www.vlba.nrao.edu/astro/obstatus/current/obssum.ps>) formats.

The NRAO Helpdesk

Investigators requiring assistance in proposal submission, observation preparation, or data processing should use the [NRAO Helpdesk](http://help.nrao.edu) (<http://help.nrao.edu>).

Links to Previous Announcements

- We continue to encourage the submission of proposals that can use short scheduling blocks, poor weather, or fewer than the maximum 10 VLBA stations (see the [NRAO eNews, September 15, 2010](http://science.nrao.edu/enews/3.9/) (<http://science.nrao.edu/enews/3.9/>)).
- The capabilities of the VLBA DiFX Correlator are described in recent editions of the NRAO eNews ([September 15, 2010](http://science.nrao.edu/enews/3.9/) (<http://science.nrao.edu/enews/3.9/>) and [May 14, 2010](http://science.nrao.edu/enews/enews_3_5/enews_3_5.shtml) (http://science.nrao.edu/enews/enews_3_5/enews_3_5.shtml)).
- A description of the EVPA monitoring at the EVLA can be found in the [NRAO eNews, September 15, 2010](http://science.nrao.edu/enews/3.9/) (<http://science.nrao.edu/enews/3.9/>).

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