



VLBA/VLA Proposal Preparation

Amy Mioduszewski



Creating an NRAO proposal

- Proposal Submission Tool (PST)
 - VLA, VLBA, GBT, but ...
 - for ALMA, use ALMA OT
- Most of presentation true for VLA and VLBA, will point out difference when I get to them
- Accessing the PST
 - You must be registered at my.nrao.edu
 - Also gives access to other services (e.g. Observation Prep Tool (OPT), archive)
 - Allows creating and submitting new proposals
 - Gives access to all proposals you are associated with regardless of your role (PI, co-I, contact author, reviewer)

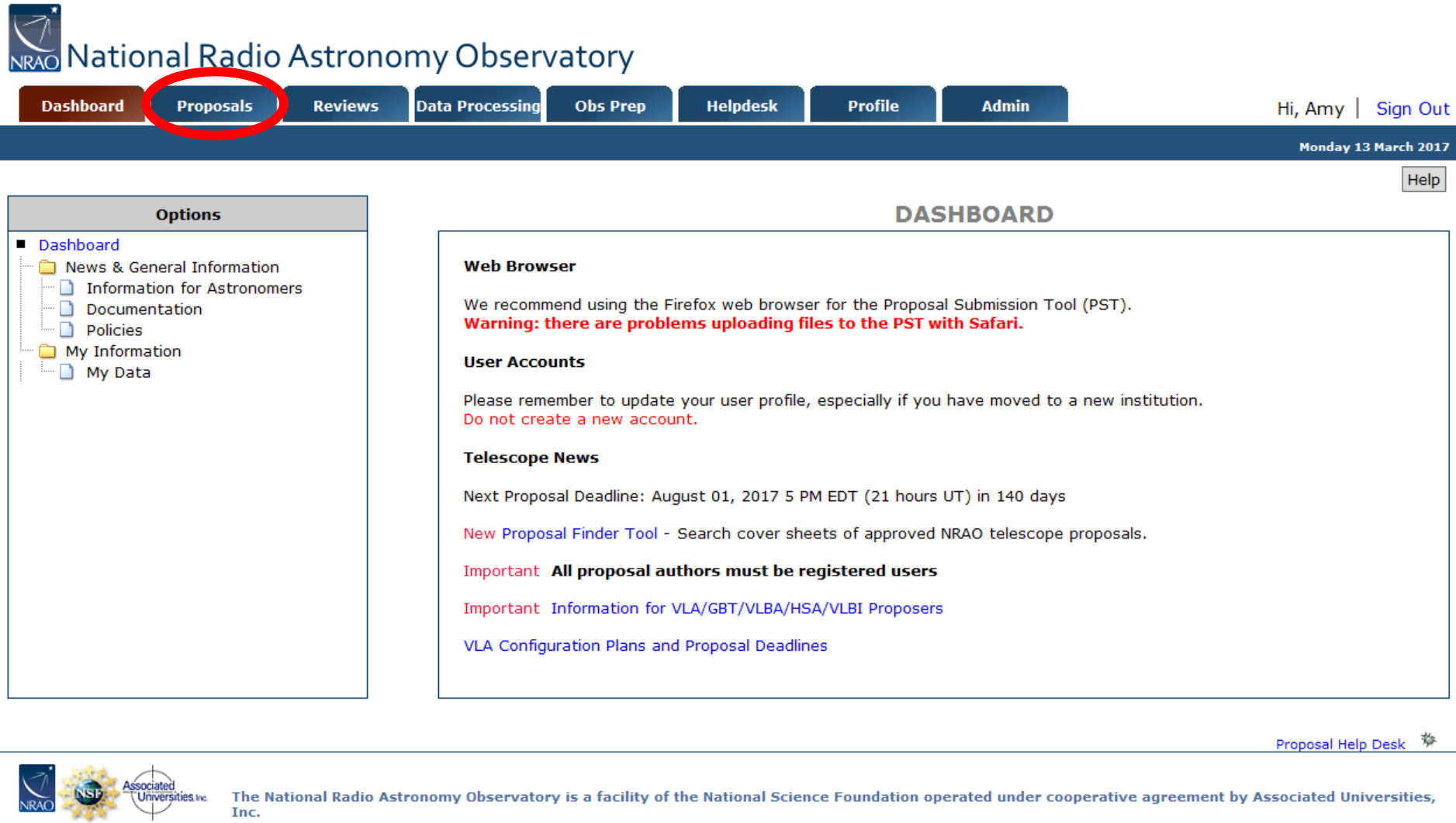
Proposal timeline


- Proposal deadlines
 - 2 per year: Typically February 1 and August 1
 - Next deadline on August 1st for 18A (for first half of 2018) and is for VLA configurations A (largest) and D (smallest).
- After deadline:
 - All submitted proposals evaluated by Science Review Panel and Time Allocation Committee
 - Observers will be informed of allocated time (if any) and scientific priority (A, B or C) in a “disposition letter” about a month before next call.
 - A– Highest priority, most likely to be observed; B– Next highest priority, scheduled on best effort basis; C– Filler time
 - For VLA: Schedules can be submitted about a month before configuration.
 - For VLBA: Schedules can be submitted once disposition letter goes out.

Types of proposals

- Proposals submitted at deadlines:
 - Regular ($< 200\text{h}$) ≤ 4 pages science justification
 - Large ($\geq 200\text{h}$) ≤ 10 pages science justification; requires data reduction and release plan
 - Triggered ≤ 4 pages science justification
 - pre-planned observations of transients whose event times are unknown a priori; well-defined triggering criteria are required
- Director's Discretionary Time
 - Not tied to proposal deadline, limited time request
 - For a Target of Opportunity (unexpected, unpredicted, e.g. supernova in nearby galaxy) or
 - Exploratory Time for high risk/high yield or last minute projects
 - Must have a good reason for why this was not proposed at regular deadline

Log into my.nrao.edu and click on “Proposals”



 National Radio Astronomy Observatory

Dashboard **Proposals** Reviews Data Processing Obs Prep Helpdesk Profile Admin

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Monday 13 March 2017 [Help](#)

Options

- [Dashboard](#)
 - News & General Information
 - [Information for Astronomers](#)
 - [Documentation](#)
 - [Policies](#)
 - My Information
 - [My Data](#)

DASHBOARD

Web Browser

We recommend using the Firefox web browser for the Proposal Submission Tool (PST).
Warning: there are problems uploading files to the PST with Safari.

User Accounts

Please remember to update your user profile, especially if you have moved to a new institution.
Do not create a new account.

Telescope News


Next Proposal Deadline: August 01, 2017 5 PM EDT (21 hours UT) in 140 days




[New Proposal Finder Tool](#) - Search cover sheets of approved NRAO telescope proposals.

Important [All proposal authors must be registered users](#)

Important [Information for VLA/GBT/VLBA/HSA/VLBI Proposers](#)

[VLA Configuration Plans and Proposal Deadlines](#)

[Proposal Help Desk](#) 

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Click “New Proposal”



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Search

Problem finding your proposal? Try sorting a column by clicking on the column header or by changing the filters to the left.

Records: 25 Page: 1 of 5

| Options |
|------------------------------|
| Status: ALL |
| Telescope: ALL |
| Trimester / Semester: ALL |
| Year: ALL |

| Proposal | Legacy ID | Title | P.I. Name | Created | Submitted | Status |
|--------------|-----------|-------|-----------|---------|-----------|--------|
| VLA/17B-352 | | | | | | |
| VLBA/17B-316 | | | | | | |
| VLA/17B-310 | | | | | | |
| VLA/17B-313 | | | | | | |
| GBT/17B-319 | | | | | | |
| VLA/17A-335 | | | | | | |
| VLBA/17A-262 | | | | | | |
| VLBA/17A-282 | | | | | | |
| VLA/17A-291 | | | | | | |
| VLBA/17A-173 | | | | | | |
| VLBA/17A-095 | | | | | | |

Select type of proposal and then “Create”

Create Help



☒ VLA



☐ GBT



☐ VLBA/HSA



☐ GMVA

“Blank” proposal now appears in “My Proposals”

Click edit icon



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Search

Problem finding your proposal? Try sorting a column by clicking on the column header or by changing the filters to the left.

« < Records: 25 Page: 1 of 5 > »

| Options | Proposal ▾ | Legacy ID ▾ | Title ▾ | P.I. Name ▾ | Created ▾ | Submitted ▾ | Status ▾ |
|--|-----------------|-------------|---|------------------|------------|-------------|----------|
| Status: <input type="text" value="ALL"/> | VLA/2017-02-003 | | This is a blank proposal created on Monday March 13, 2017 | Amy Mioduszewski | 03/13/2017 | | DRAFT |
| Telescope: <input type="text" value="ALL"/> | VLA/17B-352 | AL1016 | | | | | |
| Trimester / Semester: <input type="text" value="ALL"/> | VLBA/17B-316 | BL252 | | | | | |
| Year: <input type="text" value="ALL"/> | VLA/17B-310 | AM1507 | | | | | |
| | VLA/17B-313 | AL1011 | | | | | |
| | GBT/17B-319 | QW149 | | | | | |
| | VLA/17A-335 | AL995 | | | | | |
| | VLBA/17A-262 | BM457 | | | | | |
| | VLBA/17A-282 | BM458 | | | | | |
| | VLA/17A-291 | AD770 | | | | | |
| | VLBA/17A-173 | BD207 | | | | | |
| | VLBA/17A-095 | BK202 | | | | | |

General information



Edit Help

GENERAL

<< < General > >>

Options

- My Proposals
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 - VLBA/16A-317
 - VLA/16A-258
 - VLBA/16A-348
 - VLA/15B-264
 - VLA/15B-274
 - VLBA/15B-073



Observing Proposal

Status: DRAFT
Create Date: 03/13/2017
Modify Date: 03/13/2017
Submit Date:
Total Time: 0.0

Title

This is a blank proposal created on Monday March 13, 2017

Type

Regular

Sponsored Proposal

Not Sponsored

Scientific Category

Abstract

Joint

Not a Joint Proposal

Observing Type(s)

Dissertation Research Plan

Dissertation Research Plan(s) not required

Observer Present for Observations

no

Staff Support Required

None

Related Proposals

PST – major elements

- General
- Authors
- Science Justification
- Technical Justification
- Sources – what do you want to observe
- Resources – instrumental setup
- Sessions – which of your sources do you want to observe with which of your resources
- Disposition Letter (Not something the proposer fills out, contains a copy of the disposition letter once the proposal has made it through the time allocation process)

Click “Edit”

Validate Print Submit

Edit Help

GENERAL

<< < General > >>

Options

- My Proposals
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 - Technical Justification
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Staff Support Required

None

Related Proposals

General section



Cancel Save Help

GENERAL (changes will auto-save in 10 minutes)

« < General > »



Observing Proposal

Status: DRAFT

Create Date: 03/13/2017

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Submit Date:

Total Time: 0.0

Options

My Proposals

VLA/2017-02-003

General

Authors

Science Justification

Technical Justification

Sources

Resources

Sessions

Disposition Letter

VLA/17B-352

VLBA/17B-316

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VLBA/16A-317

VLA/16A-258

VLBA/16A-348

VLA/15B-264

VLA/15B-274

VLBA/15B-073

Title (80 characters max)

This is a blank proposal created on Monday March 13, 2017

Proposal Type

☒ Regular ☐ Large ☐ Triggered ☐ Director's Discretionary Time

Proposal Sponsor

Sponsor: Not Sponsored

Scientific Category (Click [here](#) for additional information about Proposal Science Categories)


- ☐ Active Galactic Nuclei (Active galactic nuclei: Seyferts; low-luminosity AGN; H2O megamasers; radio galaxies; blazars; quasars/QSOs; environmental interactions)
- ☐ Energetic Transients and Pulsars (X-ray binaries, cataclysmic variables, supernovae, gamma-ray bursts, pulsars)
- ☐ Extragalactic Structure (Galaxies (line): galaxy structure; galaxy kinematics and dynamics; galaxy chemistry; gas in galaxies)
- ☐ High Redshift and Source Surveys (High-Z objects; extragalactic source surveys; galaxy formation; gravitational lenses; CMB; early universe)
- ☐ Interstellar Medium (galactic HI & OH; ISM magnetic field; SNRs; HII regions; astrochemistry)
- ☐ Normal Galaxies, Groups, and Clusters (Galaxies (continuum), groups, clusters: disk emission; star formation; magnetic fields; galactic winds; starbursts; intracluster emission)
- ☐ Solar System, Stars, Planetary Systems (Sun, planets, comets, IPM; exoplanets; main sequence stars; active stars; stellar winds; AGB & post-AGB stars; PNe; novae)
- ☐ Star Formation (young stellar objects; protostars; jets, outflows; T Tauri stars; circumstellar disks; protoplanetary systems; astrochemistry)

Abstract (200 words max, 10 min) [Word Count : 0]

Joint

If you are submitting a joint proposal please see the instructions [here](#).

General section

Joint 

If you are submitting a joint proposal please see the instructions [here](#).

☐ GBT
☐ VLBA
☐ HST Orbits Requested ▲▼
☐ Swift Ksec. ▲▼
☐ Chandra Ksec. ▲▼

Observing Type(s)

| | | |
|---|---|--|
| <input type="checkbox"/> Continuum | <input type="checkbox"/> Spectroscopy | <input type="checkbox"/> Polarimetry |
| <input type="checkbox"/> Single Pointing(s) | <input type="checkbox"/> Grid Mapping/Mosaicing | <input type="checkbox"/> OTF Mapping |
| <input type="checkbox"/> Sun | <input type="checkbox"/> Monitoring | <input type="checkbox"/> Solar System |
| <input type="checkbox"/> High Time Resolution | <input type="checkbox"/> Pulsar | <input type="checkbox"/> Radar |
| <input type="checkbox"/> Geodesy | <input type="checkbox"/> Astrometry | <input type="checkbox"/> VLA Subarrays |
| <input type="checkbox"/> Other | | |

Dissertation Research Plan

Dissertation Plan is now associated with author(s) and must be set on the Author's page.
Dissertation Plan section will appear when a student author is marked "Observing For Thesis".

Observer Present for Observations

☐ Yes ☒ No

Staff Support Required

☒ None ☐ Consultation ☐ Friend

Related Proposals

General section



GENERAL (changes will auto-save in 10 minutes)

« < General > »



Observing Proposal

Status: DRAFT

Create Date: 03/13/2017

Modify Date: 03/13/2017

Submit Date:

Total Time: 0.0

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Proposal Type

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Proposal Sponsor

Sponsor: Not Sponsored

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- Options
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 - Authors
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 - Sources
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 - VLA/15B-274
 - VLBA/15B-073

Authors Section

[Help](#)

AUTHORS

« < **Authors** > »

All proposal authors must be registered users.

Principal Investigator: Amy Mioduszewski Contact: Emmanuel Momjian

| Order | Name | Email | Affiliation | Dissertation Plan | Add |
|---------------------------|------------------|-------------------|--------------------------------------|-------------------|-----|
| up / down | Amy Mioduszewski | amiodusz@nrao.edu | National Radio Astronomy Observatory | N/A | |
| up / down | Emmanuel Momjian | emomjian@nrao.edu | National Radio Astronomy Observatory | N/A | |
| up / down | Amy Kimball | akimball@nrao.edu | National Radio Astronomy Observatory | N/A | |

- Add authors with Add button
 - Will have automatically have you as first author and PI/Contact authors
- Move authors up and down on list by using up/down
- Can reassign PI and Contact author

Scientific Justification Section

Again, click “Add” to upload your Scientific Justification



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Wednesday 15 March 2017

[My Proposals](#) [Proposal List](#) [Available Authors](#) [Available Organizations](#)

[Validate](#) [Print](#) [Submit](#)

SCIENCE JUSTIFICATION [«](#) [<](#) [Science Justification](#) [>](#) [»](#)

Justification File .pdf, .txt only; font size no less than 11pt; no more than 4 pages (including figures, tables, and references).

File Preview **Note:** Only a preview. Please click on 'Download' to view the uploaded File.

Options

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 - VLBA/2016-01-014
 - VLA/16B-330
 - VLA/16B-244
 - VLA/16B-167

Sources Section

Targets No Sessions up / down Search NED/SIMBAD

| Order | Name | Position | Velocity | Add |
|-----------------------------------|-------------------|--|------------|-------------|
| up / down 3C345 | Coordinate System | Equatorial | Convention | Optical |
| | Equinox | J2000 | | |
| | Right Ascension | Value: 16:42:58.80 Range(±): 00:00:00.0 | Ref. Frame | Barycentric |
| | Declination | Value: +39:48:36.9 Range(±): 00:00:00.0 | Redshift | 0.59280 |
| | Calibrator | N | | |
| up / down NGC4258 | Coordinate System | Equatorial | Convention | Optical |
| | Equinox | J2000 | | |
| | Right Ascension | Value: 12:18:57.50 Range(±): 00:00:00.0 | Ref. Frame | Barycentric |
| | Declination | Value: +47:18:14.3 Range(±): 00:00:00.0 | Redshift | 0.001541 |
| | Calibrator | N | | |

— add manually

— search in NED/SIMBAD

- Copy from old proposal (“Copy Sources”)
- Load from local data file (“Import”)

Resources Section

VLA RESOURCES

« < Resources > »

| Order | Name | Configuration | Receiver | Back End | Session |
|-------|------------------------|---------------|---------------------|---|---------|
| | Q spec | A | Q Band 0.7 cm 40000 | General and Shared Risk Observing - Spectral Line | |

VLA RESOURCES

« < Resources > »

| Order | Name | Configuration | Receiver | Back End | Session | Add |
|---------------------------|-----------------------------|---------------|----------------------------------|---|-------------|-----|
| up / down | + Ka cont | D | Ka Band 0.9 cm 26500 - 40000 MHz | General and Shared Risk Observing - Wideband | No Sessions | |
| up / down | + Q spectra | A | Q Band 0.7 cm 40000 - 50000 MHz | General and Shared Risk Observing - Spectral Line | No Sessions | |

Note: don't forget to choose the correct Receiver for this Resource!

Rest Frequencies:

43.5 47.2

GOST Screen Shot:

No file selected.

- Click “Copy Resources” if you want to copy from another proposal, or
- Click “Add” *which I have already done.*

GOST (General Observing Setup Tool)

8-bit Baseband A0/C0

| SB | Velo Cov | BW | Prod | Recirc | BIBP | Ch Wd (v) | Ch Wd (f) | Channels | MB/s |
|----|----------|----------|------|--------|------|-----------|-----------|----------|------|
| 0 | 200 km/s | 32.0MHz | Full | 4 | 1 | 797 m/s | 125 kHz | 256 | 0.99 |
| 1 | 200 km/s | 32.0MHz | Full | 1 | 4 | 797 m/s | 125 kHz | 256 | 0.99 |
| 2 | 200 km/s | 32.0MHz | Full | 4 | 4 | 199 m/s | 31.3 kHz | 1,024 | 3.9 |
| 3 | 200 km/s | 32.0MHz | Full | 1 | 1 | 3.19 km/s | 500 kHz | 64 | 0.25 |
| 4 | 200 km/s | 32.0MHz | Full | 1 | 1 | 3.19 km/s | 500 kHz | 64 | 0.25 |
| 5 | 200 km/s | 32.0MHz | Full | 1 | 1 | 3.19 km/s | 500 kHz | 64 | 0.25 |
| 6 | 820 km/s | 128.0MHz | Full | 1 | 1 | 12.8 km/s | 2.00 MHz | 64 | 0.25 |
| 7 | 820 km/s | 128.0MHz | Full | 1 | 1 | 12.8 km/s | 2.00 MHz | 64 | 0.25 |
| 8 | | | | | | | | | |
| 9 | | | | | | | | | |
| 10 | | | | | | | | | |

8-bit Baseband B0/D0

| SB | Velo Cov | BW | Prod | Recirc | BIBP | Ch Wd (v) | Ch Wd (f) | Channels | MB/s |
|----|----------|----------|------|--------|------|-----------|-----------|----------|------|
| 0 | 110 km/s | 16.0MHz | Full | 4 | 1 | 436 m/s | 62.5 kHz | 256 | 0.99 |
| 1 | 220 km/s | 32.0MHz | Full | 1 | 1 | 3.49 km/s | 500 kHz | 64 | 0.25 |
| 2 | 220 km/s | 32.0MHz | Full | 1 | 1 | 3.49 km/s | 500 kHz | 64 | 0.25 |
| 3 | 220 km/s | 32.0MHz | Full | 1 | 1 | 3.49 km/s | 500 kHz | 64 | 0.25 |
| 4 | 890 km/s | 128.0MHz | Full | 1 | 1 | 13.9 km/s | 2.00 MHz | 64 | 0.25 |
| 5 | 890 km/s | 128.0MHz | Full | 1 | 1 | 13.9 km/s | 2.00 MHz | 64 | 0.25 |
| 6 | 890 km/s | 128.0MHz | Full | 1 | 1 | 13.9 km/s | 2.00 MHz | 64 | 0.25 |
| 7 | 890 km/s | 128.0MHz | Full | 1 | 1 | 13.9 km/s | 2.00 MHz | 64 | 0.25 |
| 8 | | | | | | | | | |
| 9 | | | | | | | | | |
| 10 | | | | | | | | | |

and baseband pair stacking (BIBP) – recirculation and BIBP can be used to increase spectral resolution

- click Subbands → Fill 16 Subbands (or Fill 32 Subbands for 3 bit) → All A/C (or All B/D...)
- Please refer to GOST section of “VLA Proposers Guide”, especially “GOST Usage Hints”

Sessions-- connecting the Sources and Resources

...and some stuff about observing time.

Delete A **New Session** Help

SESSIONS

Important advice on information for creating VLA Sessions can be found [here](#).

« < Sessions > »

| Session | Number of Sessions | Separation | Min. Start LST | Max. End LST | Min. Elevation | | | | | | | | |
|---|--------------------|--------------------|------------------------|------------------------|--------------------------|---------------|-----------|--------------------|-----|-----------|-----------|-------|--|
| <div>Calc Min/Max LST</div> <div>EVLA Exposure Calculator</div> | | | | | | | | | | | | | |
| ⊕ KA band | 5 X 2.0 | 10 day | 10:06:45 | 23:19:12 | 15 | | | | | | | | |
| Q band | 1 X 10.0 | 1 day | 05:15:37 (HH:MM:SS) | 19:22:18 (HH:MM:SS) | 15 | | | | | | | | |
| Scheduling Constraints: | | | Comments: | | Save Delete Cancel | | | | | | | | |
| <table border="1"> <thead> <tr> <th>Source Groups</th> <th>Resources</th> <th>Time/Session (hrs)</th> <th>Add</th> </tr> </thead> <tbody> <tr> <td>Megamaser</td> <td>Q spectra</td> <td>10.00</td> <td></td> </tr> </tbody> </table> | | | | | | Source Groups | Resources | Time/Session (hrs) | Add | Megamaser | Q spectra | 10.00 | |
| Source Groups | Resources | Time/Session (hrs) | Add | | | | | | | | | | |
| Megamaser | Q spectra | 10.00 | | | | | | | | | | | |

- Click “New Session” on the top right
- Enter name and number and separation of epochs, and LST range on top line
- Click Add
 - Select a source group and a resource
 - Enter time per session

Technical Justification

Note there are different questions for the VLBA (and GBT)

Save Help

TECHNICAL JUSTIFICATION

<< < Technical Justification > >>

VLA Technical Justification

Use this page to specify how the technical set-up requested for your proposal enables the scientific goals to be met. Input is required for all fields. If a field is not relevant for your proposal then enter "NA" into the textbox. The links within each box provide information concerning these technical questions.

Are the data to be combined with those from other configurations or radio telescopes, if so, please specify:

<http://go.nrao.edu/combine>

Explain the reason for the array configuration(s) requested. Include the angular extent of the source and the largest angular size (LAS) to be measured:

<http://go.nrao.edu/vla-res>

Give possible scheduling constraints. Issues that should be addressed:

1. Are targets nighttime/daytime for the configurations proposed (possibly important for low-frequency interference or high frequency phase stability)?
2. What will be the target elevation (possibly important for high-frequency calibration and overhead)?
3. What is the required date for coordinated or fixed-date observations?
4. Are there dates that should be excluded, e.g. for proximity to the Sun?
5. For Large projects, what is the total number of passes required at a given LST?

<http://go.nrao.edu/vla-plan>

Explain choice of receiver(s) requested:

<http://go.nrao.edu/vla-frq>

Describe the choice of samplers and the correlator set-up(s) requested. For spectral line observations also provide details such as:

- Velocity/frequency span of the line(s).
- Velocity/frequency resolution needed.
- Subband width(s) and channel numbers to be used for each line.
- Rest and sky frequencies of interest.

<http://go.nrao.edu/vla-samplers>
<http://go.nrao.edu/widar>
<http://go.nrao.edu/vla-obsline>
<http://go.nrao.edu/opt-rct>

Technical Justification (cont.)

Note whether the observations will include mosaicking, and if so, whether the mosaicking is pointed or OTF (on-the-fly) mapping (give raster size) or number of pointings:

<http://go.nrao.edu/mosaic>

Give the sensitivity required to achieve the science goal; include frequency or velocity width assumed:

<http://go.nrao.edu/vla-rms>

Give the required on-source integration time to achieve the required sensitivity, and total time including overhead; include considerations such as source confusion in compact configurations, RFI in the geostationary satellite belt, self-noise for strong sources; if the overhead assumed is different from that given by the exposure calculator, please explain:

Please upload exposure calculator graphic(s). Multiple files should be uploaded if there are multiple resources. Use the "Save" button on the tool to save a pdf file which can then be uploaded using the browse/upload buttons to the right.

<http://go.nrao.edu/ect>

Note correlator dump time, data rate, and total volume of all raw dat expected (not just the on-source fraction); for data rates in excess of 25 MB/s, please provide additional justification for why this data rate is required (for simple experiments, the data rates are calculated for each correlator setup in the GOST tool and for wide-band observations, the PST gives the rate when a Resource is set up):

<http://go.nrao.edu/tim-res>

Use this space to tell the technical reviewer what expected imaging problems you might expect to see, due, e.g. to wide fractional bandwidths, ionosphere, nearby strong sources, complex source structure, etc. Please also let us know how you plan to ameliorate these imaging problems. This might include using particular kinds of software and computing resources, either at NRAO or your home institution. Other information that might be useful to the reviewer are whether the target can be self-calibrated, whether or not the images will be dynamic range limited, etc.

<http://go.nrao.edu/imaging>

For polarimetric observations, note whether the observations require parallactic angle coverage, or whether an unpolarized source will be used to calibrate determine the D-terms:

<http://go.nrao.edu/vla-pol>

Note any potential problems with RFI in the proposed observations. Proximity to the geosynchronous satellite belt in the declination range from about 0 to -10 degrees should be noted.

<http://go.nrao.edu/vla-rfi>

No file selected.

| File Name | Size | | |
|-----------|------|---------------------------------------|---|
| File Name | Size | <input type="button" value="delete"/> | <input type="button" value="download"/> |

VLA Exposure Calculator <https://obs.vla.nrao.edu/ect>

| VLA Exposure Calculator | |
|--------------------------|---|
| Array Configuration | A |
| Number of Antennas | 25 |
| Polarization Setup | <input type="radio"/> Single <input checked="" type="radio"/> Dual |
| Type of Image Weighting | <input type="radio"/> Natural <input checked="" type="radio"/> Robust |
| Representative Frequency | 0.0000 |
| Receiver Band | Unspecified |
| Approximate Beam Size | Unknown |
| Digital Samplers | <input type="radio"/> 3 bit <input checked="" type="radio"/> 8 bit |
| Elevation | Zenith (90 degrees) |
| Average Weather | Winter |
| Calculation Type | <input checked="" type="radio"/> Time <input type="radio"/> BW |
| Time on Source (UT) | 0h 0m 0s |
| Total Time (UT) | 0h 0m 0s |
| Bandwidth (Frequency) | 0.0000 |
| Bandwidth (Velocity) | 0.0000 |
| RMS Noise (units/beam) | 100.0000 |
| RMS Brightness (temp) | 0.0000 |
| Confusion Level | 0.0Jy |
| Help | |

v17B | 2017-01-25 10:26:08 MST | build #7:

Input center frequency
You must provide a value for Frequency. Press the

| VLA Exposure Calculator | |
|---|---|
| Array Configuration | D |
| Number of Antennas | 25 |
| Polarization Setup | <input type="radio"/> Single <input checked="" type="radio"/> Dual |
| Type of Image Weighting | <input type="radio"/> Natural <input checked="" type="radio"/> Robust |
| Representative Frequency | 33.0000 |
| Receiver Band | Ka |
| Approximate Beam Size | 2.092" |
| Digital Samplers | <input checked="" type="radio"/> 3 bit <input type="radio"/> 8 bit |
| Elevation | Medium (25-50 degrees) |
| Average Weather | Summer |
| Calculation Type | <input checked="" type="radio"/> Time <input type="radio"/> BW |
| Time on Source (UT) | 1h 3m 28s |
| Total Time (UT) | 1h 59m 39s |
| Bandwidth (Frequency) | 8.0000 |
| Bandwidth (Velocity) | 72,676.9595 |
| RMS Noise (units/beam) | 6.5000 |
| RMS Brightness (temp) | 1.6668 |
| Confusion Level | 3.892190nJy |
| Help Save | |

v17B | 2017-01-25 10:26:08 MST | build #7:

| VLA Exposure Calculator | |
|---|---|
| Array Configuration | A |
| Number of Antennas | 25 |
| Polarization Setup | <input type="radio"/> Single <input checked="" type="radio"/> Dual |
| Type of Image Weighting | <input checked="" type="radio"/> Natural <input type="radio"/> Robust |
| Representative Frequency | 43.5000 GHz |
| Receiver Band | Q |
| Approximate Beam Size | 0.067" |
| Digital Samplers | <input type="radio"/> 3 bit <input checked="" type="radio"/> 8 bit |
| Elevation | Medium (25-50 degrees) |
| Average Weather | Summer |
| Calculation Type | <input checked="" type="radio"/> Time <input type="radio"/> BW <input type="radio"/> Noise/Tb |
| Time on Source (UT) | 3h 45m 37s |
| Total Time (UT) | 10h 19m 46s |
| Bandwidth (Frequency) | 14.5100 kHz |
| Bandwidth (Velocity) | 0.1000 km/s |
| RMS Noise (units/beam) | 3.0000 mJy |
| RMS Brightness (temp) | 427.0065 K |
| Confusion Level | 0.0Jy |
| Help Save | |

Technical Justification (cont.)

| | |
|---|--|
| <p>If this is a joint external proposal (e.g., HST, Chandra, or Swift), please add any technical details about the external telescope here:</p> | |
| <p>Note any other special technical considerations with either the setup or the data processing. RSRO proposals should use this section to describe who will fill the residency requirements for the proposal, along with a description of their technical expertise.</p> <p>http://go.nrao.edu/vla-oss</p> <p>http://go.nrao.edu/vla-capabilities</p> | |

When done with technical justification click “Save” at top.

Go back to “General” and see that the total time is now filled in

NRAO National Radio Astronomy Observatory

Dashboard Proposals Reviews Data Processing Obs Prep Helpdesk Profile Admin

Hi, Amy | Sign Out

My Proposals Proposal List Available Authors Available Organizations Thursday 16 March 2017

Validate Print Submit

Options

- My Proposals
 - VLA/2017-02-003
 - General
 - Authors
 - Science Justification
 - Technical Justification
 - Sources
 - Resources
 - Sessions
 - Disposition Letter

GENERAL

Observing Proposal

Status: DRAFT
Create Date: 03/13/2017
Modify Date: 03/16/2017
Submit Date:
Total Time: 20.0

Title
Solving the mysteries of the universe

Type
Regular

- Note “Validate”, “Print” and “Submit” buttons on upper left (on all sections, not just “General”)

Differences with the VLBA Resources

Copy Resources Help

VLBA/HSA RESOURCES

« < Resources > »

| Order | Name | Wavelength | Processor | Observing Mode | Session |
|-------|------|------------|--------------|----------------------|---------|
| | C | 6 cm | Socorro-DiFX | Standard/Shared Risk | |

| Stations | Observing Parameters | Correlation Parameters | Special Features |
|--|---|--|---|
| VLBA <input checked="" type="checkbox"/> BR <input checked="" type="checkbox"/> FD <input checked="" type="checkbox"/> HN <input checked="" type="checkbox"/> KP <input checked="" type="checkbox"/> LA <input checked="" type="checkbox"/> MK <input checked="" type="checkbox"/> NL <input checked="" type="checkbox"/> OV <input checked="" type="checkbox"/> PT <input checked="" type="checkbox"/> SC <input checked="" type="checkbox"/> | Observing System PFB System Bandwidth 32 MHz | Number of Correlator Passes 2 Integration Period(sec) 2.0 | Full Polarization <input checked="" type="checkbox"/> Pulsar Gate <input type="checkbox"/> |
| HSA <input checked="" type="checkbox"/> GBT <input checked="" type="checkbox"/> AR <input type="checkbox"/> EB <input checked="" type="checkbox"/> VLA-Y27 <input checked="" type="checkbox"/> | Baseband Channels 16 | Spectral Points/BBC 64 | Output Format Conversion to Mark4 <input type="checkbox"/> |
| VLA Y1 <input type="checkbox"/> | Polarization Dual | No. of Phase Centers per Pointing 100 | |
| Geodetic | Agg. Bit Rate (Mbits/sec) 2048 | | |

Save
Delete
Cancel

- Similar to VLA you can “Copy Resources” from another project or “Add” a resource (which is what I had done here).
- For VLBA proposals you choose which telescopes you want, I chose all the VLBA antennas plus 3 larger antennas to boost sensitivity
- Also chose maximum bandwidth (256MHz or 2Gbps)

Differences with the VLBA

Technical Justification

Save Help

TECHNICAL JUSTIFICATION

« < Technical Justification > »

VLBA Technical Justification

Use this page to specify how the technical set-up requested for your proposal enables the scientific goals to be met. Input is required for all fields. If a field is not relevant for your proposal then enter "NA" into the textbox. The links within each box provide information concerning these technical questions.

Explain the reasons for the stations requested; specify minimum number acceptable, and note which stations are optional and/or required. If HSA observations are being requested, justify why the HSA is needed to achieve the science, and verify that all stations can sample/record with the same observing mode.

<https://science.lbo.us/facilities/vlba/docs/manuals/oss/ang-res>
<https://science.lbo.us/facilities/vlba/docs/manuals/oss/vlba-plus>

Explain the choice of receiver(s) requested and whether or not dual polarization is required for each receiver:

<https://science.lbo.us/facilities/vlba/docs/manuals/oss/bands-perf>

Explain scheduling issues including requested weather conditions, dates, and length of scheduling blocks. Specify the weather suitable for a given frequency band. For example - 'I request weather suitable for the 2cm band'. Note that this is not necessarily the observing frequency (since one may request lower or higher frequency weather). Specify preferred dates, or excluded dates, and/or if a series of observations with specified cadence, specify that cadence. Specify minimum length of scheduling blocks (blocks of observing time, which may be different than sessions) that can be observed and a start-time range in Pt_LST; note that shorter blocks are, in general, easier to schedule; if 24-hour blocks are required, indicate whether or not break-points may be installed in the schedule to allow different start times.

Describe correlator set-up requested. Correlation parameters beyond those required for narrow-field continuum or spectral line observing should be justified. For example, use of pulsar processing, multiple phase centers, multiple correlator passes or wide-field phase centers should be explained. These capabilities, used in isolation or in combination, may have an impact on correlator throughput. Also justify the number of multiple phase centers if > 100.

<https://science.lbo.us/facilities/vlba/docs/manuals/oss/correlator>

Note whether the target(s) can be self-calibrated and estimate their flux density. If phase-referencing is required, specify the phase-reference calibrators to be used and their expected flux densities, or whether extra time (on the VLBA or VLA) will be required to find calibrators:

<https://science.lbo.us/facilities/vlba/docs/manuals/oss/bsln-sens>

<https://www.lbo.us/vlba/astro/calib>

Sensitivity required to achieve the science goal. Include frequency or velocity width assumed, for non-imaging experiments, justify the baseline sensitivity:

Differences with the VLBA

Technical Justification

Required on-source integration time to achieve the required sensitivity, and total time including overhead; include considerations such as uv-coverage needed for precision imaging, recording rate, etc., and assume the minimum acceptable number of stations in calculating the required integration time; please also verify that the time request on the cover page is consistent with that specified here:

Please upload EVN exposure calculator graphic(s), if it was used to calculate the integration time needed. Please make sure that all 4 subpanels of the calculator are captured. Multiple files should be uploaded if there are multiple resources. Use your favorite utility (e.g., xv or gimp [linux]; grab or Command+Shift+4 [Mac]) to make a png file of the EVN exposure calculator graphic which can then be uploaded using the browse/upload buttons to the right.

<http://www.evlbi.org/cgi-bin/EVNcalc.pl>

<https://science.lbo.us/facilities/vlba/docs/manuals/oss/bsIn-sens>

<https://science.lbo.us/facilities/vlba/docs/manuals/oss/bands-perf>

| | | | |
|---|------|-------------------|----------|
| <div style="border: 1px solid black; height: 80px; width: 100%;"></div> | | | |
| Browse... | | No file selected. | |
| Upload | | | |
| File Name | Size | | |
| File Name | Size | delete | download |

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|---|
| <div style="border: 1px solid black; height: 80px; width: 100%;"></div> |
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| <div style="border: 1px solid black; height: 80px; width: 100%;"></div> |

Clearly justify the requested recording bit rate. Note that stating the bit rate is needed for sensitivity is not sufficient, since bit rate can be traded for length of observation (i.e., you can halve the bit rate and double the time on source for the same sensitivity).

Note whether the imaging is expected to be sensitivity limited, dynamic range limited, or both. Describe any potential imaging issues expected (e.g., due to wide fractional bandwidths, ionosphere, nearby strong sources, complex source structure, etc.):

<https://www.lbo.us/vlbabook/walker2.ps.gz>

If polarization observations are requested, note whether VLA observations will be needed to determine the EVPA of the calibrators, and if so, within how many days of the VLBA observations?:

<https://science.lbo.us/facilities/vlba/docs/manuals/oss/spec-tech/polar>

How accurate does your flux calibration need to be? Specify extra calibration steps to be taken, beyond the a priori flux calibration, if very precise flux calibration is needed.

Total correlator output data size. Please calculate the size of the FITS files this project will generate. For simple cases the EVN Sensitivity Calculator (<http://www.evlbi.org/cgi-bin/EVNcalc.pl>) can be used. If you are correlating with multiple pulsar phase bins, performing multiple correlator passes, or making use of multiple simultaneous phase centers you will need to calculate this yourself using the equation at <https://science.lbo.us/facilities/vlba/docs/manuals/oss/correlator/out-rate>. Be sure to consider time on calibrator sources as well as targets when computing. If the average output data rate exceeds 10 MB per second of observing time, please justify.

EVN Sensitivity Calculator www.evlbi.org/cgi-bin/EVNcalc

| | | | |
|---|--|--|--|
| <input type="button" value="EVN"/> <input type="button" value="e-EVN"/> <input type="button" value="VLBA"/> <input type="button" value="GLOBAL"/> <input type="button" value="GMVA"/> | | <input type="button" value="RESET"/> <input type="button" value="GO"/> | |
| Observing band & data rate [Mbit/s] | | On-source integration time [min] | |
| C - 6cm 2048 | | 240 | |
| <input checked="" type="checkbox"/> Ef <input type="checkbox"/> Nt <input type="checkbox"/> My <input type="checkbox"/> Pv <input type="checkbox"/> Pa <input checked="" type="checkbox"/> Hn <input type="checkbox"/> Mc <input type="checkbox"/> Sh <input type="checkbox"/> Km <input type="checkbox"/> Ro70 <input type="checkbox"/> Ho <input checked="" type="checkbox"/> NI <input type="checkbox"/> On <input type="checkbox"/> Tm65 <input type="checkbox"/> Sv <input type="checkbox"/> Ro34 <input type="checkbox"/> Cd <input checked="" type="checkbox"/> Fd <input type="checkbox"/> Tr <input type="checkbox"/> Ur <input type="checkbox"/> Zc <input type="checkbox"/> Pb <input type="checkbox"/> Ap <input checked="" type="checkbox"/> La <input type="checkbox"/> Jb1 <input type="checkbox"/> Mh <input type="checkbox"/> Bd <input type="checkbox"/> Ku <input type="checkbox"/> Go <input checked="" type="checkbox"/> Kp <input type="checkbox"/> Jb2 <input type="checkbox"/> Ys <input type="checkbox"/> Wz <input type="checkbox"/> Ky <input checked="" type="checkbox"/> Gb <input checked="" type="checkbox"/> Pt <input type="checkbox"/> Cm <input type="checkbox"/> Sr <input type="checkbox"/> Ka <input type="checkbox"/> Kt <input type="checkbox"/> Y1 <input checked="" type="checkbox"/> Ov <input type="checkbox"/> Wb <input type="checkbox"/> Ar <input type="checkbox"/> Ny <input type="checkbox"/> At <input checked="" type="checkbox"/> Y27 <input checked="" type="checkbox"/> Br <input type="checkbox"/> W1 <input type="checkbox"/> Hh <input type="checkbox"/> ALMA <input type="checkbox"/> Mp <input checked="" type="checkbox"/> Sc <input checked="" type="checkbox"/> Mk | | The image thermal noise is estimated to be 2.397 uJy/beam (1 sigma) using natural weighting. Warning: the total data rate 2048 Mbps does not match the setup below! | |
| Number of spectral channels per subband, integration time [s], and maximum baseline length | | Number of polarizations, subbands per polarizations, and bandwidth of a subband [MHz] | |
| 16 ch 2 s 10000 km (Full EVN) | | 2 pols 8 sb 16 MHz | |
| The field of view limited by bandwidth-smearing is 4.95 arcseconds (assuming 10000.0 km for the maximum baseline). | | The resulting FITS file size will be about 1.15 GBytes. | |

Unfortunately no good way to do channel sensitivity

- Get rms for wider bandwidth then multiply rms by sqrt of # of channels.
- E.g. $\sigma = 2.4 \mu\text{Jy}/\text{beam}$ for 256MHz, so for 125 kHz channels:

$$\sigma = 2.4 \times \sqrt{2048} = 109 \mu\text{Jy}/\text{beam}$$

Differences with the VLBA

Technical Justification

| | |
|--|--|
| <p>If this is a joint external proposal (e.g., HST, Chandra, or Swift), please add any technical details about the external telescope here:</p> | |
| <p>Note any other special technical considerations with either the setup or the data processing. RSRO proposals should use this section to describe who will fill the residency requirements for the proposal, along with a description of their technical expertise.</p> <p>https://science.lbo.us/facilities/vlba/proposing/rsro</p> | |

That's it

- Reminder next VLA/VLBA/GBT proposal deadline is August 1st.
- If you have never proposed before please start early so there is time to get help from the NRAO helpdesk (helpdesk.nrao.edu).
- The next deadline is for A (largest) and D (smallest) VLA configurations.



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public.nrao.edu

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