

# The *New* NRAO Archive

John Tobin



# Overview

- The need for a new archive
  - <https://data.nrao.edu>
- Archive holdings
- Interacting with the Archive
  - VLA
  - VLBA
  - ALMA
- What's coming soon?

# The Need for a New Archive

- The NRAO legacy archive interface had reached end of life
  - Based on obsolete technologies
  - Difficult to maintain and add features
- New Archive interface addresses many of these issues
  - Complete reimplementaion not a facelift
  - Basic documentation available here:  
<https://science.nrao.edu/facilities/vla/archive/index>  
<https://science.nrao.edu/facilities/vlba/facilities/vlba/data-archive/index>
  - Provides capability for post-processing
    - Calibrated Measurement Sets
    - Imaging of Datasets
    - and more!

# Archive Holdings

- All historical VLA data (1976-2010)
- post-upgrade VLA data (EVLA/Jansky VLA) (2010 - )
- VLBA data
- GBT data (2014 - )
- ALMA (Cycle 1+) (visibility data, not all images)
  - ALMA images from user-defined imaging
- VLASS images
- VLA PI science images
- Coming soon:
  - NVSS, FIRST, NVAS





## National Radio Astronomy Observatory

Enabling forefront research into the Universe at radio wavelengths



Archive Access Tool Back

Log In

Legacy Archive

About

### Welcome to the new NRAO archive!

This archive tool provides access to VLA (historical and post-upgrade), ALMA (Cycles 1 and higher), VLBA, and significant fraction of GBT data. Users seeking GBT data not found here should submit a science help desk ticket.

Users seeking ALMA Cycle 0 and/or the full assortment of ALMA image and calibration products should use the ALMA Science Archive (<https://almascience.nrao.edu/asax/>).

For questions, please contact the science help desk (<https://help.nrao.edu>) and select the "Data Products" topic.

OK

[Staff](#) | [Policies](#) | [Diversity](#)



The National Radio Astronomy Observatory is a facility of the National Science Foundation operated under cooperative agreement by Associated Universities, Inc.



# National Radio Astronomy Observatory

Enabling forefront research into the Universe at radio wavelengths

Archive Access Tool

Back

Log In

Legacy Archive

About



Show Search Inputs

View Projects

View Observations

View Images

Page 1

Show 25 of 25378 Projects

Project	Instrument	Title	First Obs	Last Obs	Execution Blocks	Lock
+ 22A-351	EVLA	A Search for a Local Population of Neutron Star Binary Mergers	2022-04-22 13:52	2022-05-05 15:05	3 execution blocks	🔒
+ 22A-092	EVLA	Ionized Jets from High-Mass Protostars: a VLA Quest for Resolution	2022-03-07 14:18	2022-05-05 14:05	8 execution blocks	🔒
+ 22A-388	EVLA	Resolving the nature of quasar flux-ratio anomalies in gravitational lenses	2022-03-15 13:28	2022-05-05 09:52	21 execution blocks	🔒
+ 22A-012	EVLA	Into a Heart of Darkness: 250pc-Scale ISM Dynamics of a z=6.34 Binary Starburst	2022-04-02 13:02	2022-05-05 08:37	4 execution blocks	🔒
+ 2021.1.00548.S	ALMA	Tomography of the peculiar Sgr C cloud: a higher density threshold for star formation in a highly turbulent environment?	2021-10-03 23:42	2022-05-05 06:40	40 execution blocks	🔒
+ 2021.1.00379.S	ALMA	Unveiling the distribution of the cosmic-rays ionization rate with ALMA	2021-11-09	2022-05-05	11 execution blocks	🔒





# National Radio Astronomy Observatory

Enabling forefront research into the Universe at radio wavelengths

Archive Access Tool Back

Log In Legacy Archive About

Free-form text search, searches abstract, title, project code, PI, Co-I, or Source

Show Search Inputs

View Projects View Observations View Images

Page 1

Show 25 of 25378 Projects

Project	Instrument	Title	First Obs	Last Obs	Execution Blocks
22A-351	EVLA	A Search for a Local Population of Neutron Star Binary Mergers	2022-04-22 13:52	2022-05-05 15:05	3 execution blocks
22A-092	EVLA	Ionized Jets from High-Mass Protostars: a VLA Quest for Resolution	2022-03-07 14:18	2022-05-05 14:05	8 execution blocks
22A-388	EVLA	Resolving the nature of quasar flux-ratio anomalies in gravitational lenses	2022-03-15 13:28	2022-05-05 09:52	21 execution blocks
22A-012	EVLA	Into a Heart of Darkness: 250pc-Scale ISM Dynamics of a z=6.34 Binary Starburst	2022-04-02 13:02	2022-05-05 08:37	4 execution blocks
2021.1.00548.S	ALMA	Tomography of the peculiar Sgr C cloud: a higher density threshold for star formation in a highly turbulent environment?	2021-10-03 23:42	2022-05-05 06:40	40 execution blocks
2021.1.00379.S	ALMA	Unveiling the distribution of the cosmic-rays ionization rate with ALMA	2021-11-09	2022-05-05	11 execution blocks



version: 4.1.0



# National Radio Astronomy Observatory

Enabling forefront research into the Universe at radio wavelengths

Archive Access Tool

Back

Log In

Legacy Archive

About



Show Search Inputs

View Projects

View Observations

View Images



Page 1



Show

25

of 25378 Projects



Project

Instrument

Title

First Obs

Last Obs



22A-351

EVLA

A Search for a Local Population of Neutron Star Binary Mergers

2022-04-22  
13:52

2022-05-05  
15:05

3 execution blocks



22A-092

EVLA

Ionized Jets from High-Mass Protostars: a VLA Quest for Resolution

2022-03-07  
14:18

2022-05-05  
14:05

8 execution blocks



22A-388

EVLA

Resolving the nature of quasar flux-ratio anomalies in gravitational lenses

2022-03-15  
13:28

2022-05-05  
09:52

21 execution blocks



22A-012

EVLA

Into a Heart of Darkness: 250pc-Scale ISM Dynamics of a z=6.34 Binary Starburst

2022-04-02  
13:02

2022-05-05  
08:37

4 execution blocks



2021.1.00548.S

ALMA

Tomography of the peculiar Sgr C cloud: a higher density threshold for star formation in a highly turbulent environment?

2021-10-03  
23:42

2022-05-05  
06:40

40 execution blocks



2021.1.00379.S

ALMA

Unveiling the distribution of the cosmic-rays ionization rate with ALMA


2021-11-09

2022-05-05

11 execution blocks







**National Radio Astronomy Observatory**  
Enabling forefront research into the Universe at radio wavelengths

version: 4.1.0

Archive Access Tool Back Log In Legacy Archive About

Show Search Inputs

View Projects View Observations View Images

Page 1

Show 25 of 483871 Observations

0/100 selected (0/10.0 TB)

View Selection(s) Clear All Download

Archive File	Project	Instrument	Observation Start	Observation Stop	File Size	Array Config	Bands	Type	Cals	Scans
22A-351.sb41782653.eb41791711.59704.58722282408	22A-351	EVLA	2022-05-05 14:05:36	2022-05-05 15:05:22	42.340 GB	A	C	visibility		51
22A-092.sb41520386.eb41791709.59704.41146047454	22A-092	EVLA	2022-05-05 09:52:30	2022-05-05 14:05:31	496.847 GB	A	K, X	visibility		126
22A-388.sb41674889.eb41791707.59704.35948833333	22A-388	EVLA	2022-05-05 08:50:00	2022-05-05 09:50:00	38.356 GB	A	Ku, X	visibility		23



Archive Access Tool Back Log In Legacy Archive About

Show Search Inputs

View Projects View Observations View Images

Page 1

Show 25 of 53016 Images

0/50: selected (0/10.0 TB)

View Selection(s) Clear All Download View In Carta

Project	Longitude	Latitude	Band	Sp Resolution	Beam Axis Ratio	File Name
VLASS1.1	0h2m28.328s	-36°30'0.000"	S	2.520	2.554	VLASS1.1.q1.T01t01.J000228-363000.10.2048.v1.l.iter1.image.pbcor.tt0.subim.fits
VLASS1.1	0h2m30.256s	-37°30'0.000"	S	2.460	1.975	VLASS1.1.q1.T01t01.J000230-373000.10.2048.v1.l.iter1.image.pbcor.tt0.subim.fits
VLASS1.1	0h2m32.282s	-38°30'0.000"	S	2.486	1.534	VLASS1.1.q1.T01t01.J000232-383000.10.2048.v1.l.iter1.image.pbcor.tt0.subim.fits
VLASS1.1	0h2m34.411s	-39°30'0.000"	S	2.621	1.270	VLASS1.1.q1.T01t01.J000234-393000.10.2048.v1.l.iter1.image.pbcor.tt0.subim.fits





Show Search Inputs

View Projects View Observations View Images

Page 1

Show 25 of 53026 Images

4/50: selected (221.7 MB/10.0 TB)

View Selection(s) Clear All Download View In Carta

Project Longitude Latitude Band Sp Resolution Beam Axis Ratio File Name

Project	Longitude	Latitude	Band	Sp Resolution	Beam Axis Ratio	File Name
<input checked="" type="checkbox"/> VLASS1.1	0h2m28.328s	-36°30'0.000"	S	2.520	2.554	VLASS1.1.ql.T01t01.J000228-363000.10.2048.v1.l.iter1.image.pbcor.tt0.subim.fits
<input checked="" type="checkbox"/> VLASS1.1	0h2m30.256s	-37°30'0.000"	S	2.460	1.975	VLASS1.1.ql.T01t01.J000230-373000.10.2048.v1.l.iter1.image.pbcor.tt0.subim.fits
<input checked="" type="checkbox"/> VLASS1.1	0h2m32.282s	-38°30'0.000"	S	2.486	1.534	VLASS1.1.ql.T01t01.J000232-383000.10.2048.v1.l.iter1.image.pbcor.tt0.subim.fits
<input checked="" type="checkbox"/> VLASS1.1	0h2m34.411s	-39°30'0.000"	S	2.621	1.270	VLASS1.1.ql.T01t01.J000234-393000.10.2048.v1.l.iter1.image.pbcor.tt0.subim.fits
<input type="checkbox"/> VLASS1.1	0h7m24.984s	-36°30'0.000"	S	2.518	2.440	VLASS1.1.ql.T01t01.J000724-363000.10.2048.v1.l.iter1.image.pbcor.tt0.subim.fits
<input type="checkbox"/> VLASS1.1	0h7m30.769s	-37°30'0.000"	S	2.455	1.881	VLASS1.1.ql.T01t01.J000730-373000.10.2048.v1.l.iter1.image.pbcor.tt0.subim.fits
<input type="checkbox"/> VLASS1.1	0h7m36.847s	-38°30'0.000"	S	2.502	1.462	VLASS1.1.ql.T01t01.J000736-383000.10.2048.v1.l.iter1.image.pbcor.tt0.subim.fits







4/50: selected (221.7 MB)

View Selection(s) Clear All Download View In Carta

Launch Workflow Task on: VLASS1.1

User Email (required):

Request Description:

Destination Directory:

Specify directory (must be logged in & staff)

Create tar file:

Return results as a tar file

Visualize with CARTA:

Visualize Images with CARTA

Cancel

Submit Request

Project Longitude Latitude Band Sp Resolution Beam Axis Ratio File Name

Project	Longitude	Latitude	Band	Sp Resolution	Beam Axis Ratio	File Name
VLASS1.1	0h2m28.328s	-36°30'0.000"	S	2.520	2.554	VLASS1.1.q1.T01t01.J000228-363000.10.2048.v1.l.iter1.image.pbcor.tt0.subim.fits
VLASS1.1	0h2m30.256s	-37°30'0.000"	S	2.460	1.975	VLASS1.1.q1.T01t01.J000230-373000.10.2048.v1.l.iter1.image.pbcor.tt0.subim.fits
VLASS1.1	0h2m32.282s	-38°30'0.000"	S	2.486	1.534	VLASS1.1.q1.T01t01.J000232-383000.10.2048.v1.l.iter1.image.pbcor.tt0.subim.fits
VLASS1.1	0h2m34.411s	-39°30'0.000"	S	2.621	1.270	VLASS1.1.q1.T01t01.J000234-393000.10.2048.v1.l.iter1.image.pbcor.tt0.subim.fits
VLASS1.1	0h7m24.984s	-36°30'0.000"	S	2.518	2.440	VLASS1.1.q1.T01t01.J000724-363000.10.2048.v1.l.iter1.image.pbcor.tt0.subim.fits
VLASS1.1	0h7m30.769s	-37°30'0.000"	S	2.455	1.881	VLASS1.1.q1.T01t01.J000730-373000.10.2048.v1.l.iter1.image.pbcor.tt0.subim.fits
VLASS1.1	0h7m36.847s	-38°30'0.000"	S	2.502	1.462	VLASS1.1.q1.T01t01.J000736-383000.10.2048.v1.l.iter1.image.pbcor.tt0.subim.fits





## Request #1012670869 by Anonymous User

Image Processing Request

*\ Initializing request...*

[Requested Projects](#) / [OUSets](#) / [Executionblocks](#)

**Project / OUSet / Executionblock**      **File**   **Size**

Please wait; requested datasets list under construction....

Data entities 1-4 of 4

- Requests to view images in CARTA should take 30-60s

[Staff](#) | [Policies](#) | [Diversity](#)



The National Radio Astronomy Observatory is a facility of the National Science Foundation operated under cooperative agreement by Associated Universities, Inc.



File View Widgets Help

No image loaded

X Profile: Cursor X

File Browser

Filename	Type	Size	Date
VLASS1.1.qL.T01t01.J000232-383000.10.2048.v1.I.iter1.image	FITS	55.4 MB	13:07
VLASS1.1.qL.T01t01.J000234-393000.10.2048.v1.I.iter1.image	FITS	55.4 MB	13:07
VLASS1.1.qL.T01t01.J000230-373000.10.2048.v1.I.iter1.image	FITS	55.4 MB	13:07
VLASS1.1.qL.T01t01.J000228-363000.10.2048.v1.I.iter1.image	FITS	55.4 MB	13:07

File Information Header

```

Name = VLASS1.1.qL.T01t01.J000232-383000.10.2048.v1.I.iter1.ima
HDU = 0
Shape = [3722, 3722, 1, 1]
Number of channels = 1
Number of stokes = 1
Coordinate type = Right Ascension, Declination
Projection = SIN
Image reference pixels = [1861, 1861]
Image reference coords = [00:02:32.2820, -038.30.00.0000]
Image ref coords (deg) = [0.634508 deg, -38.5 deg]
Pixel increment = -1", 1"
Celestial frame = FK5, J2000
Spectral frame = LSRK
Velocity definition = RADIO
Pixel unit = Jy/beam
Restoring beam = 3.07926" X 2.00757", 28.7783 deg

```

Filter by filename with fuzzy search

Fuzzy search

Close Load

No file loaded

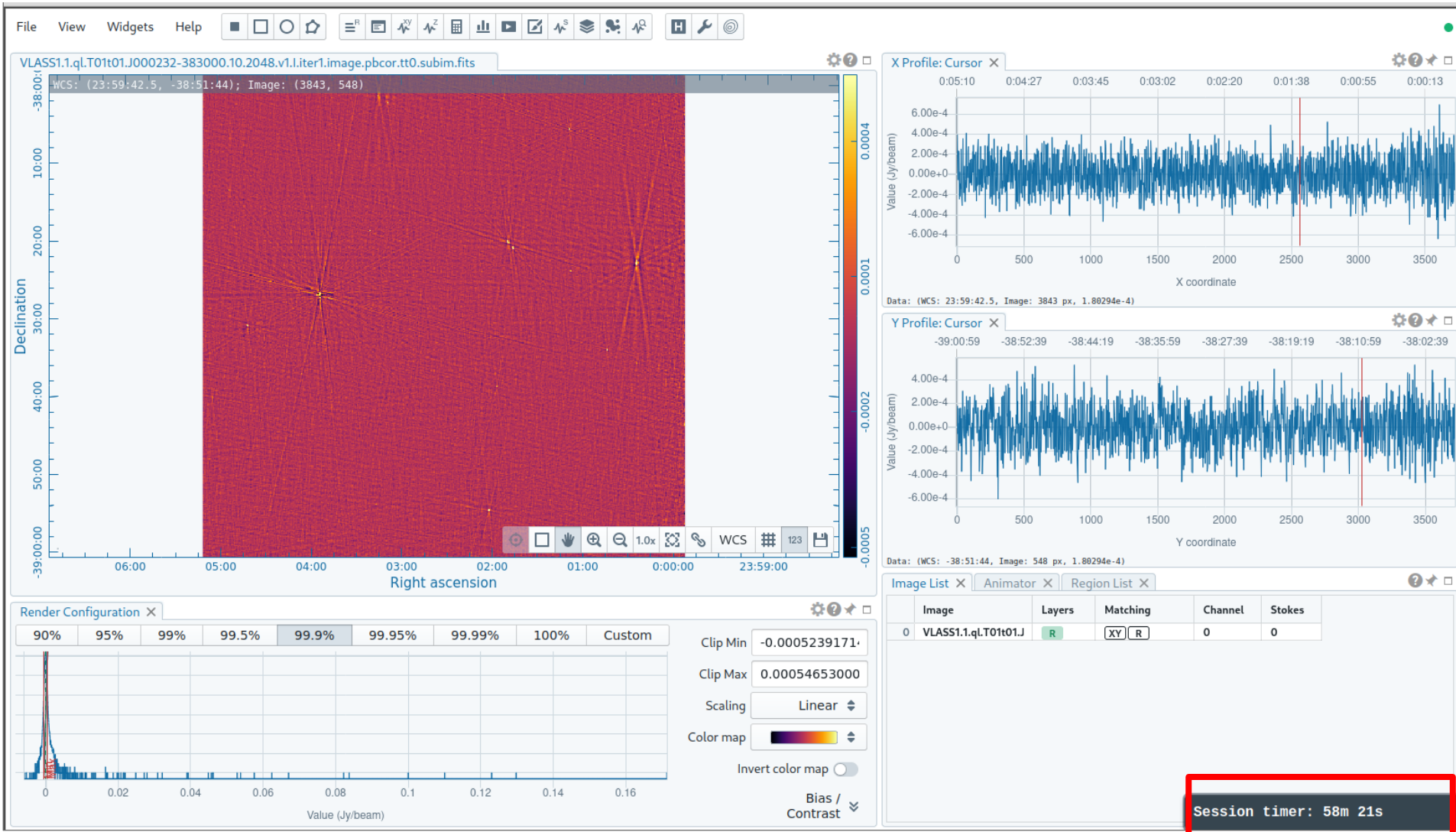
No file loaded

Load a file using the menu

Session timer: 56m 42s

- Sessions expire after 1 hour regardless of activity





- Sessions expire after 1 hour regardless of activity

# ALMA and VLA PI images also in Archive

0/50: selected (0/10.0 TB)

View Selection(s) Clear All Download View In Carta

	Project	Longitude	Latitude	Band	Sp Resolution	Beam Axis Ratio	File Name
	20A-156	16h9m59.998s	53°51'1.986"	L	11.895	1.385	oussid.en1-02_sci.L_band.cont.l.tt1.fits
	20A-156	16h16m11.998s	54°22'11.987"	L	12.804	1.453	oussid.en1-13_sci.L_band.cont.l.tt0.fits
	20A-156	16h16m11.998s	54°22'11.987"	L	12.804	1.453	oussid.en1-13_sci.L_band.cont.l.tt1.fits
	20A-156	16h4m49.998s	54°37'47.986"	L	13.283	1.555	oussid.en1-14_sci.L_band.cont.l.tt0.fits
	20A-156	16h4m49.998s	54°37'47.986"	L	13.283	1.555	oussid.en1-14_sci.L_band.cont.l.tt1.fits
	20A-156	16h8m57.998s	54°37'47.986"	L	13.135	1.499	oussid.en1-15_sci.L_band.cont.l.tt0.fits
	20A-156	16h8m57.998s	54°37'47.986"	L	13.135	1.499	oussid.en1-15_sci.L_band.cont.l.tt1.fits
	20A-156	16h11m1.998s	54°37'47.986"	L	13.240	1.510	oussid.en1-16_sci.L_band.cont.l.tt0.fits
	20A-156	16h11m1.998s	54°37'47.986"	L	13.240	1.510	oussid.en1-16_sci.L_band.cont.l.tt1.fits
	20A-156	16h11m1.998s	55°8'57.986"	L	11.567	1.321	oussid.en1-25_sci.L_band.cont.l.tt0.fits
	20A-156	16h11m1.998s	55°8'57.986"	L	11.567	1.321	oussid.en1-25_sci.L_band.cont.l.tt1.fits
	20A-156	16h13m5.998s	55°8'57.986"	L	11.678	1.375	oussid.en1-26_sci.L_band.cont.l.tt0.fits
	20A-156	16h13m5.998s	55°8'57.986"	L	11.678	1.375	oussid.en1-26_sci.L_band.cont.l.tt1.fits
	2017.1.00419.S	5h34m35.170s	-4°52'17.995"	06	0.275	1.639	uid__A001_X1284_X149.HOPS-102_sci.
	2017.1.00419.S	5h34m35.170s	-4°52'17.995"	06	0.269	1.601	uid__A001_X1284_X149.HOPS-102_sci.

- ALMA images currently limited to those created with 'AUDI' tool (later in the talk)
  - Full set of ALMA images will be available in the future
- VLA PI data from imaging pipeline pilot operations available
  - Imaging of all PI data will begin later in the year

# A Simple Search

- If looking for your own data, much can be accomplished with simple searches
- A view of just your data also available
  - Log-in required
  - PI and Co-I projects





# National Radio Astronomy Observatory

Enabling forefront research into the Universe at radio wavelengths

Archive Access Tool

Back

Log In

Legacy Archive

About

Tobin

Active Search Inputs: Text Search Tobin

Show Search Inputs

View Projects

View Observations

View Images


Page 1

Show 25 of 155 Projects

Project	Instrument	Title	First Obs	Last Obs	
22A-195	EVLA	VOLS: The VLA Orion A Large Survey	2022-04-03 21:00	2022-05-04 00:54	17 execution blocks
22A-164	EVLA	Grain growth in protoplanetary disks in Ophiuchus A cluster	2022-03-12 09:50	2022-04-18 11:25	18 execution blocks
22A-268	EVLA	Testing the Link between Accretion and Outflow in an Outbursting Protostar	2022-02-18 02:31	2022-04-07 23:54	5 execution blocks
21A-423	EVLA	Testing the Link between Accretion and Outflow in an Outbursting Protostar	2021-05-14 23:23	2022-01-12 06:24	10 execution blocks







**National Radio Astronomy Observatory**  
Enabling forefront research into the Universe at radio wavelengths

version: 4.1.0

Archive Access Tool Back Log Out jjtobin's Data Legacy Archive About

View Projects View Observations View Images Page 1 Show 25 of 131 Projects

Project	Instrument	Title	First Obs	Last Obs	
+ 22A-195	EVLA	VOLS: The VLA Orion A Large Survey	2022-04-03 21:00	2022-05-04 00:54	17 execution blocks 🔒
+ 22A-164	EVLA	Grain growth in protoplanetary disks in Ophiuchus A cluster	2022-03-12 09:50	2022-04-18 11:25	18 execution blocks 🔒
+ 22A-268	EVLA	Testing the Link between Accretion and Outflow in an Outbursting Protostar	2022-02-18 02:31	2022-04-07 23:54	5 execution blocks 🔒
+ 21A-423	EVLA	Testing the Link between Accretion and Outflow in an Outbursting Protostar	2021-05-14 23:23	2022-01-12 06:24	10 execution blocks 🔒
+ 2019.1.00493.S	ALMA	Direct Mass Measurements of Pre-Main Sequence Stars in Upper Sco	2020-02-27 07:47	2022-01-05 16:09	7 execution blocks 🔒
+ 2021.1.00844.S	ALMA	An ALMA/JCMT Study of the Time-Variable Class 0 Protostar HOPS 358 and Its (Warped?) Protostellar Disk	2021-11-03 05:53	2022-01-03 03:22	3 execution blocks 🔒
+ 2019.1.00458.S	ALMA	What is Carving the Gaps in Young, Embedded Disks?	2021-05-12 19:57	2022-01-01 05:26	11 execution blocks 🔒



# National Radio Astronomy Observatory

Enabling forefront research into the Universe at radio wavelengths

Archive Access Tool

Back

Log In

Legacy Archive

About

Tobin

Active Search Inputs: Text Search Tobin

Show Search Inputs

View Projects

View Observations

View Images

Page 1

Show 25 of 155 Projects

	↑↓ Project	↑↓ Instrument	Title	↑↓ First Obs	↓↑ Last Obs	
	22A-195	EVLA	VOLS: The VLA Orion A Large Survey	2022-04-03 21:00	2022-05-04 00:54	17 execution blocks
	22A-164	EVLA	Grain growth in protoplanetary disks in Ophiuchus A cluster	2022-03-12 09:50	2022-04-18 11:25	18 execution blocks
	22A-268	EVLA	Testing the Link between Accretion and Outflow in an Outbursting Protostar	2022-02-18 02:31	2022-04-07 23:54	5 execution blocks
	21A-423	EVLA	Testing the Link between Accretion and Outflow in an Outbursting Protostar	2021-05-14 23:23	2022-01-12 06:24	10 execution blocks



Tobin

Active Search Inputs: Text Search Tobin

Show Search Inputs

View Projects View Observations View Images

Page 1

Show 25 of 1824 Observations

0/100 selected (0/10.0 TB)

View Selection(s) Clear All Download

Archive File	Project	Instrument	Observation Start	Observation Stop	File Size	Array Config	Bands	Type	Cals	Scans
22A-195.sb41668223.eb41789898.59702.90341413194	22A-195	EVLA	2022-05-03 21:42:59	2022-05-04 00:54:27	535.706 GB	A	C, X	visibility		264
22A-195.sb41668223.eb41788874.59701.92147296296	22A-195	EVLA	2022-05-02 22:07:08	2022-05-03 01:18:37	496.405 GB	A	C, X	visibility		264
22A-195.sb41668223.eb41788361.59700.88744737269	22A-195	EVLA	2022-05-01 21:17:56	2022-05-02 00:29:24	535.908 GB	A	C, X	visibility		264
22A-195.sb41668223.eb41788359.59700.754512060186	22A-195	EVLA	2022-05-01 18:06:30	2022-05-01 21:17:54	535.464 GB	A	C, X	visibility		264
22A-195.sb41668223.eb41788343.59699.900189837965	22A-195	EVLA	2022-04-30 21:36:17	2022-05-01 00:47:43	535.468 GB	A	C, X	visibility		264

Tobin

Active Search Inputs: Text Search Tobin

Show Search Inputs

View Projects View Observations View Images

Page 1

Show 25 of 37 Images

0/50: selected (0/10.0 TB)

View Selection(s) Clear All Download View In Carta

	Project	Longitude	Latitude	Band	Sp Resolution	Beam Axis Ratio	File Name
	2017.1.00419.S	5h34m35.170s	-4°52'17.995"	06	0.275	1.639	uid__A001_X1284_X149.HOPS-102_sci.spw25.cube.l.pbcor.fits
	2017.1.00419.S	5h34m35.170s	-4°52'17.995"	06	0.269	1.601	uid__A001_X1284_X149.HOPS-102_sci.spw25_27_29_31_33_35_37_39_41.cont.l.pbcor.fits
	2017.1.00419.S	5h39m19.912s	-7°26'11.225"	06	0.208	1.682	uid__A001_X1284_X149.HOPS-124_sci.spw25.cube.l.pbcor.fits
	2017.1.00419.S	5h39m19.912s	-7°26'11.225"	06	0.161	1.887	uid__A001_X1284_X149.HOPS-124_sci.spw25_27_29_31_33_35_37_39_41.cont.l.pbcor.fits
	2017.1.00419.S	5h35m29.842s	-6°26'58.225"	06	0.170	2.004	uid__A001_X1284_X149.HOPS-188_sci.spw25_27_29_31_33_35_37_39_41.cont.l.pbcor.fits
	2017.1.00419.S	5h35m29.842s	-6°26'58.225"	06	0.215	1.763	uid__A001_X1284_X149.HOPS-188_sci.spw27.cube.l.pbcor.fits
	2017.1.00419.S	5h35m27.636s	-5°9'34.451"	06	0.214	1.752	uid__A001_X1284_X149.HOPS-370_sci.spw25.cube.l.pbcor.fits
	2017.1.00419.S	5h35m27.636s	-5°9'34.451"	06	0.166	1.944	uid__A001_X1284_X149.HOPS-370_sci.spw25_27_29_31_33_35_37_39_41.cont.l.pbcor.fits



# More Complex Searches

- More highly refined searches also possible
  - Combination of many parameters possible



**National Radio Astronomy Observatory**  
Enabling forefront research into the Universe at radio wavelengths

version: 4.1.0

Archive Access Tool Back Log Out jjtobin's Data Legacy Archive About

Show Search Inputs

View Projects View Observations View Images

Page 1

Show 25 of 25378 Projects

Project	Instrument	Title	First Obs	Last Obs	Execution Blocks
Operations	EVLA	No title found	2009-10-14 21:18	2022-05-05 16:07	55112 execution blocks
TRSR0001	EVLA	No title found	2010-05-22 03:57	2022-05-05 16:01	1390 execution blocks
22A-351	EVLA	A Search for a Local Population of Neutron Star Binary Mergers	2022-04-22 13:52	2022-05-05 15:05	3 execution blocks
22A-092	EVLA	Ionized Jets from High-Mass Protostars: a VLA Quest for Resolution	2022-03-07 14:18	2022-05-05 14:05	8 execution blocks
22A-388	EVLA	Resolving the nature of quasar flux-ratio anomalies in gravitational lenses	2022-03-15 13:28	2022-05-05 09:52	21 execution blocks
22A-012	EVLA	Into a Heart of Darkness: 250pc-Scale ISM Dynamics of a z=6.34 Binary Starburst	2022-04-02 13:02	2022-05-05 08:37	4 execution blocks
2021.1.00548.S	ALMA	Tomography of the peculiar Sgr C cloud: a higher density threshold for star formation in a highly turbulent environment?	2021-10-03 23:42	2022-05-05 06:40	40 execution blocks
2021.1.00379.S	ALMA	Unveiling the distribution of the cosmic-rays ionization rate with ALMA	2021-11-09 19:40	2022-05-05 06:39	11 execution blocks

🔍

▲ Hide Search Inputs ▲

Dates From:

YYYY-MM-DD 📅

Dates To:

YYYY-MM-DD 📅

Start Frequency:

GHZ ▾

End Frequency:

GHZ ▾

Coordinate Frame:

Equatorial ▾

Equinox:

J2000 ▾

Right Ascension

Resolver 🔍 HMS ▾

Declination

Resolver 🔍 DMS ▾

Radius:

" ▾

Source Name:

Telescope:

Click to Select

Array Configuration:

Click to Select

Receivers:

Click to Select

Polarizations:

Click to Select

Project Code:

Archive Filename:

PI Name:

Title Text:

Abstract Text:

Search Clear

- Show only CMS data
- Show only data flagged public

▲ Hide Search Inputs ▲



# Things to be aware of and Quirks

- Position searches are currently quite permissive
  - Results will be returned that are nearby and not necessarily within primary beam
  - Proper frequency-dependent FOV and standard position searches on development list
  - ALMA mosaic footprints not currently supported
- ALMA configurations are 12M, 7M, TP
- All receivers for all telescopes are listed as options
- Scripted access not currently available (dev. priority)
- Some search sorting and filtering not currently available

# Project-based search results

- Results will show project and observations within project that meet search results

Q Tobin

Active Search Inputs: Text Search Tobin ✕

▼ Show Search Inputs ▼

View Projects View Observations View Images

« < Page 1 > »

Show 25 of 155 Projects

↕ Project	↕ Instrument	Title	↕ First Obs	↕ Last Obs	
+ 22A-195	EVLA	VOLS: The VLA Orion A Large Survey	2022-04-03 21:00	2022-05-04 00:54	17 execution blocks 🔒
+ 22A-164	EVLA	Grain growth in protoplanetary disks in Ophiuchus A cluster	2022-03-12 09:50	2022-04-18 11:25	18 execution blocks 🔒
+ 22A-268	EVLA	Testing the Link between Accretion and Outflow in an Outbursting Protostar	2022-02-18 02:31	2022-04-07 23:54	5 execution blocks 🔒
+ 11A-423	EVLA	Testing the Link between Accretion and Outflow in an Outbursting Protostar	2021-05-14 23:23	2022-01-12 06:24	10 execution blocks 🔒
+ 2019.1.00493.S	ALMA	Direct Mass Measurements of Pre-Main Sequence Stars in Upper Sco	2020-02-27 07:47	2022-01-05 16:09	7 execution blocks 🔒
https://data.nrao.edu/21.1.00844.S	ALMA	An ALMA/JCMT Study of the Time-Variable Class 0 Protostar HOPS 358 and Its	2021-11-03	2022-01-03	3 execution blocks 🔒

# Project-based search results

- Details and Observations/Images within project shown

	22A-268	EVLA	Testing the Link between Accretion and Outflow in an Outbursting Protostar	2022-02-18 02:31	2022-04-07 23:54	5 execution blocks	
	21A-423	EVLA	Testing the Link between Accretion and Outflow in an Outbursting Protostar	2021-05-14 23:23	2022-01-12 06:24	10 execution blocks	

**Title:** Testing the Link between Accretion and Outflow in an Outbursting Protostar

**Abstract:** The deeply embedded protostar HOPS-373 has been found by the JCMT transient survey to have undergone a 25% increase in 0.85mm continuum flux density, corresponding to a ~4x increase in accretion luminosity. Furthermore, VLA DDT observations in March/April detected flux density increases at 9.1mm and 5cm relative to archival pre-burst data at the same wavelengths. We now propose monthly monitoring of HOPS-373 at C-band from now until January 2022 (through D, C, and B-configurations). We will analyze the VLA 5cm lightcurve in conjunction with contemporaneous monitoring by the JCMT at 0.85mm. This will enable us to determine if the outflow activity (probed at 5cm) increases/decreases along with the accretion activity (probed by 0.85mm). The 0.85mm light curves are proportional to the luminosity of the system, and variations are due to changes in the accretion rate. The results from this proposal will provide observational confirmation (or rejection) of a close link between accretion and outflow activity.

**PI:** John Tobin

**Legacy ID:** AT585

**Co-Authors:** Watson Varricatt, Ho-Gyu Lee, Gregory Herczeg, Doug Johnstone, Jeong-Eun Lee, Sung-Yong Yoon, Carlos Contreras Pena

**Proposal:** [Click to search](#)

Observations

Images

0/100: selected (0/10.0 TB)

View Selection(s) Clear All Download

				↑↓	↑↓	↑↓	↑↓							
				Archive File	Project	Instrument	Observation Start	Observation Stop	File Size	Array Config	Bands	Type	Cals	Scans
		21A-423.sb40987809.eb41134421.59591.17637289352	21A-423	EVLA	2022-01-12 04:13:59	2022-01-12 06:24:21	62.470 GB	B	C, X	visibility	1	33		
		21A-423.sb40987664.eb41071109.59578.29402234954	21A-423	EVLA	2021-12-30	2021-12-30	37.723	B	C, X	visibility	1	21		

# Project-based search results

- Link to a list of scans

Observations **Images**

1/100: selected (62.5 GB/10.0 TB)

View Selection(s) Clear All Download

Archive File	Project	Instrument	Observation Start	Observation Stop	File Size	Array Config	Bands	Type	Cals	Scans
21A-423.sb40987809.eb41134421.59591.17637289352	21A-423	EVLA	2022-01-12 04:13:59	2022-01-12 06:24:21	62.470 GB	B	C, X	visibility	1	<b>33</b>
21A-423.sb40987664.eb41071109.59578.29402234954	21A-423	EVLA	2021-12-30 07:03:24	2021-12-30 08:23:07	37.723 GB	B	C, X	visibility	1	21
21A-423.sb40987519.eb41022980.59555.359109490746	21A-423	EVLA	2021-12-07 08:37:07	2021-12-07 09:56:53	37.703 GB	B	C, X	visibility	1	21
21A-423.sb40930802.eb40950618.59524.51107608796	21A-423	EVLA	2021-11-06 12:15:57	2021-11-06 13:35:41	37.747 GB	B	C, X	visibility	1	21
21A-423.sb40054761.eb40727801.59502.41835891204	21A-423	EVLA	2021-10-15 10:03:55	2021-10-15 11:23:42	37.727 GB	B	C, X	visibility	1	21
21A-423.sb40054557.eb40140843.59468.50435081018	21A-423	EVLA	2021-09-11 12:06:16	2021-09-11 13:12:38	18.876 GB	C	C, X	visibility	1	17

# List of Scans

**National Radio Astronomy Observatory**  
Enabling forefront research into the Universe at radio wavelengths

Archive Access Tool    Back    [Log In](#)    [About](#)

Observation ID: 21A-423.sb40987809.eb41134421.59591.17637289352

[Request Data](#)

- Not currently in a particular order
- We plan to revise this view to be more useful

Obs ID: 21A-423.sb40987809.eb41134421.59591.17637289352  
 Project Code: 21A-423  
 Legacy ID: AT585  
 Estimated Size: 62.470 GB  
 Obs Release Date: 2022-07-14T05:24:21.799Z  
 Data Product Type: visibility  
 Receiver Band: C, X  
 Array Configuration: B  
 Calibrations:  
 File: [21A-423\\_2022\\_01\\_12\\_T06\\_37\\_17.380.tar](#)

Longitude	Latitude	Target Name	Min Frequency	Max Frequency	Scan Intent	Polarizations	Temporal Res	Scan Duration
5h46m30.990s	0°2'33.900"	HOPS-373	3.9760000 GHz	7.8960000 GHz	["OBSERVE_TARGET"]	["RR, RL, LR, LL"]	3.03	478.7 sec
5h46m30.990s	0°2'33.900"	HOPS-373	3.9760000 GHz	7.8960000 GHz	["OBSERVE_TARGET"]	["RR, RL, LR, LL"]	3.011	478.7 sec
5h52m50.101s	3°13'27.243"	J0552+0313	3.9760000 GHz	7.8960000 GHz	["SYSTEM_CONFIGURATION"]	["RR, RL, LR, LL"]	3.032	448.75 sec
5h52m50.101s	3°13'27.243"	J0552+0313	3.9760000 GHz	7.8960000 GHz	["CALIBRATE_PHASE","CALIBRATE_AMPLI"]	["RR, RL, LR, LL"]	3.219	41.85 sec
5h52m50.101s	3°13'27.243"	J0552+0313	3.9760000 GHz	7.8960000 GHz	["CALIBRATE_PHASE","CALIBRATE_AMPLI"]	["RR, RL, LR, LL"]	3.219	41.85 sec
5h52m50.101s	3°13'27.243"	J0552+0313	3.9760000 GHz	7.8960000 GHz	["CALIBRATE_PHASE","CALIBRATE_AMPLI"]	["RR, RL, LR, LL"]	3.223	41.9 sec
5h52m50.101s	3°13'27.243"	J0552+0313	3.9760000 GHz	7.8960000 GHz	["CALIBRATE_PHASE","CALIBRATE_AMPLI"]	["RR, RL, LR, LL"]	3.219	41.85 sec
5h46m30.990s	0°2'33.900"	HOPS-373	3.9760000 GHz	7.8960000 GHz	["OBSERVE_TARGET"]	["RR, RL, LR, LL"]	3.011	478.7 sec
5h52m50.101s	3°13'27.243"	J0552+0313	8.3320000 GHz	8.4600000 GHz	["SYSTEM_CONFIGURATION"]	["RR, RL, LR, LL"]	1.009	175.55 sec
5h52m50.101s	3°13'27.243"	J0552+0313	3.9760000 GHz	7.8960000 GHz	["CALIBRATE_PHASE","CALIBRATE_AMPLI"]	["RR, RL, LR, LL"]	3.223	41.9 sec
5h46m30.990s	0°2'33.900"	HOPS-373	3.9760000 GHz	7.8960000 GHz	["OBSERVE_TARGET"]	["RR, RL, LR, LL"]	3.03	478.7 sec
5h46m30.990s	0°2'33.900"	HOPS-373	3.9760000 GHz	7.8960000 GHz	["OBSERVE_TARGET"]	["RR, RL, LR, LL"]	3.011	478.7 sec

# Project-based search results

- Click on the icon to download just the calibration tarball

Observations **Images**

1/100: selected (62.5 GB/10.0 TB)

[View Selection\(s\)](#) [Clear All](#) [Download](#)

Archive File	Project	Instrument	Observation Start	Observation Stop	File Size	Array Config	Bands	Type	Cals	Scans
21A-423.sb40987809.eb41134421.59591.17637289352	21A-423	EVLA	2022-01-12 04:13:59	2022-01-12 06:24:21	62.470 GB	B	C, X	visibility	1	33
21A-423.sb40987664.eb41071109.59578.29402234954	21A-423	EVLA	2021-12-30 07:03:24	2021-12-30 08:23:07	37.723 GB	B	C, X	visibility	1	21
21A-423.sb40987519.eb41022980.59555.359109490746	21A-423	EVLA	2021-12-07 08:37:07	2021-12-07 09:56:53	37.703 GB	B	C, X	visibility	1	21
21A-423.sb40930802.eb40950618.59524.51107608796	21A-423	EVLA	2021-11-06 12:15:57	2021-11-06 13:35:41	37.747 GB	B	C, X	visibility	1	21
21A-423.sb40054761.eb40727801.59502.41835891204	21A-423	EVLA	2021-10-15 10:03:55	2021-10-15 11:23:42	37.727 GB	B	C, X	visibility	1	21
21A-423.sb40054557.eb40140843.59468.50435081018	21A-423	EVLA	2021-09-11 12:06:16	2021-09-11 13:12:38	18.876 GB	C	C, X	visibility	1	17

# Project-based search results

- Select an observation to see the download options

Observations Images

1/100: selected (62.5 GB/10.0 TB)

View Selection(s) Clear All **Download**

Archive File	Project	Instrument	Observation Start	Observation Stop	File Size	Array Config	Bands	Type	Cals	Scans
<input checked="" type="checkbox"/> 21A-423.sb40987809.eb41134421.59591.17637289352	21A-423	EVLA	2022-01-12 04:13:59	2022-01-12 06:24:21	62.470 GB	B	C, X	visibility	1	33
<input type="checkbox"/> 21A-423.sb40987664.eb41071109.59578.29402234954	21A-423	EVLA	2021-12-30 07:03:24	2021-12-30 08:23:07	37.723 GB	B	C, X	visibility	1	21
<input type="checkbox"/> 21A-423.sb40987519.eb41022980.59555.359109490746	21A-423	EVLA	2021-12-07 08:37:07	2021-12-07 09:56:53	37.703 GB	B	C, X	visibility	1	21
<input type="checkbox"/> 21A-423.sb40930802.eb40950618.59524.51107608796	21A-423	EVLA	2021-11-06 12:15:57	2021-11-06 13:35:41	37.747 GB	B	C, X	visibility	1	21
<input type="checkbox"/> 21A-423.sb40054761.eb40727801.59502.41835891204	21A-423	EVLA	2021-10-15 10:03:55	2021-10-15 11:23:42	37.727 GB	B	C, X	visibility	1	21
<input type="checkbox"/> 21A-423.sb40054557.eb40140843.59468.50435081018	21A-423	EVLA	2021-09-11 12:06:16	2021-09-11 13:12:38	18.876 GB	C	C, X	visibility	1	17



# Download Options for VLA

- Login required for proprietary data download (no more keys)
- Local delivery will be possible for any logged-in user in the next ~month
- tar file option not recommended, use `wget -r` (see archive documentation, link on slide 3)

Launch Workflow Task on: 21A-423

**User Email (required):**

**Request Description:**

**Destination Directory:**  Specify directory *(must be logged in & staff)*

**Create tar file:**  Return results as a tar file

**Choose download data format:**

- SDM tables only (metadata only)
- SDM-BDF dataset (metadata + visibilities)
- Basic Measurement Set (uncalibrated)
- Calibrated Measurement Set

**Apply telescope flags:**  Apply flags generated during observing

**CASA|Pipeline Version:**

**Restore previous CMS:**

Estimated Processing Time: 3 hours

# Download Options for VLA

- SDM-BDF – raw data (recommended for manual processing and pipeline re-runs)
- Basic MS – raw data but converted to MS from SDM
- Calibrated MS – MS with VLA pipeline calibration applied (if available)
- Apply flags only really applicable to Basic MS
- Generally want to use latest CASA+pipeline

The screenshot shows a web interface for launching a workflow task. The title bar reads "Launch Workflow Task on: 21A-423". The form contains several fields and options:

- User Email (required):** A text input field containing "jtobin@nrao.edu".
- Request Description:** A text input field containing "EVLA Processing Request".
- Destination Directory:** A checkbox labeled "Specify directory (must be logged in & staff)" is unchecked. Below it is a text input field containing "/lustre/".
- Create tar file:** A checkbox labeled "Return results as a tar file" is unchecked.
- Choose download data format:** A group of radio buttons with the following options:
  - SDM tables only (metadata only)
  - SDM-BDF dataset (metadata + visibilities)
  - Basic Measurement Set (uncalibrated)
  - Calibrated Measurement Set (selected)
- Apply telescope flags:** A checkbox labeled "Apply flags generated during observing" is checked.
- CASA|Pipeline Version:** A dropdown menu showing "6.2.1-7 | 2021.2.0.128 (recommended)".
- Restore previous CMS:** A dropdown menu showing "21A-423\_2022\_01\_12\_T06\_37\_17.380.tar".

At the bottom right, there are two buttons: "Cancel" and "Submit Request". The "Submit Request" button is highlighted with a red border. Below the form, the text "Estimated Processing Time: 3 hours" is visible.

# Submitted Request

- All submitted requests go to 'Request Handler'
  - Checks authorization for data
  - Provides some status of where request is at
  - completely non-interactive
  - safe to close window (or go back to archive with back button)
  - E-mail notification when done will be sent
  - Cannot cancel jobs or get exact status updates

National Radio Astronomy Observatory  
Enabling forefront research into the Universe at radio Wavelengths

Archive Access Tool Back Log Out

Archive Requests All Requests > Req #1,007,704,374 Options selected

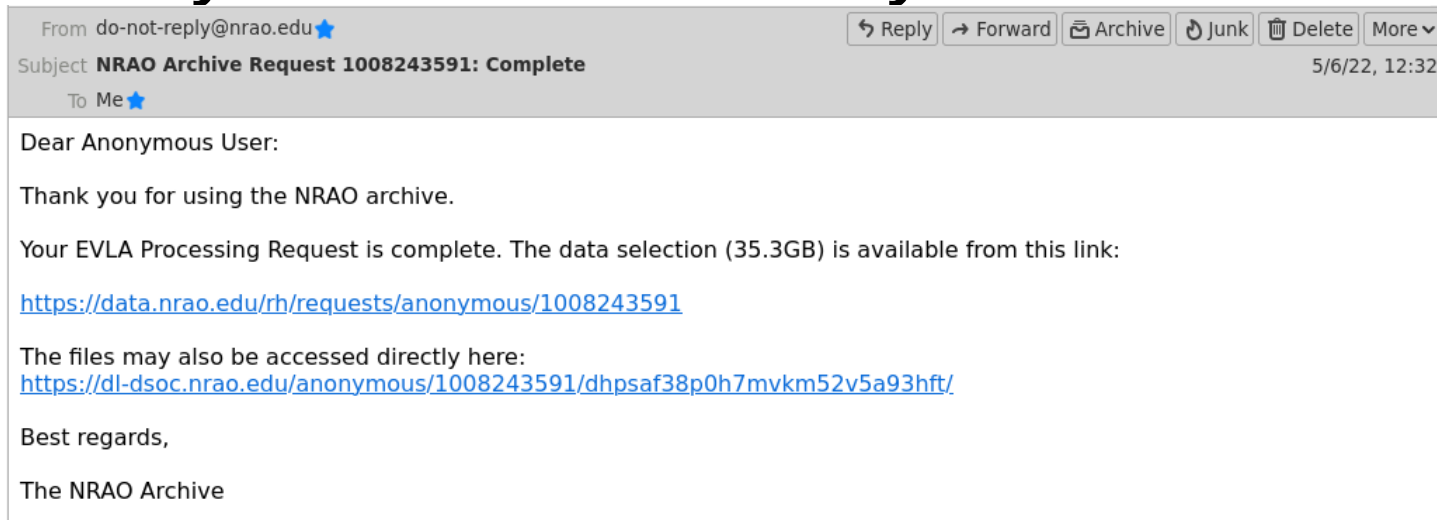
Request #1007704374 by John Tobin ⚙  
EVLA Processing Request  
– Initializing request...

Requested Projects / OUSets / Executionblocks

Project / OUSet / Executionblock	File	Size
Please wait; requested datasets list under construction...		
Data entities 1-1 of 1		

Staff | Policies | Diversity  
The National Radio Astronomy Observatory is agreement by Associated Universities, Inc.


# When your data are ready



- Look for an e-mail notification
  - Link to staged location at end of message
  - download via terminal command:
    - `wget -r --reject "index.html*" -np -nH -cut-dirs=3 https://dl-dsoc.nrao.edu/anonymous/1008243591/dhpsaf38p0h7mvkm52v5a93hft/`
  - Terminal command essential if not using tarred download
    - MSes and SDMs have a bunch of subdirectories within them

# VLBA Data Through the NRAO Archive

version: 4.1.0

 **National Radio Astronomy Observatory**  
Enabling forefront research into the Universe at radio wavelengths



Archive Access Tool   Back   Log Out   jjtobin-uber's Data   Legacy Archive   About

Q BO068

Active Search Inputs: Text Search BO068   Telescope: VLBA

▼ Show Search Inputs ▼

View Projects   View Observations   View Images

	↕ Project	↕ Instrument	Title	↕ First Obs	↕ Last Obs	
	BO068	VLBA	Water maser astrometry in the very young object CARMA-6	2022-03-14 11:44	2022-04-11 14:20	10 execution blocks 

# VLBA Data – Current view

BO068 VLBA Water maser astrometry in the very young object CARMA-6 2022-03-14 11:44 2022-04-11 14:20 10 execution blocks

**Title:** Water maser astrometry in the very young object CARMA-6

**Abstract:** Protostellar jets play a fundamental role in the evolution and re-distribution of angular momentum during the formation of new stars. The milliarcsecond angular resolution and very high astrometric precision capability of the VLBA applied to the 22 GHz water maser line offer a unique opportunity to explore the kinematical structure of protostellar jets close to the central engine, on spatial scales of a few au. We propose follow-up VLBA observations of the recently detected 22 GHz water masers in the Class 0/I object CARMA-6 at the heart of the Serpens South cluster. With these new observations, combined with data from previous epochs, we will measure the proper motions of the maser spots, allowing us to i) study the jet kinematics near its launching point, ii) investigate the relationship between the observed velocity gradients of the masers and the outflow/jet/disk geometry, and iii) search for signatures of jet rotation, jet precession and/or episodic ejection. In addition and very importantly, we will obtain the parallax of the source, which will be the first direct measurement of the distance to the embedded protostar and thus to the Serpens South cluster.

**PI:** Gisela Ortiz

**Legacy ID:** BO068

**Co-Authors:** Carolina Rodríguez-Garza, Thushara Pillai, Adele Plunkett, Laurent Loinard, Sergio Dzib, Yan Gong

Observations

Images

0/100: selected (0/10.0 TB)

View Selection(s) Clear All Download

Archive File	Project	Instrument	Observation Start	Observation Stop	File Size	Array Config	Bands	Type	Cals	Scans
VLBA_BO068B_bo068bgeo_BIN0_SRC0_0_220429T135730.idifits	BO068	VLBA	2022-04-11 09:54:04	2022-04-11 14:20:59	211.879 MB		K	correlation		40
VLBA_BO068B_bo068bcarma_BIN0_SRC0_0_220429T140554.idifits	BO068	VLBA	2022-04-11 10:26:17	2022-04-11 13:52:38	1.117 GB		K	correlation		292
VLBA_BO068B_bo068bcarmazoom_BIN0_SRC0_0_220429T140645.idifits	BO068	VLBA	2022-04-11 10:26:17	2022-04-11 13:52:38	8.658 GB			correlation		292
VLBA_BO068B_bo068bG028_BIN0_SRC0_0_220429T135752.idifits	BO068	VLBA	2022-04-11 10:26:17	2022-04-11 13:52:38	1.117 GB		K	correlation		292
VLBA_BO068B_bo068bG028zoom_BIN0_SRC0_0_220429T135818.idifits	BO068	VLBA	2022-04-11	2022-04-11	8.658			correlation		292



# VLBA Data – New View in a few weeks

BO068 VLBA Water maser astrometry in the very young object CARMA-6 2022-03-14 11:44 2022-04-11 14:20 10 execution blocks

**Title:** Water maser astrometry in the very young object CARMA-6

**Abstract:** Protostellar jets play a fundamental role in the evolution and re-distribution of angular momentum during the formation of new stars. The milliarcsecond angular resolution and very high astrometric precision capability of the VLBA applied to the 22 GHz water maser line offer a unique opportunity to explore the kinematical structure of protostellar jets close to the central engine, on spatial scales of a few au. We propose follow-up VLBA observations of the recently detected 22 GHz water masers in the Class 0/I object CARMA-6 at the heart of the Serpens South cluster. With these new observations, combined with data from previous epochs, we will measure the proper motions of the maser spots, allowing us to i) study the jet kinematics near its launching point, ii) investigate the relationship between the observed velocity gradients of the masers and the outflow/jet/disk geometry, and iii) search for signatures of jet rotation, jet precession and/or episodic ejection. In addition and very importantly, we will obtain the parallax of the source, which will be the first direct measurement of the distance to the embedded protostar and thus to the Serpens South cluster.

**PI:** Gisela Ortiz

**Legacy ID:** BO068

**Co-Authors:** Adele Plunkett, Sergio Dzib, Thushara Pillai, Laurent Loinard, Carolina Rodríguez-Garza, Yan Gong

Segments Images

	Segment	↓↑ Observation Start	↓↑ Observation Stop	File Size	Bands	Correlation Files
	BO068B	2022-04-11 09:54	2022-04-11 14:20	19.762 GB	K	5
	BO068A	2022-03-14 11:44	2022-03-14 16:11	19.395 GB	K	5

[Staff](#) | [Policies](#) | [Diversity](#)



The National Radio Astronomy Observatory is a facility of the National Science Foundation operated under cooperative agreement by Associated Universities, Inc.



# VLBA Data – New View in a few weeks

Segment	↕ Observation Start	↕ Observation Stop	File Size	Bands	Correlation Files
BO068B	2022-04-11 09:54	2022-04-11 14:20	19.762 GB	K	5

5/100: selected (19.8 GB/10.0 TB)

View Selection(s) Clear All Download

Select All

↕ Archive File	↕ Project	↕ Instrument	↕ Observation Start	↕ Observation Stop	↕ File Size	Array Config	Bands	Type	Cals	Scans
<input checked="" type="checkbox"/> VLBA_BO068B_bo068bgeo_BIN0_SRC0_0_220429T135730.idifits	BO068	VLBA	2022-04-11 09:54:04	2022-04-11 14:20:59	211.879 MB		K	correlation		40
<input checked="" type="checkbox"/> VLBA_BO068B_bo068bcarma_BIN0_SRC0_0_220429T140554.idifits	BO068	VLBA	2022-04-11 10:26:17	2022-04-11 13:52:38	1.117 GB		K	correlation		292
<input checked="" type="checkbox"/> VLBA_BO068B_bo068bcarmazoom_BIN0_SRC0_0_220429T140645.idifits	BO068	VLBA	2022-04-11 10:26:17	2022-04-11 13:52:38	8.658 GB		K	correlation		292
<input checked="" type="checkbox"/> VLBA_BO068B_bo068bG028_BIN0_SRC0_0_220429T135752.idifits	BO068	VLBA	2022-04-11 10:26:17	2022-04-11 13:52:38	1.117 GB		K	correlation		292
<input checked="" type="checkbox"/> VLBA_BO068B_bo068bG028zoom_BIN0_SRC0_0_220429T135818.idifits	BO068	VLBA	2022-04-11 10:26:17	2022-04-11 13:52:38	8.658 GB		K	correlation		292

BO068A	2022-03-14 11:44	2022-03-14 16:11	19.395 GB	K	5
--------	------------------	------------------	-----------	---	---

# VLBA Download options (or lack)

- No processing options, just standard download
- Only FITS format is available for download

Launch Workflow Task on: BO068

**User Email (required):**

**Request Description:**

**Destination Directory:**  Specify directory *(must be logged in)*

**Create tar file:**  Return results as a tar file

# ALMA Data Through the NRAO Archive

- Does not replace ALMA Science Archive, but adds functionality

version: 4.1.0

**National Radio Astronomy Observatory**  
Enabling forefront research into the Universe at radio wavelengths

Archive Access Tool Back Log Out jjtobin's Data Legacy Archive About

Q Tobin

Active Search Inputs: Text Search Tobin X Telescope: ALMA X Project Code: 2017.1.00419.S X

▼ Show Search Inputs ▼

View Projects View Observations View Images

↕ Project	↕ Instrument	Title	↕ First Obs	↕ Last Obs	
<b>+</b> 2017.1.00419.S	ALMA	The Hunter's Gift: A Bounty of Forming Disks to Further Our Understanding of Protostellar Evolution	2018-01-07 04:49	2018-01-07 06:14	1 execution blocks

Active Search Inputs: Text Search Tobin ✕ Telescope: ALMA ✕ Project Code: 2017.1.00419.S ✕

▼ Show Search Inputs ▼

[View Projects](#) [View Observations](#) [View Images](#)

	↕ Project	↕ Instrument	Title	↕ First Obs	↕ Last Obs	
<input type="checkbox"/>	2017.1.00419.S	ALMA	The Hunter's Gift: A Bounty of Forming Disks to Further Our Understanding of Protostellar Evolution	2018-01-07 04:49	2018-01-07 06:14	<span>1 execution blocks</span>

**Title:** The Hunter's Gift: A Bounty of Forming Disks to Further Our Understanding of Protostellar Evolution

**Abstract:** The formation of a protostar and its Keplerian disk remains a poorly characterized process, but ALMA now provides an opportunity for significant progress. These forming disks also hold the key to measuring the most fundamental parameter of newborn stars, their masses derived from the Keplerian disk rotation. The measurement of protostar masses and the properties of forming disks for large ensembles of systems is essential to solidifying our knowledge of star and planet formation. Our ALMA Cycle 3 survey of 330 protostars in the Orion molecular clouds at 0.13" (50 AU) resolution yielded >100 well-resolved continuum images of apparent protostellar disks. We propose to observe a sample of 20 disk candidates around 10 Class 0 and 10 Class I protostars, drawn from a representative range of luminosities (0.4 L<sub>sun</sub> to 480 L<sub>sun</sub>). With these observations, we will confirm whether or not each disk is Keplerian, using molecular line tracers (primarily C18O J=2-1), measure the change in mass and mass accretion between the Class 0 and I phases, how much the disk properties depend on stellar mass, and how much disk structure evolves from Class 0 to Class I and later stages.

**PI:** John Tobin

**Co-Authors:** Dominique Segura-Cox, Mihkel Kama, Friedrich Wyrowski, Magnus Persson, William Fischer, Sarah Sadavoy, Mayra Osorio, Erin Cox, Ewine van Dishoeck, Nicole Karnath, Tom Megeath, Merel van 't Hoff, Kaitlin Kratter, Ana Karla Diaz Rodriguez, Guillem Anglada, Hector Arce, Laura Perez, Elise Furlan, Michael Dunham, Stella Offner, Zhi-Yun Li, Patrick Sheehan, Brian Stephenson, Amelia Stutz, Leslie Looney, Nickalas Reynolds

[MOUSes](#) [Images](#)

	MOUS	↕ Observation Start	↕ Observation Stop	File Size	Array Config	Ang Res	Bands	EBs	
<input type="checkbox"/>	HOPS-383_a_06_TM1	2018-01-07 04:49	2018-01-07 06:14	89.366 GB		0.220"	06	1	<a href="#">Download Restored MS</a> <a href="#">Re-Imaging</a>

View Projects View Observations View

Project Instrument

Project	Instrument
2017.1.00419.S	ALMA

**Title:** The Hunter's Gift: A Bounty of Forming  
**Abstract:** The formation of a protostar and its also hold the key to measuring the most funda properties of forming disks for large ensemble molecular clouds at 0.13" (50 AU) resolution y Class 0 and 10 Class I protostars, drawn from Keplerian, using molecular line tracers (prima on stellar mass, and how much disk structure  
**PI:** John Tobin  
**Co-Authors:** Dominique Segura-Cox, Mihkel Tom Megeath, Merel van 't Hoff, Kaitlin Kratter Sheehan, Brian Stephenson, Amelia Stutz, Le

MOUSes Images

MOUS	Obs
HOPS-383_a_06_TM1	2018-0

### Launch Workflow Task on: 2017.1.00419.S

**User Email (required):**

**Request Description:**

**Destination Directory:**  Specify directory (must be logged in & staff)

**Create tar file:**  Return results as a tar file

**Choose download data format:**

- SDM tables only (metadata only)
- ALMA SDM+BDF (metadata + visibilities)
- Basic Measurement Set (uncalibrated)
- Calibrated Measurement Set

**Apply telescope flags:**  Apply flags generated during observing

**CASA|Pipeline Version:**

**Restore previous CMS:**

Estimated Processing Time: 5 hours

Last Obs  
2018-01-07  
06:14  
1 execution blocks

significant progress. These forming disks measurement of protostar masses and the le 3 survey of 330 protostars in the Orion re a sample of 20 disk candidates around 10 confirm whether or not each disk is ases, how much the disk properties depend  
Cox, Ewine van Dishoeck, Nicole Karnath, nham, Stella Offner, Zhi-Yun Li, Patrick





Active Search Inputs: Text Search Tobin ✕ Telescope: ALMA ✕ Project Code: 2017.1.00419.S ✕

▼ Show Search Inputs ▼

[View Projects](#) [View Observations](#) [View Images](#)

	↕ Project	↕ Instrument	Title	↕ First Obs	↕ Last Obs	
<input type="checkbox"/>	2017.1.00419.S	ALMA	The Hunter's Gift: A Bounty of Forming Disks to Further Our Understanding of Protostellar Evolution	2018-01-07 04:49	2018-01-07 06:14	1 execution blocks

**Title:** The Hunter's Gift: A Bounty of Forming Disks to Further Our Understanding of Protostellar Evolution

**Abstract:** The formation of a protostar and its Keplerian disk remains a poorly characterized process, but ALMA now provides an opportunity for significant progress. These forming disks also hold the key to measuring the most fundamental parameter of newborn stars, their masses derived from the Keplerian disk rotation. The measurement of protostar masses and the properties of forming disks for large ensembles of systems is essential to solidifying our knowledge of star and planet formation. Our ALMA Cycle 3 survey of 330 protostars in the Orion molecular clouds at 0.13" (50 AU) resolution yielded >100 well-resolved continuum images of apparent protostellar disks. We propose to observe a sample of 20 disk candidates around 10 Class 0 and 10 Class I protostars, drawn from a representative range of luminosities (0.4 L<sub>sun</sub> to 480 L<sub>sun</sub>). With these observations, we will confirm whether or not each disk is Keplerian, using molecular line tracers (primarily C18O J=2-1), measure the change in mass and mass accretion between the Class 0 and I phases, how much the disk properties depend on stellar mass, and how much disk structure evolves from Class 0 to Class I and later stages.

**PI:** John Tobin

**Co-Authors:** Dominique Segura-Cox, Mihkel Kama, Friedrich Wyrowski, Magnus Persson, William Fischer, Sarah Sadavoy, Mayra Osorio, Erin Cox, Ewine van Dishoeck, Nicole Karnath, Tom Megeath, Merel van 't Hoff, Kaitlin Kratter, Ana Karla Diaz Rodriguez, Guillem Anglada, Hector Arce, Laura Perez, Elise Furlan, Michael Dunham, Stella Offner, Zhi-Yun Li, Patrick Sheehan, Brian Stephenson, Amelia Stutz, Leslie Looney, Nickalas Reynolds

[MOUSes](#) [Images](#)

	MOUS	↕ Observation Start	↕ Observation Stop	File Size	Array Config	Ang Res	Bands	EBs	
<input type="checkbox"/>	HOPS-383_a_06_TM1	2018-01-07 04:49	2018-01-07 06:14	89.366 GB		0.220"	06	1	<a href="#">Download Restored MS</a> <a href="#">Re-Imaging</a>

# Frequency-based Cube

Active Search Inputs: **Text Search Tobin**

View Projects | View Observations | View

Project: 2017.1.00419.S | Instrument: ALMA

**Title:** The Hunter's Gift: A Bounty of Forming  
**Abstract:** The formation of a protostar and its  
**PI:** John Tobin  
**Co-Authors:** Dominique Segura-Cox, Mihkel

MOUSes | **Images**

MOUS | Observations

HOPS-383\_a\_06\_TM1 | 2018-0

Launch User Imaging on: 2017.1.00419.S

**User Email (required):** jtobin@nrao.edu

**Request Description:** AUDI request

**SPW:** (218.186 GHz-218.244 GHz) dnu = 122.1 kHz dv = 0...

**Field:** HOPS-102

**Angular Resolution:** 0.224 arcsec

Frequency Space | **Velocity Space**

**Rest Frequency:** GHz

**Start:** 218.19152503476113 GHz

**Width:** 122.08206065846288 kHz

**N Channels:** 384

**End:** 218.23840454605397 GHz

Validate Form

Using CASA version 6.2.1-7 | 2021.2.0.128

Cancel | Submit Request

Last Obs: 2018-01-07 06:14 | 1 execution blocks

Download Restored MS | Re-Imaging

# Velocity-based Cube

Launch User Imaging on: 2017.1.00419.S

**User Email (required):**

**Request Description:**

**SPW:**

**Field:**

**Angular Resolution:**

Frequency Space  Velocity Space

**Rest Frequency:**

**Start:**

**Width:**

**N Channels:**

**End:**

Using CASA version 6.2.1-7 | 2021.2.0.128

# How To...

- Add a user to a project?
  - data access keys are not available anymore
  - submit a helpdesk ticket to get a new collaborator added to allow access
- Get a pipeline weblog
  - download the calibration tarball, the weblog is stored within
- Get data into my observer/guest account (non-NRAO staff)
  - local delivery not yet possible
  - Submit regular download request
    - On the NRAO system use wget command to fetch data
  - local delivery to lustre will soon be possible for guest accounts

# Known Issues

- Position searches for ALMA/VLASS mosaics
  - ALMA/VLASS mosaics handle mosaic pointings on the subscan level, which the new archive does not know about
  - thus, position searches will come up empty if they do not overlap with a field at the start of a scan
  - VLA mosaics (non-OTF) immune since mosaic pointings are on a per-scan basis
- Limited spectral information for VLA EBs
- Scanlist not ordered chronologically
- VLA data taken between ~Oct 2015 and Aug 2016 appear restoreable, but restores will fail

# Known Issues

- File staging takes longer than legacy archive
  - Working to increase speed in next release
    - eliminating checksums
    - tar-file creation not default
- **Product deliveries are within nested directories of the same name**



# Product Deliveries

- **Product deliveries are within nested directories of the same name**

Image request (3 levels deep):

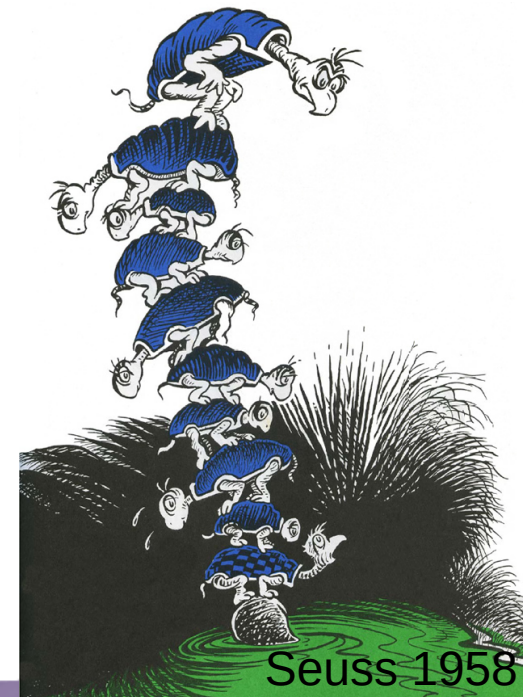
```
/lustre/aoc/users/jtobin/archive/1014360855
├── VLASS1.1.q1.T01t01.J000228-363000.10.2048.v1.I.iter1.image.pbcor.tt0.subim.fits
│   ├── MD5SUMS
│   └── VLASS1.1.q1.T01t01.J000228-363000.10.2048.v1.I.iter1.image.pbcor.tt0.subim.fits
│       └── VLASS1.1.q1.T01t01.J000228-363000.10.2048.v1.I.iter1.image.pbcor.tt0.subim.fits ←
```

SDM-BDF download (2 levels deep):

```
/lustre/aoc/users/jtobin/archive/1014352231/
├── 18A-426.sb35410327.eb35411971.58253.30712515046
│   ├── 18A-426.sb35410327.eb35411971.58253.30712515046 ←
│   └── MD5SUMS
```

Historical VLA (3 levels deep):

```
/lustre/aoc/users/jtobin/archive/1014364920/
├── AT373_1_55198.80721_55199.15968.exp
│   ├── AT373_1_55198.80721_55199.15968.exp
│   │   └── AT373_1_55198.80721_55199.15968.exp ←
│   └── MD5SUMS
```



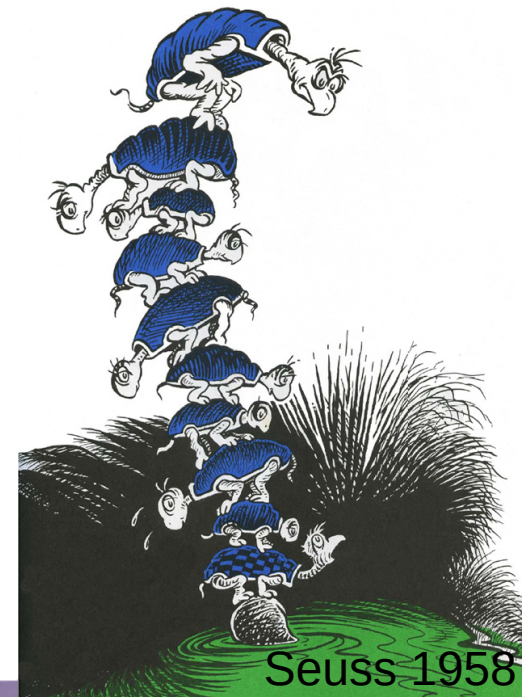
# Product Deliveries

VLA Calibrated MS (2 levels deep):

```
/lustre/aoc/users/jtobin/archive/1014356826
├── 18A-426_sb35410327_eb35411971_58253_30712515046
│   ├── 18A-426_sb35410327_eb35411971_58253_30712515046.ms ←
│   ├── 18A-426_sb35410327_eb35411971_58253_30712515046.ms_calapply.txt
│   ├── 18A-426_sb35410327_eb35411971_58253_30712515046.ms_flagversions.tgz
│   ├── casa_commands.log
│   ├── casa_piperestorescript.py
│   ├── casa_pipescript.py
│   ├── MD5SUMS
│   ├── PPR.xml
│   ├── unknown.pipeline_manifest.xml
│   ├── unknown.session_1_caltables.tgz
│   └── weblog.tgz
```

ALMA Calibrated MS (2 levels deep):

```
/lustre/cv/users/jtobin/archive/967560319/
├── uid__A002_Xf1bb4a_X14dcd
│   ├── MD5SUMS
│   ├── PPR.xml
│   ├── uid__A002_Xf1948b_X3f5b.ms ←
│   └── uid__A002_Xf20692_X911a.ms ←
```



# Expected Development in Next 6 Months

- Scriptable query interface
  - Goal is a VO-compliant TAP interface
  - Expect primary interface will be via Python astroquery library
- Local delivery for non-staff users
- Speed up of archive requests (without tar option)
- Improved VLBA/GMVA support

# Features Missing?

- Not all features from legacy archive were built into new archive
- If there is a feature essential to your science that is missing, we want to know about it!
  - Submit NRAO helpdesk ticket and we consider adding it to the development priority list



**[science.nrao.edu](http://science.nrao.edu)**  
**[public.nrao.edu](http://public.nrao.edu)**  
**[ngvla.nrao.edu](http://ngvla.nrao.edu)**

***The National Radio Astronomy Observatory is a facility of the National Science Foundation  
operated under cooperative agreement by Associated Universities, Inc.***