

Application of Pipeline Calibration

Drew Medlin | NRAO Data Reduction Workshop | 2021



D.Medlin/NRAO/AUI/NSF

What are we talking about?

- What to do after a Pipeline Processing Complete email or job completes.
- Extra flagging, re-derive & apply calibration.
- Rerun for known issues that cause problems.
- Apply existing pipeline calibration to raw data.
- Things to consider when running on your own.
- Remote access to NRAO computing.

Additional flagging

The pipeline may not flag everything needed ...

Antenna hardware issues – RFI – may flag good data – ~~Alien signals*~~

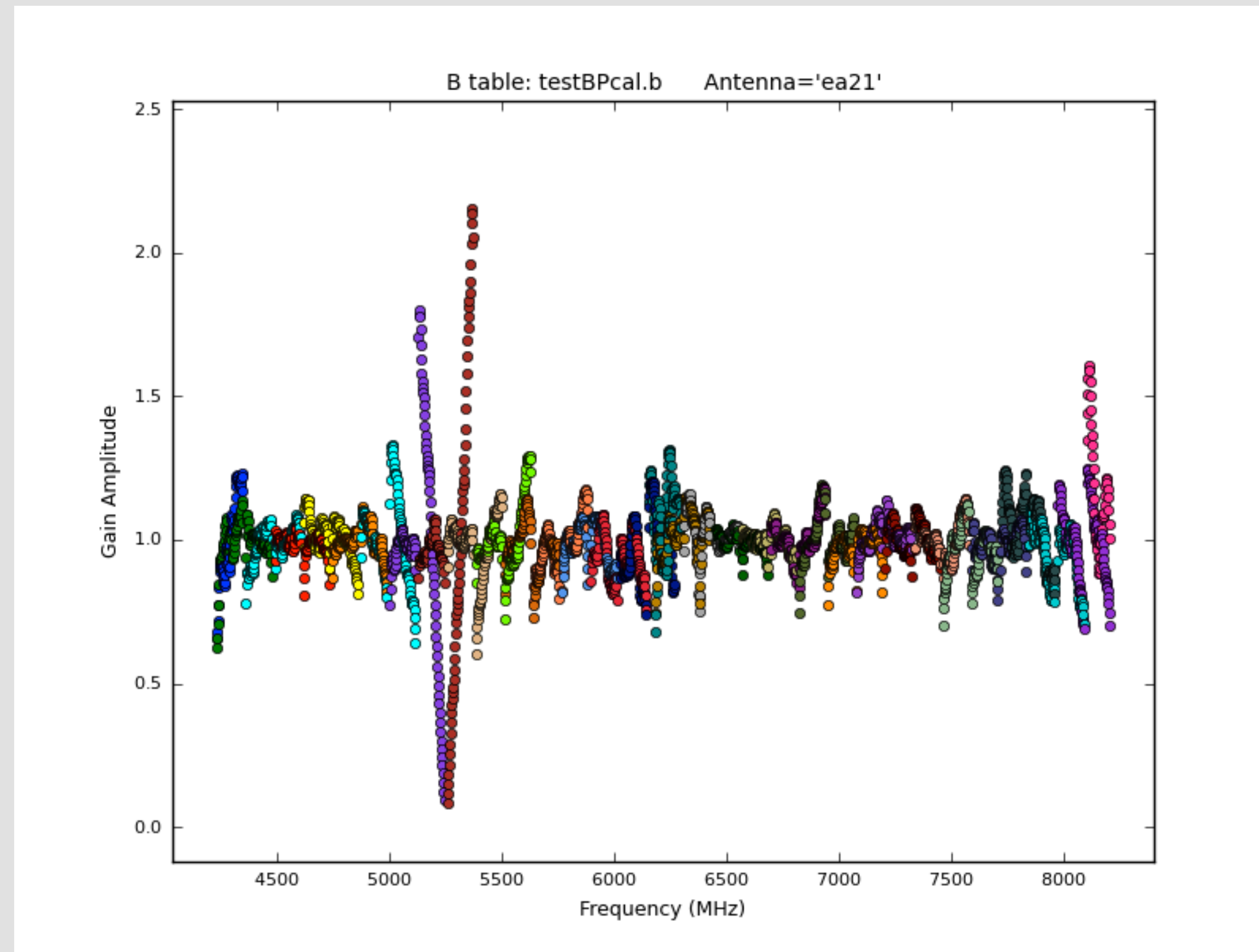


D.Medlin/NRAO/AUI/NSF

*Theoretical only at this time

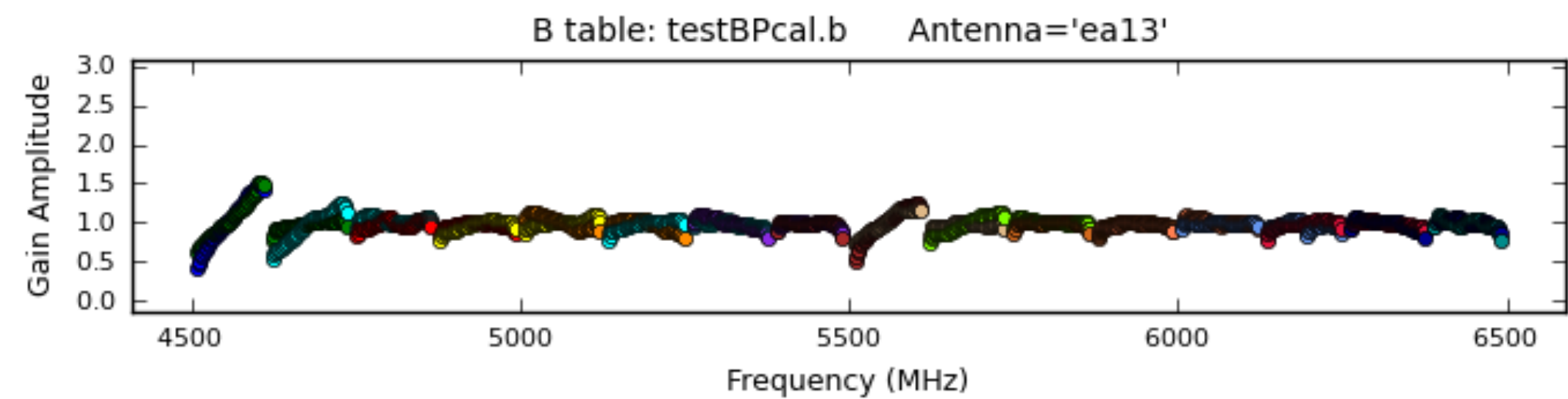
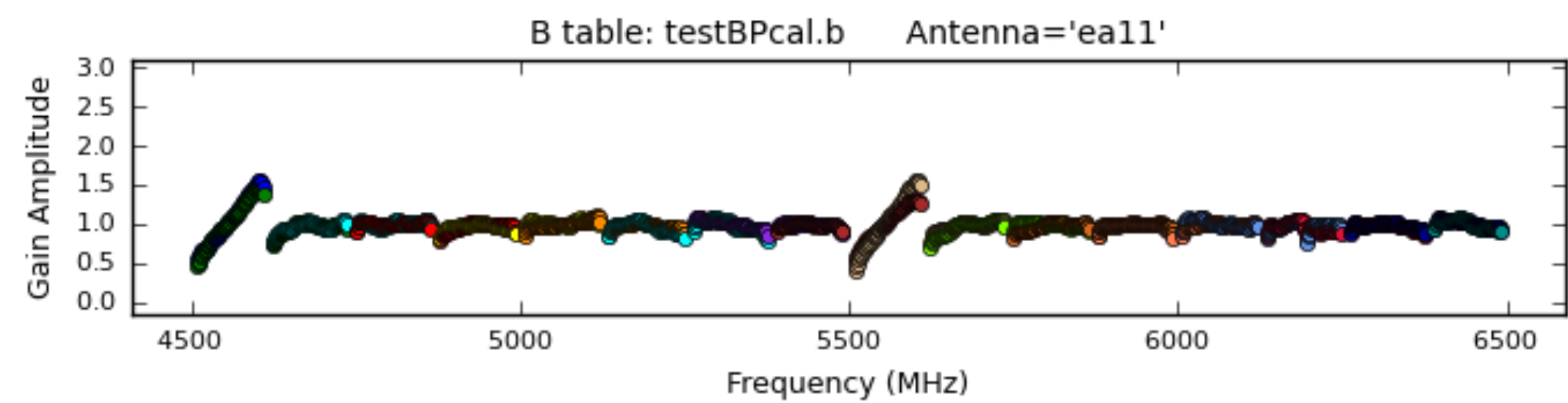
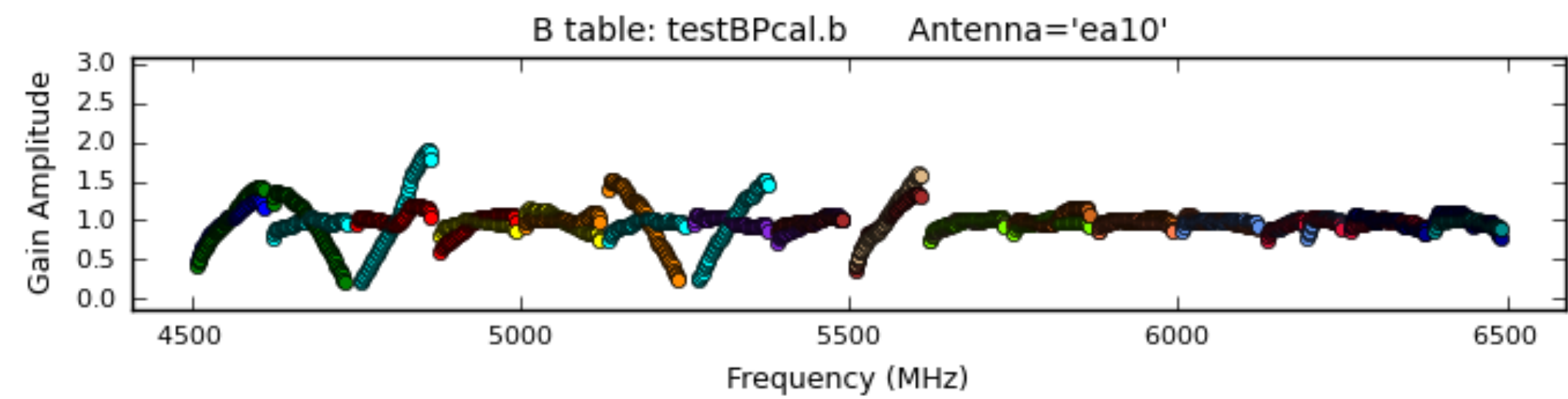
Additional flagging

ea21 bandpass, bad data (DTS issue)



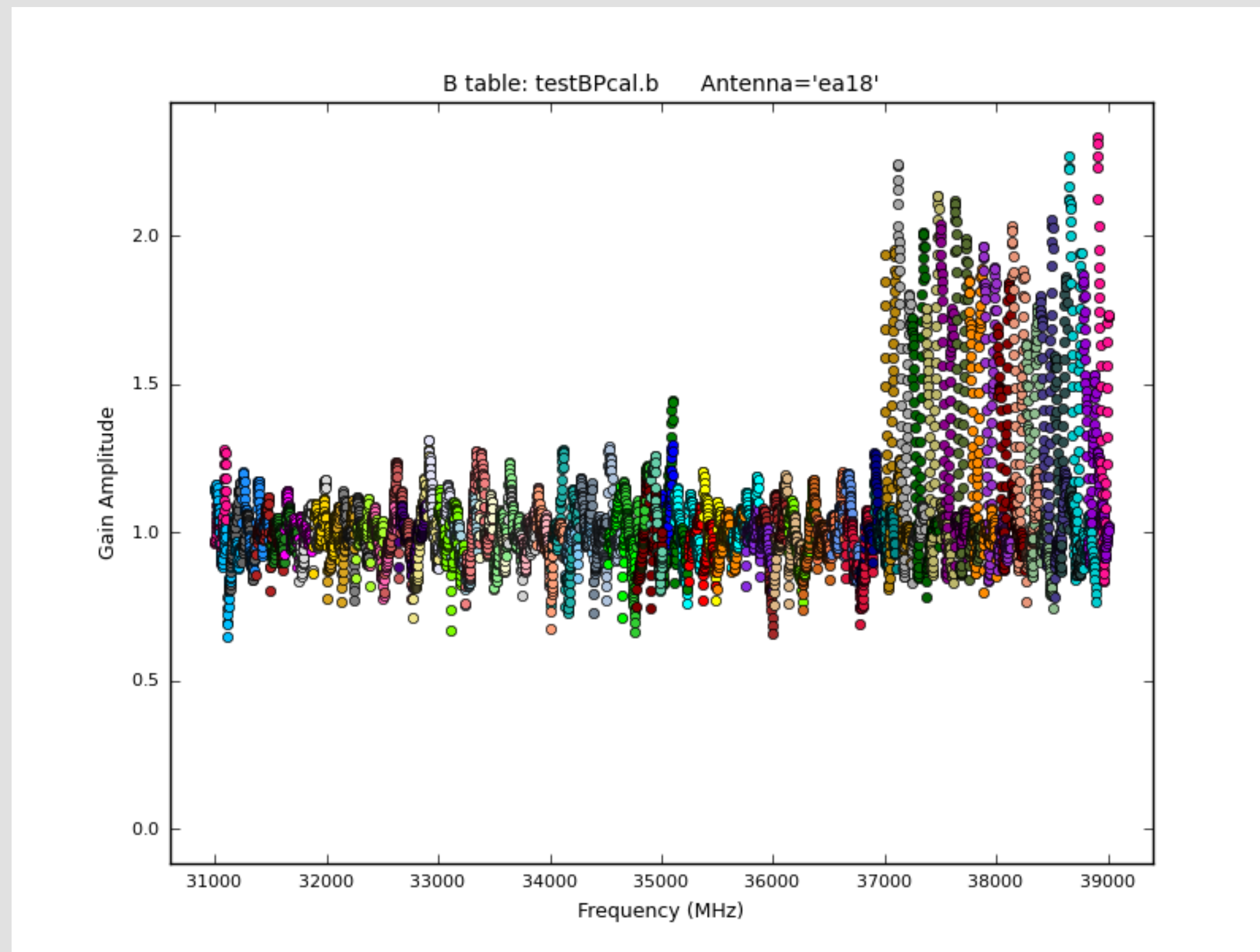
Additional flagging

ea10 bandpass, bad data (DTS issue); ea11, ea12 OK



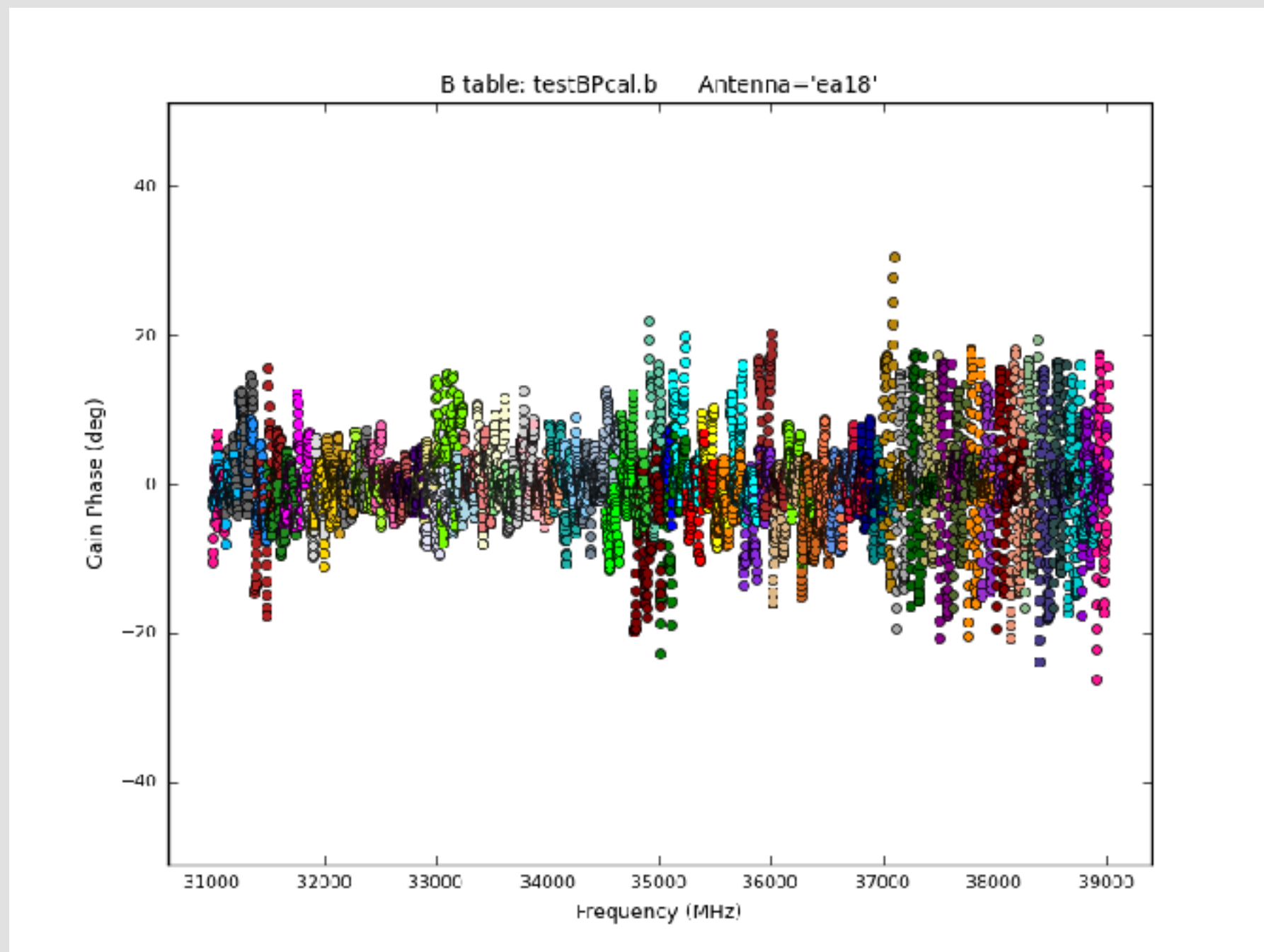
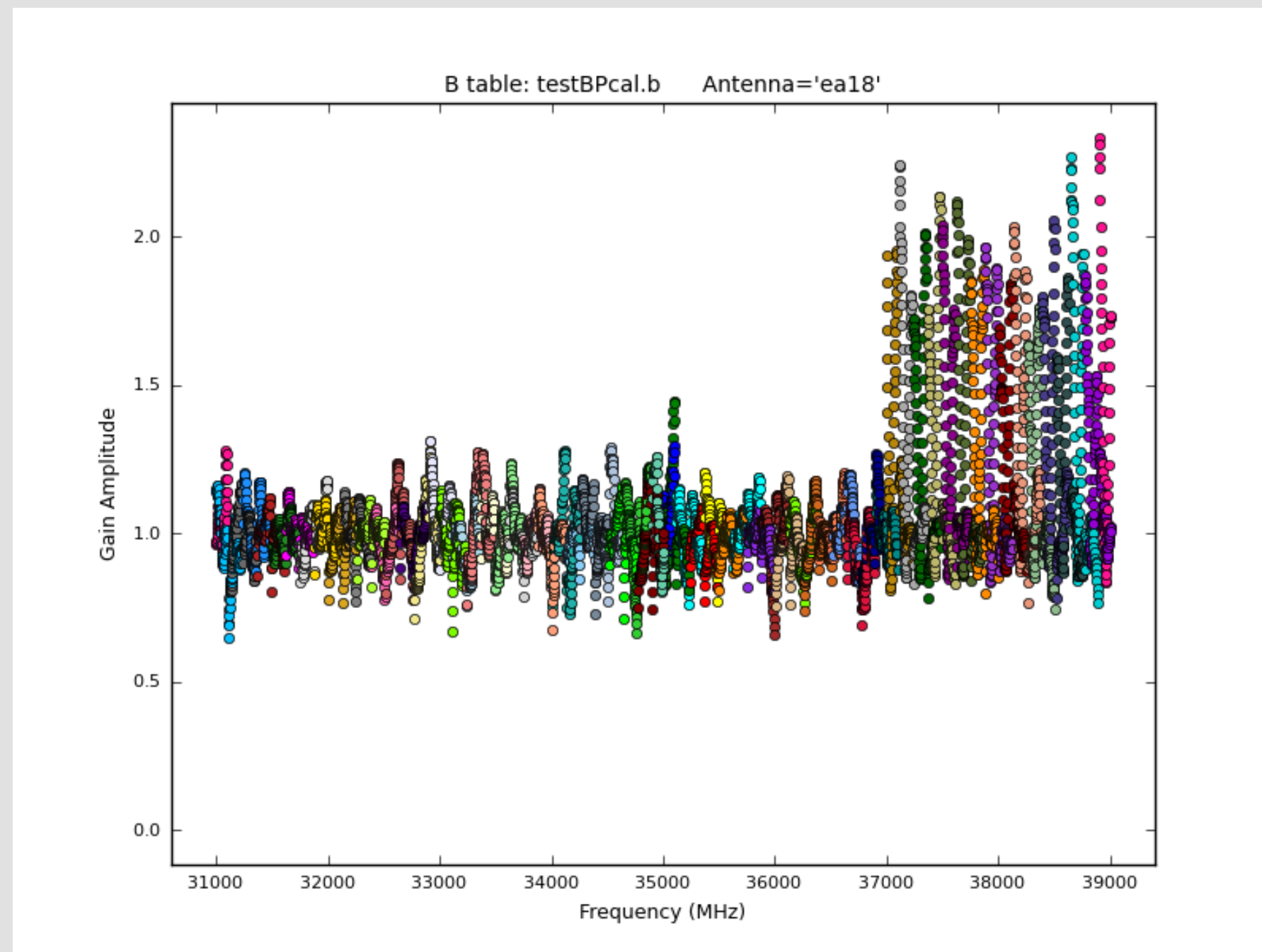
Additional flagging

ea18 bandpass, bad data (DTS issue for 37-39GHz)



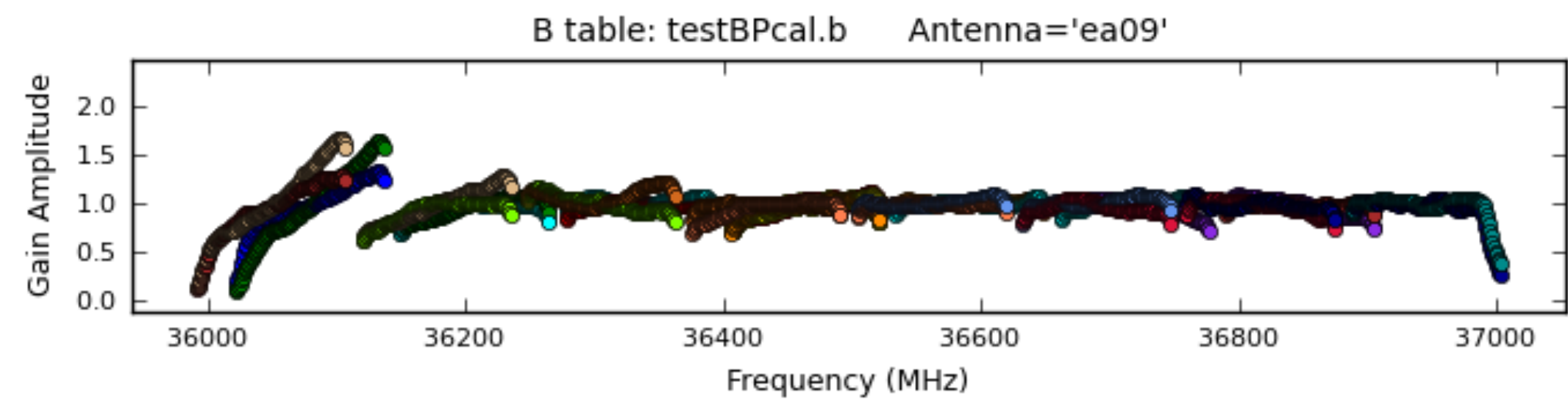
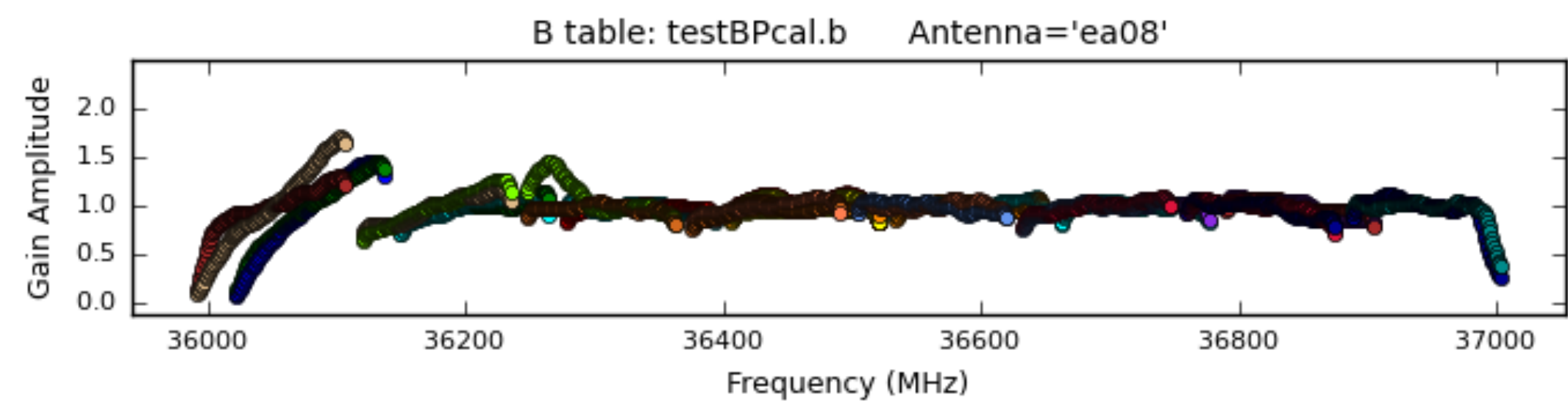
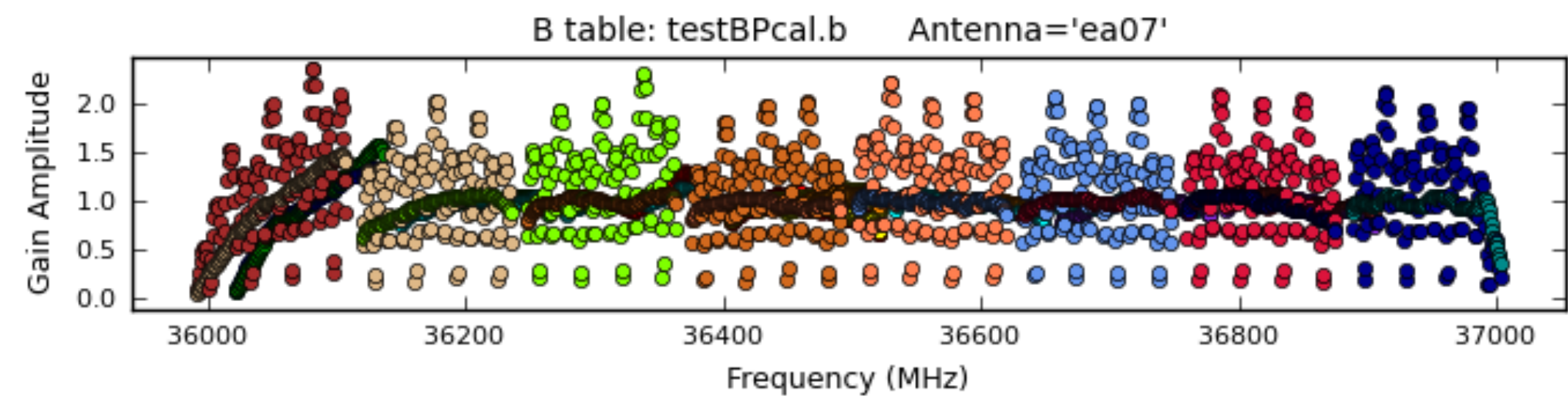
Additional flagging

ea18 bandpass **and** phase affected, bad data (DTS issue)



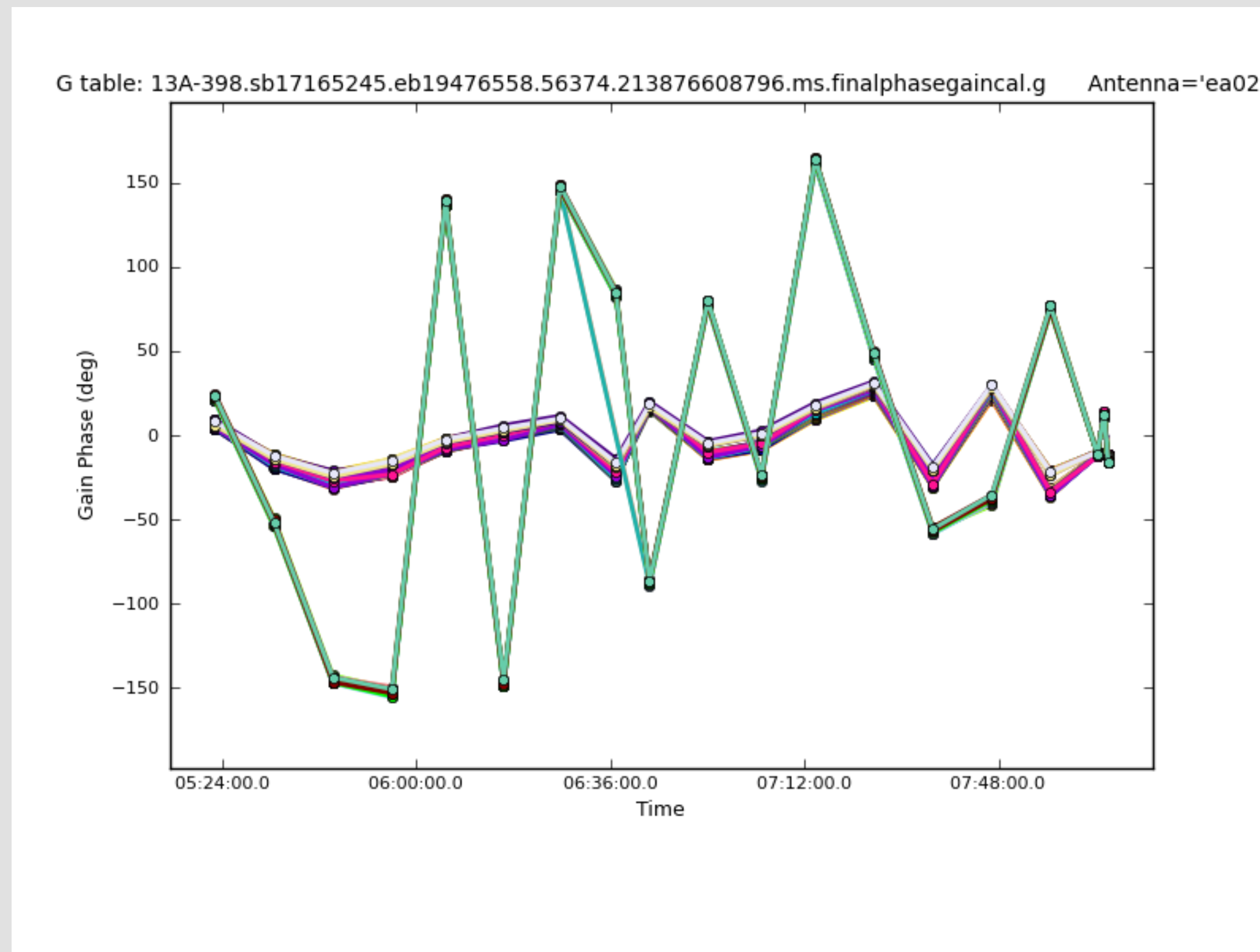
Additional flagging

ea07 bandpass, bad data (DTS issue); ea08, ea09 OK



Additional flagging

ea02 phase jumps for some spws



Additional flagging

- Carefully check your data and the calibration from the pipeline.
- If extra flagging **ONLY** on your science target(s), no recalibration of your data required: flag the targets and move on.
- If any of your **calibrator sources** require additional flagging, you should re-derive the calibration with your additional flagging included.
- To recalibrate your data using the VLA Calibration Pipeline, there are two good starting points:
 - Pipeline calibrated MS
 - Raw data (SDM-BDF)

Additional flagging: Cal'd MS

1. Create a pipeline script **without** Hanning smoothing:
 - Use the `casa_pipescript.py` file (pipeline web page or from a previous run) and comment out the call to `hfv_hanning`.
 - Make sure the SDM name matches.
2. Inspect the calibrated MS and flag as needed in CASA.
3. Create a **new directory** and copy **ONLY** the calibrated and fully flagged MS to this new directory and your edited `casa_pipescript.py` file. **No** other files should be copied.
4. CD to this new directory and start CASA.

Additional flagging: Cal'd MS

5. Clear the *calibration* using **clearcal** with `addmodel=False`.
*See the pipeline web page for details.
6. Next, run the **clearstat** task in CASA.
5. `execfile('casa_pipescript.py')`
5. Wait again while the pipeline runs.

Additional flagging: SDM-BDF

1. Create file: mySDM.flagtemplate.txt (default name)
 - Add flagging commands, line by line, as needed

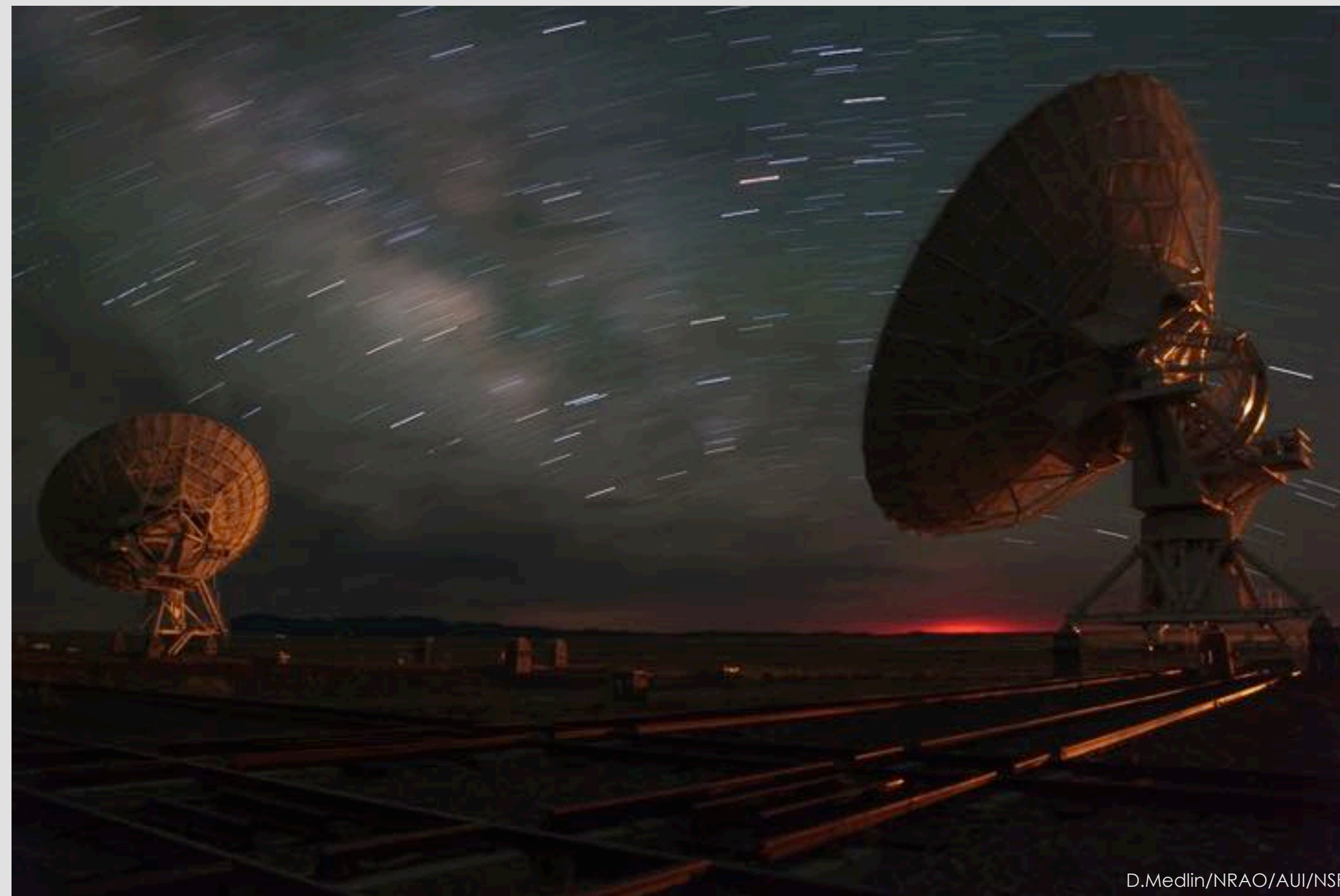
```
mode='manual' spw='3:42~56' reason='UFO_over_array'
```

 - Must have **mode flagging reason**.
 - **NO** space in text used for reason
 - Format help, use CASA task **flagdata**, save your edits!
2. Flagging template will be picked up automatically and applied in the hifv_flagdata stage.
3. In CASA, `execfile('casa_pipescript.py')`

Rerun for known issues

The pipeline may choose the worst possible option ...

- Bad reference antenna or setup issues
- Problems during the flux or delay calibration scan(s)
- If all fails, try Scripted Pipeline (see Scripted Pipeline webpage)



Rerun for known issues | bad refant

1. Make a copy of the casa_pipescript.py file.
2. Add task parameter “refantignore” to the following stages:

```
hifv_testBPdcals(refantignore='ea24')
```

```
hifv_semiFinalBPdcals(refantignore='ea24')
```

```
hifv_semiFinalBPdcals(refantignore='ea24')
```

```
hifv_solint(refantignore='ea24')
```

```
hifv_fluxboot(refantignore='ea24')
```

```
hifv_finalcals(refantignore='ea24')
```

Rerun for known issues

Issues with scan intents? Edit the scan intents in the SDM-BDF. For instructions, see the pipeline web page.

Modifications for spectral line observations ... see pipeline web page.

Other flagging abilities ... see pipeline web page.

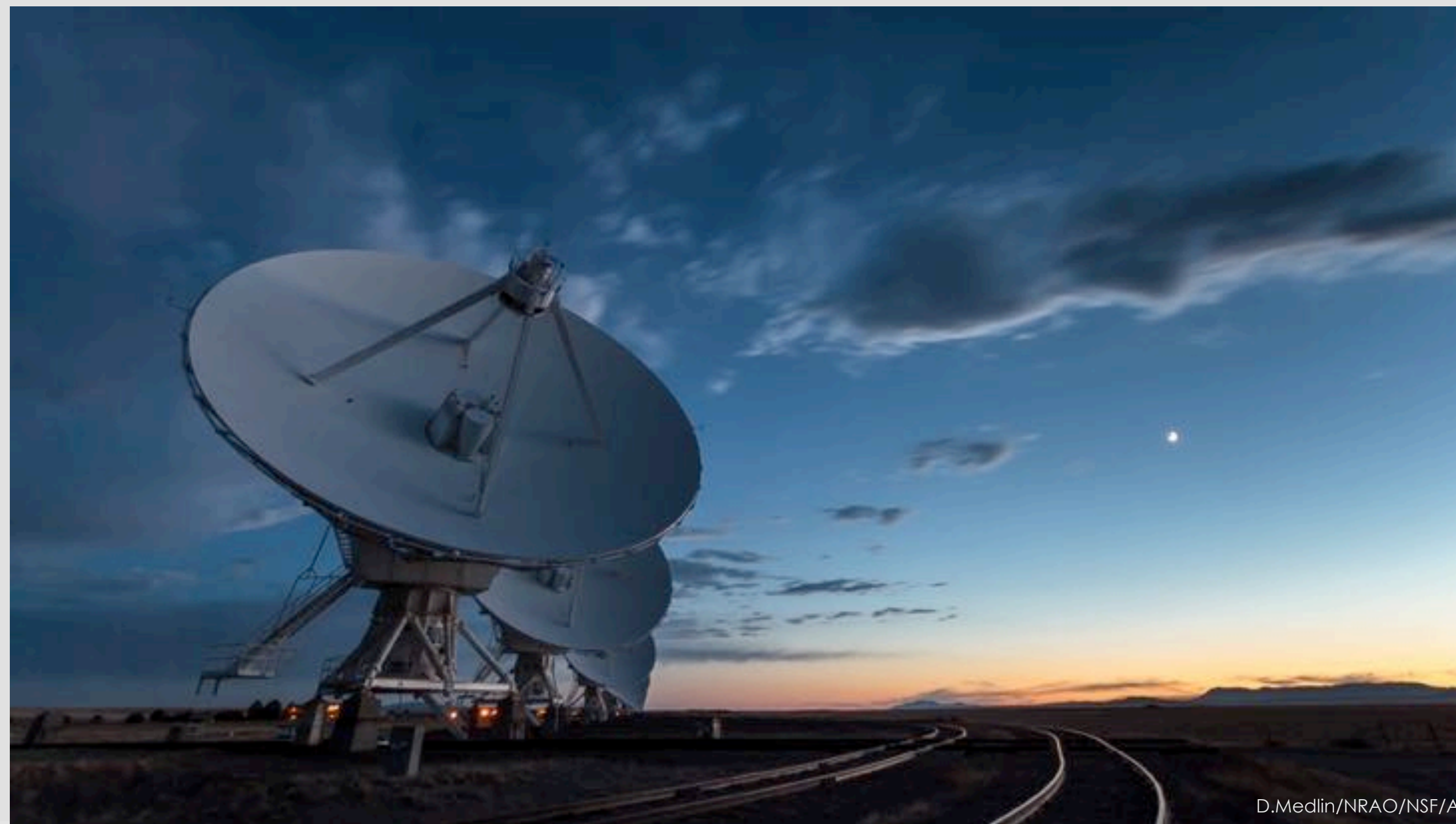
Known issues with pipeline release versions ... pipeline web page.

<https://science.nrao.edu/facilities/vla/data-processing/pipeline>

- CASA Integrated Pipeline & Scripted Pipeline available

Apply to Raw Data

- May only have pipeline calibration & flag tables, no MS
- Calibrated MS held by NRAO for only 15 days:
Calibration tables, flag tables, weblog archived!
- Local storage limitations:
Reduced storage needs by only keeping the tables.



Apply to Raw Data

1. Download the correct CASA version with the pipeline.
1. You will need the following, bold items in cal. tar file in archive
 - SDM-BDF
 - **unknown.session_1.caltables.tgz**
 - **mySDM.ms.flagversions.tgz**
 - **mySDM.ms.calapply.txt**
 - **casa_piperestorescript.py**
 - **unknown.hifv_cal.pipeline_manifest.xml**
2. Make a directory called “restore”.
3. cd to restore, and create three more directories inside:
rawdata, working, products < names must be exact!

Apply to Raw Data

5. Put your SDM-BDF into the “rawdata” directory.
6. Put all the *.tgz, *.xml and *.txt files into the “products” directory.
7. Put casa_piperestorescript.py into the “working” directory.
8. Go to the “working” directory and edit casa_piperestorescript.py:
 - Insert “../rawdata/” before the SDM-BDF name (mySDM) in the call to hifv_restoredata.
 - **Save** your changes.

Apply to Raw Data

9. From the “working” directory, start CASA with the pipeline

```
casa --pipeline
```

10. Execute the casa_piperestorescript.py file:

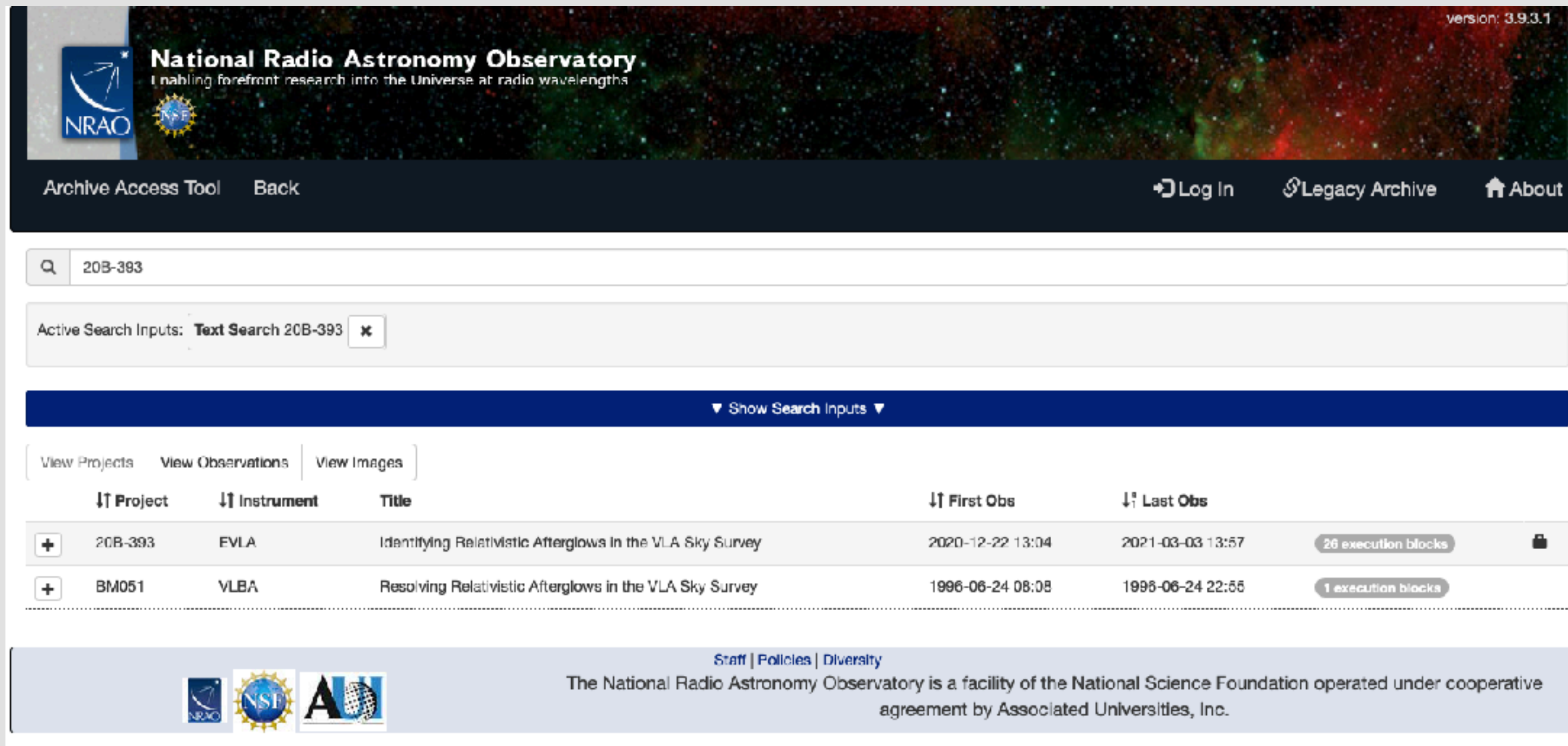
```
execfile('casa_piperestorescript.py')
```

11. Enjoy calibrated data once the process completes.

New Archive for Calibrated Data

We archive pipeline calibration tar files at <https://data.nrao.edu/>

Can get just the tar file or a fully calibrated MS in place of manual restore



The screenshot displays the NRAO Archive Access Tool interface. At the top, the NRAO logo and the text "National Radio Astronomy Observatory" are visible, along with the tagline "Enabling forefront research into the Universe at radio wavelengths". The version number "3.9.3.1" is shown in the top right corner. Below the header, there are navigation links for "Archive Access Tool", "Back", "Log In", "Legacy Archive", and "About". A search bar contains the query "20B-393". Below the search bar, the active search inputs are listed as "Text Search 20B-393". A "Show Search Inputs" button is present. The main content area shows a table of search results with columns for "Project", "Instrument", "Title", "First Obs", and "Last Obs". Two results are displayed:

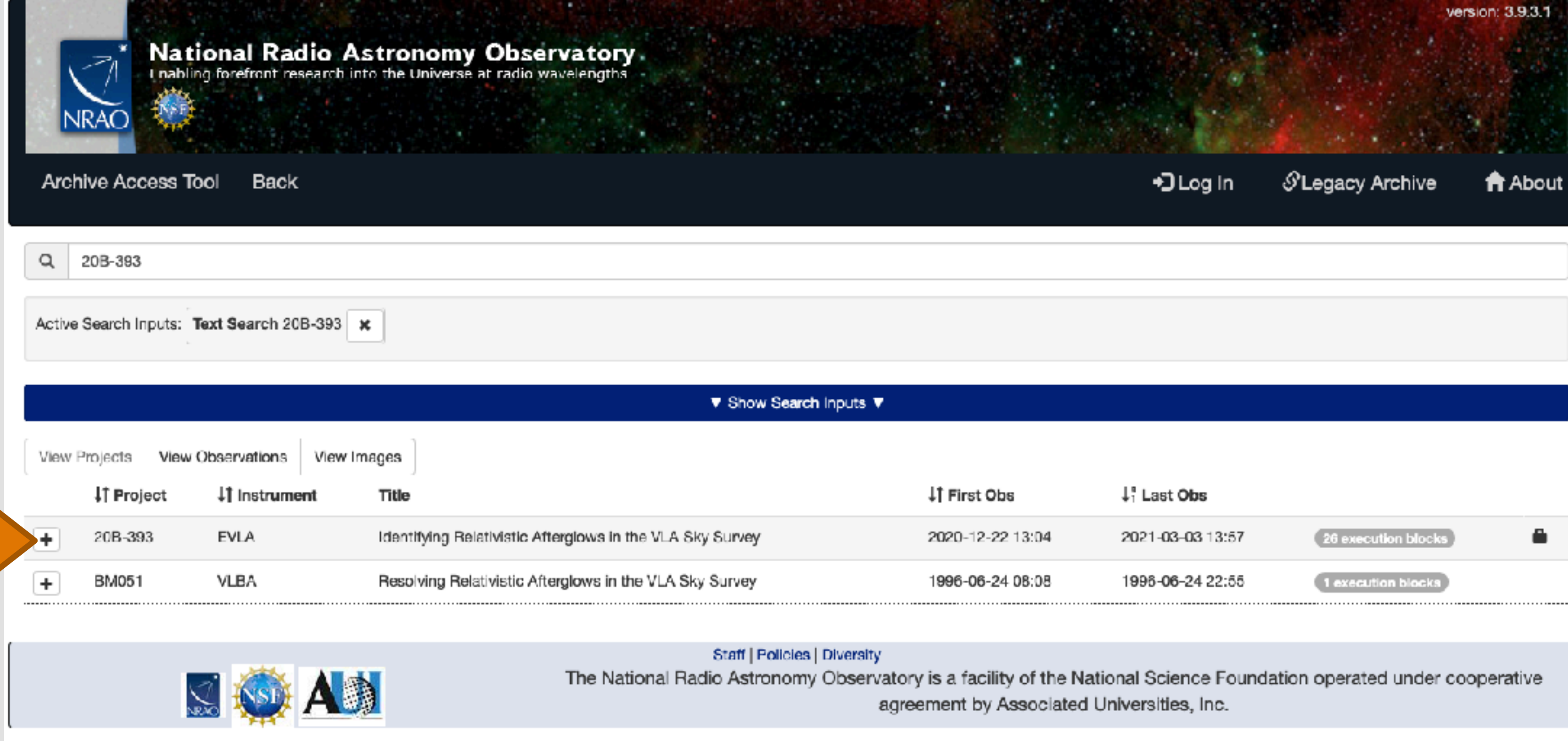
	Project	Instrument	Title	First Obs	Last Obs	
+	20B-393	EVLA	Identifying Relativistic Afterglows in the VLA Sky Survey	2020-12-22 13:04	2021-03-03 13:57	26 execution blocks
+	BM051	VLBA	Resolving Relativistic Afterglows in the VLA Sky Survey	1996-06-24 08:08	1996-06-24 22:55	1 execution blocks

At the bottom of the page, there are logos for NRAO, NSF, and AUI, along with the text "The National Radio Astronomy Observatory is a facility of the National Science Foundation operated under cooperative agreement by Associated Universities, Inc."

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Project	Instrument	Title	First Obs	Last Obs	Execution Blocks
20B-393	EVLA	Identifying Relativistic Afterglows in the VLA Sky Survey	2020-12-22 13:04	2021-03-03 13:57	26 execution blocks
BM051	VLBA	Resolving Relativistic Afterglows in the VLA Sky Survey	1996-06-24 08:08	1996-06-24 22:55	1 execution blocks

New Archive for Calibrated Data

The screenshot displays the NRAO Archive Access Tool interface. At the top, the NRAO logo and tagline "Enabling forefront research into the Universe at radio wavelengths" are visible, along with the version number "3.9.3.1". Navigation links include "Archive Access Tool", "Back", "Log In", "Legacy Archive", and "About". A search bar contains the query "20B-393". Below the search bar, a button labeled "Show Search Inputs" is present. The main content area features tabs for "View Projects", "View Observations", and "View Images". A table lists search results with columns for Project, Instrument, Title, First Obs, and Last Obs. The first result is for project 20B-393, instrument EVLA, titled "Identifying Relativistic Afterglows in the VLA Sky Survey", with observation dates from 2020-12-22 to 2021-03-03. Below the table, there is a section for the selected project with tabs for "Observations" and "Images". A summary bar indicates "0/10: selected (0/10.0 TB)" and includes buttons for "View Selection(s)", "Clear All", and "Download". At the bottom, a detailed table header lists columns for Archive File, Project, Instrument, Observation Start, Observation Stop, File Size, Array Config, Bands, Type, Cals, and Scans.

NRAO
Enabling forefront research into the Universe at radio wavelengths
version: 3.9.3.1

Archive Access Tool Back Log In Legacy Archive About

20B-393

Active Search Inputs: Text Search 20B-393

Show Search Inputs

View Projects View Observations View Images

Project	Instrument	Title	First Obs	Last Obs
20B-393	EVLA	Identifying Relativistic Afterglows in the VLA Sky Survey	2020-12-22 13:04	2021-03-03 13:57

26 execution blocks

Title: Identifying Relativistic Afterglows in the VLA Sky Survey
Abstract: We propose to measure the broadband SED of 30 luminous radio transients in Epoch 2.1 of the VLA Sky Survey at the beginning and end of A configuration. Transients that are luminous due to a high circum-explosion density will evolve slowly and peak at high frequencies. By contrast, transients that are luminous due to a relativistic jet will peak at low frequencies and evolve significantly over the course of the configuration. Regardless of outcome, these observations will provide significant constraints on the rate of off-axis relativistic afterglows.
PI: Dillon Dong
Legacy ID: AD844
Co-Authors: Steven Myers, Gregg Hallinan, Casey Law, Kunal Mooley
Proposal: [Click to search](#)

Observations Images

Page 1 of 26 Observations

0/10: 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
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Scroll down to view observations

New Archive for Calibrated Data

1/10: selected (56.8 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
20B-393.sb39379498.eb39400854.59275.5319293287	20B-393	EVLA	2021-03-03 12:54:22	2021-03-03 13:57:59	11.787 GB	A->D	C, S	visibility		24
20B-393.sb39380194.eb39397441.59275.78701113426	20B-393	EVLA	2021-03-02 18:57:19	2021-03-02 19:55:06	8.960 GB	A->D	C, S	visibility		24
20B-393.sb39379730.eb39393151.59275.43685203704	20B-393	EVLA	2021-03-02 10:29:05	2021-03-02 11:24:25	10.131 GB	A->D	C, S	visibility		24
20B-393.sb39357074.eb39386793.59274.11698799768	20B-393	EVLA	2021-03-01 02:50:35	2021-03-01 03:28:29	25.127 GB	A	P	visibility		7
20B-393.sb39350918.eb39386110.59273.959040428235	20B-393	EVLA	2021-02-28 23:01:54	2021-03-01 01:00:52	56.840 GB	A	C, L, S, X	visibility		69
20B-393.sb39353961.eb39385645.59273.59280466435	20B-393	EVLA	2021-02-28 14:13:38	2021-02-28 15:43:18	46.319 GB	A	C, L, S, X	visibility		51
20B-393.sb39357395.eb39385228.59273.3448068287	20B-393	EVLA	2021-02-28 08:16:31	2021-02-28 10:59:02	116.440 GB	A	P	visibility		19
20B-393.sb39355157.eb39385226.59273.2891040625	20B-393	EVLA	2021-02-28 06:27:31	2021-02-28 08:16:27	56.405 GB	A	C, L, S, X	visibility		59
20B-393.sb39356919.eb39383312.59272.69872045295	20B-393	EVLA	2021-02-27 16:46:10	2021-02-27 18:13:55	62.813 GB	A	P	visibility		12
20B-393.sb39351774.eb39382574.59272.37339700232	20B-393	EVLA	2021-02-27 08:57:42	2021-02-27 10:32:14	49.014 GB	A	C, L, S, X	visibility		51
20B-393.sb39348550.eb39382572.59272.31059845065	20B-393	EVLA	2021-02-27 07:27:16	2021-02-27 08:57:37	46.957 GB	A	C, L, S, X	visibility		51
20B-393.sb39353504.eb39374678.59271.71025094907	20B-393	EVLA	2021-02-26 17:02:46	2021-02-26 19:44:41	83.057 GB	A	C, L, S, X	visibility		87
20B-393.sb39350012.eb39373834.59271.499176655096	20B-393	EVLA	2021-02-26 11:58:49	2021-02-26 14:33:05	79.123 GB	A	C, L, S, X	visibility		87
20B-393.sb39348945.eb39373381.59271.43221309027	20B-393	EVLA	2021-02-26 10:01:00	2021-02-26 11:58:10	48.256 GB	A	C, L, S, X	visibility		51

The Expanded project view shows all observations

New Archive for Calibrated Data

1/10: selected (56.8 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
20B-393.sb39379498.eb39400854.59275.5319293287	20B-393	EVLA	2021-03-03 12:54:22	2021-03-03 13:57:59	11.787 GB	A->D	C, S	visibility		24
20B-393.sb39380194.eb39397441.59275.78701113426	20B-393	EVLA	2021-03-02 18:57:19	2021-03-02 19:55:06	8.960 GB	A->D	C, S	visibility		24
20B-393.sb39379730.eb39393151.59275.43685203704	20B-393	EVLA	2021-03-02 10:29:05	2021-03-02 11:24:25	10.131 GB	A->D	C, S	visibility		24
20B-393.sb39357074.eb39386793.59274.11698799768	20B-393	EVLA	2021-03-01 02:50:35	2021-03-01 03:28:29	25.127 GB	A	P	visibility		7
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20B-393.sb39353961.eb39385645.59273.59280466435	20B-393	EVLA	2021-02-28 14:13:38	2021-02-28 15:43:18	46.319 GB	A	C, L, S, X	visibility		51
20B-393.sb39357395.eb39385228.59273.3448068287	20B-393	EVLA	2021-02-28 08:16:31	2021-02-28 10:59:02	116.440 GB	A	P	visibility		19
20B-393.sb39355157.eb39385226.59273.2891040625	20B-393	EVLA	2021-02-28 06:27:31	2021-02-28 08:16:27	56.405 GB	A	C, L, S, X	visibility		59
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20B-393.sb39351774.eb39382574.59272.37339700232	20B-393	EVLA	2021-02-27 08:57:42	2021-02-27 10:32:14	49.014 GB	A	C, L, S, X	visibility		51
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Cals column shows if pipeline calibration is available

New Archive for Calibrated Data

0/10: selected (0/10.0 TB)

View Selection(s) Clear All Download

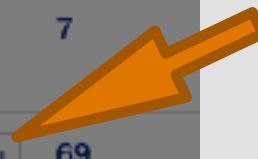
Archive File

File Name	Array Config	Bands	Type	Cals	Scans				
20B-393_sb39379498_eb39400854.59276.53192	A->D	C, S	visibility	24					
20B-393_sb39380194_eb39397441.59275.78701	A->D	C, S	visibility	24					
20B-393_sb39379730_eb39393151.59275.43681	A->D	C, S	visibility	24					
20B-393_sb39357074_eb39386793.59274.11691	A	P	visibility	7					
20B-393_sb39350918_eb39386110.59273.95901	A	C, L, S, X	visibility	69					
20B-393_sb39353961_eb39385645.59273.59280466435	20B-393	EVLA	2021-02-28 14:13:38	2021-02-28 15:43:18	46.319 GB	A	C, L, S, X	visibility	51
20B-393_sb39357395_eb39385228.59273.3448068287	20B-393	EVLA	2021-02-28 08:16:31	2021-02-28 10:59:02	116.440 GB	A	P	visibility	19
20B-393_sb39355157_eb39385226.59273.2691040625	20B-393	EVLA	2021-02-28 06:27:31	2021-02-28 08:16:27	56.405 GB	A	C, L, S, X	visibility	59
20B-393_sb39356919_eb39383312.59272.69872046296	20B-393	EVLA	2021-02-27 16:46:10	2021-02-27 18:13:55	62.813 GB	A	P	visibility	12
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20B-393_sb39348550_eb39382572.59272.31059846065	20B-393	EVLA	2021-02-27 07:27:16	2021-02-27 08:57:37	46.957 GB	A	C, L, S, X	visibility	51
20B-393_sb39353504_eb39374678.59271.71025094907	20B-393	EVLA	2021-02-26 17:02:46	2021-02-26 19:44:41	83.057 GB	A	C, L, S, X	visibility	87
20B-393_sb39350012_eb39373834.59271.499176655096	20B-393	EVLA	2021-02-26 11:58:49	2021-02-26 14:33:05	79.123 GB	A	C, L, S, X	visibility	87
20B-393_sb39348945_eb39373381.59271.43221309027	20B-393	EVLA	2021-02-26	2021-02-26	46.256 GB	A	C, L, S, X	visibility	51

Cal: 20B-393_2021_02_28_T01_13_26.297.tar

Cancel Submit Request

Click here to download the calibration tar file only.



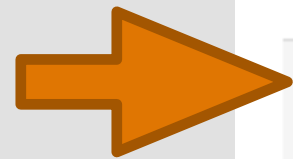
New Archive for Calibrated Data

0/10: 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	Cal	Scans
20B-393.sb39379498.eb39400854.59276.5319293267	20B-393	EVLA	2021-03-03 12:54:22	2021-03-03 13:57:59	11.787 GB	A->D	C, S	visibility		24
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20B-393.sb39379730.eb39393151.59275.43686203704	20B-393	EVLA	2021-03-02 10:29:05	2021-03-02 11:24:25	10.131 GB	A->D	C, S	visibility		24
20B-393.sb39357074.eb39386793.59274.11698799768	20B-393	EVLA	2021-03-01 02:50:35	2021-03-01 03:28:29	25.127 GB	A	P	visibility		7
20B-393.sb39350918.eb39386110.59273.959040428235	20B-393	EVLA	2021-02-28 23:01:54	2021-03-01 01:00:52	56.840 GB	A	C, L, S, X	visibility		69
20B-393.sb39353961.eb39385645.59273.59280466435	20B-393	EVLA	2021-02-28 14:13:38	2021-02-28 15:43:18	46.319 GB	A	C, L, S, X	visibility		51
20B-393.sb39357395.eb39385228.59273.3448068287	20B-393	EVLA	2021-02-28 08:16:31	2021-02-28 10:59:02	116.440 GB	A	P	visibility		19
20B-393.sb39355157.eb39385226.59273.2691040625	20B-393	EVLA	2021-02-28 06:27:31	2021-02-28 08:18:27	56.405 GB	A	C, L, S, X	visibility		59
20B-393.sb39356919.eb39383312.59272.69672046296	20B-393	EVLA	2021-02-27 16:46:10	2021-02-27 18:13:55	62.813 GB	A	P	visibility		12
20B-393.sb39351774.eb39382574.59272.37339700232	20B-393	EVLA	2021-02-27 08:57:42	2021-02-27 10:32:14	49.014 GB	A	C, L, S, X	visibility		51
20B-393.sb39348550.eb39382572.59272.31059846065	20B-393	EVLA	2021-02-27 07:27:16	2021-02-27 08:57:37	46.957 GB	A	C, L, S, X	visibility		51
20B-393.sb39353504.eb39374678.59271.71025094907	20B-393	EVLA	2021-02-26 17:02:46	2021-02-26 19:44:41	83.057 GB	A	C, L, S, X	visibility		87
20B-393.sb39350012.eb39373834.59271.499176655096	20B-393	EVLA	2021-02-26 11:58:49	2021-02-26 14:33:05	79.123 GB	A	C, L, S, X	visibility		87
20B-393.sb39348945.eb39373381.59271.43221309027	20B-393	EVLA	2021-02-26	2021-02-26	48.256 GB	A	C, L, S, X	visibility		51

Add to clipboard

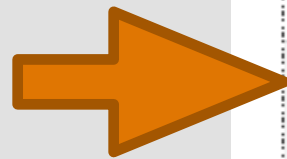


New Archive for Calibrated Data

1/10: selected (56.8 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
20B-393.sb39379498.eb39400854.59276.5319293287	20B-393	EVLA	2021-03-03 12:54:22	2021-03-03 13:57:59	11.787 GB	A->D	G, S	visibility		24
20B-393.sb39380194.eb39397441.59275.78701113428	20B-393	EVLA	2021-03-02 18:57:19	2021-03-02 19:55:06	8.960 GB	A->D	G, S	visibility		24
20B-393.sb39379730.eb39393151.59275.43686203704	20B-393	EVLA	2021-03-02 10:29:05	2021-03-02 11:24:25	10.131 GB	A->D	G, S	visibility		24
20B-393.sb39357074.eb39386793.59274.11698799768	20B-393	EVLA	2021-03-01 02:50:35	2021-03-01 03:28:29	25.127 GB	A	P	visibility		7
20B-393.sb39350918.eb39386110.59273.959040428235	20B-393	EVLA	2021-02-28 23:01:54	2021-03-01 01:00:52	56.840 GB	A	G, L, S, X	visibility	1	69
20B-393.sb39353961.eb39385645.59273.59280466435	20B-393	EVLA	2021-02-28 14:13:38	2021-02-28 15:43:18	46.319 GB	A	G, L, S, X	visibility	1	51
20B-393.sb39357395.eb39385228.59273.3448068287	20B-393	EVLA	2021-02-28 08:16:31	2021-02-28 10:59:02	116.440 GB	A	P	visibility		19
20B-393.sb39355157.eb39385226.59273.2891040625	20B-393	EVLA	2021-02-28 06:27:31	2021-02-28 08:16:27	56.405 GB	A	G, L, S, X	visibility	1	59
20B-393.sb39356919.eb39383312.59272.69872046296	20B-393	EVLA	2021-02-27 16:46:10	2021-02-27 18:13:55	62.813 GB	A	P	visibility		12
20B-393.sb39351774.eb39382574.59272.37339700232	20B-393	EVLA	2021-02-27 08:57:42	2021-02-27 10:32:14	49.014 GB	A	G, L, S, X	visibility	1	51
20B-393.sb39348550.eb39382572.59272.31059846065	20B-393	EVLA	2021-02-27 07:27:16	2021-02-27 08:57:37	46.967 GB	A	G, L, S, X	visibility	1	51
20B-393.sb39353504.eb39374678.59271.71025094907	20B-393	EVLA	2021-02-26 17:02:46	2021-02-26 18:44:41	83.057 GB	A	G, L, S, X	visibility	1	87
20B-393.sb39350012.eb39373864.59271.499176655096	20B-393	EVLA	2021-02-26 11:58:49	2021-02-26 14:33:05	79.123 GB	A	G, L, S, X	visibility	1	87
20B-393.sb39348945.eb39373381.59271.43221309027	20B-393	EVLA	2021-02-26	2021-02-26	48.266 GB	A	G, L, S, X	visibility	1	51



Add to clipboard

New Archive for Calibrated Data

1/10: selected (56.8 GB/10.0 TB)

View Selection(s) Clear All Download

Click Download

Archive File	Project	Instrument	Observation Start	Observation Stop	File Size	Array Config	Bands	Type	Cals	Scans
20B-393.sb39379498.eb39400854.59276.5319293287	20B-393	EVLA	2021-03-03 12:54:22	2021-03-03 13:57:59	11.787 GB	A->D	G, S	visibility		24
20B-393.sb39380194.eb39397441.59275.78701113428	20B-393	EVLA	2021-03-02 18:57:19	2021-03-02 19:55:06	8.960 GB	A->D	G, S	visibility		24
20B-393.sb39379730.eb39393151.59275.43686203704	20B-393	EVLA	2021-03-02 10:29:05	2021-03-02 11:24:25	10.131 GB	A->D	G, S	visibility		24
20B-393.sb39357074.eb39386793.59274.11698799768	20B-393	EVLA	2021-03-01 02:50:35	2021-03-01 03:28:29	25.127 GB	A	P	visibility		7
20B-393.sb39350918.eb39386110.59273.959040428235	20B-393	EVLA	2021-02-28 23:01:54	2021-03-01 01:00:52	56.840 GB	A	C, L, S, X	visibility	69	
20B-393.sb39353961.eb39385645.59273.59280466435	20B-393	EVLA	2021-02-28 14:13:38	2021-02-28 15:43:18	46.319 GB	A	C, L, S, X	visibility	51	
20B-393.sb39357395.eb39385228.59273.3448068287	20B-393	EVLA	2021-02-28 08:16:31	2021-02-28 10:59:02	116.440 GB	A	P	visibility		19
20B-393.sb39355157.eb39385226.59273.2891040625	20B-393	EVLA	2021-02-28 06:27:31	2021-02-28 08:16:27	56.405 GB	A	C, L, S, X	visibility	59	
20B-393.sb39356919.eb39383312.59272.69872046296	20B-393	EVLA	2021-02-27 16:46:10	2021-02-27 18:13:55	62.813 GB	A	P	visibility		12
20B-393.sb39351774.eb39382574.59272.37339700232	20B-393	EVLA	2021-02-27 08:57:42	2021-02-27 10:32:14	49.014 GB	A	C, L, S, X	visibility	51	
20B-393.sb39348550.eb39382572.59272.31059846065	20B-393	EVLA	2021-02-27 07:27:16	2021-02-27 08:57:37	46.957 GB	A	C, L, S, X	visibility	51	
20B-393.sb39353504.eb39374678.59271.71025094907	20B-393	EVLA	2021-02-26 17:02:46	2021-02-26 18:44:41	83.057 GB	A	C, L, S, X	visibility	87	
20B-393.sb39350012.eb39373834.59271.499176655096	20B-393	EVLA	2021-02-26 11:58:49	2021-02-26 14:33:05	79.123 GB	A	C, L, S, X	visibility	87	
20B-393.sb39348945.eb39373381.59271.43221309027	20B-393	EVLA	2021-02-26	2021-02-26	48.256 GB	A	C, L, S, X	visibility	51	

New Archive for Calibrated Data

1/10: selected (56.8 GB/100 GB)

View Selection(s) Clear All Download

Archive File

File Name	Size	Array Config	Bands	Type	Cols	Scans			
20B-393.sb39379498.eb39400854.59275.53192		A->D	C, S	visibility		24			
20B-393.sb39380194.eb39397441.59275.78701		A->D	C, S	visibility		24			
20B-393.sb39379730.eb39393151.59275.43686		A->D	C, S	visibility		24			
20B-393.sb39357074.eb39386793.59274.11698		A	P	visibility		7			
20B-393.sb39350918.eb39386110.59273.95904		A	C, L, S, X	visibility	69	69			
20B-393.sb39353961.eb39385645.59273.59280		A	C, L, S, X	visibility	51	51			
20B-393.sb39357395.eb39385228.59273.34480		A	P	visibility		19			
20B-393.sb39355157.eb39385228.59273.26910		A	C, L, S, X	visibility	59	59			
20B-393.sb39356919.eb39383312.59272.69672		A	P	visibility		12			
20B-393.sb39351774.eb39382574.59272.07339700232	20B-393	EVLA	2021-02-27 08:57:42	2021-02-27 10:32:14	49.014 GB	A	C, L, S, X	visibility	51
20B-393.sb39348550.eb39382572.59272.31059846065	20B-393	EVLA	2021-02-27 07:27:16	2021-02-27 08:57:37	46.957 GB	A	C, L, S, X	visibility	51
20B-393.sb39353504.eb39374678.59271.71025094907	20B-393	EVLA	2021-02-26 17:02:46	2021-02-26 19:44:41	83.057 GB	A	C, L, S, X	visibility	87
20B-393.sb39350012.eb39373834.59271.499176655036	20B-393	EVLA	2021-02-26 11:58:49	2021-02-26 14:33:05	79.123 GB	A	C, L, S, X	visibility	87
20B-393.sb39348945.eb39373381.59271.43221309027	20B-393	EVLA	2021-02-26	2021-02-26	48.256 GB	A	C, L, S, X	visibility	51

Launch Workflow Task on: 20B-393

User Email (required):

Request Description: EVLA Processing Request

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: 6.1.2-7 | 2020.1.0.36 (recommended) ▾

Restore previous CMS: 20B-393_2021_02_28_T01_13_26.297.tar ▾

Estimated Processing Time: 3 hours

Cancel Submit Request

Select Calibrated Measurement Set for pipeline calibration

New Archive for Calibrated Data

1/10: selected (56.8 GB/100%)

View Selection(s) Clear All Download

Archive File

File Name	Array Config	Bands	Type	Cols	Scans				
20B-393.sb39379498.eb39400854.59276.53192	A->D	C, S	visibility		24				
20B-393.sb39380194.eb39397441.59275.78701	A->D	C, S	visibility		24				
20B-393.sb39379730.eb39393151.59275.43688	A->D	C, S	visibility		24				
20B-393.sb39357074.eb39386793.59274.11698	A	P	visibility		7				
20B-393.sb39350918.eb39386110.59273.95904	A	C, L, S, X	visibility	69					
20B-393.sb39353961.eb39385645.59273.59280	A	C, L, S, X	visibility	51					
20B-393.sb39357395.eb39385228.59273.34480	A	P	visibility		19				
20B-393.sb39355157.eb39385228.59273.26910	A	C, L, S, X	visibility	59					
20B-393.sb39356919.eb39383312.59272.69672	A	P	visibility		12				
20B-393.sb39351774.eb39382574.59272.07339700232	20B-393	EVLA	2021-02-27 08:57:42	2021-02-27 10:32:14	49.014 GB	A	C, L, S, X	visibility	51
20B-393.sb39348550.eb39382572.59272.31059846065	20B-393	EVLA	2021-02-27 07:27:16	2021-02-27 08:57:37	46.957 GB	A	C, L, S, X	visibility	51
20B-393.sb39353504.eb39374678.59271.71025094907	20B-393	EVLA	2021-02-26 17:02:46	2021-02-26 19:44:41	83.057 GB	A	C, L, S, X	visibility	87
20B-393.sb39350012.eb39373834.59271.499176655036	20B-393	EVLA	2021-02-26 11:58:49	2021-02-26 14:33:05	79.123 GB	A	C, L, S, X	visibility	87
20B-393.sb39348945.eb39373381.59271.43221309027	20B-393	EVLA	2021-02-26	2021-02-26	48.256 GB	A	C, L, S, X	visibility	51

Launch Workflow Task on: 20B-393

User Email (required):

Request Description: EVLA Processing Request

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

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: 6.1.2-7 | 2020.1.0.36 (recommended) v

Restore previous CMS: 20B-393_2021_02_28_T01_13_26.297.tar v

Estimated Processing Time: 3 hours

Cancel Submit Request

Uncheck Create tar file if you are working with your visitor account (nm-####)

New Archive for Calibrated Data

1/10: selected (56.8 GB/100 GB)

View Selection(s) Clear All Download

Archive File

File Name	Size
20B-393.sb39379498.eb39400854.59276.53192	56.8 GB
20B-393.sb39380194.eb39397441.59275.78701	56.8 GB
20B-393.sb39379730.eb39393151.59275.43688	56.8 GB
20B-393.sb39357074.eb39386793.59274.11698	56.8 GB
20B-393.sb39350918.eb39386110.59273.95904	56.8 GB
20B-393.sb39353961.eb39385645.59273.59280	56.8 GB
20B-393.sb39357395.eb39385228.59273.34480	56.8 GB
20B-393.sb39355157.eb39385228.59273.26910	56.8 GB
20B-393.sb39356919.eb39383312.59272.69672	56.8 GB
20B-393.sb39351774.eb39382574.59272.07539700232	56.8 GB
20B-393.sb39348550.eb39382572.59272.31059846065	56.8 GB
20B-393.sb39353504.eb39374678.59271.71025094907	56.8 GB
20B-393.sb39350012.eb39373834.59271.499176655036	56.8 GB
20B-393.sb39348945.eb39373381.59271.43221309027	56.8 GB

Launch Workflow Task on: 20B-393

User Email (required):

Request Description: EVLA Processing Request

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: 6.1.2-7 | 2020.1.0.36 (recommended) ▾

Restore previous CMS: 20B-393_2021_02_28_T01_13_26.297.tar ▾

Estimated Processing Time: 3 hours

Cancel Submit Request

Array Config	Bands	Type	Chans	Scans					
A->D	C, S	visibility		24					
A->D	C, S	visibility		24					
A->D	C, S	visibility		24					
A	P	visibility		7					
A	C, L, S, X	visibility	1	69					
A	C, L, S, X	visibility	1	51					
A	P	visibility		19					
A	C, L, S, X	visibility	1	59					
A	P	visibility		12					
16:48:10	18:13:55								
20B-393	EVLA	2021-02-27 08:57:42	2021-02-27 10:32:14	49.014 GB	A	C, L, S, X	visibility	1	51
20B-393	EVLA	2021-02-27 07:27:16	2021-02-27 08:57:37	46.957 GB	A	C, L, S, X	visibility	1	51
20B-393	EVLA	2021-02-26 17:02:46	2021-02-26 19:44:41	83.057 GB	A	C, L, S, X	visibility	1	87
20B-393	EVLA	2021-02-26 11:58:49	2021-02-26 14:33:05	79.123 GB	A	C, L, S, X	visibility	1	87
20B-393	EVLA	2021-02-26	2021-02-26	48.256 GB	A	C, L, S, X	visibility	1	51

Submit Request

Note: only one calibration may be requested at a time.



Considerations

Scan intents correct?

Hanning Smoothing?

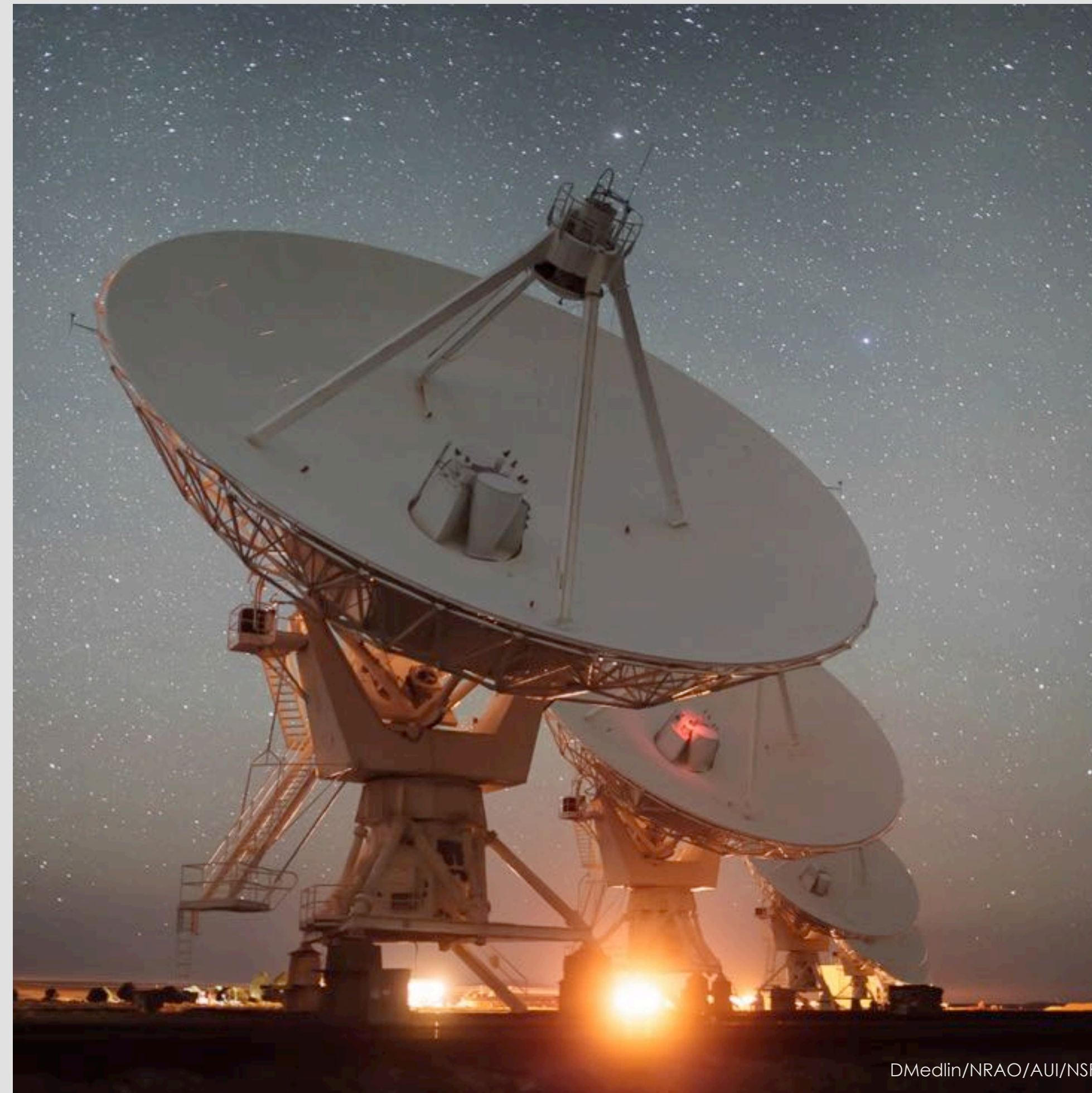
Computing time?

Disk space – 3-4X raw size(!)

PL version differences.

CASA version differences.

NRAO cluster available for
remote Access



Remote Access: Accounts

Use your **visitor account** (what you're using now)

- Remote processing
- Data staging for download
- Short term work, **NOT** long term storage.

Use your account's "**data**" **directory**:

- Archive deliveries directly to your account
- Pipeline data requests
- **DO NOT** change permissions of this directory!

Remote Access: Node Request

Login with your account username

- `ssh nm-####@login.aoc.nrao.edu`

Go to nmpost-master and request a node

- `ssh nm-####@nmpost-master`
- `nodescheduler --request 14 1`

If you get no email, you are probably **queued** ...

- Don't keep requesting more nodes

Exit nmpost-master, then ssh to your assigned node

- `ssh nm-####@nmpost###`

Remote Access

Interact with your data for reduction and analysis

- SSH and VNC available for working with your data.

Download your data:

- RSYNC, SFTP, SCP, LFTP available.

Need help?

- <https://info.nrao.edu/computing/guide/cluster-processing>

Questions?

- VLA CASA Calibration Pipeline information at:

<https://science.nrao.edu/facilities/vla/data-processing/pipeline>

- CASA Integrated Pipeline & Scripted Pipeline available

- Have Questions?
 - Need Help?
 - Report a bug?
- Use the **NRAO HelpDesk**: <https://help.nrao.edu/>
 - Submit your ticket under the **VLA Pipeline Department**.
 - Please include specific details when submitting HelpDesk tickets.
(Project code, SB number, CASA/PL versions, log file, errors, etc.)