

ALMA Data Products– what to expect after your observations are made



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Atacama Large Millimeter/submillimeter Array
Expanded Very Large Array



The Condensed Version

- Project tracking – SnooPI
- Data delivered after passing Quality Assurance (QA)
- The Pipeline Weblog–Calibration and Imaging Information
- Download data from *Archive Query* and *Request Handler* tools on the ALMA Science Portal
- Delivered data include:
 - Calibration tables and diagnostics
 - Preliminary images (better products may be possible with more careful continuum & non-default cleaning parameters)

This talk will be available online for reference after this workshop.

Monitor Project Status: SnooPI

<https://asa.alma.cl/snoopi>


SnooPI

NAVIGATION

- Home
- My Projects
- My SchedBlocks


QUICK LINKS


- User Manual
- Science Portal
- Archive Query
- Helpdesk




SnooPI

John Smith
Executive: EU; ARC: EU







5/8
PI Projects




9/9
PI Scheduling Blocks




22/34
Co-I Projects



58/60
Co-I Scheduling Blocks



0/2
Delegee Projects



0/2
Delegee Scheduling Blocks

i Since 2015-07-02 More news...

- 2015-10-23 ObsUnitSet **Member OUS (w51)** of project **2013.1.00308.S** is now Delivered
- 2015-08-30 All data taken for Scheduling Block **w51_a_06_TE** of project **2013.1.00308.S**
- 2015-07-02 All data taken for Scheduling Block **SgrB2_a_03_TE** of project **2013.1.00269.S**

Q Search Projects or Scheduling Blocks

Projects ▾

ESO

NRAO

NAOJ

Monitor Project Status: SnooPI

QA Report:

- 2013.1.06789. ✓
- Observing the centre of the galaxy with ALMA
- ObsUnitSet
 - SC OUS (CH3CN 5-4 & isotopolog...
 - Group OUS
 - Member OUS (SgrB2)
 - SgrB2_a_03_TP
 - Member OUS (SgrB2)
 - SgrB2_a_03_TC
 - Member OUS (SgrB2)
 - SgrB2_a_03_7M**
 - Member OUS (query)
 - 3c454.3_SgrB2_a_03_TP
 - Member OUS (SgrB2)
 - SgrB2_a_03_TE

Scheduling Block Name	SgrB2_a_03_7M ✓ History		
Scientific Goal Name	7m observations of my most favourite objects in the whole Universe		
Member ObsUnitSet	uid://A001/X121/X4bc History Archive query		
Array	7m Array		
Band	3		
RA	17 ^h 47 ^m 19.438 ^s		
Dec	-28° 23' 29.780"		
Representative Frequency, GHz	91.28		
Successful Executions	4 / 4		
End time	Duration [min]	Execution Block UID	QA0
2014-07-03 05:59:44	64.07	uid://A002/X85dcf7/Xefe	✓ Report
2014-07-03 04:39:10	64.49	uid://A002/X85dcf7/Xc7c	✓ Report
2014-07-02 06:49:28	70.38	uid://A002/X85c183/X1434	✓ Report
2014-07-01 07:02:06	70.18	uid://A002/X85b7b2/Xb3	✓ Report

Execution block uid://A002/X85dcf7/Xefe

Temperatures [°K]		Array
Average T _{sys}	41.79	Number of antennas
σ	21.35	Shortest baseline
T _{sys,min}	N/A	Longest baseline
T _{sys,max}	64.55	Angular resolution
		Maximum Recoverable Scale
		73.291 arcsec

Sources

Intent	Object	RA	Dec	Time [min]
Science Target	SgrB2	17 ^h 47 ^m 19.4 ^s	-28° 23' 29.8"	26.21
Amplitude Calibrator	J1733-130	17 ^h 33 ^m 2.7 ^s	-13° 4' 49.5"	5.04
Atmospheric Calibrator	J1733-130	17 ^h 33 ^m 2.7 ^s	-13° 4' 49.5"	0.29
Atmospheric Calibrator	J1700-2610	17 ^h 0 ^m 53.2 ^s	-26° 10' 51.7"	0.29
Atmospheric Calibrator	SgrB2	17 ^h 47 ^m 19.4 ^s	-28° 23' 29.8"	0.58
Bandpass Calibrator	J1700-2610	17 ^h 0 ^m 53.2 ^s	-26° 10' 51.7"	10.08
Flux Calibrator	J1733-130	17 ^h 33 ^m 2.7 ^s	-13° 4' 49.5"	5.04
Phase Calibrator	J1744-3116	17 ^h 44 ^m 23.6 ^s	-31° 16' 36.3"	5.04
Pointing Calibrator	J1700-2610	17 ^h 0 ^m 53.2 ^s	-26° 10' 51.7"	2.02

Data Delivery Email

- Sent when an individual MOUS passes QA2
- Data are ingested into the archive and made available at all Regional Centers
- Triggers Start of Proprietary Period
 - Usually 12 months
- Only Sent to PI
- Included Metadata:
 - MOUS ID, Scheduling Block (SB) name, project title
- Included Instructions:
 - Downloading data
 - Delegating access for registered ALMA users
- Included Descriptions:
 - Proprietary period

Data Delivery Email

- NA PIs get two delivery emails
 1. From JAO with links:
 - Archive query for MOUS package
 2. From NAASC:
 - Fully-calibrated MS (North America Only)
 - Calibration and Imaging Report (weblog)
 - ADMIT products
 - Knowledgebase Article: “Where can I get additional information for my NA added value data products?”
 - <https://help.almascience.org/index.php?/Knowledgebase/Article/View/412>

Data Delivery Email

- Publication Requirements:
 - ALMA acknowledgement
 - ARC specific acknowledgement
- Additional Support:
 - Funded face-to-face reduction visits to your home ARC
 - Contact info for ARC Helpdesk

Goals of Quality Assurance (QA) Process

- Ensure reliable final data product
 - Desired sensitivity (as specified by PI)
 - Desired resolution (as specified by PI)
- Ensure calibration and QA imaging free from major artifacts
- Warning: Errors in PI-supplied parameters are outside scope of QA process, including:
 - Incorrect source coordinates
 - Inadequate frequency specification
 - Inadequate sensitivity limits

See [ALMA Technical Handbook](#) for details.

During Observations – QA0

- Monitoring of on-the-fly calibration and system performance
- Rapidly-varying parameters (~SB/EB timescales)
 - Atmospheric effects
 - Antenna issues
 - Front-end issues
 - Connectivity issues
 - Back-end issues
- Tolerances for each are explicitly laid out
 - No fewer than 34 antennas in 12m array
 - Bandpass calibrator is strong enough
- Quick reduction may be run to check flux measurements and phase stability

Between Observations – QA I

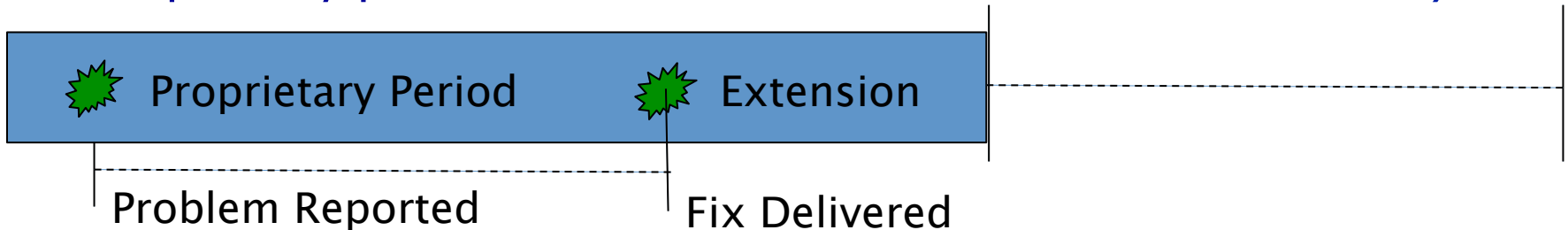
- “Regular array maintenance” timescales
- Slowly Varying Parameters (~MOUS timescales)
- General array calibration
 - Baseline measurements
 - Delays
- Antenna Calibrations
 - All-sky pointing
 - Focus curves
 - Beam patterns, etc.
- Observatory Calibrator Surveys
 - Solar-system and quasar flux monitoring

After Observations – QA2

- Calibration by pipeline (~70%) or DA/staff.
- Final QA checks include
 - RMS of complex antenna-based gains
 - Absolute flux calibration scale
 - T_{sys} within acceptable range
 - Proper phase transfer cadence
 - Proper bandpass corrections
- Assessment of Imaging Products
 - Signal-to-noise and angular resolution
 - No strong artifacts
 - Performed on the reference source/spectra
- Information about QA review is aggregated for delivery in the QA2 Report

After Delivery – QA3

- Additional QA stage possibly triggered by PI reporting any issues underlying:
 - Data, observing procedure, calibration
- Re-evaluation of calibrated data products
 - Only occurs if QA0 → QA2 miss something
- Likely results in fix being implemented and products re-ingested into ALMA archive
- Proprietary period extension (*within two months of delivery*)



- After two months, extension only until fix is delivered

The Wonderous Weblog!

Your guide to QA2



Pipeline Users Guide, Chapter 8 for more information.

Project Code

Click EB for information on the observation

Observation Overview

Project	Project UID
Principal Investigator	PI Name
OUS Status Entity id	Project UID
Observation Start	2017-11-03 01:26:43 UTC
Observation End	2017-11-08 02:21:19 UTC

Pipeline Summary

Pipeline Version	40896 (Pipeline-CASA51-P2-B) (documentation)
CASA Version	5.1.1-5 r40000
Pipeline Start	2017-11-10 13:12:52 UTC
Execution Duration	6:13:27

Observation Summary

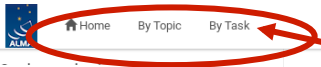
Measurement Set	Receivers	Num Antennas	Time (UTC)			Baseline Length			Size
			Start	End	On Source	Min	Max	RMS	
Observing Unit Set Status: uid://A001/X1296/X499 Scheduling Block ID: uid://A001/X1296/X47f									
Session: session_1									
Execution_UID.ms	ALMA Band 6	11	2017-11-03 01:26:42	2017-11-03 02:46:58	0:49:57	8.9 m	48.9 m	27.3 m	2.1 GB
Execution_UID_target.ms	ALMA Band 6	11	2017-11-03 01:44:53	2017-11-03 02:44:12	0:49:57	8.9 m	48.9 m	27.3 m	836.9 MB
Session: session_2									
Execution_UID.ms	ALMA Band 6	11	2017-11-04 01:30:20	2017-11-04 02:50:43	0:49:57	8.9 m	48.9 m	27.3 m	2.1 GB
Execution_UID_target.ms	ALMA Band 6	11	2017-11-04 01:48:32	2017-11-04 02:47:56	0:49:57	8.9 m	48.9 m	27.3 m	836.9 MB
Session: session_3									
Execution_UID.ms	ALMA Band 6	10	2017-11-08 01:01:01	2017-11-08 02:21:18	0:49:57	8.9 m	48.9 m	28.6 m	1.8 GB
Execution_UID_target.ms	ALMA Band 6	10	2017-11-08 01:19:12	2017-11-08 02:18:32	0:49:57	8.9 m	48.9 m	28.6 m	713.2 MB



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Pipeline Users Guide, Chapter 8 for more information.



Click By Task for breakdown of pipeline tasks

Project Code

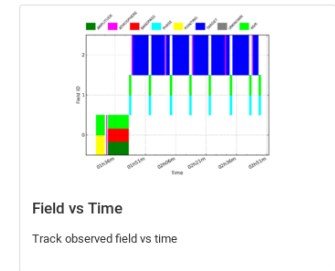
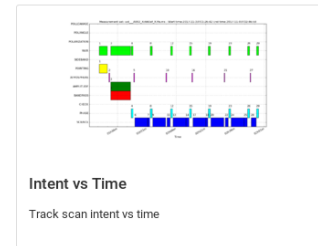
- Execution_UID.ms
- Execution_UID_target.ms
Session: session.2
- Execution_UID.ms
- Execution_UID_target.ms
Session: session.3
- Execution_UID.ms
- Execution_UID_target.ms

Overview of Execution_UID.ms

Observation Execution Time

Start Time	2017-11-03 01:26:42
End Time	2017-11-03 02:46:58
Total Time on Source	1:14:20
Total Time on Science Target	0:49:57

LISTOBS OUTPUT



Spatial Setup

Science Targets	Sci Target
Calibrators	'J0019+2021' and 'J2253+1608'

Spectral Setup

All Bands	'ALMA Band 6'
Science Bands	'ALMA Band 6'

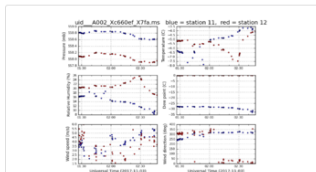
Antenna Setup

Min Baseline	8.9 m
Max Baseline	48.9 m
Number of Baselines	55
Number of Antennas	11

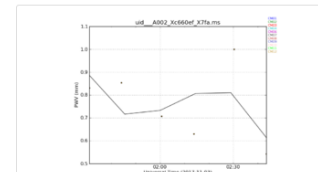
Sky Setup

Min Elevation	44.37 degrees
Max Elevation	48.35 degrees

Weather



PWV



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Pipeline Users Guide, Chapter 8 for more information.

Click on a pipeline task for detailed information and plots



Task	QA Score
1. hfa_importdata: Register measurement sets with the pipeline	1.00
2. hfa_flagdata: ALMA deterministic flagging	1.00
3. hfa_fluxcalflag: Flag spectral features in solar system flux calibrators	1.00
4. hf_rawflagchans: Flag channels in raw data	1.00
5. hf_refant: Select reference antennas	1.00
6. hf_tryscal: Calculate Trays calibration	1.00
7. hfa_trysflag: Flag Trays calibration	1.00
8. hfa_antpos: Correct for antenna position offsets	1.00
9. hfa_wvrflag: Calculate and flag WVR calibration	No QA
10. hf_lowgainflag: Flag antennas with low gain	1.00
11. hf_setmodels: Set calibrator model visibilities	1.00
12. hfa_bandpassflag: Phase up bandpass calibration and flagging	1.00
13. hfa_spwphaseup: Spw phase offsets calibration	1.00
14. hfa_fluxscaleflag: Phased up flux scale calibration + flagging	1.00
15. hfa_fluxscale: Transfer fluxscale from amplitude calibrator	1.00
16. hfa_timegaincal: Gain calibration	X-Y deviation 0.84
17. hf_applycal: Apply calibrations from context	0.99
18. hfa_imageprecheck: ImagePreCheck	1.00
19. hf_makeinlist: Set up image parameters for calibrator imaging	1.00
20. hf_makeimages: Make calibrator images	1.00
21. hf_checkproductsize: Check product size	1.00
22. hfa_exportdata: Prepare pipeline data products for export	1.00
23. hf_mstransform: Create science target MS	1.00
24. hfa_flagtargets: ALMA Target flagging	1.00
25. hf_makeinlist: Set up image parameters for target per-spw continuum imaging	1.00
26. hf_fndcont: Detect continuum frequency ranges	1.00
27. hf_uvcontfit: UV continuum fitting	1.00
28. hf_uvcontsub: UV continuum subtraction	1.00
29. hf_makeimages: Make target per-spw continuum images	1.00
30. hf_makeinlist: Set up image parameters for target aggregate continuum imaging	1.00
31. hf_makeimages: Make target aggregate continuum images	1.00
32. hf_makeinlist: Set up image parameters for target cube imaging	1.00
33. hf_makeimages: Make target cubes	1.00
34. hf_makeinlist: Set up image parameters for representative bandwidth target cube imaging	1.00
35. hf_makeimages: Make representative bandwidth target cube	1.00

CASA logs and scripts

- View, view in new tab or download casa-20171110-131234.log (12.1 MB)
- View, view in new tab or download casa_commands.log (168.3 KB)
- View, view in new tab or download casa_pipescripts.py (2.6 KB)
- View, view in new tab or download casa_piperestorescript.py (245 bytes)



The Wonderful Weblog!

Pipeline Users Guide, Chapter 8 for more information.



Let's try an imaging task

Examine calibrated phase and amplitude in different dimensions!

The Wonderful Weblog!



Pipeline Users Guide, Chapter 8 for more information.

These are images of the calibrators. Later hif_makeimages steps show the same layout for target continuum and line images.

- Home
 - By Topic
 - By Task
- Tasks in execution order
1. hifa_importdata
 2. hifa_flagdata
 3. hifa_fluxcalflag
 4. hif_rawflagchans
 5. hif_refant
 6. h_tsyscal
 7. hifa_tsysflag
 8. hifa_antpos
 9. hifa_wvrgcalflag
 10. hif_lowgainflag
 11. hif_setmodels
 12. hifa_bandpassflag
 13. hifa_swpphaseup
 14. hifa_gfluxscaleflag
 15. hifa_gfluxscale
 16. hifa_timegaincal
 17. hif_applycal
 18. hifa_imageprecheck
 19. hif_makeimlist
 - 20. hif_makeimages**
 21. hif_checkproductsize
 22. hifa_exportdata
 23. hif_mstransform
 24. hifa_flagtargets
 25. hif_makeimlist
 26. hif_fndcont
 27. hif_uvcontfit
 28. hif_uvcontsub
 29. hif_makeimages
 30. hif_makeimlist
 31. hif_makeimages
 32. hif_makeimlist
 33. hif_makeimages
 34. hif_makeimlist
 35. hif_makeimages

20. Tclean/MakelImages

Make calibrator images

Image Details

Field	Spw	Pol	Image details	Image result
J0019+2021 (PHASE)	16	I	<p>centre frequency of image 223.5004GHz (LSRK)</p> <p>beam 7.06 x 5.24 arcsec</p> <p>beam p.a. 86.4deg</p> <p>final theoretical sensitivity 0.0004 Jy/beam</p> <p>cleaning threshold 0.0034 Jy/beam Dirty DR: 8.7e+02 DR correction: 4.4</p> <p>clean residual peak / scaled MAD 6.28</p> <p>non-pbcor image RMS 0.00049 Jy/beam</p> <p>pbcor image max / min 0.344 / -0.00367 Jy/beam</p> <p>fractional bandwidth / nterms 0.89% / 1</p> <p>aggregate bandwidth 2 GHz (LSRK)</p> <p>score 1.00</p> <p>image file uid__A001_X1296_X499.s20_0.J0019+2021_ph.spw16.mfs.l.iter1.image</p>	<p>View other QA Images...</p>
J0019+2021 (PHASE)	18	I	<p>centre frequency of image 225.3654GHz (LSRK)</p> <p>beam 7.00 x 5.17 arcsec</p> <p>beam p.a. 85.9deg</p> <p>final theoretical sensitivity 0.00038 Jy/beam</p> <p>cleaning threshold 0.0034 Jy/beam Dirty DR: 9.1e+02 DR correction: 4.5</p> <p>clean residual peak / scaled MAD 6.74</p> <p>non-pbcor image RMS 0.00044 Jy/beam</p> <p>pbcor image max / min 0.343 / -0.00357 Jy/beam</p> <p>fractional bandwidth / nterms 0.89% / 1</p> <p>aggregate bandwidth 2 GHz (LSRK)</p> <p>score 1.00</p> <p>image file uid__A001_X1296_X499.s20_0.J0019+2021_ph.spw18.mfs.l.iter1.image</p>	<p>View other QA Images...</p>
J0019+2021 (PHASE)	20	I	<p>centre frequency of image 239.2502GHz (LSRK)</p> <p>beam 6.64 x 4.82 arcsec</p> <p>beam p.a. 85.8deg</p> <p>final theoretical sensitivity 0.00043 Jy/beam</p> <p>cleaning threshold 0.0033 Jy/beam</p>	<p>View other QA Images...</p>



QA2 Data Products Package:

Cycles 1-4 Packages

readme product auxiliary raw raw (semipass) external

Project / OUSet / Executionblock	File
Request 1647190514457	
Project 2016.1.00484.L	
Science Goal OUS uid://A001/Xbd4641/X1e	
Group OUS uid://A001/Xbd4641/X1f	
Member OUS uid://A001/Xbd4641/X20	
SB GW_Lup_a_06_TM1	
<input checked="" type="checkbox"/> product	2016.1.00484.L_uid_A001_Xbd4641_X20_001_of_001
<input type="checkbox"/> raw	2016.1.00484.L_uid_A002_Xc04da7_Xea.asdm.sdm
<input type="checkbox"/> raw	2016.1.00484.L_uid_A002_Xc067f7_Xa6d.asdm.sdm

Raw data tar balls.

Tar ball with the processed data.

QA2 Data Products Package:

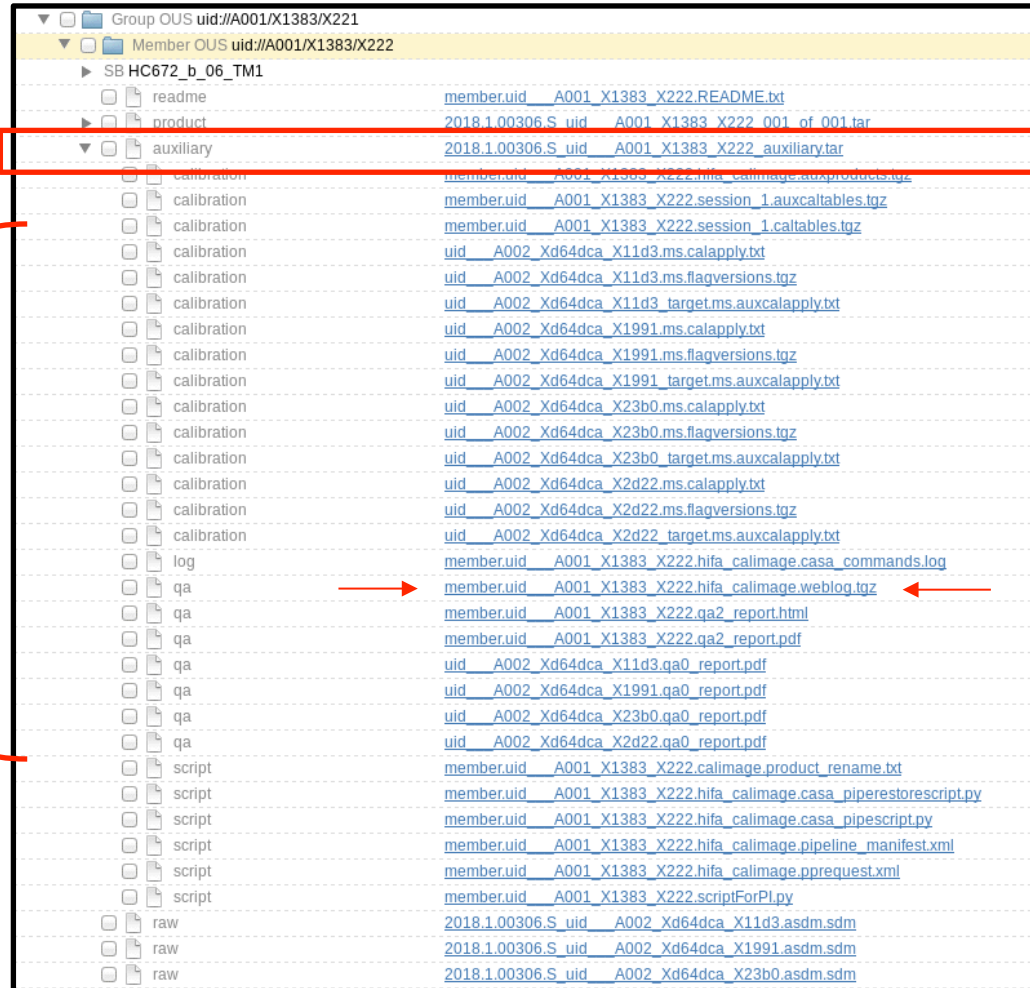
Cycles 5-Present

▼	Group OUS uid://A001/X885/X19a	
▼	Member OUS uid://A001/X885/X19b	
▶	SB Pluto_a_06_TM1	
▶	<input checked="" type="checkbox"/> product	2016.1.01100.S uid A001 X885 X19b 001 of 001.tar
▼	<input checked="" type="checkbox"/> auxiliary	2016.1.01100.S uid A001 X885 X19b auxiliary.tar
	<input type="checkbox"/> auxiliary	member.uid A001 X885 X19b.PPR uid A001 X885 X19c.xml.tar
	<input type="checkbox"/> auxiliary	member.uid A001 X885 X19b.README.txt.tar
	<input type="checkbox"/> auxiliary	member.uid A001 X885 X19b.antennapos.csv.tar
	<input type="checkbox"/> auxiliary	member.uid A001 X885 X19b.calimage.pipeline_manifest.xml.tar
	<input type="checkbox"/> auxiliary	member.uid A001 X885 X19b.calimage.product_rename.txt.tar
	<input type="checkbox"/> auxiliary	member.uid A001 X885 X19b.casa_commands.log.tar
	<input type="checkbox"/> auxiliary	member.uid A001 X885 X19b.casa_piperestorescript.py.tar
	<input type="checkbox"/> auxiliary	member.uid A001 X885 X19b.casa_pipescript.py.tar
	<input type="checkbox"/> auxiliary	member.uid A001 X885 X19b.cont.dat.tar
	<input type="checkbox"/> auxiliary	member.uid A001 X885 X19b.flux.csv.tar
	<input type="checkbox"/> auxiliary	member.uid A001 X885 X19b.scriptForPI.py.tar
	<input type="checkbox"/> auxiliary	member.uid A001 X885 X19b.session_3.caltables.tgz.tar
	<input type="checkbox"/> auxiliary	member.uid A001 X885 X19b.weblog.tgz.tar
	<input type="checkbox"/> auxiliary	uid A002 Xc4d618 X5750.ms.calapply.txt.tar
	<input type="checkbox"/> auxiliary	uid A002 Xc4d618 X5750.ms.flagversions.tgz.tar
	<input type="checkbox"/> auxiliary	uid A002 Xc4d618 X5750_flagtargetstemplate.txt.tar
	<input type="checkbox"/> raw	2016.1.01100.S uid A002 Xc4d618 X5750.asdm.sdm.tar

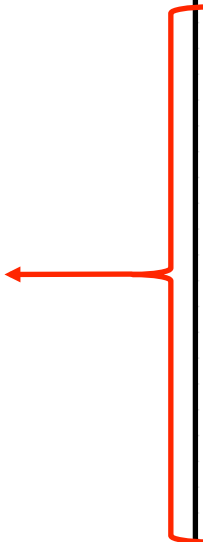
QA2 Data Products Package:

Cycles 5-Present: Auxiliary Tarball

Tar ball



Individual file download



QA2 Data Products Package:

Cycles 5-Present: Product Tarball

Tar ball

SB HC672_b_06_TM1	
readme	member.uid_A001_X1383_X222_README.txt
product	2018.1.00306.S_uid_A001_X1383_X222_001_of_001.tar
product	member.uid_A001_X1383_X222.141-1952_136-1955_sci.spw25.cube.l.mask.fits.gz
product	member.uid_A001_X1383_X222.141-1952_136-1955_sci.spw25.cube.l.pb.fits.gz
product	member.uid_A001_X1383_X222.141-1952_136-1955_sci.spw25.cube.l.pbcor.fits
product	member.uid_A001_X1383_X222.141-1952_136-1955_sci.spw25.mfs.l.mask.fits.gz
product	member.uid_A001_X1383_X222.141-1952_136-1955_sci.spw25.mfs.l.pb.fits.gz
product	member.uid_A001_X1383_X222.141-1952_136-1955_sci.spw25.mfs.l.pbcor.fits
product	member.uid_A001_X1383_X222.141-1952_136-1955_sci.spw25_27_29_31_33_35.cont.l.mask.fits.gz
product	member.uid_A001_X1383_X222.141-1952_136-1955_sci.spw25_27_29_31_33_35.cont.l.pb.fits.gz
product	member.uid_A001_X1383_X222.141-1952_136-1955_sci.spw25_27_29_31_33_35.cont.l.pbcor.fits
product	member.uid_A001_X1383_X222.141-1952_136-1955_sci.spw27.cube.l.mask.fits.gz
product	member.uid_A001_X1383_X222.141-1952_136-1955_sci.spw27.cube.l.pb.fits.gz
product	member.uid_A001_X1383_X222.141-1952_136-1955_sci.spw27.cube.l.pbcor.fits
product	member.uid_A001_X1383_X222.141-1952_136-1955_sci.spw27.mfs.l.mask.fits.gz
product	member.uid_A001_X1383_X222.141-1952_136-1955_sci.spw27.mfs.l.pb.fits.gz
product	member.uid_A001_X1383_X222.141-1952_136-1955_sci.spw27.mfs.l.pbcor.fits
product	member.uid_A001_X1383_X222.141-1952_136-1955_sci.spw29.cube.l.mask.fits.gz
product	member.uid_A001_X1383_X222.141-1952_136-1955_sci.spw29.cube.l.pb.fits.gz
product	member.uid_A001_X1383_X222.141-1952_136-1955_sci.spw29.cube.l.pbcor.fits
product	member.uid_A001_X1383_X222.141-1952_136-1955_sci.spw29.mfs.l.mask.fits.gz
product	member.uid_A001_X1383_X222.141-1952_136-1955_sci.spw29.mfs.l.pb.fits.gz
product	member.uid_A001_X1383_X222.141-1952_136-1955_sci.spw29.mfs.l.pbcor.fits
product	member.uid_A001_X1383_X222.141-1952_136-1955_sci.spw31.cube.l.mask.fits.gz
product	member.uid_A001_X1383_X222.141-1952_136-1955_sci.spw31.cube.l.pb.fits.gz
product	member.uid_A001_X1383_X222.141-1952_136-1955_sci.spw31.cube.l.pbcor.fits
product	member.uid_A001_X1383_X222.141-1952_136-1955_sci.spw31.mfs.l.mask.fits.gz
product	member.uid_A001_X1383_X222.141-1952_136-1955_sci.spw31.mfs.l.pb.fits.gz
product	member.uid_A001_X1383_X222.141-1952_136-1955_sci.spw31.mfs.l.pbcor.fits
product	member.uid_A001_X1383_X222.141-1952_136-1955_sci.spw33.cube.l.mask.fits.gz
product	member.uid_A001_X1383_X222.141-1952_136-1955_sci.spw33.cube.l.pb.fits.gz
product	member.uid_A001_X1383_X222.141-1952_136-1955_sci.spw33.cube.l.pbcor.fits
product	member.uid_A001_X1383_X222.141-1952_136-1955_sci.spw33.mfs.l.mask.fits.gz

Individual file download

QA2 Data Products Package: Directory Structure

After un-tarring the processed data we have a directory tree:

Science goal

```
2017.1.05267.S/
|-- science_goal.uid__A001_X1299_X2z
|  |-- group.uid__A001_X1299_X25
|     |-- member.uid__A001_X1299_X39
```

Project code

Member OUS: may contain 12-m array, ALMA Core Array (ACA), or Total Power observation

Group OUS: combination of member OUS's

```
|-- calibration
|-- log
|-- member.uid__A001_X1299_X39.README.txt
|-- product
|-- qa
|-- script
```

README

Data delivery products...

QA2 Data Products Package: The README

Different format before Cycle 5

```
| -- member.uid__A001_X1299_X39.README.txt
```

Cycle 0-4

Project code: 2015.1.02572.S
PI name: Bob Hops
Project title: A first look at Space
Configuration: 0.241 km
Proposed rms:
Proposed beam size: 3.44"
CASA version: 4.7.2
Comments from Reducer:
This scheduling block was manually calibrated and imaged.
Several antennas were flagged for particularly high Tsys.
Continuum images were produced using scriptForImaging.py. They include the entire bandwidth.
Continuum:
Beam= 4.33" by 2.59"
RMS = 5.0 Jy/Beam over 7.5 GHz bandwidth

Cycle 4-5

You can download the AQUA quality report for these observations from SnooPI using the following URL...

<https://asa.alma.cl/snoopi>

If you are not on the project and need the QA2 report of the public data, submit HD ticket

Cycle 5-Now

Details about the quality of the data processing are in

qa/
member.uid__A001_X135e_X8f.qa2_report.pdf (or html)

Details about the processing are in

qa/*weblog.tgz

Details about the quality of the raw data are in

qa/*qa0_report.pdf (or html)

QA2 Data Products Package:

```
-- calibration Pipeline Calibration Tables
|  |-- member.uid__ A001_X1299_X39.hifa_calimage.auxproducts.tgz
|  |-- member.uid__ A001_X1299_X39.session_1.auxcaltables.tgz
|  |-- member.uid__ A001_X1299_X39.session_1.caltables.tgz
|  |-- uid__ A002_Xc8ed15_X1a9.ms.calapply.txt
|  |-- uid__ A002_Xc8ed15_X1a9.ms.flagversions.tgz
|  |-- uid__ A002_Xc8ed15_X1a9_target.ms.auxcalapply.txt
```

calibration: **Manual Calibration Tables**

```
uid__ A002_Xd81670_X867e.calibration.plots.tgz
uid__ A002_Xd81670_X8a51.calibration.plots.tgz
uid__ A002_Xd81670_X8d91.calibration.plots.tgz
uid__ A002_Xd81670_X867e.calibration.tgz
uid__ A002_Xd81670_X8a51.calibration.tgz
uid__ A002_Xd81670_X8d91.calibration.tgz
```

All flags will be restored during calibration

QA2 Data Products Package: the processed data

Pipeline Calibration Log and Products:

CASA Log file (non-executable)

```
| -- log  
|   -- member.uid__A001_X1299_X39.hifa_calimage.casa_commands.log  
| -- member.uid__A001_X1299_X39.README.txt  
| -- product  
|   |-- member.uid__A001_X1299_X39.SOURCE_sci.spw25_27_29_31.cont.I.pb.fits  
|   |-- member.uid__A001_X1299_X39.SOURCE_sci.spw25_27_29_31.cont.I.pbcor.fits  
|   |-- member.uid__A001_X1299_X39.SOURCE_sci.spw25.cube.I.mask.fits  
|   |-- member.uid__A001_X1299_X39.SOURCE_sci.spw25.cube.I.pbcor.fits  
|   |-- member.uid__A001_X1299_X39.SOURCE_sci.spw25.cube.I.pb.fits.gz  
|   |-- member.uid__A001_X1299_X39.J0117p1418_ph.spw31.mfs.I.pbcor.fits  
|   |-- member.uid__A001_X1299_X39.J0117p1418_ph.spw31.mfs.I.pb.fits.gz
```

Calibration and Target images
produced from QA2

QA2 Data Products Package:

MANUAL Calibration Log and Products:

CASA Log file (non-executable)

log:

```
member.uid__A001_X122e_X2945.2018.1.05432.S_uid__A001_X122e_X2945.log.tgz  uid__A002_Xd81670_X867e.log.tgz
member.uid__A001_X122e_X2945.Imaging.log.tgz                               uid__A002_Xd81670_X8a51.log.tgz
```

product:

```
member.uid__A001_X122e_X2945.SOURCE_sci.spw13_15_17_19.mfs.A.pbcor.fits
member.uid__A001_X122e_X2945.SOURCE_sci.spw13_15_17_19.mfs.I.manual.pbcor.fits
member.uid__A001_X122e_X2945.SOURCE_sci.spw13_15_17_19.mfs.I.manual.pb.fits.gz
member.uid__A001_X122e_X2945.SOURCE_sci.spw13_15_17_19.mfs.IQUV.manual.mask.tgz
member.uid__A001_X122e_X2945.SOURCE_sci.spw13_15_17_19.mfs.IQUV.manual.pbcor.fits
member.uid__A001_X122e_X2945.SOURCE_sci.spw13_15_17_19.mfs.IQUV.manual.pb.fits.gz
member.uid__A001_X122e_X2945.J0348-2749_ph.spw13_15_17_19.mfs.I.manual.pbcor.fits
member.uid__A001_X122e_X2945.J0348-2749_ph.spw13_15_17_19.mfs.I.manual.pb.fits.gz
member.uid__A001_X122e_X2945.J0423-0120_pol.spw13_15_17_19.mfs.I.manual.pbcor.fits
member.uid__A001_X122e_X2945.J0423-0120_pol.spw13_15_17_19.mfs.I.manual.pb.fits.gz
```

**Calibration and Target images
produced from QA2**

QA2 Data Products Package: the processed data

Pipeline Calibration Scripts and Weblog:

Weblog contains plots and images from reduction and imaging. Unpack this for lots of information!

```
| -- qa  
|   |-- member.uid__ A001_X1299_X39.hifa_calimage.weblog.tgz  
|-- script  
| |-- member.uid__ A001_X1299_X39.calimage.pipeline_manifest.xml  
| |-- member.uid__ A001_X1299_X39.calimage.product_rename.txt  
| |-- member.uid__ A001_X1299_X39.hifa_calimage.casa_piperestorescript.py  
| |-- member.uid__ A001_X1299_X39.hifa_calimage.casa_pipescript.py  
| |-- member.uid__ A001_X1299_X39.hifa_calimage.pprequest.xml  
| |-- member.uid__ A001_X1299_X39.scriptForPI.py
```

Run `scriptForPI.py` to restore calibration

Commands to re-run the pipeline

QA2 Data Products Package: the processed data

MANUAL Calibration Scripts and QA2 report:

```
qa:
member.uid__ A001_X122e_X2945.qa2_report.html
uid__ A002_Xd81670_X867e__qa2_part2.png uid__ A002_Xd81670_X8d91.qa0_report.pdf
uid__ A002_Xd81670_X8d91__textfile.txt
member.uid__ A001_X122e_X2945.qa2_report.pdf
uid__ A002_Xd81670_X867e__qa2_part3.png uid__ A002_Xd81670_X8d91__qa2_part1.png
uid__ A002_Xd81670_X867e.qa0_report.pdf
uid__ A002_Xd81670_X867e__textfile.txt uid__ A002_Xd81670_X8d91__qa2_part2.png
uid__ A002_Xd81670_X867e__qa2_part1.png
uid__ A002_Xd81670_X8a51.qa0_report.pdf uid__ A002_Xd81670_X8d91__qa2_part3.png
```

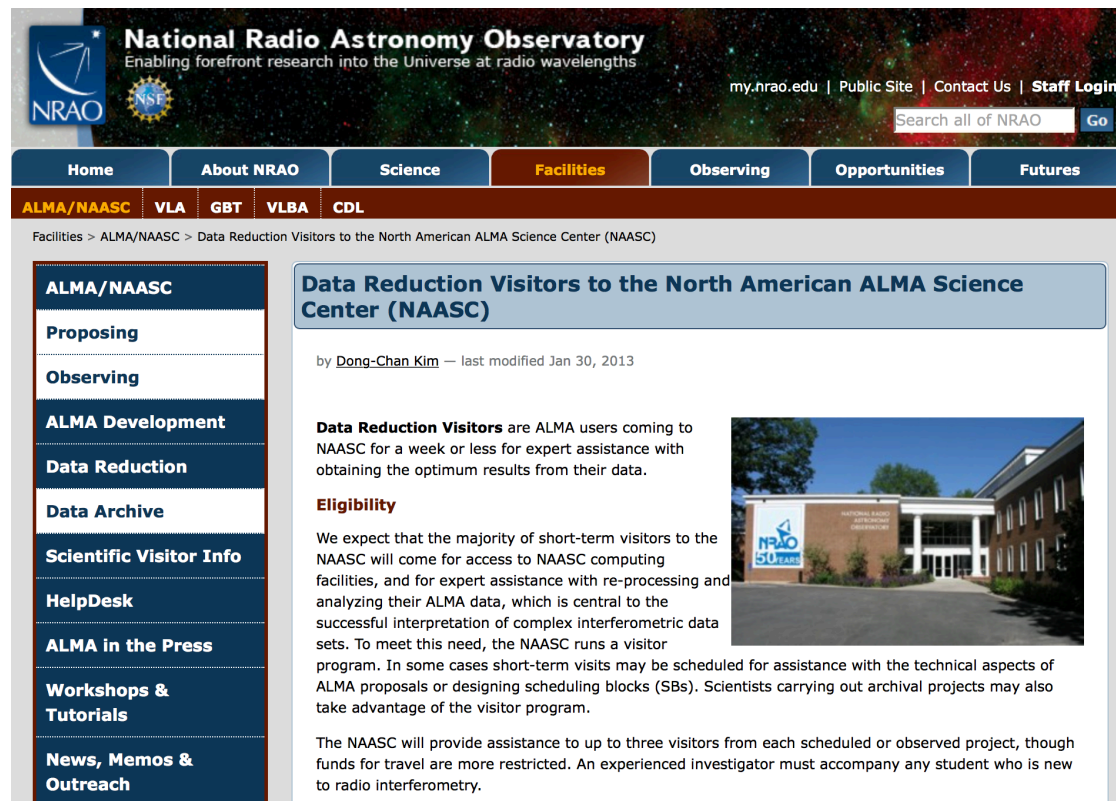
```
script:
member.uid__ A001_X122e_X2945.calimage.product_rename.txt
member.uid__ A001_X122e_X2945.scriptForPolCalibration.py
uid__ A002_Xd81670_X8a51.ms.wvrgcal.txt
member.uid__ A001_X122e_X2945.scriptForImagingPrep.py
uid__ A002_Xd81670_X867e.ms.scriptForCalibration.py
uid__ A002_Xd81670_X8d91.ms.scriptForCalibration.py
member.uid__ A001_X122e_X2945.scriptForImaging.py
uid__ A002_Xd81670_X867e.ms.wvrgcal.txt
uid__ A002_Xd81670_X8d91.ms.wvrgcal.txt
member.uid__ A001_X122e_X2945.scriptForPI.py ←
uid__ A002_Xd81670_X8a51.ms.scriptForCalibration.py
```

**QA2 reports contain
plots and images from
reduction and imaging.
Not as much information
as weblog...**

Run scriptForPI.py to restore calibration

Resources After Delivery

- HelpDesk: help.almascience.org
- Face to Face visits in Charlottesville: science.nrao.edu/facilities/alma/visitors-shortterm



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ALMA/NAASC VLA GBT VLBA CDL

Facilities > ALMA/NAASC > Data Reduction Visitors to the North American ALMA Science Center (NAASC)

ALMA/NAASC

- Proposing
- Observing
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Data Reduction Visitors to the North American ALMA Science Center (NAASC)

by [Dong-Chan Kim](#) — last modified Jan 30, 2013

Data Reduction Visitors are ALMA users coming to NAASC for a week or less for expert assistance with obtaining the optimum results from their data.

Eligibility

We expect that the majority of short-term visitors to the NAASC will come for access to NAASC computing facilities, and for expert assistance with re-processing and analyzing their ALMA data, which is central to the successful interpretation of complex interferometric data sets. To meet this need, the NAASC runs a visitor program. In some cases short-term visits may be scheduled for assistance with the technical aspects of ALMA proposals or designing scheduling blocks (SBs). Scientists carrying out archival projects may also take advantage of the visitor program.



The NAASC will provide assistance to up to three visitors from each scheduled or observed project, though funds for travel are more restricted. An experienced investigator must accompany any student who is new to radio interferometry.



For more info:
<https://almascience.nrao.edu/>

ALMA is a partnership of ESO (representing its member states), NSF (USA) and NINS (Japan), together with NRC (Canada), MOST and ASIAA (Taiwan), and KASI (Republic of Korea), in cooperation with the Republic of Chile. ALMA construction and operations are led on behalf of Europe by ESO, on behalf of North America by the National Radio Astronomy Observatory (NRAO), which is managed by Associated Universities, Inc. (AUI), and on behalf of East Asia by the National Astronomical Observatory of Japan (NAOJ). The Joint ALMA Observatory (JAO) provides the unified leadership and management of the construction and operation of ALMA. The Joint ALMA Observatory is operated by ESO, AUI/NRAO and NAOJ.