



<b>Title:</b> QSU2 FY2017	<b>Author:</b> Thisdell/ADs	<b>Date:</b> 06/26/2017
NRAO Doc. #: PMD000215		<b>Version:</b> FINAL

## National Radio Astronomy Observatory

### Quarterly Status Update 2 FY2017

January – March 2017

PREPARED BY	ORGANIZATION	DATE
Thisdell/ADs	Director's Office	06/26/2017

APPROVALS (Name and Signature)	ORGANIZATION
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**NRAO Quarterly Status Update**  
(QSU2 FY2017)  
January - March 2017

POP Section	POP Milestone	Milestone	Completion Date	Q1 Performance Assessment			Q2 Performance Assessment		
				Cost	Schedule	Scope	Cost	Schedule	Scope
2.6		<b>Atacama Large Millimeter/submillimeter Array (ALMA)</b>							
		<b>Operations</b>							
	1	The NAASC will provide management training opportunities to the new team and	3/31/2017						
	2	The NAASC will provide AODs in support of telescope operations in Chile	12/31/2016						
			3/31/2017						
	3	The NAASC will continue to provide diagnostic support for troubleshooting issues and problems found during array operations	12/31/2016						
			3/31/2017						
	5	The NAASC will review all the Phase 2 Scheduling Blocks submitted by PIs for ALMA Cycle 4	12/31/2016						
			3/31/2017						
	6	The NAASC will participate in CPM6	12/31/2016						
	7	The NAASC will participate in ObsMode 6	3/31/2017						
	8	NAASC staff will participate in the planning and coordination meetings in preparation	3/31/2017						
	9	NAASC staff will assist in the testing of the Cycle 4 CASA release	12/31/2016						
	10	Testing of the incremental releases of the Cycle 4 CASA release	3/31/2017						
	12	SWST supporting calibration and imaging heuristic development	12/31/2016						
			3/31/2017						
	13	Assembling the Cycle 5 Release 1 (CSR1) requirements	12/31/2016						
			3/31/2017						
	14	Providing support for running the Cycle 4 Pipeline on PI data	12/31/2016						
			3/31/2017						
	16	NAASC staff will take a leading role in testing the Cycle 5 ALMA Archive access	12/31/2016						
			3/31/2017						
	17	Data services team will deliver on average between 20 – 25 datasets per week	12/31/2016						
			3/31/2017						
	18	NAASC staff will take part in the Phase 3 testing of the AAT/PPI	3/31/2017						
	20	NAASC staff will take a lead role in the preparation of the Cycle 5 Call for Proposals and user documentation including all updates and edits to the ALMA science portal	12/31/2016						
			3/31/2017						
	21	NAASC staff will act as CSs and liaisons to the NA ALMA PI observing programs	12/31/2016						
			3/31/2017						
	22	NAASC staff will initiate the ALMA Ambassadors program and train the scientific community to run outreach events	12/31/2016						
			3/31/2017						
	23	NAASC staff will host 2 data reduction workshops in Charlottesville	3/31/2017						
	24	The NAASC will continue to host data reduction visitors over the FY with the goal of hosting a minimum of 12 visits	12/31/2016						
			3/31/2017						
		<b>Developments</b>							
	27	FY2017 (Cycle 5) Call for Project Proposals (CIPP)	12/31/2016						
	28	FY2017 (Cycle 5) Call for Study Proposals (CISP)	3/31/2017						
		<b>Maintenance, Renewal, and Warranty Claims</b>							
	30	Front End Handling Vehicles delivery to the JAO	3/31/2017						
		<b>NRAO-Chile Office</b>							
	33	Implementation and monitoring of the 2015 local staff collective contract	12/31/2016						
			3/31/2017						
	34	Preparations for 2018 collective bargaining	3/31/2017						
	35	Periodic interaction with local staff on payroll matters	12/31/2016						
			3/31/2017						
	36	Team building workshops focused on vision, mission, objectives and performance metrics	12/31/2016						
			3/31/2017						
	37	Oversight of environmental issues	12/31/2016						
			3/31/2017						
	38	Sister Cities: evaluation of July-September 2016 cultural exchange	12/31/2016						
	39	Sister Cities: assessment of Magdalena/San Pedro needs, definition of objectives and	3/31/2017						
	40	NINE: analysis of Chilean groups involved in STEM, underrepresented groups and opportunities for targeting	12/31/2016						
	41	NINE: preparation of hub proposal	3/31/2017						
3.5		<b>Very Large Array</b>							
		<b>VLA Science Operations</b>							
	1	Define VLA general and shared risk capabilities to be offered for semester 2017B	12/31/2016						
	3	Update VLA documentation to support 2017B Call for Proposals, perform proposal technical reviews	3/31/2017						
	5	Determine baselines and pointing for antennas moving into their D configuration locations	3/31/2017						
	8	Define heuristics for the analysis of TIP scan data	3/31/2017						
		<b>VLA Array Operations</b>							
	10	Reconfigure array to D configuration	3/31/2017						
	13	Complete VLA Operators cross-training on the VLBA	3/31/2017						
		<b>VLA Development</b>							
	16	Conduct VLA Sky Survey Critical Design Review	3/31/2017						
	18	Establish ngVLA Project Office	12/31/2016						
	19	Initiate ngVLA Community Studies program	12/31/2016						
	20	Complete development of high level technical specifications for ngVLA	3/31/2017						
		<b>VLA Antenna Maintenance</b>							
	27	Perform preventive maintenance on each of two transporters prior to array reconfiguration to D	12/31/2016						
		<b>VLA Site Infrastructure Maintenance</b>							
	32	Perform preventive maintenance on the next configuration VLA antenna transformers prior to array reconfiguration to D	12/31/2016						
		<b>VLA Technical Upgrades and Enhancements</b>							
	42	L-band solar upgrade, install 4 additional receivers (#11 - #14) with full RF upgrade	3/31/2017						
	44	Ku-band solar upgrade, install one additional receiver (#6) with solar Tcal path plus 20 dB switched attenuators	3/31/2017						
		<b>VLA Observing Capability Enhancements</b>							
	49	Define software requirements for enabling pulsar phase binning to be set up using standard tools	12/31/2016						
	50	Define best practices for using online frequency averaging	12/31/2016						
	51	Define software requirements for enabling frequency averaging to be set up using standard tools	3/31/2017						
		<b>VLA Operational Enhancements</b>							
	54	Integrate automated subarray observing into operations	3/31/2017						
4.3		<b>Central Development Laboratory</b>							
		<b>Repair, Maintenance, Production, Support</b>							
	1	Evaluate Band 6 mixer with LNF preamp and gain-slope equalizer	3/31/2017						
	2	Build and test twelve (12) Band 1 amplifiers	12/31/2016						
			3/31/2017						
		<b>Research and Development</b>							
	5	Produce Final Report for NRAO-led ALMA Correlator Study	12/31/2016						
	6	NRAO contributions to final report complete	3/31/2017						
	7	Submittal of ALMA Dev. Proposal to upgrade the existing ALMA correlator	12/31/2016						
	10	Use IRD source modules to probe-test W-band, I/Q mixer chip	12/31/2016						
	14	Demonstrate high-bandwidth unformatted serial link	3/31/2017						
	16	Deliver HERA receivers	3/31/2017						
	17	Development of the Cosmic Twilight Polarimeter	12/31/2016						
5.5		<b>Science Support and Research</b>							
		<b>Telescope Time Allocation</b>							
	1	CFP for semester 2017B	3/31/2017						
	3	SRP and tech review process, semester 2017B	3/31/2017						

NRAO Quarterly Status Update  
(QSU2 FY2017)  
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POP Section	POP Milestone	Milestone	Completion Date	Q1 Performance Assessment			Q2 Performance Assessment		
				Cost	Schedule	Scope	Cost	Schedule	Scope
	5	TAC meeting for semester 2017A	12/31/2016						
	7	Update SW tools requirements for TAC support 2017A	12/31/2016						
	8	Update SW tools requirements for PST 2017B	3/31/2017						
	11	Update documentation for CIP and tools 2017B	3/31/2017						
		<b>Science Users Support</b>							
	14	CDE planning	3/31/2017						
	15	NM Symposium	12/31/2016						
	16	CASAguides	12/31/2016						
	18	SRDP requirements development	3/31/2017						
	19	Summer student selection	3/31/2017						
	20	Summer student offers	3/31/2017						
	23	Student observing support selection	12/31/2016						
	25	Reber predoc selection	3/31/2017						
		<b>SSR Services</b>							
	27	Bibliometrix applications development	12/31/2016						
	28	Bibliometrix beta release	3/31/2017						
		<b>Scientific Staff Support</b>							
	30	Scistaff performance review	12/31/2016						
	31	Scistaff promotions review	3/31/2017						
	32	Post-tenure reviews	3/31/2017						
6.4		<b>Data Management &amp; Software</b>							
		<b>Scientific Information Services</b>							
	1	Upgrade of NAASC Cluster	3/31/2017						
	6	External computing service provider engagement	12/31/2016						
	7	Disaster recovery for Lustre storage	12/31/2016						
		<b>ALMA System Software</b>							
	9	ALMA Q2 Release	3/31/2017						
	12	Update Scheduling software	3/31/2017						
		<b>VLA System Software</b>							
	13	Deploy software to support Semester 2016B observing	3/31/2017						
	14	Deploy software to support Semester 2017A commissioning	3/31/2017						
	17	Support pulsar phase bin development	3/31/2017						
	19	Implement in OPT	12/31/2016						
		<b>Software Development</b>							
	20	Archive/RPI Release 2.5	12/31/2016						
	21	Archive/RPI Release 3.0	3/31/2017						
	22	CASA Release 4.7	12/31/2016						
	24	ASIAA ACDC formed	12/31/2016						
	25	CASA-Pipeline 4.7	12/31/2016						
	27	Implement PST updates for Semester 2017B Call for Proposals	12/31/2016						
	29	Implement PHT updates for Semester 2017B TAC meeting	3/31/2017						
	31	Implement OPT updates for Semester 2017A VLA Observing	12/31/2016						
	35	CI testing plan released	12/31/2016						
	36	CI testing implemented	3/31/2017						
	38	AAT/RPI build testing	3/31/2017						
7.4		<b>Program Management Department</b>							
		<b>New Mexico Operations</b>							
	1	NM Documentation Support	12/31/2016 3/31/2017						
	2	NM PM/SE Learning Opportunities	12/31/2016 3/31/2017						
	3	NM Proposal Development Leadership	12/31/2016 3/31/2017						
	4	NM PM/SE Project Leadership	12/31/2016 3/31/2017						
		<b>Long Baseline Observatory</b>							
	5	LBO Documentation Support	12/31/2016 3/31/2017						
	6	LBO Document Repository	12/31/2016						
	7	LBO Input to PMD SOPs	12/31/2016						
	8	LBO Risk Management Plan and Risk Register	3/31/2017						
	10	LBO PM/SE Project Leadership	12/31/2016 3/31/2017						
		<b>CDL/ALMA</b>							
	11	CDL Documentation Support	12/31/2016 3/31/2017						
	12	CDL PM/SE Learning Opportunities	12/31/2016 3/31/2017						
	13	CDL Proposal Development Leadership	12/31/2016 3/31/2017						
	14	CDL PM/SE Project Leadership	12/31/2016 3/31/2017						
		<b>Green Bank Observatory</b>							
	15	GBO Documentation Support	12/31/2016 3/31/2017						
	16	GBO Input to PMD SOPs	12/31/2016						
	17	GBO Report Plan and Templates	3/31/2017						
	19	GBO Proposal Development Leadership	12/31/2016 3/31/2017						
	21	GBO PM/SE Project Leadership	12/31/2016 3/31/2017						
		<b>DMS/CASA</b>							
	22	DMS Documentation Support	12/31/2016 3/31/2017						
	23	DMS Define CASA Development Processes	12/31/2016						
	24	DMS PM/SE Learning Opportunities	12/31/2016 3/31/2017						
	27	DMS Proposal Development Leadership	12/31/2016 3/31/2017						
	28	DMS PM/SE Project Leadership	12/31/2016 3/31/2017						
		<b>Headquarters</b>							
	29	PMHQ Observatory-wide Documentation Support	12/31/2016 3/31/2017						
	31	PM/SE Training/Workshop	12/31/2016 3/31/2017						
	32	PMHQ PM/SE Project Leadership	12/31/2016 3/31/2017						
8.5		<b>Education &amp; Public Outreach</b>							
		<b>STEM Education</b>							
	1	Sister Cities Phase Two STEM development	3/31/2017						
	4	Three-element Teaching Interferometer pilots	3/31/2017					cancelled	
	5	Third Dish Installation complete	12/31/2016						
	6	STEM Career Day at Dominion Virginia Electric	12/31/2016		cancelled				

**NRAO Quarterly Status Update**  
**(QSU2 FY2017)**  
**January - March 2017**

POP Section	POP Milestone	Milestone	Completion Date	Q1 Performance Assessment			Q2 Performance Assessment		
				Cost	Schedule	Scope	Cost	Schedule	Scope
	7	10 <sup>th</sup> Grade STEM Day at Piedmont Virginia Community College & Ruckersville STEM Expo	3/31/2017						
	8	Summer Camp Assessment Plan	3/31/2017						
		<b>News and Media Relations</b>							
	9	NASW Session Plan	3/31/2017						
		<b>Multimedia Engagement</b>							
	10	WordPress site Beta tests	12/31/2016						
	11	WordPress site launches	3/31/2017						
	13	Vimeo and YouTube repositories	3/31/2017						
	14	ALMA Explorer video updates	3/31/2017						
<b>9.4</b>		<b>Computing &amp; Information Services</b>							
	1	Business Process Review	3/31/2017						
	4	Computer inventory management review	3/31/2017						
	5	Network perimeter review	3/31/2017						
	8	Capacity reporting metrics	12/31/2016						
	9	Storage Area Network for virtual servers	3/31/2017						
<b>10.3</b>		<b>Office of Diversity &amp; Inclusion</b>							
		<b>Diversity Council</b>							
	1	Diversity Council Meeting	12/31/2016						
			3/31/2017						
		<b>Local and National Programs</b>							
	2	SEDLE, LSAMP, AATF, NAC	3/31/2017						
		<b>International Programs</b>							
	7	ODI Chile undergraduate research experience recruitment	12/31/2016						
	8	ODI Chile undergraduate research experience initiated	3/31/2017						
	9	NINE program expansion	12/31/2016						
			3/31/2017						
	10	Sister Cities	3/31/2017						
		<b>Diversity &amp; Cultural Awareness</b>							
	11	DCA Program plan developed and implemented	12/31/2016						
			3/31/2017						
<b>11.7</b>		<b>Human Resources</b>							
		<b>Policy</b>							
	1	Provide ongoing updates and develop and disseminate a Workplace Violence Prevention Policy in coordination with ESS	12/31/2016						
		<b>Training &amp; Development</b>							
	2	Develop and communicate Professional Development Central Pool Program	12/31/2016						
	3	Design and deliver Succession Planning Training to Managers	3/31/2017						
		<b>Compensation</b>							
	7	Implement new FLSA regulations	12/31/2016						
	8	Electronic Performance Appraisal Process	12/31/2016						
	9	Salary Review	3/31/2017						
		<b>Benefits</b>							
	11	Electronic Open Enrollment Process Development	12/31/2016						
		<b>Recruitment</b>							
	13	Applicant Tracking System	12/31/2016						
		<b>Employment</b>							
	14	Workforce Management Plan	3/31/2017						
		<b>Human Resources</b>							
	15	Succession Planning Guide	3/31/2017						
	16	Employee Climate & Engagement Survey	12/31/2016						
	17	JAO Collective Bargaining Planning	12/31/2016						
<b>12.1</b>		<b>Communications</b>							
	1	Complete science meeting exhibit redesign	12/31/2016						
	2	Publish 2017 Research Facilities brochure	12/31/2016						
<b>13.7</b>		<b>Administration</b>							
		<b>Management Information Services</b>							
	3	Purchase Equipment and coordinate installation with CIS	12/31/2016						
		<b>Technology Transfer Office</b>							
	5	Acquire license to Wellspring intellectual property management software	12/31/2016						
	6	Loading of NRAO Intellectual Property information	3/31/2017						
		<b>Budget</b>							
	7	With Budget Manager assigned to GBO, identify and measure areas of ICC unique to GBO, and determine if they materially affect the ICC rate and merit separate inclusion	3/31/2017						
<b>14.3</b>		<b>Spectrum Management</b>							
	1	WP 7D Meeting	12/31/2016						
	2	1A, 5B Meeting	12/31/2016						
<b>15.1</b>		<b>Director's Office</b>							
		<b>ALMA</b>							
	1	ALMA Board Meeting	12/31/2016						
	2	ALMA Director's Council	12/31/2016						
			3/31/2017						
		<b>Corporate Meetings</b>							
	3	AUI Board of Trustees meetings	12/31/2016						
			3/31/2017						
	4	AUI Executive Committee meetings	12/31/2016						
		<b>Science Community</b>							
	5	Appoint new Users Committee members	12/31/2016						
		<b>Management Reviews</b>							
	7	NSF Annual Program Review	12/31/2016						
	8	All-Hands presentations	12/31/2016						





# **QSU2 FY2017 Report**

**January – March 2017**



# POP MILESTONE # 2.6.7

## NA ALMA Operations - NAASC

The NAASC will participate in ObsMode 6



Cost



Schedule



Scope

### COST:

Labor Actuals	Expected
\$	\$
Material Actuals	Expected
\$	\$
Travel Actuals	Expected
\$	\$

### SCOPE:

To participate in ObsMode 6 meeting

### SCHEDULE:

Milestone	Schedule	Target
I The NAASC will participate in ObsMode 6	3/31/2017	4/30/2017

### RISK & MITIGATION:

Risk	Mitigation
I None	

# POP MILESTONE # 2.6.30

## NA ALMA Warranty

### Front End Handling Vehicles Delivery to the JAO



Cost



Schedule



Scope

#### COST:

Labor Actuals	Expected
\$161,556	\$175,000
Material Actuals	Expected
\$161,040	\$365,000
Travel Actuals	Expected
\$7,037	\$10,000

#### SCOPE:

No change

#### SCHEDULE:

Milestone	Schedule	Target
1 Chassis 1	3/31/2017	8/31/2017
2 Chasses 2-4	3/31/2017	12/31/2017

#### RISK & MITIGATION:

Risk	Mitigation
I Mechanical (dimensional) interference during re-assembly of the FEHVs.	I Assemble first vehicle and verify form and fit before fabrication of units 2, 3, and 4.

# POP MILESTONE # 3.5.16

## VLA Development

### Conduct VLA Sky Survey Critical Design Review



Cost



Schedule



Scope

#### COST:

Labor Actuals	Expected
\$	\$
Material Actuals	Expected
\$	\$
Travel Actuals	Expected
\$	\$

#### SCOPE:

To conduct the VLA Sky Survey Critical Design Review.

#### SCHEDULE:

Milestone	Schedule	Target
I VLASS CDR	3/31/17	5/22/17

#### RISK & MITIGATION:

Risk		Mitigation
I Delayed CDR may delay the rest of the VLASS project		I If CDR delayed beyond May 2017 combine CDR with Operational Readiness Review



# POP MILESTONE # 3.5.5 I

## VLA Observing Capability Enhancements

Define software requirements for enabling frequency averaging to setup using standard tools



Cost



Schedule



Scope

### COST:

Labor Actuals	Expected
\$	\$
Material Actuals	Expected
\$	\$
Travel Actuals	Expected
\$	\$

### SCOPE:

For continuum VLA observations at frequencies where RFI is not an issue, the coarsest frequency resolution produced by the WIDAR correlator (2 MHz) is still finer than needed (see EVLA memo 199). Software has been implemented at a low level that supports this, but it needs to be incorporated into the PST and AAT, and requirements are needed for that.

### SCHEDULE:

Milestone	Schedule	Target
I Requirements written	3/31/2017	6/30/2017

### RISK & MITIGATION:

Risk	Mitigation
I Users cannot specify frequency averaging for normal observations.	I Use the current broadcast channels that come out of WIDAR.

# POP MILESTONE # 4.3.10

## Central Development Laboratory

Use IRD source modules to probe-test W-band, I/Q mixer chip



Cost



Schedule



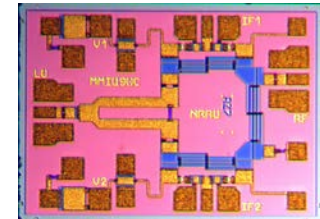
Scope

### COST:

Labor Actuals	Expected
\$	\$
Material Actuals	Expected
\$	\$
Travel Actuals	Expected
\$	\$

### SCOPE:

Received 75-110 GHz IQ mixer chip (photo on the right), but too late to be tested this past quarter as planned. Testing in Q3 FY2017.



### SCHEDULE:

Milestone	Schedule	Target
I Test the 75-110 GHz IQ Mixer Chip	3/31/2017	6/30/2017

### RISK & MITIGATION:

Risk	Mitigation
I None	

# POP MILESTONE # 4.3.17

## Central Development Laboratory

Development of the Cosmic Twilight Polarimeter



Cost



Schedule



Scope

### COST:

Labor Actuals	Expected
\$	\$
Material Actuals	Expected
\$	\$
Travel Actuals	Expected
\$	\$

### SCOPE:

Construction was completed during this quarter and testing continues in the laboratory. Completion of debugging and testing might extend past 4/30/2017. DARE project.



**Prototype Tone Calibration Module**

### SCHEDULE:

Milestone	Schedule	Target
I Development of the Cosmic Twilight Polarimeter	4/30//2017 (NCE)	4/30/2017

### RISK & MITIGATION:

Risk	Mitigation
I None	

# POP MILESTONE # 5.5.18

## Science Support and Research

### SRDP Requirements Development



Cost



Schedule



Scope

#### COST:

Labor Actuals	Expected
\$	\$
Material Actuals	Expected
\$	\$
Travel Actuals	Expected
\$	\$

#### SCOPE:

No change

#### SCHEDULE:

Milestone	Schedule	Target
1 SRDP Req. Dev.	3/31/2017	9/30/2017
2 SRDP Proj. Plan & Sched Complete	6/30/2017	9/30/2017
3 SRDP Proj. Launch	9/30/2017	Q1 FY18

#### RISK & MITIGATION:

Risk	Mitigation
I None	

# POP MILESTONE # 5.5.28

## Science Support and Research

### BiblioMetrix beta release



Cost



Schedule



Scope

#### COST:

Labor Actuals	Expected
\$81K	\$
Material Actuals	Expected
\$ none	\$7K
Travel Actuals	Expected
\$ N/A	\$ N/A

#### SCOPE:

Oracle-Express APEX (free) was targeted for use to develop the NRAO papers bibliography. Interfaces with scripts and other complexities are leading to re-evaluation of in-house development using the public license APEX perhaps in favor of outsourcing the work.

#### SCHEDULE:

Milestone	Schedule	Target
1 Beta test	3/31/2017	See proposed direction under scope.
2 Production release	6/30/2017	

#### RISK & MITIGATION:

Risk	Mitigation
1 Catastrophic failure of DB	1 CIS Triage
2 Study not acceptable	2 None
3 No funding for project	3 Support provided by end-users

# POP MILESTONE # 6.4.17

## Data Management Software

### Support pulsar phase bin development



Cost



Schedule



Scope

#### COST:

Labor Actuals	Expected
<i>DMS funds this activity at a higher WBS level.</i>	
Material Actuals	Expected
\$	\$
Travel Actuals	Expected
\$	\$

#### SCOPE:

Support of pulsar phase binning to make it available in the low level software.

#### SCHEDULE:

Milestone	Schedule	Target
I Support pulsar phase bin development	03/31/2017	05/31/2017

#### RISK & MITIGATION:

Risk	Mitigation
I Resources	I Make sure everyone understands that it is high priority.



# POP MILESTONE # 6.4.20

## Data Management Software

### NRAO Archive Release 2.5



Cost



Schedule



Scope

#### COST:

Labor Actuals	Expected
<i>DMS funds this activity at a higher WBS level.</i>	
Material Actuals	Expected
\$	\$
Travel Actuals	Expected
\$	\$

#### SCOPE:

Operationalize the new NRAO Archive and RPI previously prototyped – Release version 2.5

#### SCHEDULE:

Milestone	Schedule	Target
1 Release 2.5 (internal)		complete
2 Release 2.5 (public)	1/30/2017	5/19/2017

#### RISK & MITIGATION:

Risk	Mitigation
1 Schedule depends on key team staff	1 Cross-train new and existing staff to expand delivery capability

# POP MILESTONE # 6.4.2I

## Data Management Software

### NRAO Archive Release 3.0



Cost



Schedule



Scope

#### COST:

Labor Actuals	Expected
<i>DMS funds this activity at a higher WBS level.</i>	
Material Actuals	Expected
\$	\$
Travel Actuals	Expected
\$	\$

#### SCOPE:

Extend the capabilities of the archive to address critical VLASS requirements - Release 3.0.

#### SCHEDULE:

Milestone	Schedule	Target
1 Release 3.0	3/31/2017	9/8/2017
2 Release 3.0 (public)	3/31/2017	11/30/2017

#### RISK & MITIGATION:

Risk	Mitigation
1 Schedule depends on key team staff	1 Cross-train new and existing staff to expand delivery capability

# POP MILESTONE # 7.4.7

## Program Management Department

### LBO Input to PMD SOPs



Cost



Schedule



Scope

#### COST:

Labor Actuals	Expected
\$	\$
Material Actuals	Expected
\$	\$
Travel Actuals	Expected
\$	\$

#### SCOPE:

No change

#### SCHEDULE:

Milestone	Schedule	Target
I LBO Input to PMD SOPs	12/31/2016	4/30/2017

#### RISK & MITIGATION:

Risk	Mitigation
I None	

# POP MILESTONE # 7.4.12

## Program Management Department

### CDL PM/SE Learning Opportunities



Cost



Schedule



Scope

#### COST:

Labor Actuals	Expected
\$	\$
Material Actuals	Expected
\$	\$
Travel Actuals	Expected
\$	\$

#### SCOPE:

No change

#### SCHEDULE:

Milestone	Schedule	Target
I CDL PMD Learning session	3/31/2017	4/30/2017

#### RISK & MITIGATION:

Risk	Mitigation
I Low	I Scheduled for Q3

# POP MILESTONE # 8.5.4

## Education and Public Outreach

### Three-element Teaching Interferometer pilots



Cost



Schedule



Scope

#### COST:

Labor Actuals	Expected
\$	\$
Material Actuals	Expected
\$	\$
Travel Actuals	Expected
\$	\$

#### SCOPE:

Rather than develop pilot activities or workshops for equipment that has been irreparably damaged, this milestone has been cancelled. See Exception report for Plan B.

#### SCHEDULE:

Milestone	Schedule	Target
I Cancelled	3/31/2017	none

#### RISK & MITIGATION:

Risk	Mitigation
I Collaboration with NM Tech	I Meeting set to come up with a new set of telescopes to replace the damaged ones.

# POP MILESTONE # 10.3.10

## Office of Diversity & Inclusion

### Sister Cities Needs Assessment



Cost



Schedule



Scope

#### COST:

Labor Actuals	Expected
\$	\$
Material Actuals	Expected
\$	\$
Travel Actuals	Expected
\$	\$

#### SCOPE:

No change

#### SCHEDULE:

Milestone	Schedule	Target
I Needs assessment	3/31/2017	6/30/17

#### RISK & MITIGATION:

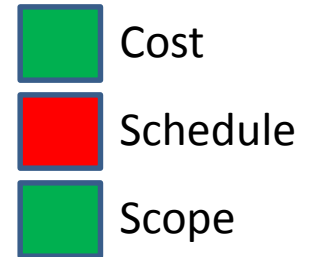
Risk	Mitigation
I Low	I Consultant scheduled



# POP MILESTONE # 11.7.1

## Human Resources

Develop/Disseminate Workplace Violence Prevention Policy in coordination with ESS



### COST:

Labor Actuals	Expected
\$	\$
Material Actuals	Expected
\$	\$
Travel Actuals	Expected
\$	\$

### SCOPE:

No change

### SCHEDULE:

Milestone	Schedule	Target
I Develop/Disseminate Workplace Violence Prevention Policy	3/31/2017	4/30/2017

### RISK & MITIGATION:

Risk	Mitigation
I Low	

# POP MILESTONE # 11.7.14

## Human Resources

### Workforce Management Plan



Cost



Schedule



Scope

#### COST:

Labor Actuals	Expected
\$	\$
Material Actuals	Expected
\$	\$
Travel Actuals	Expected
\$	\$

#### SCOPE:

No change

#### SCHEDULE:

Milestone	Schedule	Target
I Develop/Distribute WFM Plan	3/31/17	09/30/2017

#### RISK & MITIGATION:

Risk	Mitigation
I None	

# POP MILESTONE # 13.7.3

## ADMIN

MIS: Equipment Purchase for JDE Upgrade from 9.0 to 9.2



Cost



Schedule



Scope

### COST:

Labor Actuals	Expected
\$	\$
Material Actuals	Expected
\$	\$
Travel Actuals	Expected
\$	\$

### SCOPE:

- JDE Upgrade from 9.0 to 9.2 (Q3 POP goal 13.7.4) canceled and will be moved to 2018 POP.
- New server equipment project plan and schedule for 2017
- Equipment order completed March 31.

### SCHEDULE:

Milestone	Schedule	Target
1 Order Equipment	12/31/2016	03/31/2017
2 Install Equipment	03/31/2017	08/11/2017

### RISK & MITIGATION:

Risk	Mitigation
I Low	I Short lead time for order

# POP MILESTONE # 13.7.6

## ADMIN

TTO: Loading of NRAO Intellectual Property information



Cost



Schedule



Scope

### COST:

Labor Actuals	Expected
\$	\$
Material Actuals	Expected
\$	\$
Travel Actuals	Expected
\$	\$

### SCOPE:

No change

### SCHEDULE:

Milestone	Schedule	Target
I Implement Software	FY2017 Q2	Not applicable

### RISK & MITIGATION:

Risk	Mitigation
I None	



# **QSU2 FY2017 Report**

**Laura Lockledge, Budget**



## Q2 Overall Comments

- Benefits @35.6% vs. 36% budget. Favorable result for this time of year.
- CSA-1, CSA-2 Carryforwards posted in CSA-A, CSA-V.
- Result of AUI audit final adjustments left (NRAO) balances of:
  - CSA-1 \$499 (ceded to GBO/LBO)
  - CSA-2 <\$5,671> (requires adjustment to CSA-2,A)
- FY2017 raise and promotions processes complete and posted.
- Significant over-recovery in ICC, pursuing NICRA adjustment April/May.
- Expecting increase in AUI IDC rate – will be partially offset by ICC decrease.



# CSA-V

	FY17 POP Budget	FY17 Rev. Budget	FY17 YTD Expenses	YTD % Rev Budget
NSF	32,000	32,000	18,667	58.3%
Carryforward/Other	0	0	100	0.0%
<b>Total CSA-V Revenues</b>	<b>32,000</b>	<b>32,000</b>	<b>18,767</b>	<b>58.6%</b>
Telescope Ops	10,672	10,800	5,050	46.8%
Development	3,276	3,319	1,556	46.9%
Science Ops	6,026	5,931	2,426	40.9%
Admin Services	9,179	9,225	3,971	43.0%
Director's Office	1,987	1,955	799	40.8%
Education & Public Outreach	644	652	205	31.4%
<b>FY17, Total</b>	<b>31,784</b>	<b>31,882</b>	<b>14,007</b>	<b>43.9%</b>
<b>FY17 CSA-V Net</b>	<b>216</b>	<b>118</b>	<b>4,761</b>	

- VLA Infrastructure project on track
- Tight budgets in NM Ops and CDL, monitoring closely.
- Strong revenues and breakage in EPO offsetting expenses.
- Includes fund source adjustments of \$29K

# CSA-A

	FY17 POP Budget	FY17 Rev. Budget	FY17 YTD Expenses	YTD % Rev Budget
NSF	43,250	43,250	24,905	57.6%
Carryforward	12,385	13,376	14,399	107.6%
Canadian Contribution	1,528	1,528		0.0%
Other	345	697	352	50.5%
<b>Total CSA-A Revenues</b>	<b>57,508</b>	<b>58,851</b>	<b>39,656</b>	<b>67.4%</b>
Telescope Ops	22,431	24,715	10,194	41.2%
Development	5,313	12,406	873	7.0%
Science Ops	7,756	8,401	3,014	35.9%
Admin Services	6,819	9,059	3,587	39.6%
Director's Office	2,406	3,521	1,255	35.6%
Education & Public Outreach	694	694	236	34.0%
<b>FY17, Total</b>	<b>45,419</b>	<b>58,796</b>	<b>19,159</b>	<b>32.6%</b>
<b>FY17 CSA-A Net</b>	<b>12,089</b>	<b>55</b>	<b>20,497</b>	

- Includes Q1 NSF funding adjustments (less \$700K for JAO and reclass of \$352K to ASIAA line).
- Carryforward includes Multicancha funding.
- Includes fund source adjustments of \$21K.

	FY17 POP Budget	FY17 Rev. Budget	FY17 YTD Expenses	YTD % Rev Budget
NRAO Recoveries	11,931	11,931	5,830	48.9%
External Recoveries	4,501	4,501	2,187	48.6%
<b>Total ICC Revenues</b>	<b>16,432</b>	<b>16,432</b>	<b>8,017</b>	<b>48.8%</b>
Telescope Ops	103	103	60	58.3%
Development	442	442	183	41.4%
Science Ops	1,850	1,850	891	48.2%
Admin Services	11,897	11,897	5,113	43.0%
Director's Office	2,140	2,140	923	43.1%
<b>FY17, Total</b>	<b>16,432</b>	<b>16,432</b>	<b>7,170</b>	<b>43.6%</b>
<b>FY17 ICC Net</b>	<b>0</b>	<b>0</b>	<b>847</b>	

- Over-recovered by \$847K; includes fund source adjustments of \$20K.
- External recoveries on track. Internal recoveries ahead of internal MTDC spending.
- Underestimate of MTDC, pursuing NICRA adjustment.



# FYI5 and FYI6 POP Milestones

# POP MILESTONE # FY15 3.4.62

Admin (from NM Ops)

Renew VLBA lease for SC and OV



Cost



Schedule



Scope

## COST:

Labor Actuals	Expected
No changes	
Material Actuals	Expected
Travel Actuals	Expected
No changes	

## SCOPE:

Owens Valley, CA site lease is not renewed. LBO is awaiting lease negotiation outcome by Caltech (we sublease from Caltech) and LA Power and Water. R Sakshaug contacted James W. Lamb, Owens Valley Radio Observatory Director, on 04/11/2017. He did not have an update and could not offer a timetable.

## SCHEDULE:

Milestone	Schedule	Target
Owens Valley lease renewed	03/31/15	Unknown

## RISK & MITIGATION:

Risk	Mitigation
1. Impact on VLBA operating budget (increase in lease cost)	Adjust VLBA Operating budget, if necessary.
2. Impact on VLBA operations	Avoid by periodic follow up of Caltech negotiation progress.



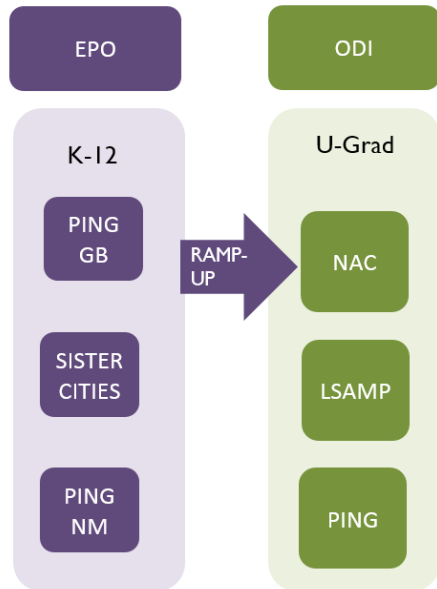
# **QSU2 FY2017 Exceptions Report**

## **Office of Diversity & Inclusion**



# RAMP-UP – A Pilot with Hampton University

## Radio Astronomy: Middle/high-school Path to University Physics



- Collaboration between NRAO, Hampton University, and Hampton City School District (HCS)
- Piloted Winter/Spring, 2017
  - Four HCS high school students
  - Two former PING students
  - Research under Hampton NSF grant
  - Students co-supervised by NAC undergrad at Hampton
- Testing optical telescope to study impact of comets on Jupiter
- Students presented research at AAAS/Emerging Researchers National (ERN) conference and NAC workshop



# Radio Astronomy: Middle/high-school Path to University Physics



RAMP-UP students assembling and testing the Celestron AstroMaster 130 EQ telescope



RAMP-UP students presenting at 2017 AAAS/ERN Conference in Washington, DC





# **QSU2 FY2017 Exceptions Report**

## **Education and Public Outreach**



# Exception Report

## EPO/News and media



### Seven elusive dwarf galaxy groups revealed

The discovery forms an early piece of the galactic evolution puzzle.

A piece of the galactic growth chart has been revealed with seven gangs of tiny galaxies, long-sought by astronomers, confirmed in *Nature Astronomy*.

The finds provide insights into how mid-sized galaxies, such as our own Milky Way, formed.

Astronomers think most medium-to-large galaxies grew through collisions. You can see evidence for such mergers – streams of stars and gas can be flung out as two galaxies combine.

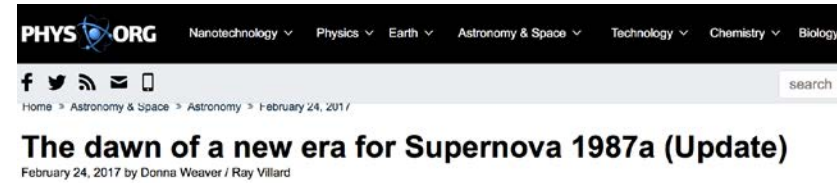
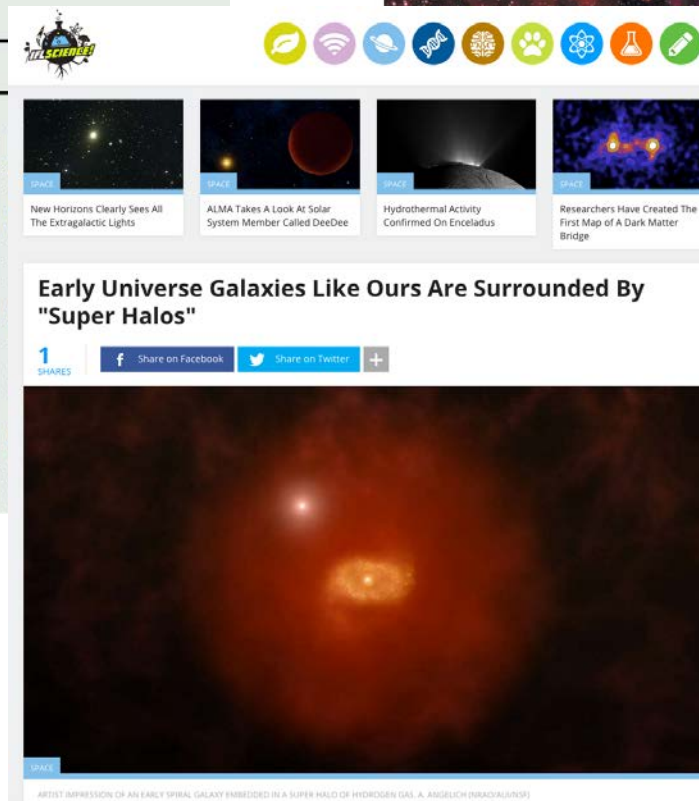
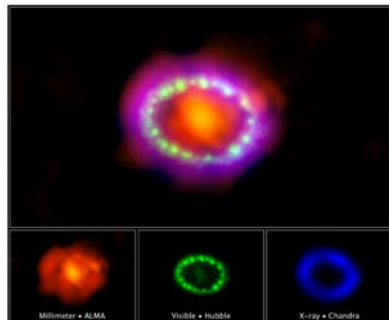
The Milky Way and our nearest major galactic neighbour Andromeda are on a collision course, tipped to combine into a larger galaxy in around four billion years.

Of course, that's a long wait. So researchers find and examine groups of dwarf galaxies, 10 to 1,000 times smaller than the Milky Way, to see if they might show signs of such mergers.

The problem is dwarf galaxies are hard to find, let alone



Four dwarf galaxies identified by astronomers. These tiny galaxies can offer insight into the formation of larger ones, such as the Milky Way.



# Exception Report

## EPO News and Media cont'd

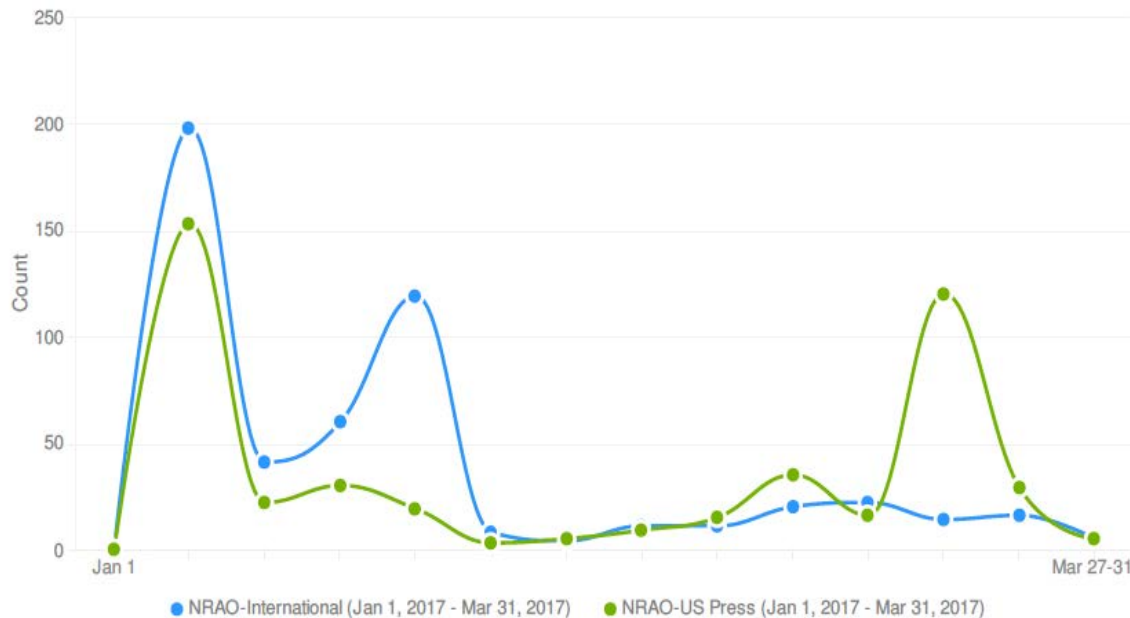
- 12 press releases issued in Q2

- Meltwater report tracks media exposure, spikes correspond to these press releases:

- 1/4/17 Precise Location, Distance for FRB
- 1/23/17 Astronomers find Seven Dwarf-Galaxy Groups
- 2/24/17 Dawn of a New Era for Supernova 1987a
- 3/15/17 Protostar Blazes Bright and 3/23/17 Milky Way-like Galaxies in Early Universe Embedded in 'Super Halos'

### Media Exposure

Jan 1, 2017 - Mar 31, 2017

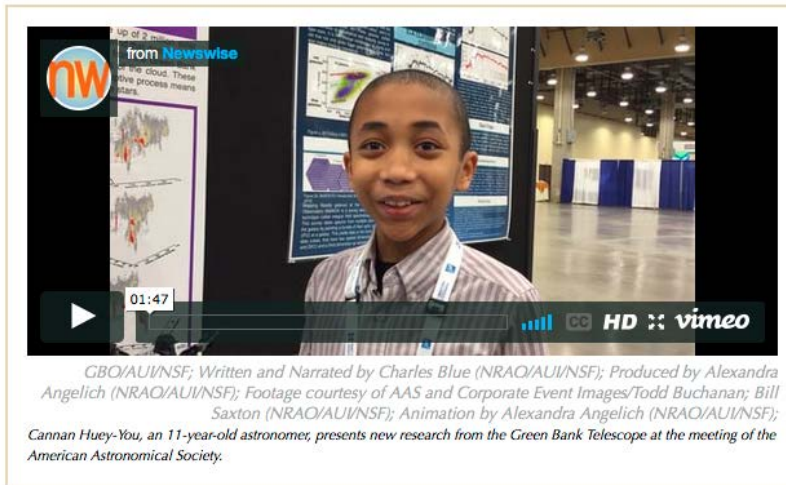


# Exception Report

## EPO News and Media cont'd



Young Astronomer Presents Research



- Under the Service Level Agreement with GBO, NRAO created and distributed a promotional video on Cannan Huey-You, an 11-year-old astronomer who presented his results with GBT data at the AAS. <http://www.newswise.com/articles/young-astronomer-presents-research>
- It was posted on Newswise on Feb. 9; it was seen 2,371 times.
- Charles Blue now meets with GBO the first Monday of each month to go over upcoming releases. Three are “approved” to move forward; one is being written; two more are awaiting acceptance by a journal.



# Exception Report

## EPO Staff changes

- Nan Janney has joined the team as science writer and is tackling our fractured social media presence, developing an integrated strategy to keep all social media fed with a regular diet of NRAO and astronomy content.
- Alex Angelich resigned after seven years of service to NRAO to become an Assistant Art Director for UVa. This is an opportunity to evaluate the team and program needs to determine the proper position to fill this gap.
- Aaron Lawson, multimedia intern, is currently updating and meta tagging all of our archival images so the online gallery contains more technical details about each image.



# Exceptions Continued

## VLA STEAM Education

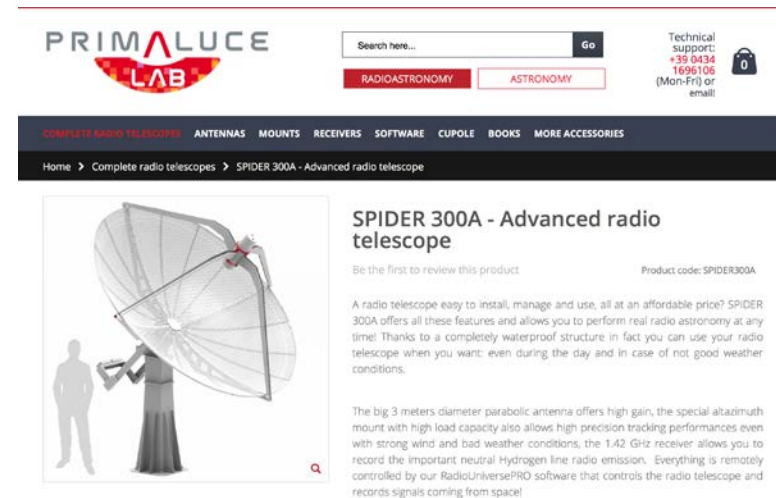
- Although numbers were down slightly for First Saturday Tours, overall visitor numbers were up by 186 over last year's Q2, to 4441 total visitors. Revenue and sales are up by over \$10,000 to \$76,222.
- Special tours were conducted for groups from Tucson, a Robotics league, grad students, Gear Up NM, SARA and Magdalena school.
- Outreach requests are steady. Judy Stanley, VLA Education Officer was featured on a Saturday children's radio show and traveled to Roswell, San Antonio NM Elementary School, Rio Rancho, Sarricino Middle School, and Parkview Elementary School, with each trip serving over 100 students.



# Exceptions Continued

## VLA STEAM Education

- Demand for the outreach offered by VLA Ed Officer remains high, with hundreds served each month.
- At this writing, an offer is out for a STEAM Education Specialist to join her team to grow programming.
- We are investigating the SPIDER 300A radio telescope to replace the damaged interferometer at Etscorn Observatory.
- RAP-NM, a summer camp for rising 9<sup>th</sup> graders, is under development and on track for a pilot this summer.





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