ALMA Cycles **3-4** Status

NAOJ Chile Observatory
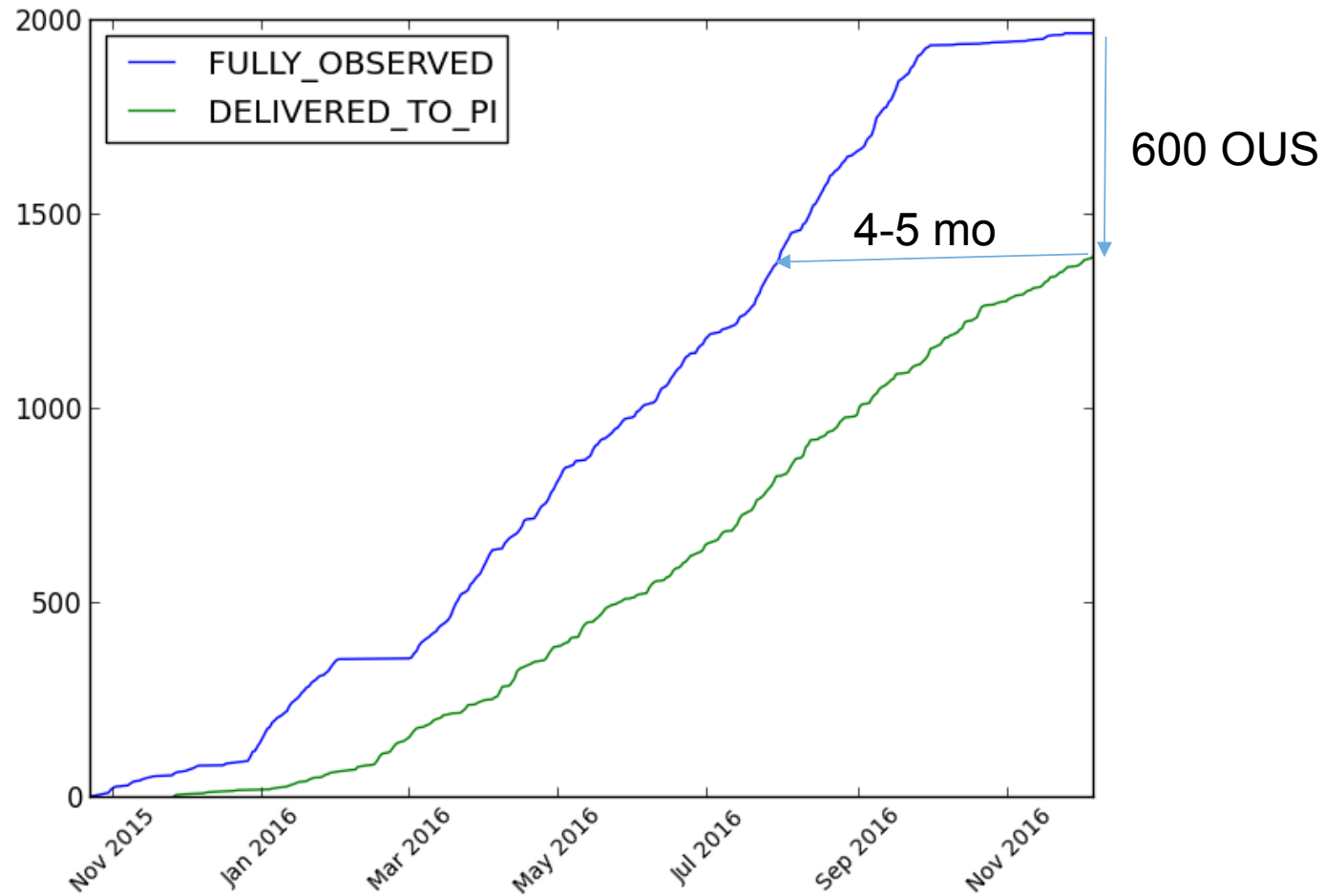
2016 Dec 19-20

(Ken Tatematsu, ARC Manager)
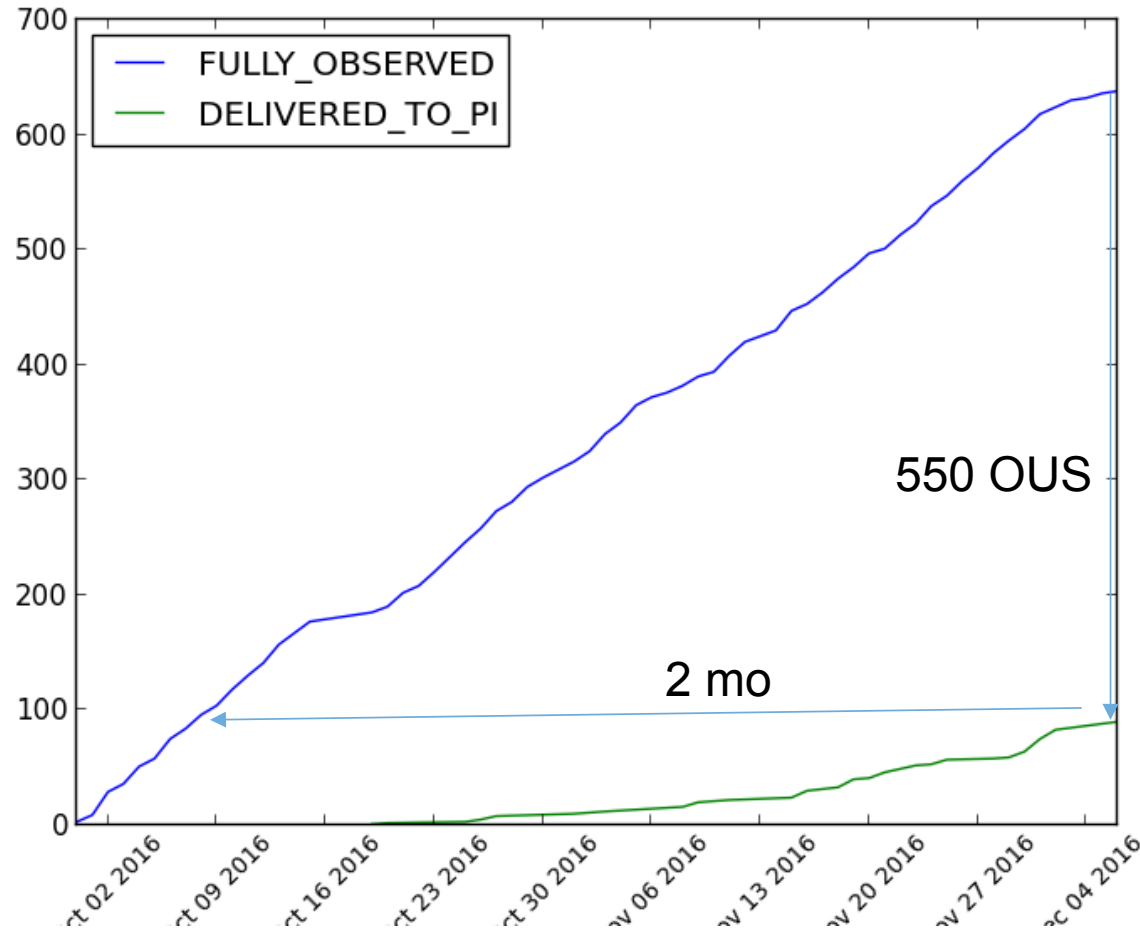
Cy 3 Time on sky per executive (priority = ALL, array config = BL12)

	CL	EA	EU	NA	NA_EA		OTHER
QA0_PASS (h)	228.4	603.0	843.5	928.3	5.1		44.9
QA0_PASS (%)	8.6	**22.7**	31.8	35.0	0.2		1.7
QA2_(SEMI)PASS (h)	179.8	382.3	621.8	665.7	5.1		37.2
QA2_(SEMI)PASS (%)	9.5	20.2	32.9	35.2	0.3		2.0

Cy 3 observed vs delivered (OUS)

Cy 4 observed vs delivered (OUS)

Cy 3 and 4 backlog=1150 OUS
22.5%→260 OUS for EA

(cf. average EA delivery 20-30 OUS/mo,
including JAO reduction)

JAO pipeline got **stuck**

- Original idea: JAO do all pipeline, and ARCs manual reduction for non-standard + alpha
- Current plan: all of JAO + three ARCs do calibration+ imaging pipeline
  - ALMA-J computing prepares 8 more pipeline machines in addition to current 6 pipeline machines
  - Daniel Espada is preparing software deployment, **nine out of ten were successfully pipeline calibrated and imaged.**
  - Typically ~3 days per SB including calibration and imaging. Most of them needed a second pipeline run after flagging.
  - Each of JAO, ARC is requested to add ~ 2 FTE more (EA accepted 1.33 FTE increase)
    - In Japanese ARC, we squeeze 0.5 FTE from task assignment, 1 FTE from contract (from 2017 April), 0.5 FTE from Korean help

Cy 4 **Proposal Review**

Distribution of Cycle 4 proposals by region

	Chile (CL)	East Asia (EA)	Europe (EU)	North America (NA)	Open Skies	Total
Submitted Proposals		Cy3 EA=295.5		NA=465.5		
Number of Proposals	100	341	657	428	45	1571
12m Array time (hours)	919	2573	4919	3594	282	12286
7m Array time (hours)	397	1201	1539	1534	59	4730
Total Power Array time (hours)	337	1385	1214	1249	62	4247
Subscription rate		Cy3 EA=3.1		NA=3.8		
12m Array (3000 h offered)	3.1	3.8	4.9	3.5	-	4.1
7m Array (1800 h offered)	2.2	3.0	2.5	2.5	-	2.6
Total Power Array (1800 h offered)	1.9	3.4	2.0	2.1	-	2.4
Grade A and B Projects						
Number of projects	38	109	161	153	14	475
12m Array time (hours)	294	696	1000	1011	79	3080
7m Array time (hours)	70	259	171	304	6	811
Total Power Array time (hours)	67	190	76	111	6	450
Grade C Projects						
Number of projects	17	40	123	47	5	232
12m Array time (hours)	101	267	681	290	31	1369
7m Array time (hours)	69	114	342	62	16	604
Total Power Array time (hours)	8	146	212	0	28	395

Average EA=6.4hr   NA=6.6hr

Number of proposals and Grade A & B projects by proposal type

Proposal Type	Number Submitted	Number Grade A & B	
All	1571	475	(30%)
ACA	315	79	(25%)
ACA Standalone	30	5	(17%)
Large Programs	27	2	(7%)
Polarization	90	45	(50%)
Solar	53	15	(28%)
Target of Opportunity	21	13	(62%)
VLBI	22	9	(41%)

Cy 4 Grade A

- **EA 16 programs out of out of 135 (12%)**
- Regional balance is not taken into account for Grade A
- It is only taken into account for A+B
- JAO did not take into account regional balance for Grade C, and EA Grade C was small in number. Masa Hayashi (Directors Council) asked to increase it. Finally more EA Grade C were added.

Distribution of execution time for Grade A and B projects by region
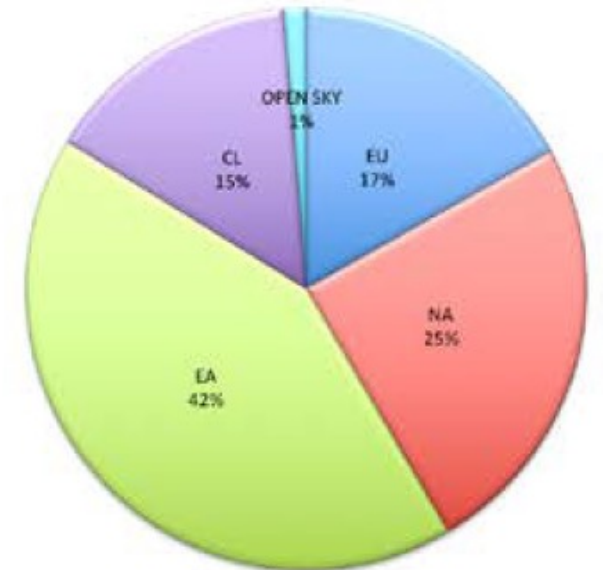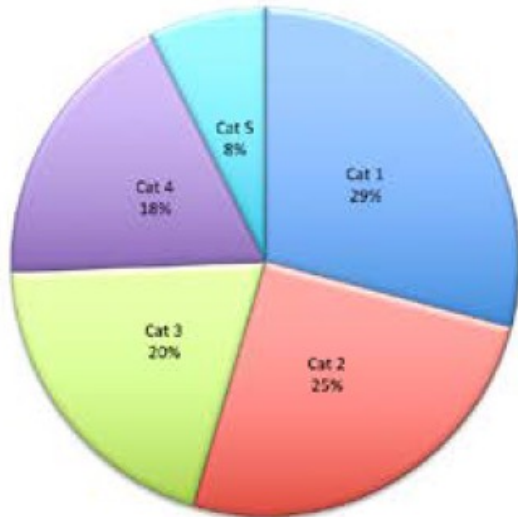

Regions: Grade A and B projects
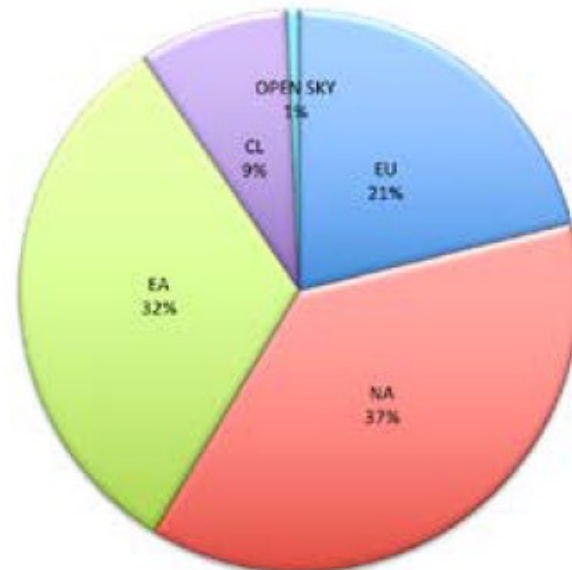
Distribution of execution time for Grade A and B projects by science category

Science Categories: Grade A and B projects

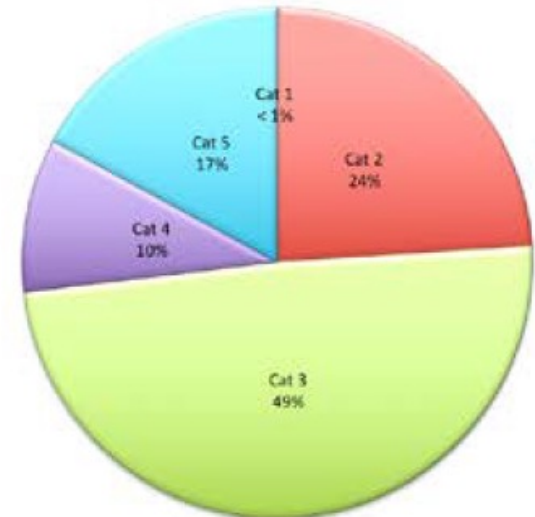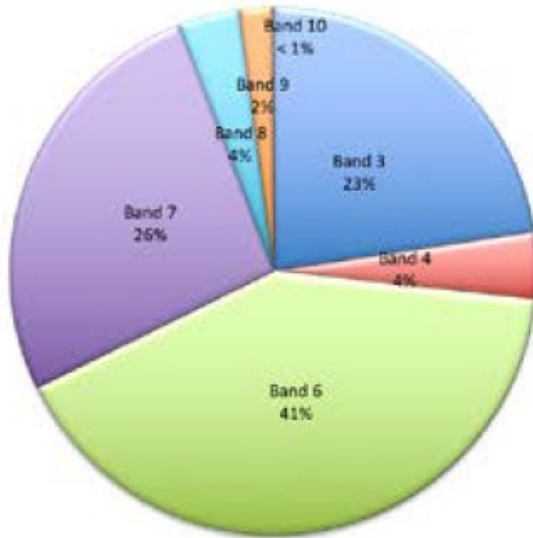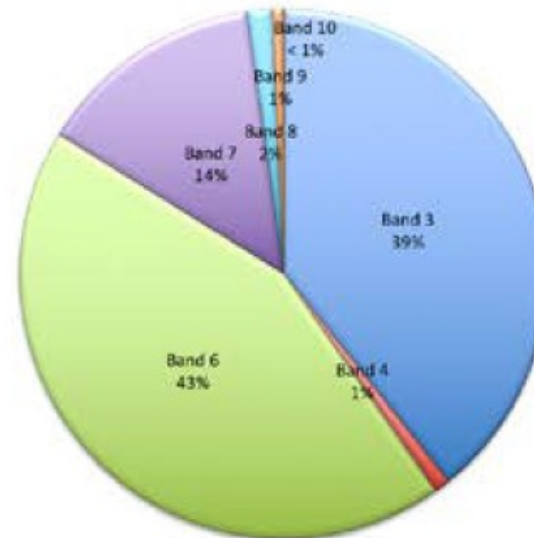# Distribution of execution time for Grade A and B projects by receiver band

Receiver bands: Grade A and B projects

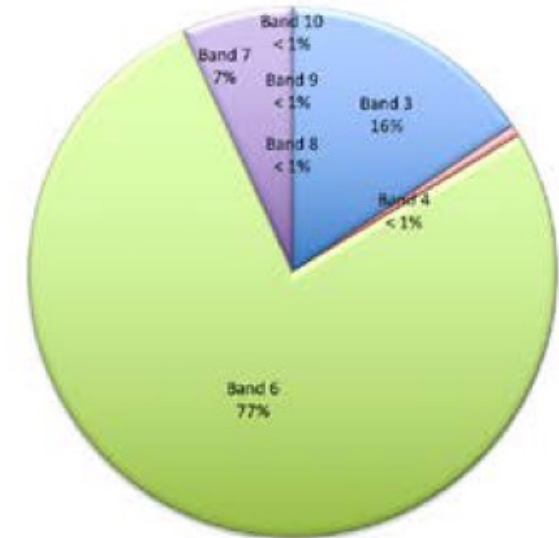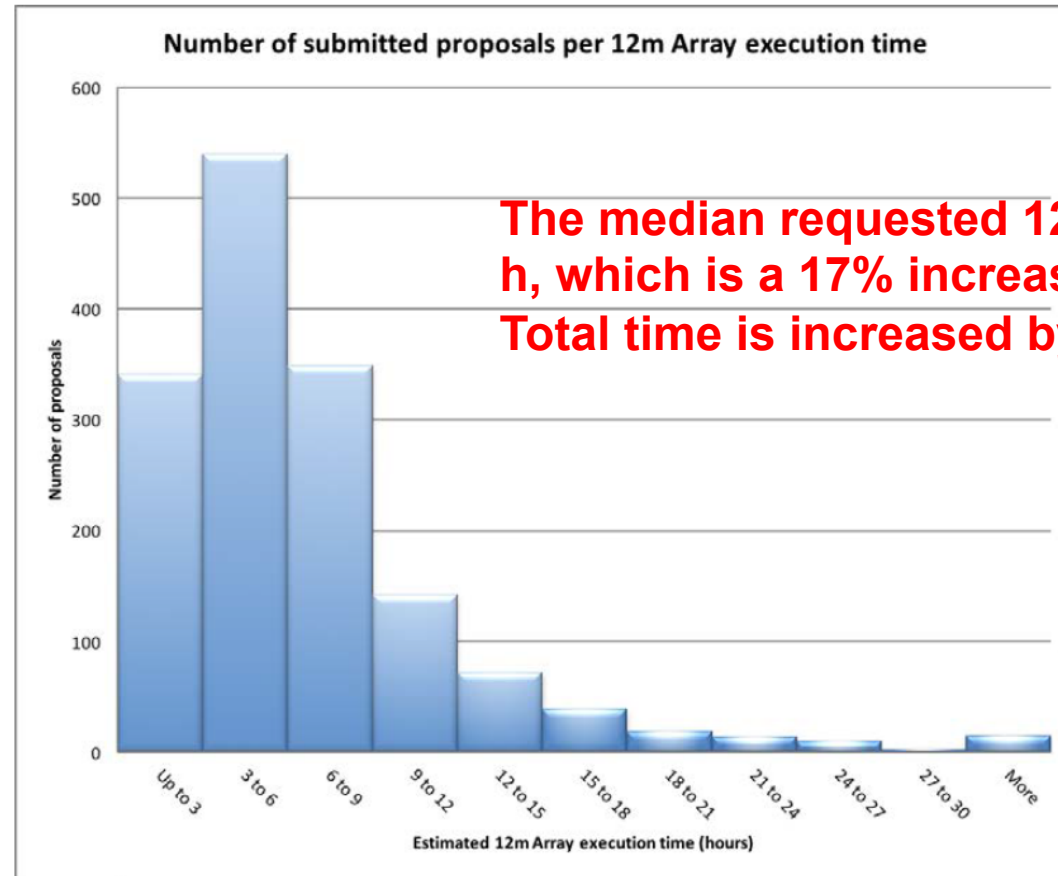# Number of proposals submitted as a function of the 12-m Array execution time, excluding Large Proposals.

Number of submitted proposals per 12m Array execution time

The median requested 12m time per proposal is 5.5 h, which is a 17% increase over Cycle 3.
Total time is increased by 33% [(3000-215)/2100]

The fraction of proposals assigned priority Grade A and B as a function of the estimated 12m Array time.

Fraction of proposals with Grade A & B vs. 12m Array execution time
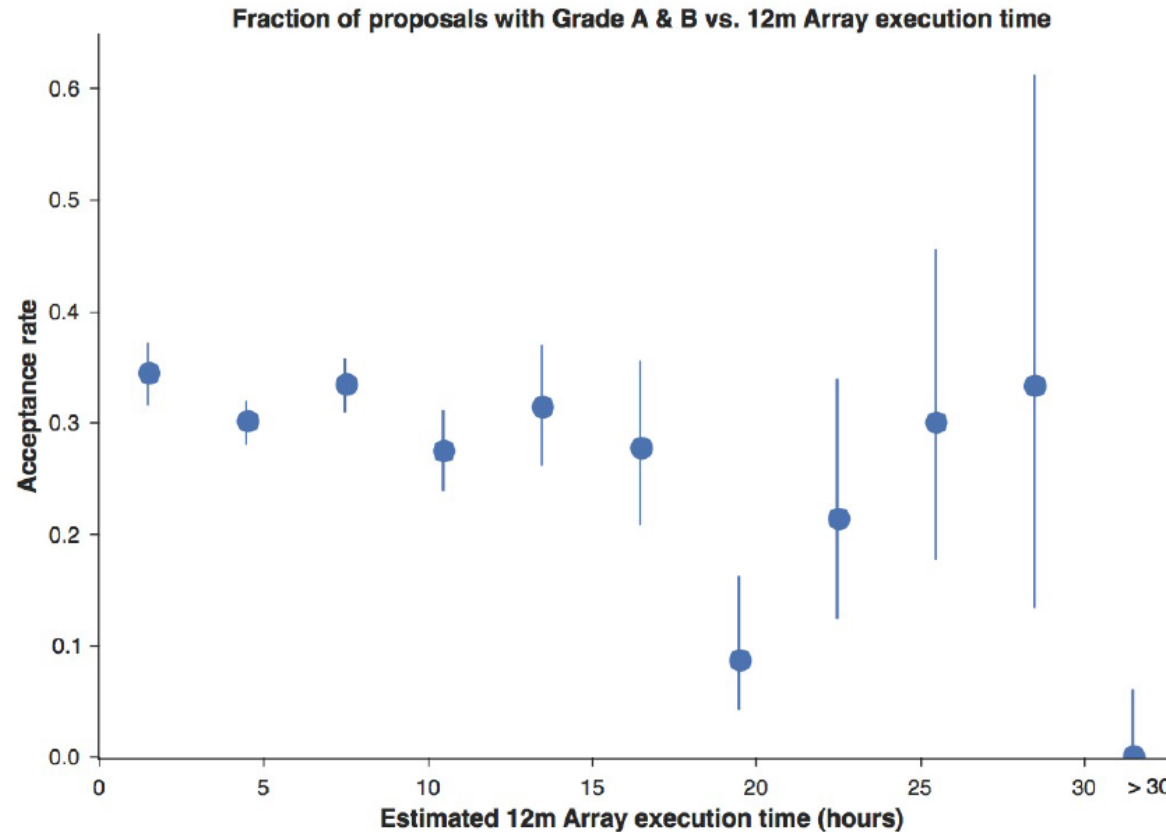
Distribution of the amount of 12-m Array time per LST against LST for the array. Grade A, B, and C
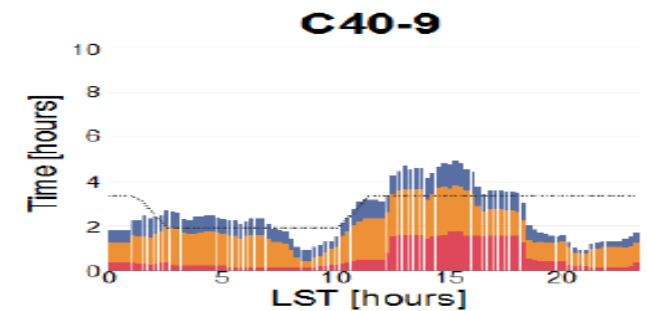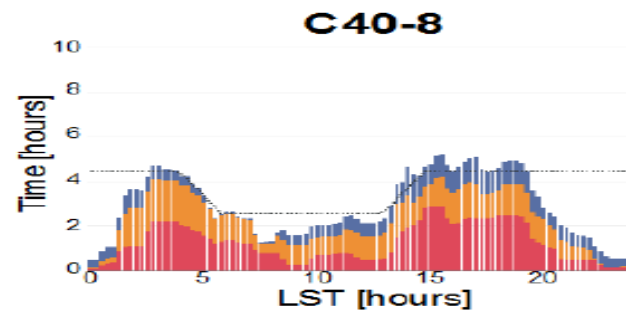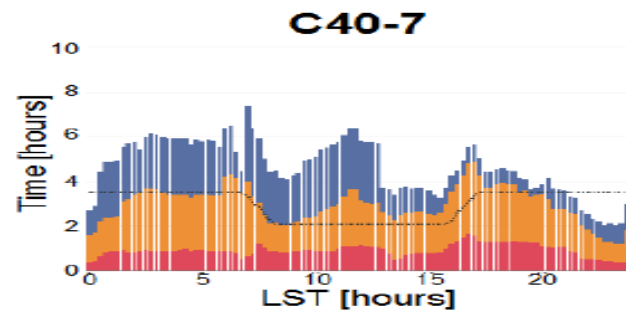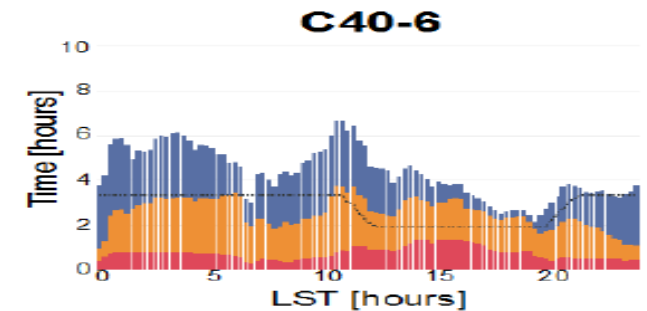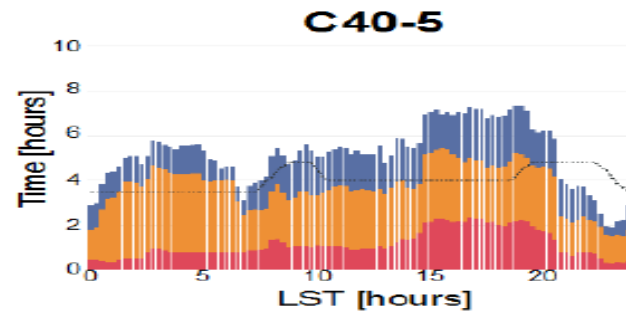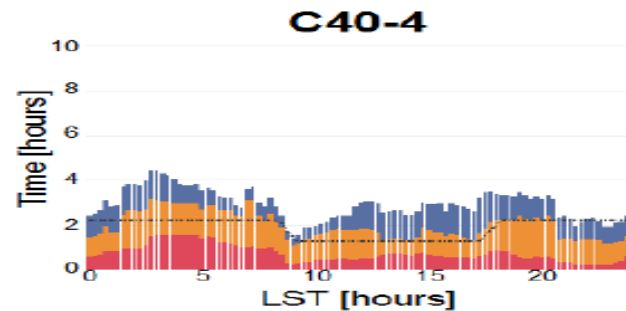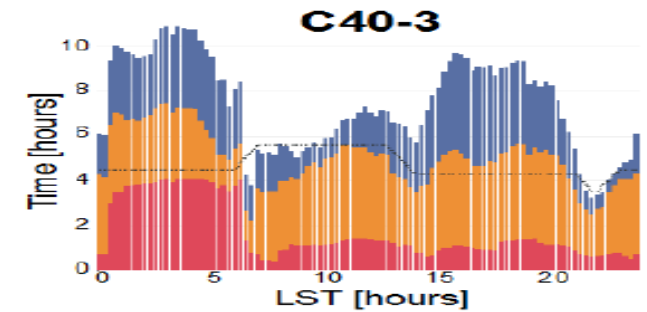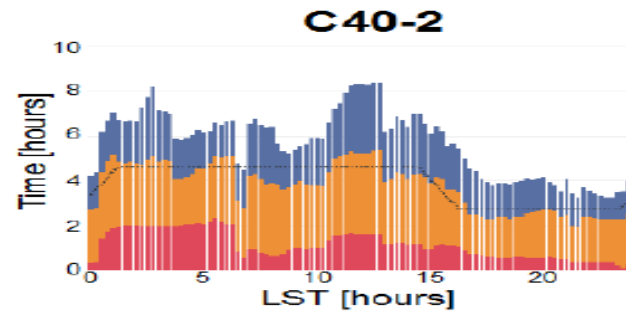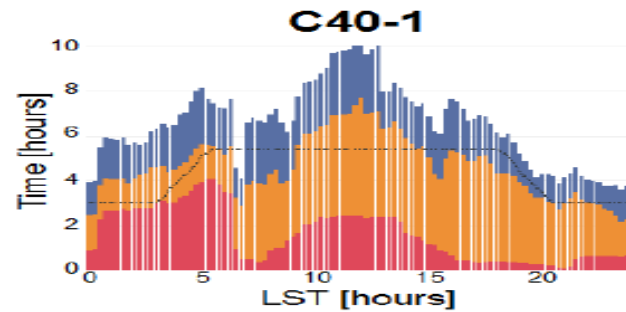
EA Panel members (Japan members)

- Tzu-Ching Chang
- Aeree Chung
- Ken Ebisawa
- Pin-Gao Gu
- Tomoya Hirota
- Akio Inoue
- Hyosun Kim
- Tadayuki Kodama

EA Panel members (Japan members)

- Shinya Komugi
- Yi-Jehng Kuan
- Shih-Ping Lai
- Chang Won Lee
- Jeong-Eun Lee
- Lihwai Lin
- Munetake Momose
- Kentaro Motohara

EA Panel members (Japan members)

- Takayuki Muto
- Tohru Nagao
- Naomasa Nakai
- Hiroyuki Nakanishi
- Masatoshi Ohishi
- Hideo Sagawa
- Masao Saito

EA Panel members (Japan members)

- Kazushi Sakamoto
- Hsien Shang
- Hiroshi Shibai
- Kazuhiro Shimasaku
- Tomoka Tosaki
- Toru Yamada
- Satoshi Yamamoto
- Takaaki Yokoyama

Cycle 4 APRC and ARP members
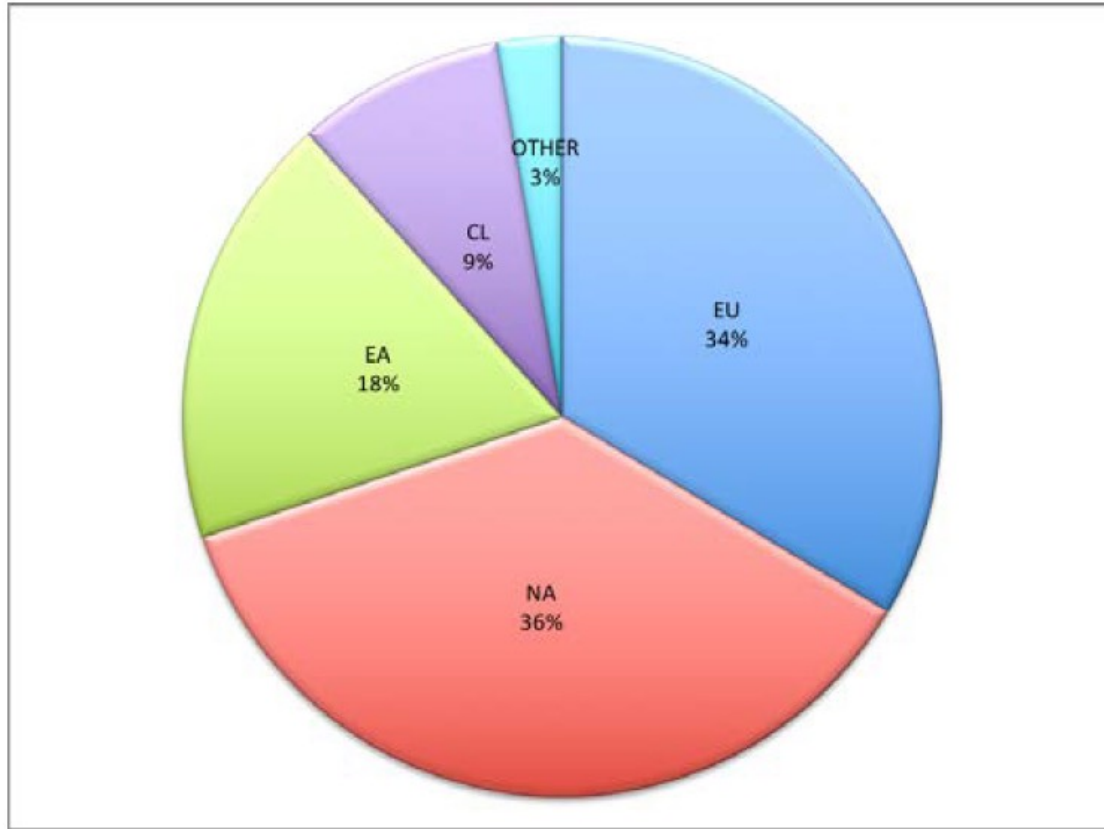
Problems…

Notification of problem affecting certain ALMA data that used mosaic and offset pointing observing modes (mostly Cy 1,2, one example in Cy3)

- **Apr 08, 2016**

- The problem was introduced by the ALMA online system such that there was a small mislabeling of the position of each field recorded in the data in these cases. This was due to an inconsistency between the way in which the online software computed the coordinates that are stored in the field table of the data and the way in which it computed the propagation delays and antenna pointing coordinates.

- All data which were affected seriously have been re-delivered. Proprietary clock was extended.

- OT and online software calculated offsets using Euler angles, but Data Capture mistakenly used approximation of the projection
  - RA = RA0 + dRA/$\cos(\text{Dec0})$
  - Dec = Dec0 + dDec

full-pol Cycle 3 data

- We found
  an issue in the standard polarization calibration scripts used for the quality assurance. This issue yields a time-dependent excess of the amplitude in the calibrated **cross-hand visibilities (XY and YX),** which arises due to **failure to calibrate the X/Y gain amplitude ratio** correctly in the science target. As a result, the polarization image of the science target could be distorted.

- All PI were informed.

- JAO/ARCs are now investigating the impact to the final image products caused by this issue and preparing a new script to fix it.
  As soon as the script is ready, ARCs will reprocess the data and replace the archive package.   Th clock will be extended.

Discussion

Discussion: Double Affiliation

- How do you think Visiting Professor/Scholar to EA institution from other region (NA/EU) submits ALMA proposal as an EA researcher?

Discussion: Double Affiliation

- Proposers Guide: ALMA policies prohibit multiple submissions of the same proposal using different Executive affiliations.

- Users Policy: Multiple submission of the same proposal using different Executive affiliations is not allowed.

Now thrown open for …

- **Complaints?**
- **Questions?**
- **Opinions?**
- **Angry?**
- **Concerns?**

ALMA Cycle 5 Draft Capabilities

NAOJ Chile Observatory

2016 Dec 19-20

(Ken Tatematsu, ARC Manager)

Cycle 5 pre-announcement
(appeared on Dec 16 on ALMA Science Portal)

- Cycle 5 will start in October 2017 and span 12 months.
- **4000 (+1000) hours of 12-m will be available, and 3000 (+1200) hours on ACA.**

21 March 2017	Release of the ALMA Cycle 5 Call for Proposals and observing tool, and opening of archive for proposal submission
20 April 2017	Proposal deadline
End of July 2017	Result of the proposal review sent to Proposers
15 September 2017	Submission of Phase 2 by Proposers
October 2017	Start of ALMA Cycle 5 observations
September 2018	End of Cycle 5 observations

Cycle 5 pre-announcement

- Large Proposals may request more than 50 hours of 12m or more than **150 (←50) hours of ACA stand-alone, for each program**. **Totally**, up to **600 (←450) hours of 12m and 450 (←270) hours of ACA stand-alone** time will be allocated to Large. Only standard modes (see below) are permitted for Large.

- ALMA **encourages** the community to submit Regular Proposals that request **between 10 and 50 hours** of 12m Array time.

Cycle 5 pre-announcement

- **VLBI**: In addition to submitting an ALMA proposal, **3mm** VLBI programs must also submit a proposal to the **GMVA VLBI by 1 February 2017**. Additional information about GMVA will be made available in mid-January 2017. Additional information about **NRAO/EHTC** will appear in the ALMA **Call for Proposals (March 21)**.

Cycle 5 pre-announcement

- **Number of antennas**
  - **43 (+3)** antennas in the 12-m Array
  - 10 7-m antennas and 3 TP antennas
- 12-m Array **Configurations**
  - **10 (←9) configurations**
  - Maximum baselines for the antenna configurations will vary from 0.25 km to 15 km; the planned configuration **schedule** will be released by **1 February** 2017 and published in the Proposer's Guide
  - Maximum baselines of 3.6 (←3.7) km for Bands 8, 9 and 10
  - Maximum baselines of 8.5 (←6.8) km for Band 7
  - Maximum baselines of **16 (←12.6)** km for Bands 3, 4, 5 and 6

Cycle 5 Capabilities

- **90-deg switching for sideband separation** only for TDM and wide FDM spw (1875 MHz bandwidth)→For Band 9 & 10 (DSB) it will effectively double the bandwidth from 8 GHz to 16 GHz per polarization from the DSB receivers.

Cycle 5 non-standard

- Band 8, 9 & 10 observations
- Band 7 observations with maximum baselines > 5 km
- ~~Longest baseline configuration (16 km) in all Bands~~ (Note in 2017 Jan: it will become standard)
- All polarization observations
- Spectral scans
- Bandwidth switching projects (less than 1GHz aggregate bandwidths over all spectral windows)
- Solar observations (both Bands 3 and 6)
- VLBI observations
- User-specified calibrations

New in Cycle 5

- **Band 4 polarization***: Proposals will be accepted for Band 4 observations in all polarization modes, as for the other Bands.

- **Band 5 observations**: Proposals will be accepted for spectral line (12-m, 7m and **Total Power** arrays) and continuum (12-m and 7-m arrays) observations in Band 5. **Polarization*** will be offered on the 12-m array, as for the other Bands.

* non-standard

Questions?