

Korean ALMA Project and Call for Proposal for Cycle 4

Jongsoo Kim

ALMA EA Korean Node, KASI

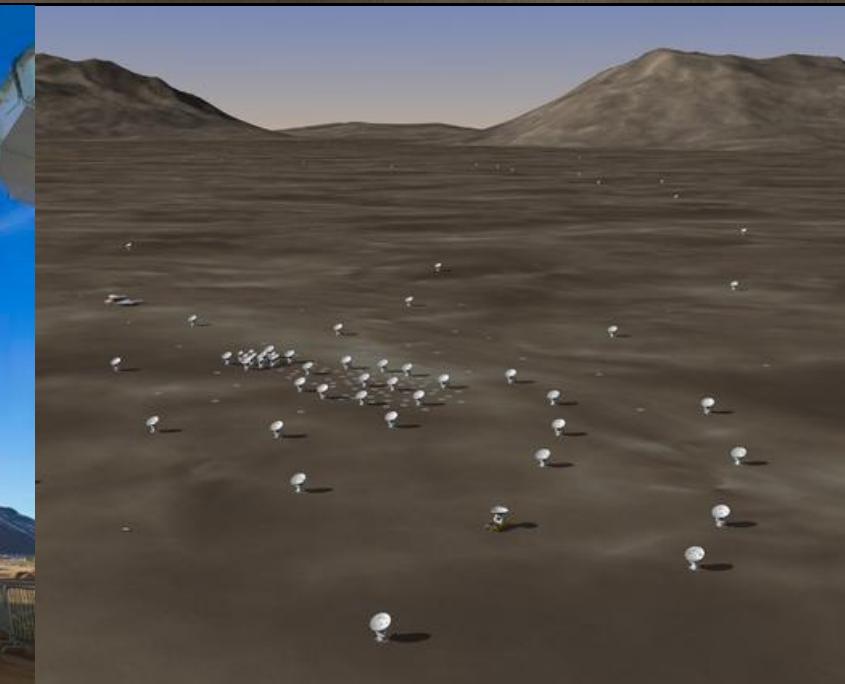
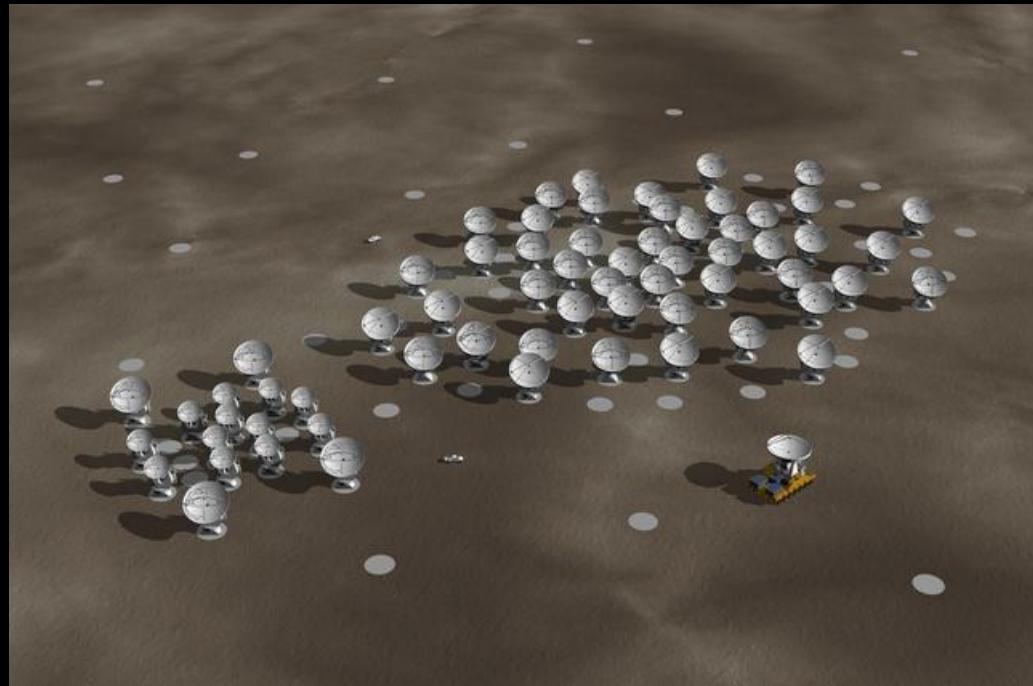
Antennas

50x12m-Array + 12x7m-
Array + 4 12m-TP Array

Longest baseline: 16 km

Current: 66 delivered

Completed in 2013



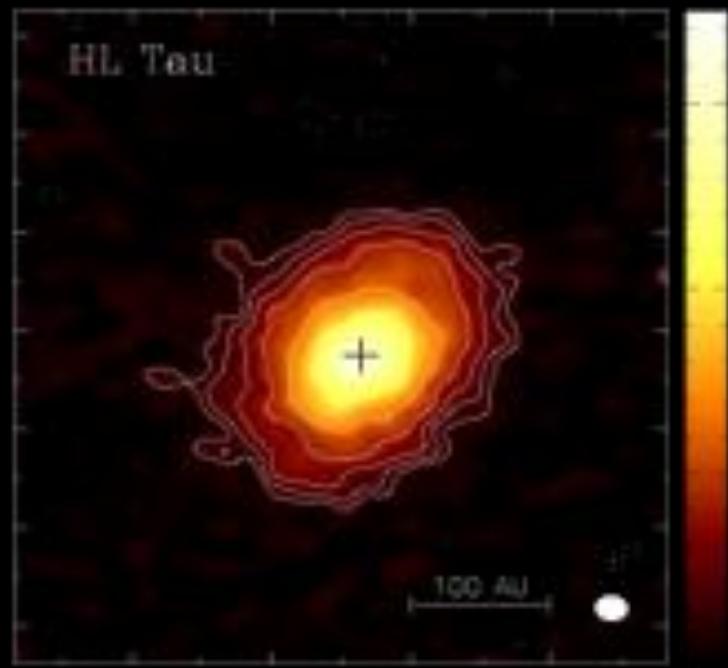


The Atacama Large Millimeter/submillimeter Array (ALMA) is an international partnership of the European Southern Observatory (**ESO**), the U.S. National Science Foundation (**NSF**) and the National Institutes of Natural Sciences (**NINS**) of Japan, together with **NRC** (Canada), **NSC** and **ASIAA** (Taiwan), and **KASI** (Republic of Korea), in cooperation with the Republic of Chile. ALMA -the largest astronomical project in existence- is a single telescope of revolutionary design, composed of 66 high precision antennas located on the Chajnantor plateau, 5000 meters altitude in northern Chile.

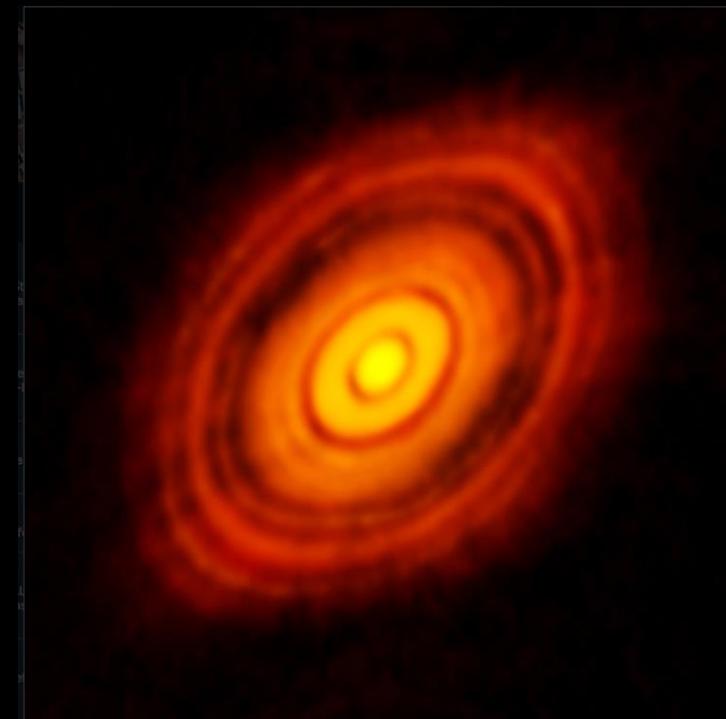
Korean Flag at OSF at 2900m



CARMA vs. ALMA

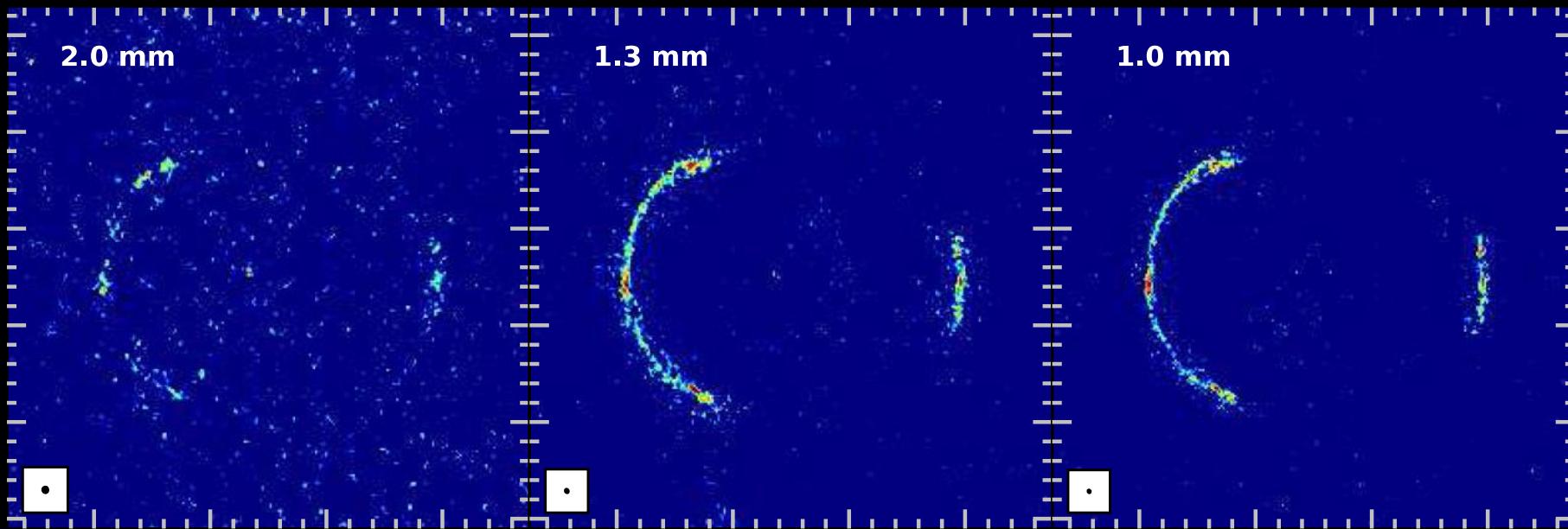


0.13 arcsec@1.3mm
Kwon+ 2011

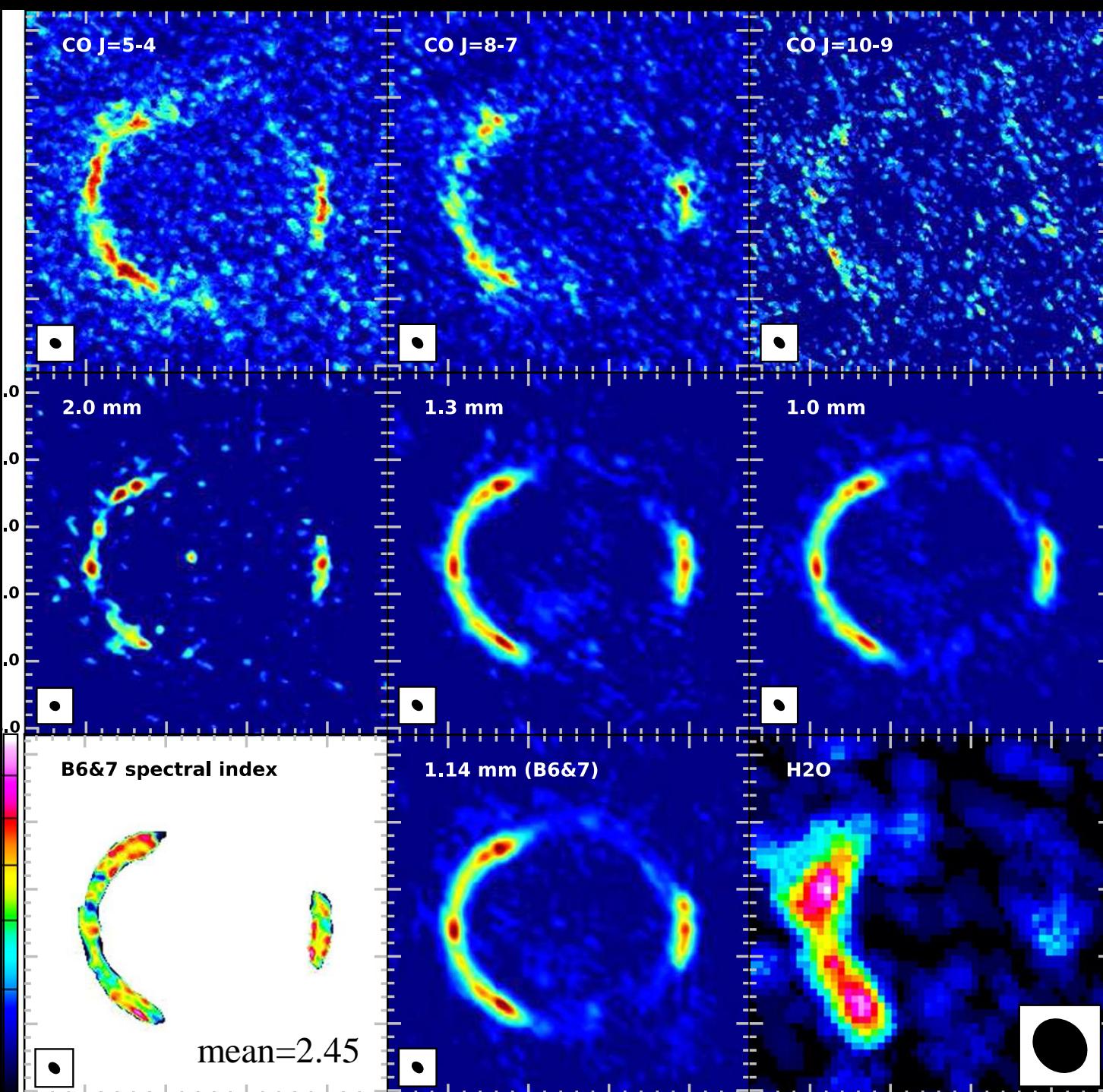


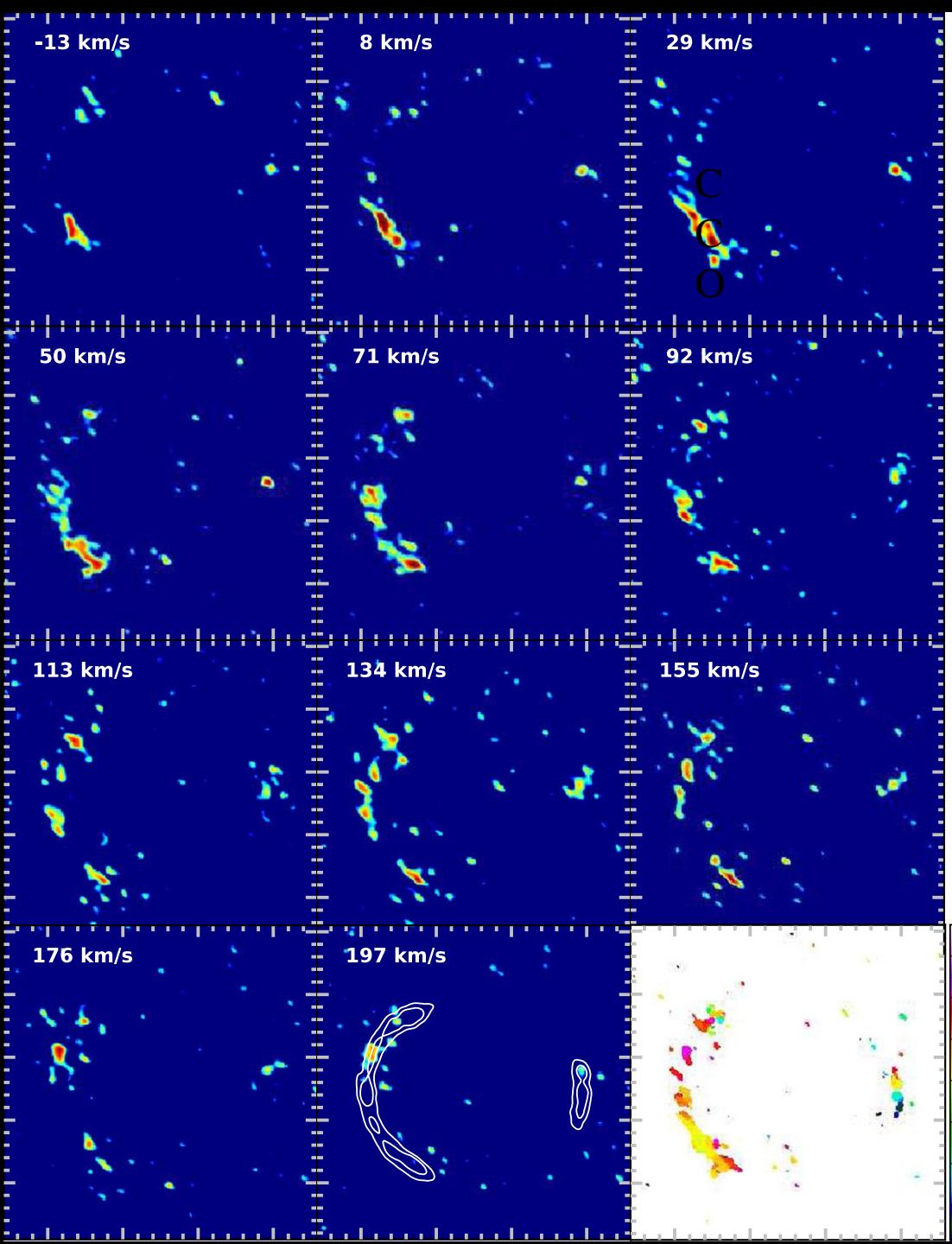
0.035 arcsec@1.3mm
4.5 hour on-source time
SV for long-baselines

SMG SDP.81 at z=3.042



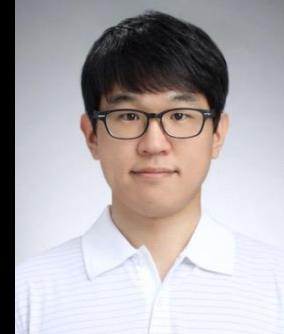
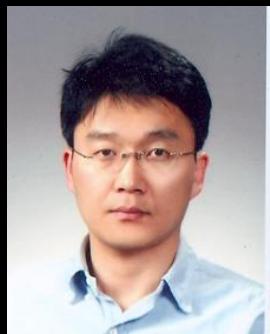
- 2014 ALMA long baseline campaign, 15m ~ 15km, 23mas@1mm, 20~80 better resolution than SMA and PdBI, 180pc@z=3.042
- foreground elliptical at z=0.299, magnification factor = 11





CO J=8-7
R component
Channel Map

People in EA ARC Korean Node



2015 TM photos

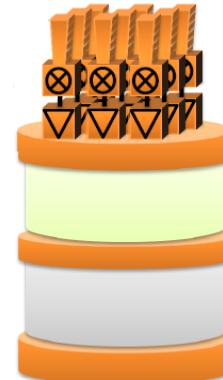
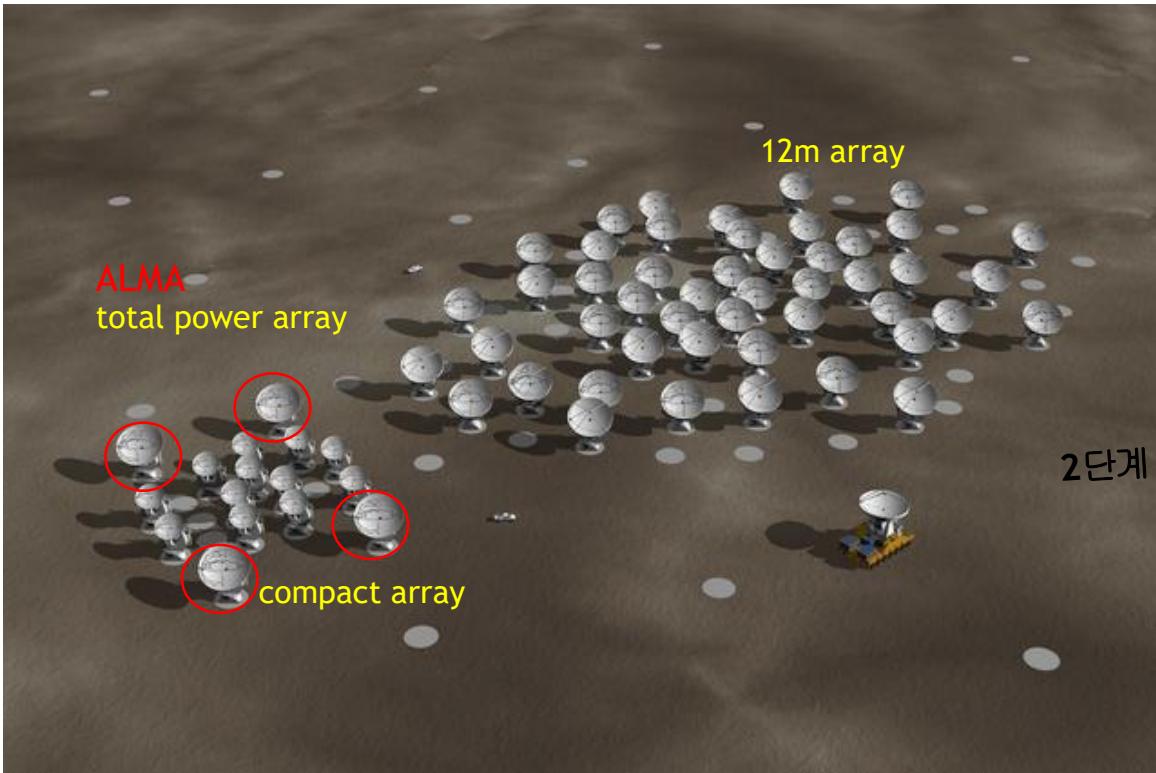


Cycle 3 proposals and other activities

- Cycle 3
 - submitted proposals 25
 - KASI(18), SNU(1), Yonsei(3), KyungHee(2), KIAS(1)
 - successful proposals 2+4
 - B: 2 (KASI+KyungHee), C.filler): 4 (KASI,SNU,Yonsei 2)
- QA2(data reduction): 4 SB
- AoD(Astronomer on Duty in ALMA site): Ji-Hyun Kang
- participation of commissioning observations of the ALMA
 - line polarisation commissionin
 - Sun observation

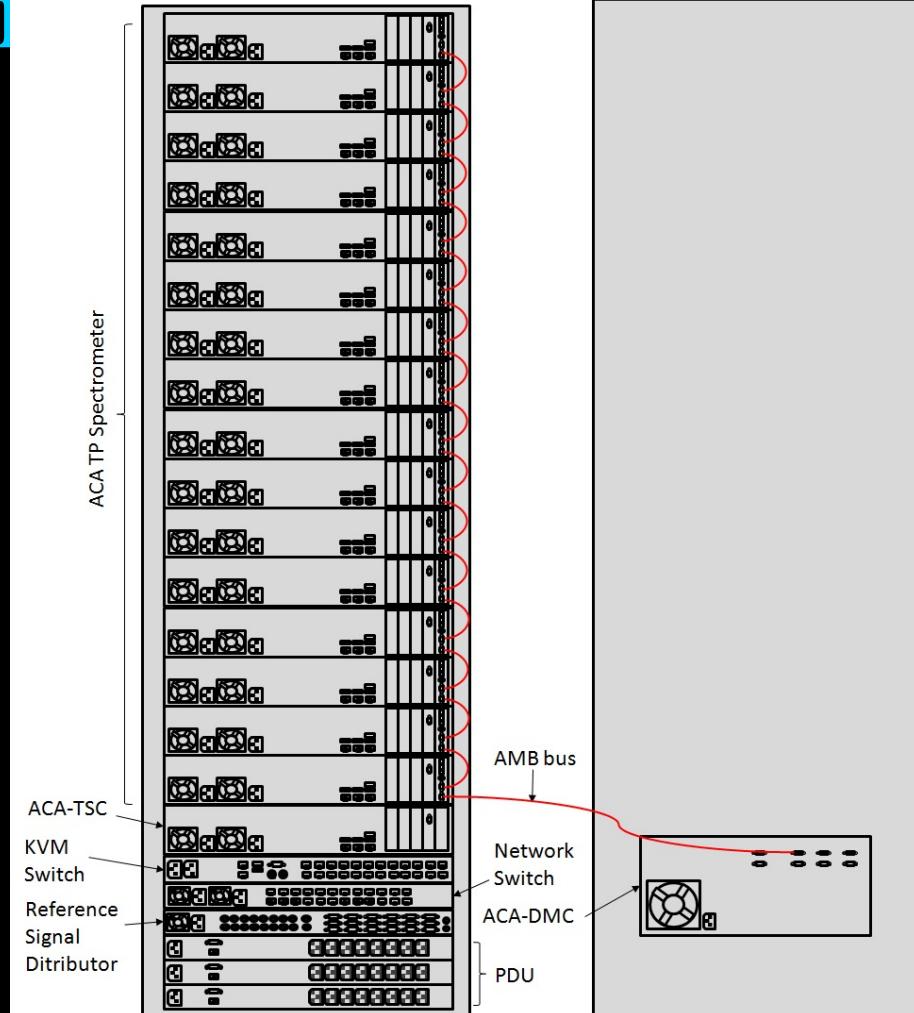
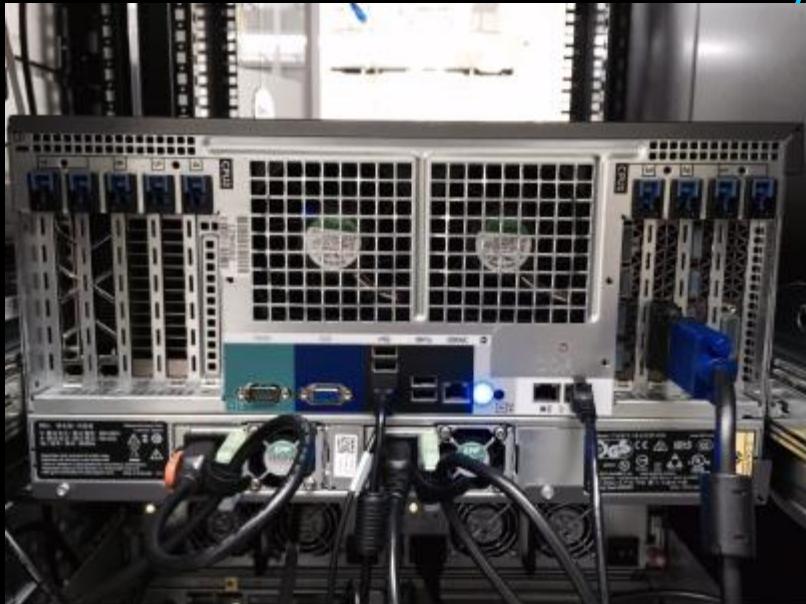
기기 개발 계획

- 2015-2018 ASTE 다중빔 수신기 제작
- 2019-2020 ALMA 다중빔 수신기 시작품 제작
- 2021-2024 ALMA 다중빔 수신기 제작



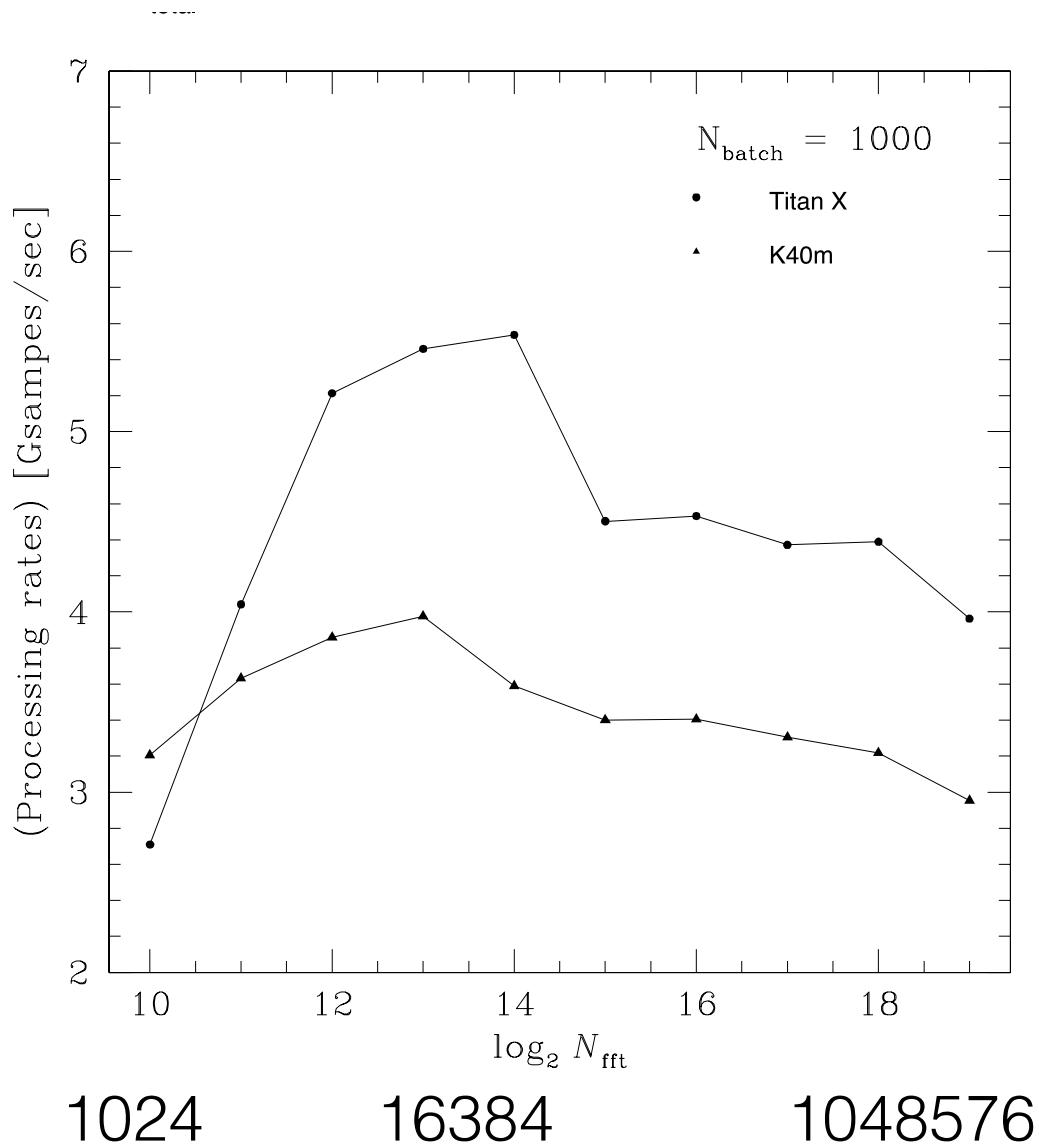
band 7, band 8
차세대 다중빔
수신기(총 8+2개)

GPU spectrometer for KVN and ALMA TP array



Performance

- > 4 G samples/sec (2GHz bandwidth) with one Titan X card
- Titan X is about 30% faster than K30m
- optimisation is needed for the type conversion routine



Key dates for Cycle 4

- 24 March 2016: release of documents, OT, and start of proposal submission
- 21 April 2016 (15:00 UT): proposal deadline
- August 2016: announcement of the results of proposal review
- October 2016: Start of Cycle 4 observations
- September 2017: End of Cycle 4 observations

Total time and Regional Share

- Total observation time
 - 3000 hours for 12m-Array
 - 2000 hours for ACA Array
- Regional Share
 - 22.5% for EA
 - 33.75% for EU
 - 33.75% for NA
 - 10% for Chile

New Capability of Cycle 4

- ACA stand-alone mode
 - 7m-Array + single dish observation
- Large Proposals (50 hours, standard observing mode, two more pages)
- mm-VLBI
 - Global mm-VLBI Array (GMVA): 3mm (Band 3)
 - NRAO/Event Horizon Telescope Consortium (EHT): 1.3mm (Band 6)
- Solar Observations at Band 3 and 6

Special lecture on Cycle 4 proposal @SNU by Prof. Bon-Chul Koo

Lecture hours: Monday 2:00 - 5:00 (to be discussed on March 2)

3월 2일: Introduction to the Course (Koo)

7일: ALMA Current status, Cycle 4 capability (KASI)

14일: Overview of ALMA Science (Tatematsu?)

21일: How to Prepare ALMA proposal (KASI)

28일: Student Presentations on the proposal plans I

4월 4일: Student Presentations on the proposal plans II

11일: Discussion on Proposals

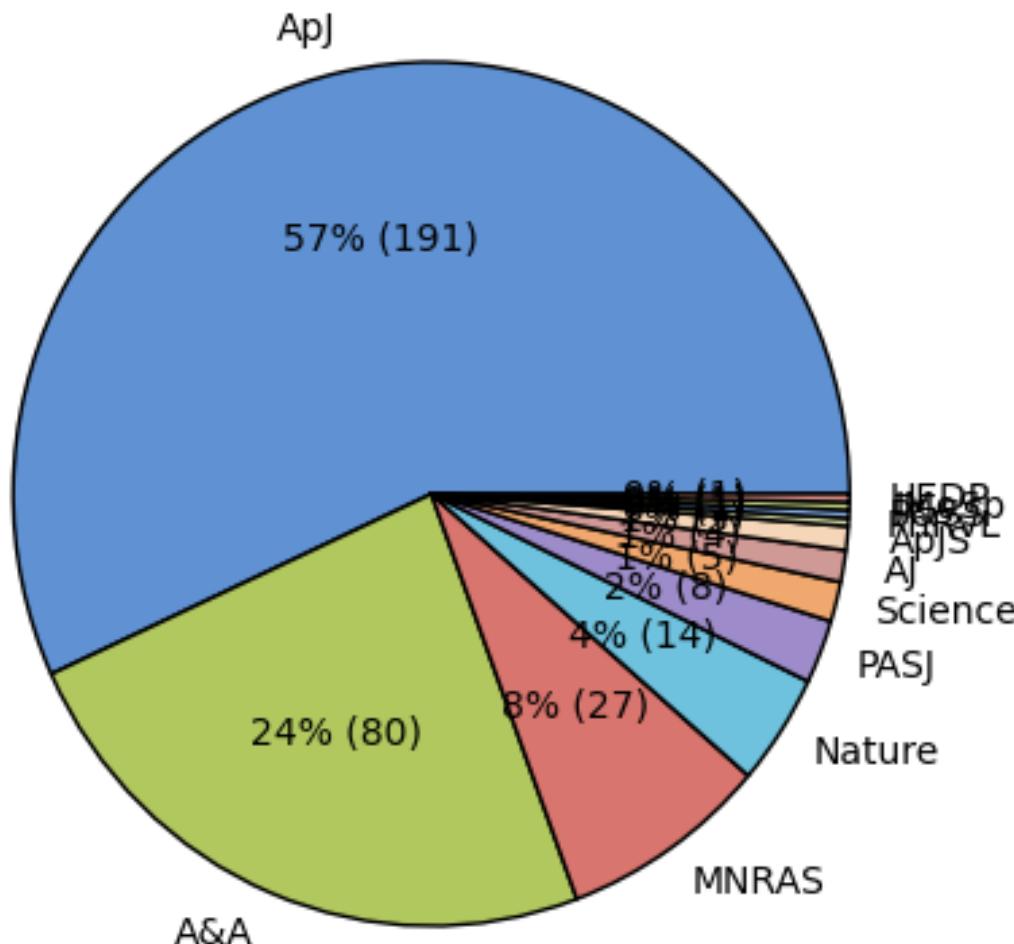
18일: Discussion on Proposals

25일: Course Review

Town hall Meetings

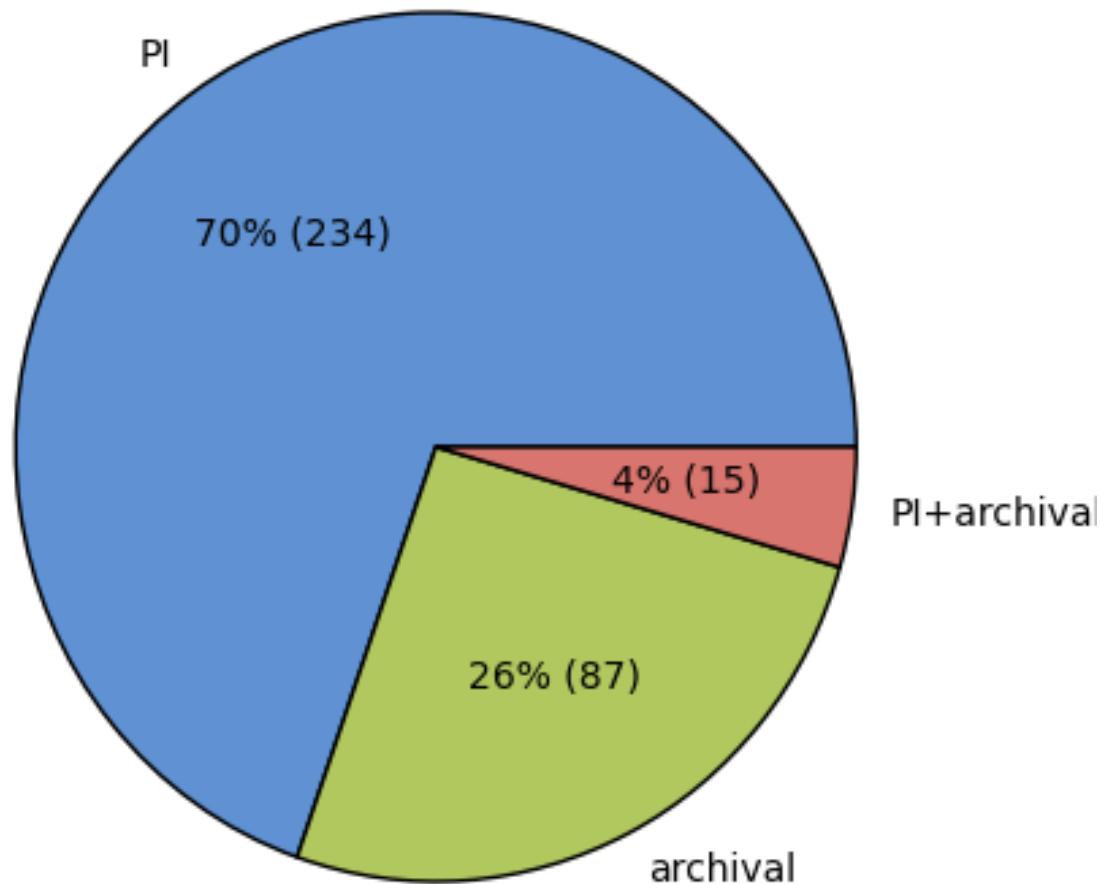
- KIAS: third week of March(?)
- Kyungbook National University: third week of March(?)
- KASI: March 28(?)

Refereed ALMA publications (total: 336)



Over half of papers published in ApJ.
19 papers in Science/Nature.

Refereed ALMA publications (total: 336)



The use of archival data is becoming popular, and consists of 30% of all publication.

Comparison with other facilities

