

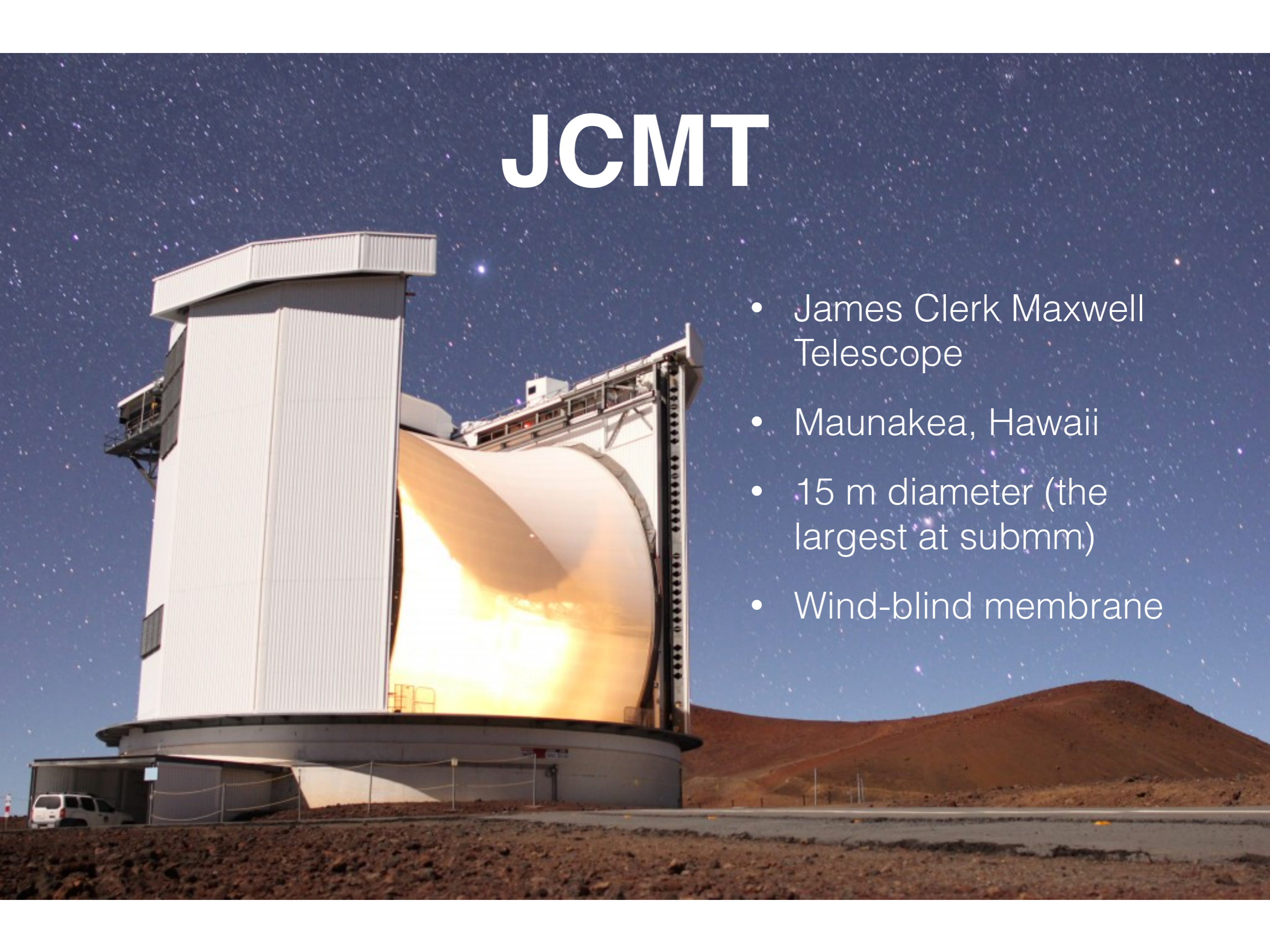
# JCMT: introduction & large programs

The 7th Survey Science Group Workshop  
High-1 resort, 2018 January 15-17  
Woojin Kwon



# JCMT

- James Clerk Maxwell Telescope
- Maunakea, Hawaii
- 15 m diameter (the largest at submm)
- Wind-blind membrane



# Instruments & Data

- Heterodyne: RxA (230 GHz), **HARP** (16 pixel array receiver in 325–375 GHz)  
\* Heterodyne Array Receiver Program
- Continuum: **SCUBA-2** (10000 pixels, 850 & 450  $\mu\text{m}$ ), **POL-2**  
\* Submillimeter Common-User Bolometer Array 2
- CADC  
Canadian Astronomy Data Centre
- Starlink  
Reduction tool

# East Asian Observatory

- EAO continues to move forward: Vietnam and Thailand joins Japan, China, Korea and Taiwan - Malaysia is in discussions
- JCMT continues under EAO operation with UK and Canada as partners
- Instrument progress: GLT instrument first-light at JCMT
- New legacy archive released
- First round of large programs are 90% complete
- Second round of large programs awarded (9) and begun

EAO GATHERS STEAM...

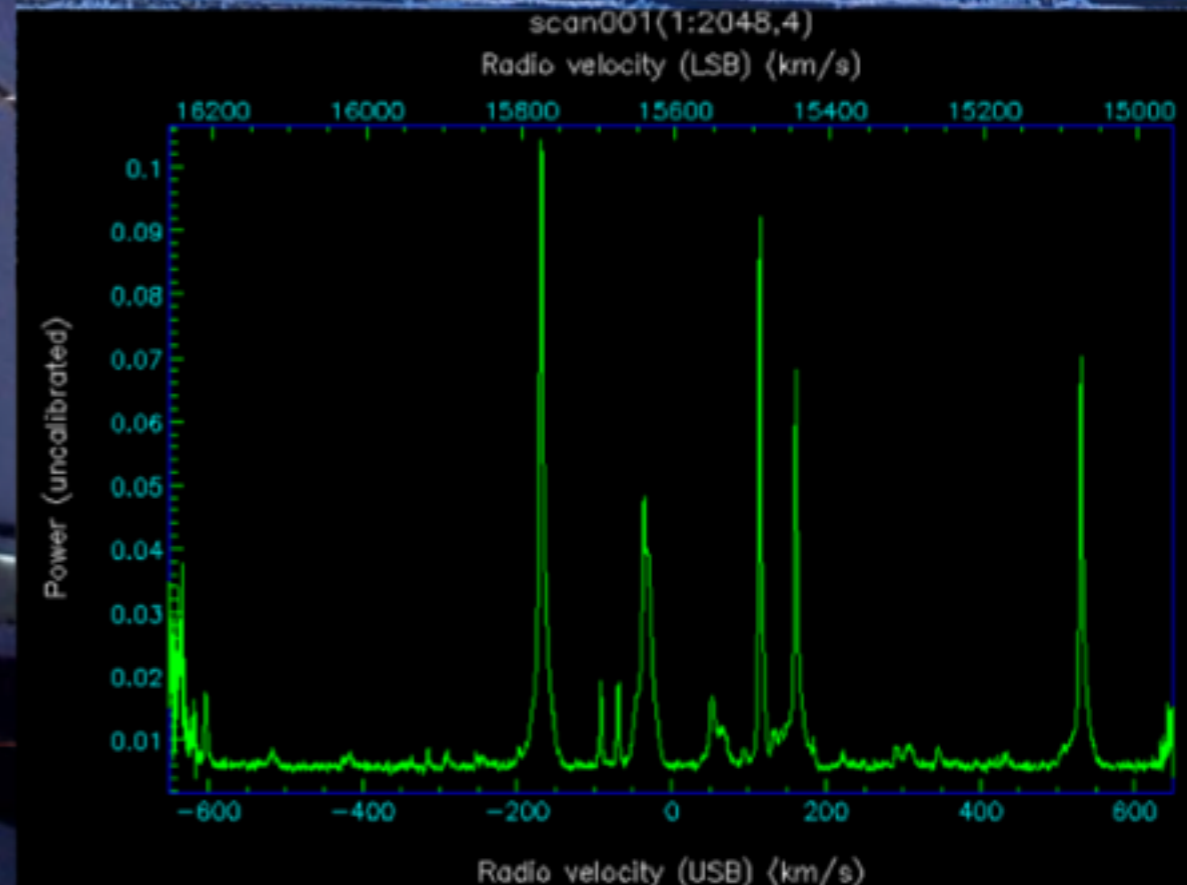
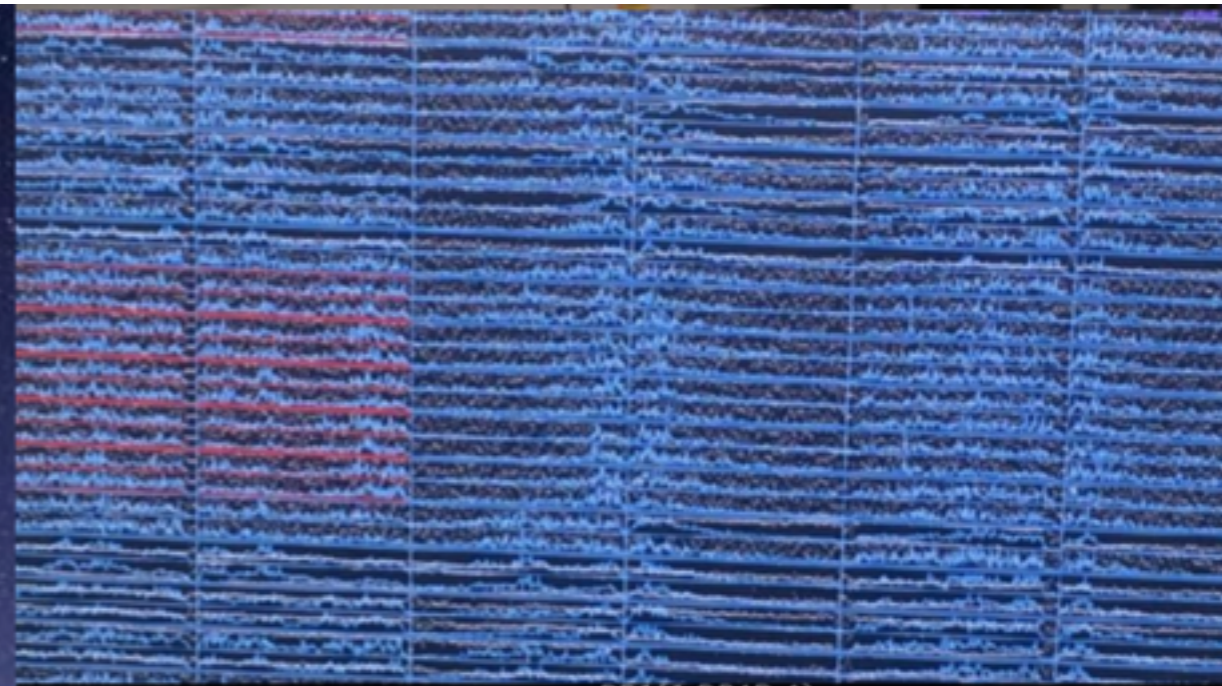


from Jessica Dempsey's slides

# GLT instrument at JCMT

- Greenland telescope instrument is installed for testing at JCMT - three receivers (86, 230 and 345 GHz)
- JCMT will get an identical instrument next year
- Much better compatibility for EHT - first 230GHz cartridge with dual-polarization
- 345GHz cartridge following (HARP is ill-suited for VLBI)
- Remaining cartridge space for new ALMA technology testing, GLT testing, low-frequency East-Asian VLBI
- GLT successful first-light and fringes in VLBI mode with SMA

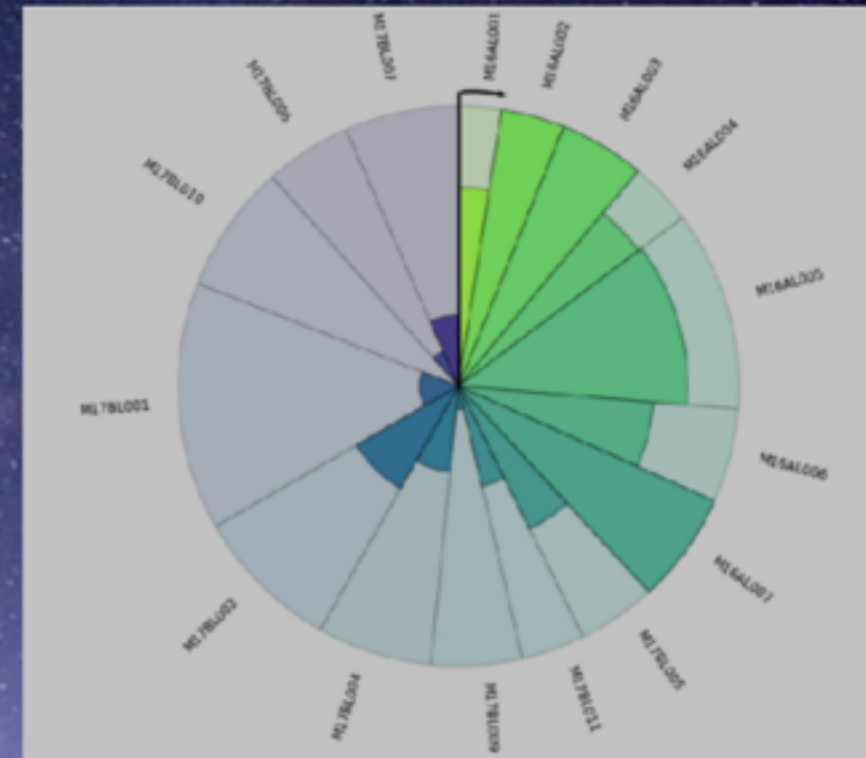
GLT AND NEW  
230GHz AT JCMT



# Large Programs

## THE EAO LARGE PROGRAM MODEL

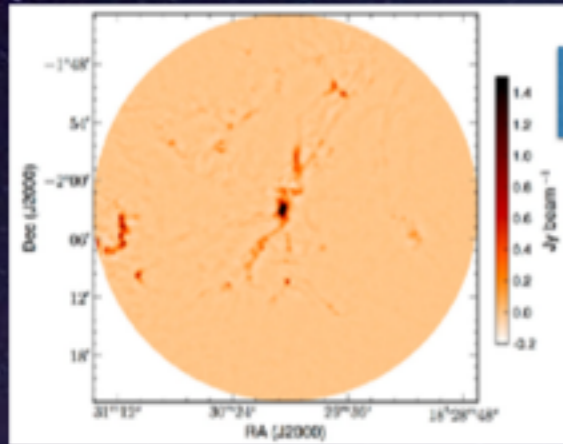
- 50% of time at JCMT is devoted to Large Programs
- Two Large Program Calls so far: seven programs in round 1 and an additional nine time awards in round 2 (five new programs and four extensions)
- First round is 90% complete (a year ahead of schedule)
- Second round: data obtained for all programs
- Requirements are strict: require a PI from each of the six regions, project and publication plans must be adhered to, and shared amongst regional scientists
- 12 publications with 8 more expected this year



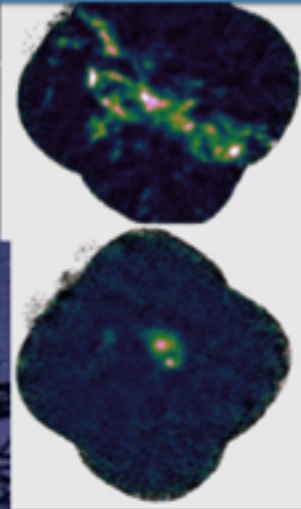
# Large programs: 2016—2018

## LARGE PROGRAMS (I): DEC 2015

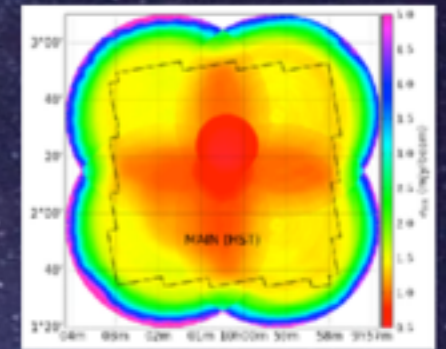
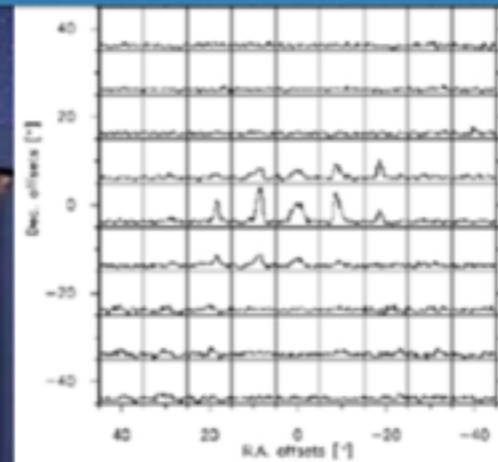
- 2397 hours awarded to seven programs.



SCOPE - 330 hours (sc2)

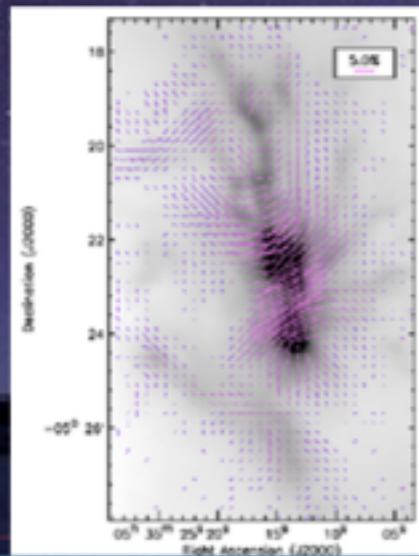


MALATANG - 390 hours (HARP)



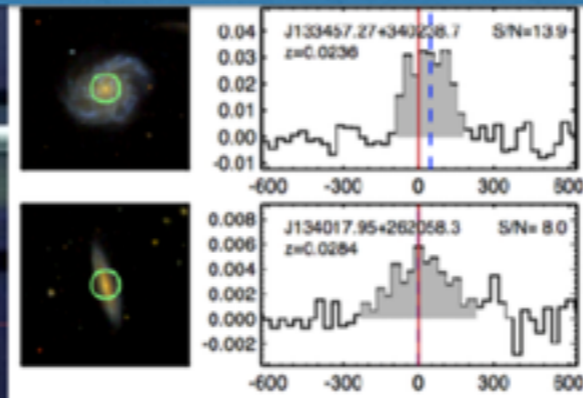
S2COSMOS - 223 hours (sc2)

Transient - 150 hours (sc2)



BISTRO - 224 hours (pol2)

JINGLE - 780 hours (sc2 & RxAm)

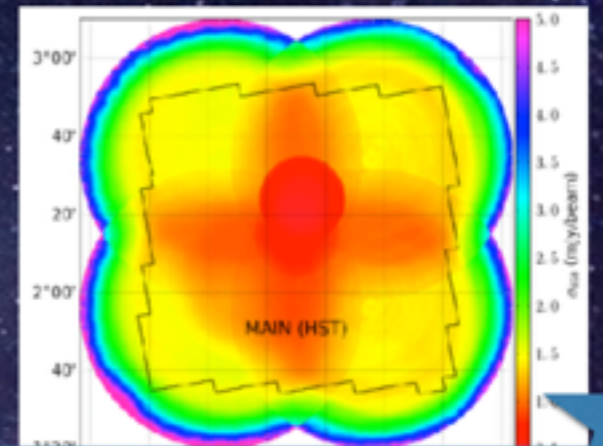


STUDIES - 330 hours (sc2)

# Large programs: 2017—2019

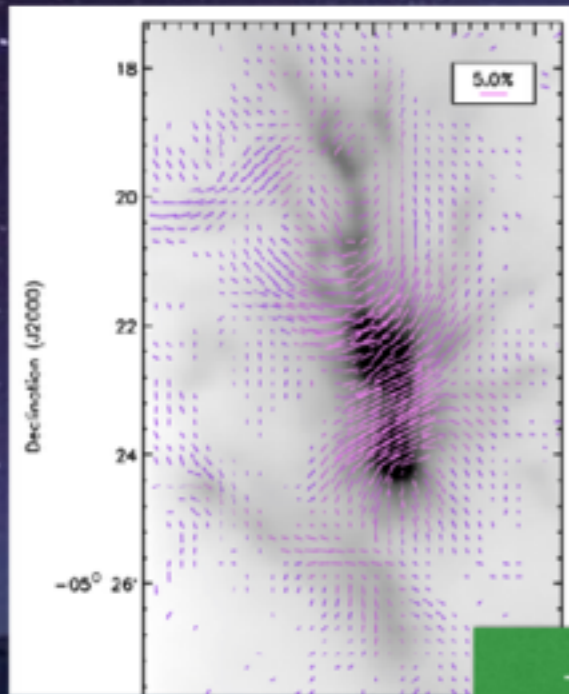
## LARGE PROGRAMS (II): JUNE 2017

- 2468 hours awarded from 17B onwards to five new programs, and 1302 to extensions.



+305

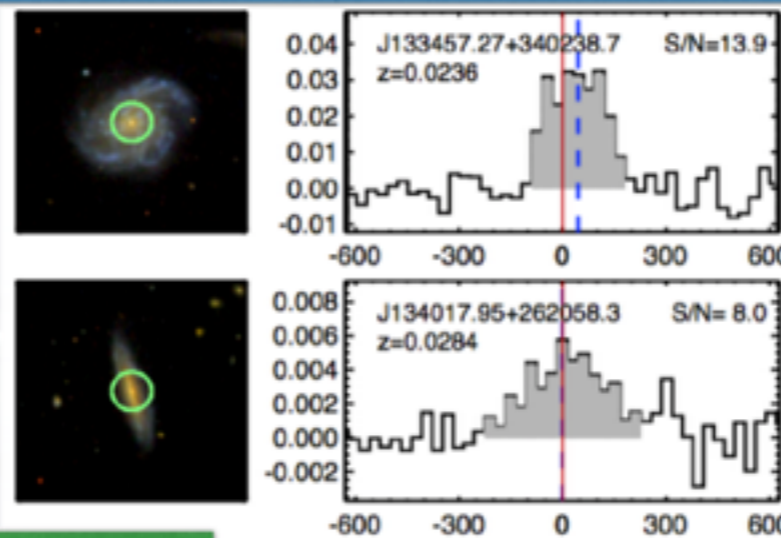
S2COSMOS - 223 hours (sc2)



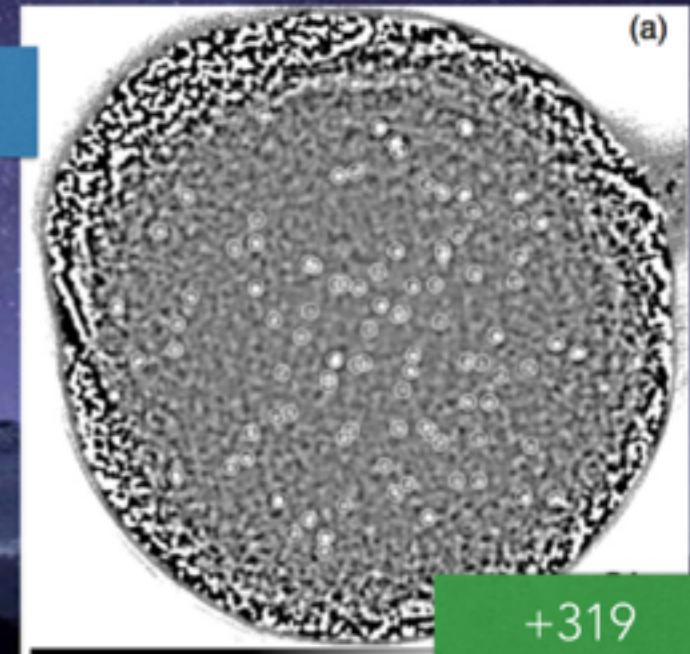
+224

BISTRO - 224 hours (pol2)

JINGLE - 780 hours (sc2 & RxAm)



+454



+319

STUDIES - 330 hours (sc2)

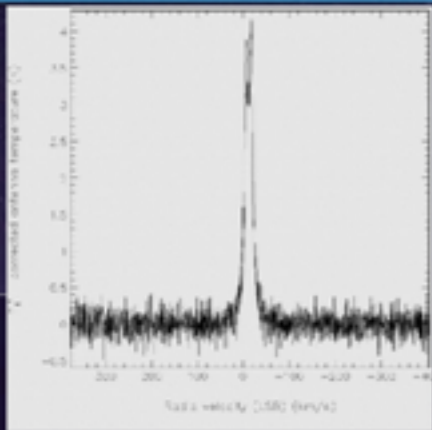


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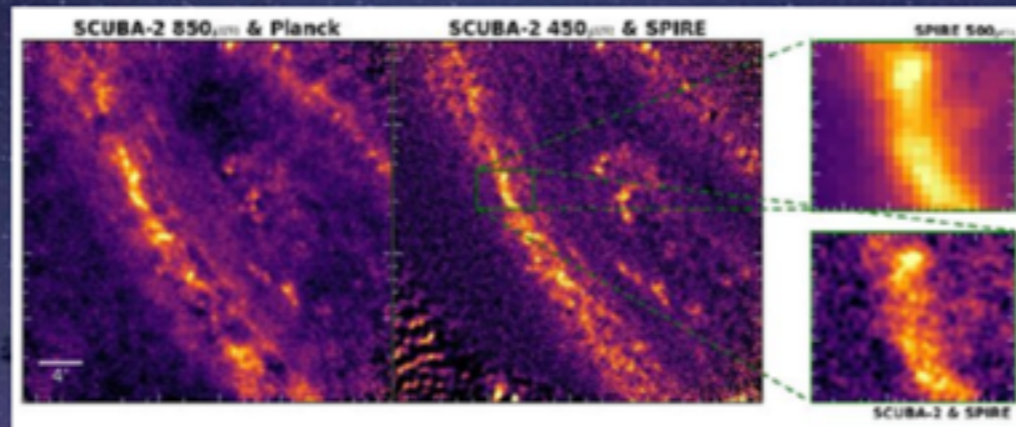
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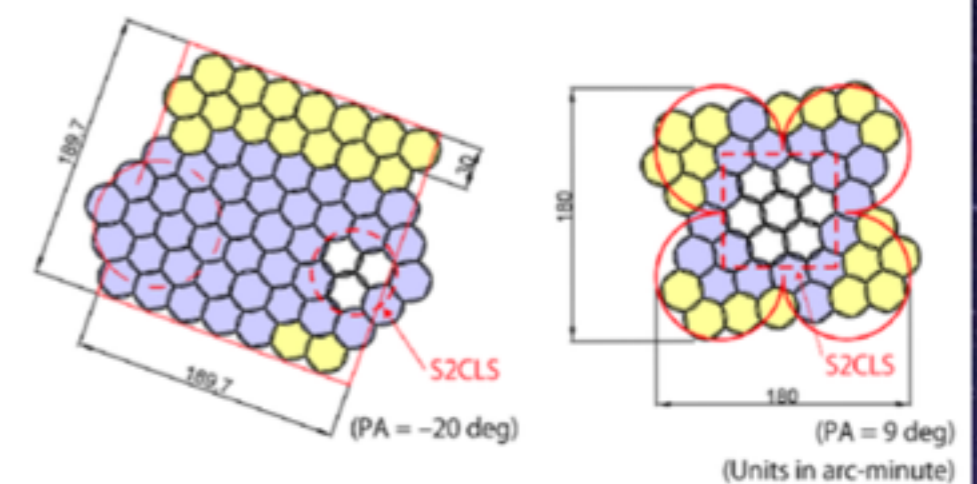
NESS - 515 hours  
(sc2+HARP+RxAm)



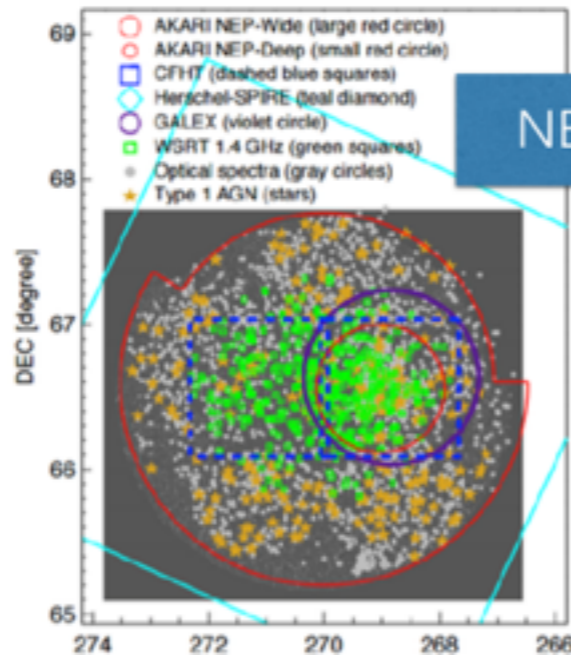
HASHTAG - 276 hours (sc2+HARP)



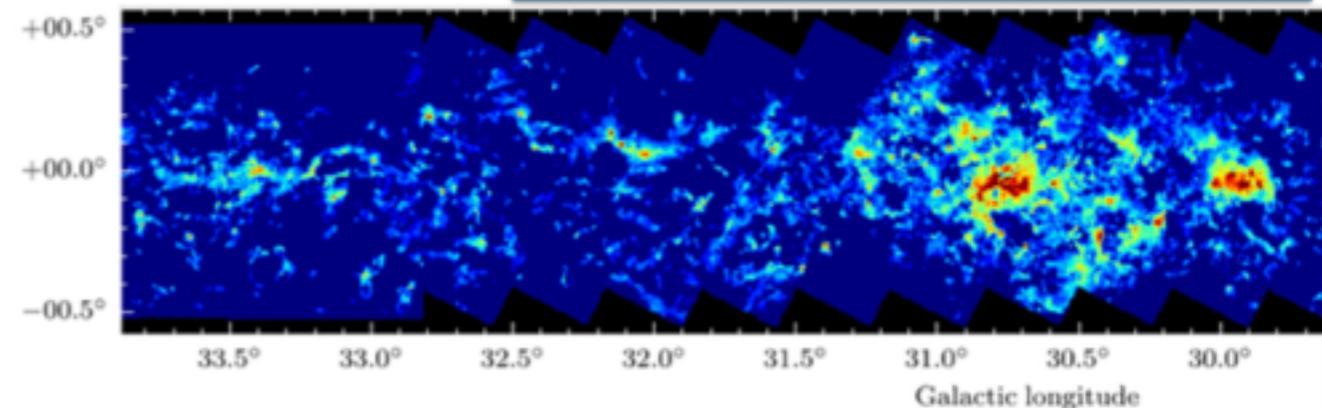
S2LXS - 873 hours (sc2)



NEP - 400 hours (sc2)



CHIMPS2 - 404 hours (HARP)





# Korea co-PIs of large programs

- A Transient Search for Variable Protostars: **J. Lee (Kyung Hee U.)**
- SCOPE: SCUBA-2 Continuum Observations of Pre-protostellar Evolution: **T. Liu (KASI)**
- BISTRO: B-fields In STar forming Region Observations: **W. Kwon (KASI)**
- MALATANG: Mapping the Dense Molecular Gas in the Strongest Star-forming Galaxies: **A. Chung (Yonsei U.)**
- JINGLE: The JCMT dust and gas In Nearby Galaxies Legacy Exploration: **H. Hwang (KIAS)**
- S2-COSMOS: An EAO SCUBA-2 survey of 1,000 SMGs in the COSMOS field: **Y. Yang (KASI)**
- STUDIES: SCUBA-2 Ultra Deep Imaging EAO Survey: **H. Shim (Kyungpook National U.)**

# Korea co-PIs of large programs II

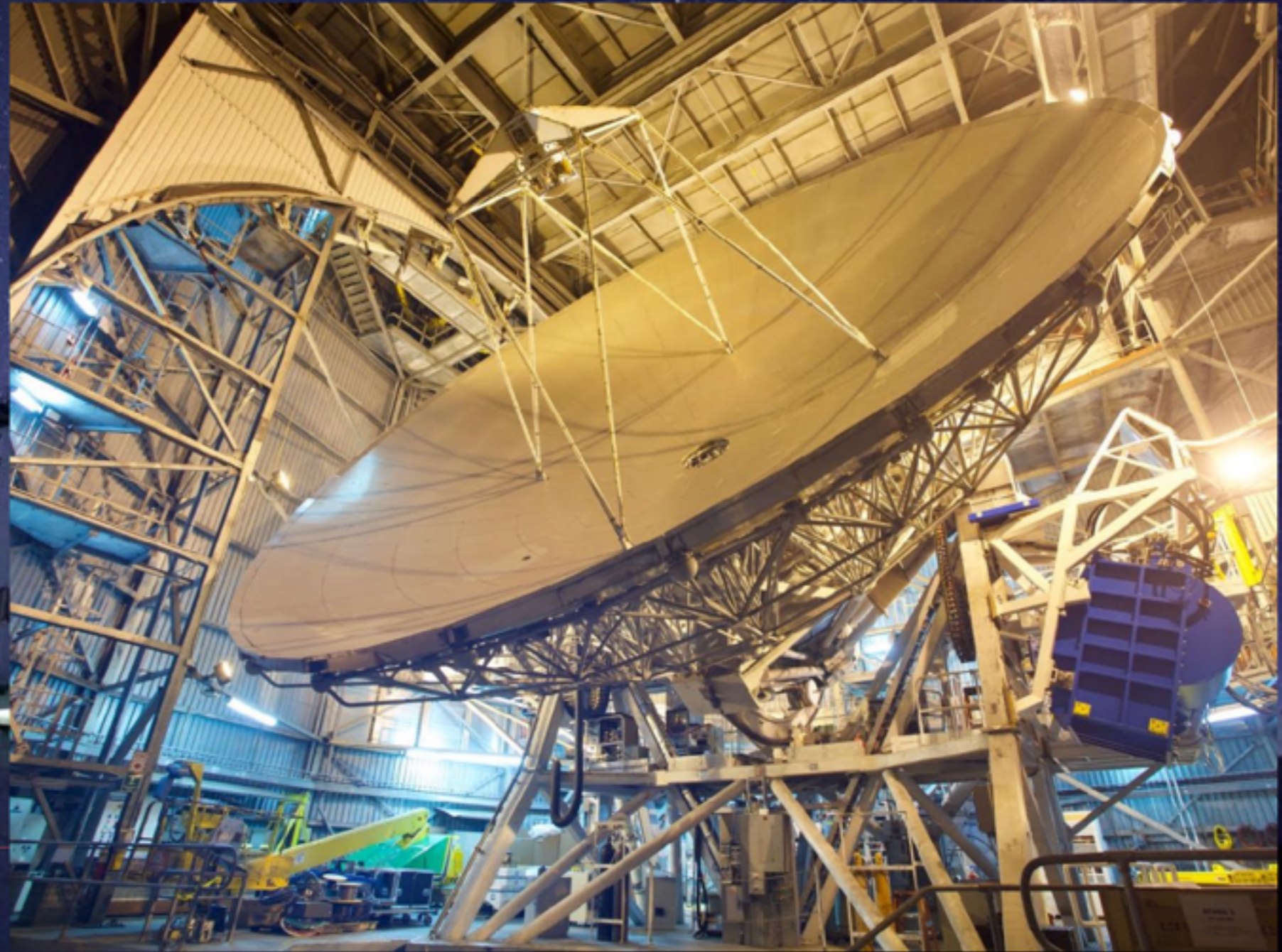
- BISTRO-2: an extension to the BISTRO program: **W. Kwon (KASI)**
- CHIMPS2: Resolving Star Formation in the Galactic Plane with HARP: **K. Kim (KASI)**
- NESS: The Nearby Evolved Star Survey: **S. Cho (KASI)**
- HASHTAG: HARP and SCUBA-2 High-Resolution Terahertz Andromeda Galaxy Survey: **A. Chung (Yonsei U.)**
- JINGLE II: the ISM of starbursts and green-valley galaxies: **H. Hwang (KIAS)**
- NEP: Extragalactic JCMT Survey of the North Ecliptic Pole: **H. Lee (Seoul National U.)**
- eS2COSMOS: Extending an EAO SCUBA-2 survey to unveil the COSMOS field: **Y. Yang (KASI)**
- S2LXS: SCUBA-2 Large eXtragalactic Survey: **?**
- STUDIES-SXDS: A second pointing for the SCUBA-2 Ultra Deep Imaging EAO survey: **H. Shim (Kyungpook National U.)**

**Open enrollment period passed last year, but...**

Test observations without wind blind:  
2017 Dec 5 to 2018 Jan 10 (UT)

## BREAKING NEW GROUND: POL-2

- For the first time, JCMT will observe without the Goretex membrane in place
- Removed Dec 5 - at least a one month run without it
- Intent to commission 450 micron POL-2 capabilities
- First data taken last night!



from Jessica Dempsey's slides

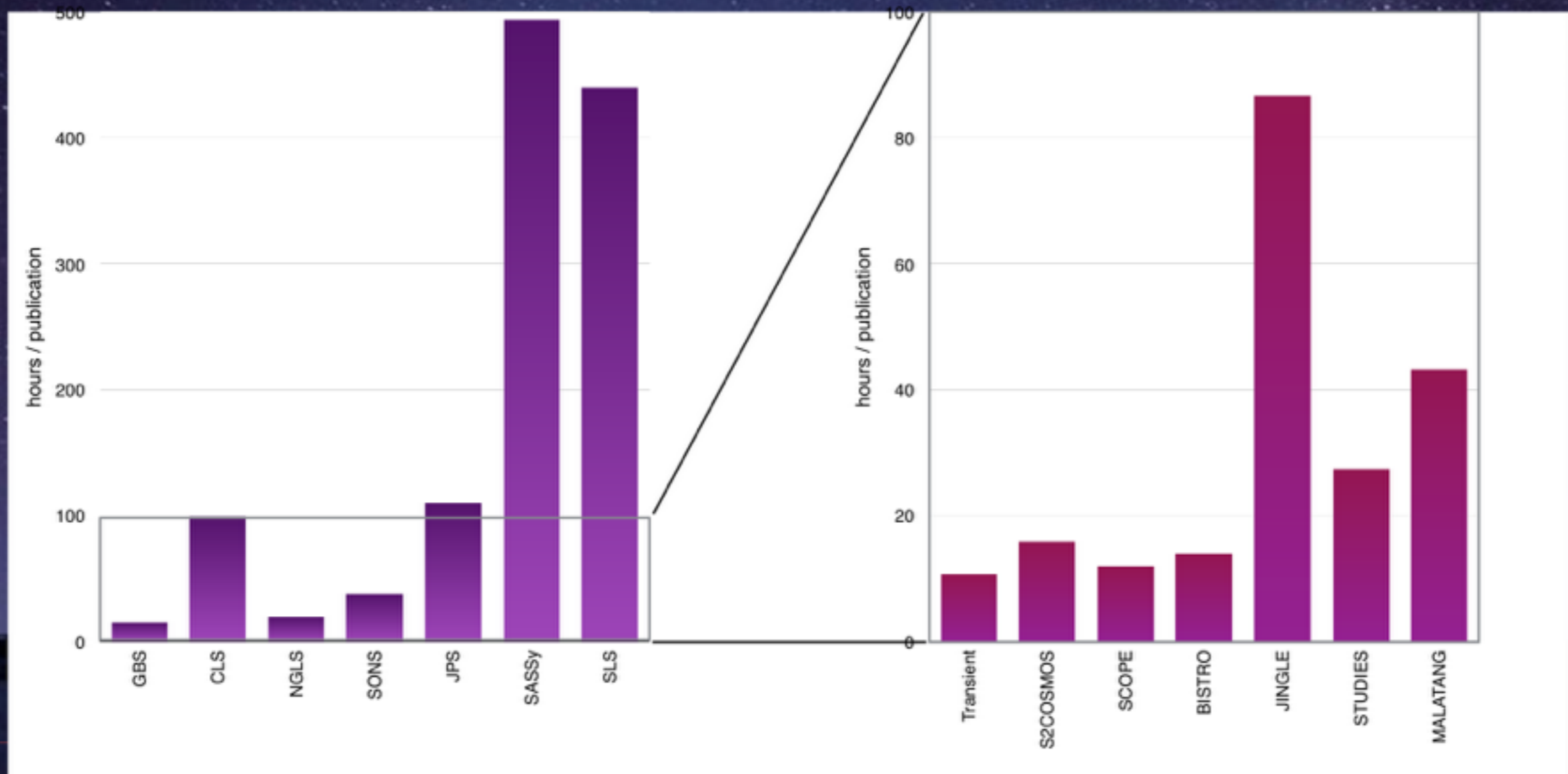
# Membrane back on!

January 10, 2018



# LARGE PROGRAM PUBLICATION VALUE

- Currently there are twelve JCMT Large Program publications available via ADS with many more submissions expected and at least one per program by the end of this year.



# JCMT Users Meeting 2018

- January 31 — February 1, 2018  
Jan. 30: large program meetings  
Feb. 2: JCMT Workshop
- Seoul National University
- <http://www.eaobservatory.org/jcmt/science/seoul-2018/>