Jessica Dempsev



A YEAR OF PUSHING THE BOUNDARIES

• All time highest publication record acheived for 2017 First light on the Greenland Telescope receiver hosted at JCMT • Huge strides made in the new Large Programs Membrane-free observing attempted for the first time





JCMT PUBLICATIONS

110 refereed science papers published with JCMT data in 2017!

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2016 to 2017 analysis shows efforts of new regions and instrument focus



50 40 30 20 10 0 HARP POL-2 SCUBA VLBI RxA SCUBA-2 SCUPOL





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published by East Asian first authors

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Large Programs



- 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

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scan001(1:2048,4)



Radio velocity (USB) (km/s)



THE EVENT HORIZON TELESCOPE: APRIL 2017 RUN

April run was huge success fringes confirmed between all stations - results to come soon





free-fall shell

rotating shell



POL-2 450 MICRON TESTING

- Goretex membrane contributes to the instrument polarisation and attenuates signal
- In December the membrane was removed for a month of observing to see if this improved our 450 micron sensitivity

- The 850 micron FCF reduces by 5-8% seen in Tsys reduction with HARP as well
- The 850 micron IP with POL-2 reduces from 2% to 0.5 %
- The 450 micron effect is less clear as the increased distortion of the surface adds noise: we do now have a 450 micron IP but have concluded that the sensitivity is still too low to release for PI use
- The downsides of membrane-free observing are large: reduced observing capability (wind/weather resistance)



LARGE PROGRAMS PROGRESS

- Three large programs fully complete! S2COSMOS, MALATANG, SCOPE
 - Expected: All original programs to be complete by next year (STUDIES - highly weather dependent).
 - Regional involvement strong
 - Number of publications expected to far exceed those from previous survey programs undertaken at JCMT
 - Popularity of 2017B call shows continued demand!
 - Large Programs enable "big ideas" to be supported

3°00'

2°00'

MALATANG - 390 hours (HARP)







S2COSMOS - 223 hours (sc2)



LARGE PROGRAMS (II): JUNE 2017 • 2468 hours awarded from 17B onwards to five new programs, and 1302 to four extensions.

NESS - 515 hours (sc2+HARP+RxAm)



HASHTAG - 276 hours (sc2+HARP)

SCUBA-2 850µm & Planck **SCUBA-2 450**µm & **SPIRE**



S2LXS - 873 hours (sc2)







(Units in arc-minute)

CHIMPS2 - 404 hours (HARP)







LARGE PROGRAMS (II): JUNE 2017

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



BISTRO - 224 hours (pol2)



eS2COSMOS +305

JINGLE - 780 hours (sc2 & RxAm)





JINGLE II+454

LARGE PROGRAMS: PUBLICATION IMPACT

On average, 30 hours of JCMT observing time per paper

 The latest wave of legacy papers continues to mine greater value for each hour of large program time

The new large programs promise to make greater gains than this



- SMU maintenance is overdue and requires a full telescope shutdown
- **Closure from April 30th through May** 19th
- SCUBA-2 work will occur concurrently and will be unavailable until May 28th
- This was accounted for in the allocation of time for the 18A semester

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 The next Call for PI proposals will open February 14th and close March 16th

 Proposals will be taken through Hedwig

> To get up-to-date information about the JCMT please send an e-mail to jcmt_users+subscribe@eaobservatory.org.

JCMT 18B CALL FOR PROPOSALS

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