Science Operations

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CSIRO ASTRONOMY & SPACE SCIENCE
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Outline

- The user community
- General issues
- Parkes
- Tidbinbilla
- Mopra
- Long Baseline Array
- ATCA
- Some proposal statistics
- ATCA Legacy Projects
- Call for Proposals

OPAL Users by Country (top 82%)

Country	Users	% of total
United States	779	21%
Australia	600	16%
Germany	341	9%
United Kingdom	293	8%
Japan	218	6%
Italy	195	5%
France	186	5%
China	153	4%
Netherlands	115	3%
Spain	109	3%
Canada	81	2%

A total of 3700 users in the OPAL database (since 2006).

2016APR proposers by Country (top 87%)

Country	Users	% of total
Australia	137	24%
United States	98	17%
United Kingdom	51	9%
Italy	47	8%
Germany	47	8%
Japan	26	4%
Netherlands	24	4%
China	21	4%
Spain	19	3%
France	19	3%
Canada	16	3%

A total of 581 proposers for 2016APR

And looking at it another way…

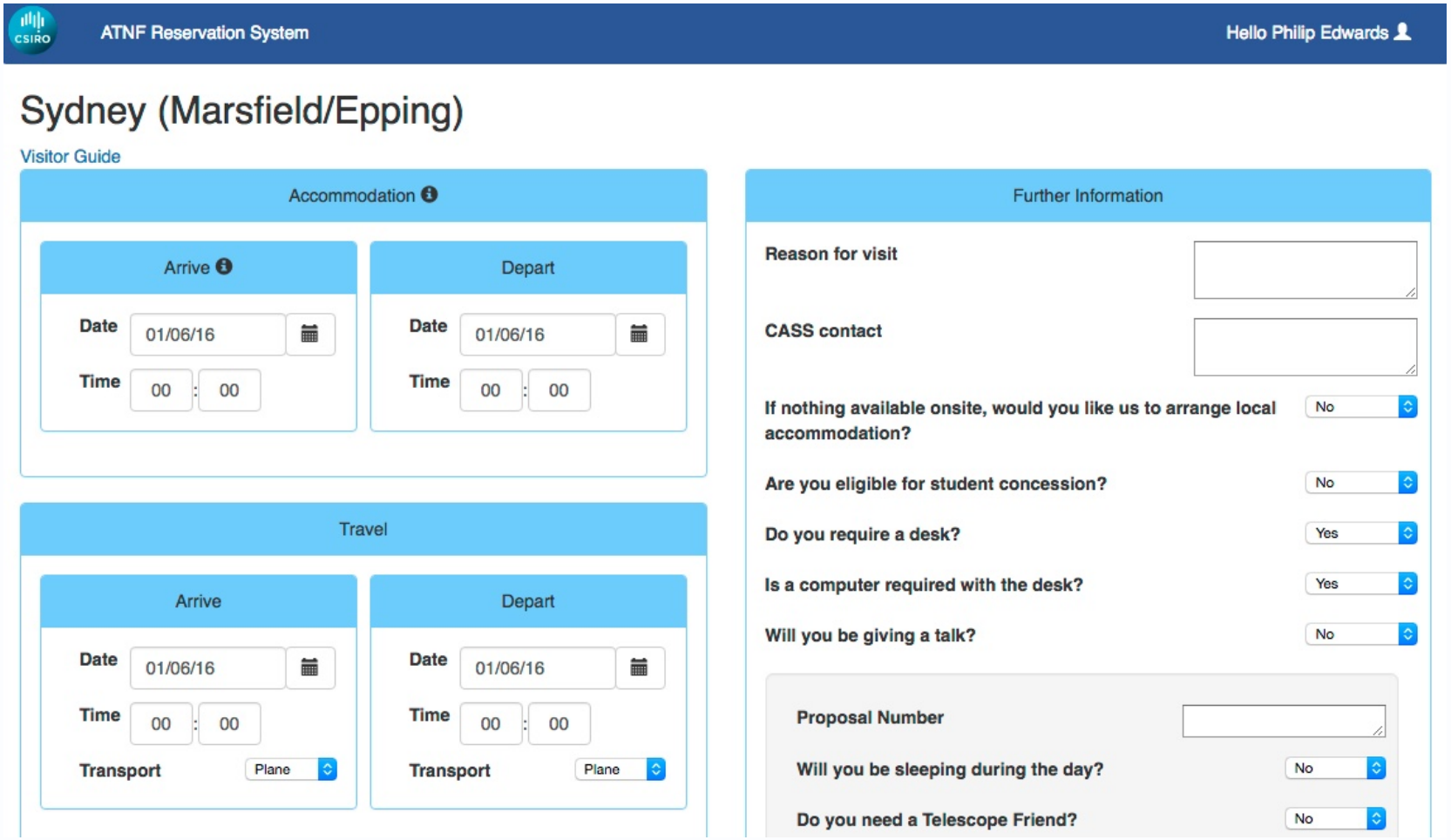
- For 2014OCT + 2015APR, observing proposals were received…
- from 846 individual researchers
- from 31 countries.

  - 16% were led by ATNF staff,
  - 26% by researchers from other Australian institutions, and
  - 57% by researchers from outside Australia.

General issues

- ATUC is thanks for its suggestions on attracting more (and more useful) Observer Feedback. The overhaul of the feedback forms will take place over the next month or so. We will trial gift vouchers from the Parkes Visitor Centre on-line shop for incentivisation in the first instance!
- The ATNF Accommodation Booking form is also in the process of being revised, providing better interfacing to the commercial back-end software package used to handle bookings across all sites.

New accommodation booking form



Parkes

- Jimi Green took up the position of Parkes Senior System Scientist in February 2016. (George Hobbs is acknowledged for his efforts in filling this role in an acting capacity for 2015.)
- Jimi will give a separate report on Parkes current status and issues
- The 2016APR schedule is being released in stages as experience is gained in the use of the Bonn PAF. V.2 of the schedule runs through to the beginning of August: v.3 will be released by the end of June.
- Breakthrough Listen observing scheduled to start October 4th

Tidbinbilla

- The new 4-channel K-band system on the 70m supports two simultaneous beams per polarisation (four beams in total) across the total frequency coverage of 17 GHz to 27 GHz
- It is planned to install a dual-circular polarization L-band system on DSS-43, covering 1.4 – 1.9 GHz
- The Call for Proposals makes clearer the typical amounts of time available:
  - *"Access to Tidbinbilla antennas is provided through the host country agreement, which provides approximately 220 hours in total each semester, which is used for both single dish (typically 180 hours per semester) and LBA (typically 40 hours per semester) use."*
- Helga Denes is the ATNF Friend of Tidbinbilla

Mopra

- CSIRO has entered an agreement with a UNSW to provide the Mopra telescope for observing for one year from mid March, on a full cost-recovery basis.
- Part of the funding for this is from an ARC Linkage Infrastructure, Equipment and Facilities (LIEF) grant.
- Some Mopra time is being made available for participation in LBA observations
- Can Mopra be used as a satellite down-link station?

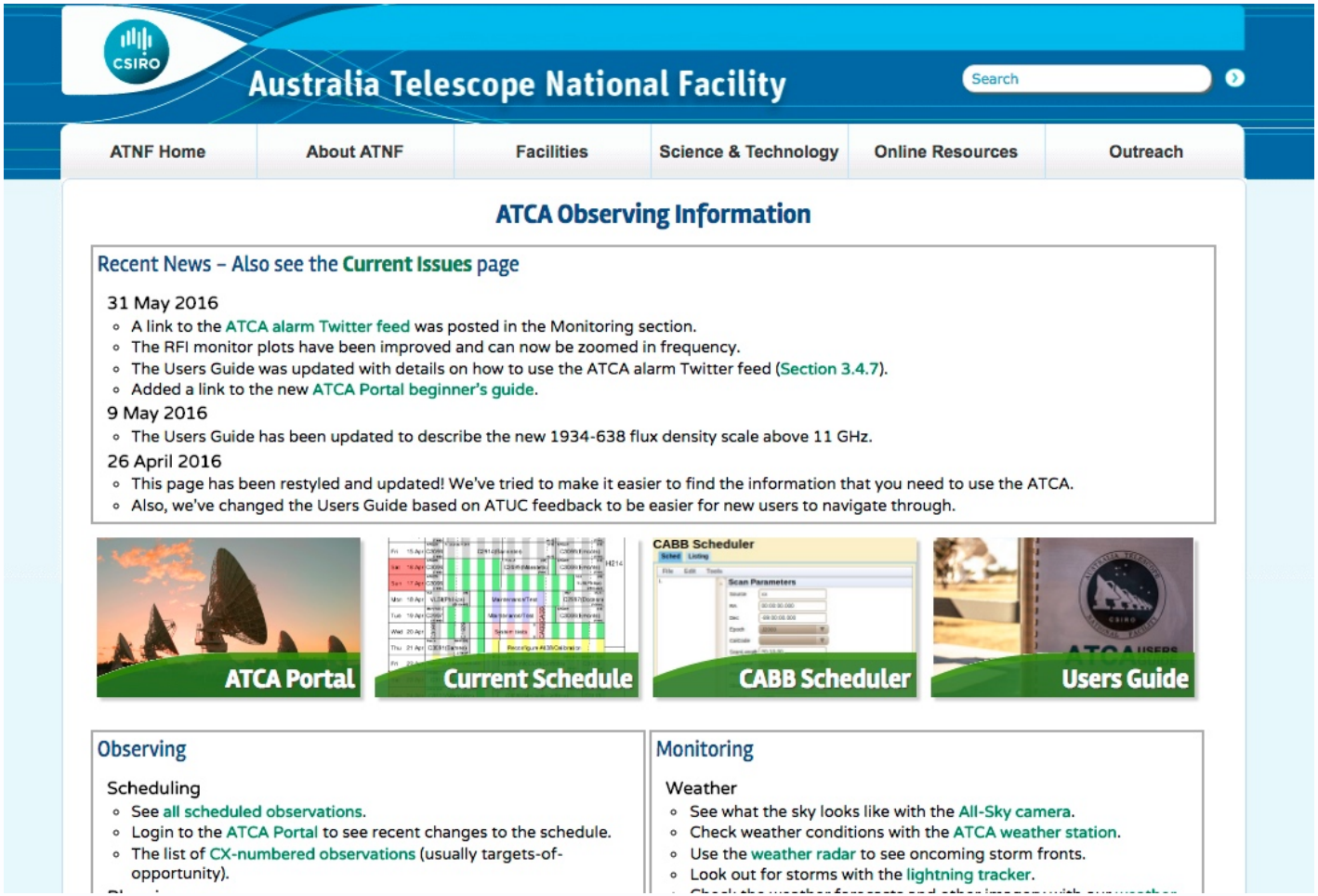
Long Baseline Array (VLBI)

- Correlation of LBA data was brought back “in-house” in October 2015, with correlation being undertaken at the Pawsey Supercomputing Centre.
- There was a delay of some months while correlation transitioned to the new arrangements, but good progress is being made on eliminating the backlog of observations.
- Out-of-session observation with the European VLBI Network this month (proposers wishing to make LBA+EVN observations must submit separate proposals to both LBA and EVN).
- A Tied Array capability for ASKAP remains a high priority for CASS. The design, development and implementation of Tied Array Processing will be scheduled based on availability of resources, and collaboration options are starting to be discussed.

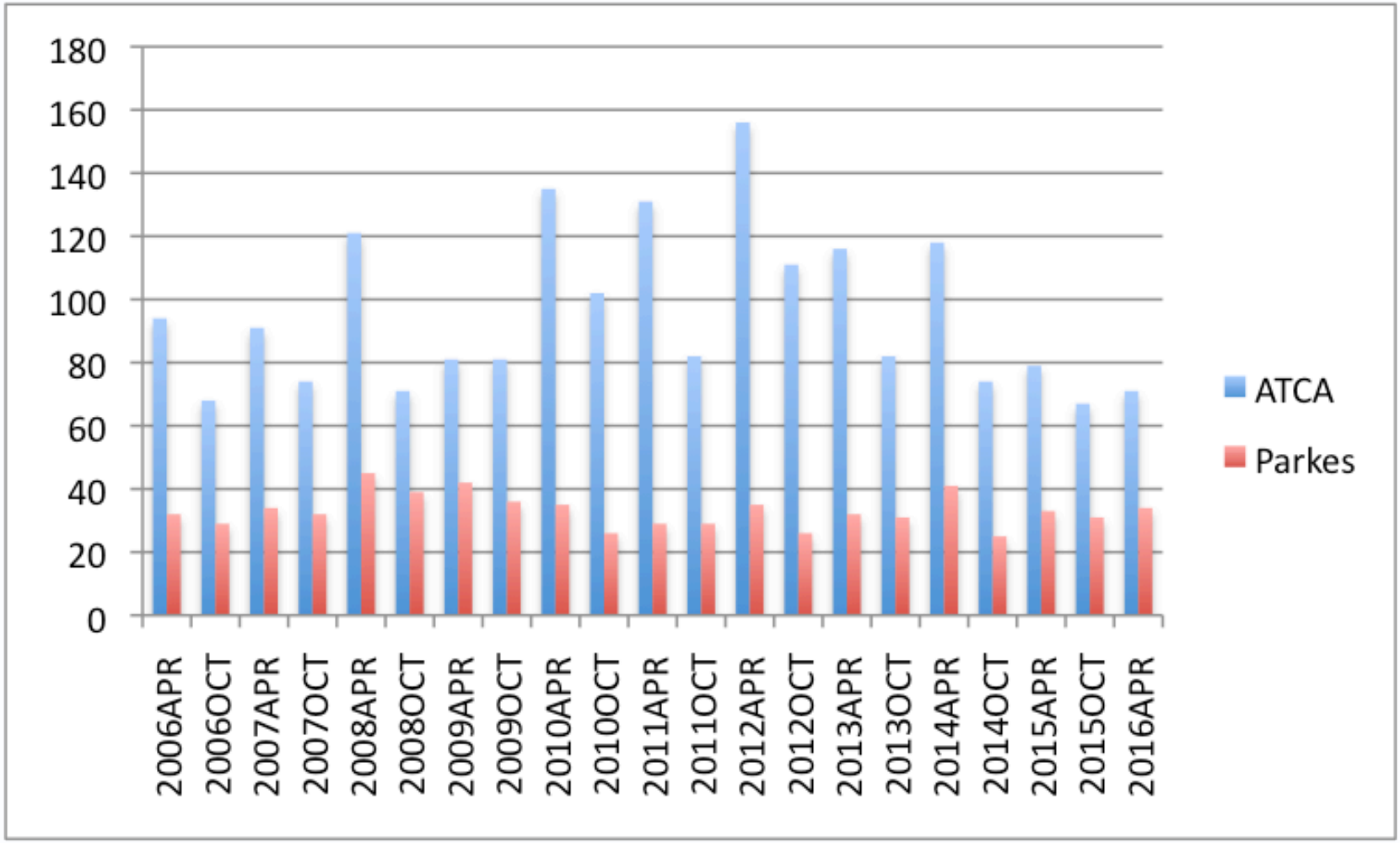
ATCA

- ATCA User Guide remodeled along the lines suggested by ATUC
- Various web-links also tidied up and improved
- ATCA Portal beginner's guide available
- Additional on-line training videos in preparation
- ATCA Observing Information page refreshed , and includes link to useful contact phone numbers
- "ATCA focus observations at 4cm and 15mm" added to ATNF technical memo series: www.atnf.csiro.au/observers/memos/
- ATCA forum updated with summary of recent miriad changes, including change in mm flux scale for PKS 1934-638: https://atcaforum.atnf.csiro.au/

ATCA observing information



Proposal submissions by semester



ATCA user community

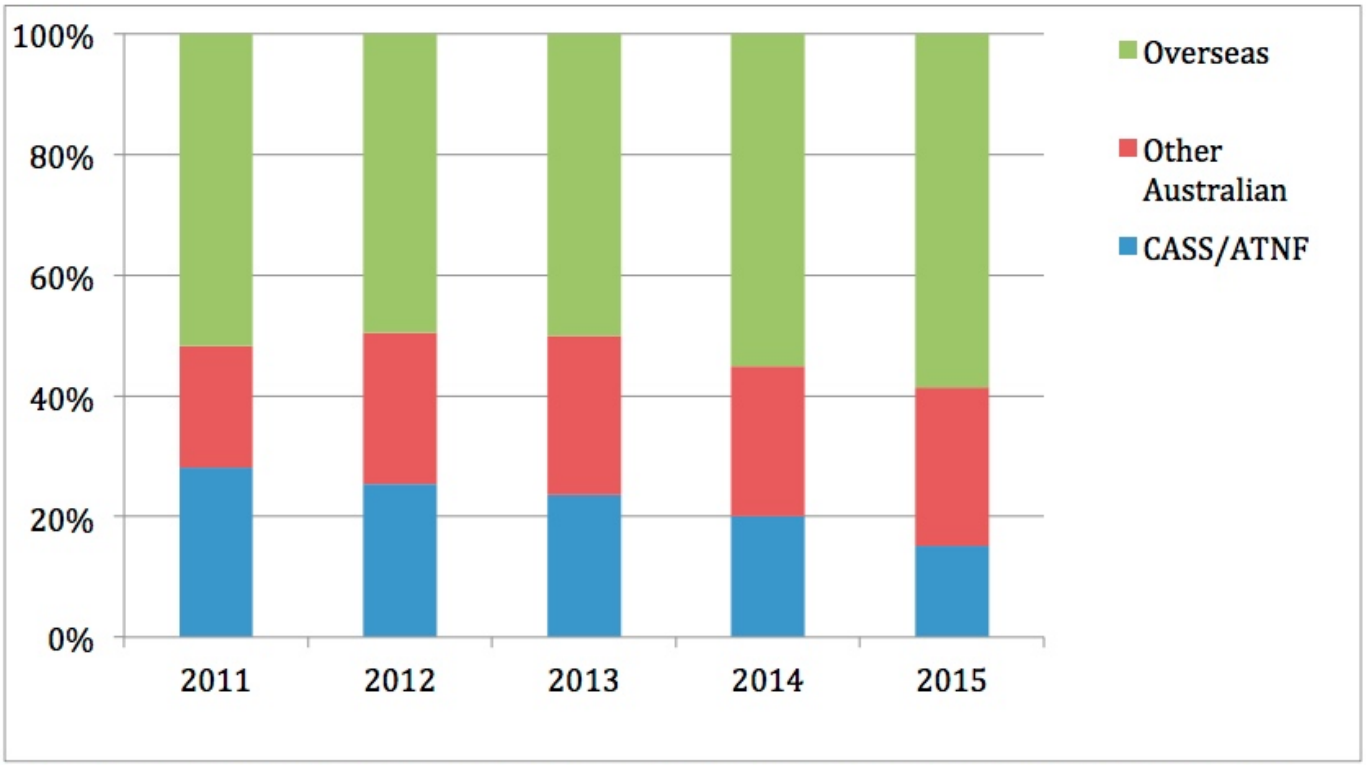
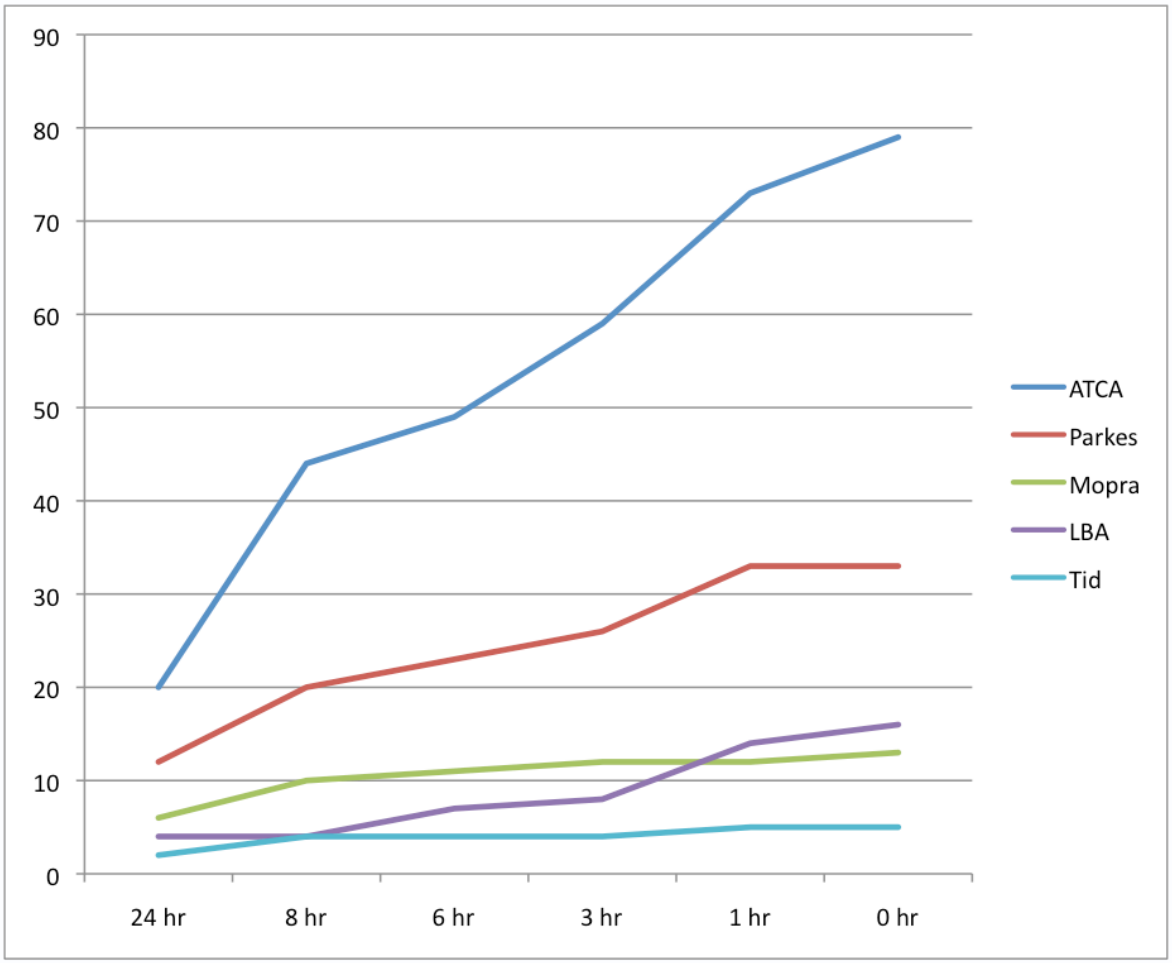
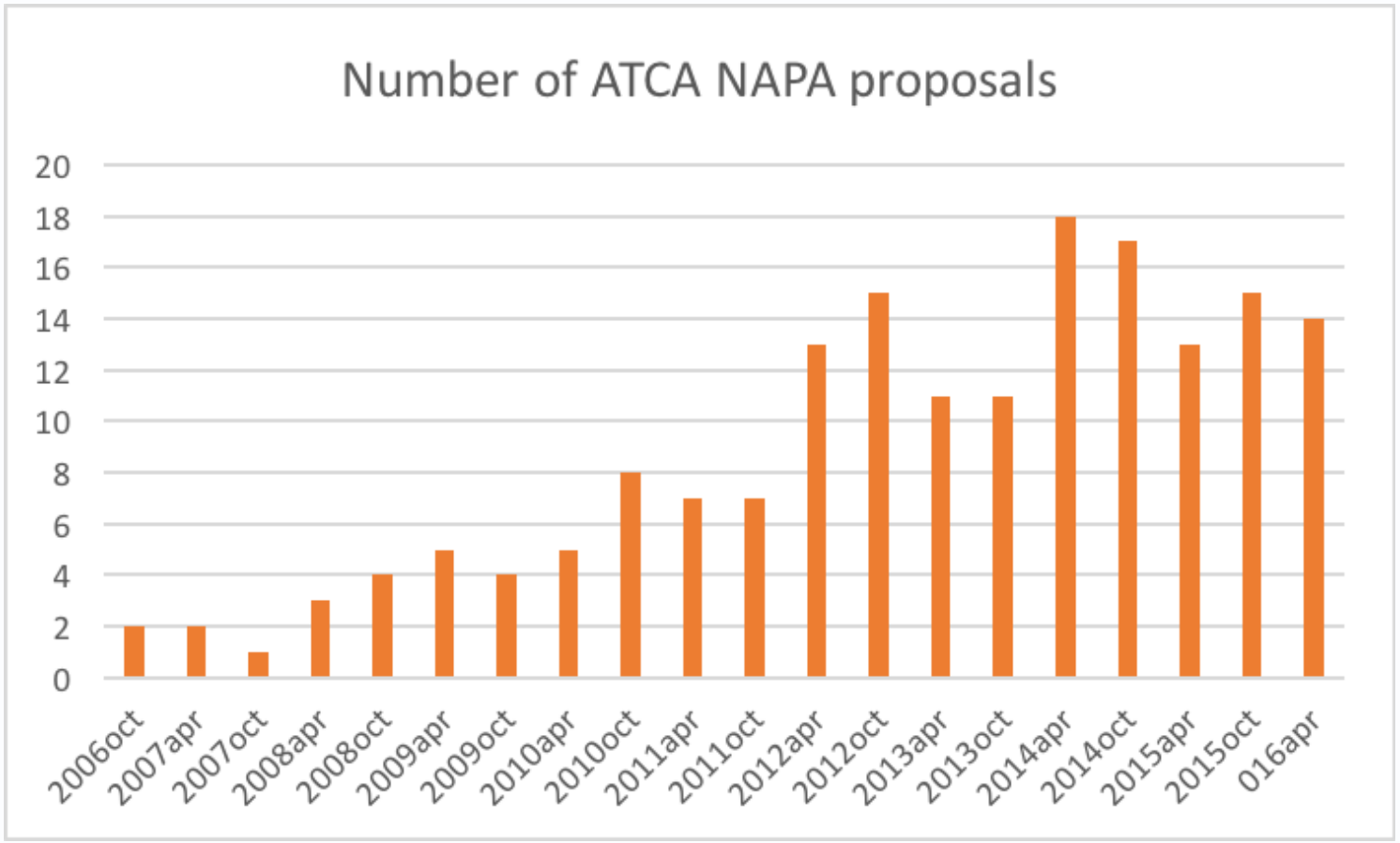


Figure 4: Compact Array time allocation by all investigators, October 2011–September 2015. Time allocated to each proposal has been divided evenly between all authors on the proposal. For each year the time allocation is for 12 months from October to September.

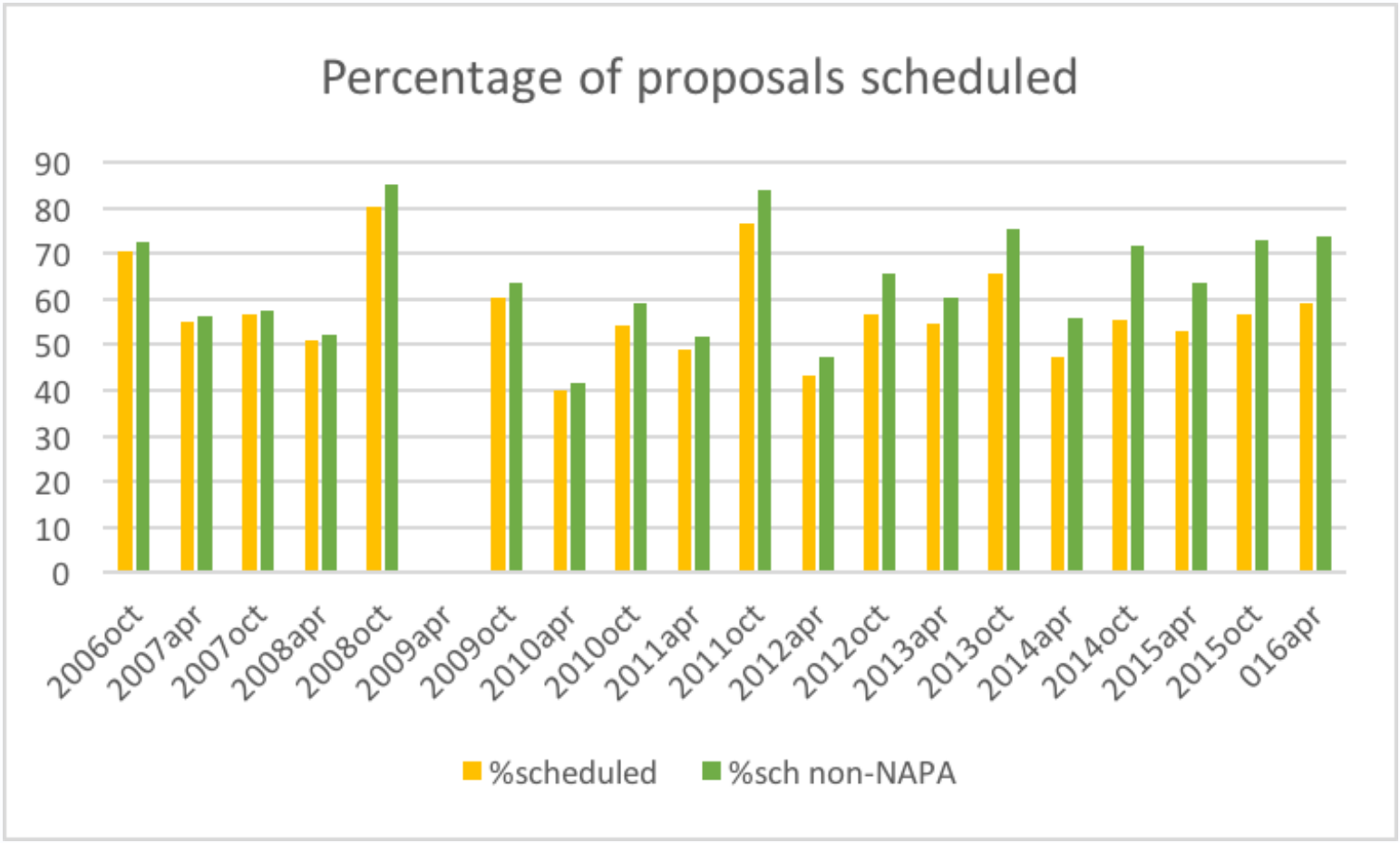
Proposal submissions v. time (2015APR)



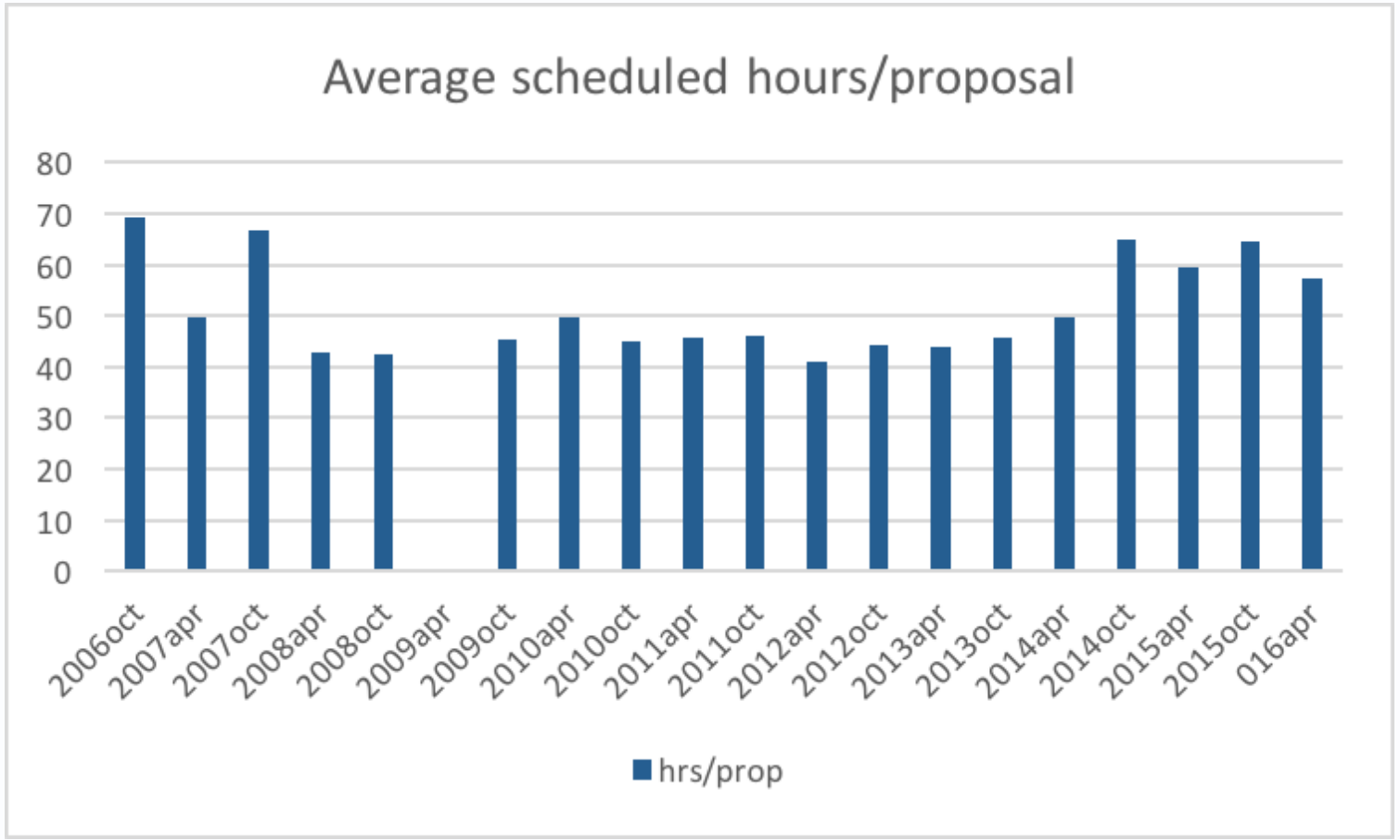
ATCA NAPA proposals



What fraction of proposals are allocated (at least some) observing time?



Average number of hours scheduled



Conclusions from these plots?

- Parkes demand (by proposal number) steady
- ATCA demand (by proposal number) peaked 2010~2012 as CABB zoom modes came on-line, 7mm gained in popularity, and post-doc numbers increased
- Number of ATCA NAPA proposals has steadily increased over the last ten years
- Fraction of ATCA proposals being allocated at least some time has varied from 40% to 80% and is currently ~65%
- There is currently an increase in the number of larger ATCA projects, as indicated by average hours per proposal…
- … and this will continue with the start of ATCA Legacy Projects

ATCA Legacy Projects

Expression of Interest (EoIs) were solicited to gauge the level of community interest and to assist CASS in ensuring appropriate arrangements are in place to conduct and support Legacy Projects.

The submitted EoIs were made publicly available to enable teams to consider options for merging, data sharing or commensal observing, and for other astronomers to register their interest in joining a team.

EoIs are neither binding nor mandatory, but for the reasons given above were strongly encouraged.

http://www.atnf.csiro.au/observers/apply/ATCA-Legacy-Projects.html

Submitted Expressions of Interest

A Comprehensive ATCA Census of High-Mass Clumps: Converting Turbulent Structure into Stars on Sub-parsec Scales (Jackson et al.)

An ATCA 4–10 GHz Legacy Survey of the Magellanic Clouds (Filipovic et al.)

Deep Imaging of the Circum-galactic Medium with ATCA (Popping et al.)

Faraday Rotation Observations Mapping Group Evolution (FROMaGE) (Kaczmarek & Wilcots et al.)

Fossils and Monsters in the Hubble Frontier Fields (South) (Heywood et al.)

GAMA Legacy ATCA Southern Survey (GLASS): A Legacy 4cm Survey of the GAMA G23 Field (Huynh et al.)

High resolution imaging of nearby galaxies (Wang et al.)

Large-Area Galactic and Extragalactic Research through an ATCA Legacy Experiment (LAGER ALE) (Breen et al.)

Mapping the Cold Molecular Medium around giant galaxies at high-z: a low-surface-brightness CO Legacy Survey with ATCA (Emonts ++)

Measuring Thermal Emission of Star Forming Galaxies at High Redshift (Galvin et al.)

Q and U Observations at Cm wavelengths and Km baselines with the ATCA (QUOCKA) (Heald et al.)

Revealing Cold Molecular Gas Reservoirs in Distant, Dusty Starbursts (Dannerbauer et al.)

The ATCA-SAMI Cluster Survey (Banfield et al.)

WALLABY@ATCA (Staveley-Smith et al.)

Wide-bandwidth Observations of Many sources with the Broadband Australia Telescope (WOMBAT) Survey (Callingham et al.)

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High resolution imaging of nearby galaxies

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Feedback

CASS was pleased to receive 15 responses to the call for Expressions of Interest in the ATCA Legacy Project program, and particularly encouraged by the breadth of science covered by these submissions. (All bands except 3mm, all array configs requested!)

As previously announced, up to 25% of the available observing time will be allocated to Legacy Projects, with Legacy Projects typically being expected to request over 300 hours per semester. This effectively limits the number of Legacy Projects that can be supported to 2 or 3 at any one time.

We also note that Legacy Projects are expected to generate data of ***general and lasting importance to the broad astronomy community,*** and proposals will need to clearly address this point.

Legacy Project Proposals

Legacy Project proposals for OCT2016 will be due on 15 June 2016. The submission mechanics will be similar to those for regular proposals, except that a 10-page justification may be submitted. Further information is provided in the updated OPAL User Guide. Pre-graded, or continuing, status is likely to be granted, subject to a satisfactory annual progress report.

Legacy Projects will be reviewed by the TAC (augmented by additional expertise). From 2016OCT they will be allocated up to 25% of observing time on the ATCA.

Future calls for Legacy Projects will depend on the number and length of projects accepted

Unattended observing

- A 12 hour ATCA observation is often labour-intensive in the first 30 minutes (especially after array reconfigs, maintenance blocks, and CABB mode changes, and at 16cm) and then uneventful for the next 11.5 hours. The main exceptions are CABB block drop-outs, wind-stows, and storms.
- Planning is underway for a Parkes-TPS-like replacement of PMON
- It is now possible to arrange for notifications of significant errors to be sent by SMS, so that observing need not be as hands-on: see the new section 3.4.7 of the User Guide
- Unattended observing may initially be limited to good weather conditions to ensure a loss of power does not result in a receiver warming up, as this can take several days to recover from.

Call for Proposals

Call for Proposals for 2016OCT was released in mid-May:

http://www.atnf.csiro.au/observers/apply/avail.html

Proposal deadline is 5pm AEDT Wednesday June 15th.

TAC procedures are outlined at www.atnf.csiro.au/management/tac/

We ask users to include their proposal codes in their publications.

Thank you

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