



PARKES

ATUC Status Update

Jimi Green

06 June 2017

CSIRO ASTRONOMY AND SPACE SCIENCE

www.csiro.au



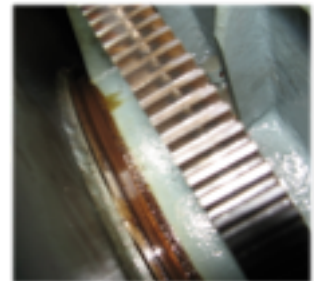
Overview

- Maintenance Shutdown
- Front-ends
- Back-ends
- Breakthrough Listen
 - Telescope time
- User Support
- PULSE@Parkes -> OPTIMUS on PRIME



May Maintenance Shutdown

- 4 week shutdown
- Power switchboard replacement
- Master Equatorial fixes
- Maser hydronic unit drained & refreshed
- Focus cabin air conditioning unit overhauled
- Tower air conditioning switchboard underwent major clean up
- Further asbestos removal/decontamination



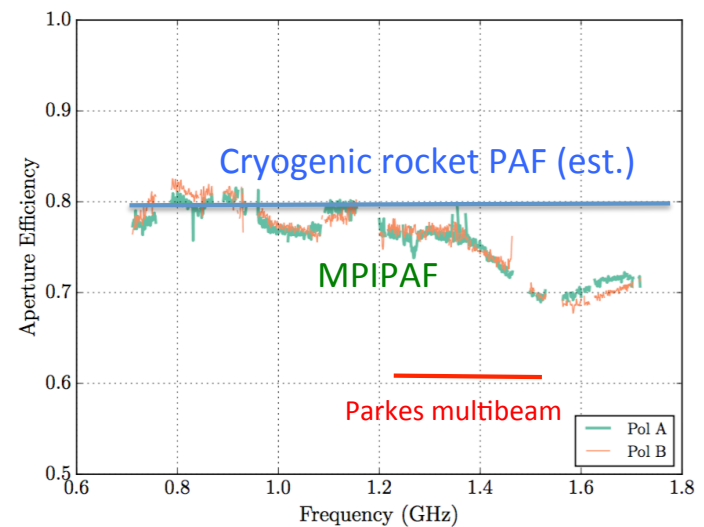
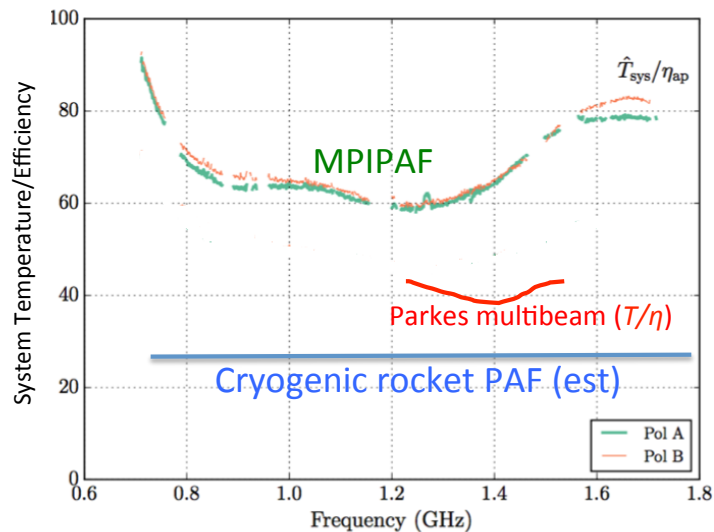
Front-ends

- Ultra-Wideband Receiver
 - Quadridge structure with dielectric spear, 0.7—4.2 GHz
 - Partly funded through Australian Research Council LIEF grant
 - Potential on-dish testing of prototype in July, full installation late 2017
 - Commissioning 2017OCT semester for national facility 2018APR semester
- Ultra-Wideband Mid/High Frequency Single Pixel Feed(s) in planning
 - One or two feeds to cover 4 GHz up to 25 GHz, with wideband feeds sharing one 'pan'



Front-ends

- Cryo-PAF
 - Cryogenically cooled 'Rocket' Phased Array Feed (third generation CSIRO PAF)
 - Prototype on dish testing (plus aperture tests) May 2016 - very encouraging for purpose built version
 - 700MHz – 2GHz, 3 x MB field of view, sub-20K T_{sys}
 - LIEF proposal submitted, decision expected late 2017



Back-ends

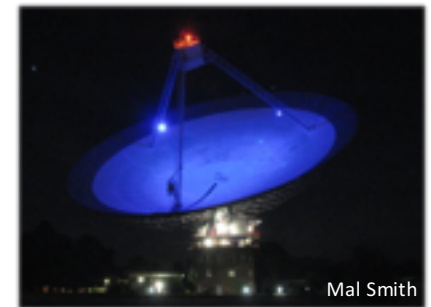
- HIPSR capability moved to GPU cluster ('PKBE')
- Original HIPSR GPUs removed from racks
- General GPU development ('PKBE')
- UWB Digitiser prototype to be installed ~June – used with existing 'legacy' receiver fleet for testing



Breakthrough Listen

- Installed single beam system in September & December 2016
- Multibeam system installation scheduled for next week (14th June – 20th June)
- Started time allocation on 4th October, officially 'kicked off' 8th November with Proxima B observation & press release
- ~4-5 hr observing blocks per day, varying in time (LST) for 2016OCT semester
- 10hr observing blocks per day, varying in time (LST) for 2017APR semester
- Higher allocation this semester to meet annual contract, with impact due to installation and multibeam timescales on last semester allocation

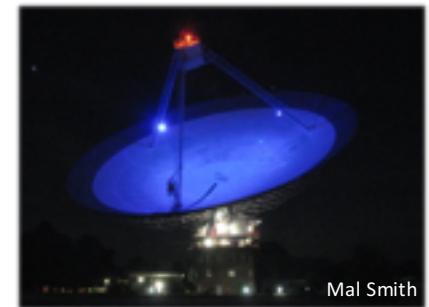
**BREAKTHROUGH
LISTEN**



Breakthrough Listen

- Data to be stored at Pawsey, initial allocation made, multibeam data first
- Pointed observations to date (nearby stars, Proxima B monitoring)
- Galactic plane survey (step and stare, ~15mins) to commence with Multibeam usage
- Commensal FRB searches proposed
 - Swinburne running BPSR simultaneously with Breakthrough multibeam observations
 - BPSR detection triggering ~20s of raw voltage data dump
 - Long term future potential for ring buffer for Berkeley to run during other observations for raw voltage capture

**BREAKTHROUGH
LISTEN**



Telescope Time

- Breakthrough Foundation purchased 25% of Parkes time across 5 years (average of ~750hrs per semester)
- Call put out for additional 25% for sale (i.e. max 50% of total time available for purchase)
 - Some interest, not yet finalised, may impact 2017OCT semester
- Scenario of 50% sold, plus continuing large projects dominating allocations, could present need to apportion dedicated 'small project' time – item for consideration for next ATUC meeting

User Support

- Training videos under development
- New Portal / FROG under development
 - FROG incorporated into Portal
 - Features include: Sleeker interface; Options to show planets, Galactic Plane, satellites; On focus Rx (+pointing params), dynamic wind limits, lightning counts (far/near/overhead) new additions; Direct MoniCA access; Observer in Charge simplified, only require contact phone as input; simplified booking system; Sub-bookings within an observing block possible (ATUC request)
 - Online 12-monthly “refresher” questionnaire may return in the future?
- New structure of ATNF Science has ‘Team Parkes’
 - led by George Hobbs, featuring Shi Dai, Jo Dawson, Simon Johnston, John Sarkissian, Lawrence Toomey – aiming to work on support activities, first meeting set for 19th June

The image displays three screenshots of the Parkes Observing Portal interface. The top screenshot shows a 'SLEWING TO NEW COORD' panel with a satellite image and a circular plot. The middle screenshot shows a scheduling grid for June 1-5, 2017, with various observing blocks and 'Breakthrough Listen' events. The bottom screenshot shows a 'MAINTENANCE MODE' panel with contact information for Brett Preiss and an emergency contact.

SLEWING TO NEW COORD
MCP: COMPUTER: REMOTE SERVO: false
04:37:15.90 [J2000.1] -47:15:09.0
Time to set: 06:00:23

AZ	ZE	EL
103.166	16.335	73.665

On Focus Platform1 Platform2
1050CM 1050CM MULTI
Translator: TRACK Y1 (mm) 319.3 Y2 (mm) 0.0 X1 (deg) 86.2 X2 (deg) 86.2 Z (mm) 403.0

On-focus receiver pointing solution:
RA DEC SRA SDB SZA SDB SZA SDB SZA SDB SZA SDB SZA

Connected to the MoniCA websocket, data streaming (168 points)

Now: P456 Next: P789 in 04h27m00s UTC: 01:02:59 AEST: 11:02:59 LMST: 03:54:58

Synoptic TPS Observing Book PTF Certification Schedule Help

Jun 1 - 5 2017 Timezone: UTC- Reload

day	Thu 1/6	Fri 2/6	Sat 3/6	Sun 4/6	Mon 5/6
00:00	P456	Breakthrough Listen	Breakthrough Listen	P871	P174
01:00				P871	
02:00				P871	
03:00				P871	
04:00				P871	
05:00	P789	P456		P455	
06:00				P455	
07:00				P455	
08:00				P455	
09:00				P455	
10:00				P455	
11:00				P455	
12:00				P455	
13:00				P455	
14:00				P455	
15:00				P455	
16:00				P455	
17:00				P455	

Now: P456 Next: P789 in 04h35m18s UTC: 00:54:41 AEST: 10:54:41 LMST: 03:26:34

Synoptic TPS Observing Book PTF Certification Schedule Help

MAINTENANCE MODE G Mode G Observer in Charge G Support G Show Alerts G Add Alert

Chat connected using websocket.

MAINTENANCE CONTACT
Brett Preiss
+61 2 6861 3715

EMERGENCY CONTACT
+61 427 001 583

Users Online

PULSE@Parkes -> OPTIMUS on PRIME

- PULSE@Parkes programme
 - Pulsar focused, secondary-level education programme with real-time access to, and control of, Parkes Telescope
 - ~1500 high school students to date, ~130 schools, sessions across Australia, plus Canada, China, England, Japan, South Africa & Wales
- Undergraduate Extension to the programme
 - **Observing with Parkes, Training and Introduction, Module for University Science: OPTIMUS**
 - Part of CSIRO's 'ON PRIME' development scheme
 - Undergraduate level training package including Parkes telescope time
 - Extending/varying science to include other aspects
 - We'd love your input on developing this – please contact Rob Hollow, George Hobbs or myself!



Thank you

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