ATUC Parkes Report

December 2005

Staff changes

- Two staff on maternity/parental leave.

Parkes Observing statistics

(2005OctS; cf 2005 2004, 2003, 2002)

- Scheduled observing

  81% (74%, 74%, 64.5%, 82%)

- Director's Time : 8% (17%, 11.5%, 6.7%)

- Maintenance/tests/shutdown

  12.5% (9%, 9.9%, 26.1% 18.0%)

Parkes downtime statistics
(YTD 2005, 2004, 2003, 2002)

- 1.1% (1.1%, 1.3%, 1.4%) equipment faults
- 2.2% (3.1%, 3.8% 3.8%) weather
- > 1% RFI

Behind the stats

- Equipment failures this year;
  - Jan-Jun : 0.8%
  - Jul-Dec : 1.4% (10h to faulty receiver)

- RFI assessment from experienced pulsar observer;

  “Parkes has the best RFI environment for pulsar searching of any comparable observatory”.

Parkes observer feedback

2005 YTD (2004, 2003, 2002, 2001)

- 33 (24, 37,26,34) responses using WWW form

9.2 (9.5, 9.2, 9.2, 9.1) Tech support
9.2 (9.3, 9.0, 9.1, 9.2) Admin support
9.4 (9.7, 9.0,) Training
8.8 (8.7, 8.9, 8.5, 8.8) Overall

8.4 (7.8, 8.3, 7.4, 7.7) Offline software
7.9 (7.7, 7.6, 7.4, 7.6) Documentation
7.8 (7.0, 7.2, 6.1, 6.7) RFI (freedom from)

7.9 (7.8, 8.0 …) Offline computing (Linux wkstns)
7.7 (7.9, 6.9, 8.3, 7.7) Library (visitor workspace)

20cm Multibeam receiver

- 20cm Multibeam refurbishment tentatively scheduled for April 2006.
- Will take 4-5 months (receiver offline)
- Current status:
  - 3 outer beams not usable for pulsar searching (microphonic birdies)
  - 1 or more beams not usable for HI (unstable gain)
  - Refrigeration is barely adequate

20cm Multibeam Refurb Phase I

- Receiver re-installed Sep 2004
- Target (original specs or better) met
- 14 of 26 original LNAs replaced
- Worst of corrosion controlled

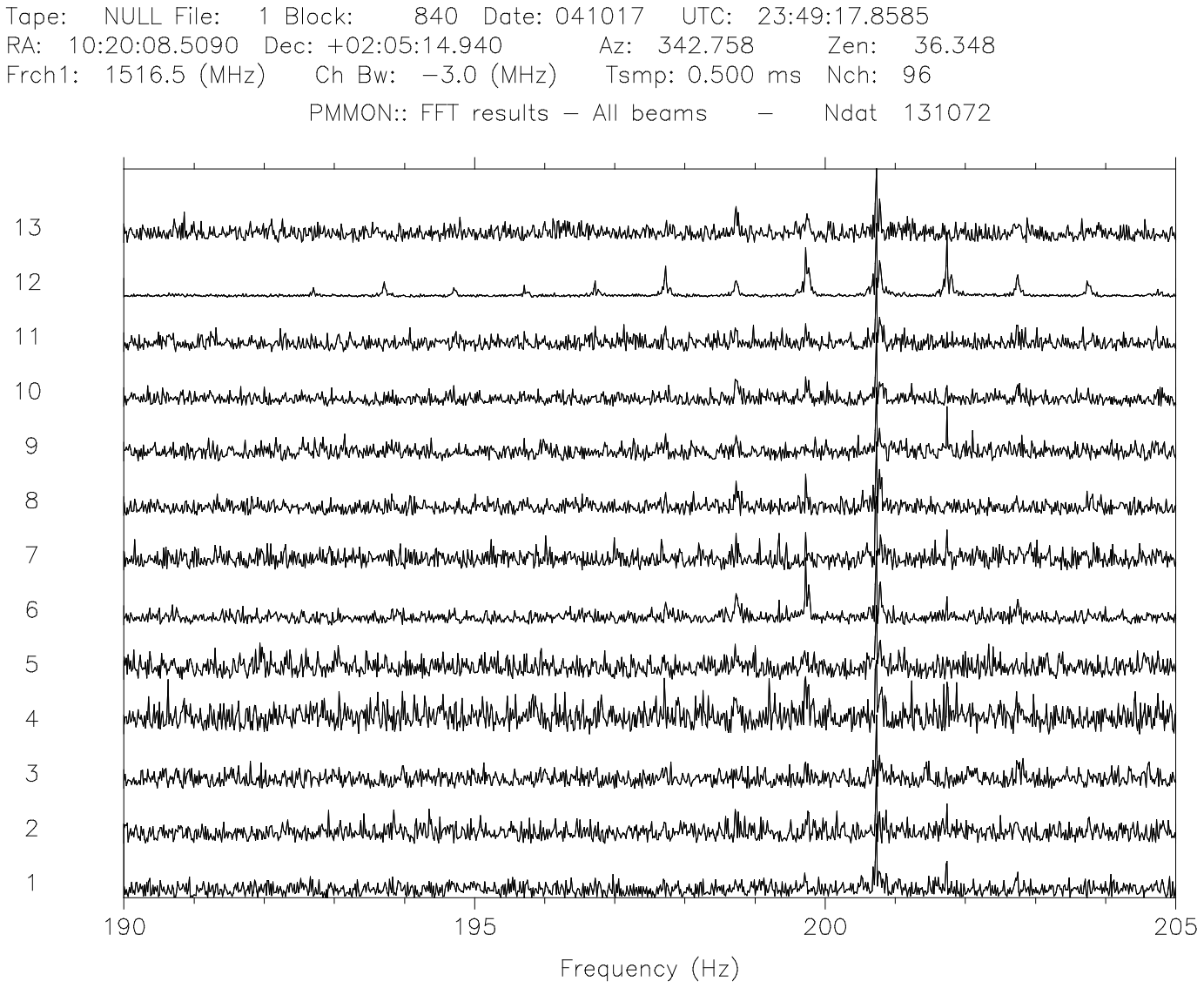
- A strange microphonic problem on some beams affecting pulsar searches.

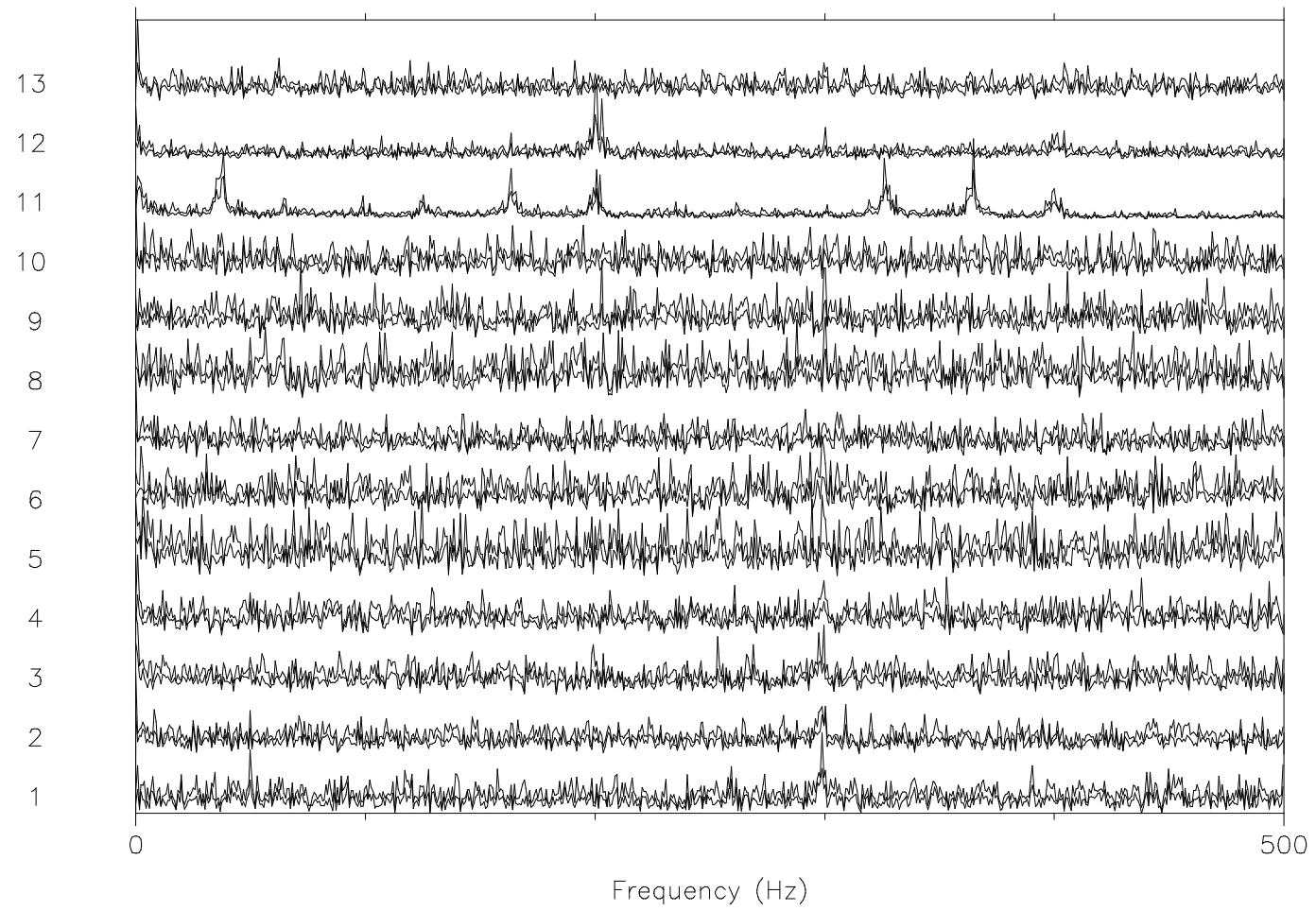
20cm Multibeam Refurb Phase II

- Replace remaining 12 original LNAs
- Repairs, modifications of other pressing problems
- Improve cooling (new refrigerators?)

- When?
  - New provisional date: April-September 2006.

    User/ATUC input requested.


Tape: NULL File: 1 Block: 840 Date: 041017 UTC: 23:49:17.8585
RA: 10:20:08.5090 Dec: +02:05:14.940 Az: 342.758 Zen: 36.348
Frch1: 1516.5 (MHz) Ch Bw: −3.0 (MHz) Tsmp: 0.500 ms Nch: 96
PMMON:: FFT results – All beams – Ndat 131072
13
12
11
10
9
8
7
6
5
4
3
2
1
190
195
200
205
Frequency (Hz)


Tape: DJH002 File: 3 Block: 3135 Date: 050315 UTC: 23:09:40.7702
RA: 19:30:23.5940 Dec: +20:46:45.000 Az: 341.132 Zen: 56.094
Frch1: 1516.5 (MHz) Ch Bw: −3.0 (MHz) Tsmp: 0.125 ms Nch: 96
PMMON:: FFT results – All beams – Ndat 32768
13
12
11
10
9
8
7
6
5
4
3
2
1
0
500
Frequency (Hz)

MMB (6-7GHz 7-beam MB) receiver

- Receiver construction delayed by ~2 months.
- Nov 2005 – trial installation, limited tests
- Installation now 16th January 2006
  (dual-frequency)
- Receiver will be mountable on either rotator (any two of 10/50cm, MMB 20cm MB can coexist)

K-band (13mm) upgrade

Project concept for new receiver package;

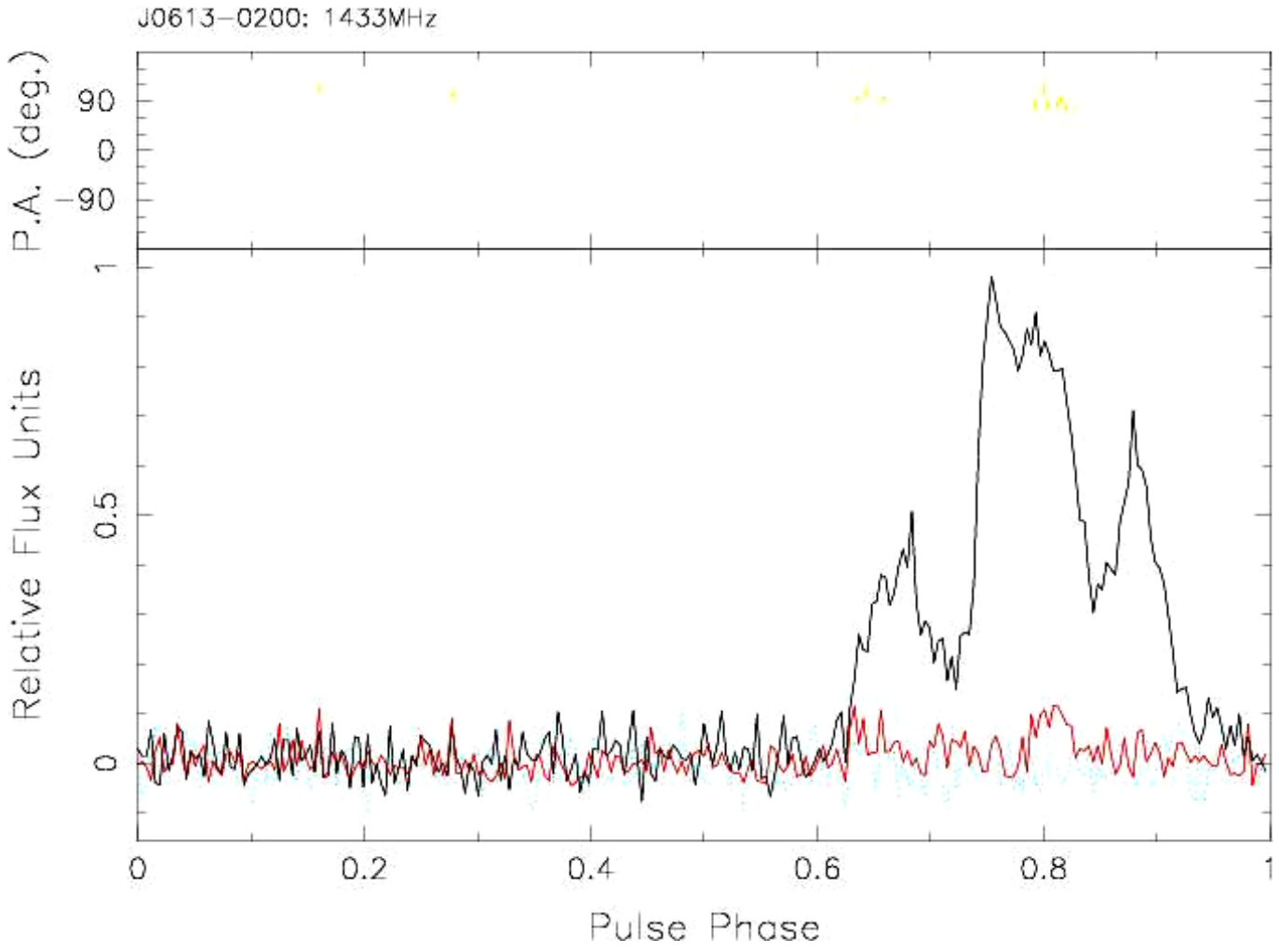
- single horn, dual polarization
- 50~60K, 200-220Jy SEFD (5db improvement)
- 1GHz bandwidth (c.f. e-VLBI)
- 16-26GHz coverage (linear pol)
- VLBI option for ~22GHz (circ pol)

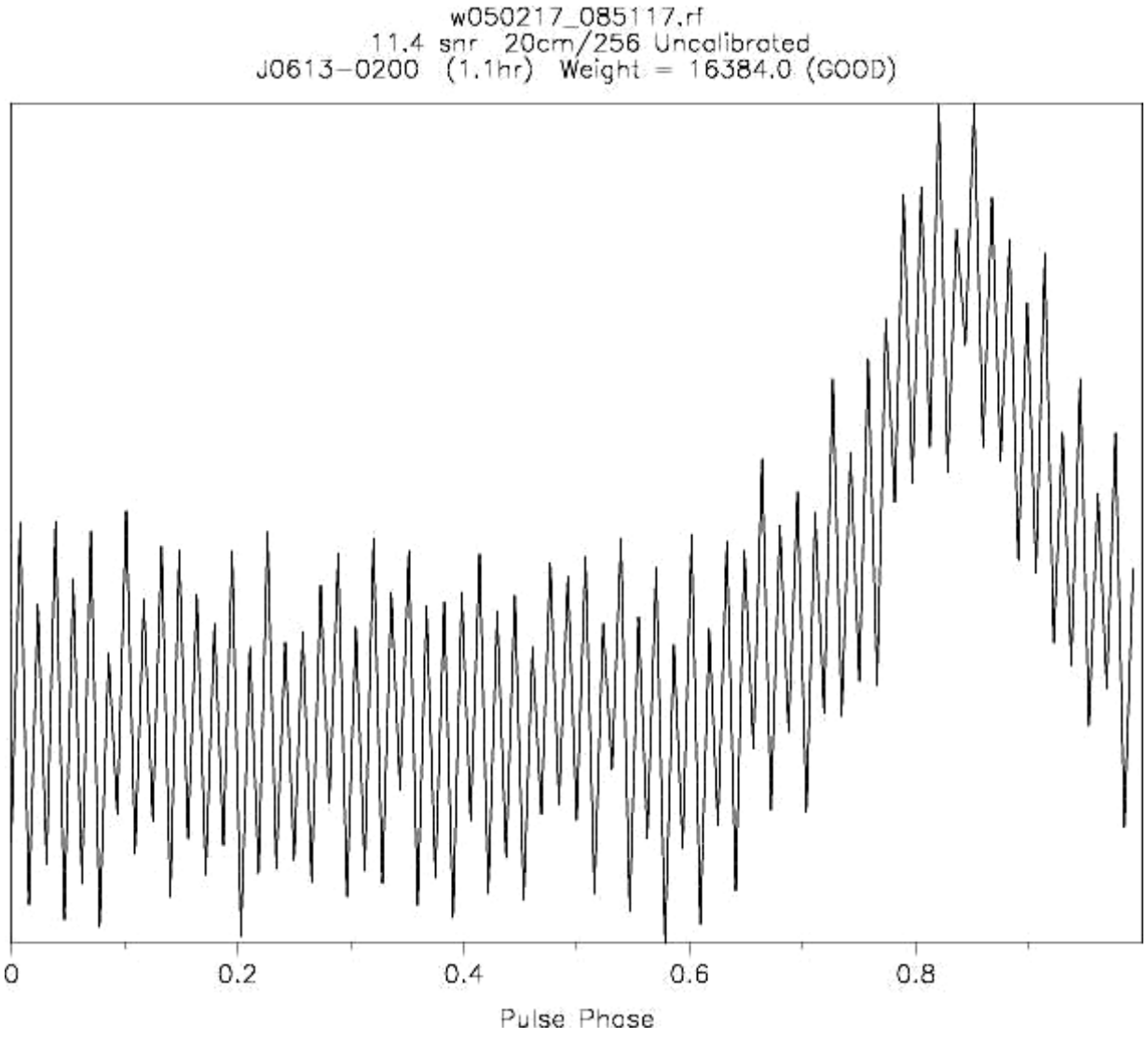
Project approved in principle but awaiting detailed plan (completion end of 2007?)

Pulsar Digital Filterbank(s)

- Mark 1 (prototype) commissioned June 2005
  - 256MHz bandwidth only, 2 inputs, limited time resolution
- Mark 2 expected early 2006
  - 512MHz bandwidth, roughly ½ of final time resolution for P<8mS
- Mark 3 (final) expected in 2006AprS
  - 1024MHz bandwidth, 4 inputs, full time resolution

DFB vs WBC – ms Pulsar timing




w050217_085117.rf
11.4 snr 20cm/256 Uncalibrated
J0613-0200 (1.1hr) Weight = 16384.0 (GOOD)
0
0.2
0.4
0.6
0.8
Pulse Phase

Other stuff

- Polarization
  - Progress in regularising polarization observations (both pulsar and spec. line)
  - Continuum polarization mapping: possible low-level problem with WBC. Under investigation.
- Dual frequency GPS now operational

Visitor Centre

- Visitor numbers remain firm
- 4000 visitors over October long weekend
- Dynamic program of events (e.g. Rocket Day, Reading Relay….)
- VC Recently won Hospitality and Tourism award in annual Parkes Business Awards.


The End