ANDS-ATNF Pulsar Data Archive

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What to expect when expecting…

- Me
- *"These talks are great! I'd like to use psrchive/tempo2/dspsr with some data… But, how do I get some data?"*
- *What* is the ANDS-ATNF pulsar data archive?
- *How* to use the ANDS-ATNF pulsar data archive

Who/What am I?

- “Dui bu chi. Wo bu hui jiang zhong wen.”
- Working at the ATNF (CSIRO, Australia) for 4 years, software development for Dick Manchester (and the pulsar group)
- PPTA – Parkes Pulsar Timing Array (Dick Manchester)
- Psrchive: see Willem’s talk; dspsr: folds search-mode data
- PULSE@Parkes – a high-school educational outreach project (George Hobbs)
- **ANDS-ATNF Pulsar Data Archive (George Hobbs) – an online access point to obtain pulsar data**
- ASKAP computing (Tim Cornwell)

Learn

A pulsar presentation custom…

Why use the data archive?

- Easy to use – designed by pulsar astronomers; developed by professional software engineering team (robustness)
- 144 044 data files in the system (since 1991): 100 000 survey files; 44 044 observations of known pulsars
- Online – accessible from anywhere
- Contains different data types:
  - Search-mode data: used for studies on single pulse
  - Fold-mode data: produce pulse profiles (e.g. Wenming's work, PPTA, etc.)
- I worked on it

State of play

- Paper, Hobbs et al., has been submitted and is currently being refereed (please read if the data archive is used your project) – pre-prints are available now for those interested
- In the future:
  - more historical pulsar data will be added to the database
  - automatic ingest of *all* pulsar data taken at Parkes

The ANDS-ATNF pulsar data archive

Pulsar data @ Epping

- Download *any* pulsar observation taken at Parkes (conforming to the 18-month embargo policy) - http://datanet.csiro.au - *try it now!*

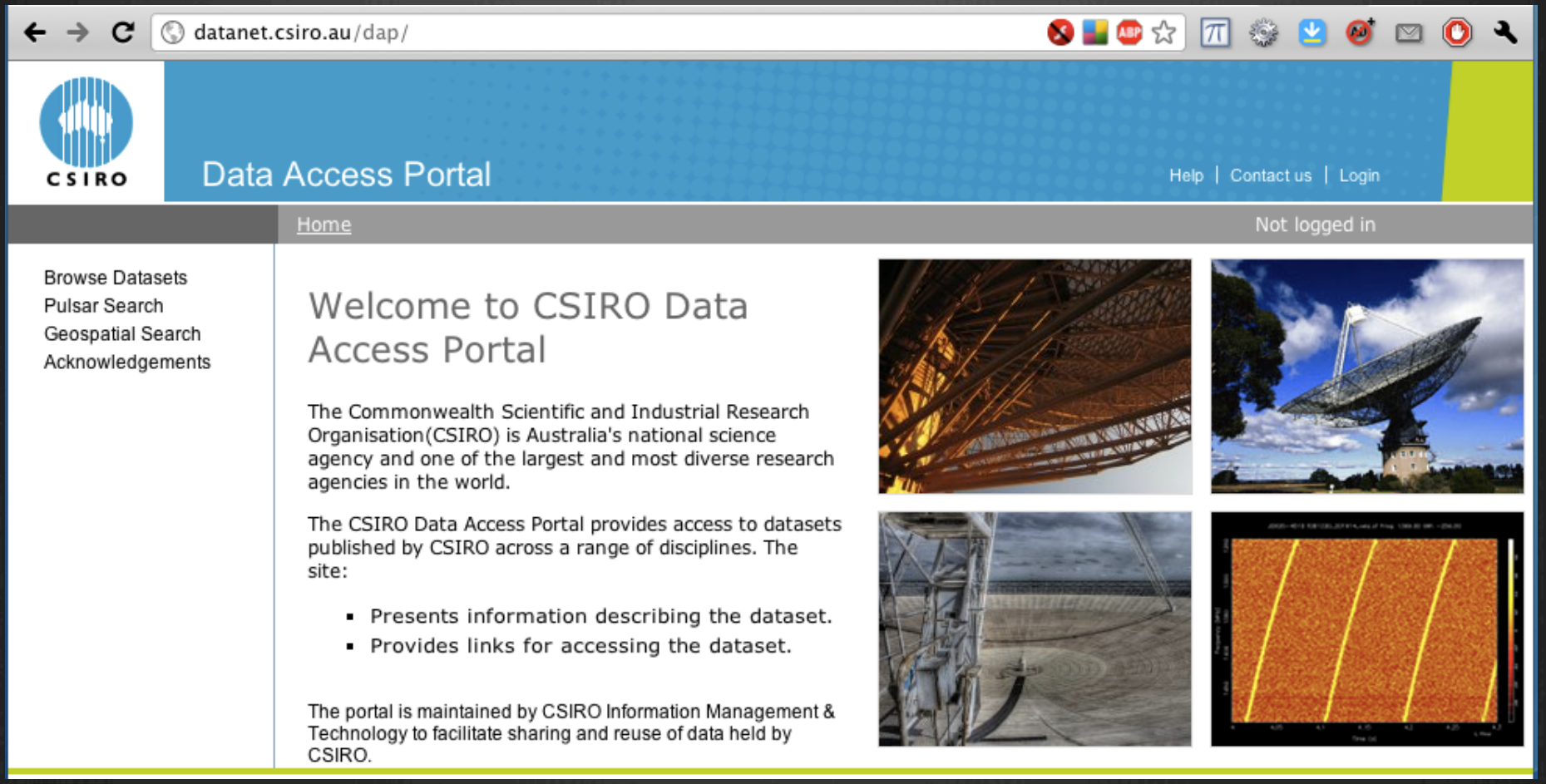
Data Access Portal (DAP)

- http://datanet.csiro.au
- Two Australian companies (CSIRO & ANDS) working together to create a website allowing science data to be obtained
- A 9-month *agile* project (8 x 3-week sprints), interchanging with another ANDS prototype project
- Java (background) and zk (web interface)
- My role: part-time software developer; core development team located in Canberra

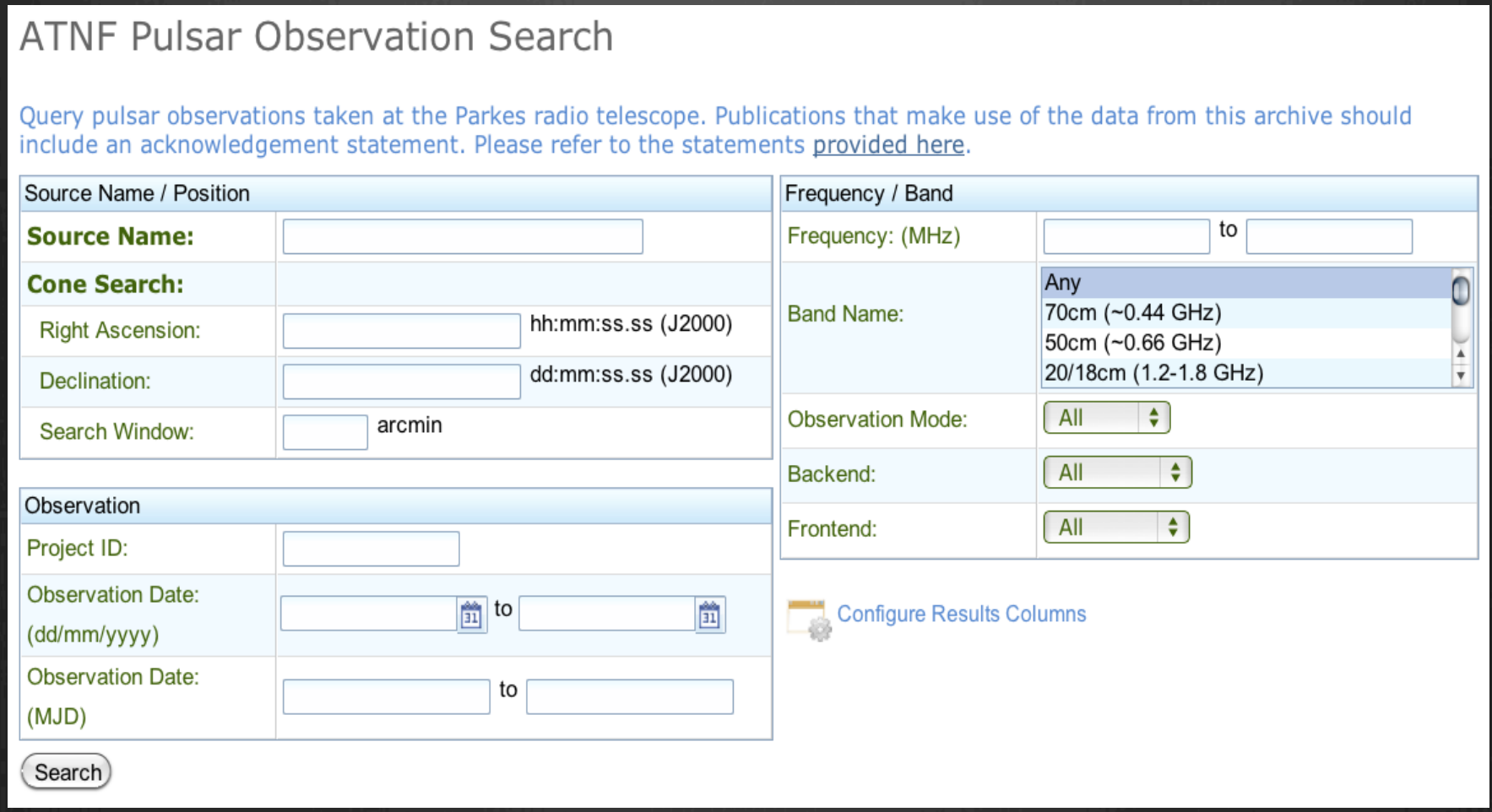
VO compliancy

- Virtual Observatory format was chosen so that VO tools (programs) can be used to perform operations on the data
- International Virtual Observatory Alliance - http://ivoa.net

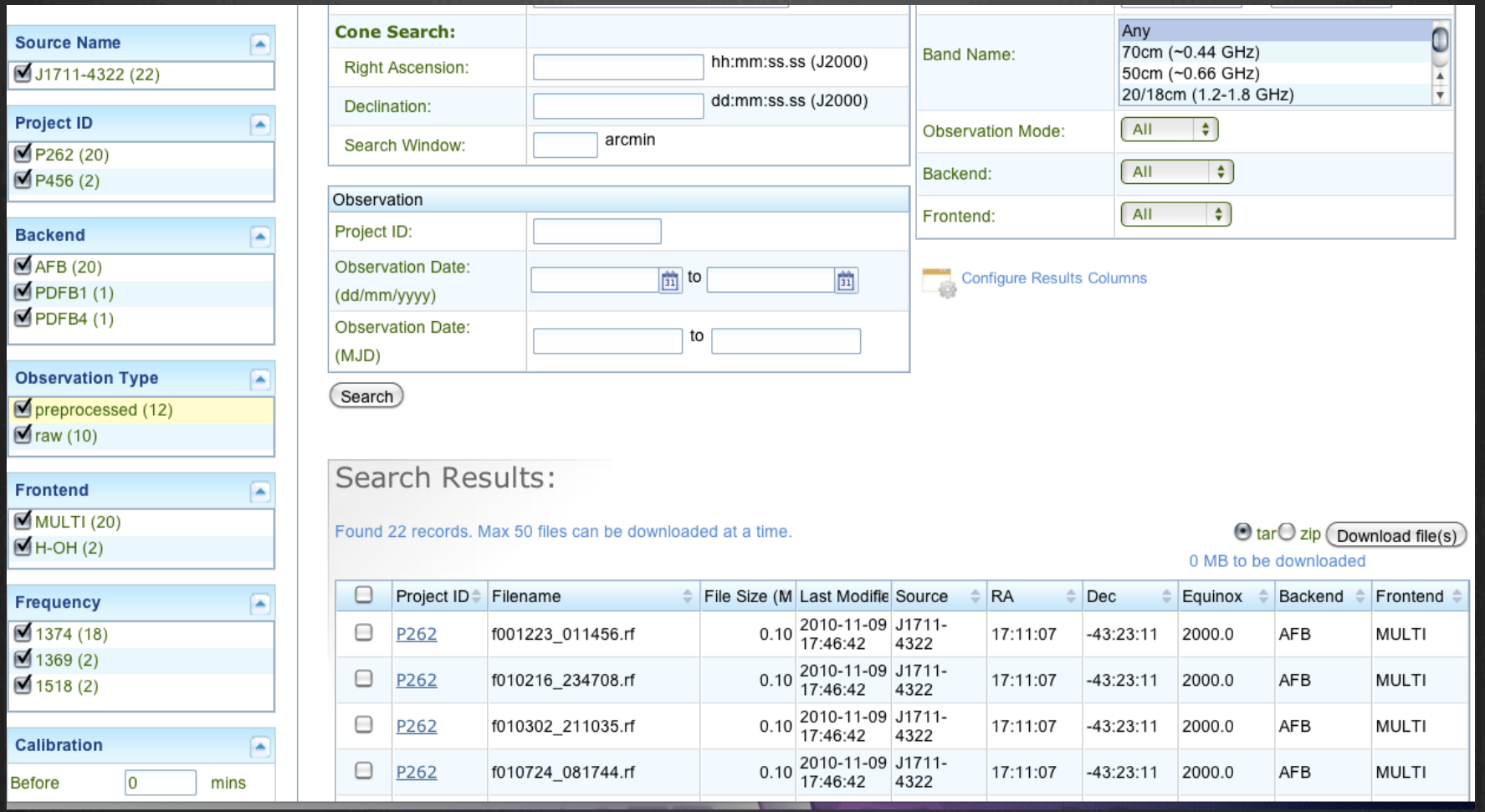
1. DAP - http://datanet.csiro.au



2. Enter favourite pulsar name



3. View (and refine) results



3a. Calibration search (optional)

3b. Consider pre-processed files

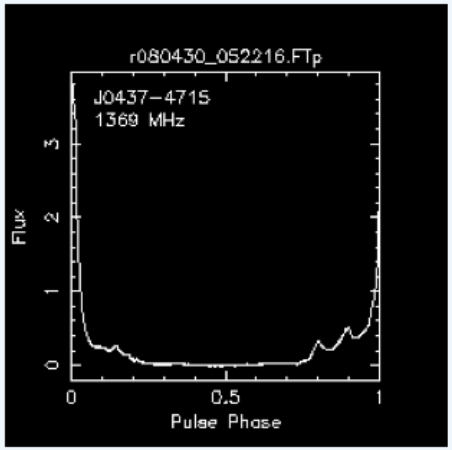
Observation Type
- raw (7706)
- preprocessed (7593)

Frontend
- MULTI (5245)
- 1050CM (5122)
- H-OH (1674)
- MULT_1 (1654)
- Unknown (1294)
- 70CM (196)
- 1010CM (72)
- 50CM (20)
- 5010CM (12)
- METHMB (8)
- 1 (2)

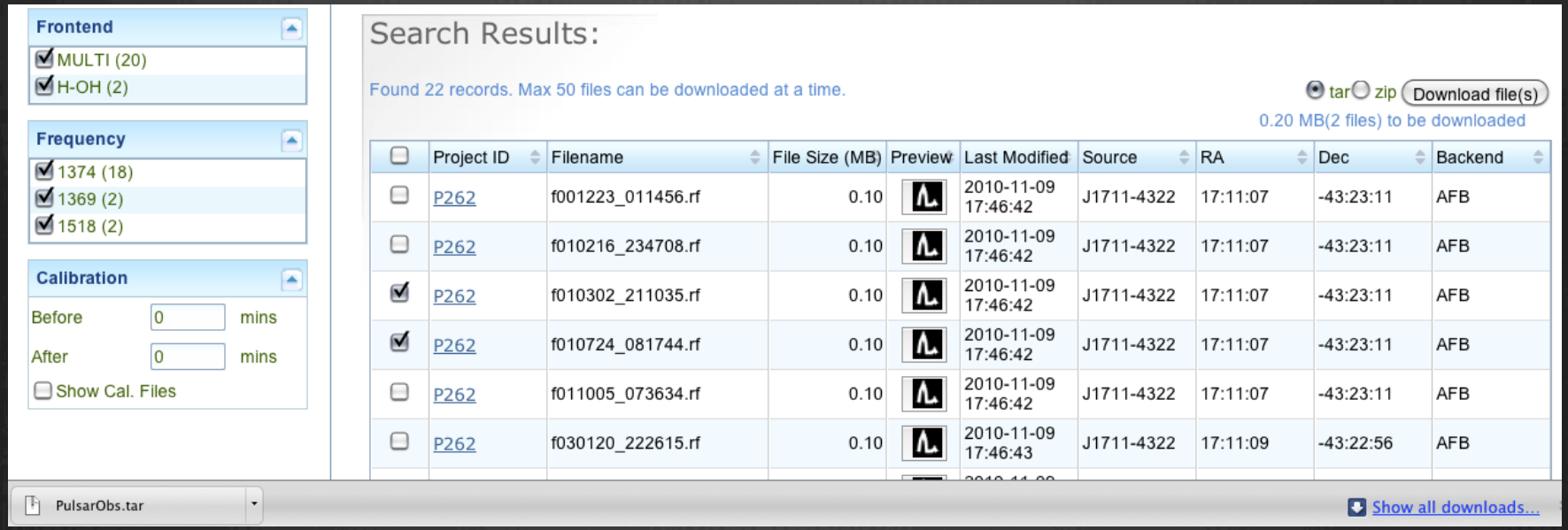
Frequency
- 1341 (2966)
- 1405 (2866)
- 1369 (2657)
- 685 (2337)
- 3100 (2133)
- 1433 (647)
- 0 (641)

☐	P262	f020703_211917.rf	0.10		2010-11-09 17:37:13	J0437-4715	04:37:15	-47:15:07	AFB
☐	P262	f980208_094644.rf	0.10		2010-11-09 17:37:14	J0437-4715	04:37:15	-47:15:08	AFB
☐	P262	f980815_163651.rf	0.10		2010-11-09 17:37:14	J0437-4715	04:37:15	-47:15:08	AFB
☐	P595	r080430_024526.rf	48.30		2011-03-14 10:26:30	J0437-4715	04:37:15	-47:15:08	PDFB2
☐	P595	r080430_051326.rf	48.30		2011-03-14 10:26:31	J0437-4715	04:37:15	-47:15:08	PDFB2
☐	P595	r080430_052216.rf	48.30					:08	PDFB2
☐	P595	r080430_053115.rf	48.30					:08	PDFB2
☐	P595	r080522_011605.rf	40.20					:08	PDFB2
☐	P595	r080627_025610.rf	40.20					:08	PDFB2
☐	P595	s080813_004600.rf	32.20					:08	PDFB3
☐	P595	s081028_133645.rf	16.10					:08	PDFB3
☐	P595	s090512_012854.rf	48.30					:08	PDFB3
☐	P595	s090512_021950.rf	32.20					:08	PDFB3
☐	P595	s100519_010413.rf	48.30					:08	PDFB3
☐	P595	s100617_015226.rf	32.20		2010-06-17 11:56:03	J0437-4715	04:37:15	-47:15:08	PDFB3

Preview of r080430_052216.rf



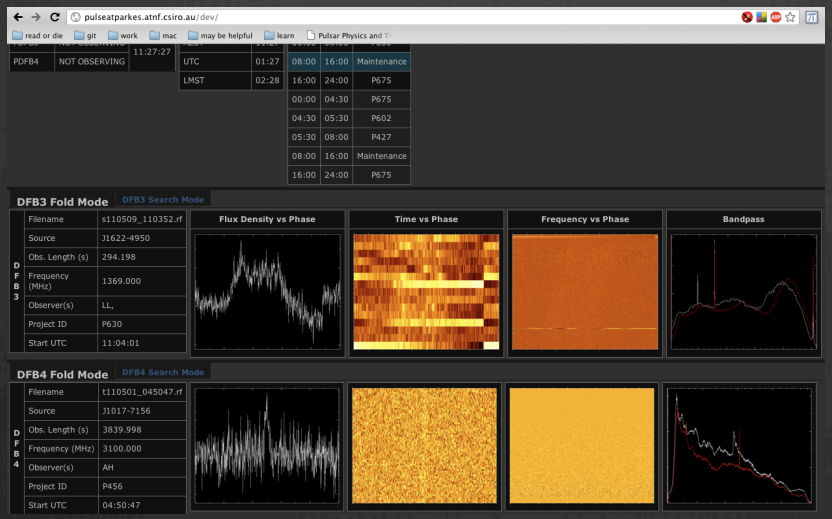
4. Download files



- Download limit: 50 files.
- Filesizes can be very large – use pre-processed files if required

Then what?

- Psrchive and dspsr data manipulation and visualisation (see Willem's talk)
- Tempo2 data analysis (see George's talk)
- Parkes Online Monitor - http://pulseatparkes.atnf.csiro.au/dev



“Xie Xie” – D. Yardley

- Chen Ding and NAOC for the invitation to present a talk on the pulsar data archive
- Pangfei for being very reliable (and great translator)
- George Hobbs for the opportunity to work on the project