

Pulsar Busy Week 7

Towards an automated pulsar pipeline



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on behalf of

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et al. (i.e. everyone involved with LOFAR)



LOFAR

LOFAR Status Meeting

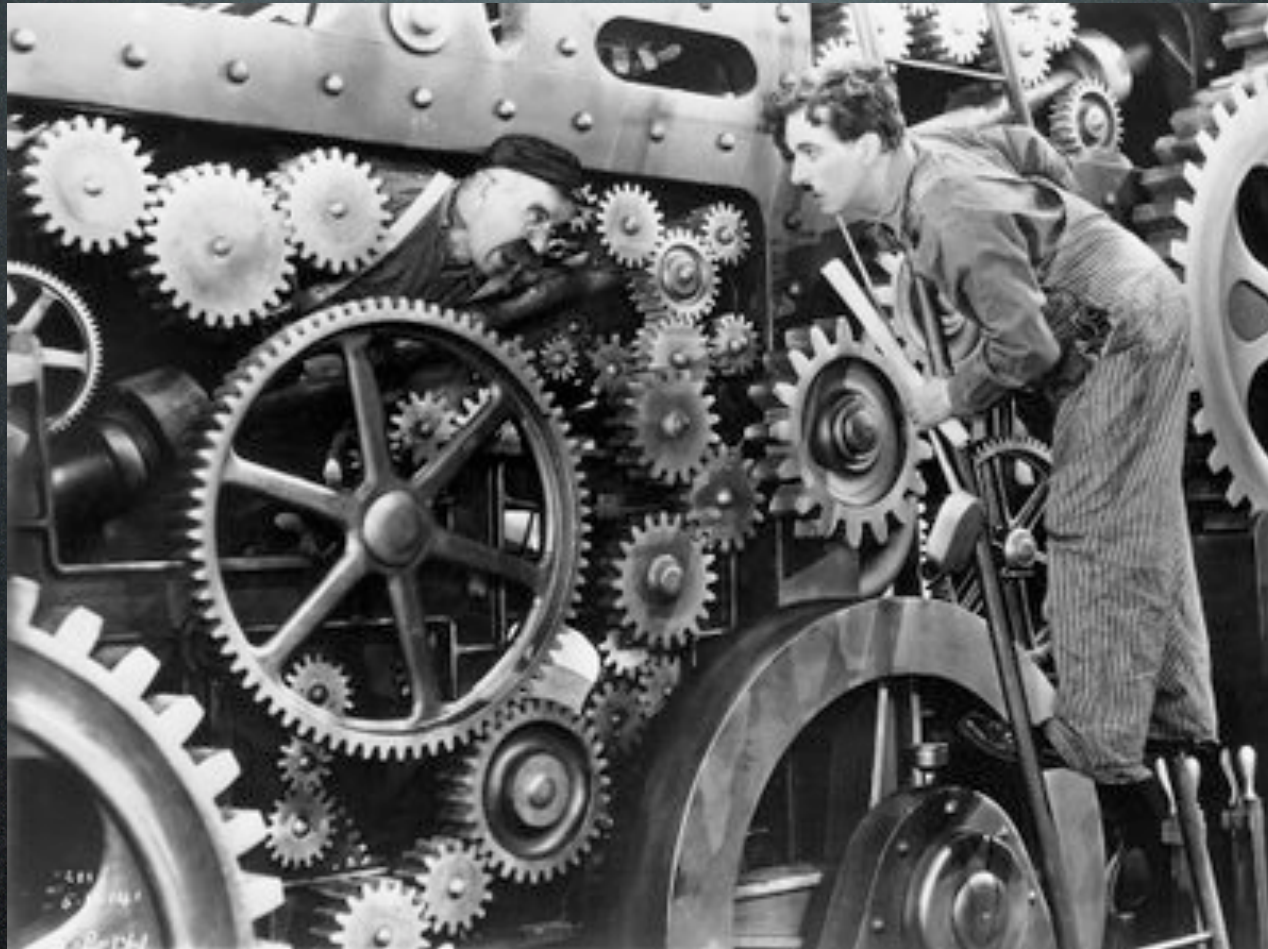
ASTRON - March 17th, 2010

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Pulsar Busy Week 7: Goals

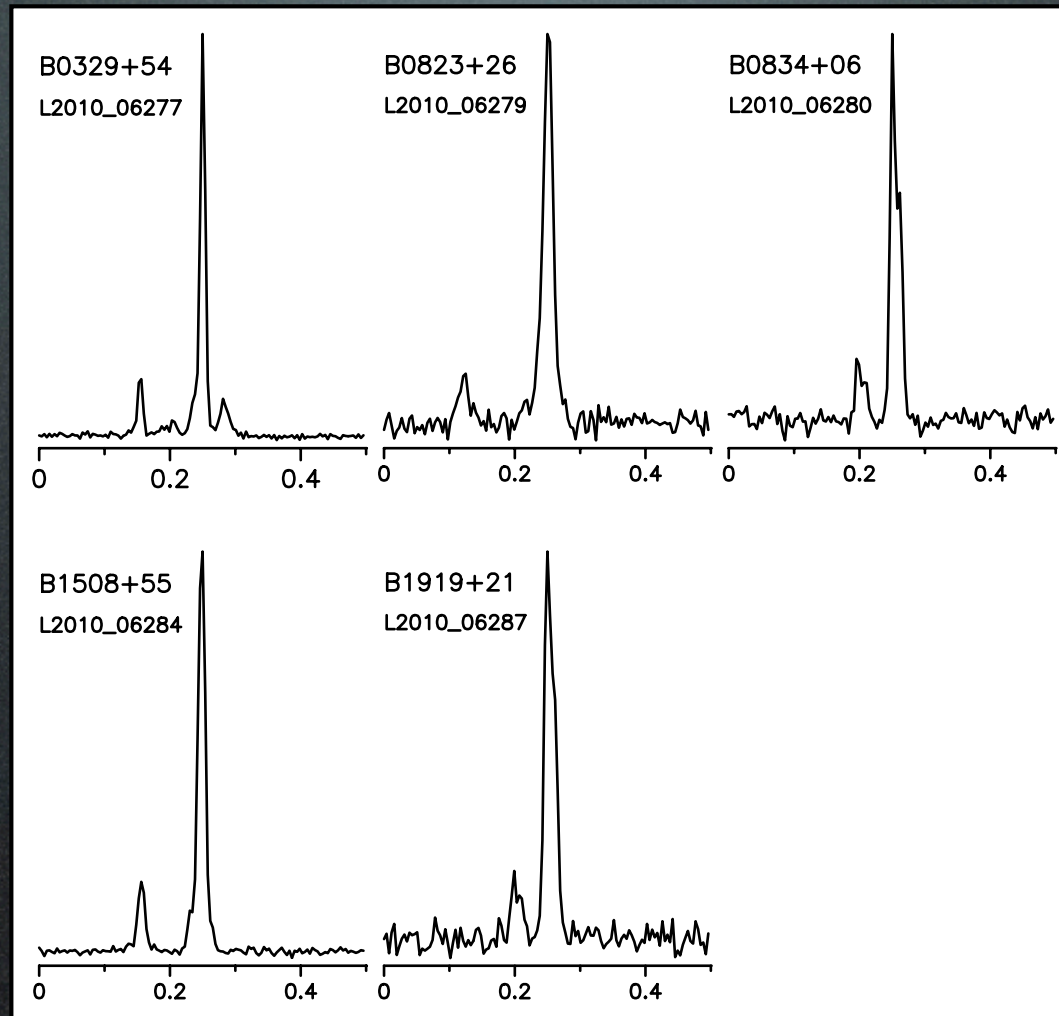
- Instead of new functionality, focus on robustness and ease of standard observations.
- Automate both the data taking and post-processing as much as possible.
- Verify integration into SAS/MAC and MoM.
- Run blocks of short observations overnight.
- This is desperately needed for many types of commissioning tests (e.g. sensitivity stability and timing tests).

The situation on Monday...



Various problems: BG/P hardware, floaded switches on offline cluster, new firmware on stations

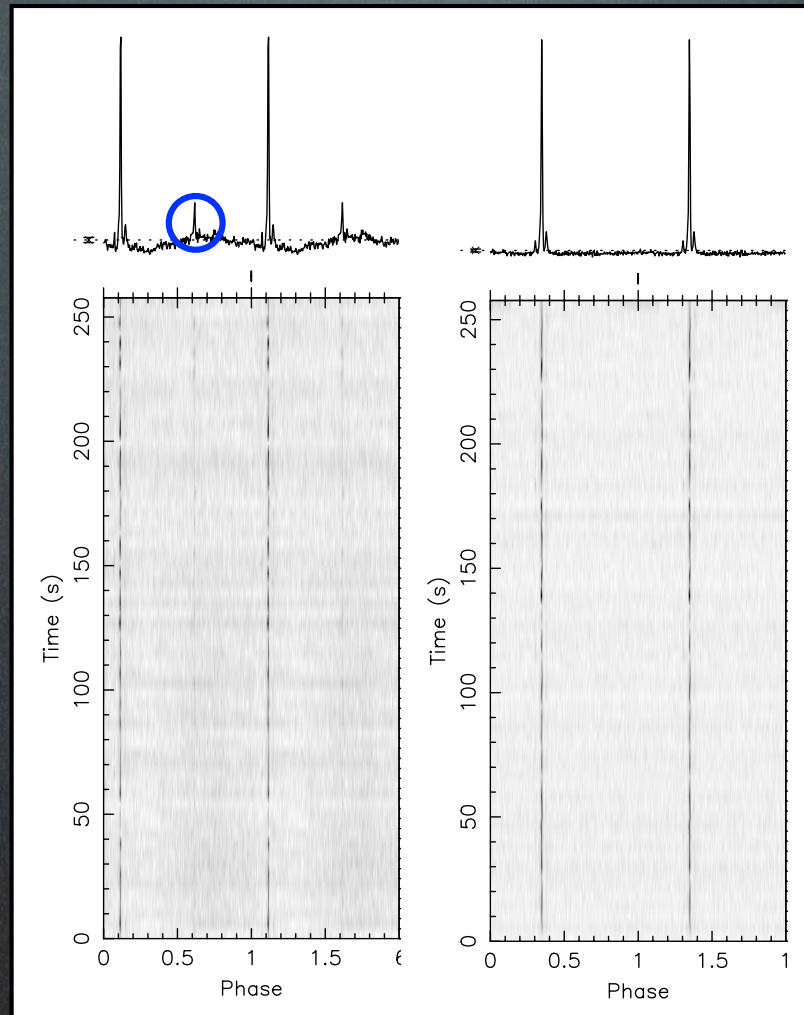
CS024: ~70-ms clock offset?



We need to have an automated check of clocks

I/O node buffer

OLAP.nrSecondsOfBuffer=2.5
%zeroes = 23!



OLAP.nrSecondsOfBuffer=4.0
%zeroes = 0.4

Add more sanity checking of parsets

Beam-formed obs in MoM

The screenshot shows a web browser window titled "Project Explorer" with the URL <http://lofar.astron.nl/mom3/user/main/explorer/setupExplorer.do?selectedProjects=52>. The browser's address bar and navigation buttons (Terug, Vooruit, Vernieuwen, Stoppen, Startpagina) are visible. Below the browser, a navigation menu includes links for "Meest bezocht", "Astro-ph", "Pulsar", "Music", "Blogs", "Comics", "Enviro", "Mac", "Grants", "Astro", "UvA/ASTRON", "Procrastination", "Books", "Jobs", "Bank", "Interferometry", "SKA", "LOFAR", and "Nederland".

The main content area features a "My Account" link and "Help Index" and "Logout" buttons. Below these are tabs for "Project List", "Query List", "Project Explorer", and "Preferences". A toolbar contains buttons for "Copy selected", "Move selected", "Delete selected", and "Change status".

A table displays project information:

ProjectExplorer	Status	ID
<input type="checkbox"/> <input type="checkbox"/> Pulsars	active	LOFAR Pulsar test project

Buttons for "Add" and "Details" are located next to the Pulsars entry. At the bottom of the page, a footer indicates "BUILD 2010-03-15 01:49 UTC".

Courtesy Hanno Holties and Nico Vermaas



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Observed with SAS/MAC

Master List of LOFAR Pulsar Commissioning Observations

Pulsar Christmas Observations: Dec 24, 2009 - Jan 4, 2010

Obs ID	Date	Source	Band	Duration	Storage	Archive	Comments
L2010_16282	2010-01-06	B0809+74	HBA	18hr	lse01[3-5] /d4		Inc (2e jaars students)
L2010_16281	2010-01-06	B1508+55	LBA	1hr	lse01[3-5] /d3		Inc (2e jaars students)
L2010_16280	2010-01-06	B1508+55	HBA	1hr	lse01[3-5] /d3	lse013	FE+Inc (2e jaars students)
L2010_16279		B0809+74	LBA	18hr	lse01[3-5] /d3		Inc
L2010_16278		B0809+74	LBA	16hr	lse01[3-5] /d3		Inc
L2010_16277		B1508+55	HBA	1hr	lse01[3-5] /d3	lse013	FE + Inc
L2009_16268		B1508+55	HBA	1hr	lse01[45] /d3	lse013	FE + Inc
L2009_16267		B0531+21	LBA	5hr	lse01[45] /d3	lse013	FE + Inc
L2009_16254		B1508+55	HBA	1hr	lse01[3-5] /d3	lse013	FE + Inc
L2009_16253		B0531+21	LBA	5hr	lse01[3-5] /d3	lse013	FE + Inc
L2009_16241		B1508+55	HBA	1hr	lse01[3-5] /d3	lse013	FE + Inc
L2009_16223		B1957+20	HBA	1hr	lse01[0-5] /d3		RAW DATA
L2009_16218		B1508+55	HBA	1hr	lse01[3-5] /d3	lse013	FE + Inc
L2009_16217		B0531+21	LBA	5hr	lse01[3-5] /d3	lse013	FE + Inc
L2009_16216		J2145-0750	HBA	30min	lse01[3-5] /d3	lse013	Inc / 32 chan
L2009_16209		B1508+55	HBA	1hr	lse01[3-5] /d3	lse013	FE + Inc

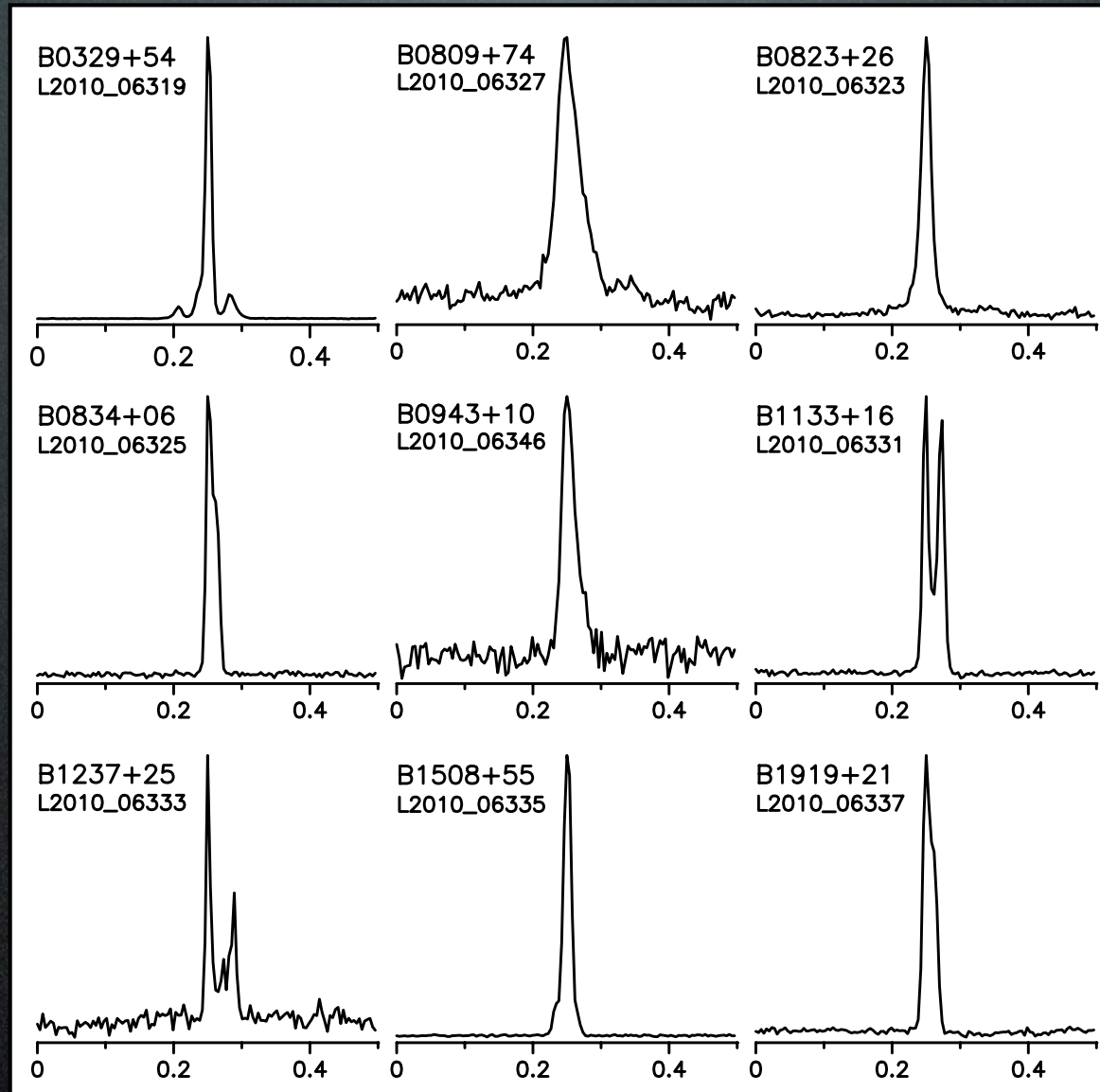
9/10 Obs Wed., Mar. 10-11th
 9/11 Obs Thu., Mar. 11-12th
 21/24 Obs Fri., Mar. 12-14th
 5/13 Obs Tue., Mar 16-17th



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PBW7: Best Data Yet!

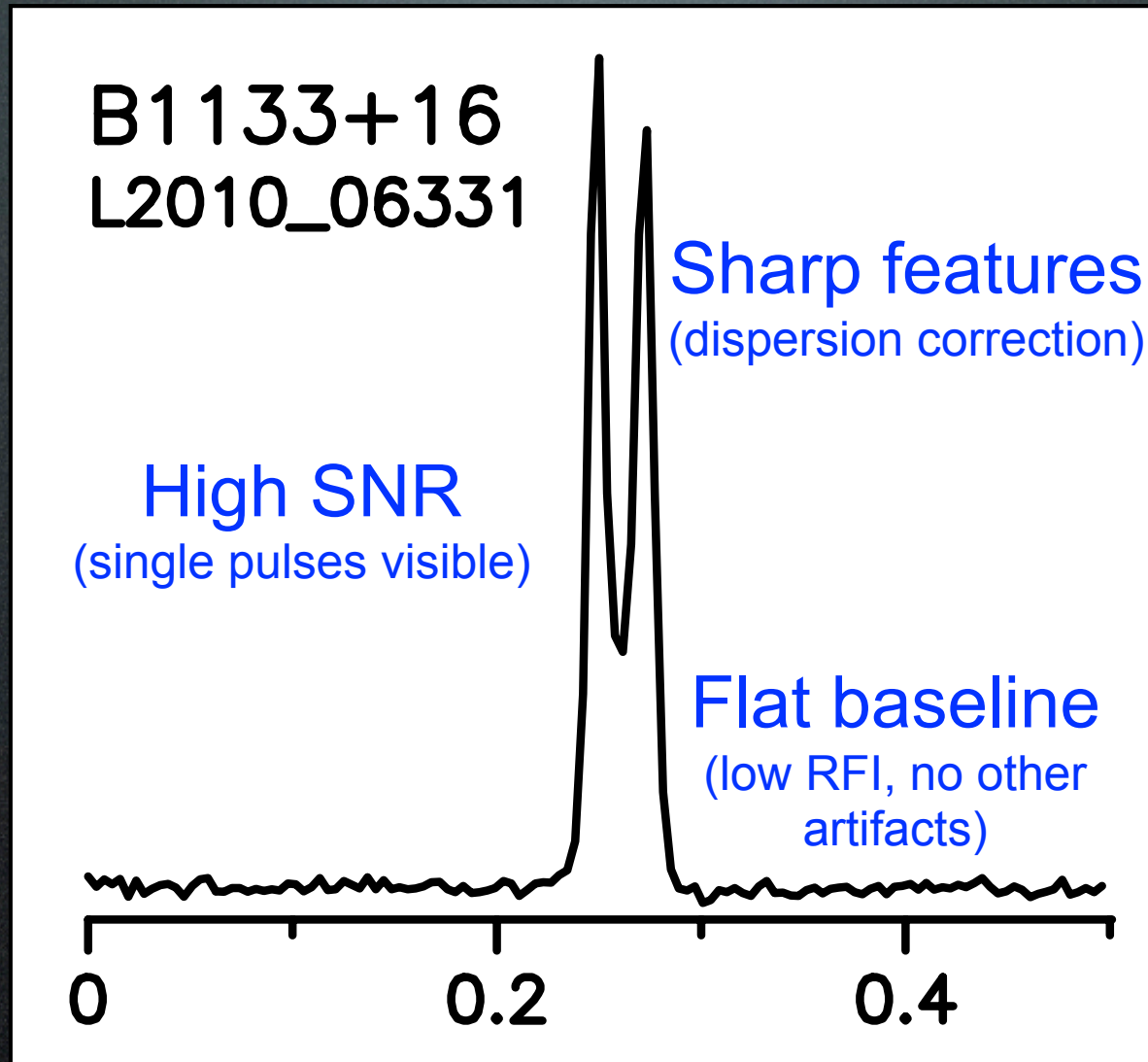


LOFAR

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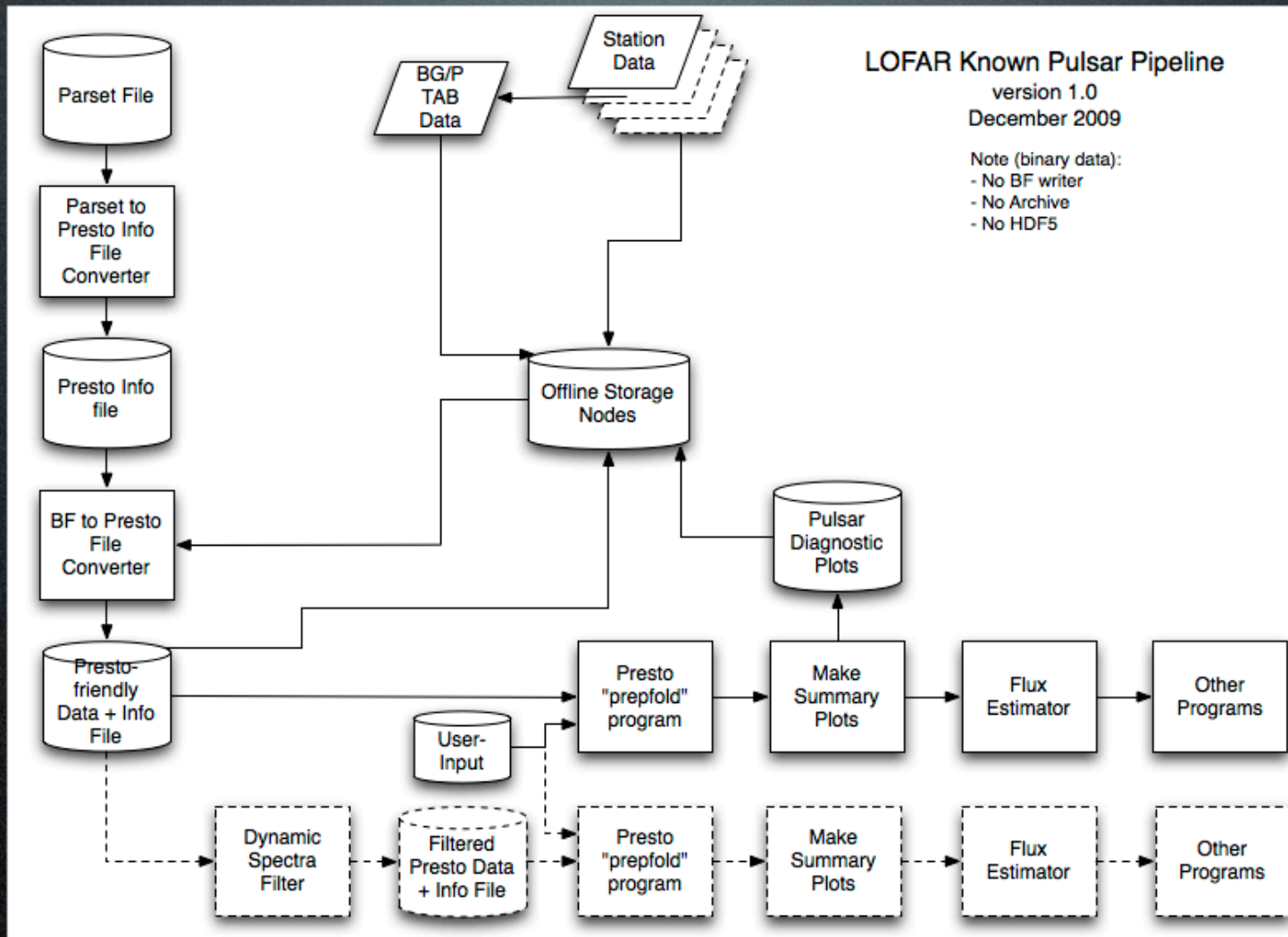
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PBW7: Best Data Yet!



Should ultimately get 10x higher SNR with full LOFAR!

PBW7: Post-processing



Important aid in commissioning, runs ~realtime

With a mostly automated pipeline...

- Routinely run short, 5-minute pulsar observations to check system after any major software or firmware upgrade.
- Implement functionality in MoM so that blocks of observations can easily be repeated on different days.
- Make optimal use of system at night and on weekends (ensure system is in a stable state 1 hour before end of work day and then setup observations).

Summary

- As usual, the week started out with some confusing bugs to solve.
- These issues were resolved and data-taking is now easier and more robust than ever before.
- Automated SAS/MAC-driven observations over the whole weekend of March 12-14th!
- Basic integration of beam-formed observations into MoM.
- Progress made on sticking current pipeline scripts into the general LOFAR pipeline framework.
- Opens lots of commissioning possibilities!

