Radio observatory report and current LOFAR issues

Michiel Brentjens

Radio Observatory
ASTRON, Dwingeloo, The Netherlands

LOFAR status meeting 20090610

ASTRON

Outline

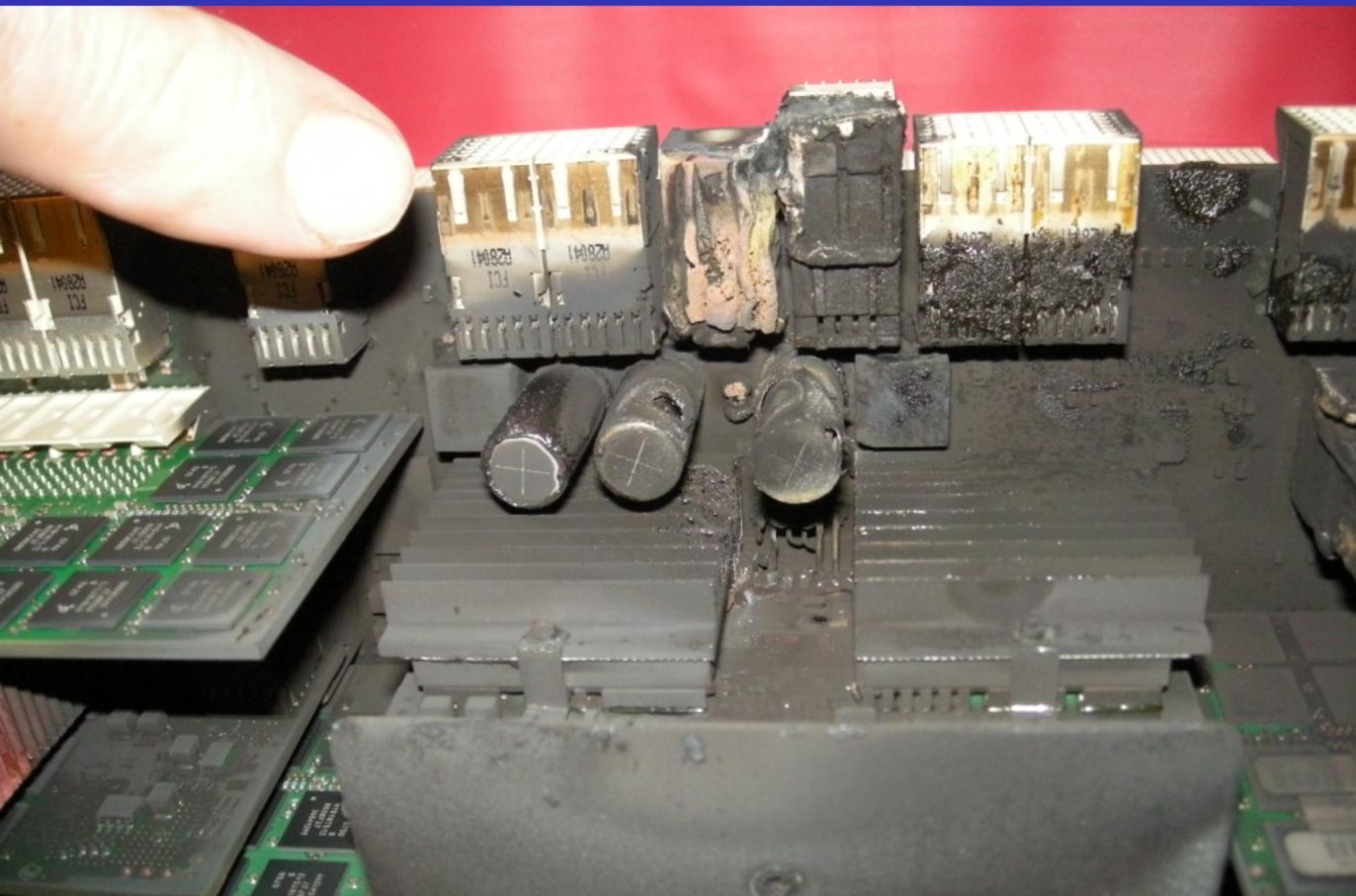**AST(RON**

Observatory status

System

- Correlator working nicely (after slight mishap involving a collection of airborne solid and liquid particulates and gases from an exothermic chemical reaction in one of the power supplies)
- CS016 will be decommissioned shortly
- CS302 in verification stage has successfully observed pulsars at 48 MHz bandwidth

Observations

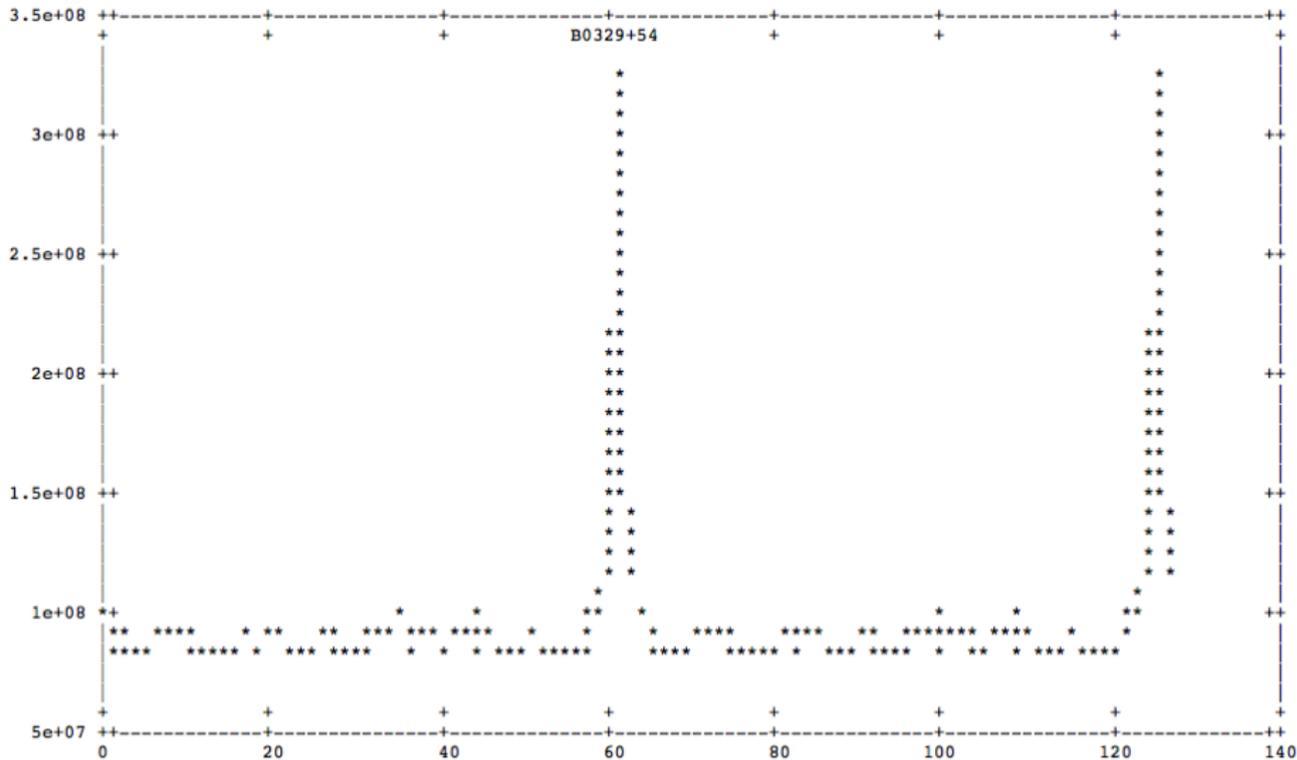TBB tests Get tb2h5 working. Quite a bit of progress, but not yet there.

Pulsar busy week Great success after initial frustrations.

AST(RON

First pulsar detection with CS302 HBAs ; 80 seconds on PSRB0329+54
Pulsar Busy Week III

B0329+54

gnuplot>

Bug list (SOLVED)

- Switching from rcumode 1 to 3 on CS302 does not propagate new delay settings all the way to FIFOs (Wijnholds, Overeem, Norden, Kooistra).
- CS302 HBA not pointing in correct direction.

AST(RON

Bug list ((almost) EXPLAINED)

- Signal paths of even RCUs can jump between a high and low state (LBL/LBH switch broken (by ESD?)). New RCU: ESD diode, and no trafo's. Needs more research. Switches are of same type as faulty HBA delay boards. Why only even RCUs: unexplained.
- Phase jumps in waveform generator test at 200 MHz clock (Eric Kooistra, Brentjens) Test observation in queue.
- Non-hermiticity in ACM blocks of intra-RSP board visibilities in waveform generator tests (Overeem, Kooistra, will be fixed in RSPDriver)

ASTRON

Bug list (OPEN)

- Occasional timestamp jumps of 1 in CS302/RSP0 data sent to CEP. Due to CRC errors? (Kooistra, Romein)
- CalServer occasionally crashes on CS302 (Overeem, Norden). Also present in test environment, Ruud has clear hints where to look.
- RSPDriver crashes when closing stats window with all RCUs at CS302 (Overeem)
- CS010 unreliable/needs repeated commands before settings "stick" with RCUs. Possibly problem in rspctl. Also observed in CS001 and CS302 (Overeem)

AST(RON

Bug list (OPEN)

- Steps in delay w.r.t. Nancay
- Very strange, possibly internal RFI (Pandey dataset) Investigated by Harm-Jan Stiepel. Cabinets at CS1 are leaking enormous amounts of RFI. No action will be taken to mitigate this. Go and measure CS302 as soon as it is available
- TP variations/ionospheric absorption (Ger de Bruyn)
- No fringe at long baselines (James Anderson, Jean-Mathias Griessmeier, Nicolas Pradel)
- AC oscillations Pandey (nobody working on this)
- AC dips (Michiel Brentjens, PSR group. Useful data taken in second psr busy week)

AST(RON

Outline

AST(RON

Observation queue

ID	Title	PI	Activity	Status	Creator
	coming-days				
67	Verify source of phase jumps in waveform generator test at 200 MHz clock	brentjens	7 days ago	scheduled	brentjens
11	Max. bandwidth observation	gunst	7 days ago	accepted	gunst
22	First TBB HDF5 writing test through socket interface	horneffer	7 days ago	accepted	brentjens
46	CS302 Station Verification with Pulsars 3: Tile Out Single Ear Primary With Tied-Array Fan Beams (of Two Ears)	stappers	1 week ago	accepted	hessels
45	CS302 Station Verification with Pulsars 2: Two Beams One From Each HBA Ear	stappers	1 week ago	accepted	hessels
	next-week				
13	Single second all sky survey with TBBs	swelles	yesterday	accepted	brentjens
59	TBB Trigger testing and readout on CS001C	corstanje	7 days ago	specified	corstanje
8	test dataset for trigger algorithm of UHEP mode of CR	singh	1 week ago	accepted	singh
7	Test dataset for PPF inversion	singh	1 week ago	accepted	singh
32	JEEJOANS (Joint Exloo-Effelsberg Jupiter Observation, and Nancay Spiral-antennae)	griessmeier	3 weeks ago	specified	griessmeier
	next-month				
4	Station imaging campaign	wijnholds	3 weeks ago	accepted	brentjens
56	ITRF BeamServer functionality test	brentjens	3 weeks ago	accepted	brentjens
6	100hrs of pulsars (WR)	leeuwen	2 months ago	accepted	leeuwen
5	Frequency mosaicing experiment	pandey	2 months ago	specified	brentjens
	sometime				
43	Test 12 microstationmode using SAS/MAC	schoenmakers	2 weeks ago	specified	kuper

ASTRON