

## Radio Observatory Report

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# Issues affecting Observations

Fixed several problems (and identified others):

## Correlator & Offline cluster:

- Recovered the ability to perform multiple observations with a mix of observing modes.
- Fixed problem with 160MHz clock observations (was producing only 16sec of data).
- Power outage in Zernike complex (28/03). Correlator recovered on Monday (29/03).
- Some problems with storage and compute nodes.  
Firmware update necessary, will be planned in due course.

## Stations:

- *First fringes*: CS024.
- Various problems under investigation: CS002, CS004, CS401 (packet rate loss)

## Observations:

- Spikes in XX polarization of HBA observations fixed.
- Likely causes of polarization mismatches and 4MHz amplitude ripple identified (see Gunst and Heald)

## **New functionality successfully tested:**

Pulsar observations simultaneous interferometric and beam-formed data.

# 2nd Control and Metadata Busy Week

A lot of developments throughout the week:

- MoM:
  - Implemented definition of Interferometric and Beam-formed observations
  - Can track metadata through the online processing.
- SCHEDULER interface with SAS is ready
- Framework to interface the Imaging Pipeline with SAS in place.
- Data inspection routines development
- Long Term Archive:
  - Tests with small and large datasets (deposit and retrieve).

# Priorities for near future

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- Migrate to ITRF beamserver
  - Implementation will start this week
  - Calserver will follow
- Week 6-9 April: Transients KSP Busy week
- Stabilize operations:
  - Continue development of a suite of short test observations (to be executed as a block)
  - Further develop data inspection routines. Make them available in a web server
- Test multiple beam observations

# Block Schedule: April 2010

Mon	Tue	Wed	Thu	Fri
29	30	31	1 Apr	2
Long Baselines Working Group			Easter	
5	6	7	8	9
Easter	Transients KSP Busy Week			
12	13	14	15	16
3rd Control & Metadata BW and MSSS dress rehearsal				
19	20	21	22	23
Magnetism KSP Plenary Meeting, Dwingeloo - Cluster resources 21-23 April				
26	27	28	29	30
Imaging Busy Week (Leiden)				Queen's Day Holiday

## April 2010

BW in Dwingeloo

Continue work on integrated operations & MSSS rehearsal.

Plenary meeting in Dwingeloo  
Cluster resources at later part of the week.

BW in Leiden  
Cluster resources and possibly new observations<sup>5</sup>

# Block Schedule: May 2010

Mon	Tue	Wed	Thu	Fri
26	27	28	29	30
Imaging Busy Week (Leiden)				Holiday
3	4	5	6	7
CEP stopdag		Holiday		
10	11	12	13	14
Pulsar Busy Week			Holiday	
17	18	19	20	21
	(10:00) eVLBI			
24	25	26	27	28
Holiday				
31	1 Jun	2	3	4

May 2010

BW in Dwingeloo



# Block Schedule : March 2010

## March 2010

in Dwingeloo

Cluster resources from Leiden

Continued work on integrated operations

Planning meeting in Dwingeloo

Mon	Tue	Wed	Thu	Fri
1 Mar	2	3	4	5
8	9	10	11	12
Pulsar Busy Week				
Surveys KSP meeting				
		Surveys KSP use subcluster 3		
15	16	17	18	19
2nd Control & Metadata Busy week and MSSS "Dress Rehearsal"				
22	23	24	25	26
SKA2010 Meeting (Manchester)				
29	30	31	1 Apr	2
Long Baselines Working Group (planning me				Easter



QuickTime<sup>®</sup> and a  
decompressor  
are needed to see this picture.

ProjectExplorer	Status	MoM ID	Duration	Target name (Specification)	Measurement Type	Subbands
LEA/128	active			Long term LOFAR performance monitoring by deep integrations on standard fields		
Original				Imported from Northstar		
Verify: Done				Completed verification observations		
Cyg A test svn15007	finished			Interferometer Cyg A		
Cyg A test HBA_BOTH_	finished			Interferometer Cyg A		
Cyg A test HBA_BOTH	finished			Interferometer Cyg A		
Cyg A test HBA_1	successful			Interferometer Cyg A		
Cyg A test HBA	failed			Interferometer Cyg A		
_NCP LBA test	failed			Interferometer NCP		
_NCP LBA test_1	successful			Interferometer NCP		
Cyg A test new SAS	failed			Interferometer Cyg A		
Cyg A test new SAS_1	failed			Interferometer Cyg A		
Cyg A test new SAS_2	failed			Interferometer Cyg A		
Cyg A test new SAS_3	failed			Interferometer Cyg A		
Cyg A test new SAS_4	failed			Interferometer Cyg A		
Cyg A test new SAS_5	failed			Interferometer Cyg A		
Cyg A test new SAS_6	failed			Interferometer Cyg A		
Cyg A test new SAS_7	finished			Interferometer Cyg A		
Cyg A test new SAS_8	finished			Interferometer Cyg A		
Cyg A test new SAS_9	finished			Interferometer Cyg A		
Cyg A test HBA_One	described			Interferometer Cyg A		
Cyg A test HBA_Two	described			Interferometer Cyg A		
Cyg A test new SAS_1	finished			Interferometer Cyg A		
Cyg A test HBA_Two_1	finished			Interferometer Cyg A		
Cyg A test HBA_BOTH	failed			Interferometer Cyg A		
Cyg A test HBA_ONE	failed			Interferometer Cyg A		
Cyg A test HBA_TWO	failed			Interferometer Cyg A		
Cyg A test HBA_BOTH_	failed			Interferometer Cyg A		
Cyg A test HBA_BOTH_	failed			Interferometer Cyg A		
Cyg A test HBA_BOTH_	failed			Interferometer Cyg A		
DEV/Cyg A HBA Dutch	failed			Interferometer Cyg A		
DEV/Cyg A HBA Dutch	aborted			Interferometer Cyg A		
DEV/Cyg A HBA Dutch	finished			Interferometer Cyg A		
DEV/Cyg A HBA Dutch	finished			Interferometer Cyg A		
DEV/Cyg A HBA Dutch	suspended			Interferometer Cyg A		
Verify				Various short experiments to verify that SAS/MAC control works		
Prepare				Short preparatory runs		
Session_1				Main session of 9 x 6 hours		

Details

http://lcs023.control.lofar:8080/mom3/user/project/setupMom2ObjectDetails.do?view=generalinfo&mom2ObjectId=305

LEA/128 > Verify: Done > DEV/Cyg A HBA Dutch

Help Close Window

General info Dataproducts Reports and Remarks Status history

<b>Name:</b>	DEV/Cyg A HBA Dutch
<b>Description:</b>	Interferometer Cyg A
<b>Current status:</b>	finished(2010/02/19 16:18 UTC)
<b>Type:</b>	Observation
<b>Project name:</b>	LEA/128
<b>Child of:</b>	Verify: Done
<b>MoM ID</b>	5626
<b>Observation ID</b>	6005
<b>Stations</b>	CS032,RS106,CS401,RS208,RS306,CS004,CS021,CS006,CS001,CS002,RS307,RS503,CS005,CS030,RS205,CS003,CS302,CS007
<b>Integration Time</b>	1.0
<b>Instrument Filter</b>	110-190 MHz
<b>Clock</b>	200 MHz
<b>Antenna</b>	HBA Both
<b>Start time (UT)</b>	2010/02/19 16:13:01
<b>End time (UT)</b>	2010/02/19 16:16:25
<b>Station Set (Specification)</b>	Custom
<b>Custom stations (Specification)</b>	CS001,CS002,CS003,CS004,CS005,CS006,CS007,CS021,CS030,CS032,CS302,CS401,RS106,RS205,RS208,RS306,RS307,RS503
<b>Integration Time (Specification)</b>	1.0
<b>Instrument (Specification)</b>	Interferometer
<b>Instrument Filter (Specification)</b>	110-190 MHz
<b>Clock (Specification)</b>	200 MHz
<b>Antenna (Specification)</b>	HBA Both

Edit

# Coordination of CEP offline resource usage

With increased number of stations, some observations require a large number of storage nodes to have sufficient bandwidth available for storing data.

Reshuffling of data is highly inefficient.

Simultaneous use of storage nodes for observing and processing expected to severely degrade the performance of the systems (will test this).

Current strategy of appointing subclusters to user groups is no longer sufficient

## Solutions under consideration

- Keep `/data1` in each storage node free for observations - Process observations and move data out as soon as possible.
- Stick with the “dedicated” subcluster allocation for usual work *and*
- Allocate additional resources to larger observations for limited time (ie spare subclusters, all `/data1` partitions):
  - Assign generic accounts to user groups which will have permission to access the additional resources
  - Assign a “friend” of resources (support scientist)

***Will consult with the user groups and implement a policy.***

# Development Work

- MoM development for Beam-Formed observations
- SAS/MAC related :
  - Using both HBA fields in core stations (problem with HBA2 identified, solution implemented).
  - Continuing test of integration of SAS/MAC and MoM.
- Investigating GPS vs Rubidium clock stability.
- Working on scripts automatically generating inspection plots of every observation. Will be accessible through a web page
- Further development of MoM for interferometry and Beam Formed obs.

## Observations last week

- Stations with various problems: CS001, CS002, CS004, CS021, CS024, CS401, RS205 (electric fence)

# Block Schedule

"<http://www.astron.nl/radio-observatory/astronomers/commissioning/commisioning-plan>"



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