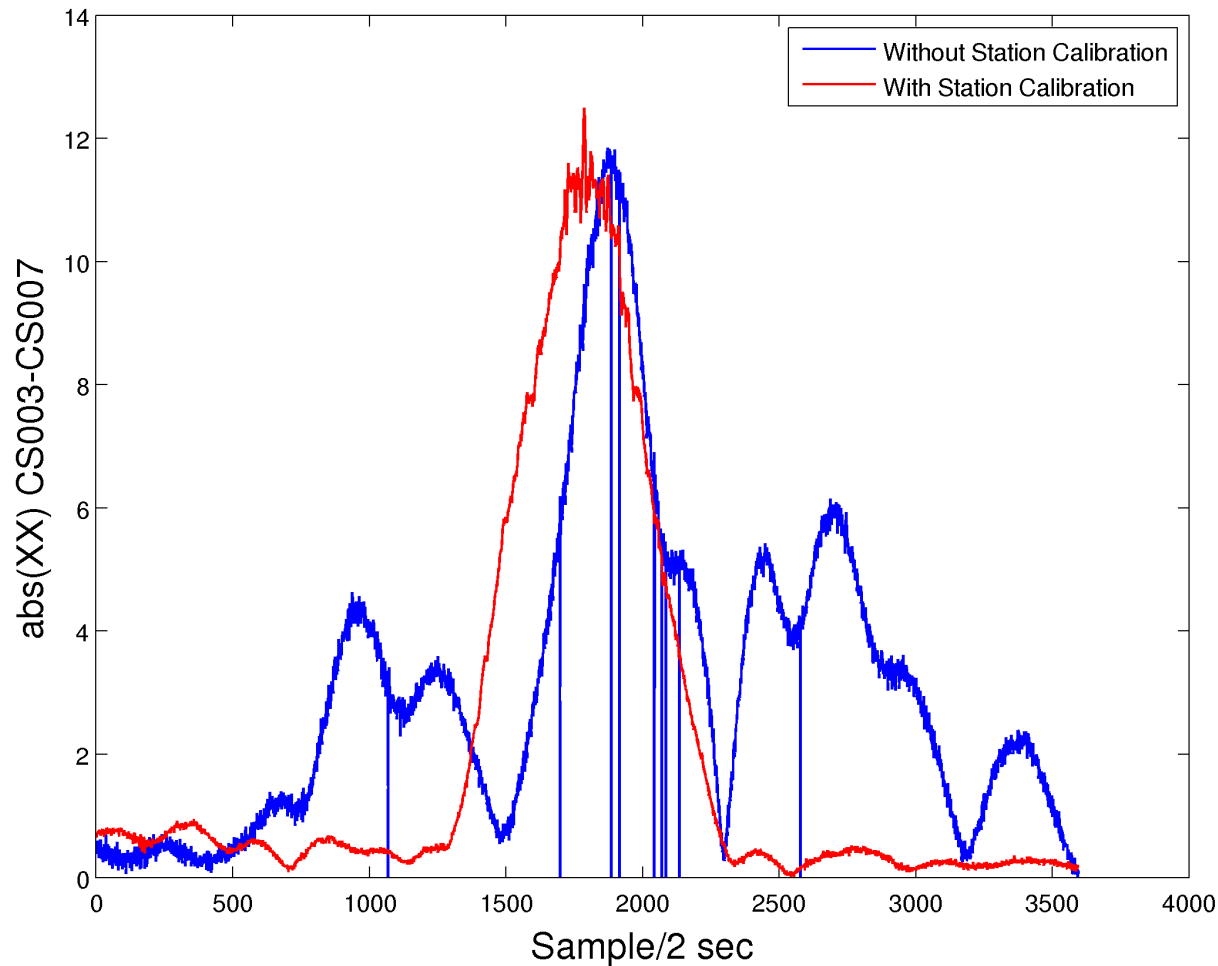


## Radio Observatory Report

# Developments of the Observing System

- Upgrade of MAC, with HBA1 fix and enabling static station calibration.
- Station calibration tables not completed. Striving for completion by end 2010.  
*Stations with available calibration on Observatory "White Board" in Wiki ([http://www.lofar.org/operations/doku.php?id=operator:current\\_station\\_overview](http://www.lofar.org/operations/doku.php?id=operator:current_station_overview)) (last column)*
- Beam model validation tests (next page)
- Technical Issues under investigation:
  - o Problems with Calserver at some stations: Temporary solution implemented
  - o International stations: Transmit 61 instead of 62 beamlets (Week 49-50): work ongoing
  - o NL stations LBA polarization when operating with International stations: Software fix.
  - o RSP boards jump into ERROR state, need recycle of 48V power to reset.

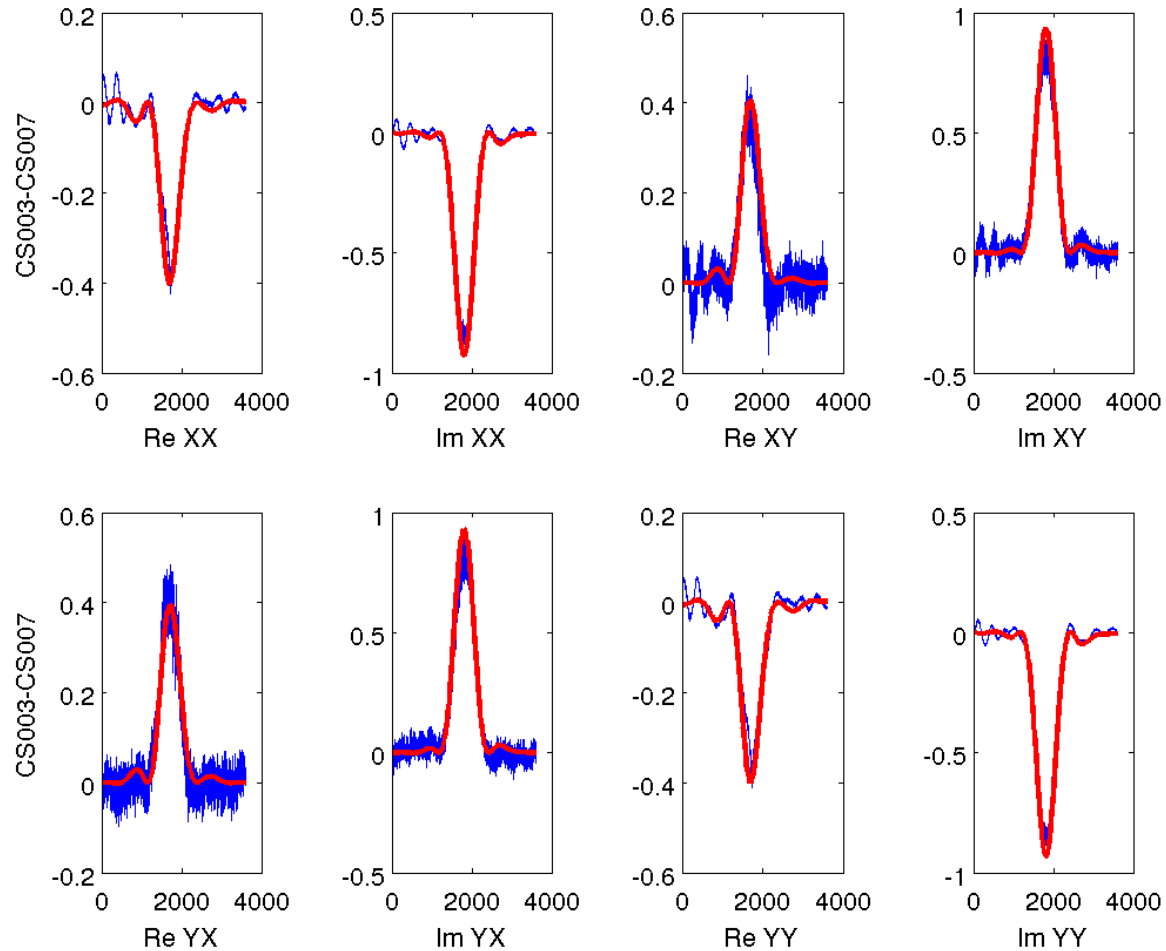
# Beam model Validation: Drift scans in Cygnus A (S. Yatawatta & Beam Team)



CS003-CS007 Beam main lobe

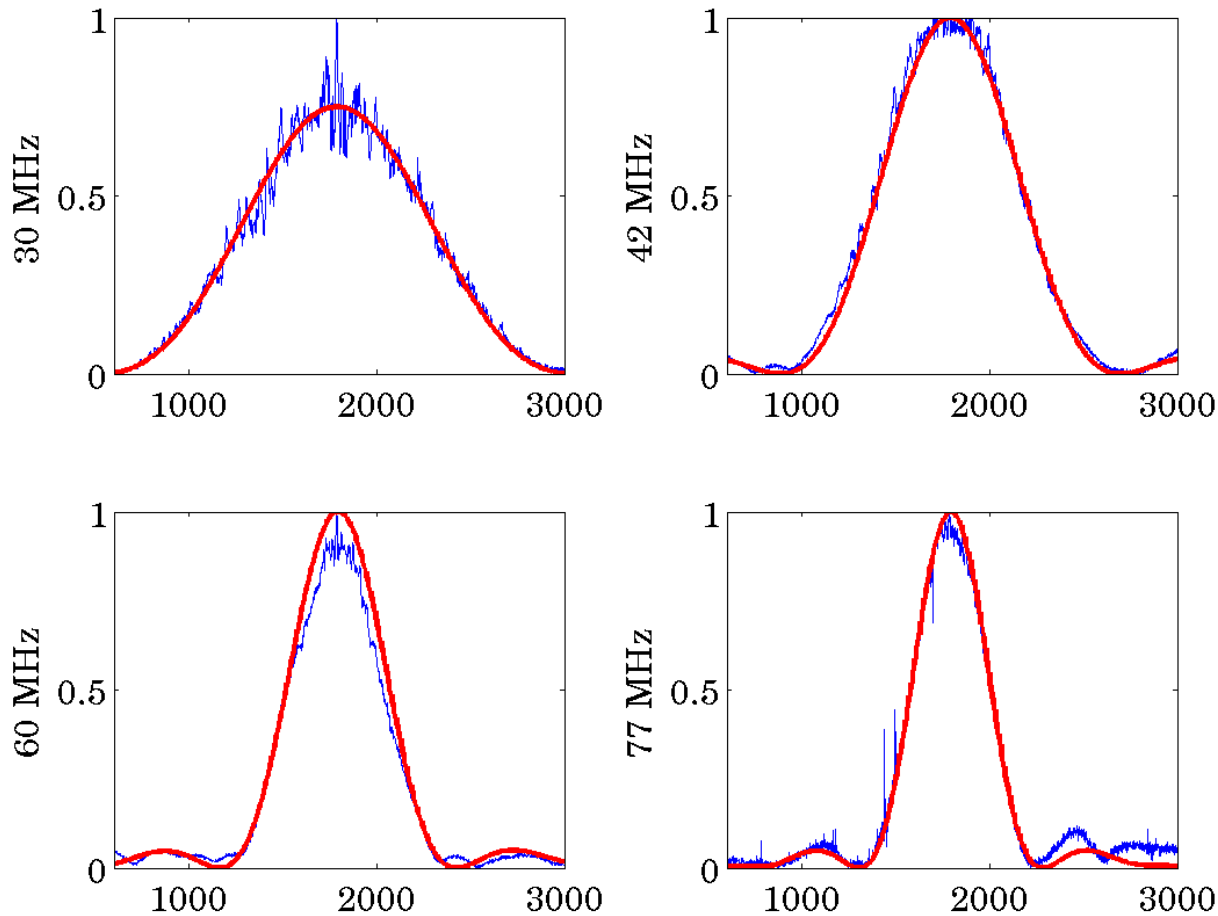
Blue=without station calibration red=with station calibration

# Beam model Validation: Drift scans in Cygnus A (S. Yatawatta & Beam Team)



CS003-CS007 Beam  
Blue=data red=simulation

# Beam model Validation: Drift scans in Cygnus A (S. Yatawatta & Beam Team)



CS003-CS007 Beam main lobe  
Blue=data red=simulation

# Observations & other developments

- 10hr observation of 3C196 LBA, 26 stations (L2010\_21604):  
Used in the Imaging BW (Leiden) to
  - investigate the global bandpass
  - test facet-based imaging script
  - Compare 74MHz fluxes with NVSS
- Previous weekend: No observations possible due to upgrade of the observing system to introduce SCHEDULER

Planned for this week: Saturn beamformed observations

Set to: Monitor progress, set priorities, take fast decisions

### Major Milestone by end of Q3 2011:

- A functioning image pipeline with automated observing and data processing that can produce wide field-of-view corrected images with moderate dynamic range.
- **The Global Sky Model**, necessary for the calibration of other LOFAR observations sufficiently populated. With all additional analysis, the GSM will be fully ready by Q4 2011.
- The **pulsar pipeline** will be fully automated and the known pulsar and the blind pulsar survey modes will also be operational.
- The **cosmic ray pipeline** will also be fully integrated so it can produce TBB dumps automatically during any scheduled observation, from a variety of trigger modes.
- Parallel development of the special pipelines which derive mostly from the 3 basic pipelines.

# Towards the Major Milestone

MSSS will serve as a vehicle for enabling other LOFAR observation modes.

MSSS is the enabler of general calibration functionality, needed also for other types of observation.

MSSS requirements are also important drivers for the operations infrastructure needed for robust end-to-end control of observations in a queue.

Development up to Q3 2011, organised in 3 milestones related to the MSSS, while the pulsar and the cosmic ray pipelines develop in parallel.

Milestone 1: “A-team”

Milestone 2: “Bright (3C) sources with narrow-field imaging”

Milestone 3: “MS3 survey observations”



# Milestone 1

## Milestone 1: “A-team”

1. Observe “The A-team” sources to obtain models to be used by BBS.
2. Process “A-team” observations “by hand” by commissioners.
3. Consolidate and work towards integration of existing software with a view to an integrated observing system. Aim for automated observations and first integration of the pipeline framework
4. Some observations from LEA proposals will also take place selected on their relevance to the commissioning needs.

## Milestone 2

### Milestone 2: “Narrow-field imaging of bright sources”

1. Develop towards executing and processing automatically observations of bright (3C- and LEA) sources of varying structural complexity using narrow-field-of-view imaging.
2. Update the system towards automatic observations in a survey style (Milestone 3)
3. Establish a stable observing system.
4. Install and migrate to CEP2 cluster.

## Milestone 3

The survey can start when the following critical path items are available, (planned for Q2 2011):

- Fully operational CEP2 cluster.
- Beginning-to-end system for survey observations.
- Functioning wide field-of-view Imager.
- Functional LOFAR Long Term Archive

Data analysis will be made automatically and is expected to take several weeks and the final products will be carefully examined for systematic errors or other effects.

# Planning observations until the end of January 2011

## Short term (up to end of 2010):

- Beam-formed observations of Saturn (lightning)
- Observations of fields containing the Moon (from EoR and UHEP teams)
- LEA 128 Interferometric Observations
- First observations of “A-team sources” ; test observing strategy and processing efficiency.
- Pulsar observations
- Pathfinder EoR observations - testing the observing and processing strategy
- RFI detection observation (proposed from the EoR KSP)

# Planning observations until the end of January 2011

Observe “The A-team” in all RCU modes, data will be analysed by teams of commissioners.

Observations of some sources with complex structure requested from the Surveys KSP (based in LEA proposals). Target will be selected from the commissioning priorities set by the Image Pipeline group.

Pathfinder observations of EoR fields

Pathfinder observations of pulsar survey modes.

The amount of observing will depend on the efficiency of processing and will be closely monitored. Commissioners will be consulted early to prepare the observations.

# CALENDAR of requested busy weeks and other LOFAR activities



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

- 14-16 December : Imaging Busy Week in Leiden
- 3 January : CEP Stop day
- 17-21 January : Imaging Busy Week (Dwingeloo)
- 24-28 January : Pulsar Busy week

