

# CS-1 developments: 29 Aug - 6 Sep 2007

- **General**

LOFAR descopeing discussions

## **2) Hardware-Rollout :**

a) rotation of the 3 'unused' LBA dipoles on the 12 microstations: completed today

- additional LCU's in CS010 to go from 16 to 24 microstations by mid-September
- Tile/dipole HBA switch operation sep/oct

## Outstanding / new / **solved** 'technical' issues:

### 3) Stations

- 200 MHz mode problems: **gone away**
- 'autocorrelation' dips in LBA/160 data: **quantization problems in beamformer**
- Y-polarization RFI problem at very low frequencies (May 9 meeting) : **no progress**
- 8ch-periodicity in RFI signals at low frequencies (intermodulation or part of RFI spectrum?): **no progress**
  
- LBA S/N problems in 48h observation in 3/4 Aug weekend ? **Gone away**
- HBA 'switch' issues (solution being worked on)
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### 4) CEP (SAS/MAC/OLAP)

- standdown all week

# Progress reports on observations and data analysis (1)

- **New observations (see 'Lofar operations wiki' for Catalog)**

- Tue/Wed 27/29 Aug 2x24h NCP HBA 210-250 MHz L3742 / L3743
- Fri/Sat 31/2sep 2x24 (1 failed) NCP HBA160 170-230 MHz L3746

## 6) Calibration of CS-1 data in MeqTrees and BBS

- Sarod: incorporating beam--> fluxes good to .. %
- (next step include spectral indices...)
- Sarod: first HBA imaging results 120 MHz (AJPD 5 sep)
- Joris/Pandey: BBS ready to run batches, parallelized BBS (Pandey talk)

# Progress reports on observations and data analysis (2)

## 7) Imaging issues

Deep NCP field on NCP with LBA (36 subbands, 38-59 MHz, 3x24h)

Fluxes to be compared with Nick Rees' 38 MHz (8C-) survey ...

Lots of 4C sources (e.g. 4C41.17, clusters Abell2255/2256) (see image)

## 8) Noise / RFI analysis

### Ongoing:

- analysis HBA 1s-1kHz data : waiting for Stefan de Koning report

### Outstanding / still to be done

- peculiar very low frequency (<20 MHz) RFI patterns (8ch periodicity and Y-polarization)
- S/N analysis and  $T_{\text{sys}}/A_{\text{eff}}$  for HBA dipole:

# Progress reports on modeling/simulation activities (1)

## § **Beam modeling:**

Sarods beams in MeqTrees and BBS

Johans beam in BBS?

## § **Ionospheric modeling:**

GPS TEC fitting: Maaijke, Jim, Jan

Ongoing MeqTrees efforts in Leiden: van Bommel, Intema, Rottgering

## - **Source models (LSM, GSM, fluxscale):**

Flux scale issues still pending

38-58 MHz spectra needed

## Progress reports on modeling/simulation activities (2)

- **Processing issues (convergence, speed):**
- no progress to report

### **13) Data quality & image DR:**

- analysis of redundant baselines after relative calibration

Requires a corrected MS, conversion to HDF5 and further analysis.

Still to be started.

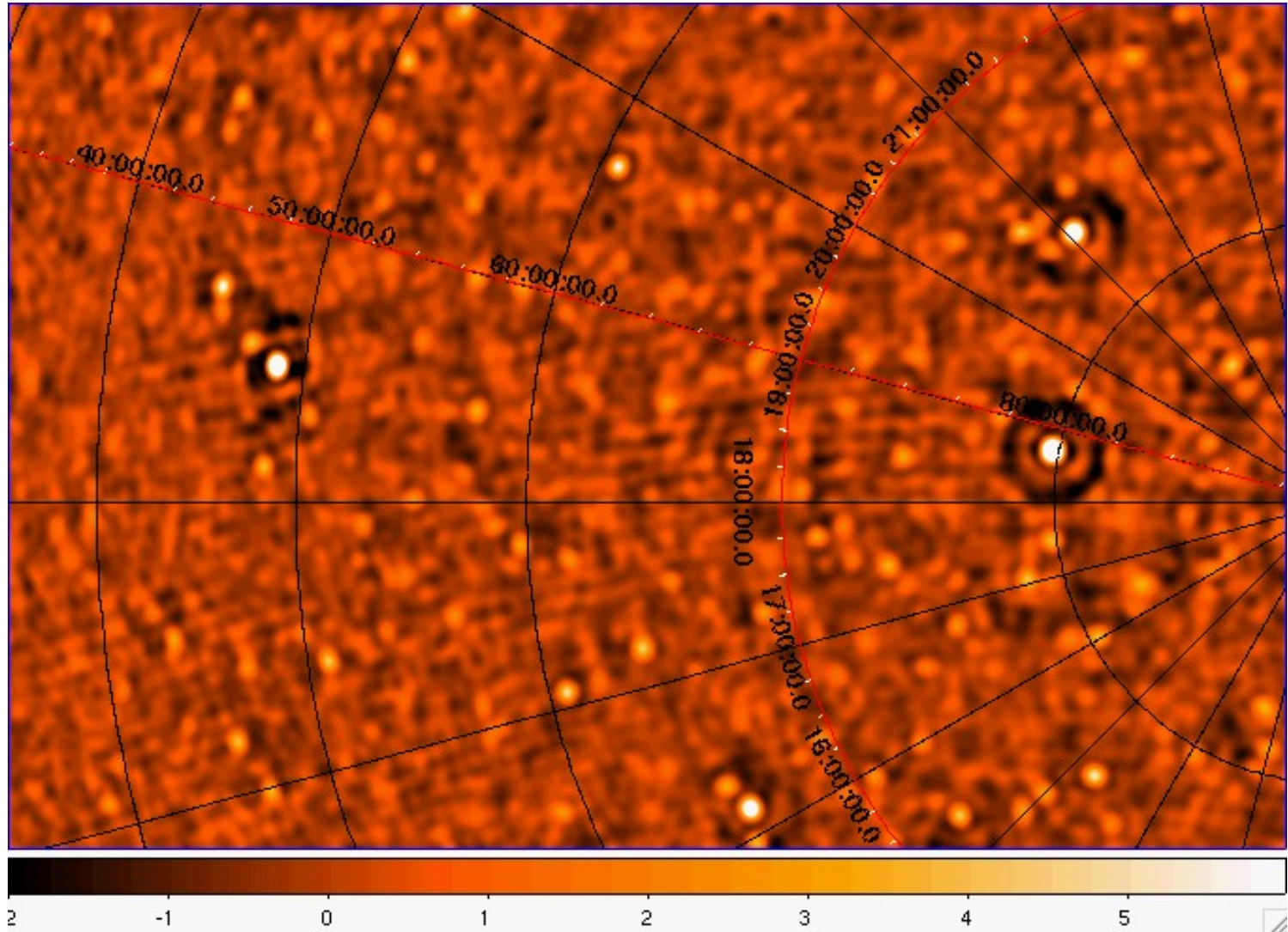
# Observing schedule and planning (10 - 19 Sep 2007)

## Activities coming up:

- > CEP up again on Sep 10?
- > 10 Sep : CS-1 experiments with heterogeneous LBA dipole arrays
- > 17 Sep: better uv-coverages once we go form 16-24 microstations (12+4+4+4) --> deeper images
- > Oct: New HBA switches available (on CS010: 6 tiles +30 dipoles)

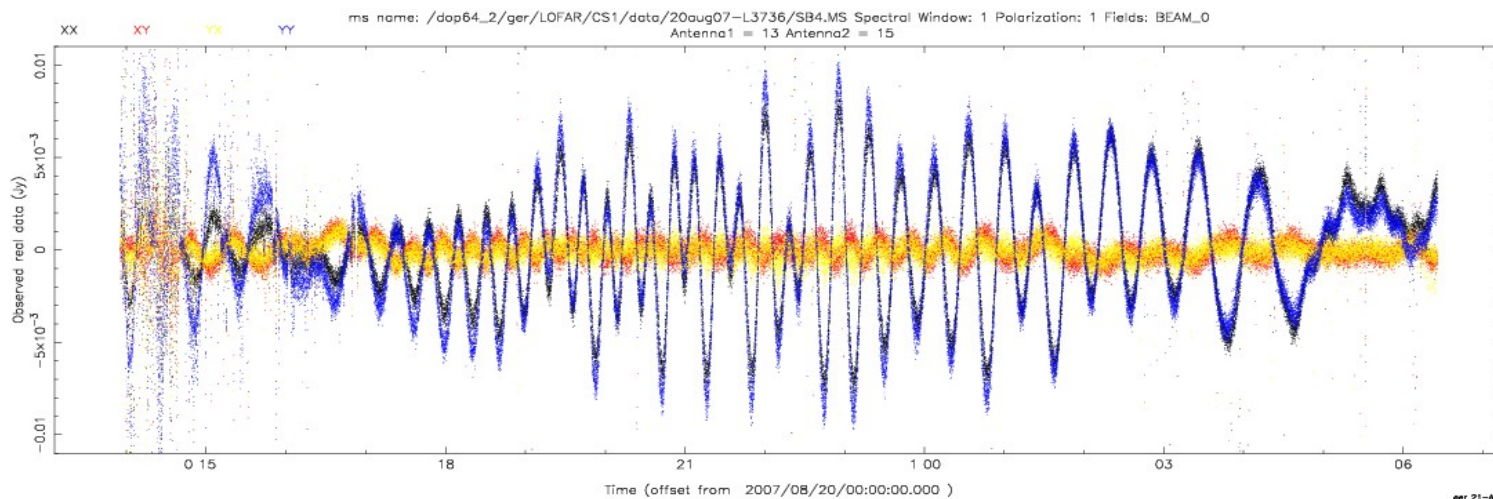
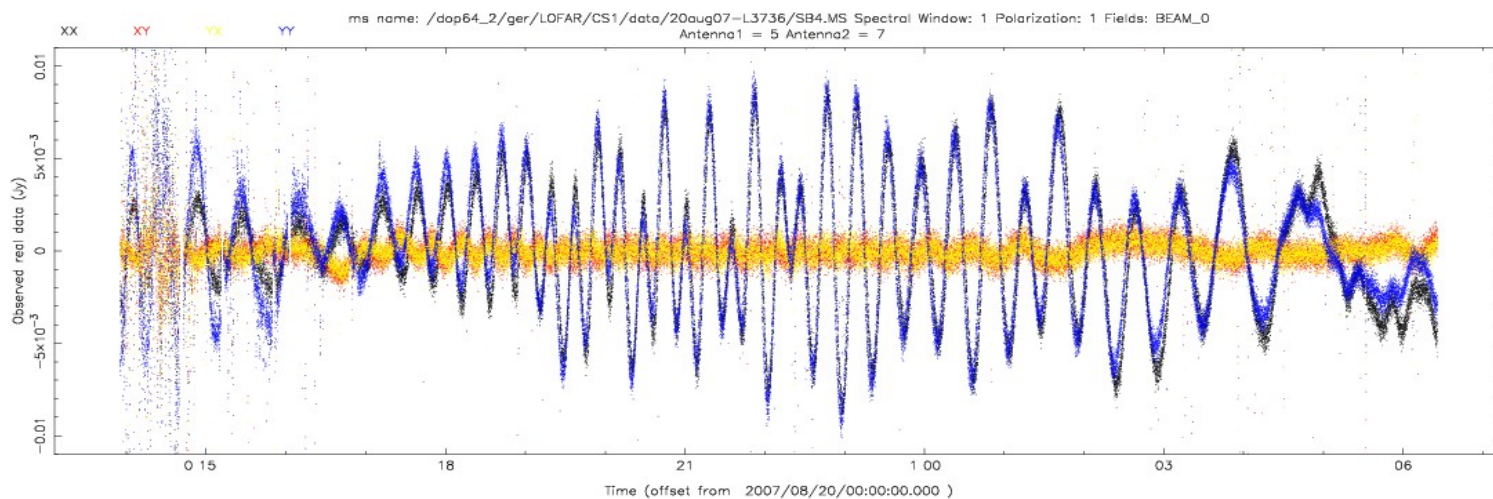
# Deep NCP image at LBA ~50 MHz

clusters A2255/A2256: 10-20 sigma detections





# 20 August: HBA: 121 MHz

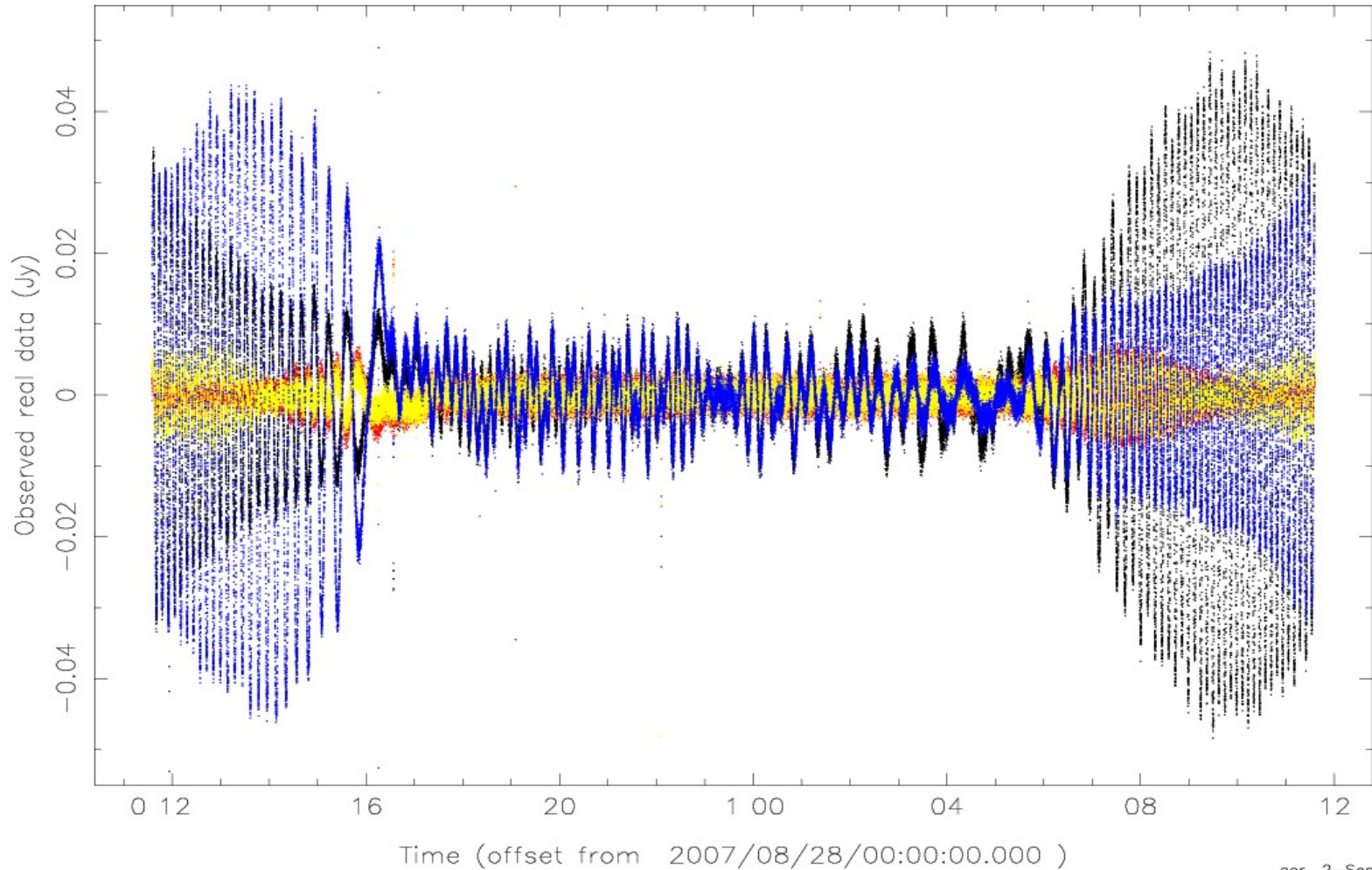


# HBA

# 220 MHz

## (L3743, SB10, 28 Aug07)

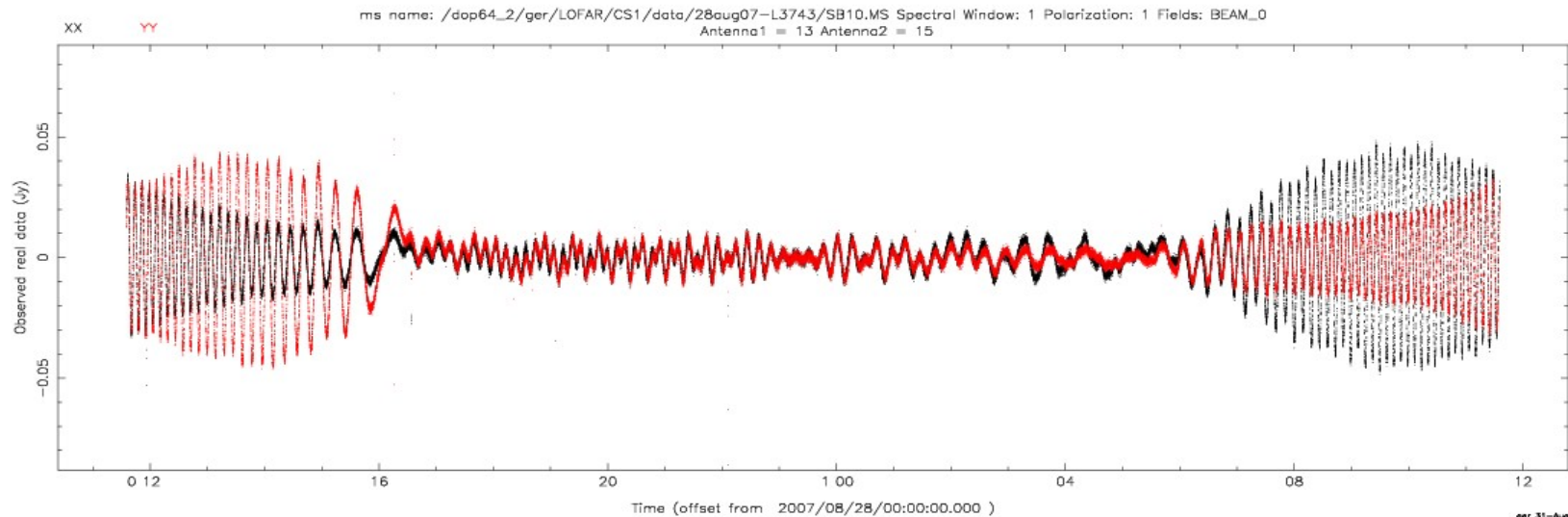
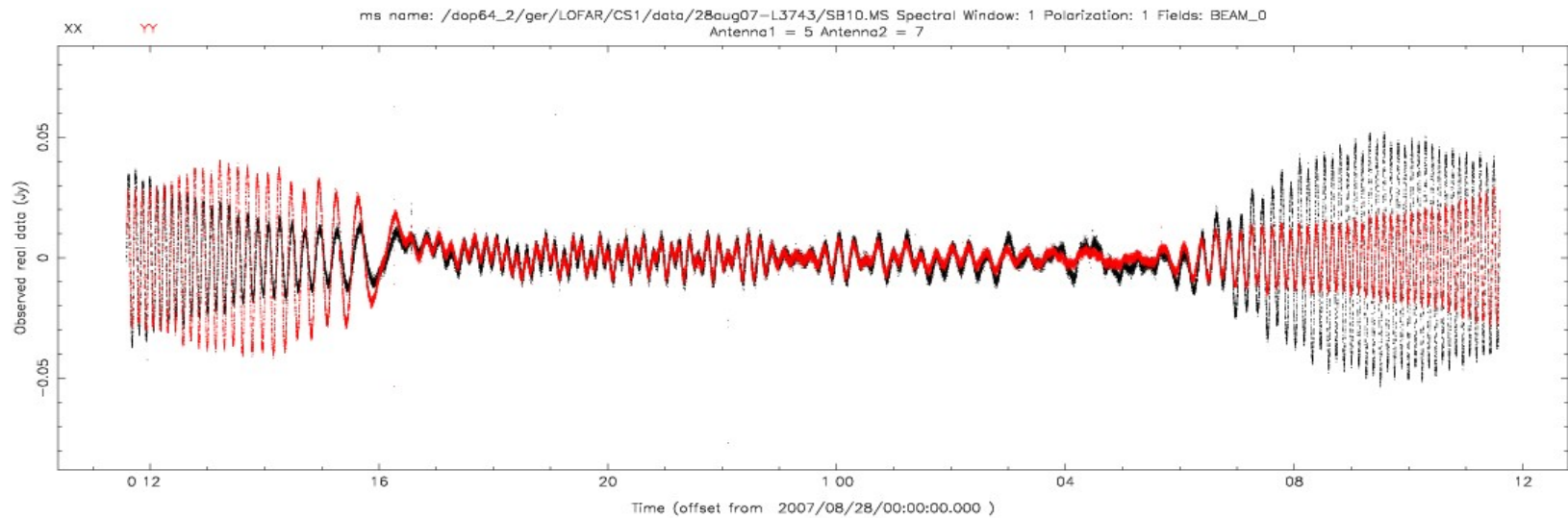
me: /dop64\_2/ger/LOFAR/CS1/data/28aug07-L3743/SB10.MS Spectral Window: 1 Polarization: 1 Fields: B  
XX XY YX YY Antenna1 = 13 Antenna2 = 15



# HBA

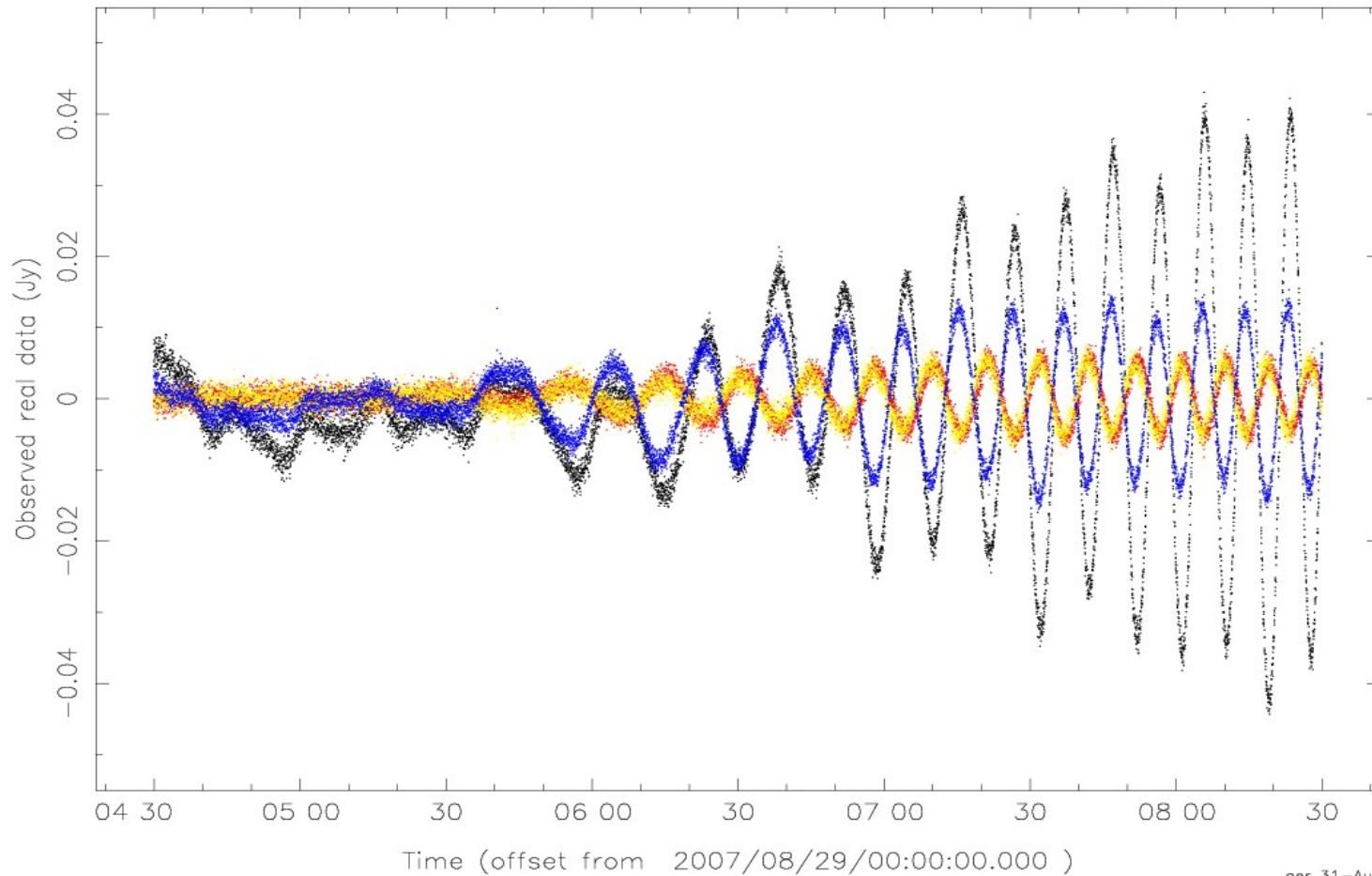
# 220 MHz

## (L3743, SB10, 28 Aug07)



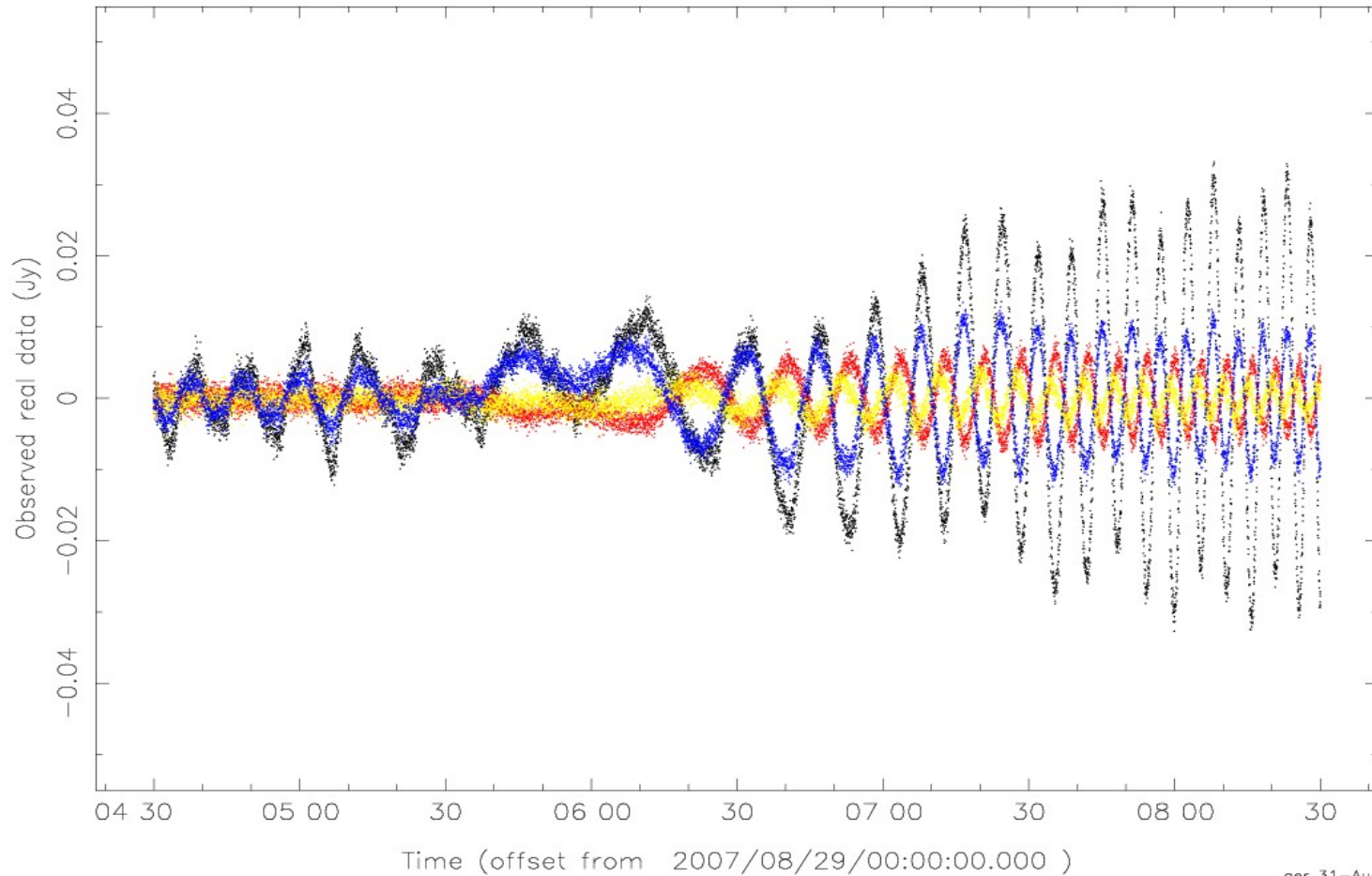
# HBA 220 MHz ~ 35 meter baseline (L3743, SB10, 28 Aug07)

me: /dop64\_2/ger/LOFAR/CS1/data/28aug07-L3743/SB10.MS Spectral Window: 1 Polarization: 1 Fields: B  
XX XY YX YY  
Antenna1 = 5 Antenna2 = 7



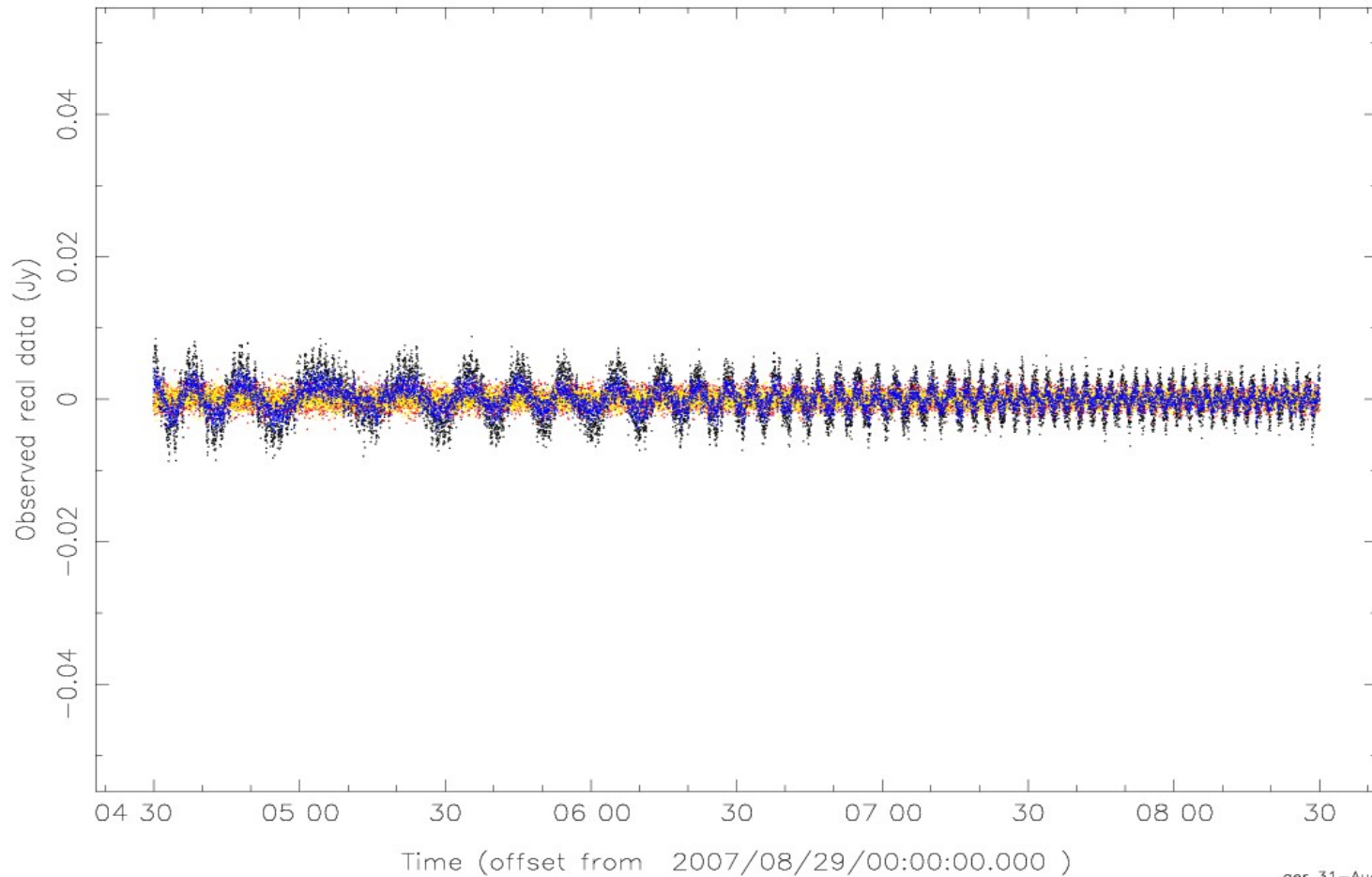
# HBA 220 MHz ~ 100 meter baseline (L3743, SB10, 28 Aug07)

me: /dop64\_2/ger/LOFAR/CS1/data/28aug07-L3743/SB10.MS Spectral Window: 1 Polarization: 1 Fields: B  
XX XY YX YY  
Antenna1 = 9 Antenna2 = 11



# HBA 220 MHz ~ 350 meter baseline (L3743, SB10, 28 Aug07)

me: /dop64\_2/ger/LOFAR/CS1/data/28aug07-L3743/SB10.MS Spectral Window: 1 Polarization: 1 Fields: B  
XX XY YX YY Antenna1 = 7 Antenna2 = 13



# HBA

# 228 MHz

## (L3743, SB18, 28 Aug07)

