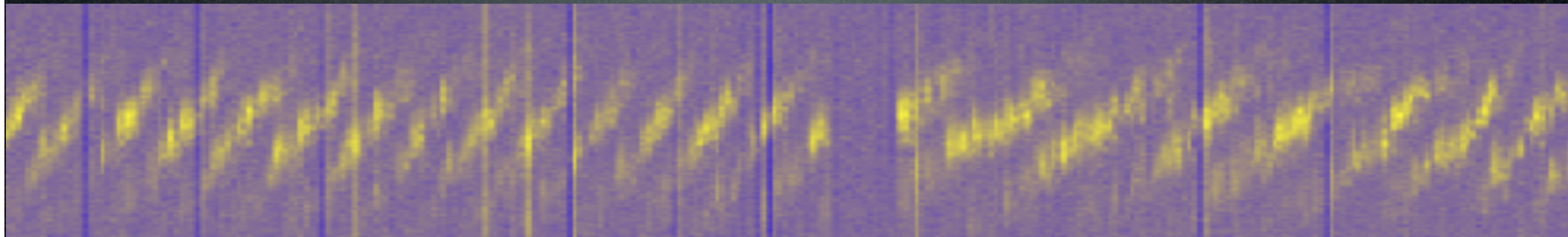


# Pulsar Busy Week 5

## Mid-Week Progress Report



Jason Hessels

on behalf of

LOFAR Pulsar Working Group (Asgekar, Alexov,  
Hassall, Noutsos, Stappers, van Leeuwen)

ASTRON HPC Group (de Jong, Mol)



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# Pulsar Busy Week 4: Goals

- LBA pulsar observations - Done (prior to PBW4)
- Effelsberg pulsar observations - Done (prior to PBW4)
- bf2h5 (HDF5 write) devel./tests - Done (prior to PBW4)
- Incoherent station summation - Done
- Simultaneous pulsar/imaging observations - Done/In Prog.
- Full Stokes pulsar observations - Done
- Simultaneous LBA/HBA observations
- Simultaneous Coh./Inc. observations - Done
- Multiple stations recorded separately - Done
- Fly's Eye observation
- Blank sky observation - Done
- All-weekend observation - Done
- 10-min. obs of 12+ pulsars
- Test various beam shapes - Done



# Pulsar Busy Week 5: Goals

- Acquire data for PBW6 (Dec. 7-11th), when Stappers, Hassall, Zarka, Noutsos, and others will visit.
- Take raw station data from multiple stations to try forming a calibrated tied-array beam offline - today
- Tied-array observation of Jupiter - this Friday
- Raw data with TBB dumps - possibly today
- Simultaneous LBA/HBA observations
- Simultaneous beam-formed and imaging obs - tonight?
- Fly's Eye observation
- Blank sky observation
- 10-min. obs of 12+ pulsars - in progress

Tied-array  
Beams

Roughly speaking,  
beam-formed  
modes trade spatial  
resolution for time  
resolution.

Station Beam

Element Beam



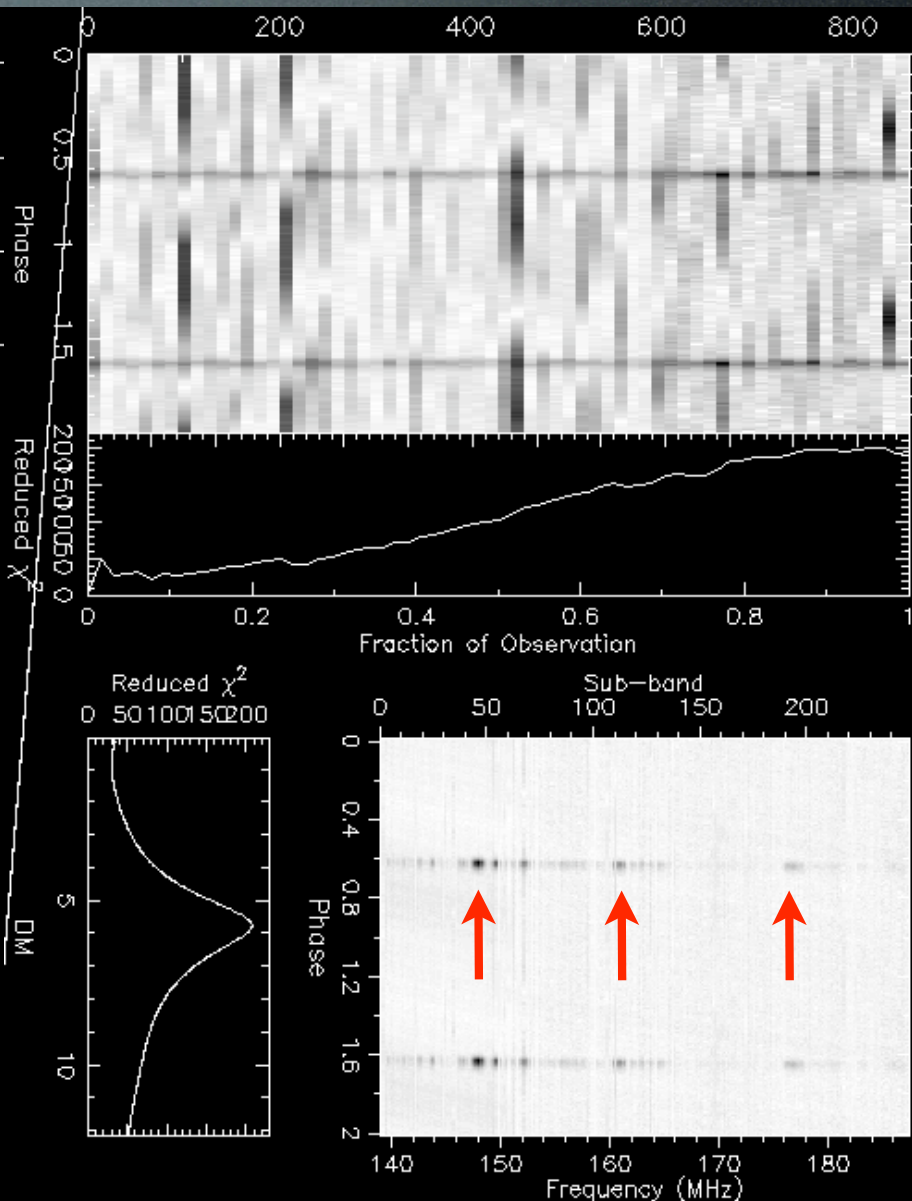
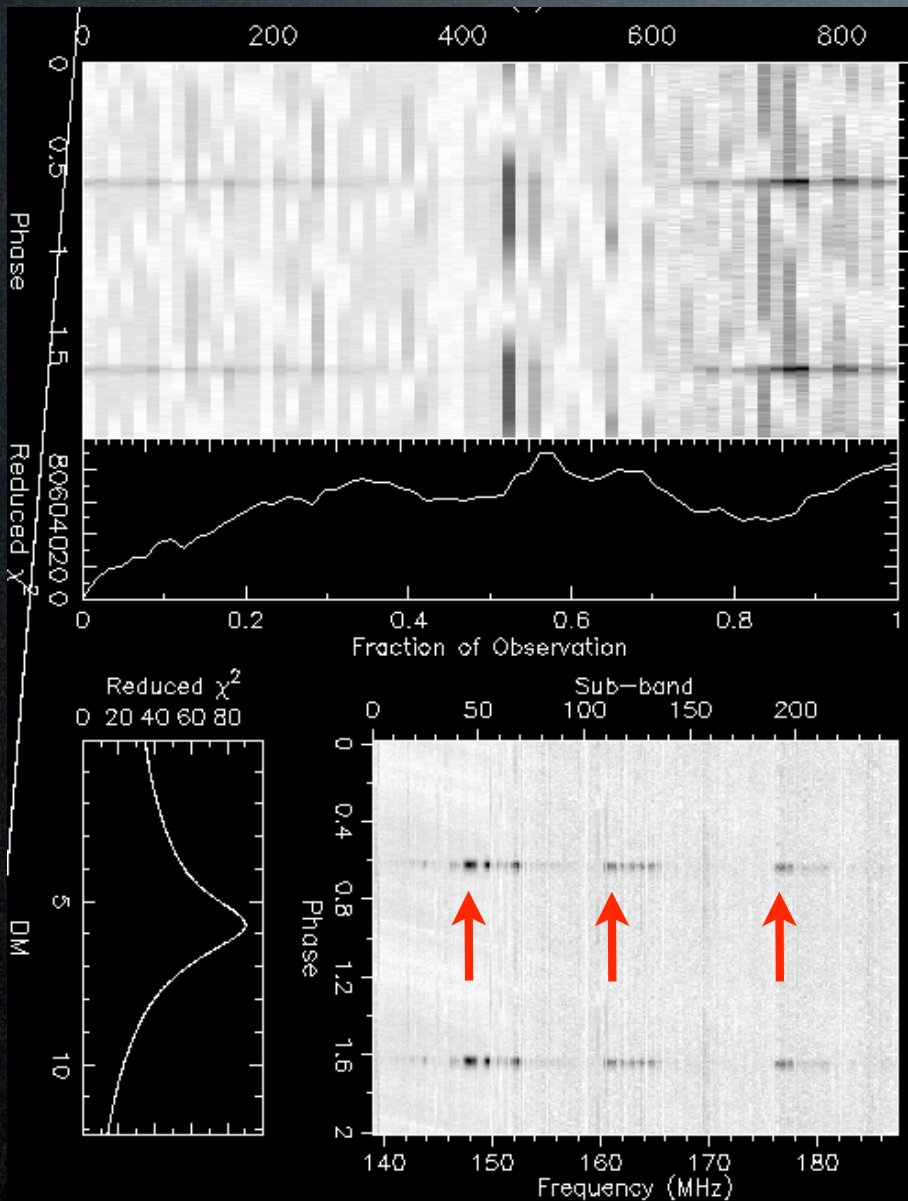
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# Coherent vs. Incoherent Addition (from PBW4)

Uncalibrated Coherent Addition



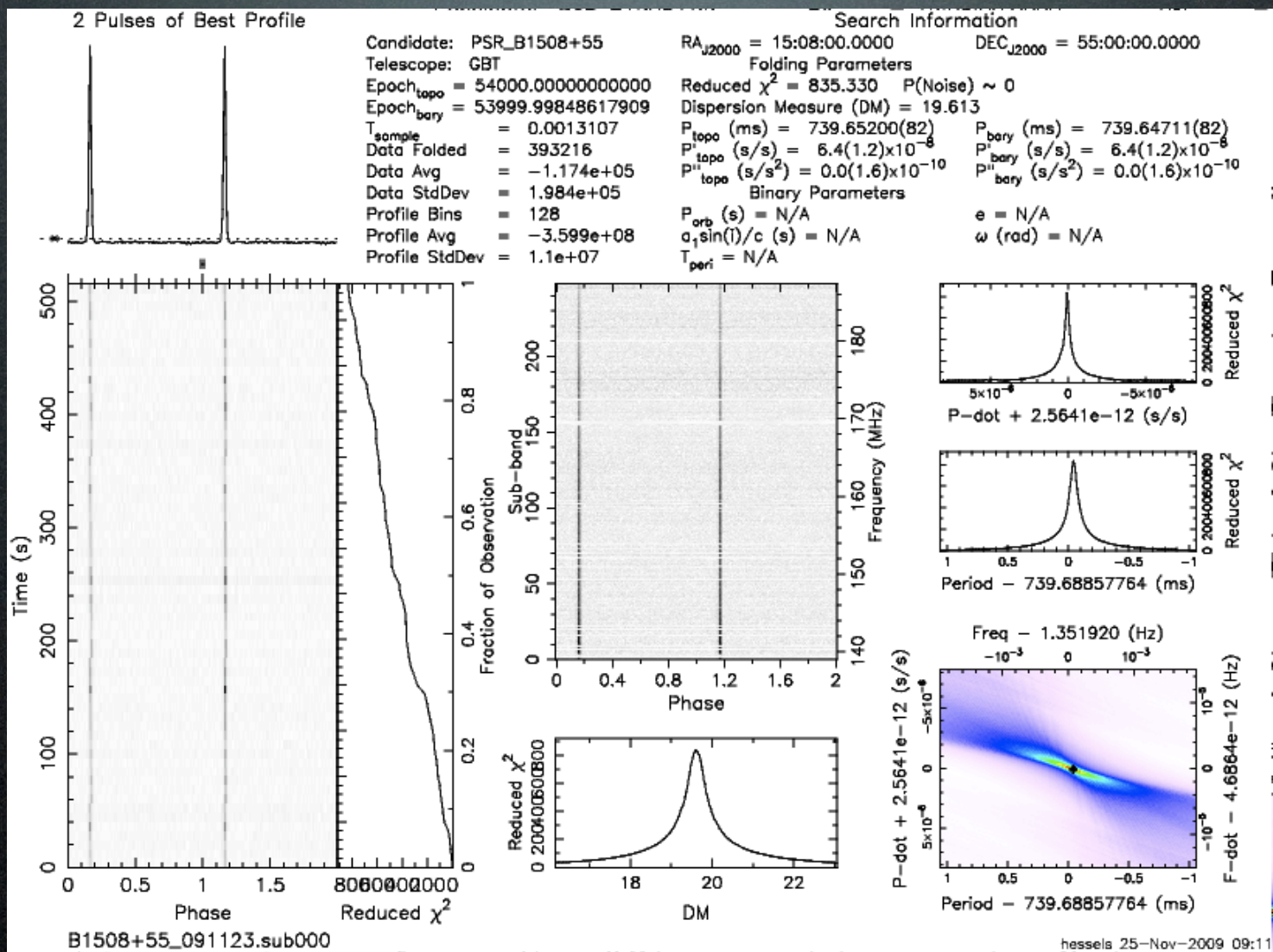
Uncalibrated Incoherent Addition

# PBW5: Working with 5-6 Dutch Stations

Station/Item	Cabinet	LBA	HBA	Fibre	CEP connection	Validated
CS302						
RS307						
RS503						
RS106						
RS208						
CS030						
CS401						
CS021						
CS032						
RS306						
CS301						
CS501						
RS509						
CS103						
CS001						
CS002						
CS003						
CS004						
CS005						
CS006						
CS007						
CS024						
CS201						
CS101						
CS026						
RS205						
CS017						
RS104						
RS205						
Effelsberg						
Tautenburg						
Garching						
Totals	26	26	14	10	10	6

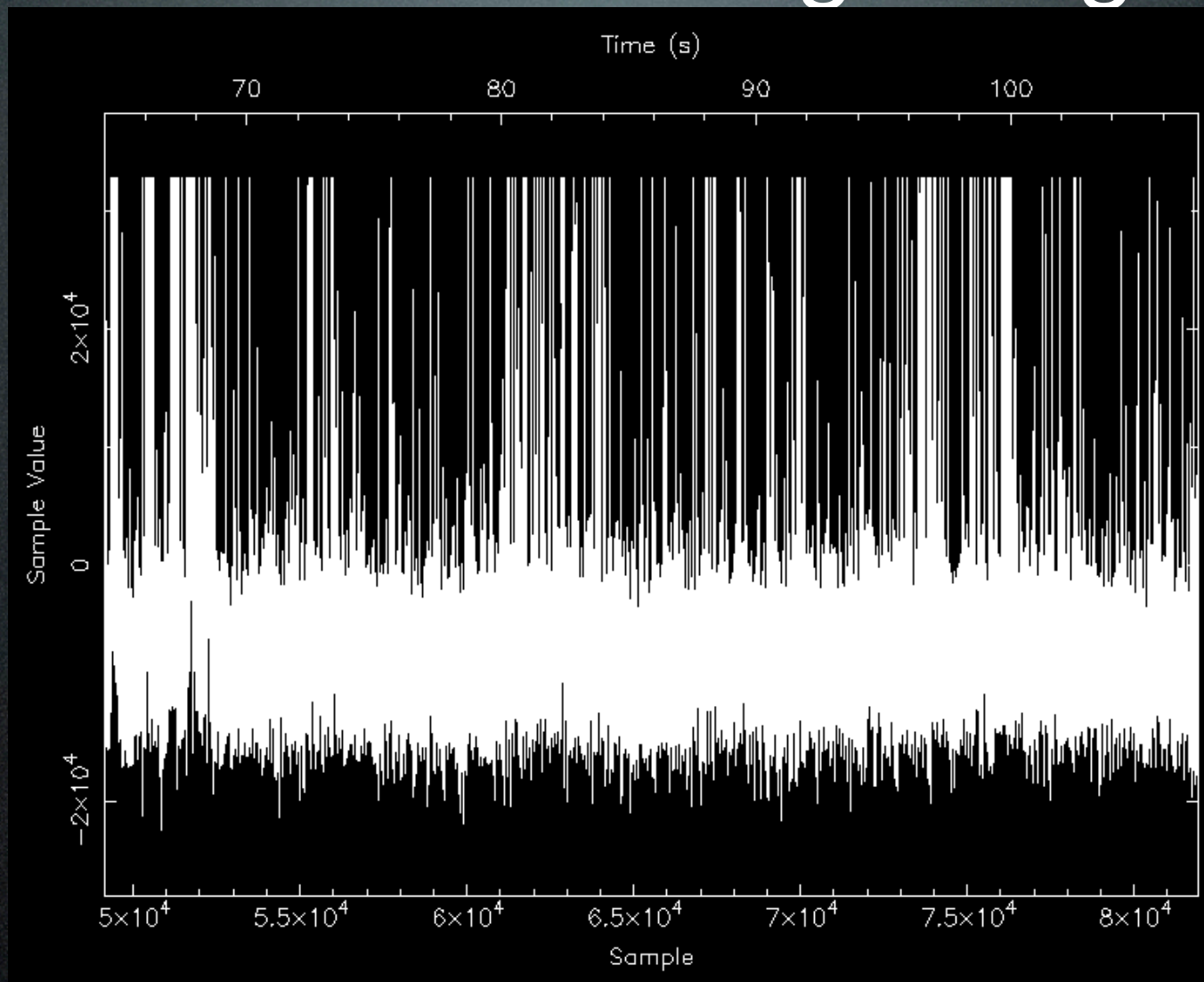
- Use Effelsberg for LBA obs.
- Still problems when configuring the stations.
- Data stream to CEP breaks for some stations, sometimes.
- Want to use the Superterp in PBW6. :-)

# First Light with the New Offline Cluster



Still need to sort out data-flow strategy

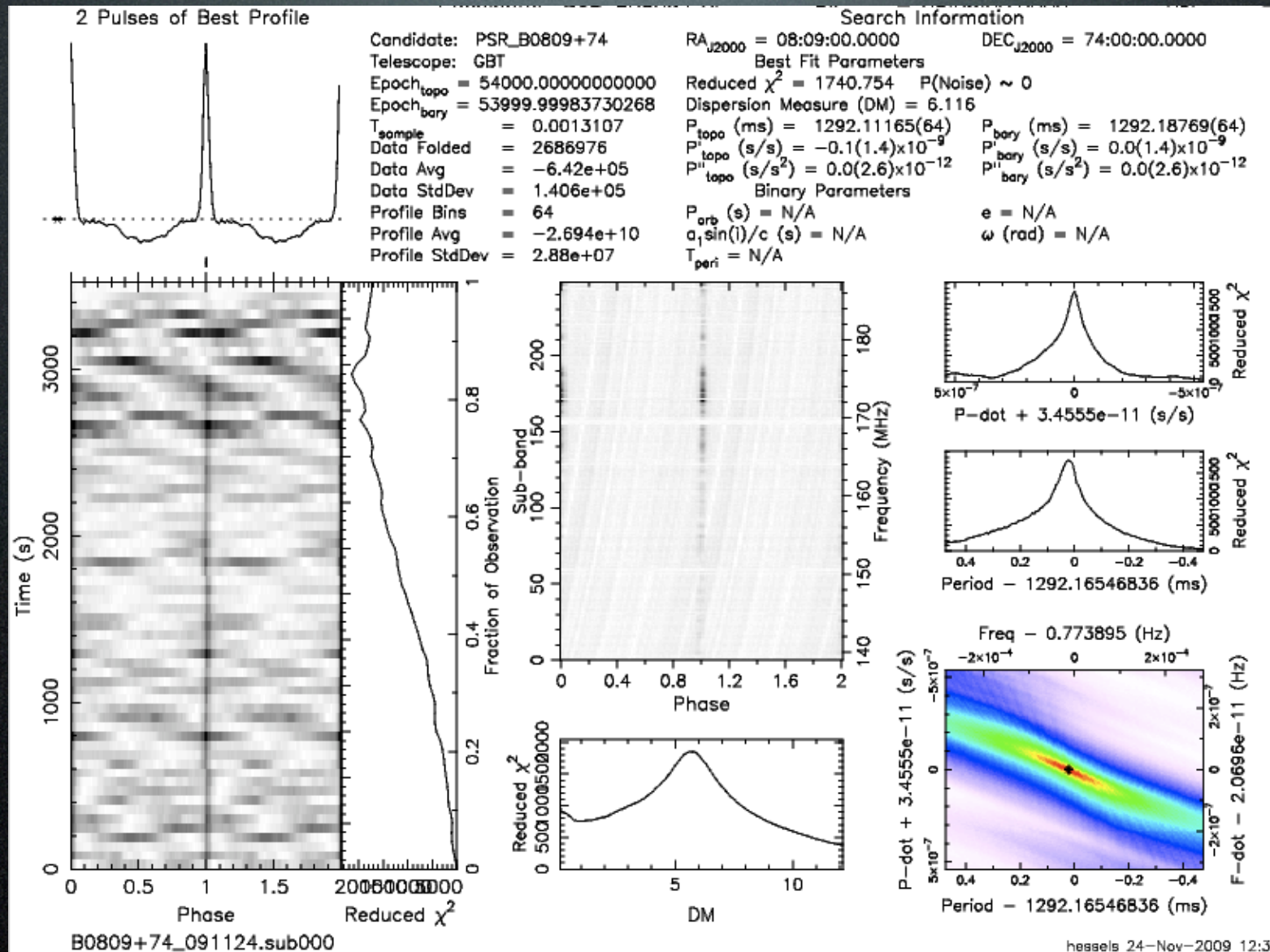
# Problems with Lightning?



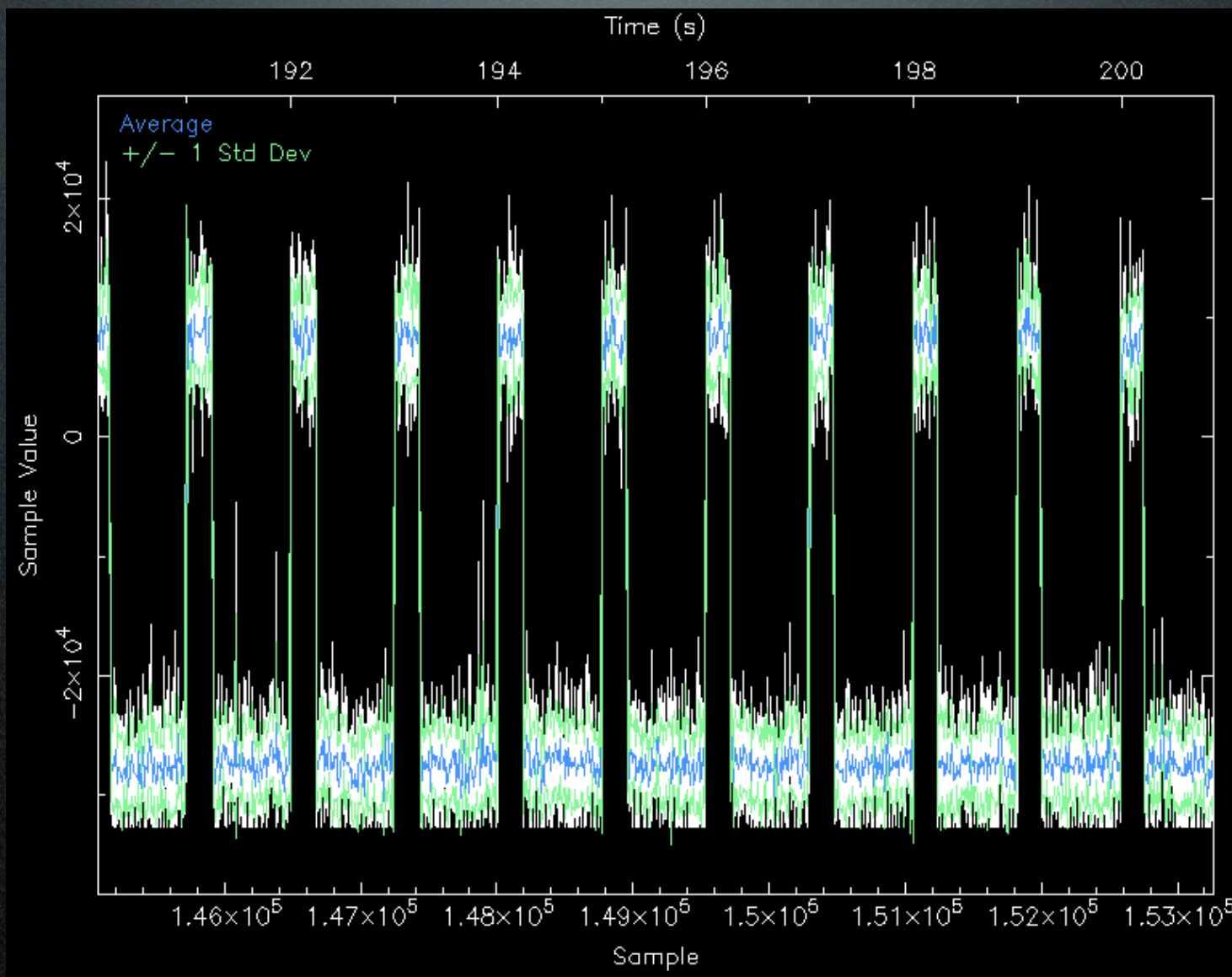
Subband 300 - seen at same times across band



# Problems with Lightning?



# Issues even without the lightning...

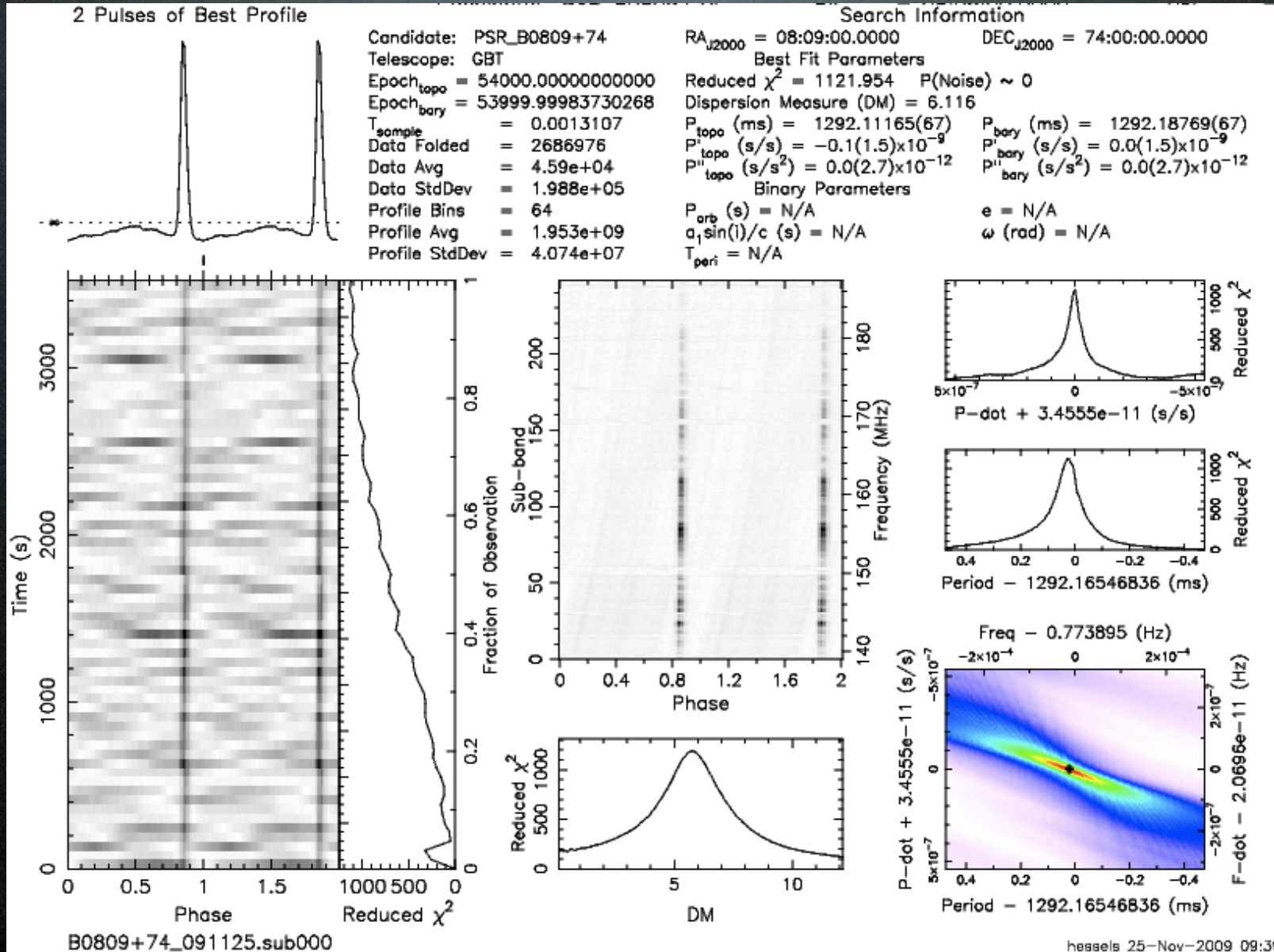


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# Issues even without the lightning...



# Summary

- PBW5 in progress.
- Observing and analyzing on *new* offline cluster.
- Initial observations severely affected by lightning storm Monday-Tuesday night.
- Also taking raw station data to try forming a true tied-array beam offline.
- PBW6 is December 7-11th, 2009