

# HBA monitoring of 3C196 (project LEA128)

- a) Amplitude on CS032-CS101 baseline
- b) Phases between 6 superterp stations

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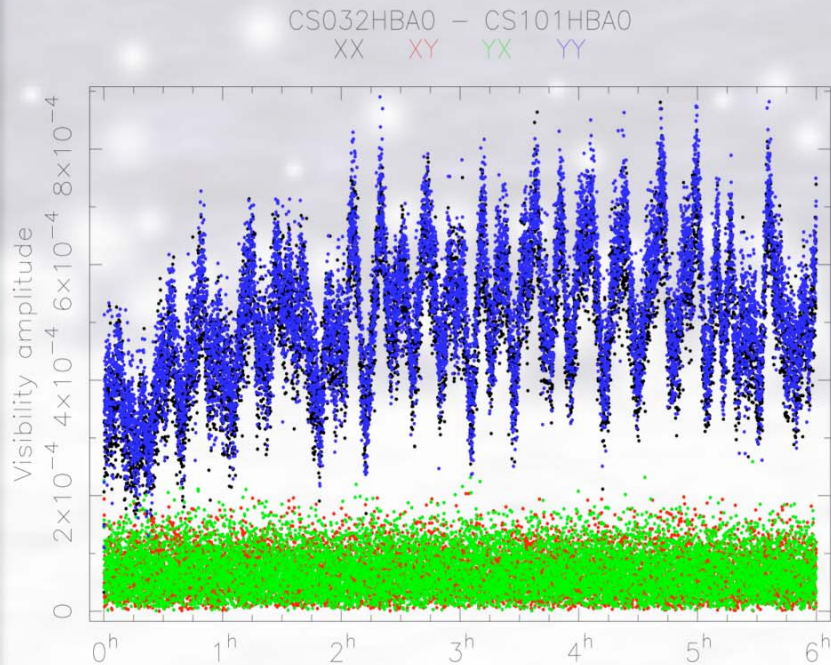
# Currently we have 7 good epochs of 3C196 HBA data

23 Oct 2010	L2010_20984	(25 stations, HBA0 only)	
			← Proper HBA beamformer tables mid Dec 2010
19 Dec 2010	L2010_22006	(44 stations HBA0 and HBA1)	
7 Jan 2011	L2010_22667	(45 stations)	
14 Jan 2011	failed		
21 Jan 2011	failed		
			← Improved clock sync within Superterp
28 Jan 2011	L2010_23092	(47 stations)	
4 Feb 2011	L2010_23259	(47 stations)	bad data ?
15 Feb 2011	failed to run		
18 Feb 2011	L2011_23573	(47 stations),	scintillation !
25 Feb 2011	L2011_23625	(45 stations)	
4 Mar 2011	L2011_23756	(45 stations)	

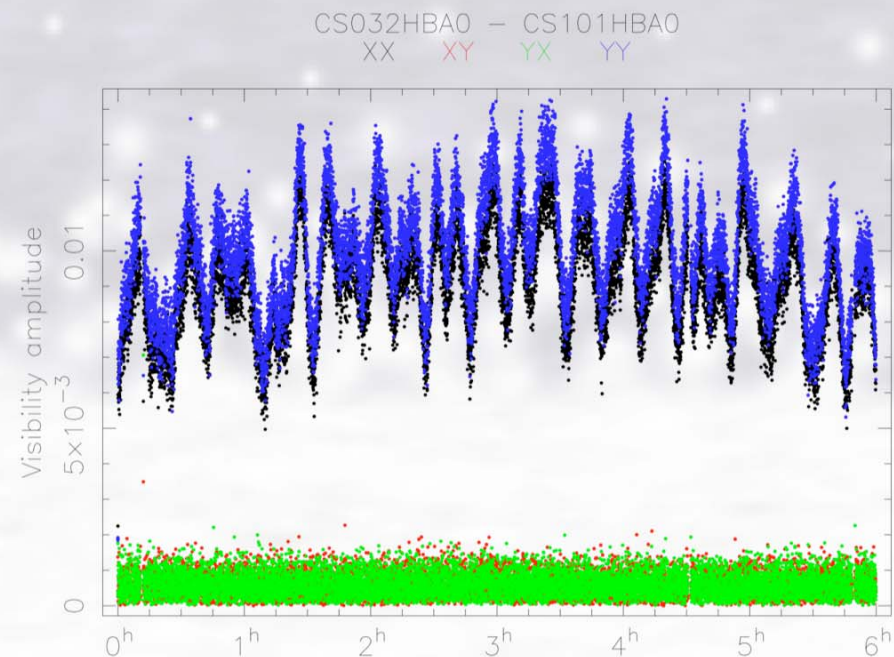
All 248(244) subbands with 64 ch  
Frequencies range from 115-163 MHz  
6h observations with 2s integration  
AO-flagger and NDPPP-averaging → 0.180 MHz and 10s

Results are shown for SB009 → 117 MHz  
and SB200 → 154 MHz

23 Oct 2010



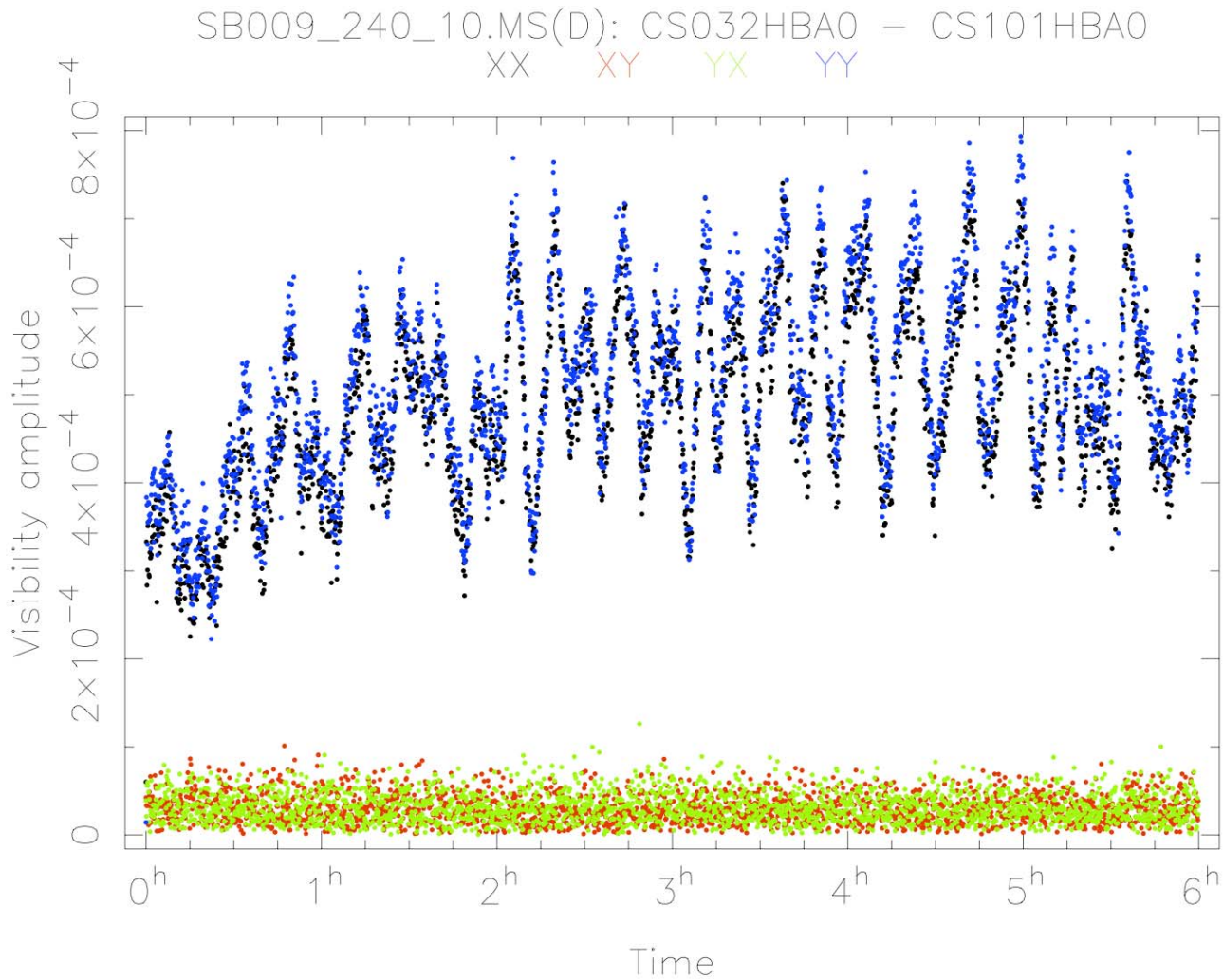
19 Dec 2010



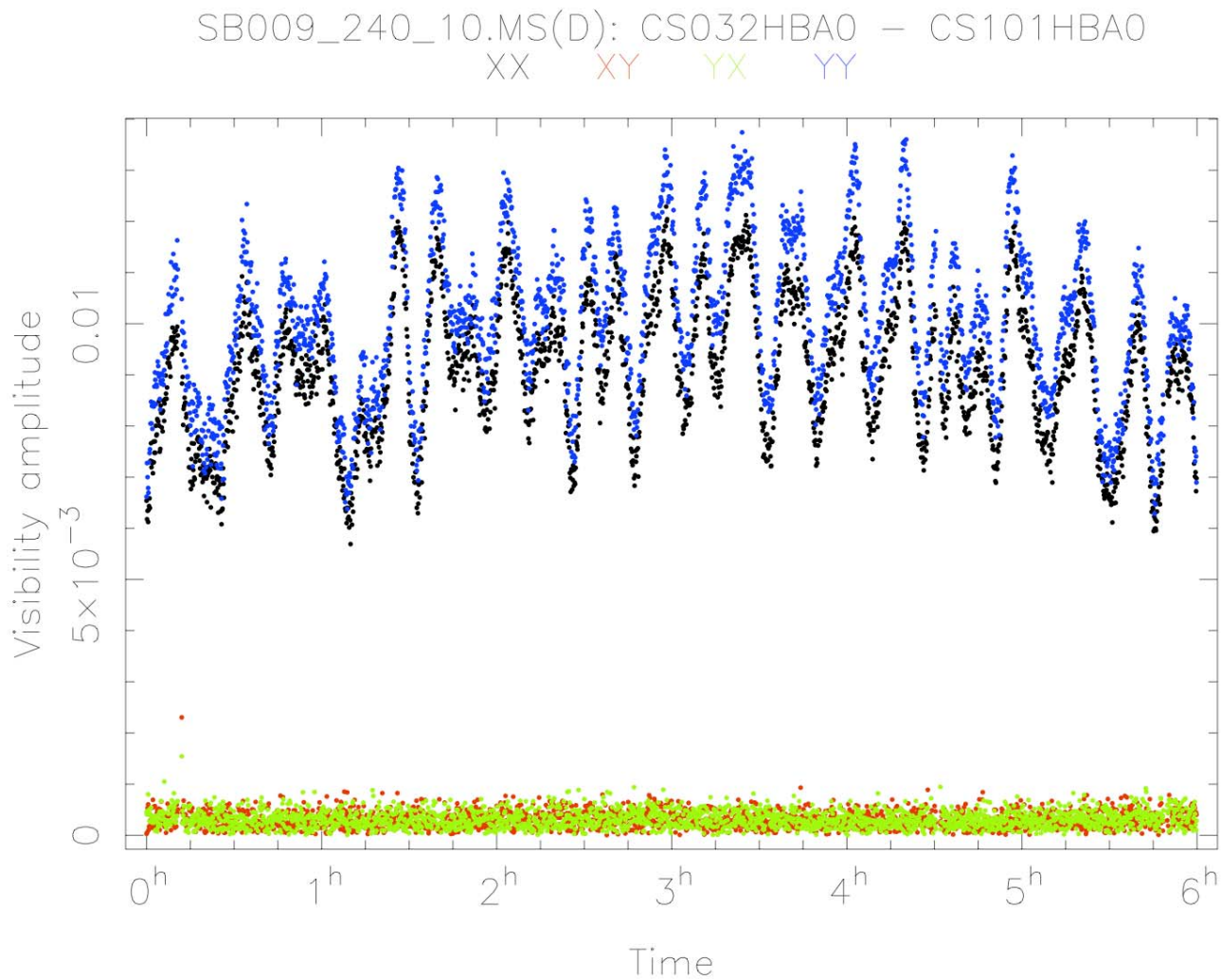
The improvement between 23Oct10 and 19Dec10 is most likely due to proper station beamforming. It is visible in the data in two ways:

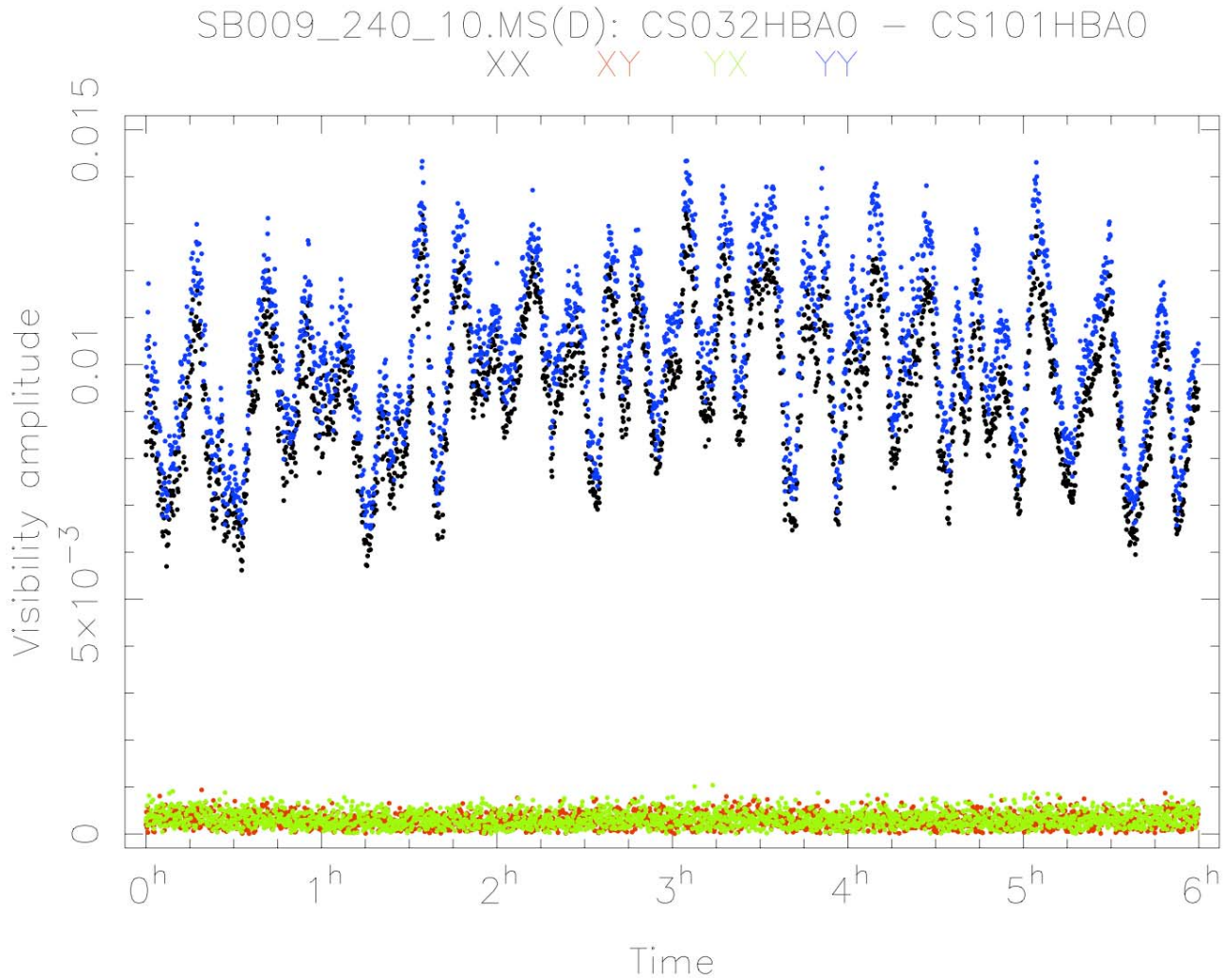
- level of XX and YY correlated flux relative to XY and YX (noise only)
- noise level on the visibilities

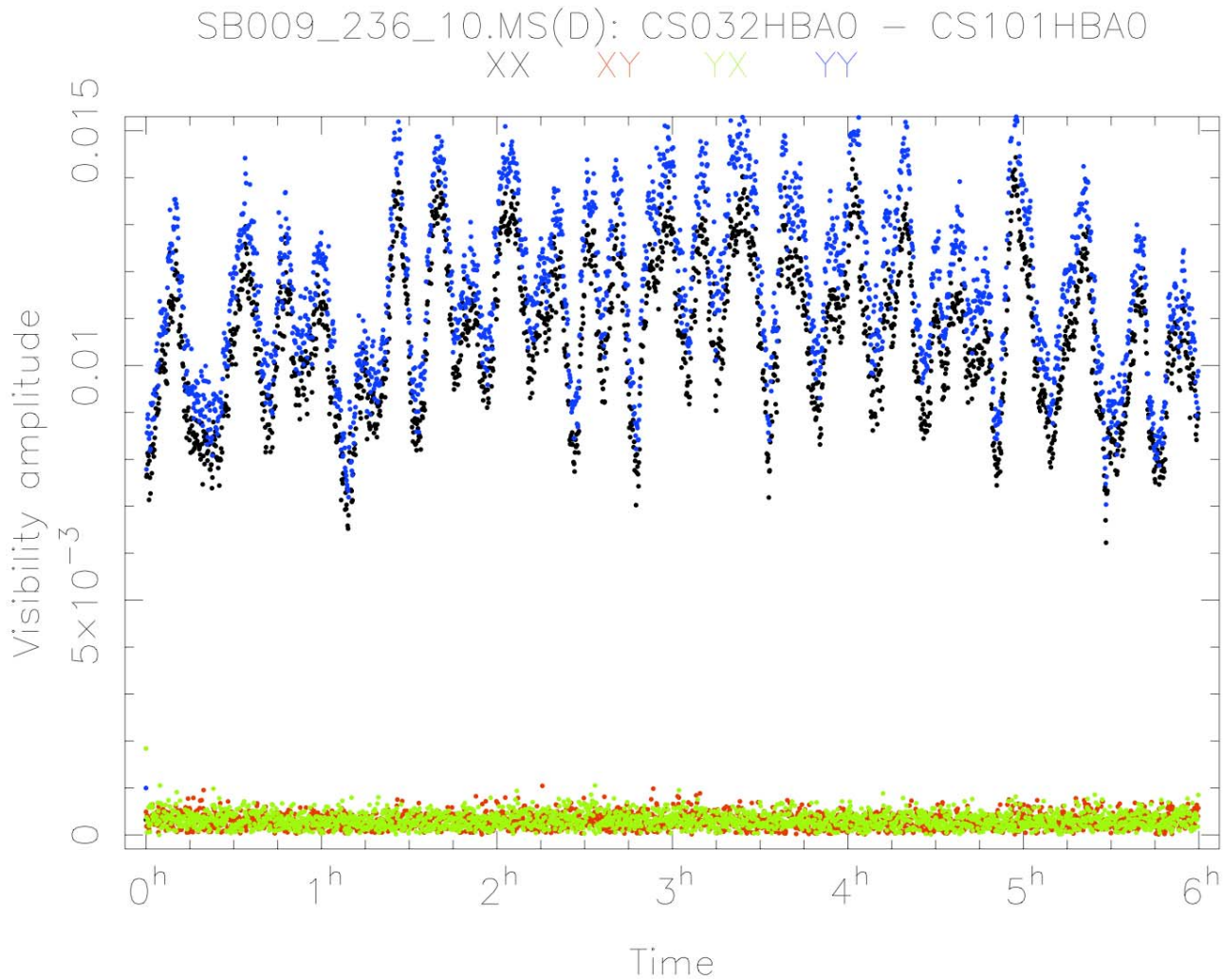
Both give a S/N improvement on this baselines of a factor 1.8. At 117 MHz !  
Expect more at higher frequencies.

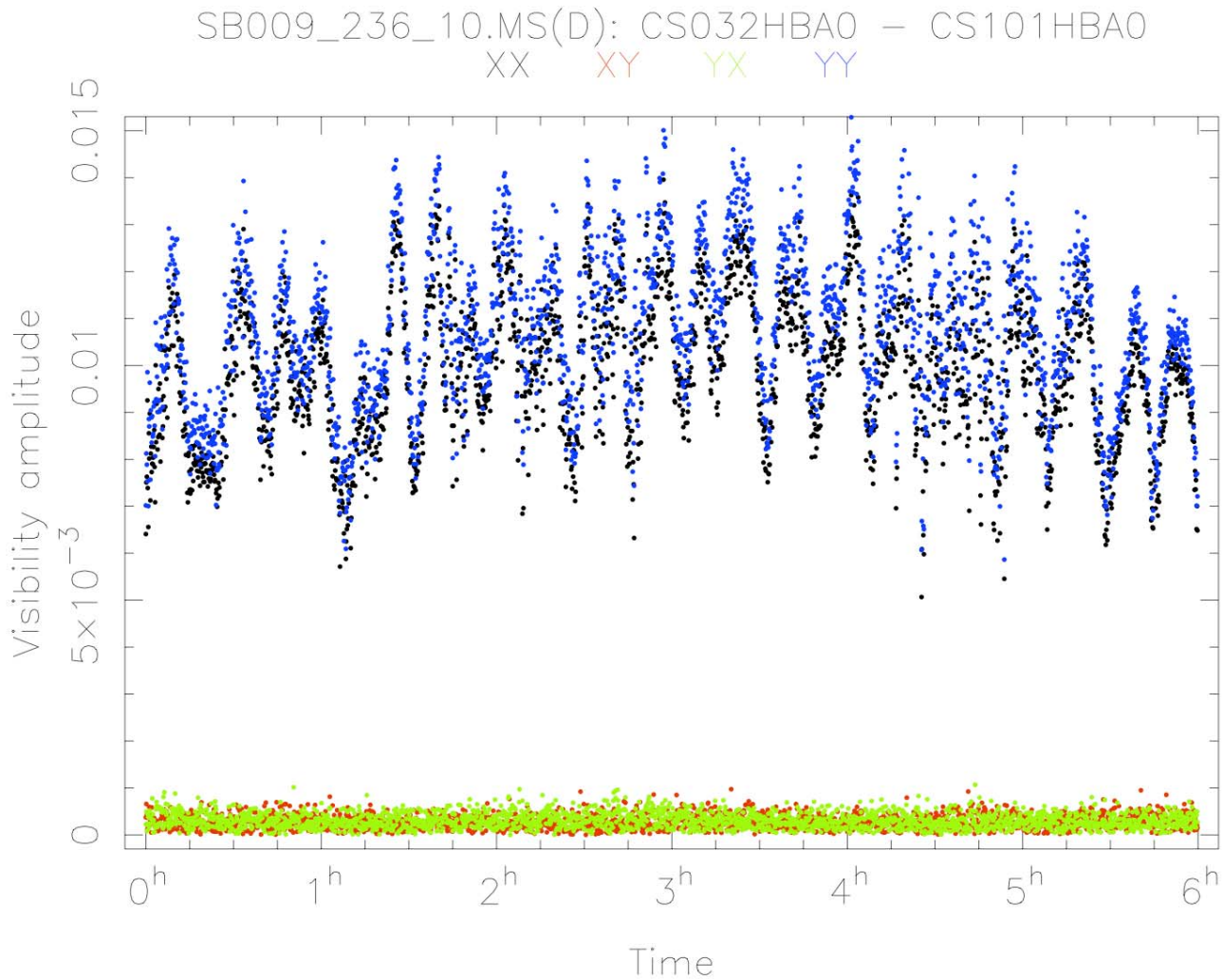




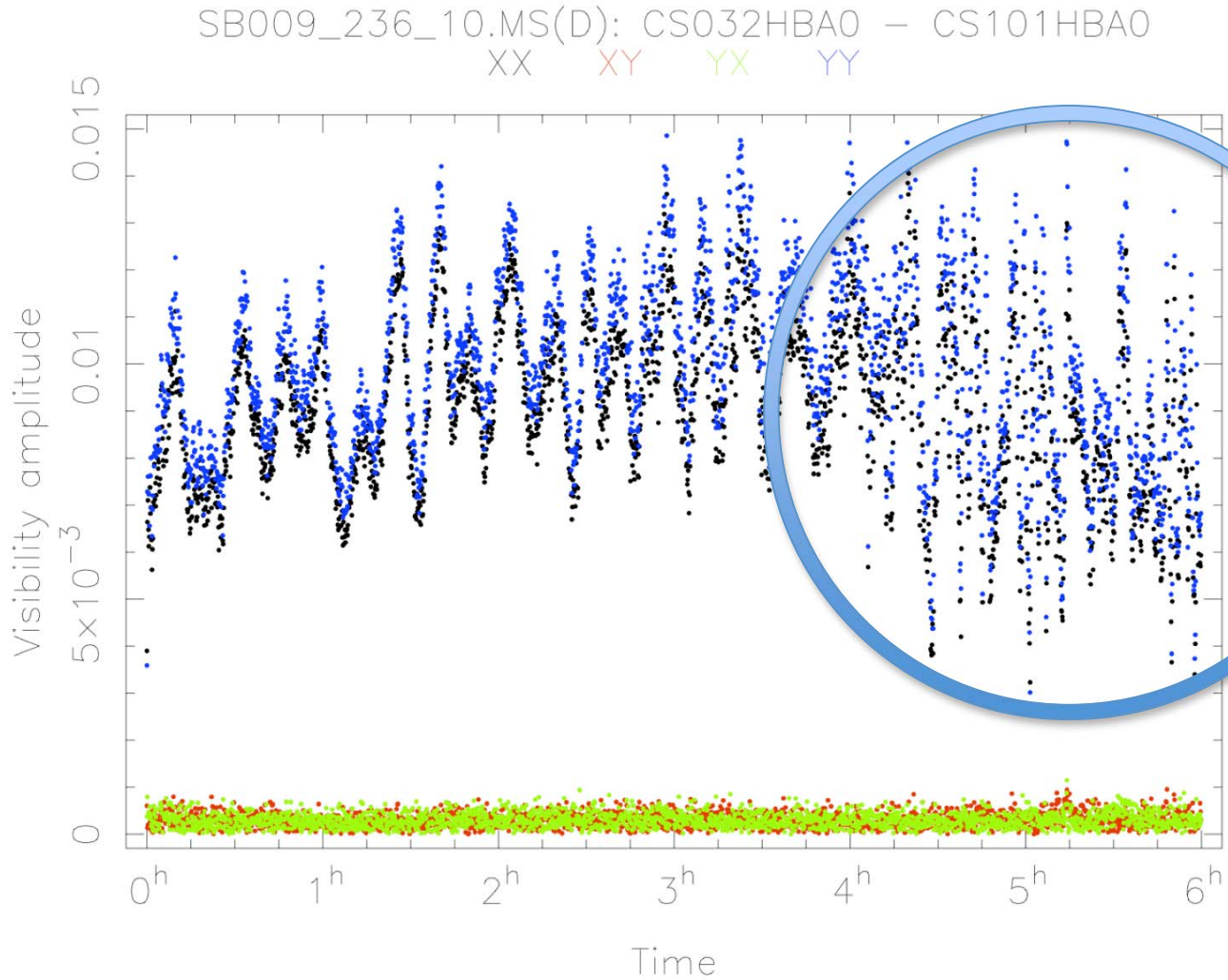


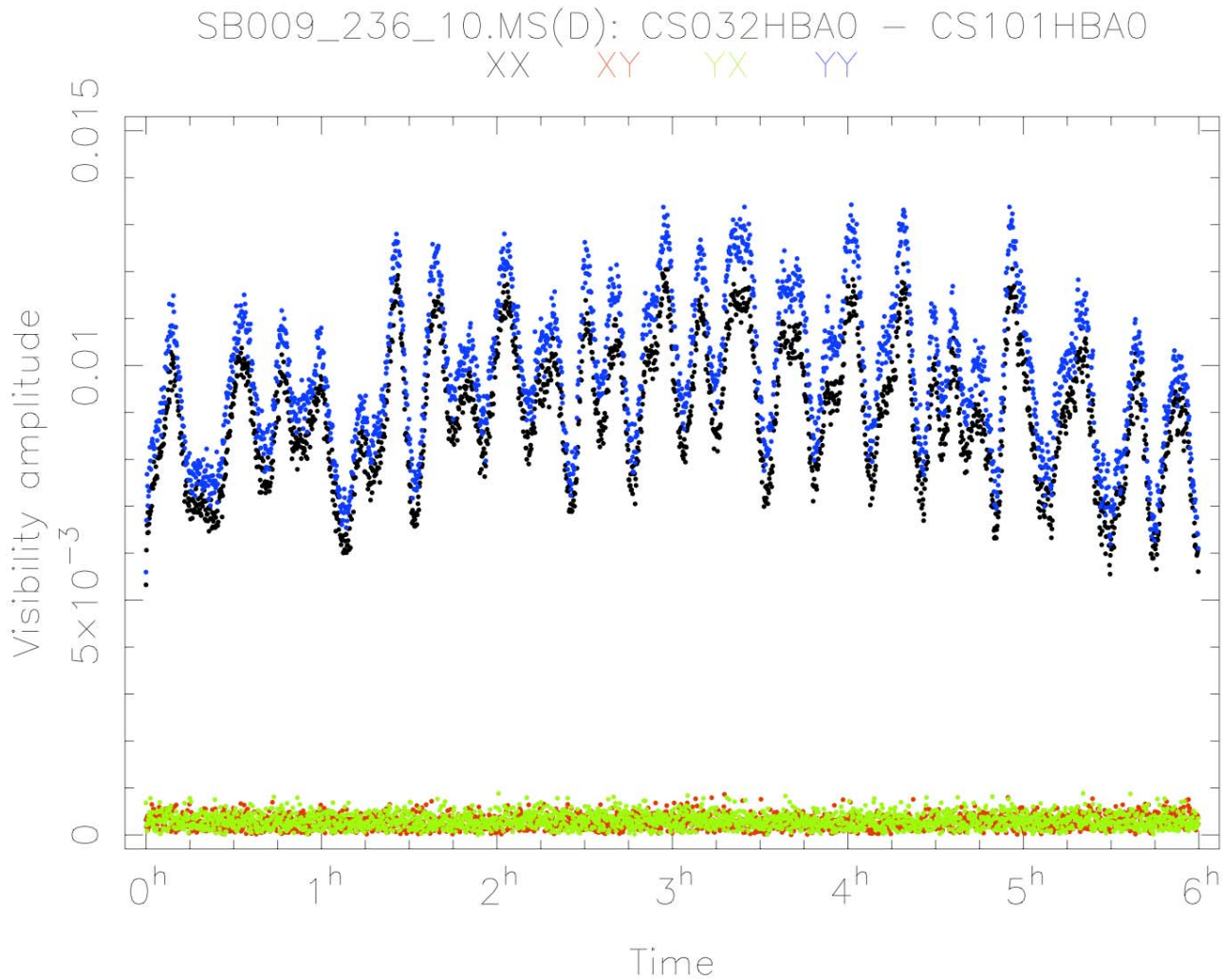


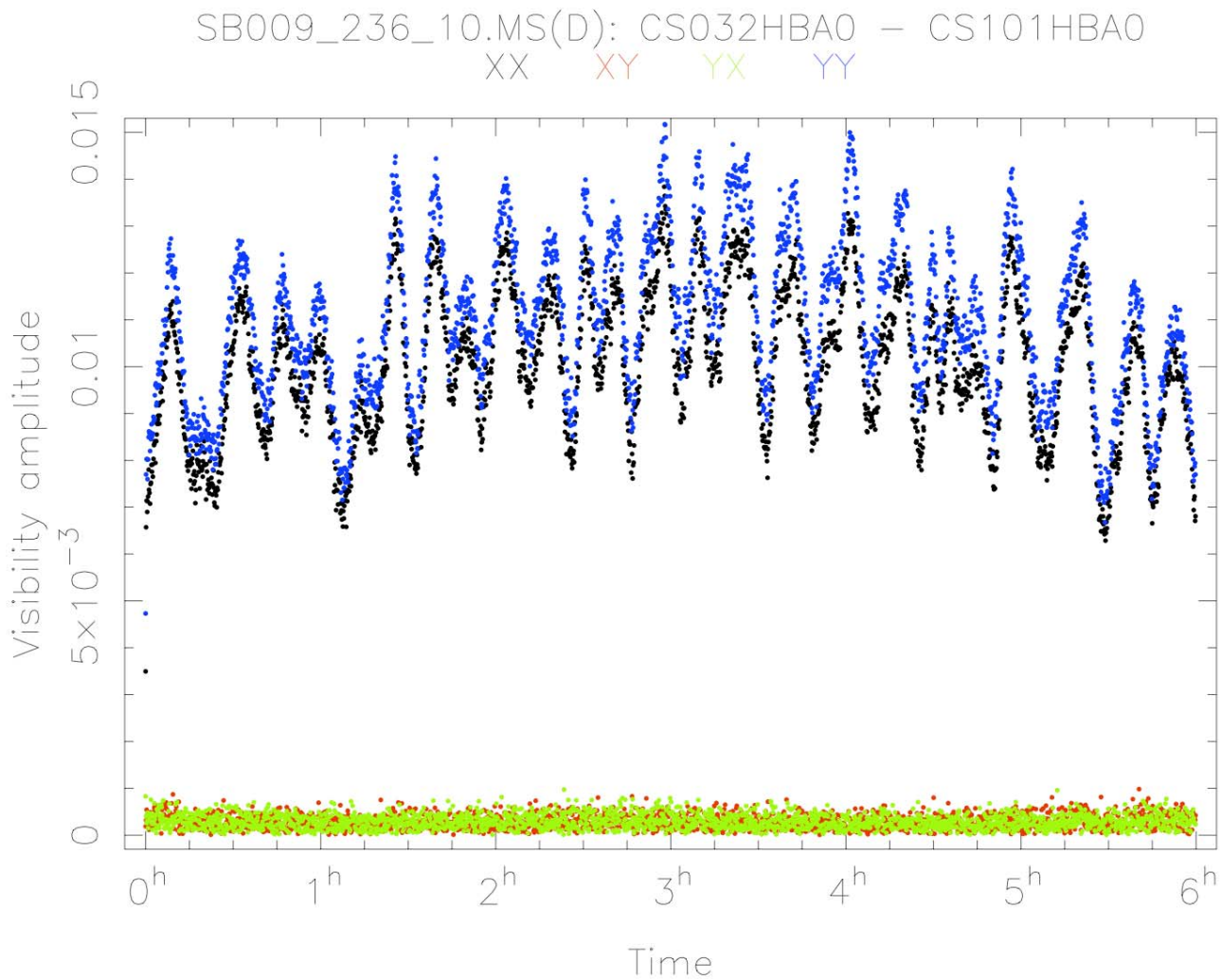


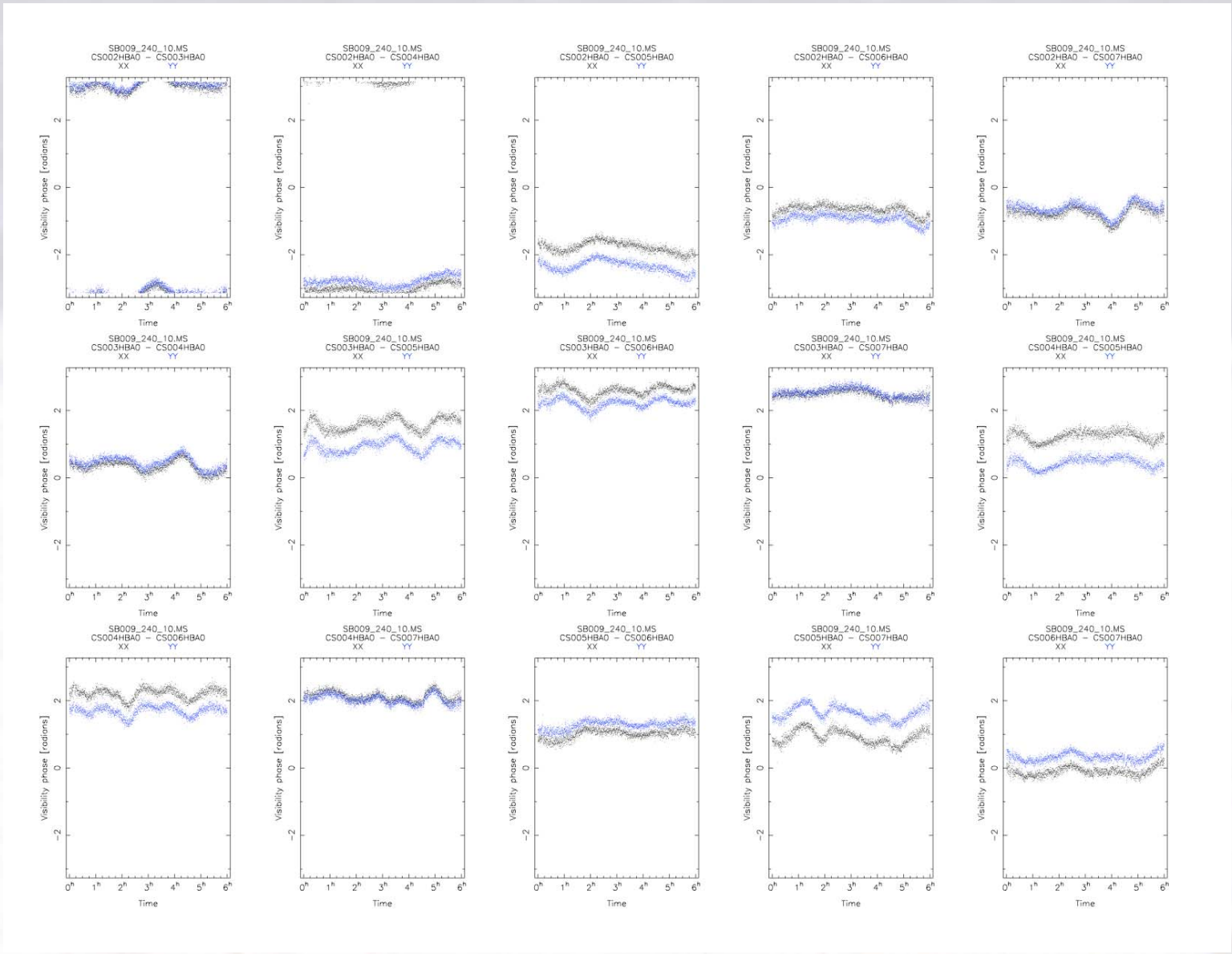




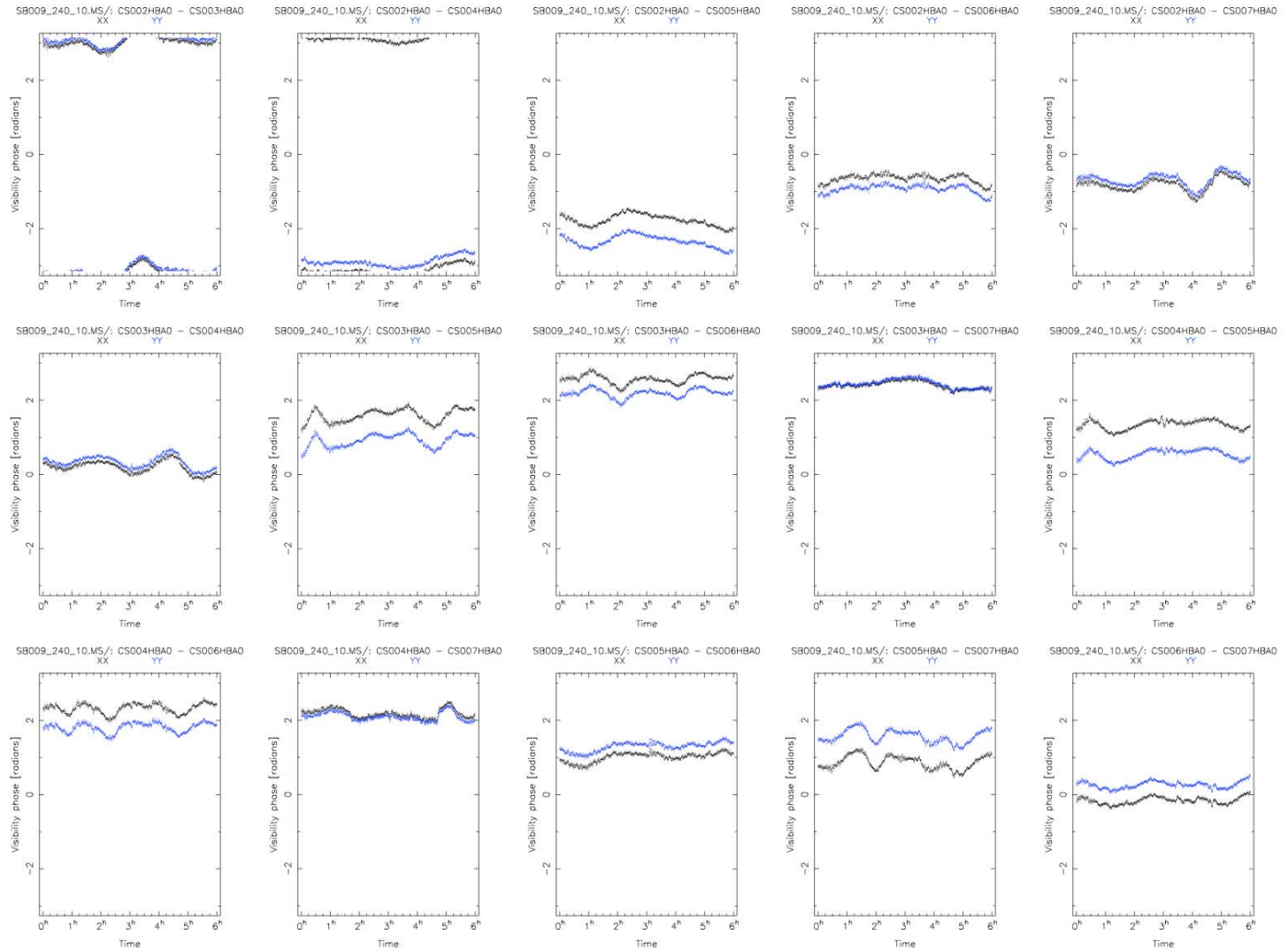




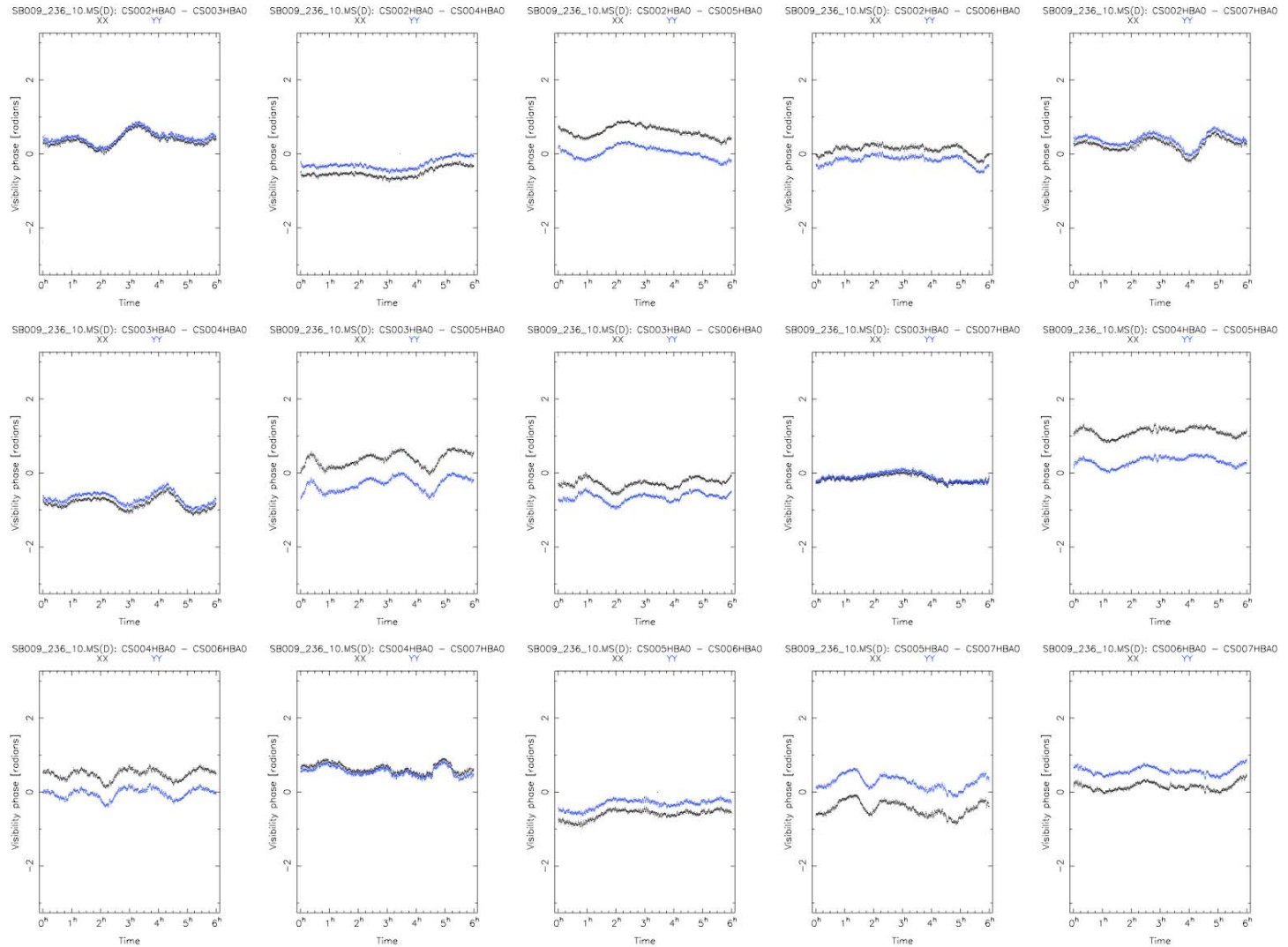


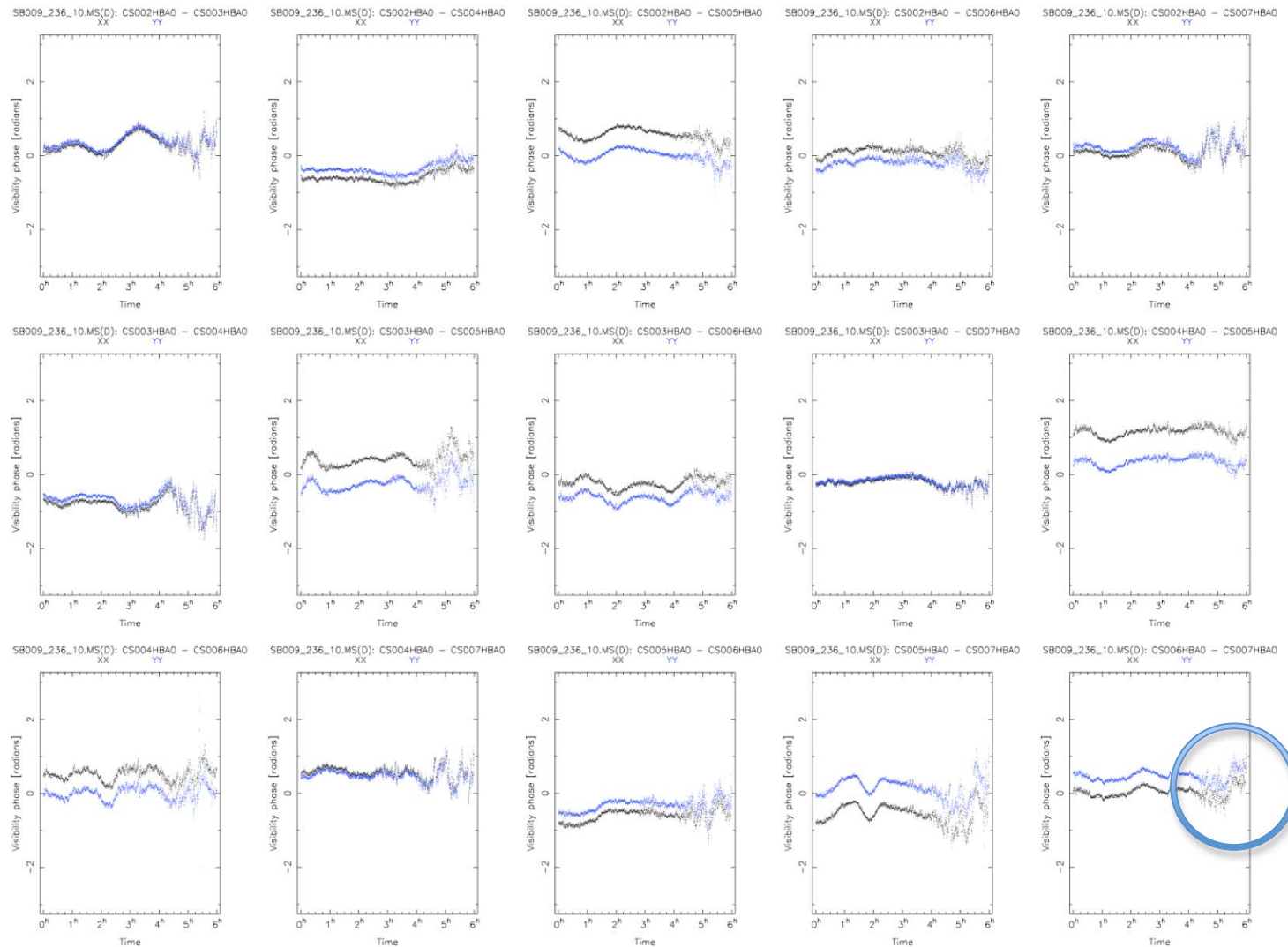


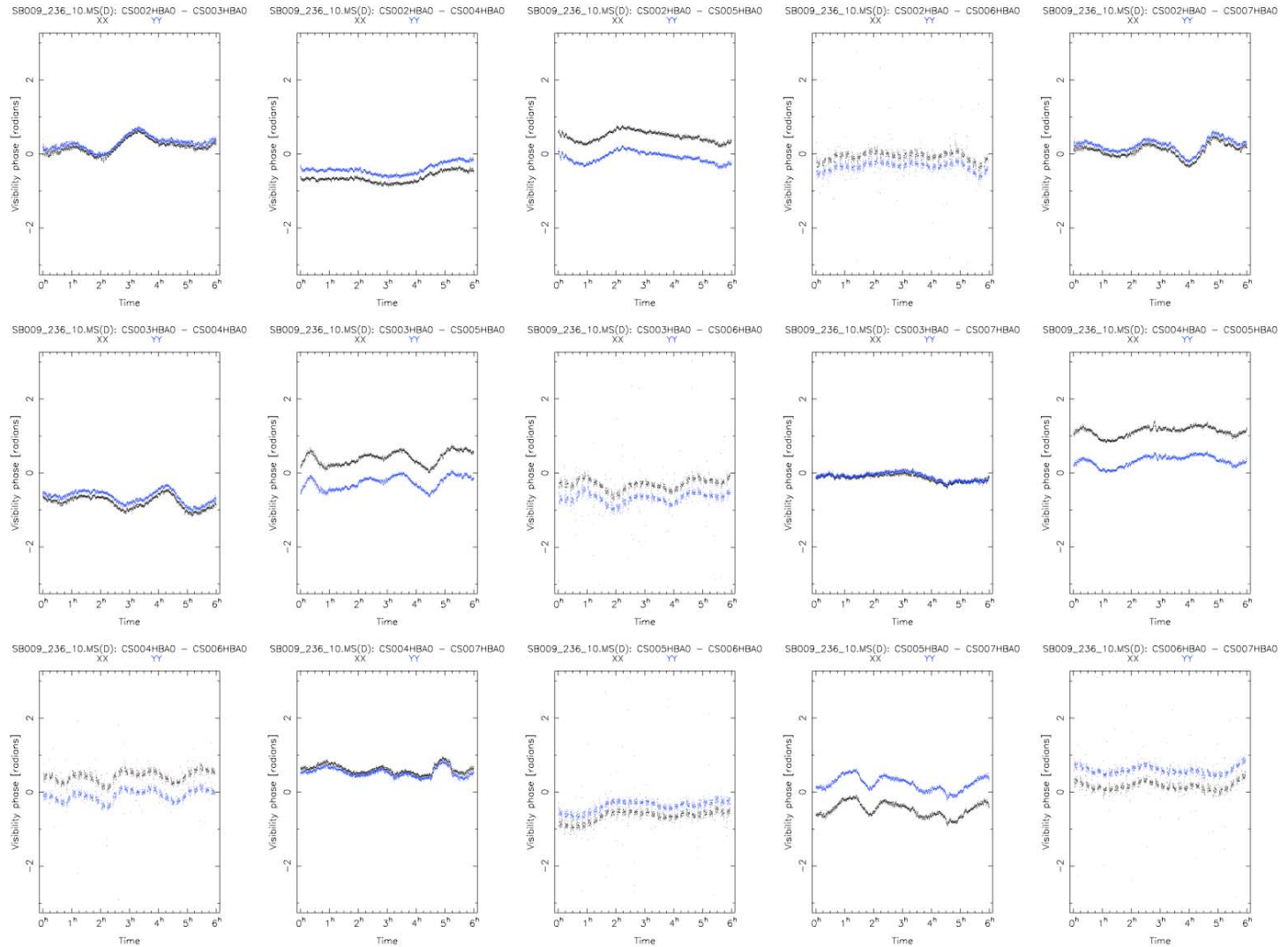




# Superterp phase-stability SB009 = 117 MHz 28Jan2011

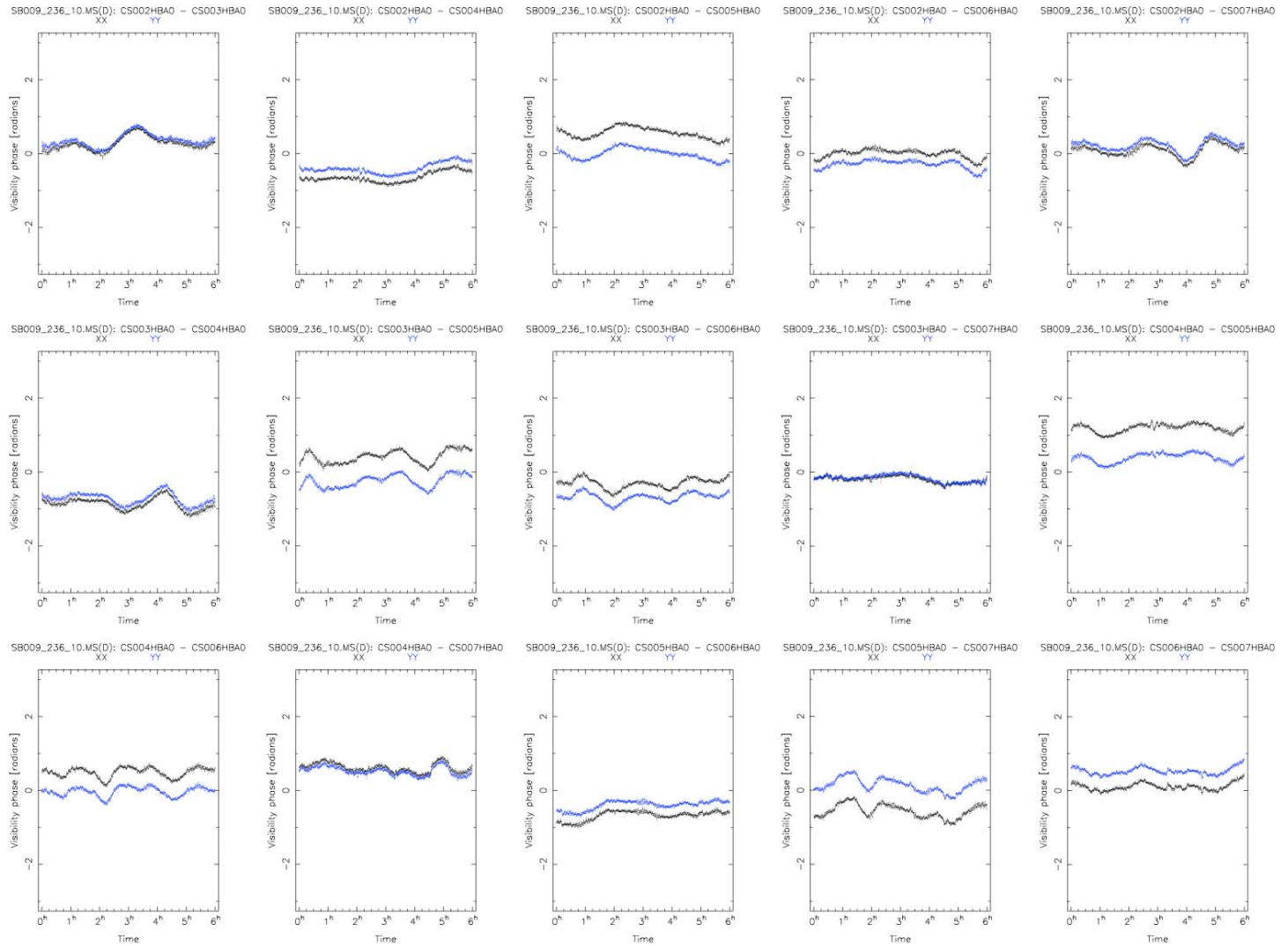




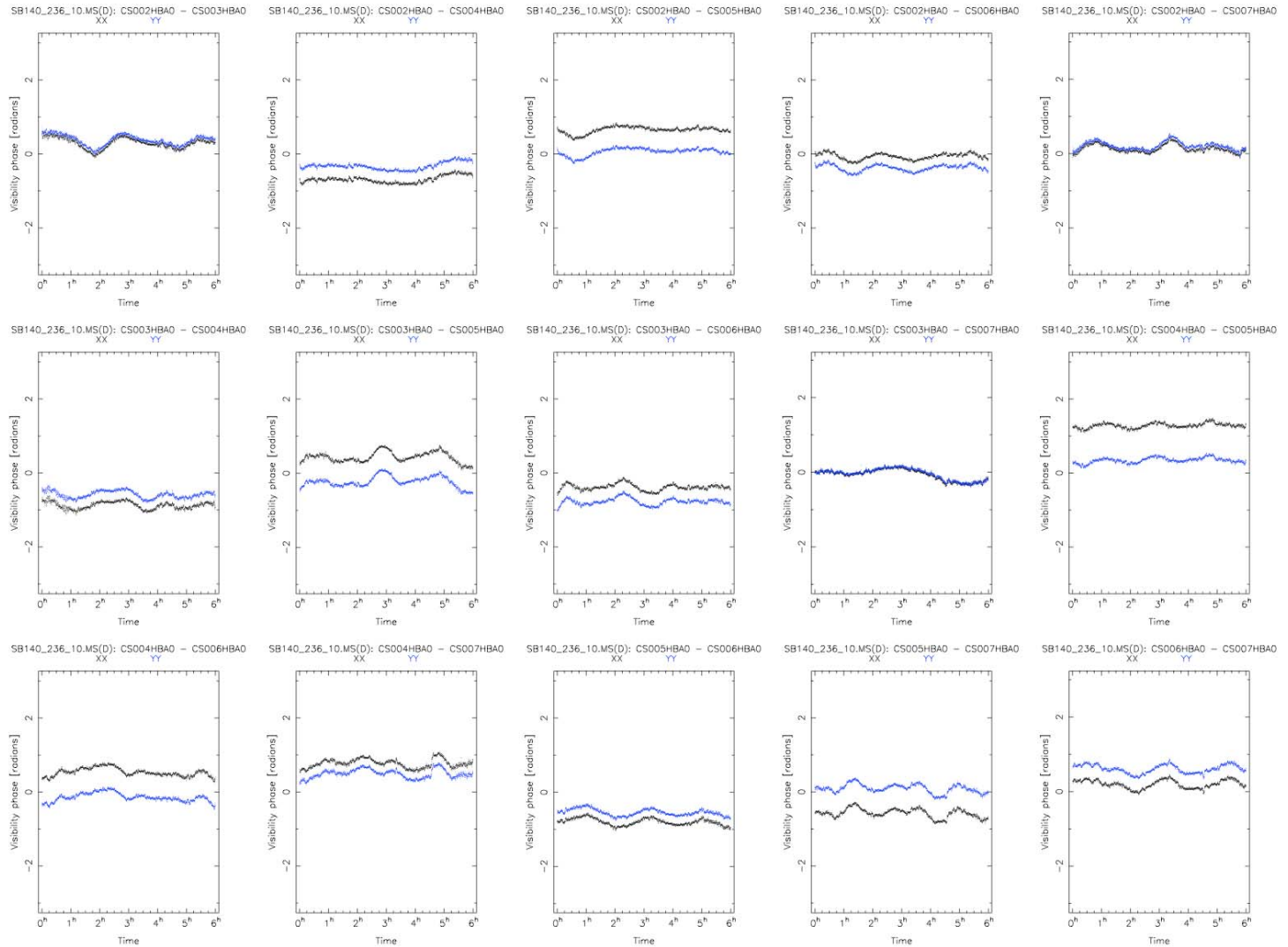




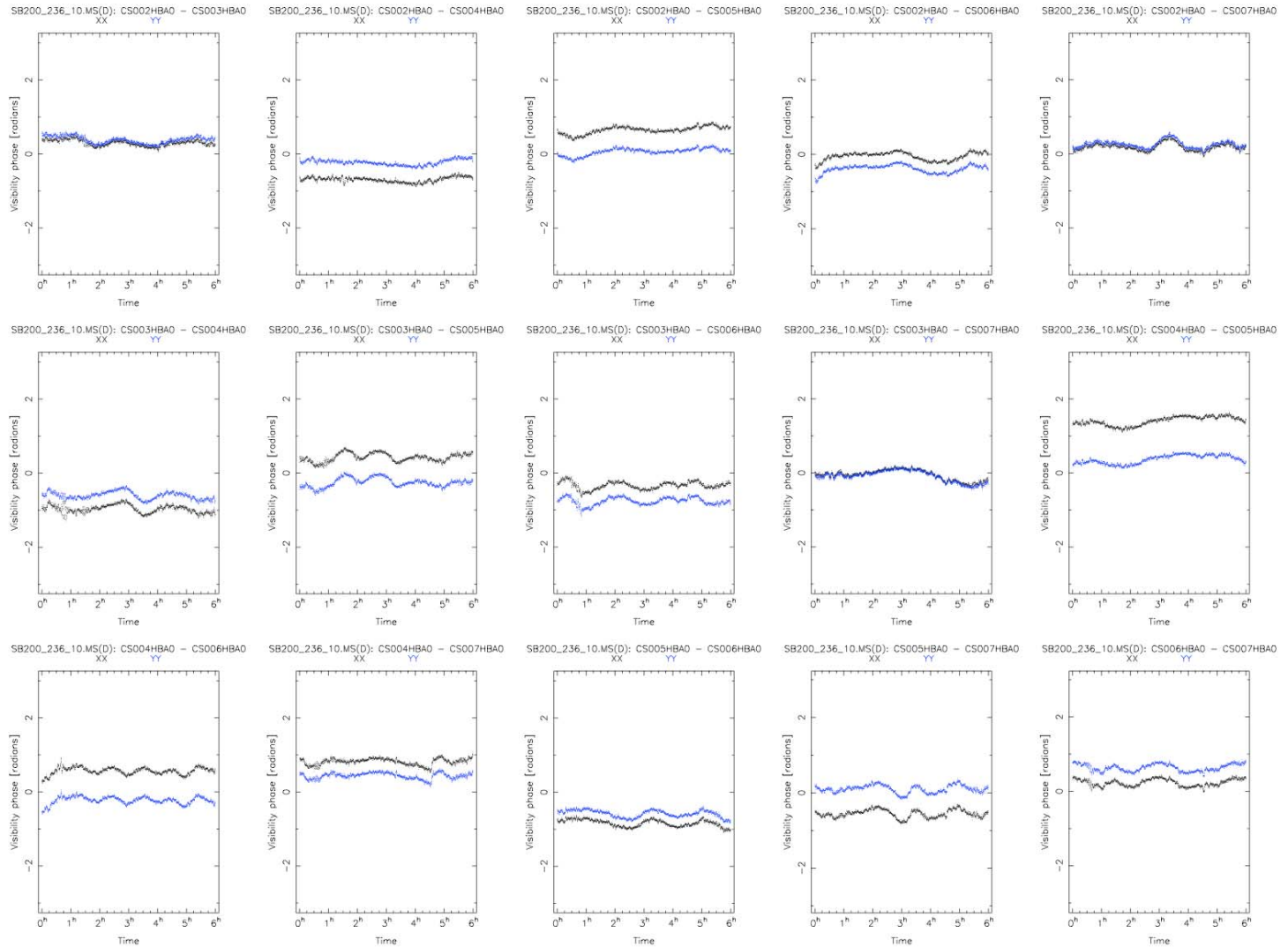
## 117 MHz



## 142 MHz



154 MHz



# Some conclusions on RAW 'data quality'

## **Amplitudes/Gains:**

- Observed 'Gain' changes of about 10-20% between weeks
- No S/N changes observed that are greater than 20% in last 2 months
- Generally fairly stable distant sidelobe levels (in direction of A-team sources)

## **Delays/phases:**

- Clockdelays between superterp stations (also between X and Y) better than 0.5 ns
- Stable on timescales of one month
  
- One in seven 6-hour observations showed ~2 hours of ionospheric scintillation

## **Stations:**

- Apart from CS017 and CS501 (bad config tables) most CS worked fine
- Occasional problems: e.g. CS006 on 4 March 2011