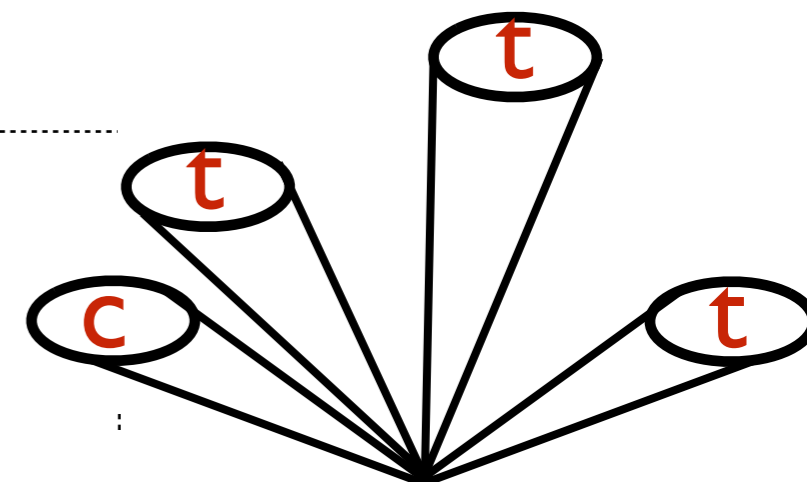


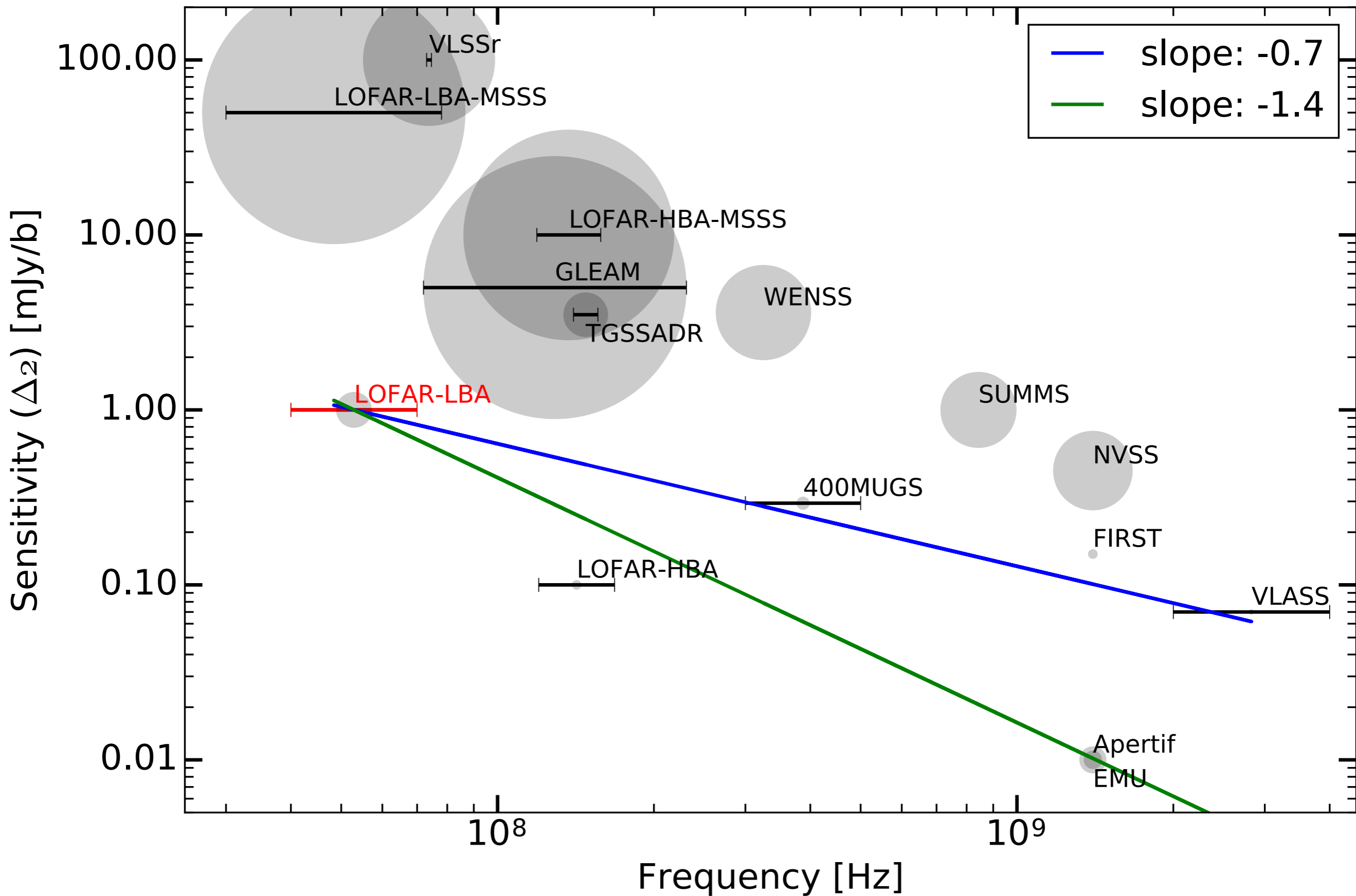


# Summary of the LBA workshop 5-6-7 Oct

Francesco de Gasperin  
LSM - 22 Nov 2016

	<b>LOFAR LoT-ss</b> <i>(T. Shimwell+)</i>	<b>LOFAR LoL-ss</b> <i>(F. de Gasperin+)</i>
<b>Frequency</b>	120-168 MHz	<b>42-66 MHz</b>
<b>Obs Time</b>	8h/pointing (2 beams) 12k hours	<b>8h/pointing (3 beams) 8k hours</b>
<b>Sky Coverage</b>	50% (North)	<b>50% (North)</b>
<b>Noise level</b>	100 uJy/b	<b>1 mJy/b</b>
<b>Resolution</b>	5''	<b>15''</b>





Sensitivity: 1 mJy/b

Freq: 42-66MHz

- Three days at the Lorentz Center (Leiden)
- LBA most expert scientists (~15 people)
- Aims:
  1. finalize calibrator/DIE-calibration
  2. test DDE-calibration strategies

**PiLL (Ca/DIE):** A. F. de Gasperin, Drabent, E. Orru, L. Morabito

**Peeling/Factor:** F. de Gasperin

**Sagecal:** S. Yatawatta, F. de Gasperin

**KiIMS:** W. Williams, T. Shimwell

**SPAM:** H. Intema

**Screen fitting (devel.):** T.J. Dijkema, A. Offringa

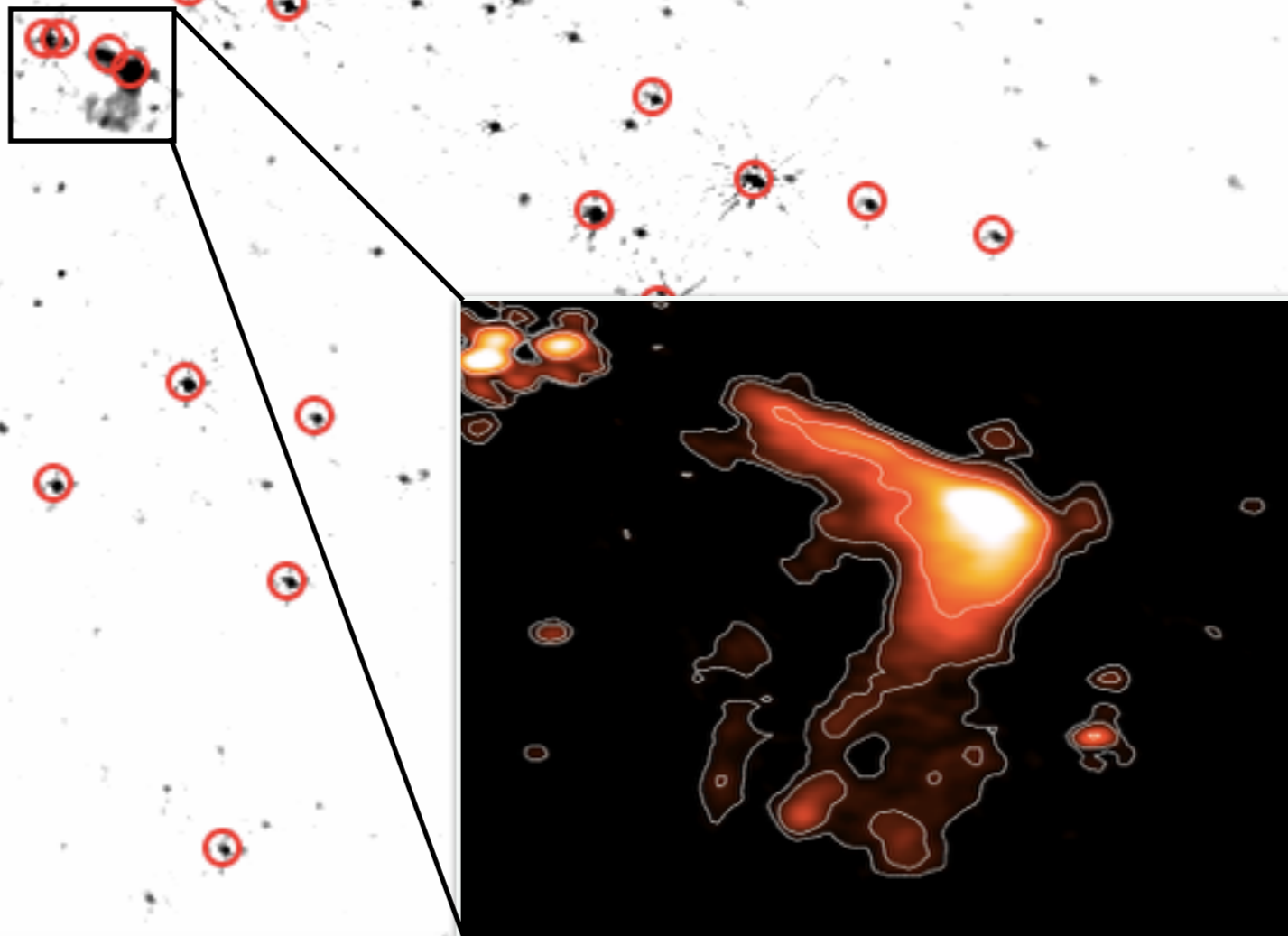
**Ionosphere diffractive scale:** M. Mevius, S. Mandal

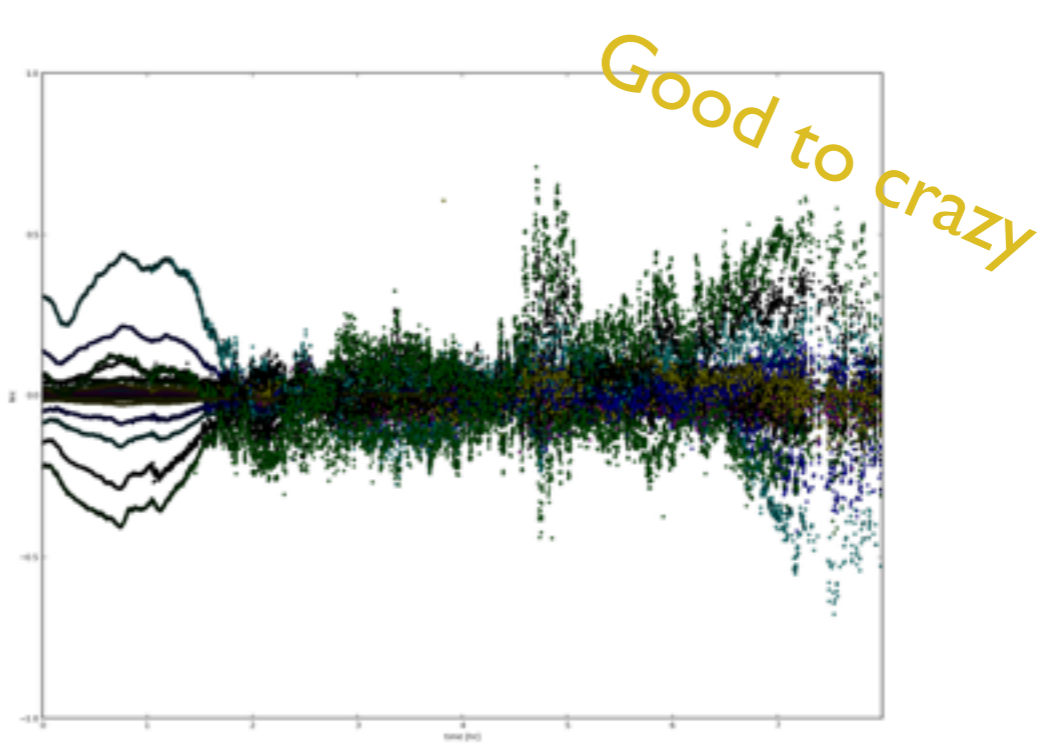
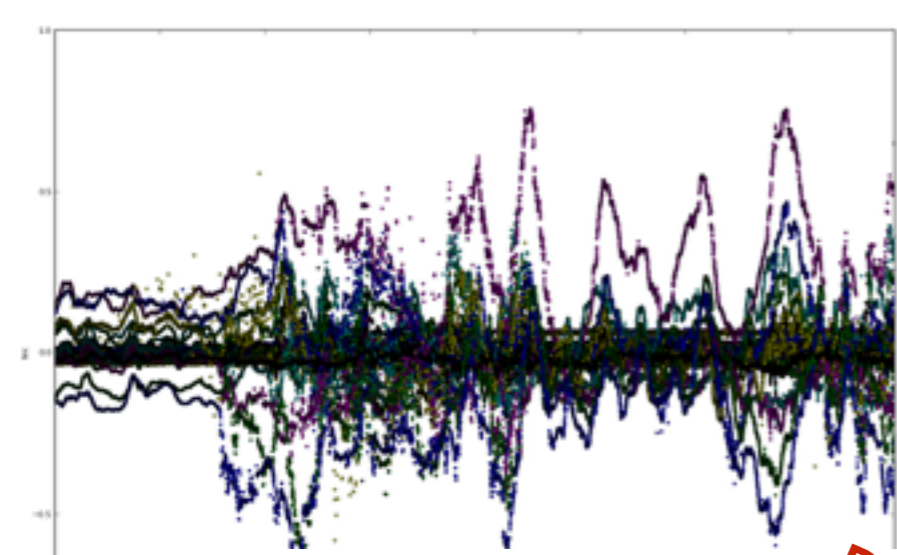
# PiLL: Pipeline for LOFAR LBA

F. de Gasperin, A. Drabant, E. Orru, L. Morabito

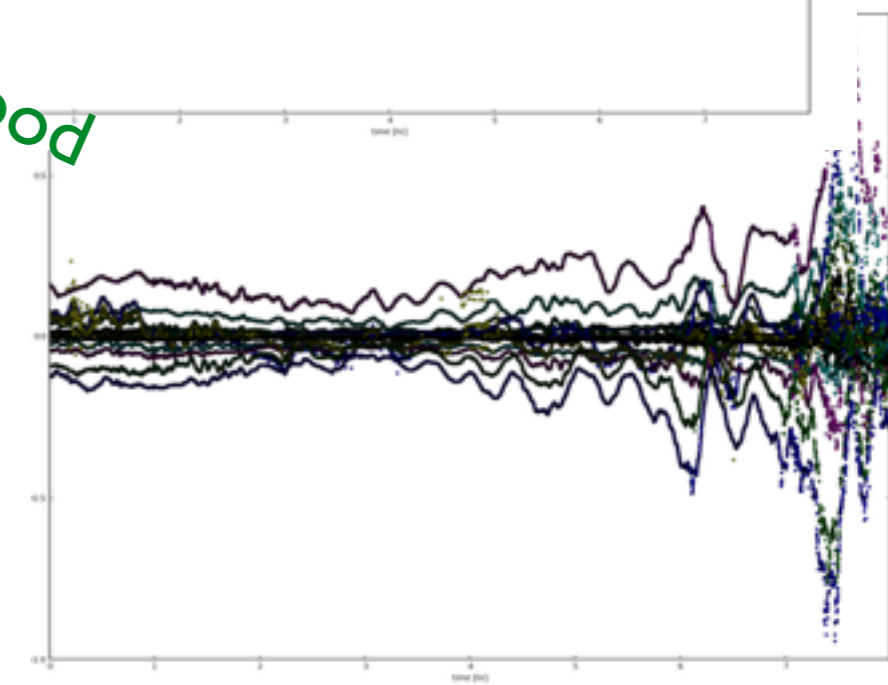
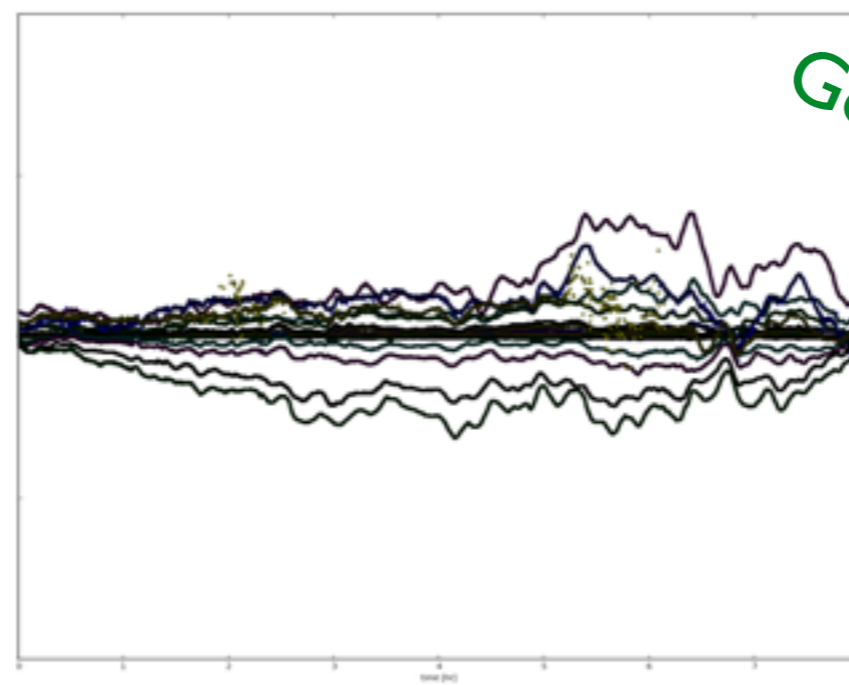
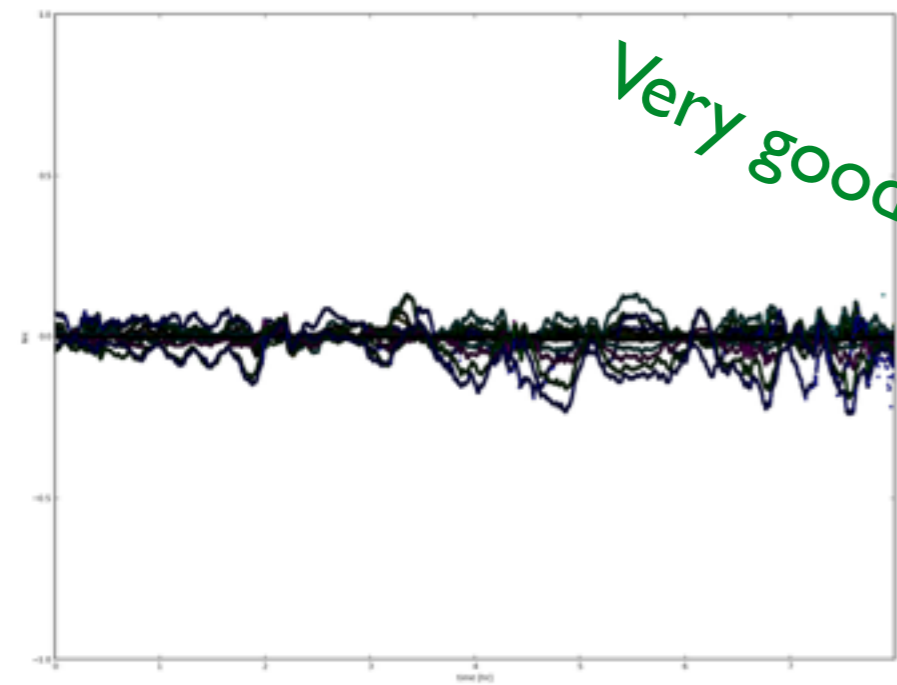
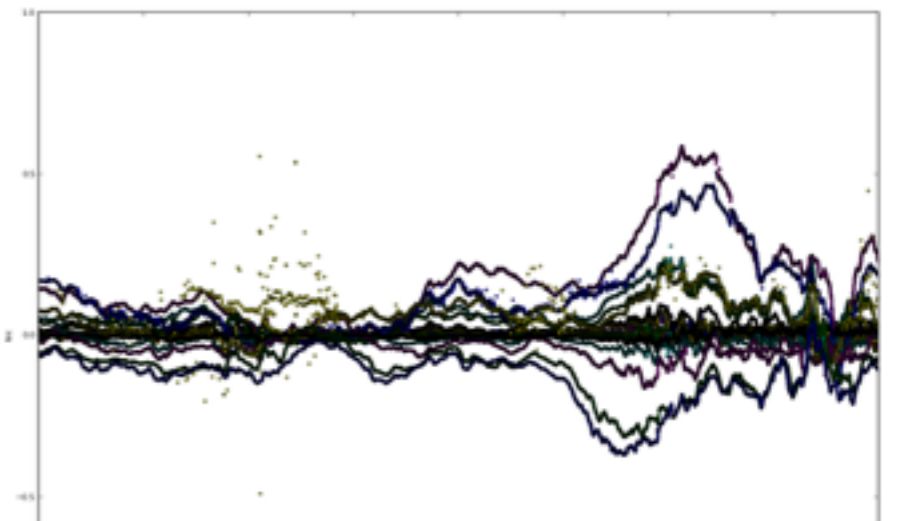
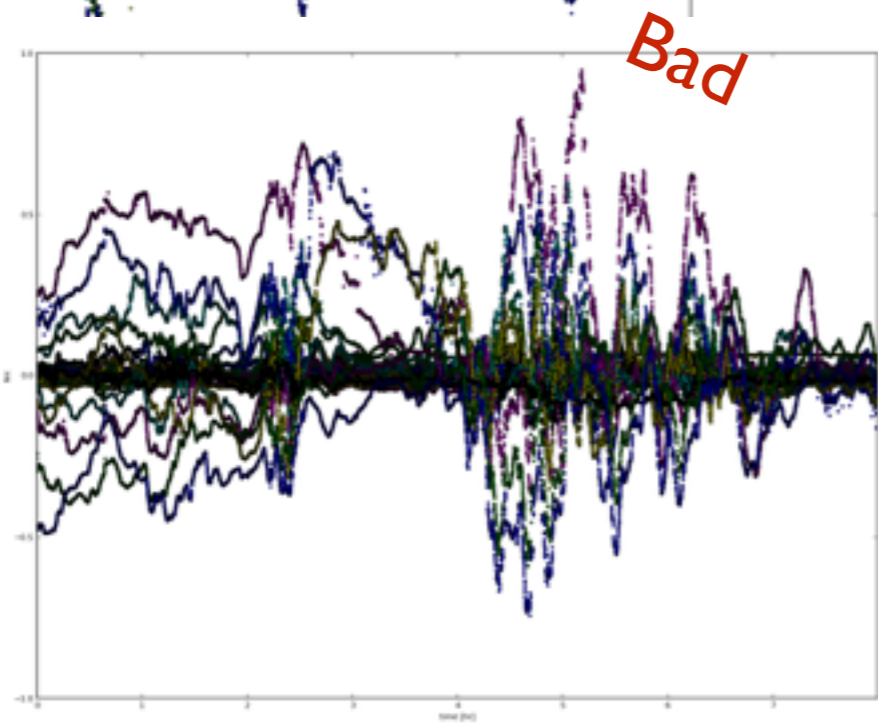
Strategy to calibrate the calibrator and to perform DIE-calibration on the target. We reach noises  $< 5$  mJy/b (30'' resolution) but DDE still limit the image quality substantially.

Frequency: 60 MHz  
Rms noise: 3 mJy/b  
Resolution: 30''  
Detections: ~700  
FWHM: 4 deg

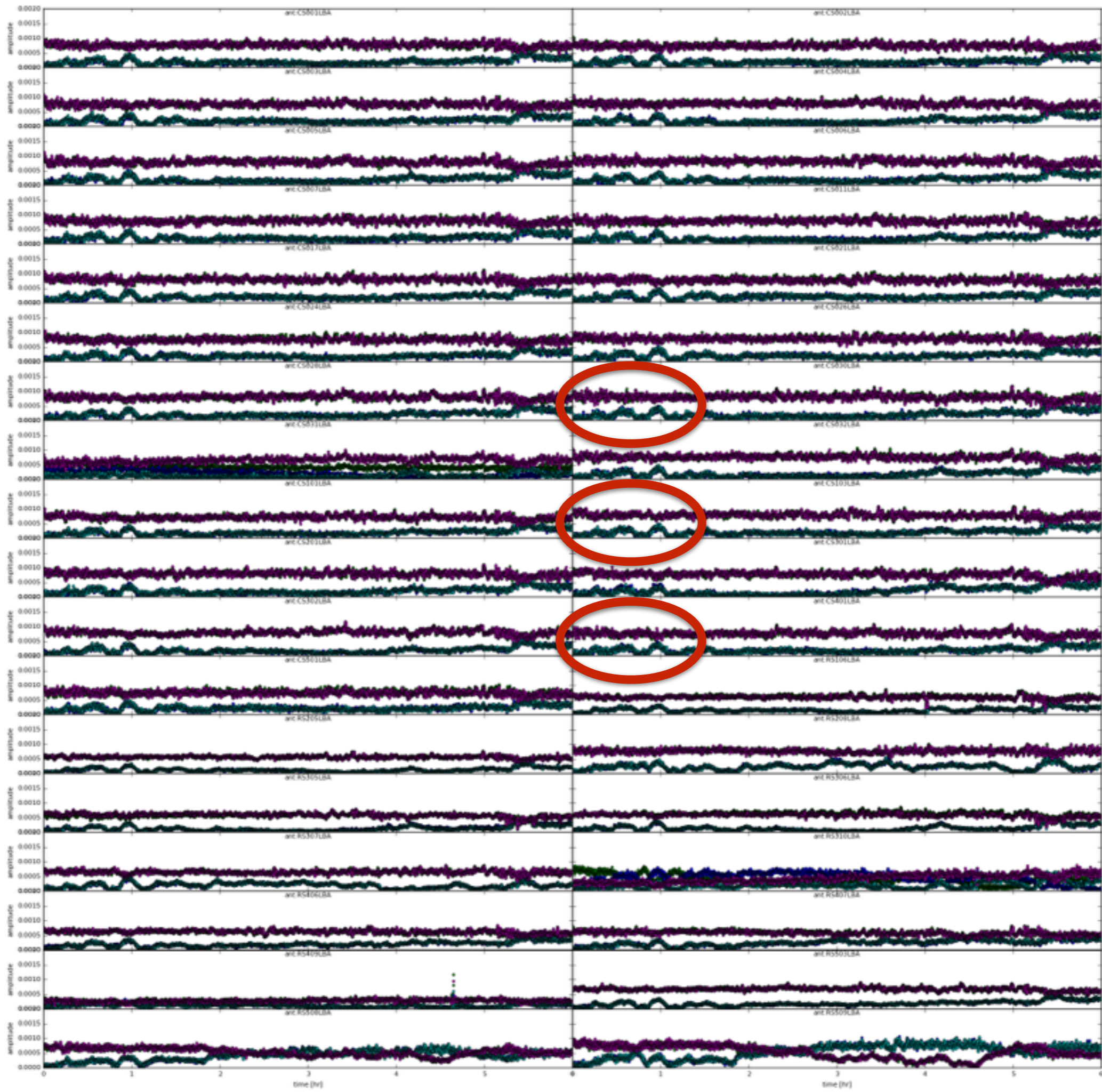




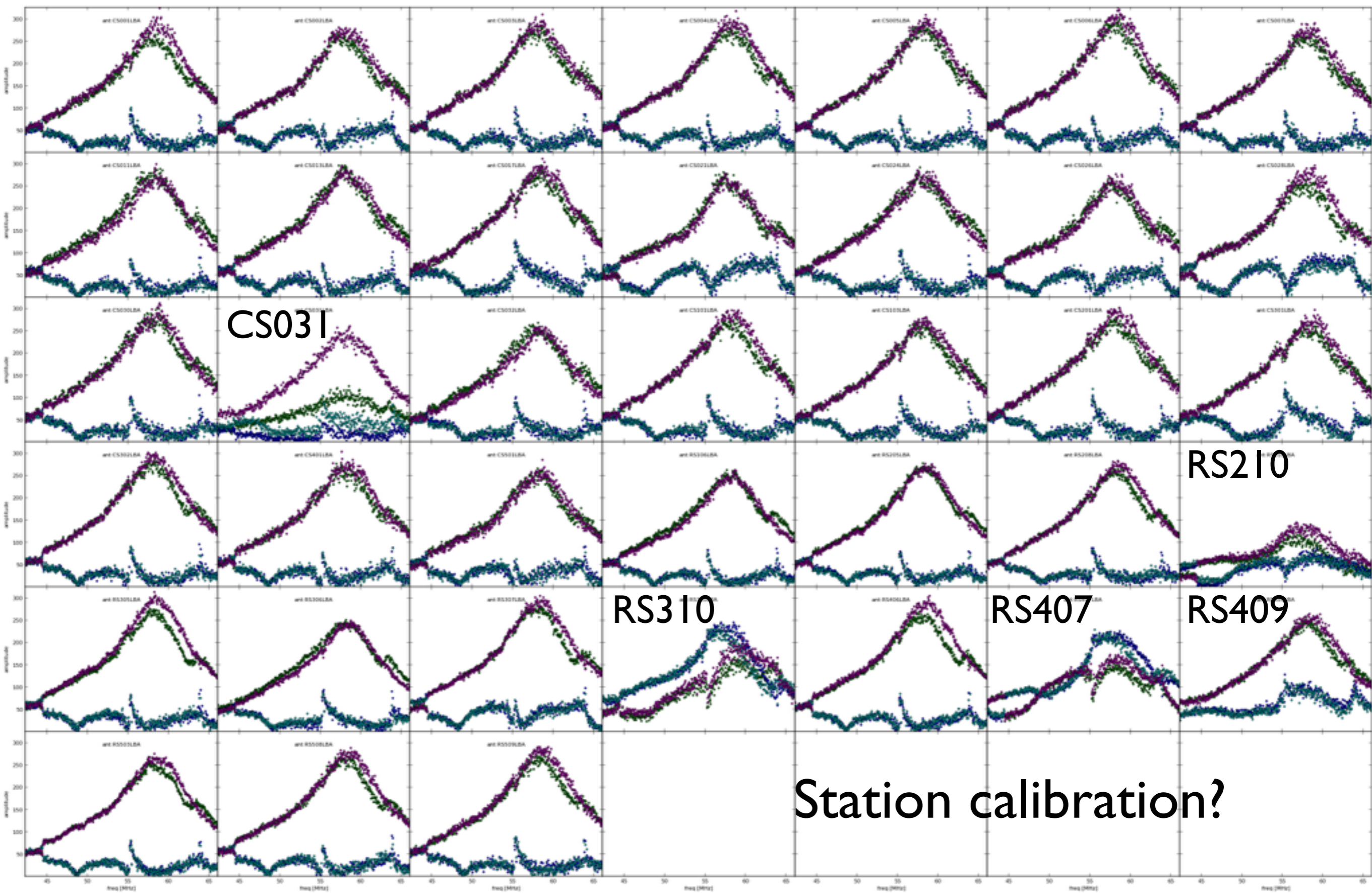
Good to crazy



Element beam?



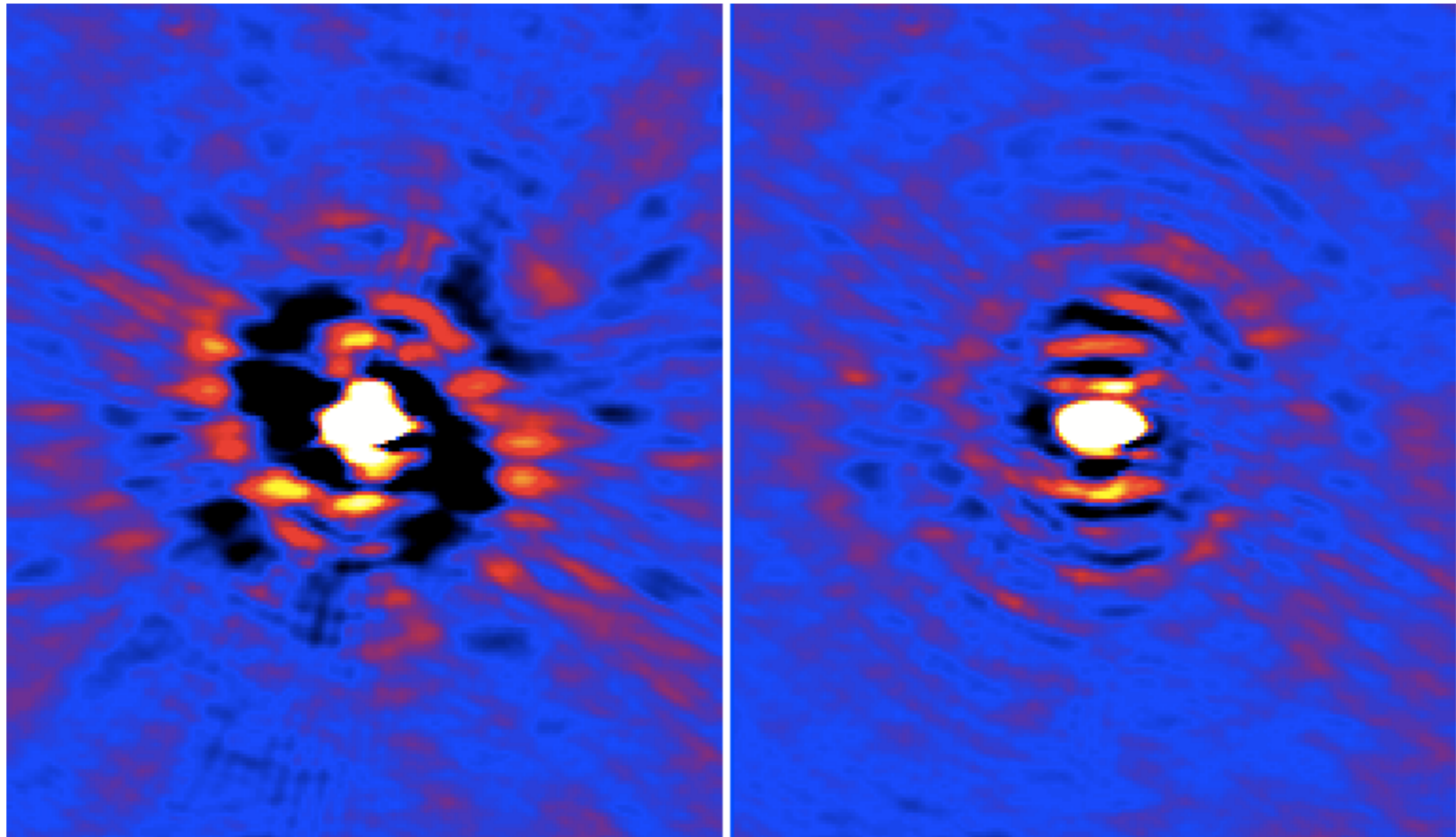




# DDE calibration

F. de Gasperin, W. Williams, T. Shimwell, S. Yatawatta

Several different strategies are now being tested from some groups, including: Factor/peeling, Sagecal, SPAM and KillIMS.



DIE cal

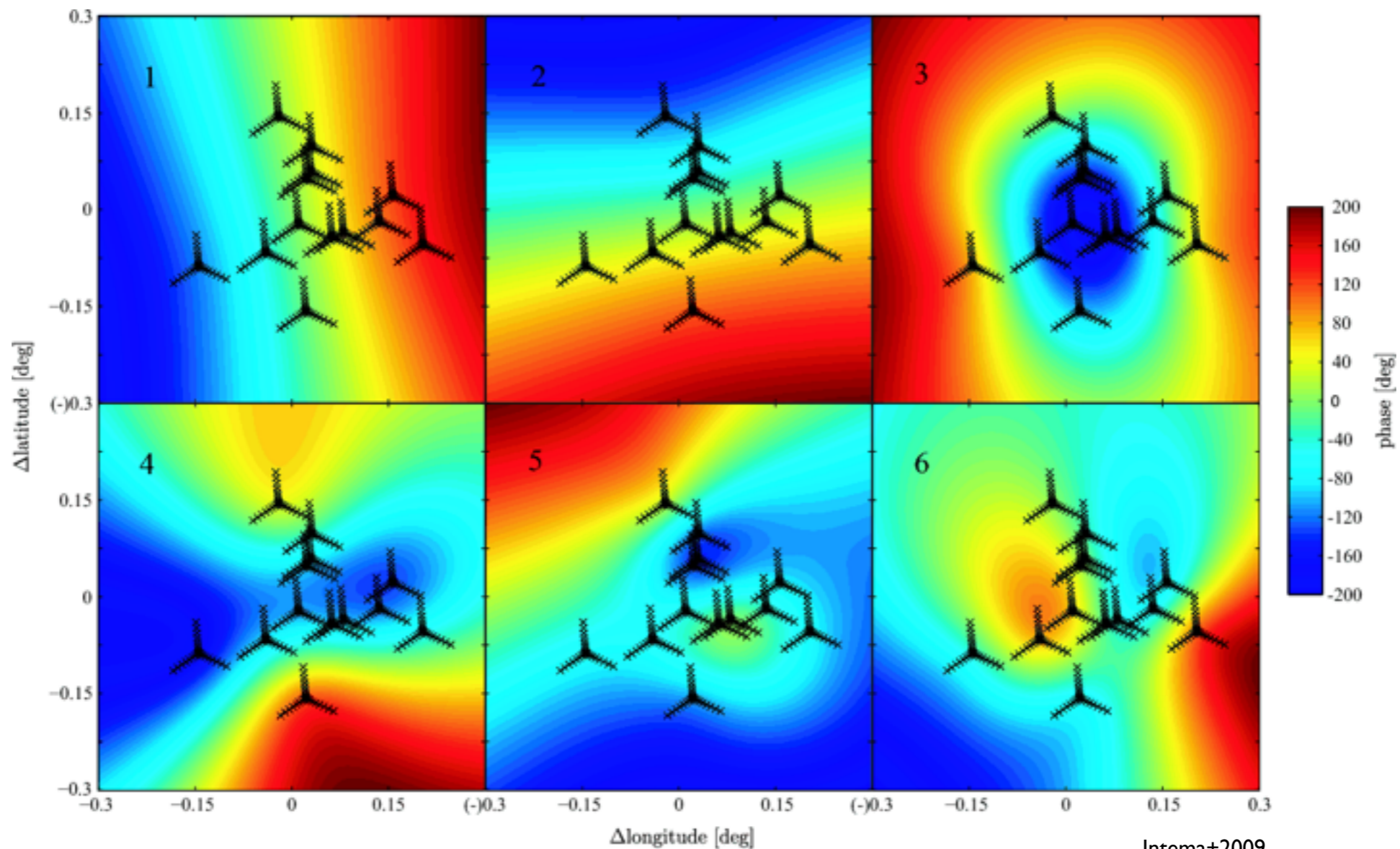
Peeling

# Screen fitting algorithm

A. Offringa, T.J. Dijkema

A new code is under development to fit a 2D TEC screen directly at calibration time, merging that process with the "StefCal" loop.

Promising idea: minimises free parameters to few tens per time interval for all directions.



# Plans/Actions

- Investigate further **Factor**: initial results on peeling sources
- Investigate further **KillMS**: very promising in HBA, need adjustments for LBA
- Investigate further **Sagecal**: some results but still no breakthrough
- Investigate **SPAM**: on-going
  
- New LoSoTo operation to get **ionosphere diffractive scales** from variance of the phase solutions vs baseline length in CS phases
- New implementation for the **Cal/DIE pipelines (PiLL)** in the standard LOFAR pipeline environment. Eventually this will be released in a form similar to PreFactor to the LOFAR community
  
- Developing of **NDPPP TEC screen fitter** on-going

## Next appointment:

Beginning of next year in ASTRON (or other place).