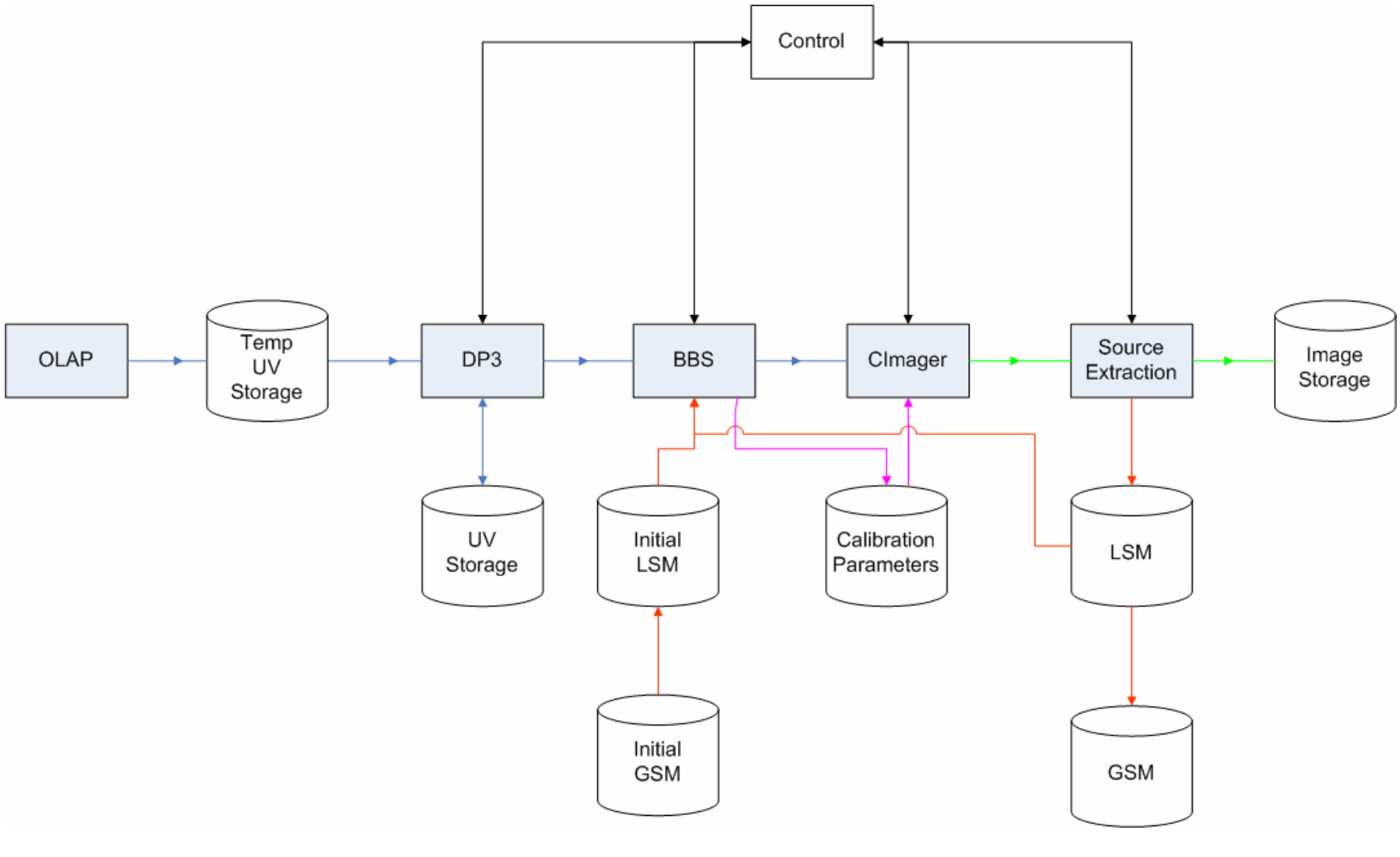
# Standard Imaging Pipeline for MSSS



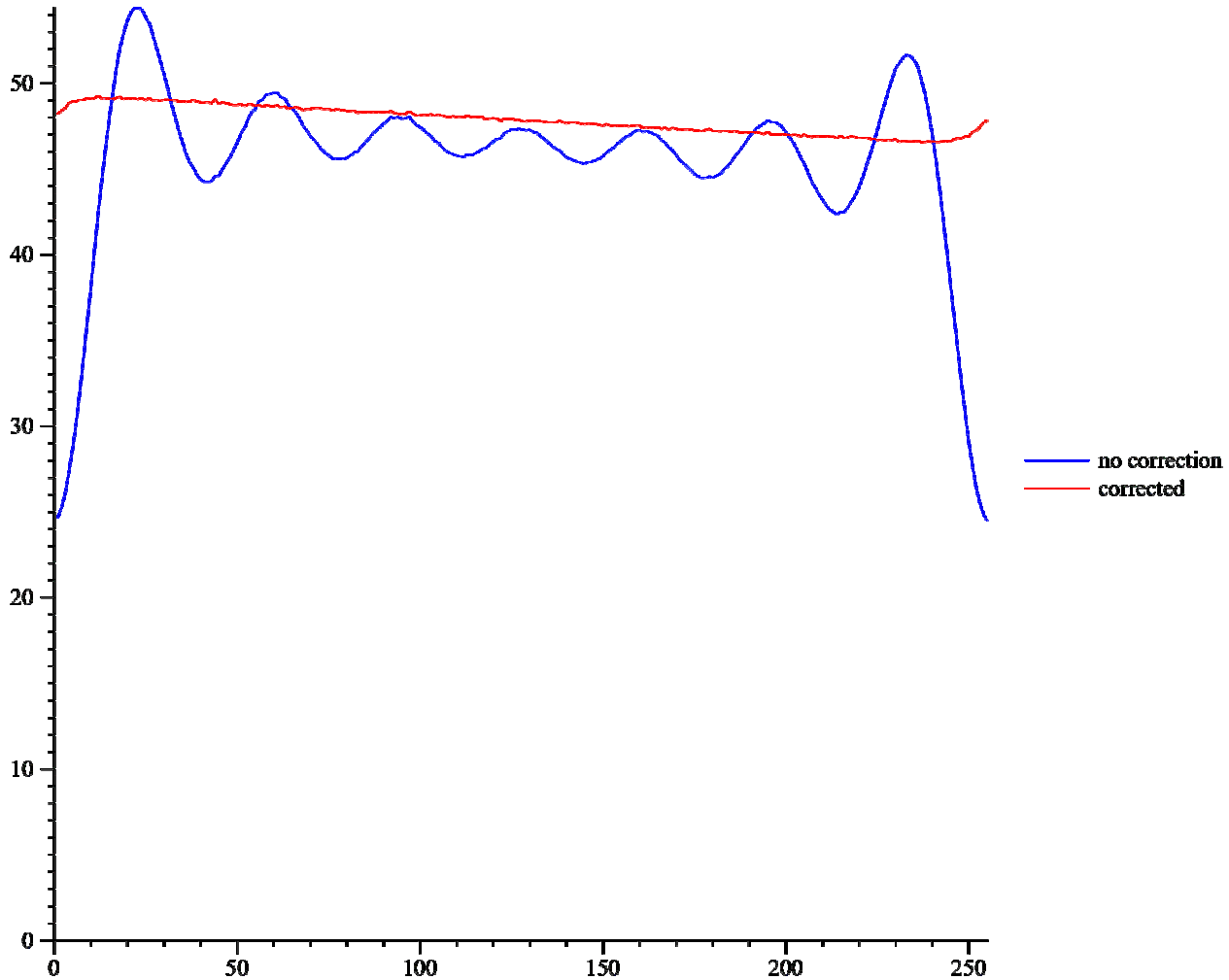
# DPPP Processing Steps

- Distribute data over the processing nodes
- Correction for remainder of the passband
- Flagging of RFI
  - Several algorithms available
- Correction for clock phases
- Subtraction of A-team
  - Like LOFAR CS1 Peeling
- Compression in time and frequency
  - Frequency: available
  - Time: under development
- Store compressed data

# Passband correction



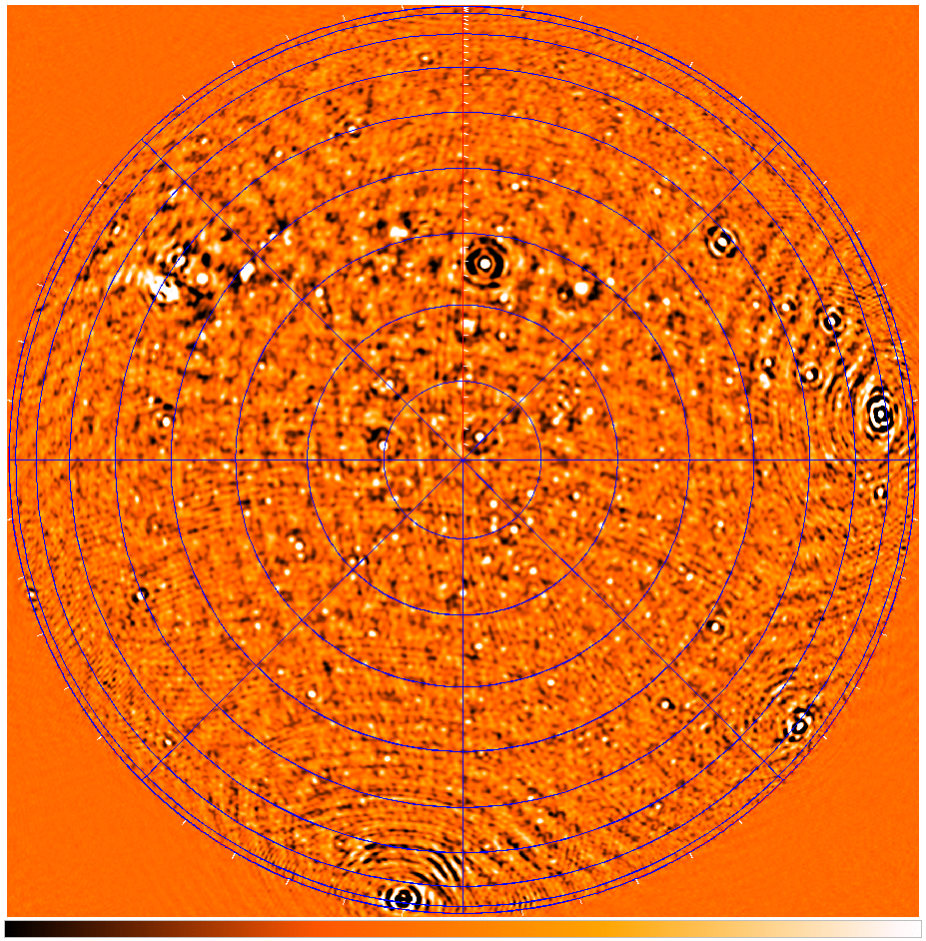
- 2 single dipoles
- 58.6 MHz
- 30 minute integration



# DPPP Processing Steps



- Distribute data over the processing nodes
- Correction for remainder of the passband
- Flagging of RFI
  - Several algorithms available
- Correction for clock phases
- Subtraction of A-team
  - Like LOFAR CS1 Peeling
- Compression in time and frequency
  - Frequency: available
  - Time: under development
- Store compressed data



Result by Sarod Yatawatta

- 16 micro-stations / dipoles
- 10 subbands
  - 1.6 MHz eff. BW
- Around 45 MHz
- 24 hours

- CasA and CygA subtracted
- Tycho, TauA, VirA peeled in addition

# DPPP Processing Steps

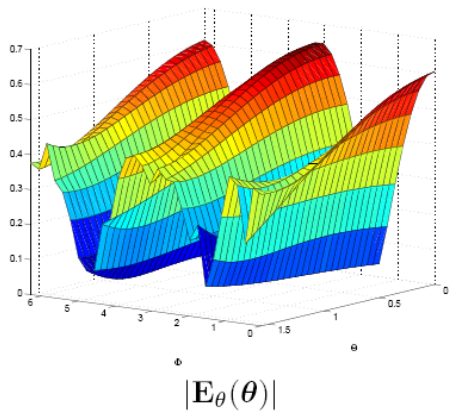


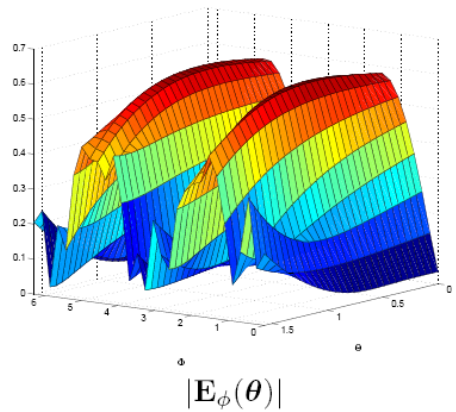
- Distribute data over the processing nodes
- Correction for remainder of the passband
- Flagging of RFI
  - Several algorithms available
- Correction for clock phases
- Subtraction of A-team
  - Like LOFAR CS1 Peeling
- Compression in time and frequency
  - Frequency: available
  - Time: under development
- Store compressed data

# BBS processing steps



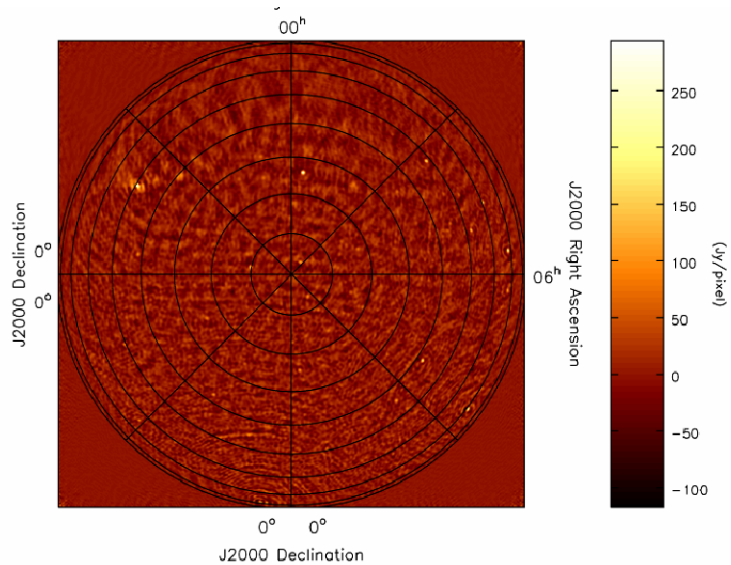
- Distributed processing
- Construct apparent sky
  - From beam model and LSM
- UV – plane calibration
- Ionospheric calibration
  - SPAM – like
- Beam calibration




- Global Solver available
  - Combine multiple subbands for better SNR

- Distributed processing
- Gridding includes w – projection
- Weights
  - Wiener filtering to get uniform weighting
- UV – taper
  - Taper uv – plane to 10 km baselines
- Facet corrected imaging
  - To be implemented
- Full polarization cubes
  - To be implemented
- MFS to a few [TBD] channels



- What do we store?
  - Raw uv – data: ~ 2.6 Pbyte 
  - Compressed uv – data: ~ 11 Tbyte 
  - Images: ~ 325 Gbyte??? 
  - GSM 
  - Calibration parameters

- Pipeline runs off-line, but in “real time”
  - Not all steps specified
  - Not all software implemented
  - 3 to 9 separate observations to be combined
  - Where do we need storage and what are the implications on performance?
  - Processing of multiple observations at the same time?
- Wide band MFS issues
- Image deconvolution vs. uv source fitting & subtraction
- LSM / GSM, source extraction badly defined
- Intrinsic polarization: RM – synthesis
- All sky survey: Combination of different pointings