BBS & MS1429

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Context

- CS1, CS8, CS16: each 4 micro-stations of 1 dipole
- CS10: 48 dipole micro-station, 24, 12, 6 (all 4 at same physical location)
- CS10 has a 48 times higher gain than other dipole micro-stations
- CS10 has a far smaller beam (~ 5 deg @ 60 MHz)

Pre-processing steps

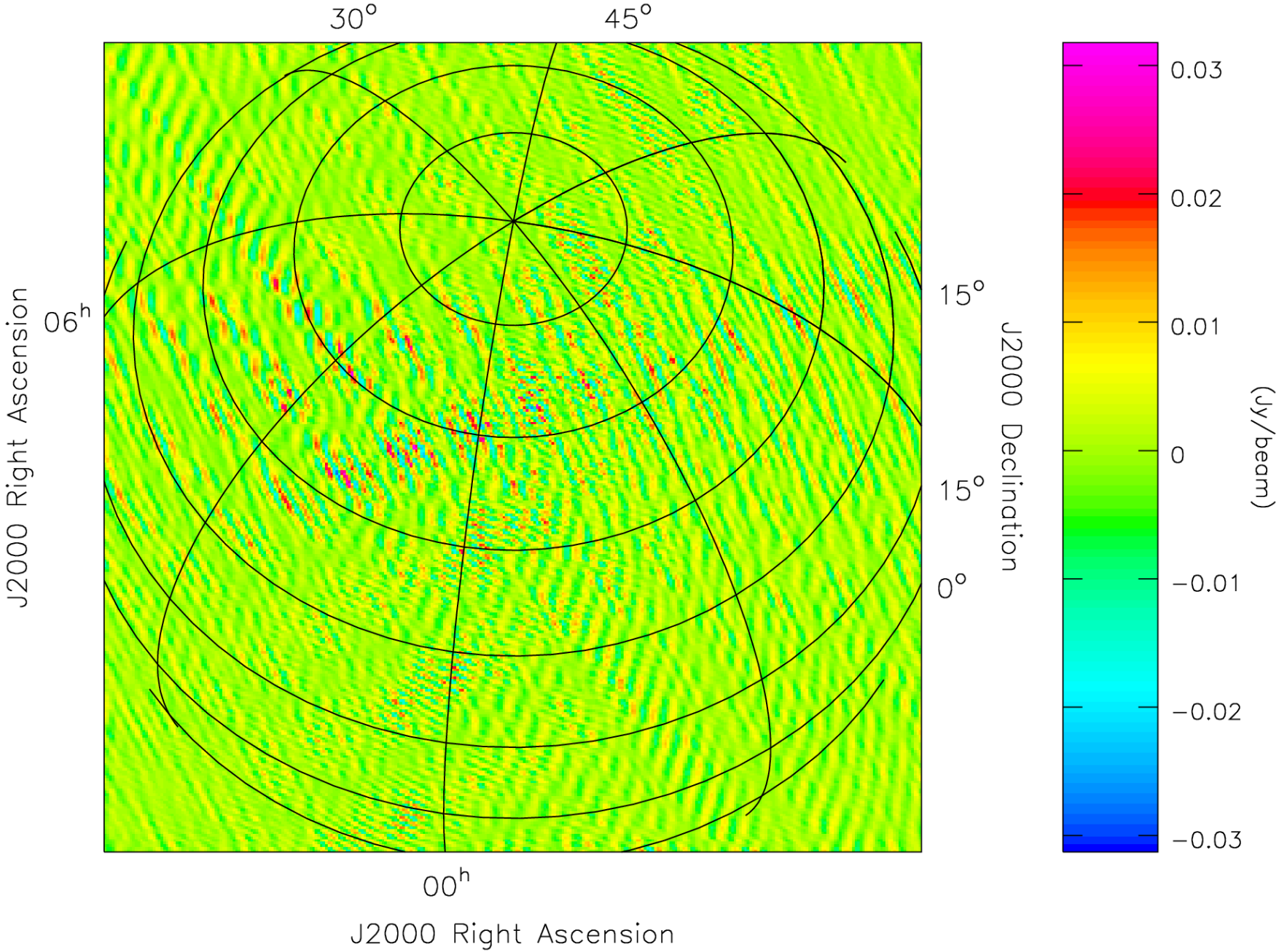
- Flag stations 2, 3, 4 (24, 12, 6 dipole stations)
- Flag auto-correlations
- Select RFI free band
- Split out single subband (using LofarSBSplit.g)

- We used the 16th sub-band (no. 15)

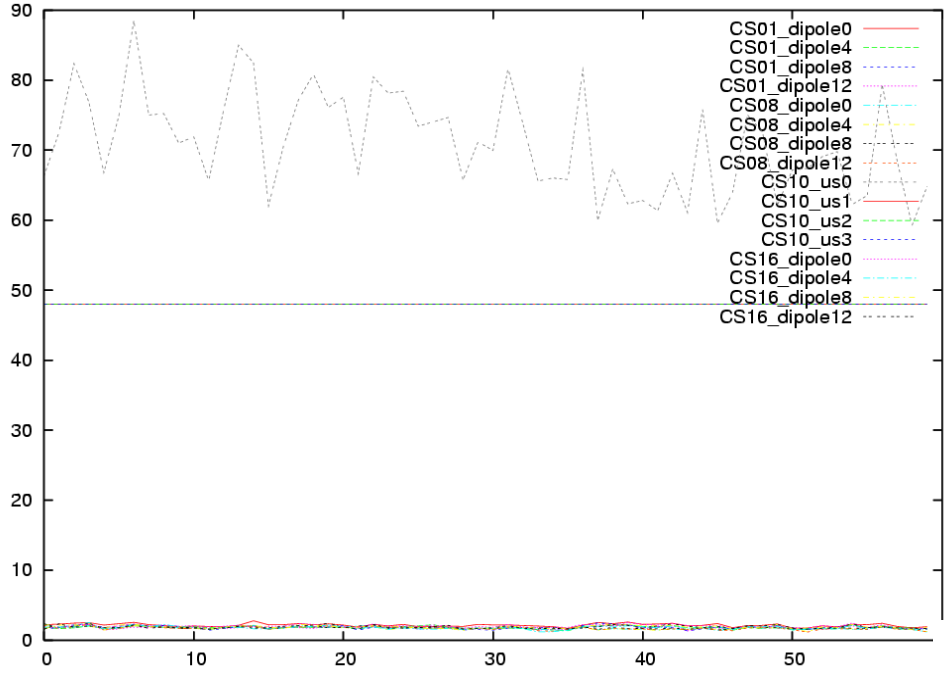
Self-Calibration

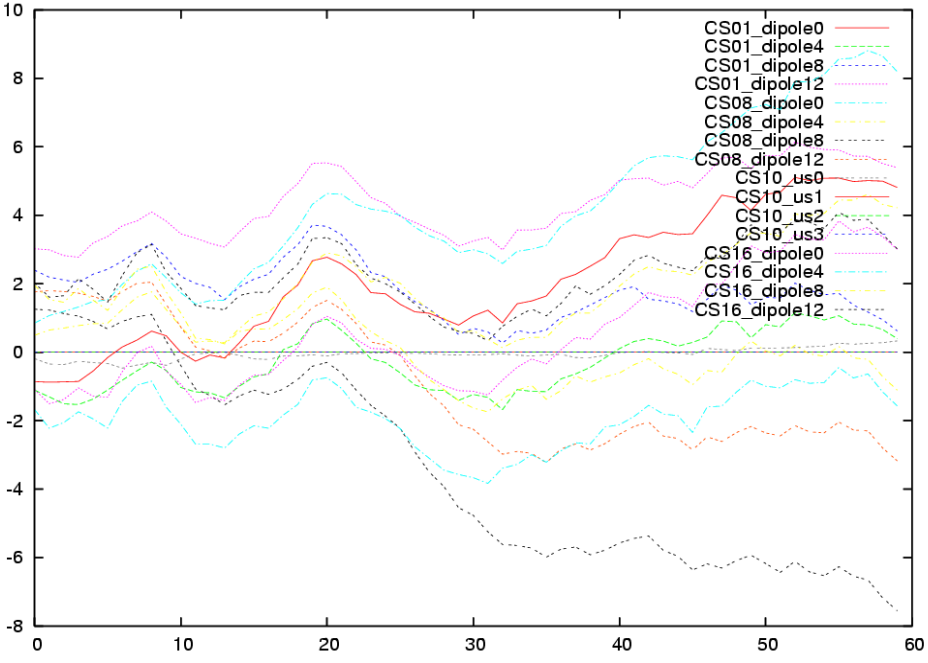
- Sky model: CasA = 0.01, CygA = 0.001
- Initial (complex) gain in direction of CasA and CygA: 1 for dipoles, 48 for CS10
- Solve for the 2 complex gains using inter station baselines only (15 solve iterations)
- Correct, subtract, image using all baselines (inter + intra)

Observed

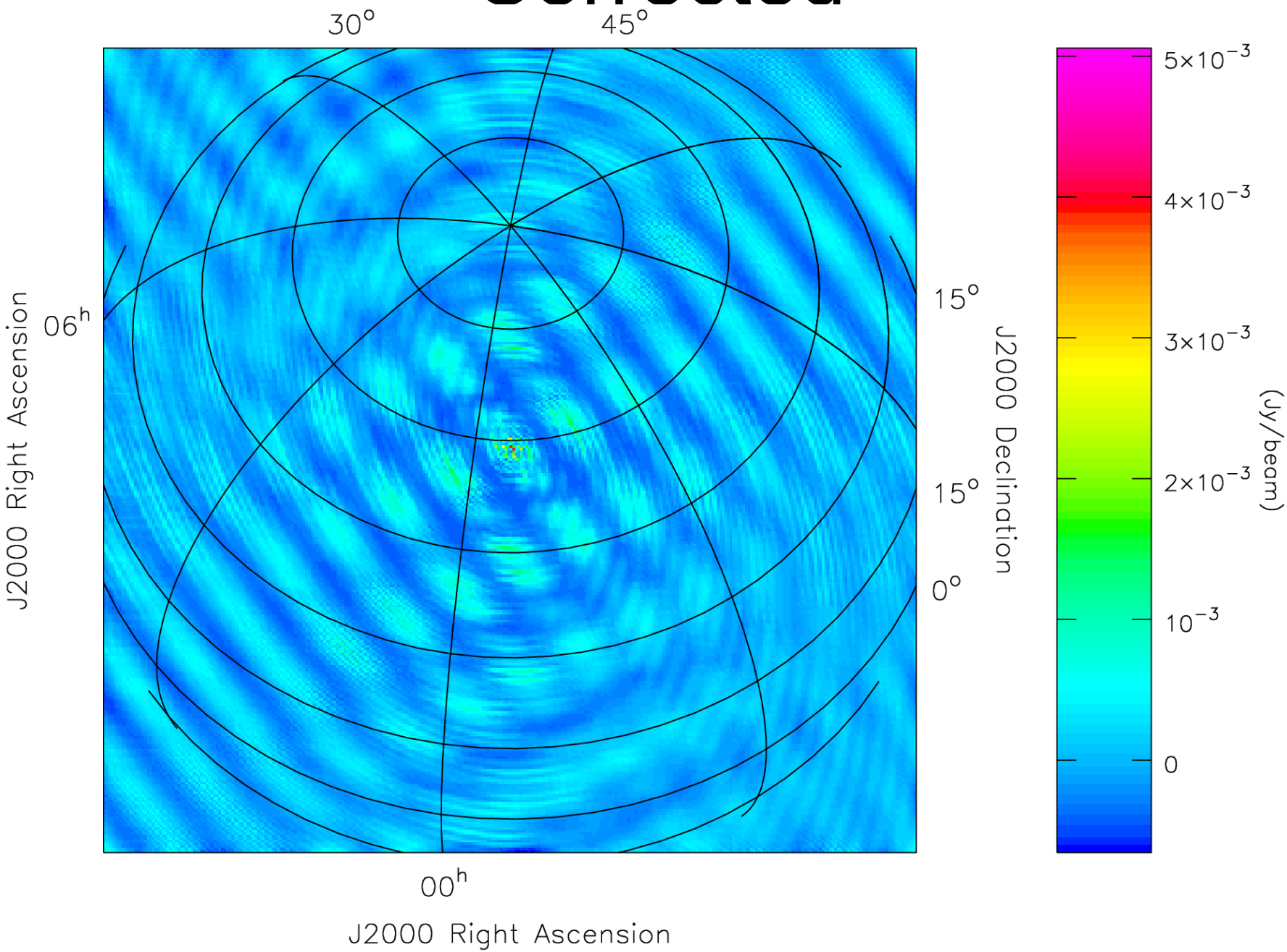

30°
45°
06h
15°
15°
0°
00h
J2000 Right Ascension
J2000 Declination
J2000 Right Ascension
0.03
0.02
0.01
0
−0.01
−0.02
−0.03
(Jy/beam)

Gain solution for CasA

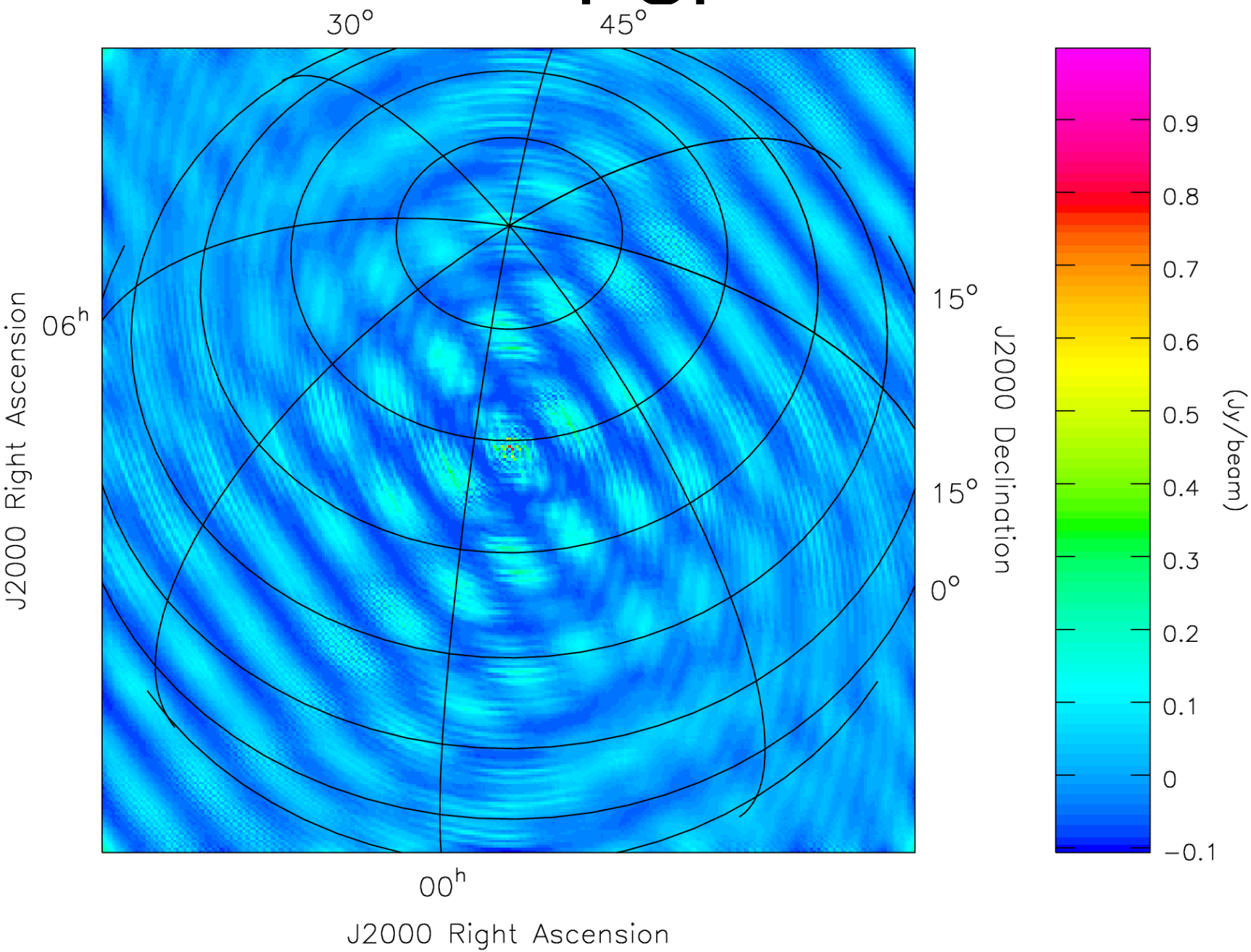




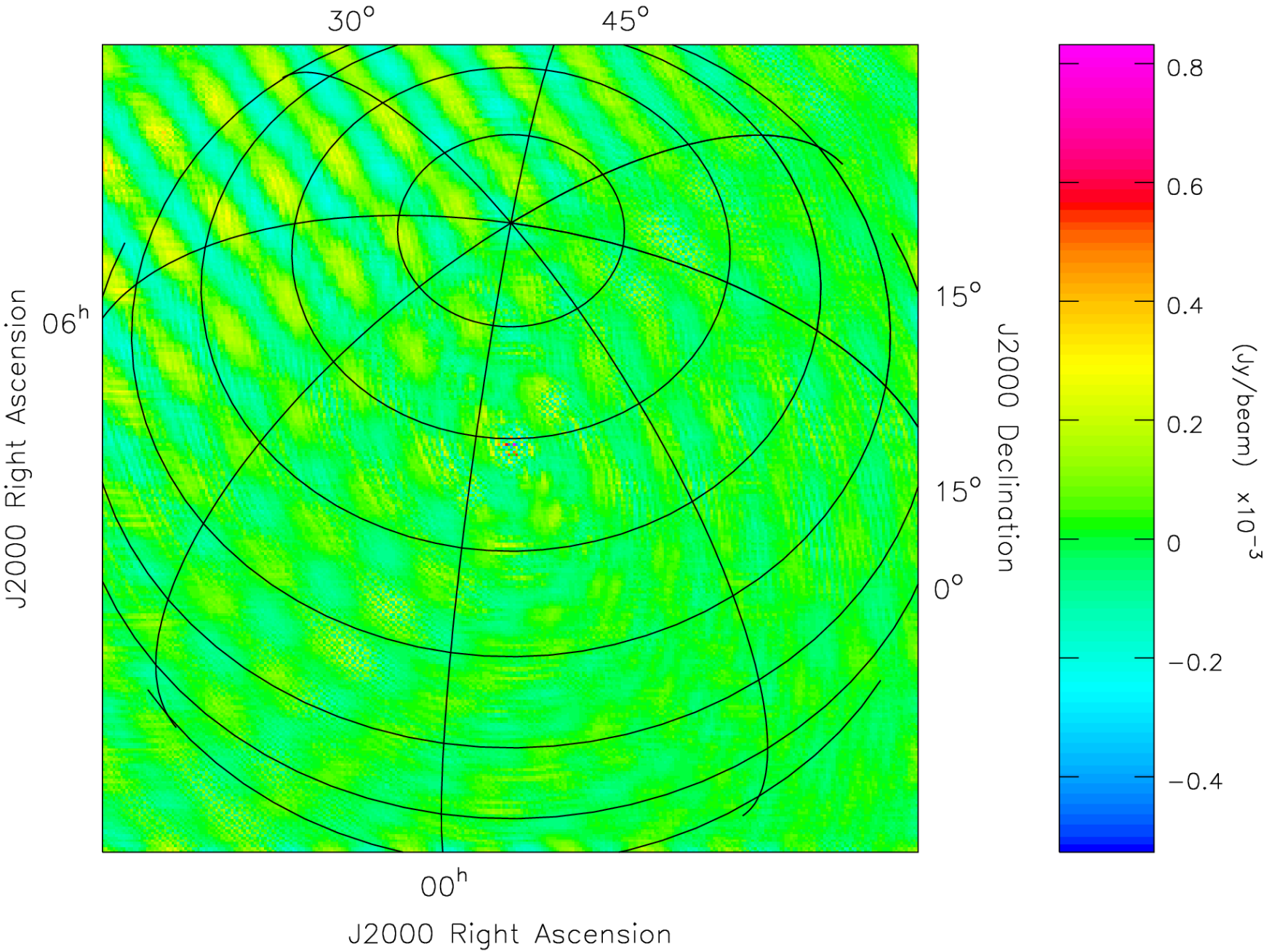
Corrected


30°
45°
06h
15°
15°
0°
00h
J2000 Right Ascension
J2000 Declination
J2000 Right Ascension
5×10−3
4×10−3
3×10−3
2×10−3
10−3
0
(Jy/beam)

PSF

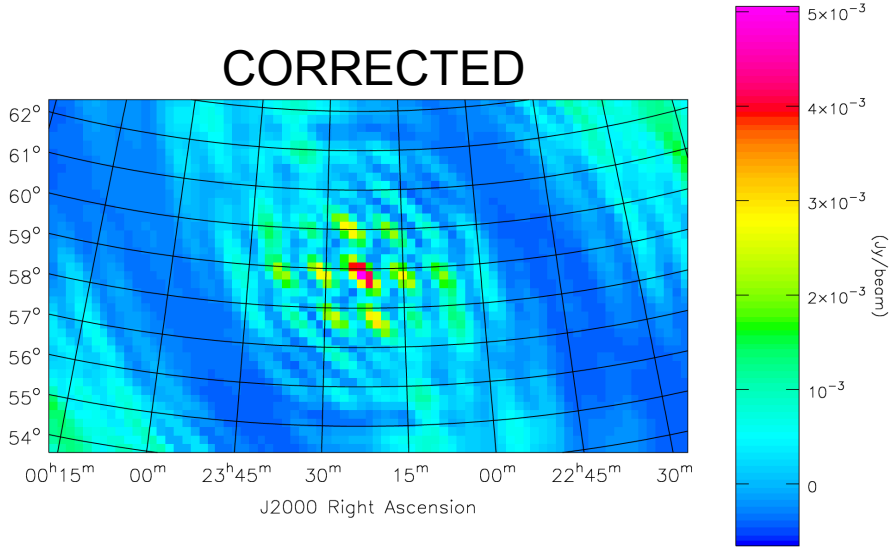

30°
45°
06h
15°
15°
0°
J2000 Right Ascension
J2000 Declination
00h
J2000 Right Ascension
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
−0.1
(Jy/beam)

Subtract + Correct

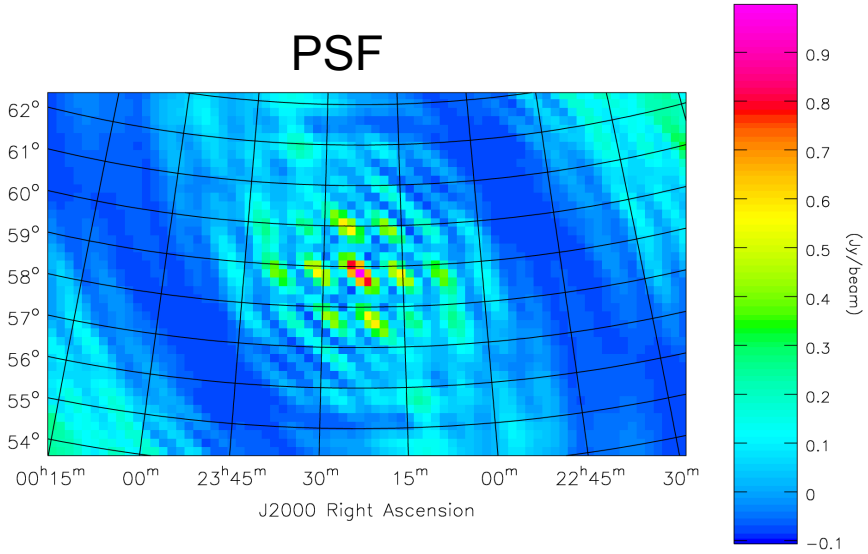


Zoomed-in

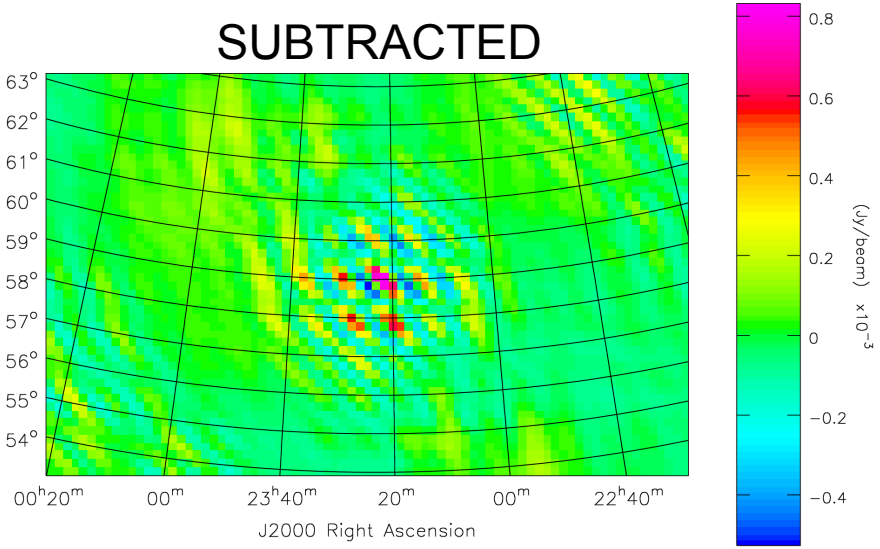
CORRECTED



PSF



SUBTRACTED



UVW: BBS vs. AIPS++