ASTRON

Netherlands Institute for Radio Astronomy

LOFAR MSSS

Multifrequency Snapshot Sky Survey

Update

George Heald (MSSS Project Leader)
(on behalf of the MSSS Team)

LOFAR Status Meeting, 10/7/2013

ASTRON is part of the Netherlands Organisation for Scientific Research (NWO)

LOFAR

MSSS-HBA Observing Status

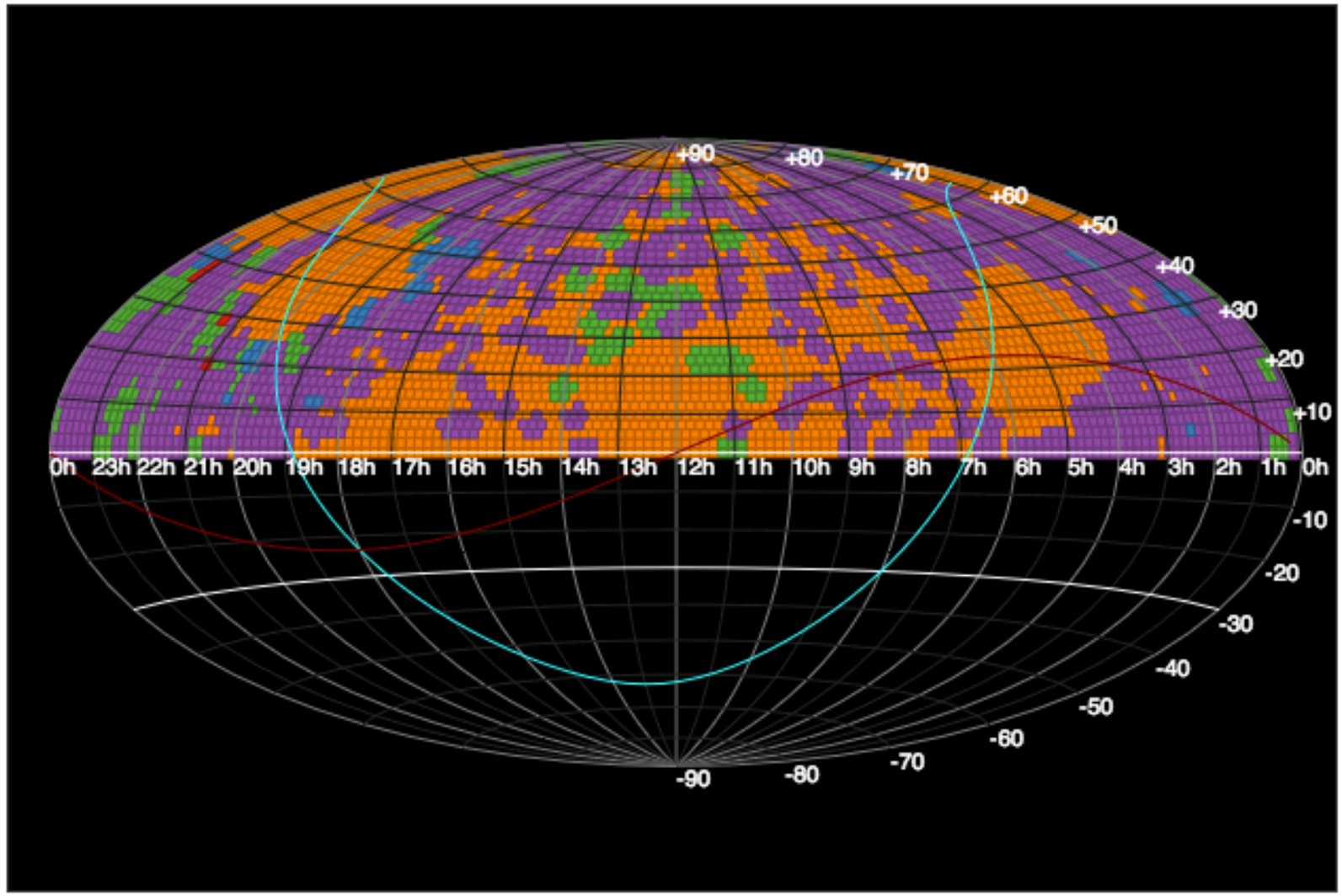
- MSSS-HBA is now ~60% complete!

LOFAR Observation Database

MSSS HBA

Number of Targets	3616
Number of Calibrators	8
Start Date	8 Feb. 2013
Stop Date	21 June 2013
Completed Fields	2078 (57.5%)
Information collected	24 June 2013

Show me the data »



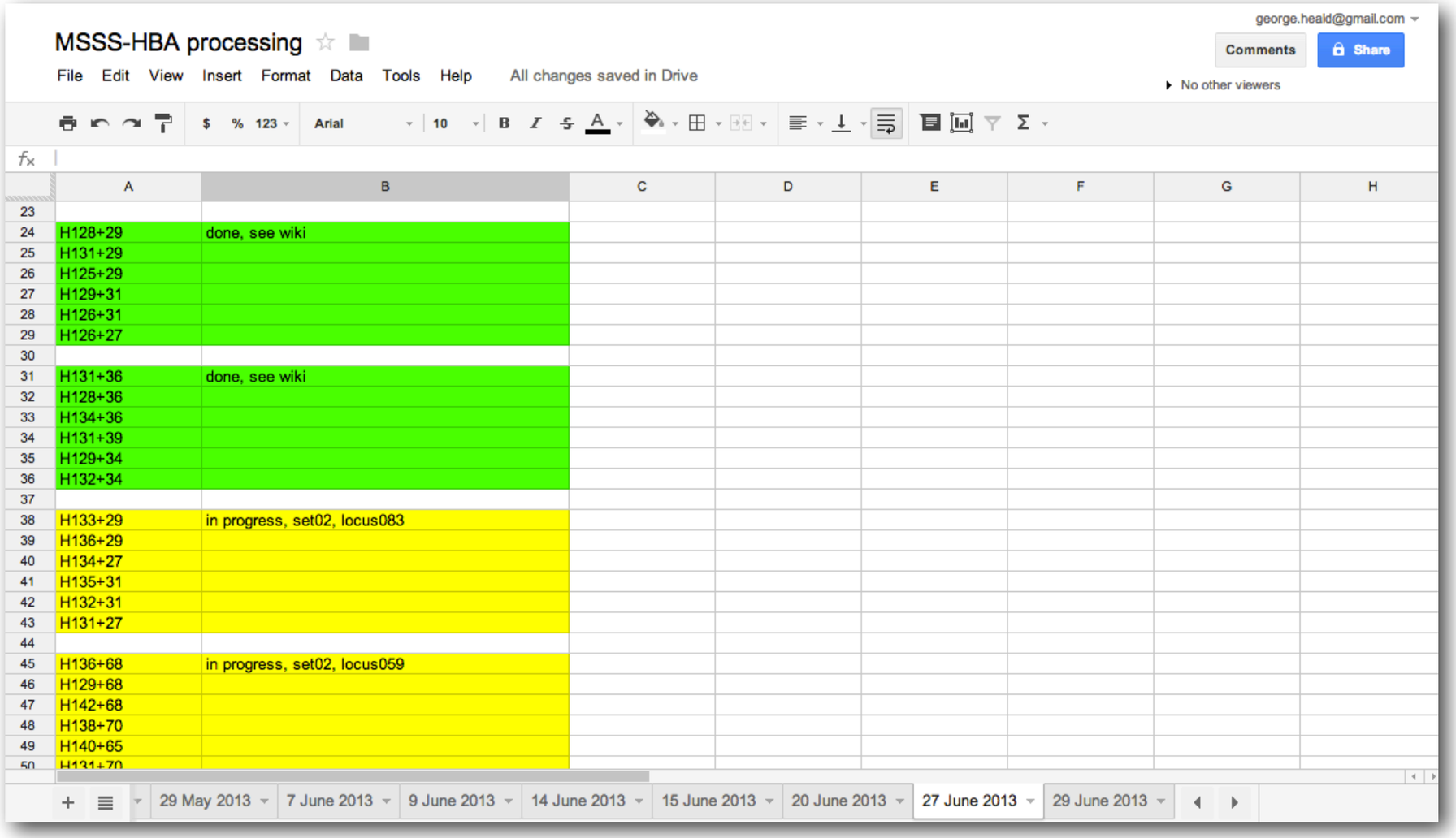
Hammer Projection

Map based on code from this project.

Data available on CEP (7.3%)
Data archived (50.2%)
Partial data available (1.4%)
Data missing (0.1%)
Not yet observed (41.0%)

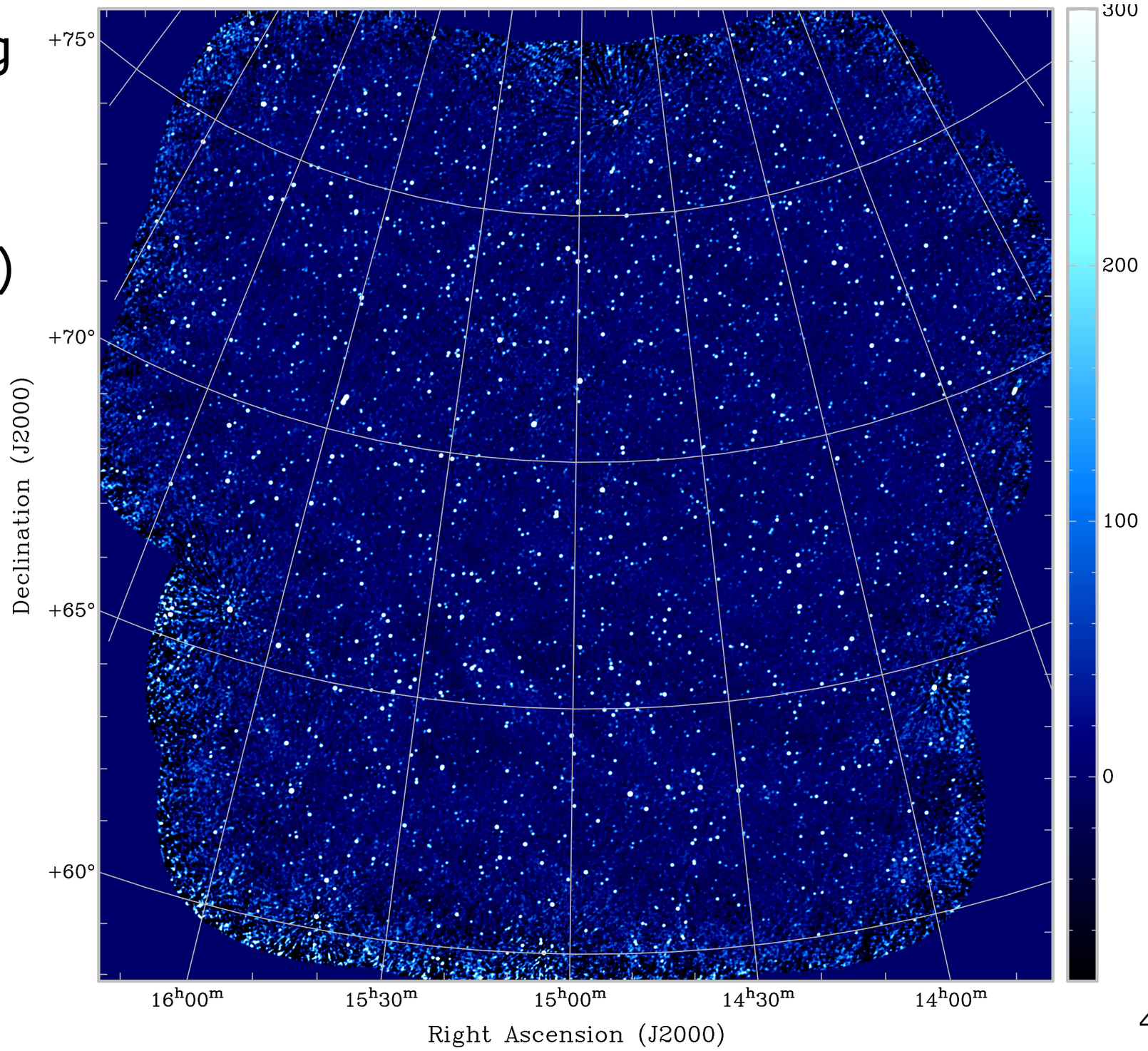
MSSS-HBA processing status

- Semi-automatic processing coordinated through google spreadsheet, we are typically 1-2 weeks behind the observations
- Take-home message: we have calibrated & imaged >50% of the northern sky at 120-160 MHz!
- But ... disk space now running short on MSSS nodes!



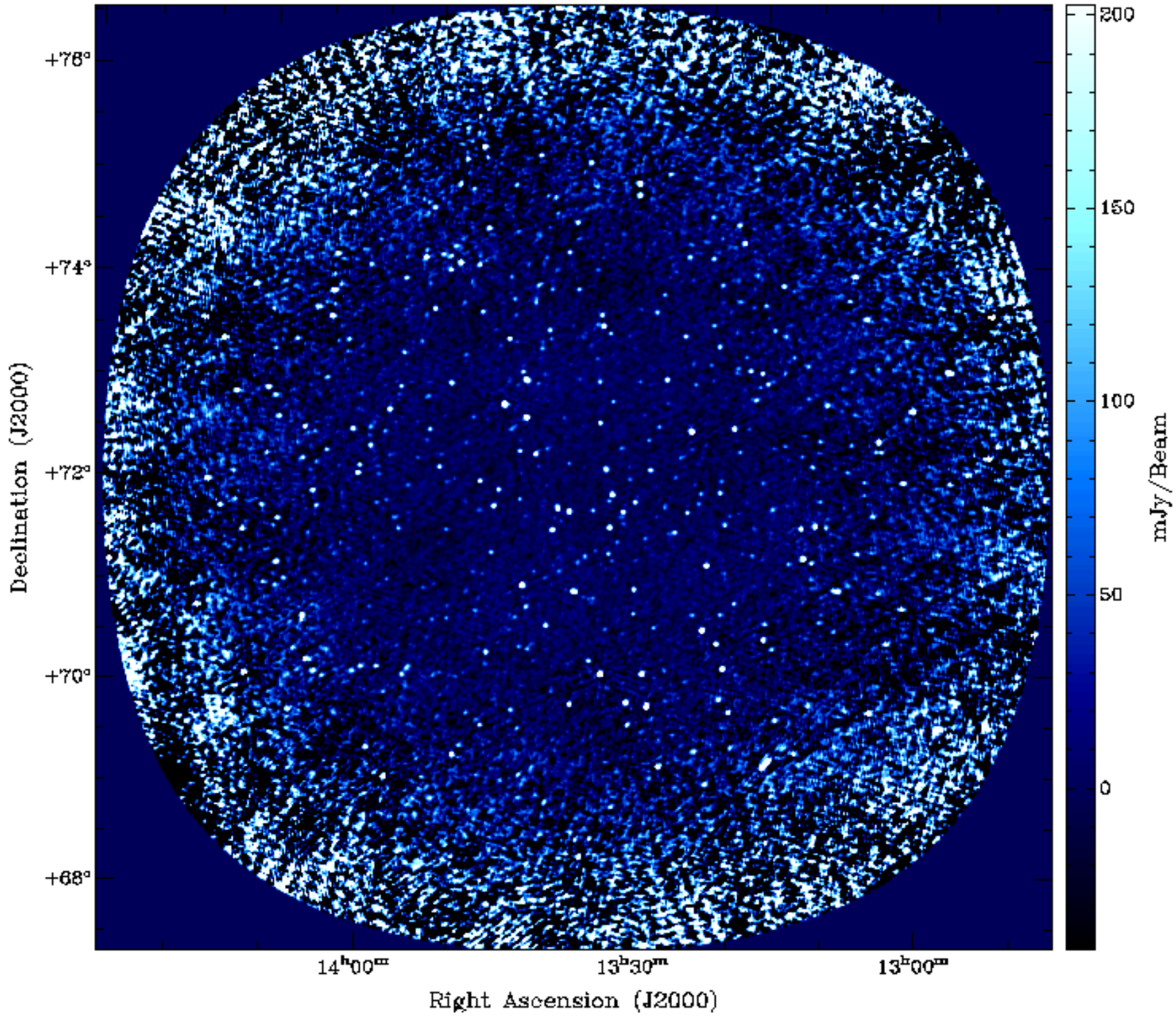
Source finding

- Recent progress in coordinated & consistent PyBDSM and PySE strategy for creating high-quality catalog
- Intermediate catalog has 1564-1581 sources per band (1470 in all 8 bands)
- Applied to 32-field mosaic (MVF)
- Re-calibration now underway
- Will lead to final images for MSSS overview paper



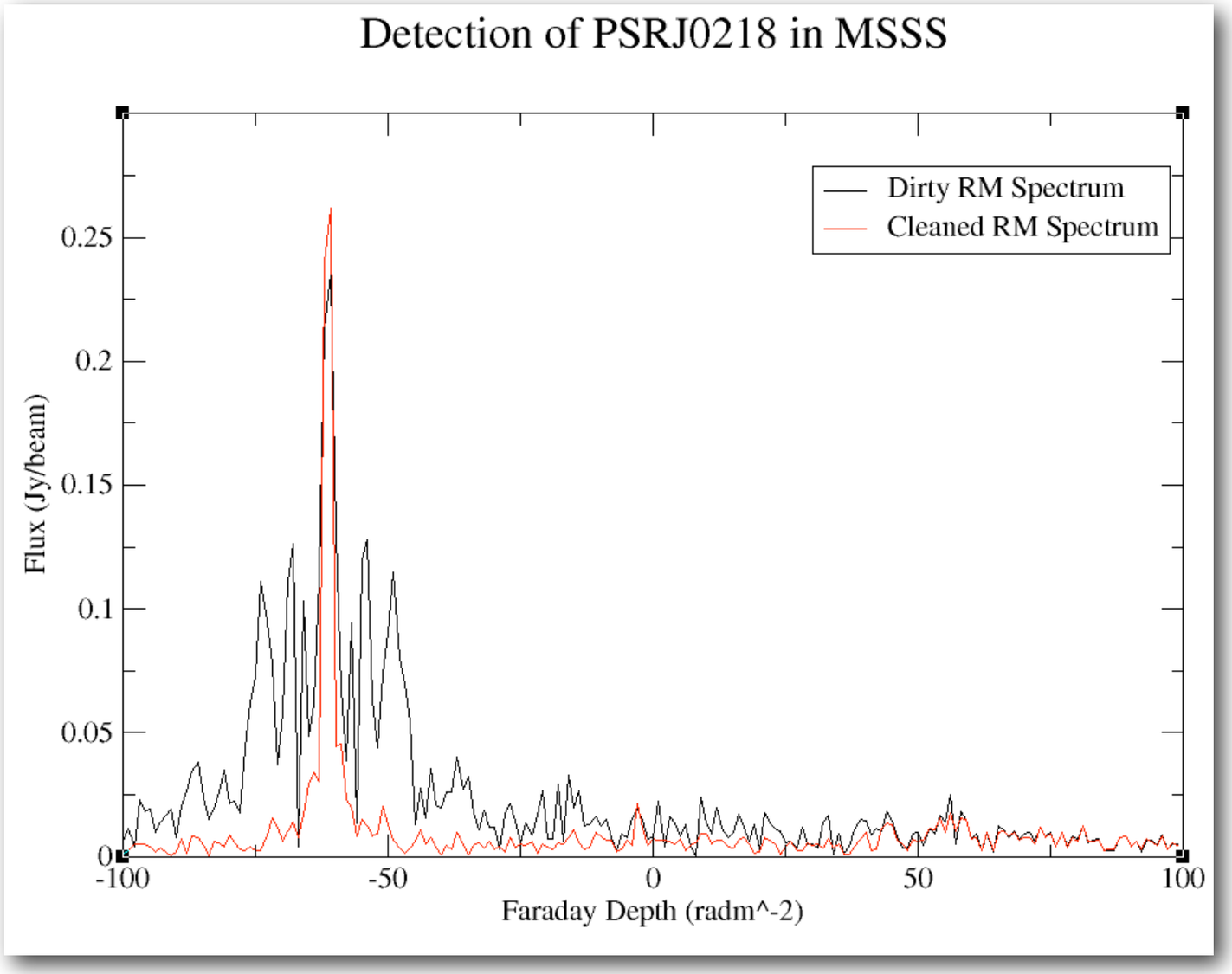
Recalibration: intermediate results

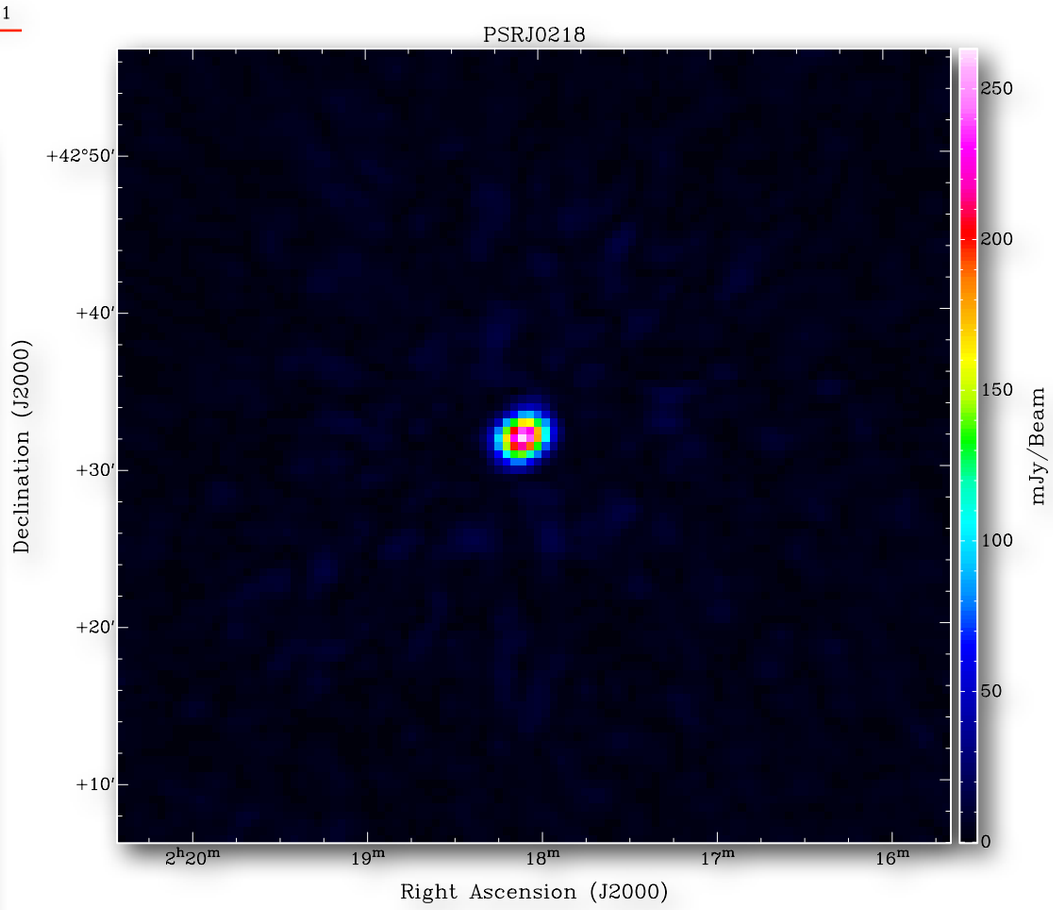
- Data recalibrated by Martin Hardcastle; full-bandwidth image <2’ resolution with 10 mJy/beam rms noise level



MSSS-HBA polarization

- Polarized pulsar (PSRJ0218) detected with MSSS image data!
- 51% polarized, and with correct RM of -61 rad m^2 (ionospheric RM correction was applied to the data)

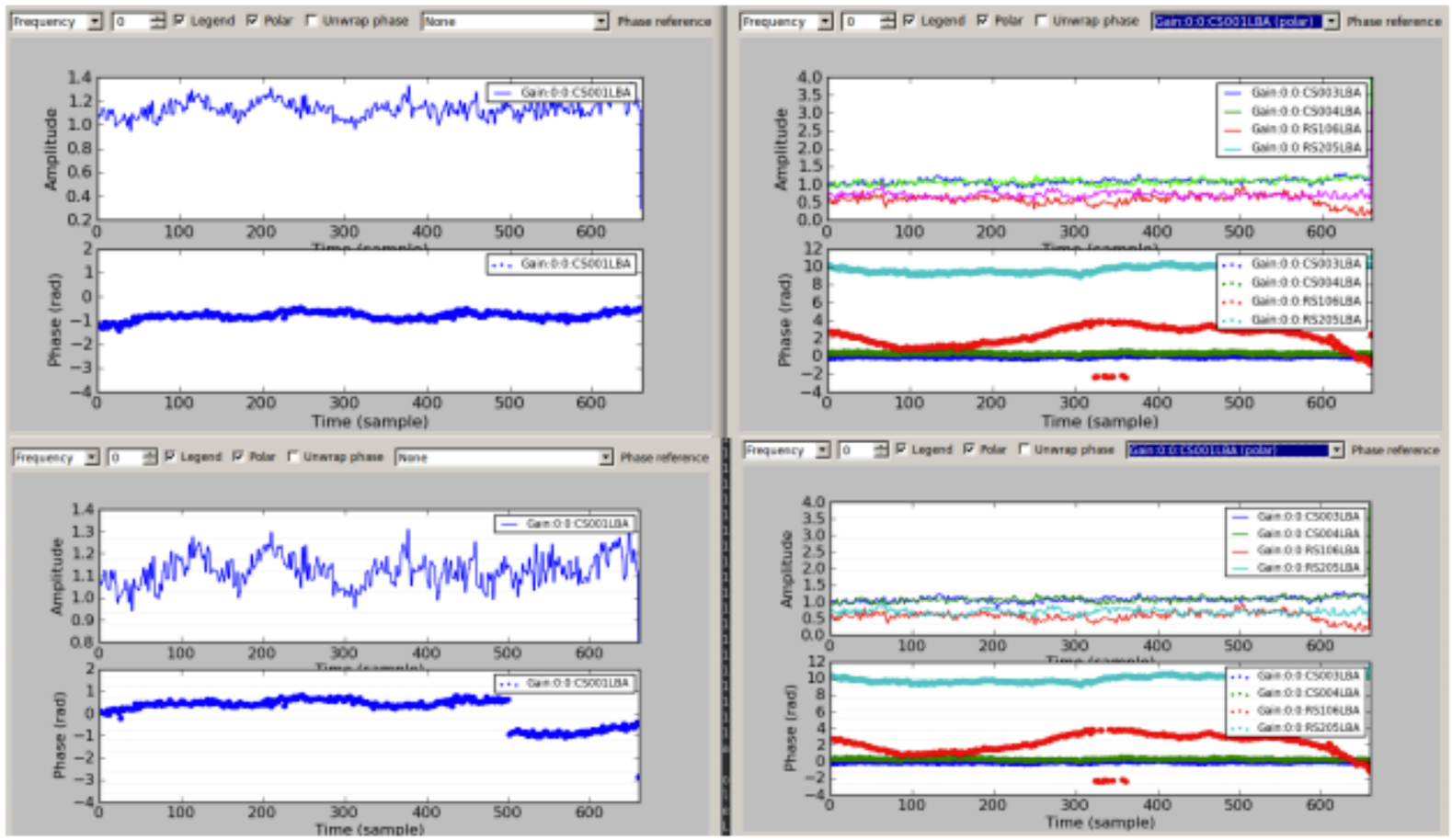




David Mulcahy

MSSS-LBA: Ionospheric update

- Direction independent gain stability substantially improved thanks to Bas van der Tol, Andra Stroe, and Jeremy Harwood
- Plot below shows gain solutions, illustrating effect of solving for CommonRotationAngle (bottom) or not (top)
- Next step: use these to obtain robust direction dependent gains (with existing script) and apply in *awimager* (stay tuned)



Stroe & Harwood