ASTRON

Netherlands Institute for Radio Astronomy

Imaging Busy Week #22

http://www.lofar.org/operations/doku.php?id=commissioning:imag_busy_week_22

Tammo Jan Dijkema

LOFAR Status Meeting, 10 December 2014

Overview

22 participants, good testing of all subjects!

First busy week on CEP3…

Selfcal
Ionospheric phase screens
DPPP
AWImager
Pipeline
New calibration method from Smirnov & Tasse

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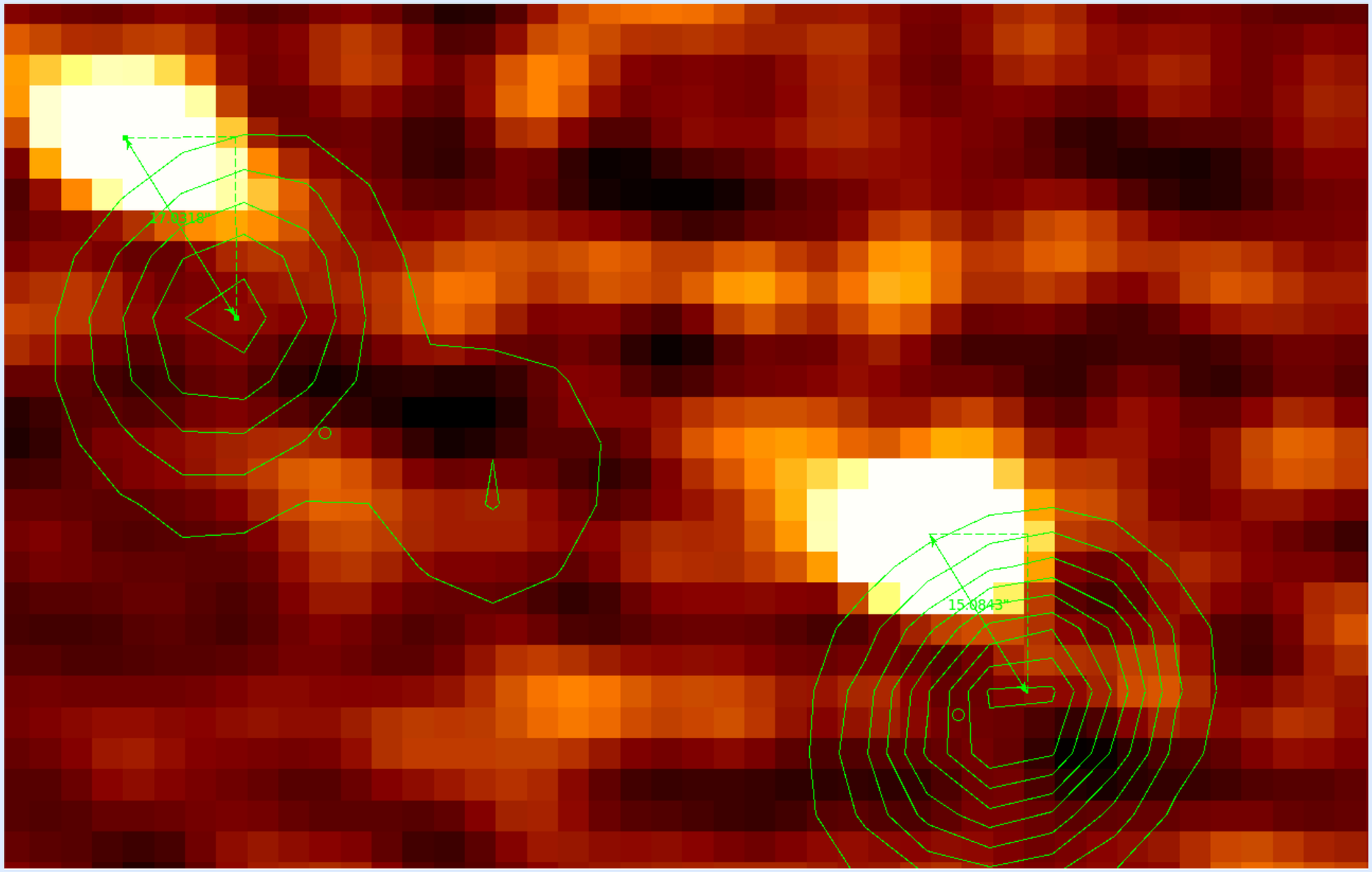
Selfcal

Looking for the cause of position shifts
Higher starting resolution leads to smaller shift



Starting resolution:
150"

Contours: VLA

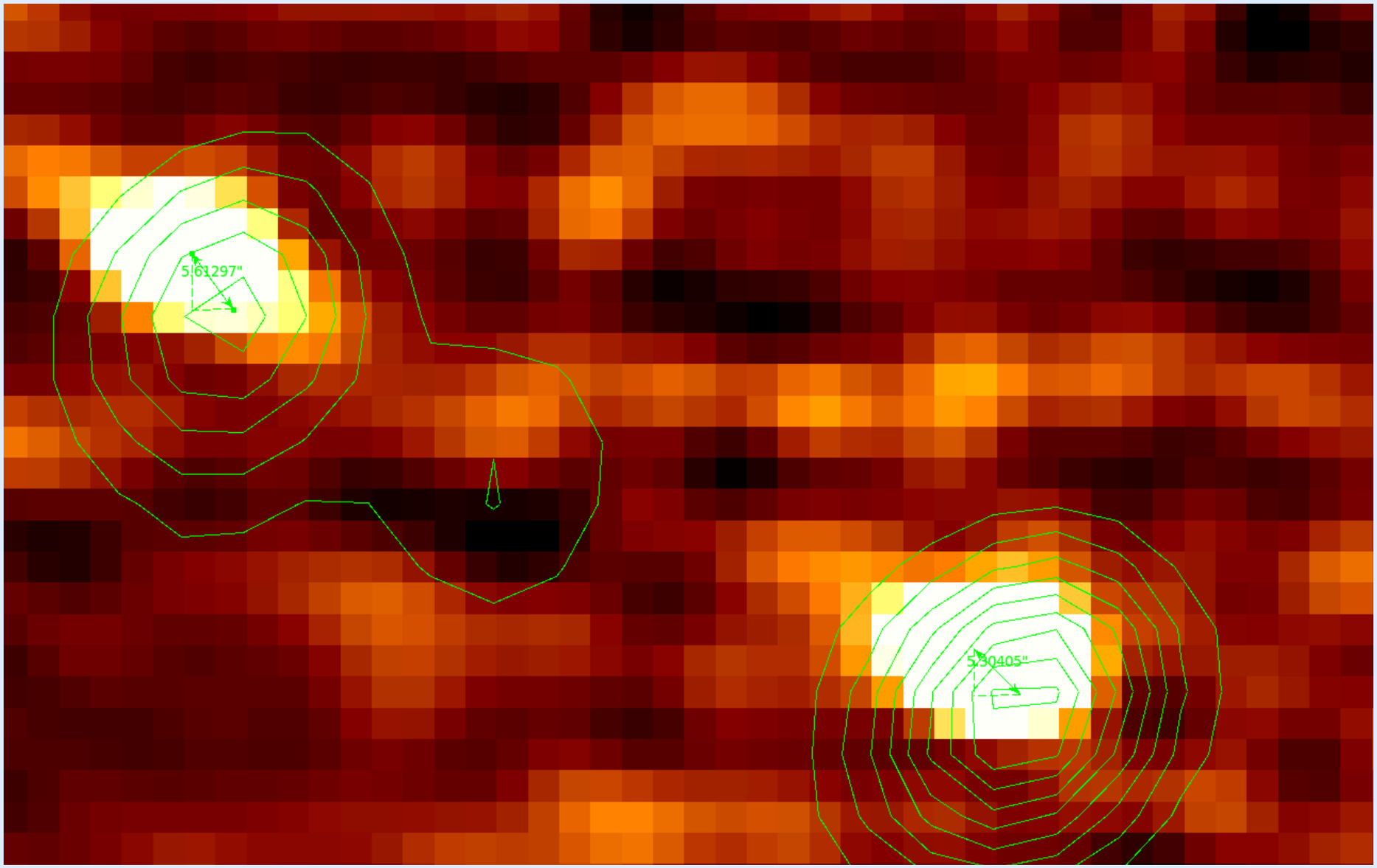
Offset: 15"

Final resolution:
10"

Nicolas, Marisa, Rosita

Selfcal

Looking for the cause of position shifts
Higher starting resolution leads to smaller shift



Starting resolution:
30”

Contours: VLA

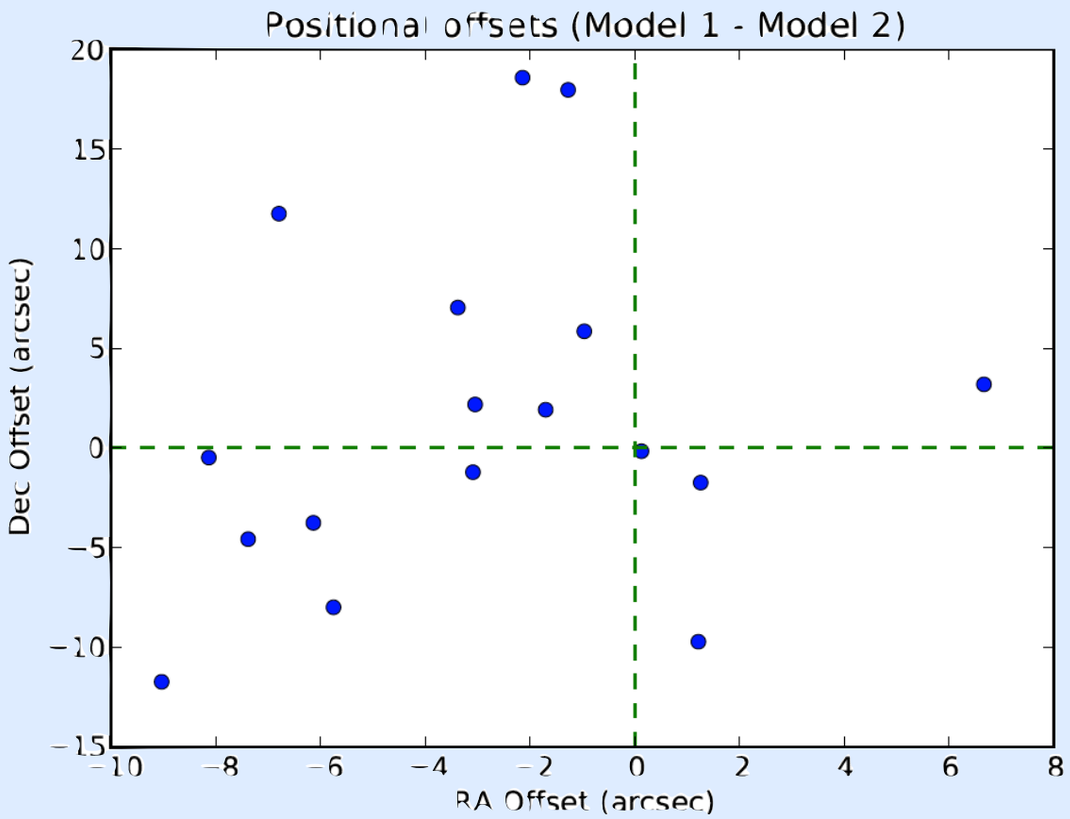
Offset: 5”

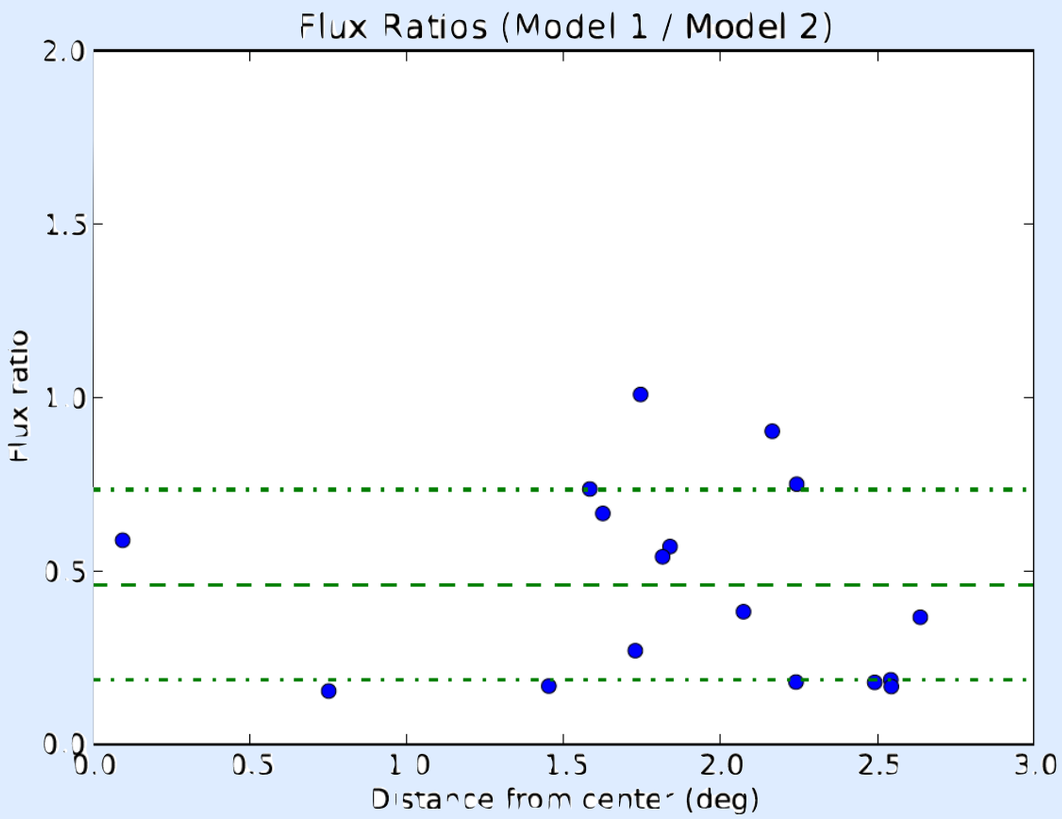
Final resolution:
10”

Nicolas, Marisa, Rosita

Selfcal

Statistics about extracted model at intermediate resolution





Nicolas, David Rafferty

Selfcal

Niter	Nsources	Ang Res (")	Flux cal (Jy)	RMS noise
0	134 (gsm)	22,5	5,63	2,25E-02
1	34	18,75	7,12	7,87E-02
2	31	15	6,99	6,35E-02
3	32	12,5	6,4	5,62E-02
4	30	10	6,77	5,09E-02
5	28	7,5	6,91	5,11E-02
6	39	6,25	7,22	5,01E-02
7	37	5	7,46	5,33E-02
8	41	3,75	6,51	5,38E-02
9	40	2,5	5,11	5,12E-02

Nicolas, Julien Girard

Ionospheric phase screens

Identified and fixed bug in new AWImager which prevented application of per-station phase screens.

Currently working on applying per-station phase screens to solution on Toothbrush field by Reinout van Weeren.

Re-evaluating priority of working on phase screens, decision soon.

Maaijke, Bas, David Rafferty

DPPP

New DPPP features (on a branch):

* Predict step
  - point sources + gaussians, beam on or off
  - multithreaded, also with beam

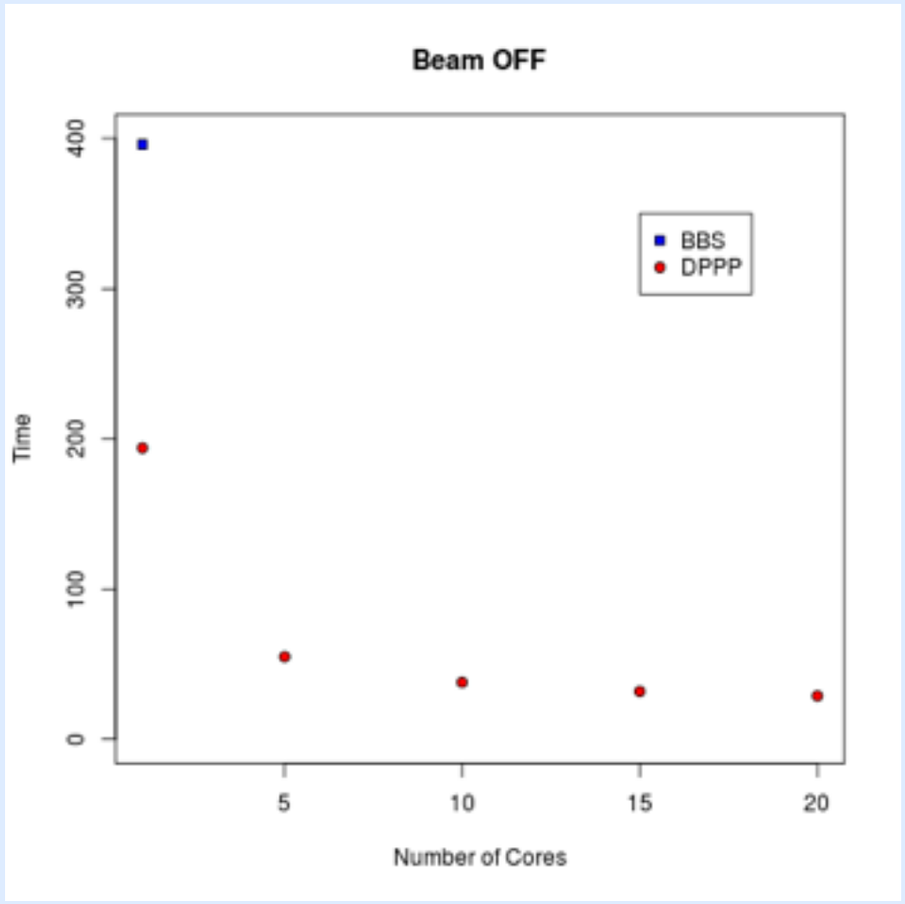
* ApplyBeam step (also in combination with ApplyCal)

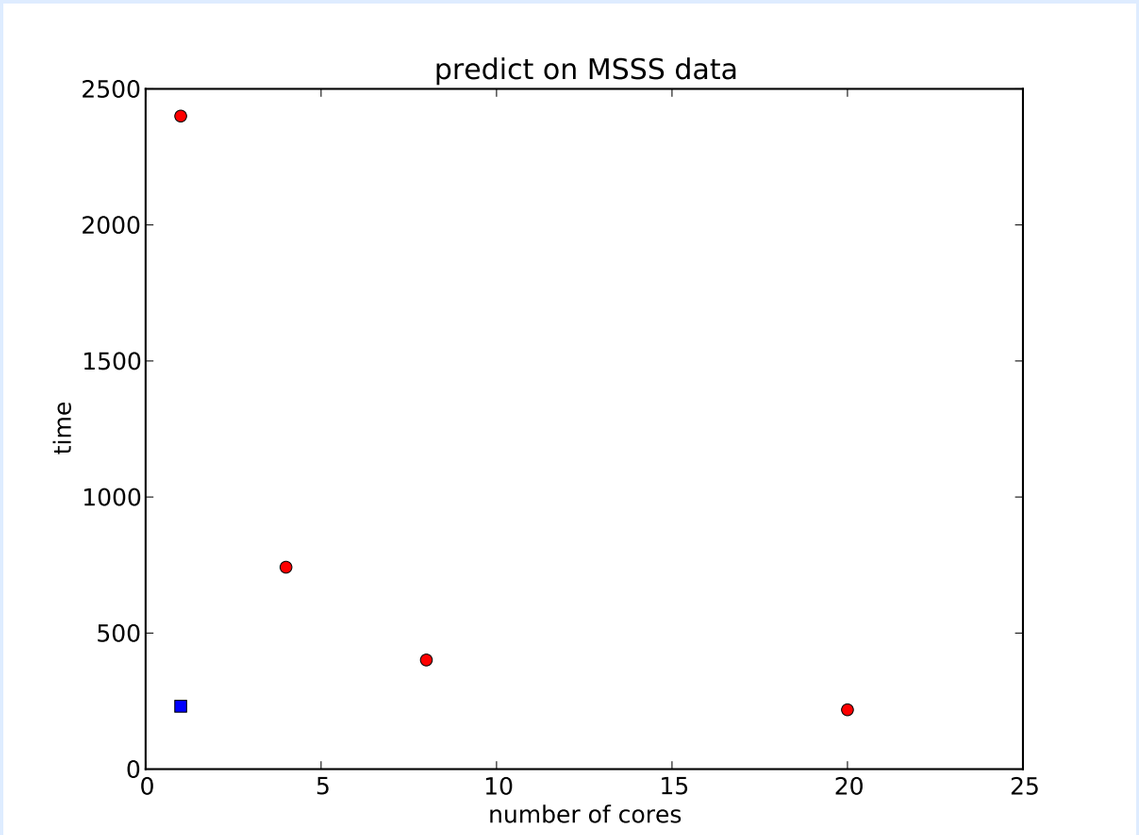
* ApplyCal can now also be used for simulation

Tammo Jan, Leah, Andreas, Ilse, Georgi

DPPP

DPPP calibration is now faster thanks to multithreaded beam + predict





Beam evaluation is still slower than BBS, working on that…

Tammo Jan, Leah, Andreas, Ilse, Georgi

Testing of Cyril's calibration method

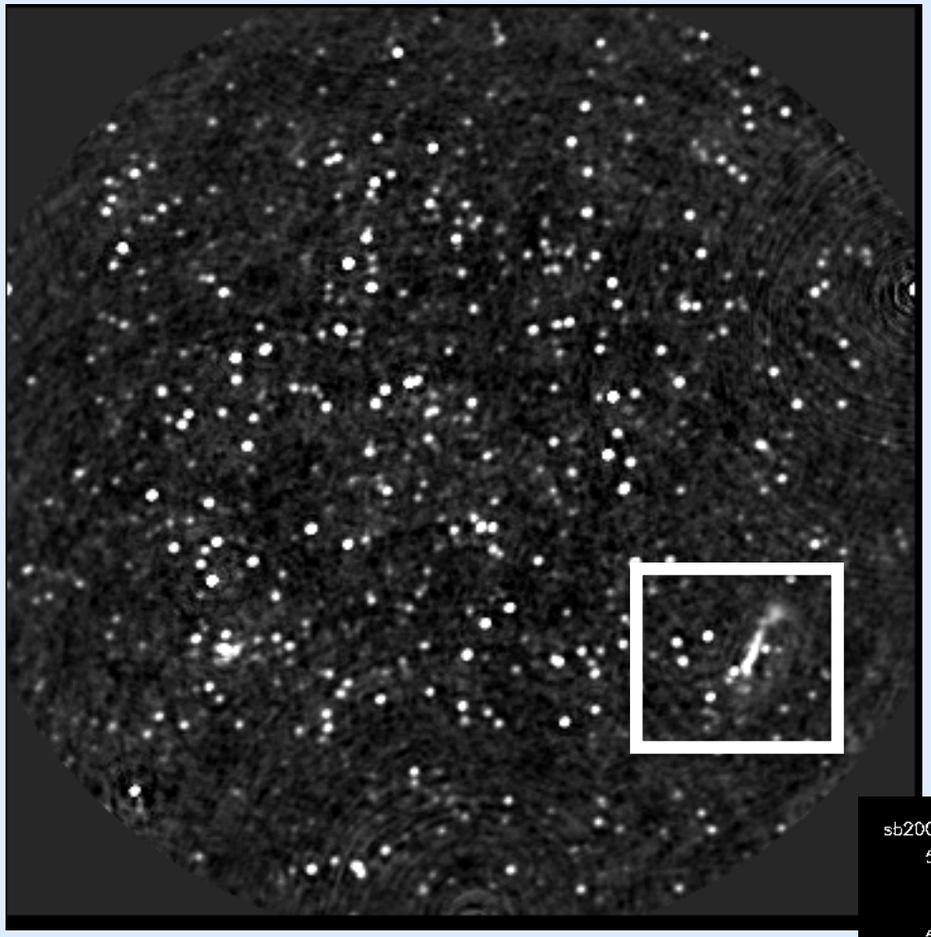
'Coherent Jones' calibration is efficient calibration for calibration in many directions. StefCal is a special case.

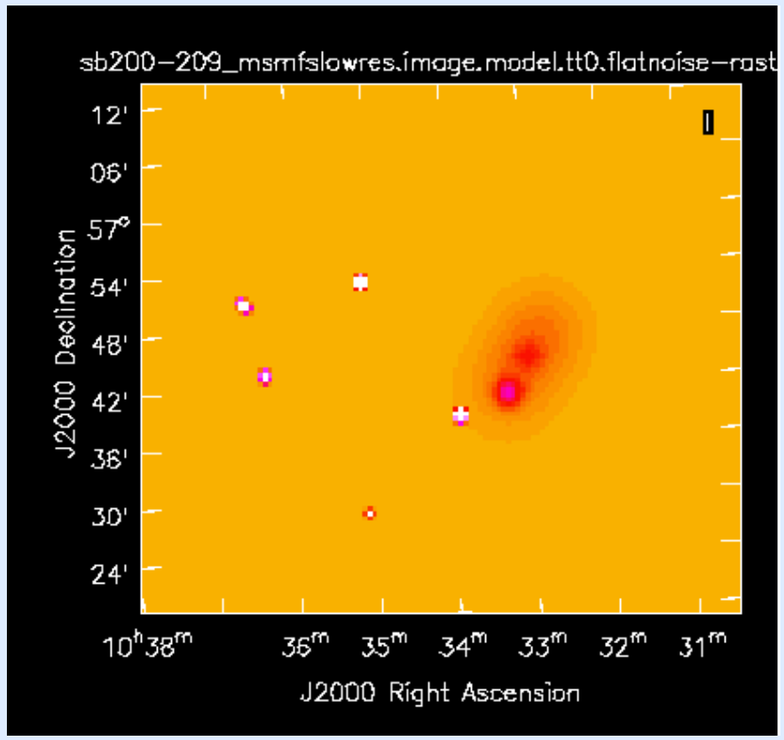
Results are promising, and it is very fast (as stefcal is for 1 direction).

Plan: compare results with sagecal (ongoing).

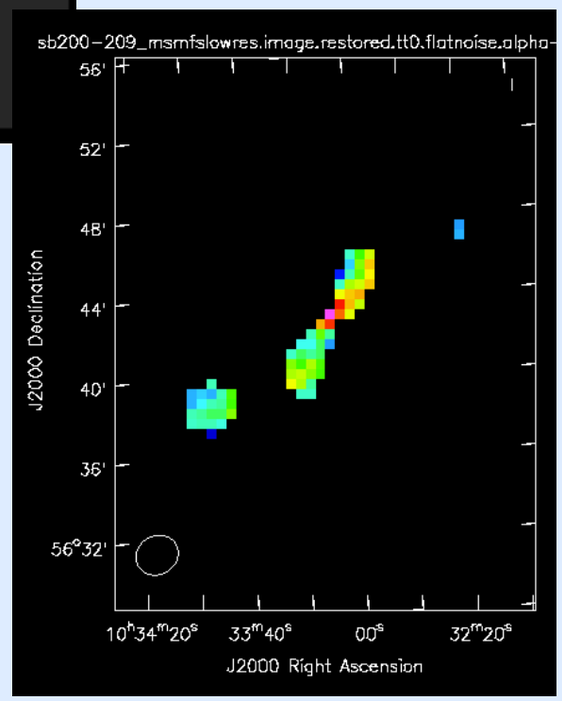
Cyril, Soobash, Tim, Elizabeth

AWImager: wideband clean (nterms=2)





Clean components

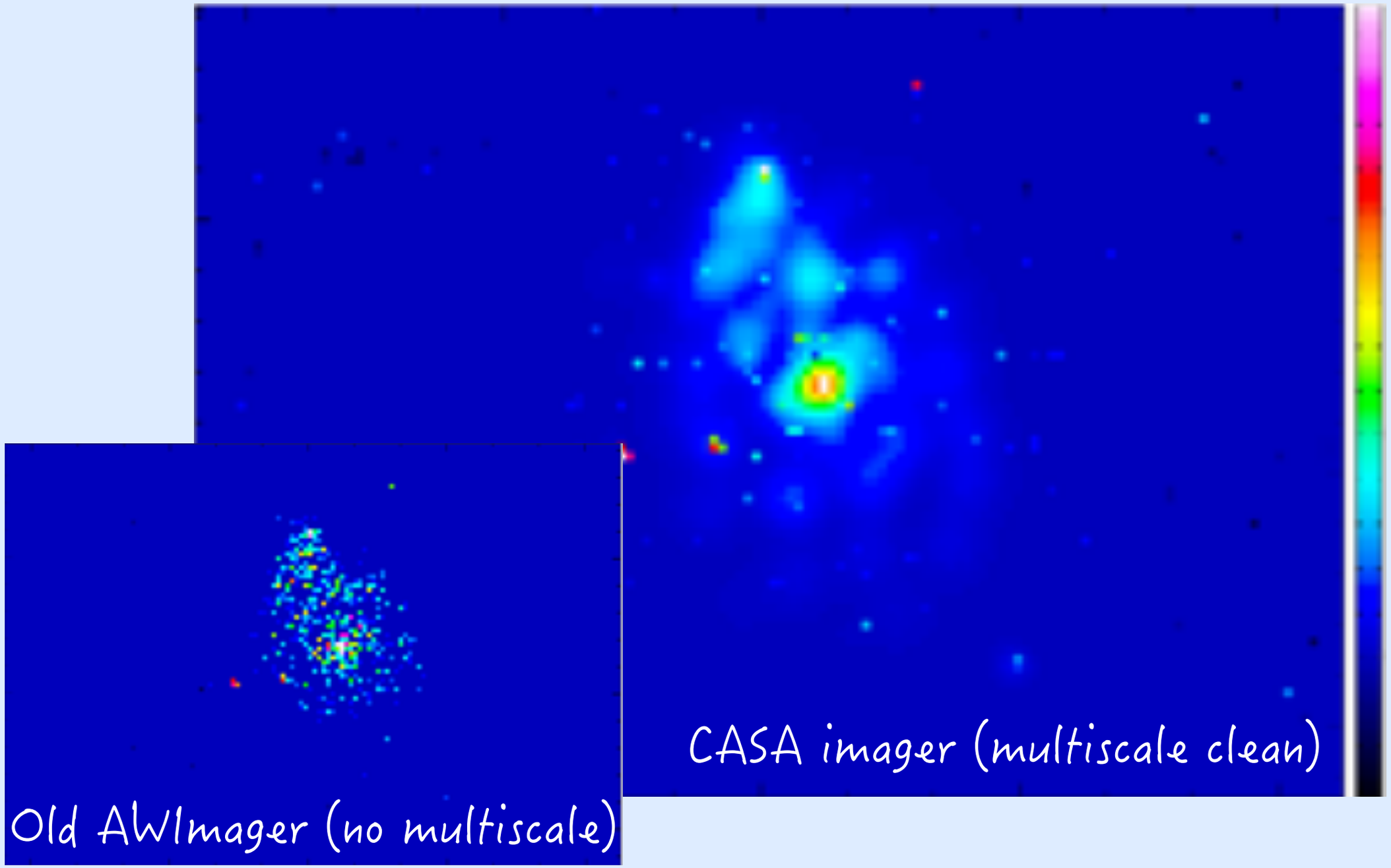


Alpha map

Elizabeth

AWImager: multiscale clean

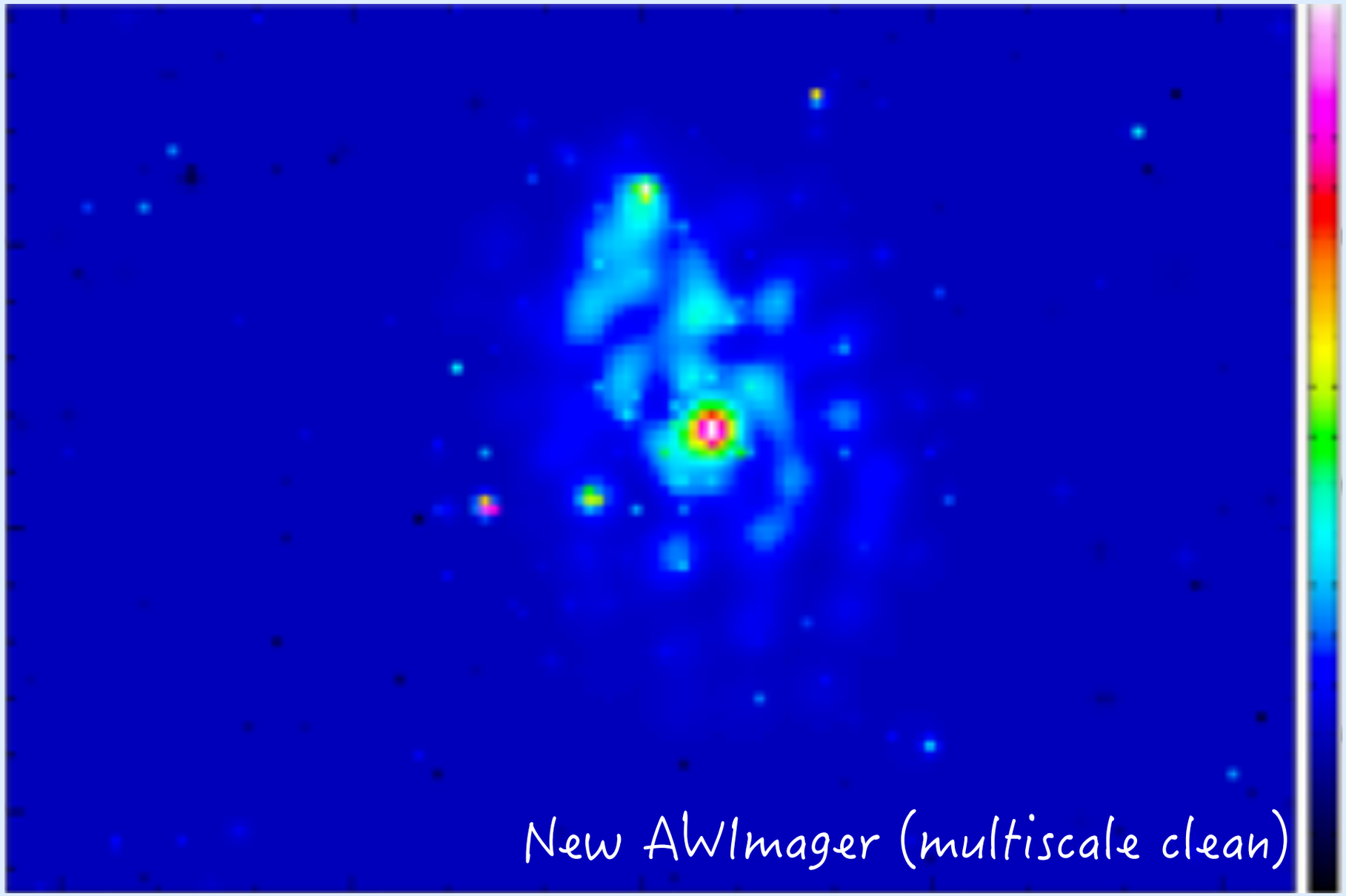
Improved multiscale Clean



David Mulcahy

AWImager: multiscale clean

Improved multiscale Clean



David Mulcahy

Pipeline framework

Extending the current LOFAR pipeline framework to be used by anyone, also outside the LOFAR operational system.

Idea: whole reduction can be specified by a parset
- Plug in your own executable, python script
- Framework takes care of logging, distributing work/data, …

Demonstrator was presented at busy week.

Stefan Fröhlich

Conclusions

Lots of work has been done

Lots of new work has been identified

Thanks to all participants!

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