Netherlands Institute for Radio Astronomy

LOFAR MSSS

Multifrequency Snapshot Sky Survey

Progress Update

George Heald (MSSS Project Leader)
(on behalf of the MSSS Team)
LSM, 30/04/2014

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

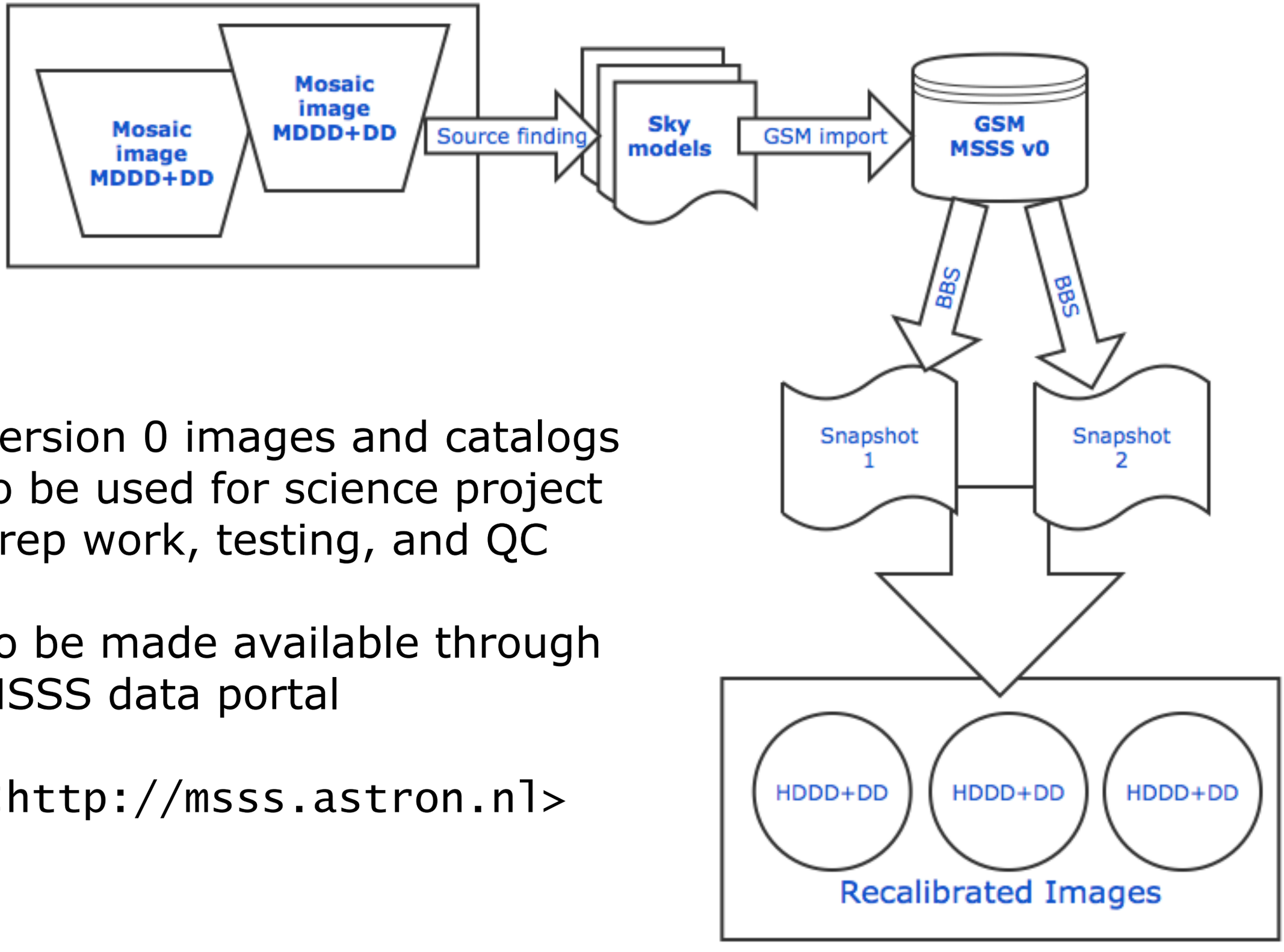
MSSS-HBA Observing Status

- MSSS-HBA is now nearly complete!
- Most "master mosaics" already prepared (Thanks to Alex!)
- Remaining 13 fields now scheduled for the coming week: (Thanks to Michiel!)

Week 19		day	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	ROCR Duty
Approximate LST			15	16	17	18	19	20	21	22	23	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
May	5	Mon	LC1_045 - UGC09555 - 7hrs			LC1_035 - Monthly LST 16-19			Stress system runs	LC0_035 - M31 - 4hrs														LC0_035 - RX J1308.6+2127 - 3hrs			-
	6	Tue	LC1_035 - RRAT J1537+23 - 1hr		LC1_023 - LSTs 16,18	LC1_023 - S8433 - 2x0.5hrs			Stop Day											LC1_035 - Monthly LST 08-09				LC1_046 - NGC5775 - 5hrs			RAF
	7	Wed	LC1_046 - NGC5775 - 5hrs			LC1_003 pulsars								TESTS ROLL OUT (ARNO)					LC1_041 -2FGL J0843.6+6715 - 4hrs					LC1_046 - NGC5775 - 5hrs			CT
	8	Thu	LC1_046 - NGC5775 - 5hrs			LC1_023 - LSTs 16,18				LC1_023 - LSTs 22			LC1_023 - LSTs 02,07	TESTS ROLL OUT (ARNO)										LC1_047 A2255 -9 hrs			CT
	9	Fri	LC1_047 A2255 -9 hrs							LC1_035 - 3xRRATs - 3x1hr							MSSS			MSSS until 18:55	LC1_035 - pulsar repeats			MSSS	LC1_035 - pulsar repeats		RAF
	10	Sat		LC1_035 - pulsar repeats		MSSS intermittently until 09:35						LC1_025 - Sun - 6hrs												MSSS				(CT)
	11	Sun	MSSS	LC1_003 pulsars								LC1_025 - Sun - 5.25hrs																(CT)

- LBA tests now ongoing, testing flanking field setup [David Rafferty] and NCP monitoring scheme [Adam Stewart] (Thanks to Carmen!)

Re-calibration scheme

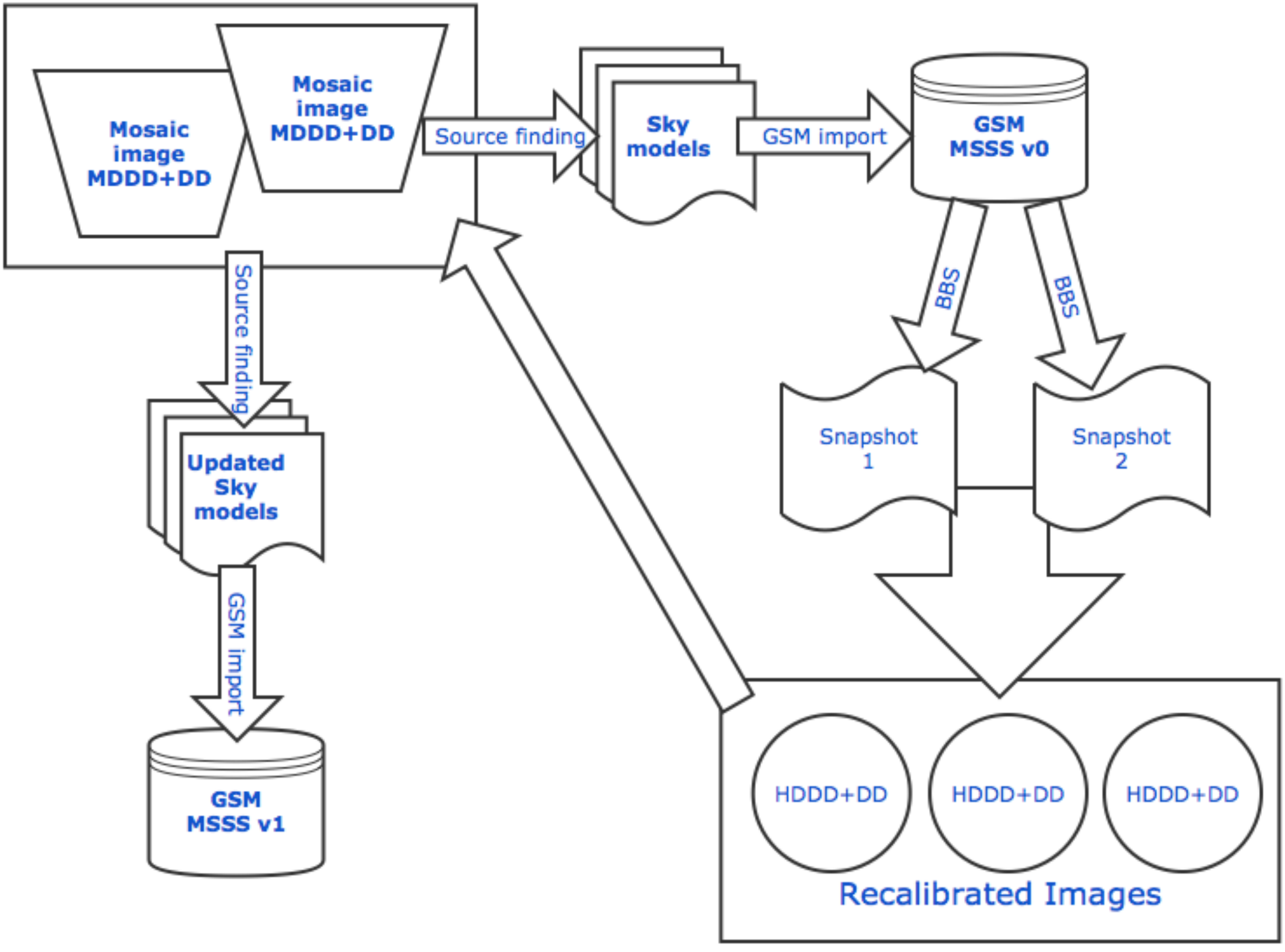


- Version 0 images and catalogs to be used for science project prep work, testing, and QC

- To be made available through MSSS data portal

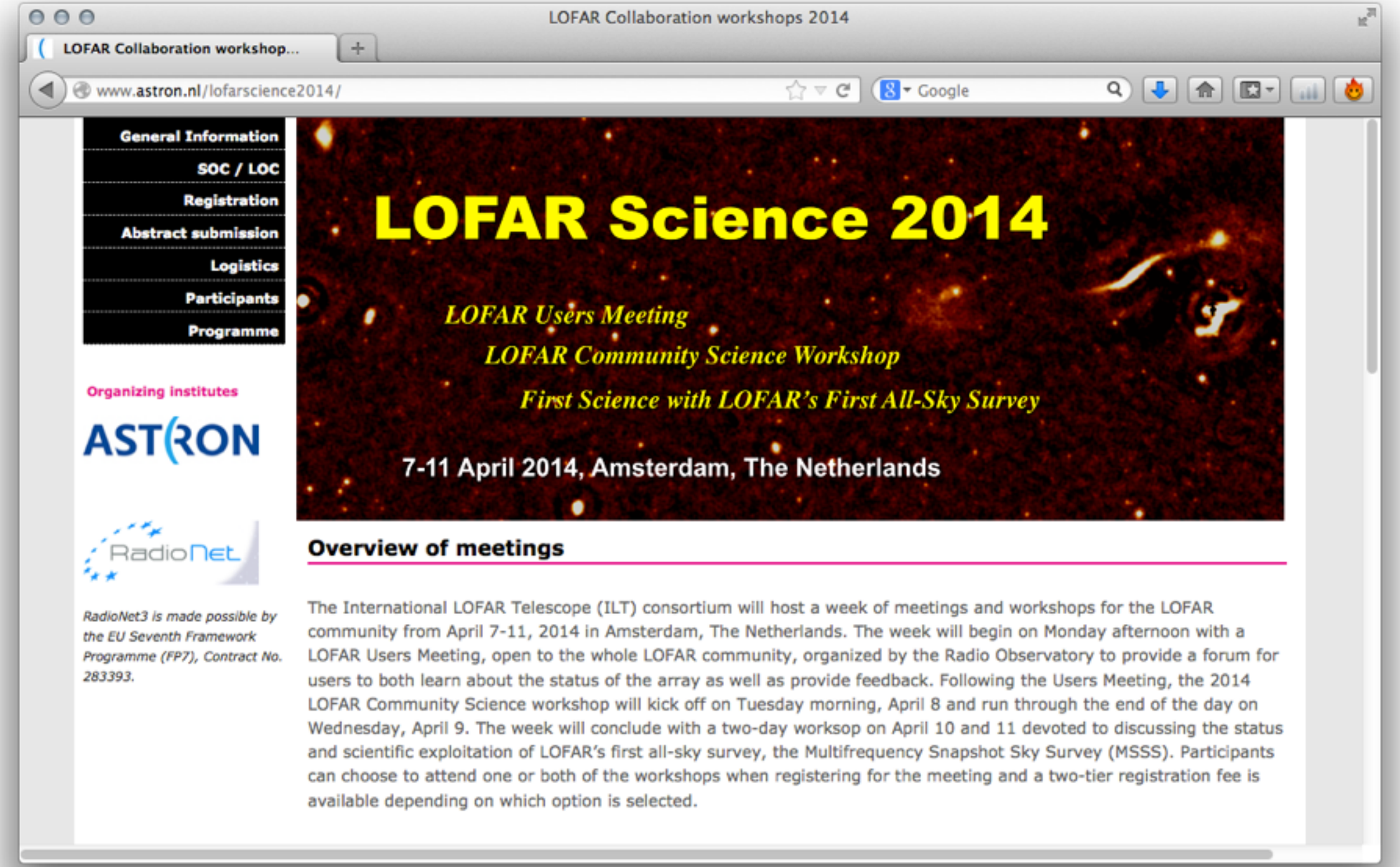
  <http://msss.astron.nl>

Re-calibration scheme



MSSS meeting

- MSSS science meeting in Amsterdam: 10-11 April 2014



rodehoed

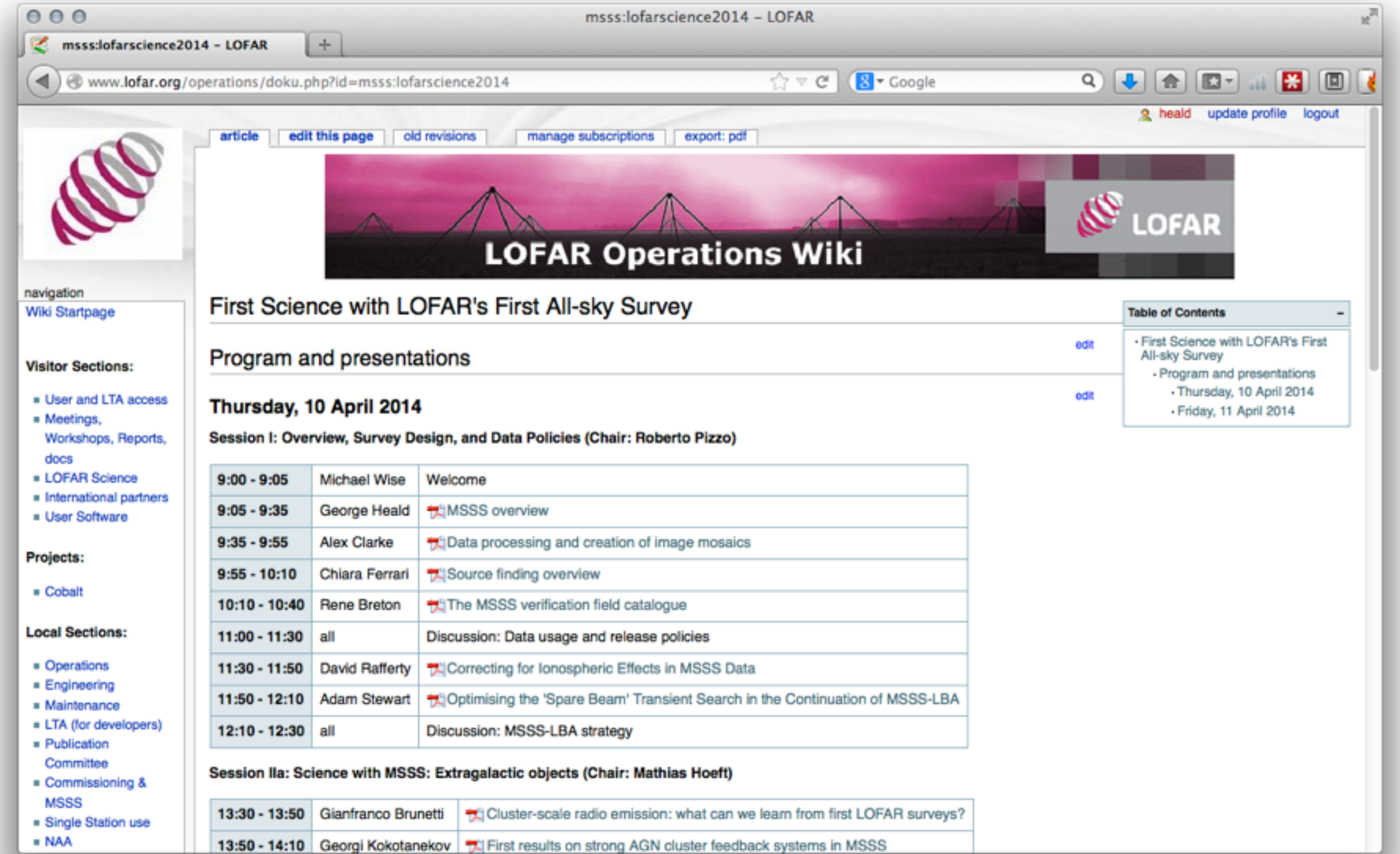
MSSS-HBA mosaics
LOFAR ASTRON
• From another 100 sq deg mosaic:

Outcomes from the MSSS workshop:

- Many exciting preliminary results!
  - Both from initial data & reprocessed data
  - Broad range of science topics!
- Discussions on working groups and publications
- Convergence on priorities

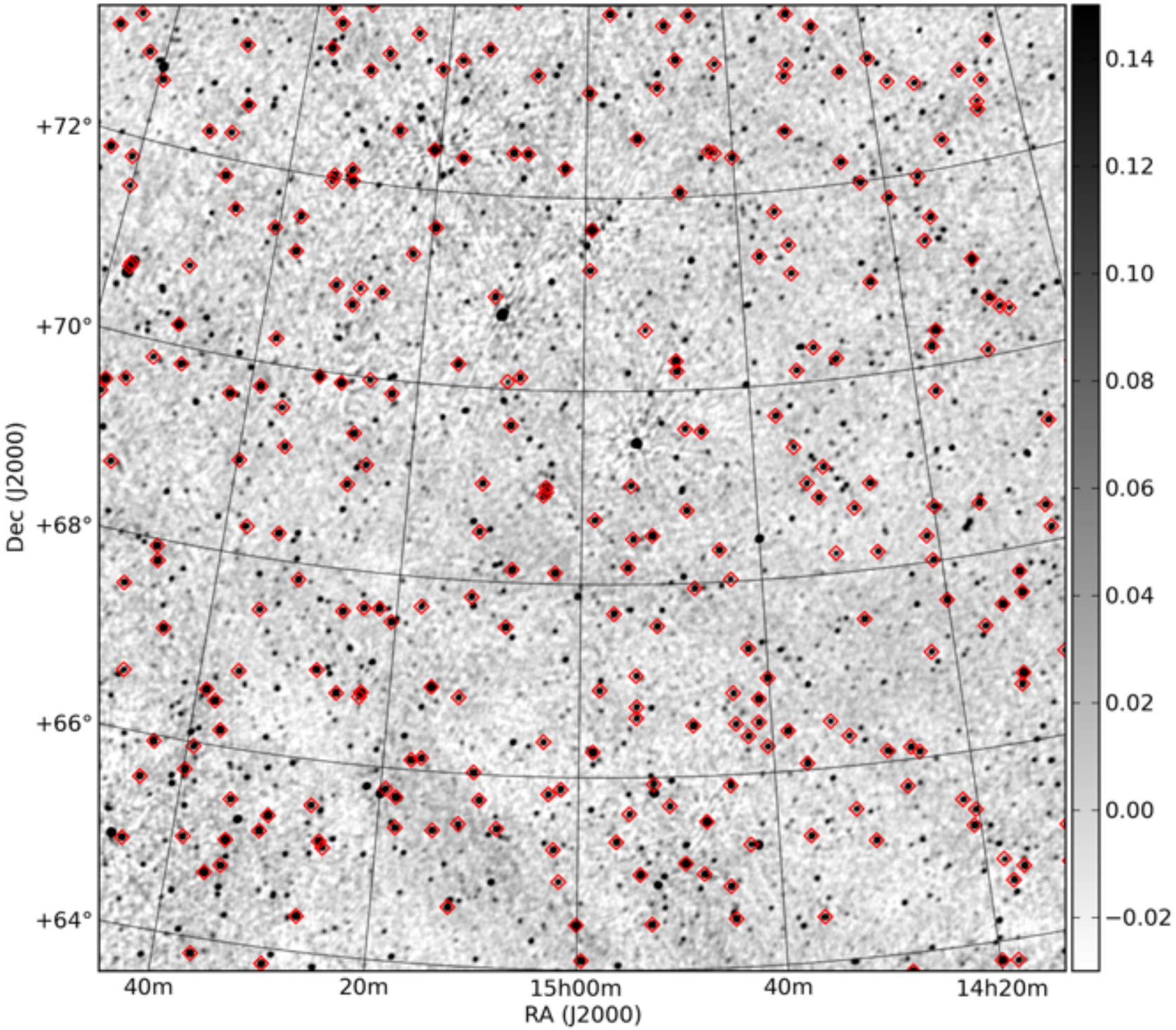
MSSS meeting

- MSSS science meeting slides available on the LOFAR wiki:



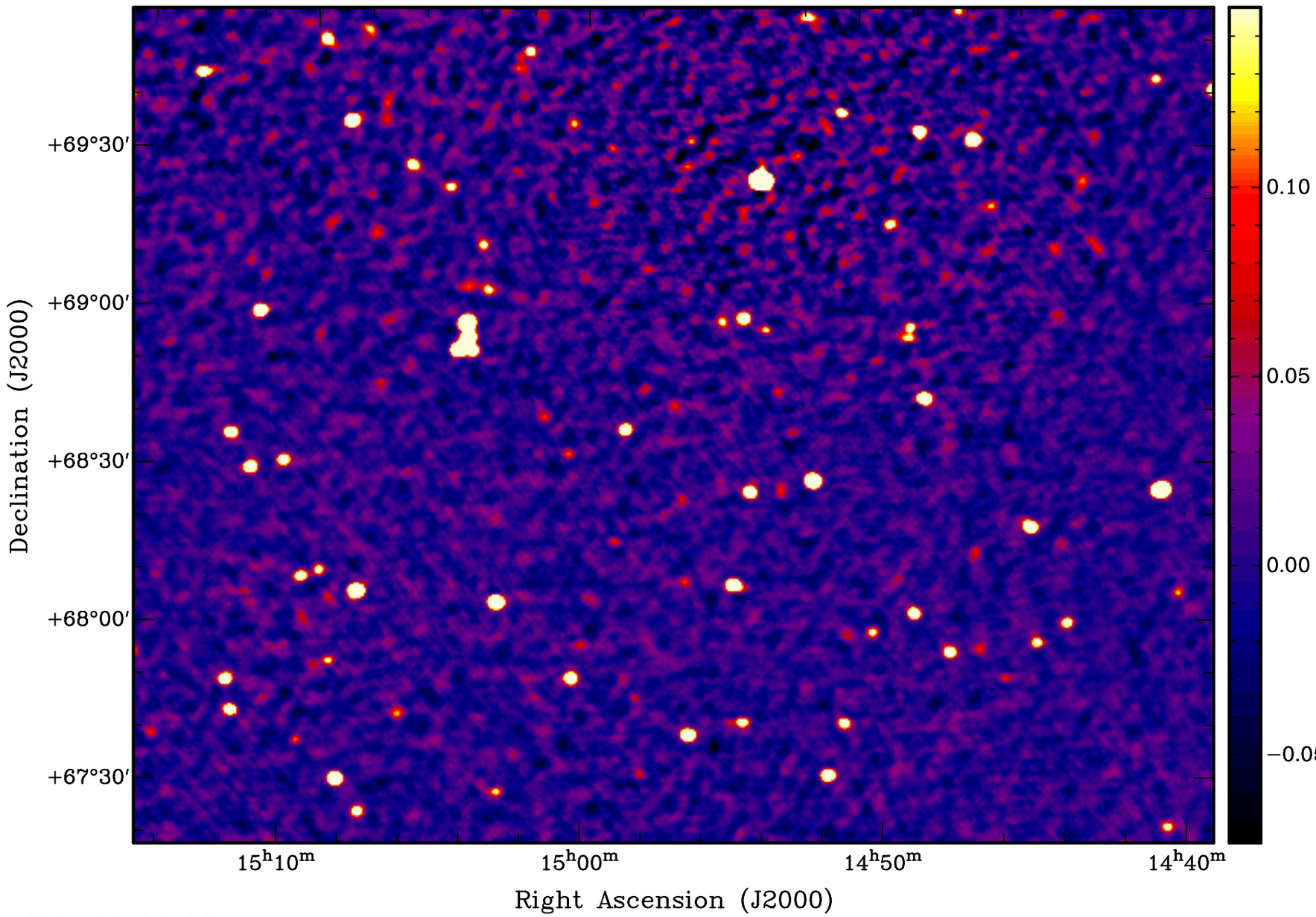
Recalibration example: MVF HBA

- Fields initially imaged with standard MSSS steps, then recalibrated



MVF fluxes

- In-band HBA spectral indices are far too steep in general
  - Same holds for sources in other fields (see Amsterdam talks)
- What can be the cause? Possible culprit: incomplete deconvolution



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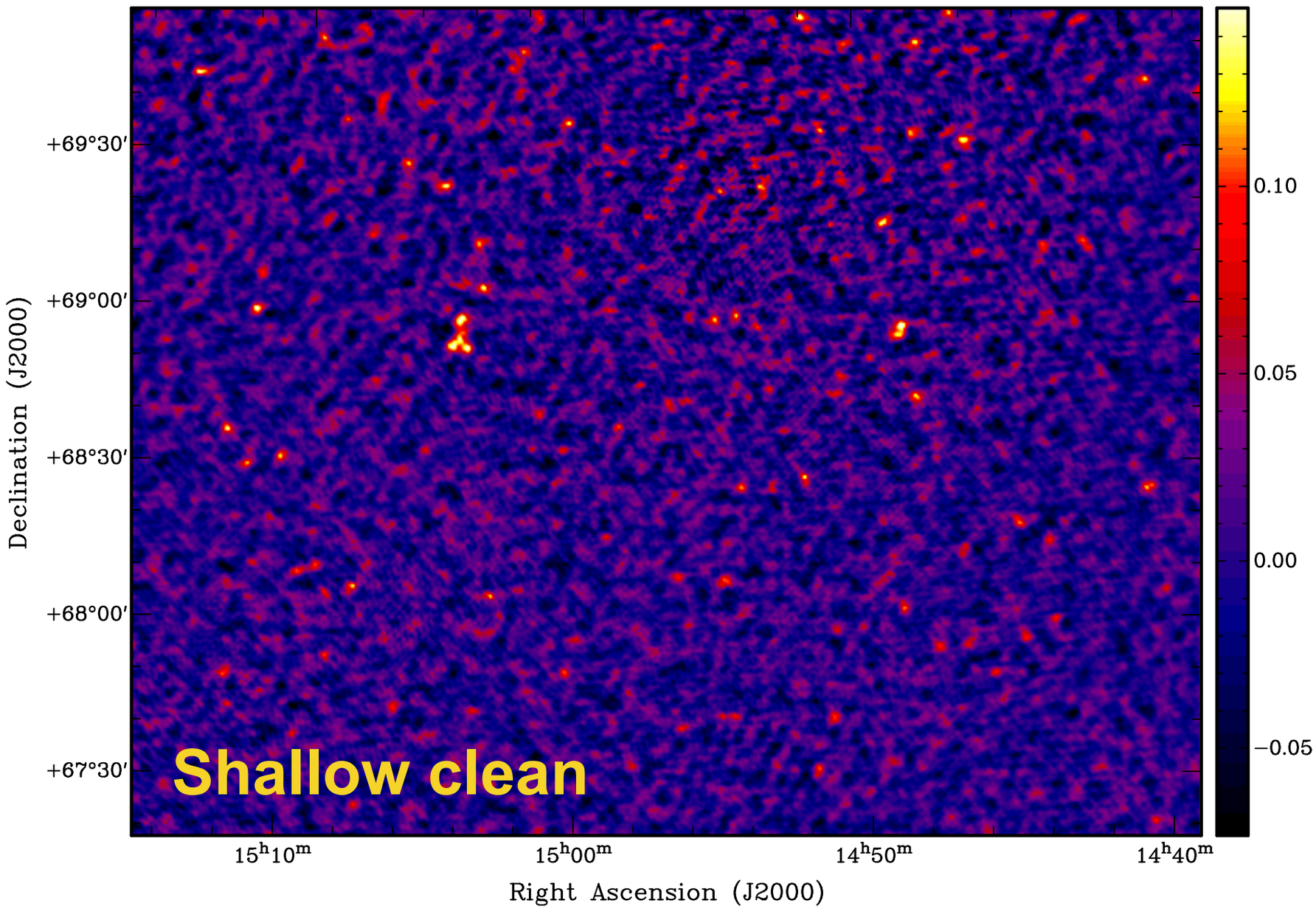

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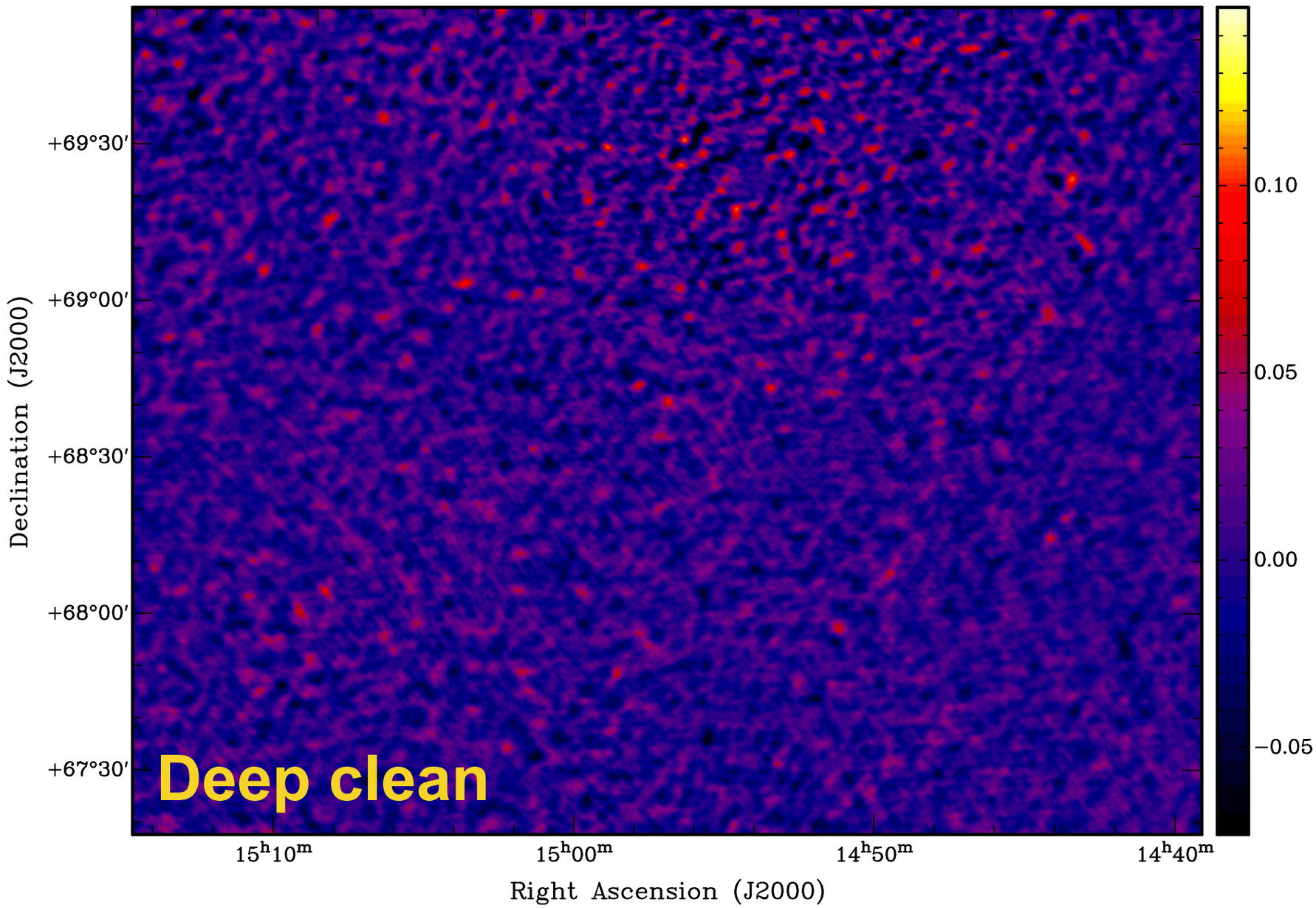


MVF fluxes

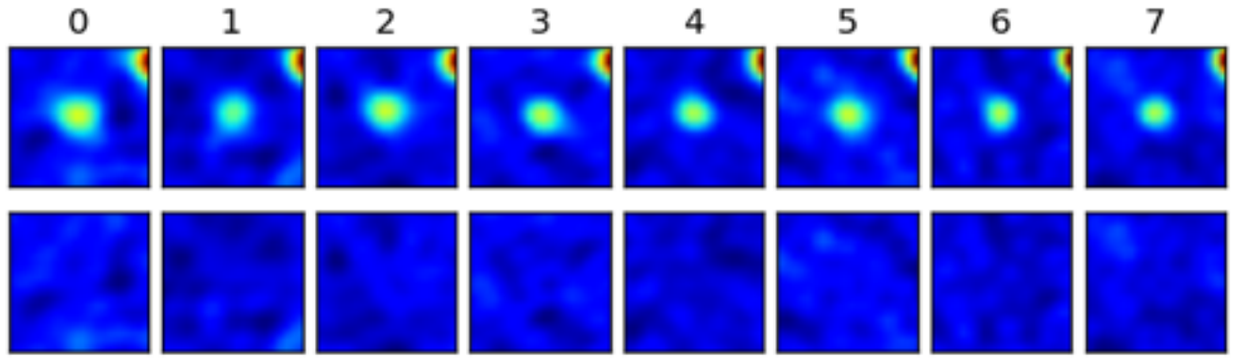
- Steps taken so far:
  - Initially processed data, shallow clean (SET1)
  - Selfcal data, shallow clean (SET2)
    Produced thanks to Martin Hardcastle
    NB: Report on selfcal procedure on MSSS wiki (2013w28)
  - Selfcal data, deep clean & tile fix (SET3)
    Produced thanks to Wojtek Jurusik
    NB: Report on deep clean procedure on MSSS wiki (2014w16)

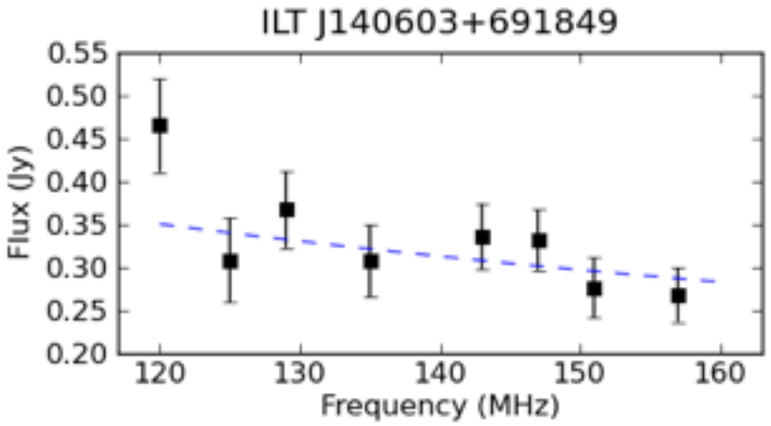
- Source finding done consistently for all three cases
  Thanks to Georgi Kokotanekov
- Plotting done consistently for all three cases
  Thanks to Sjoert van Velzen

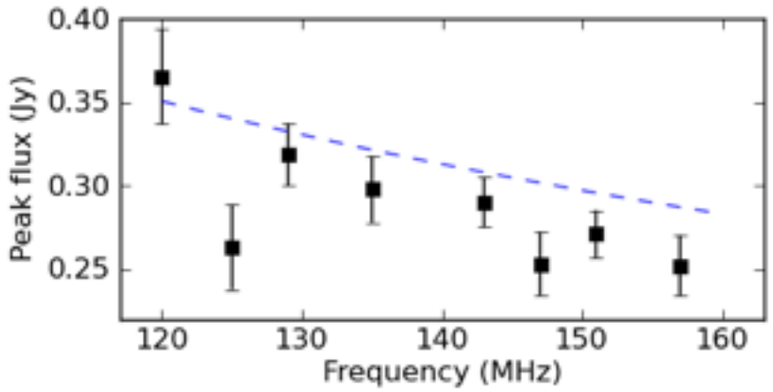
MVF fluxes

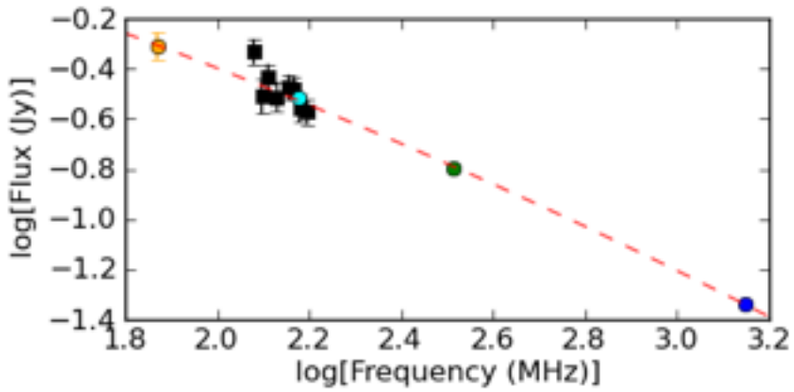
- J140603+691849

SET1





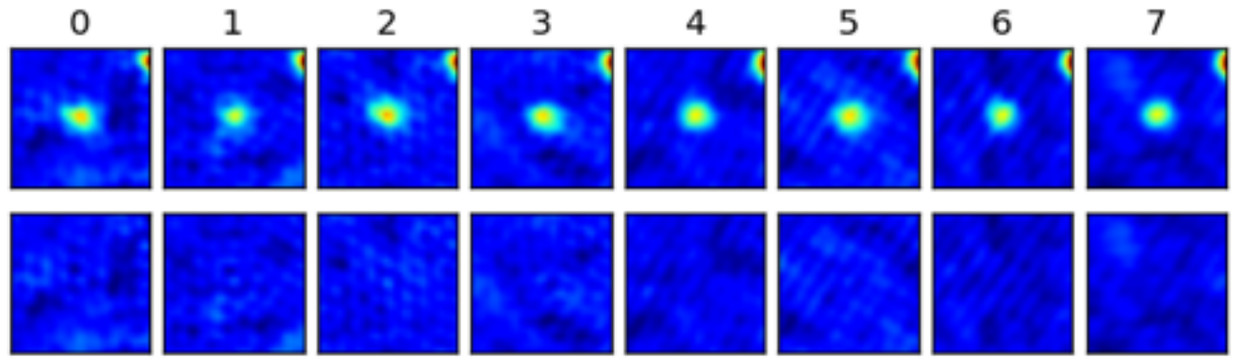


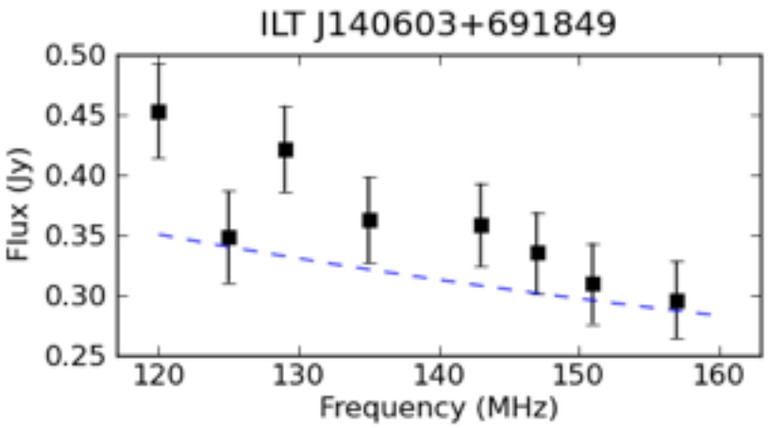


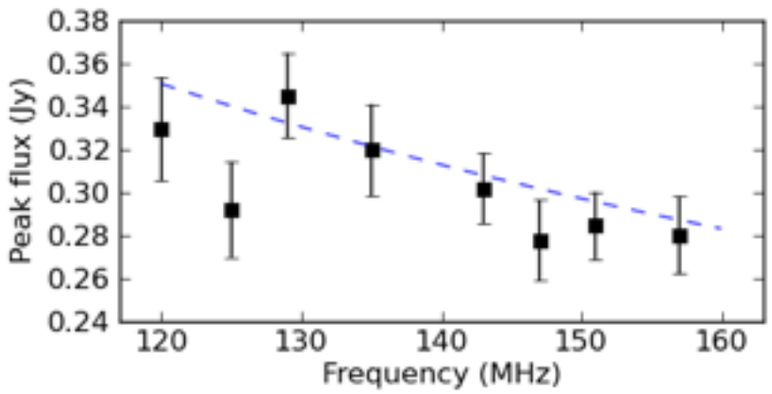
MVF fluxes

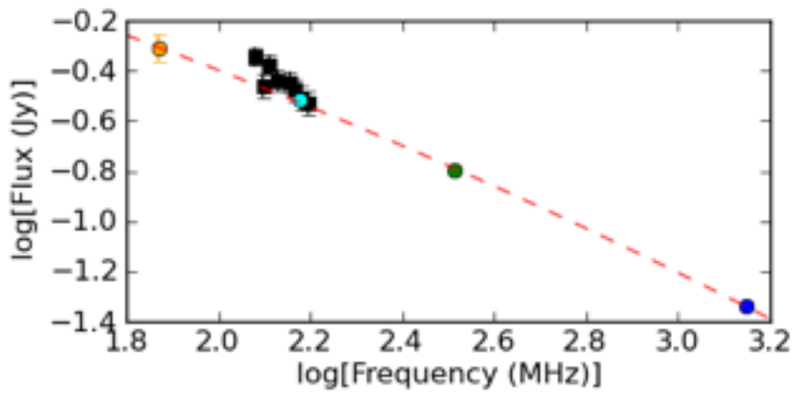
- J140603+691849

SET2









MVF fluxes

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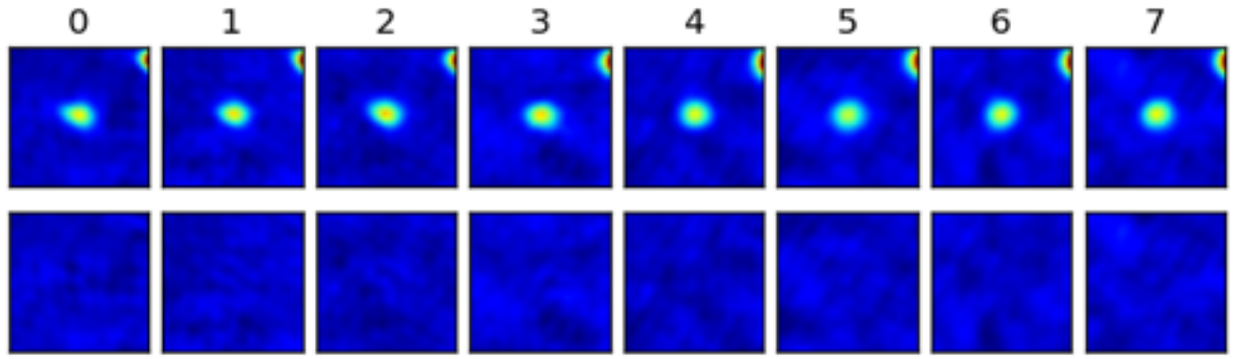
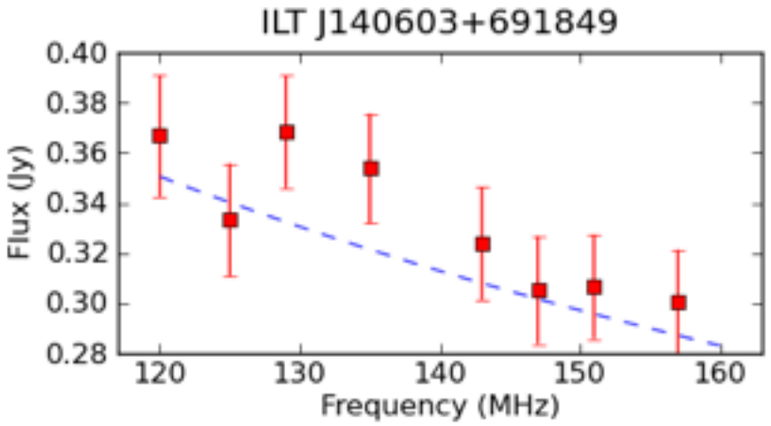
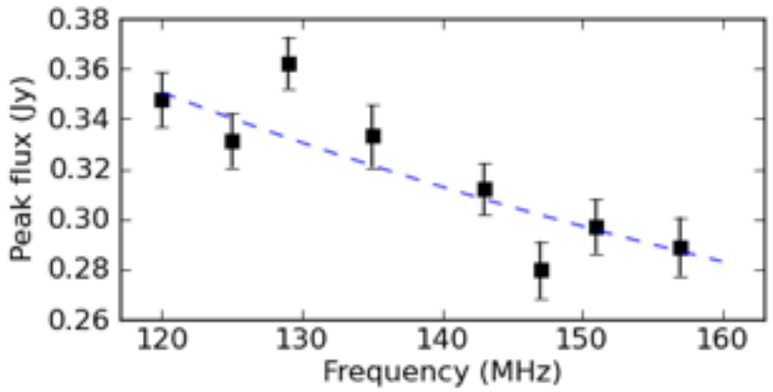
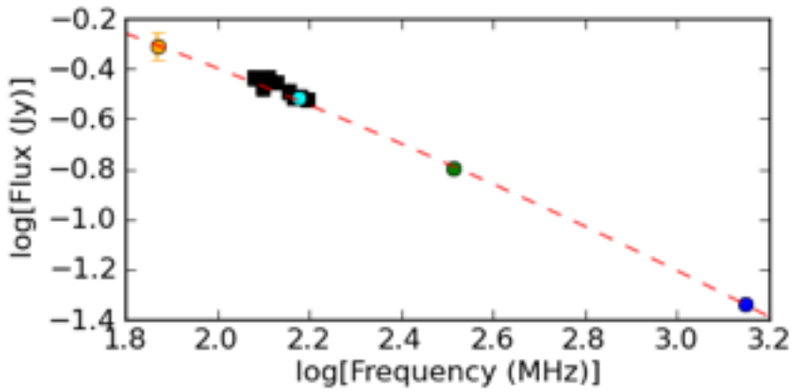
SET3





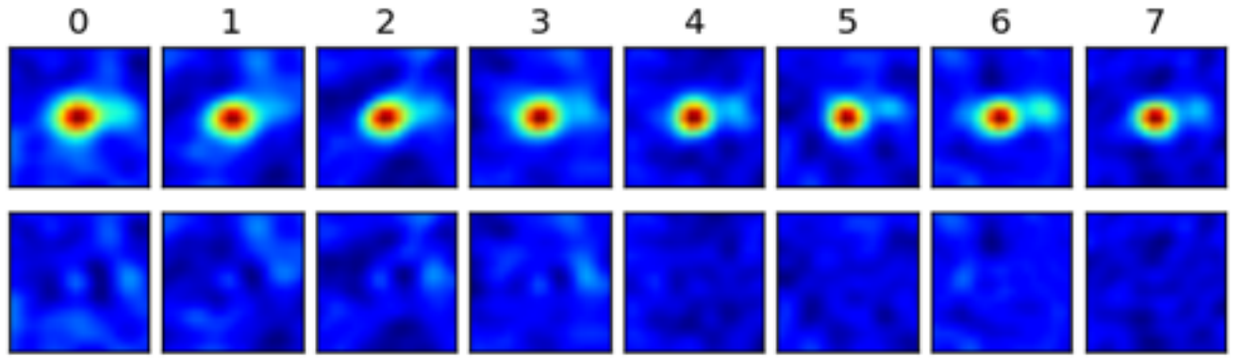


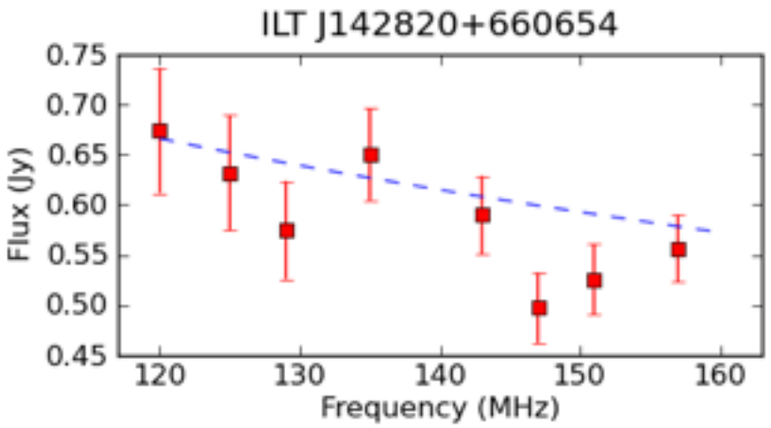


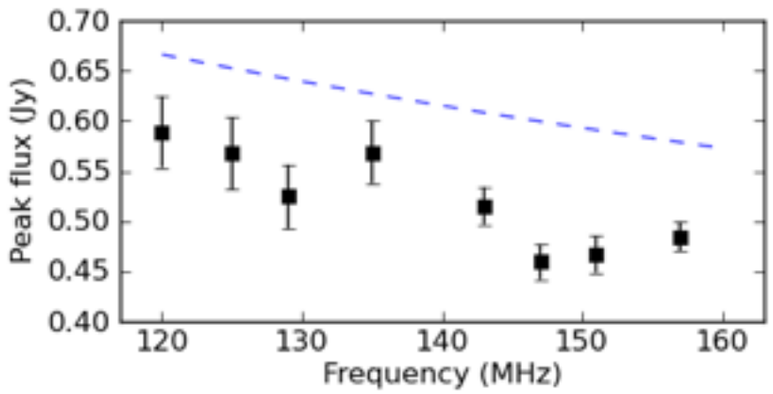
MVF fluxes

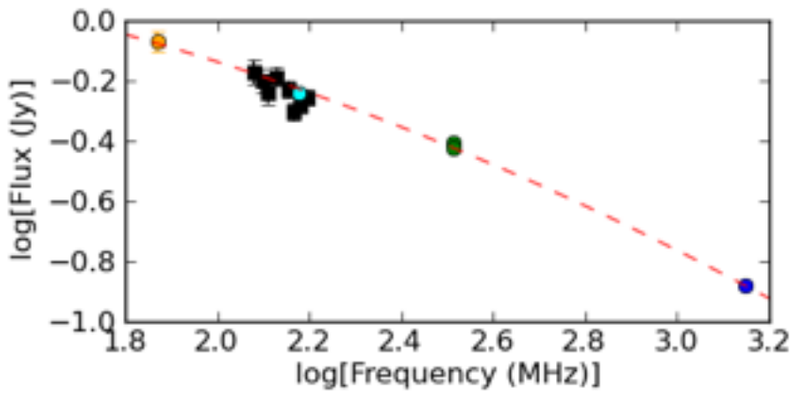
- J142820+660654

SET1





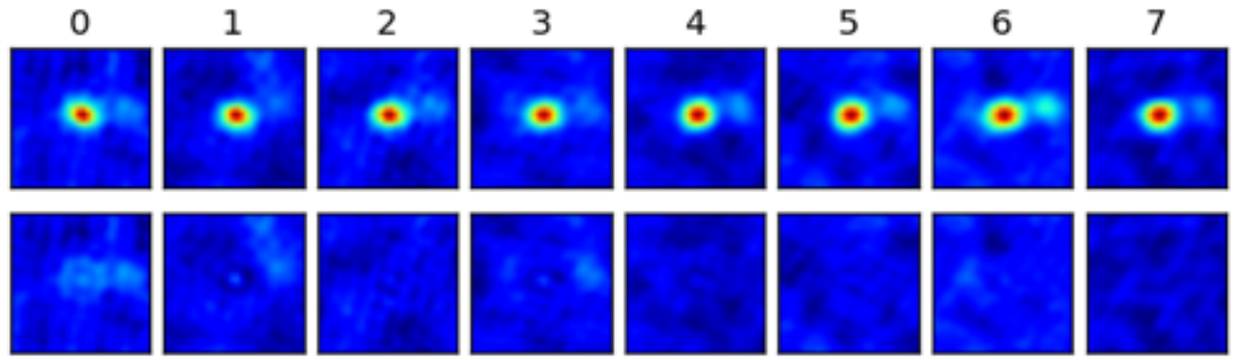


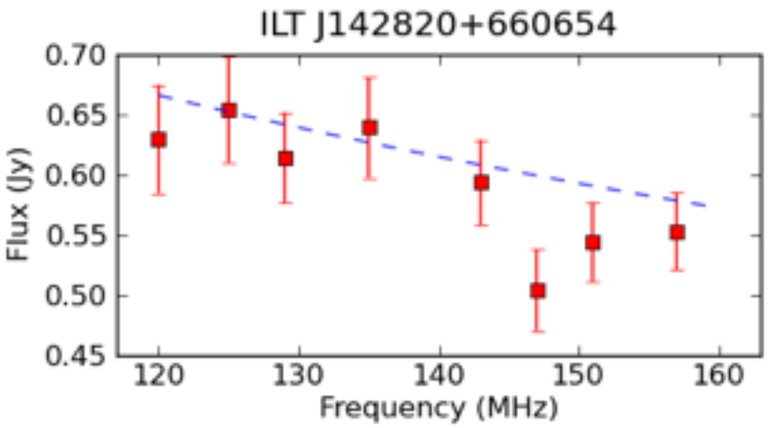


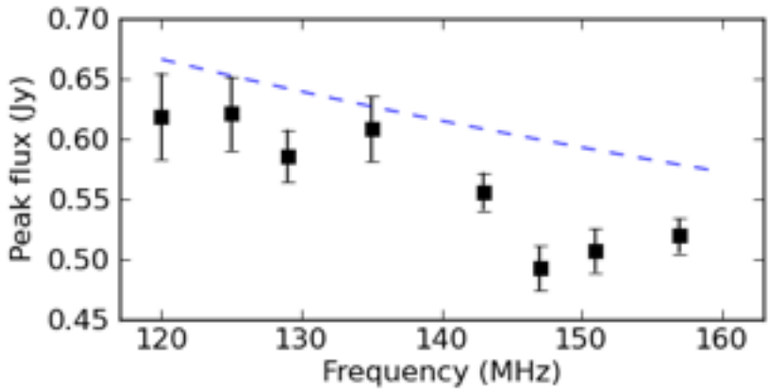
MVF fluxes

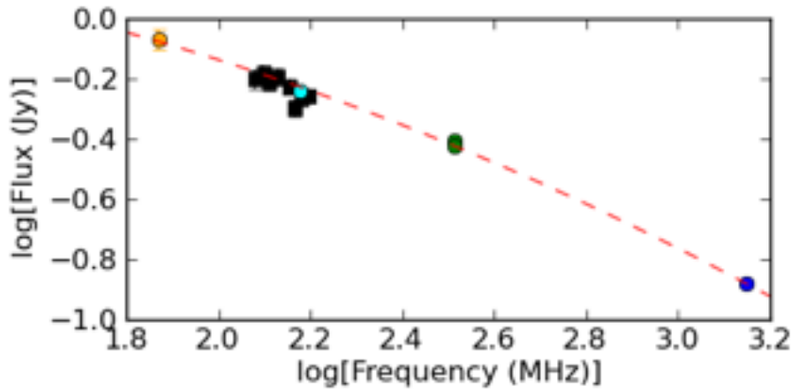
- J142820+660654

SET2









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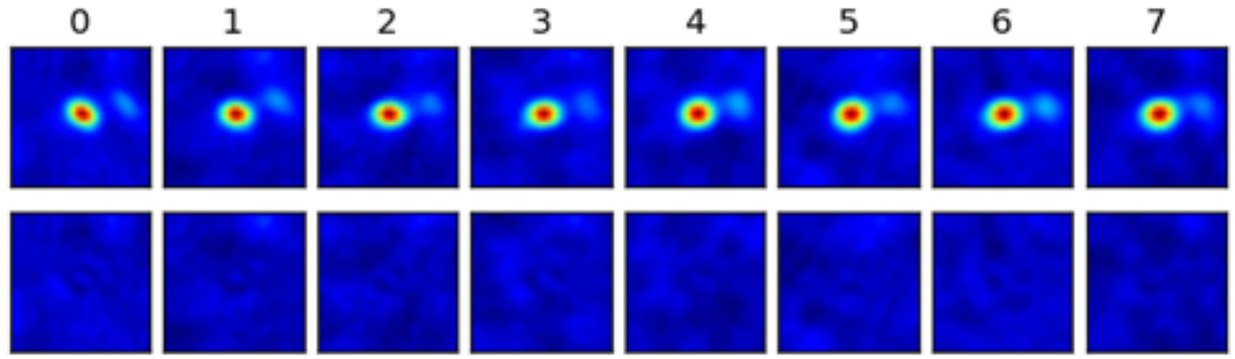
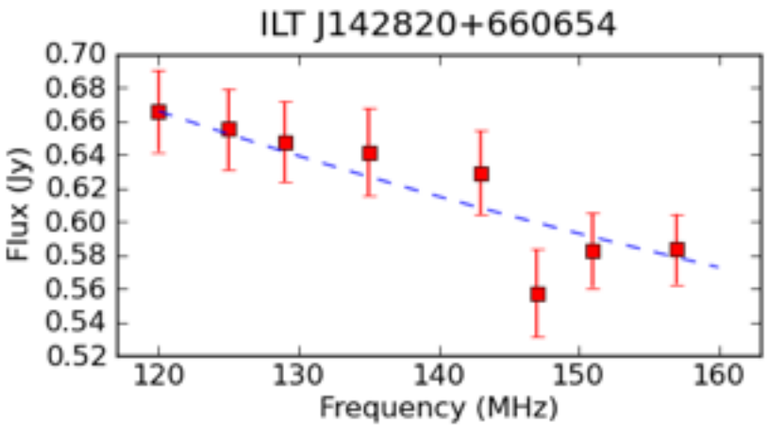
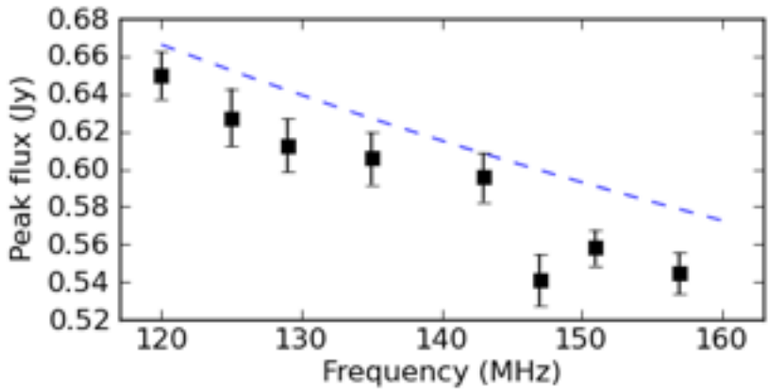
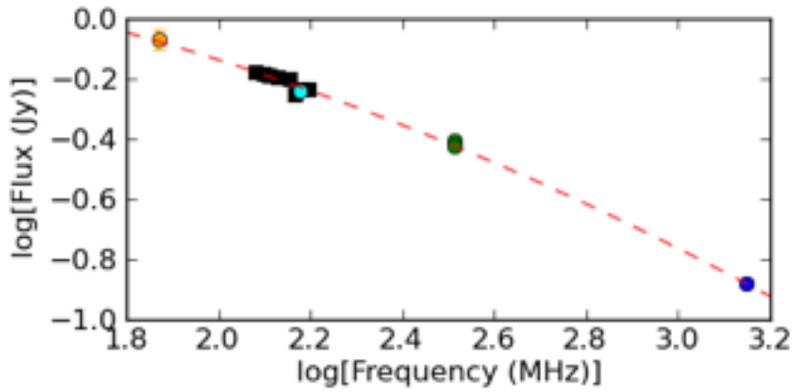
SET3



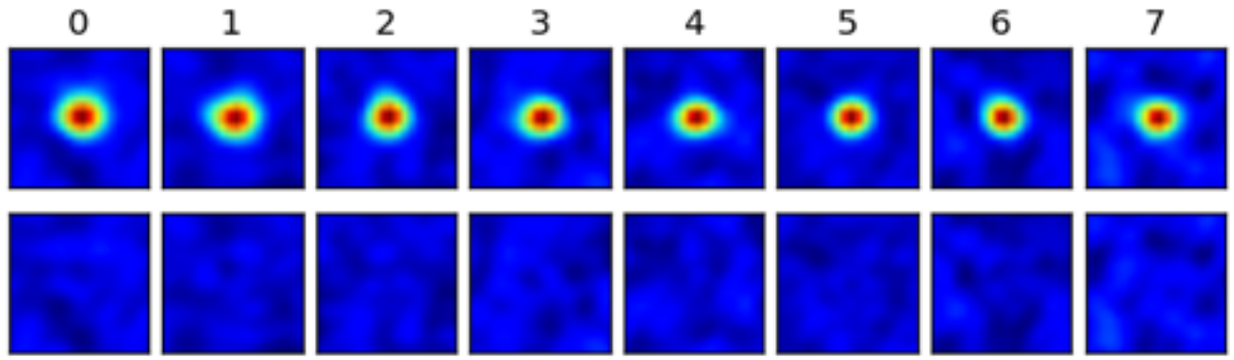


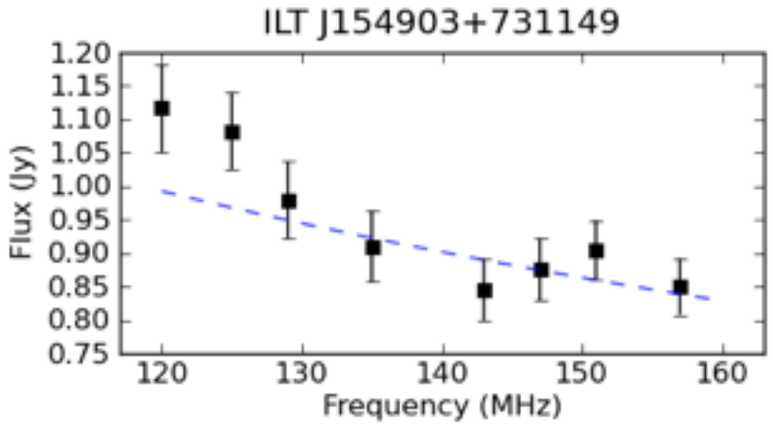


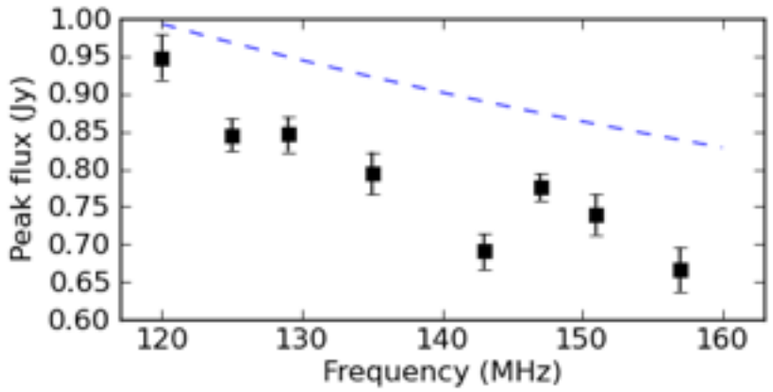


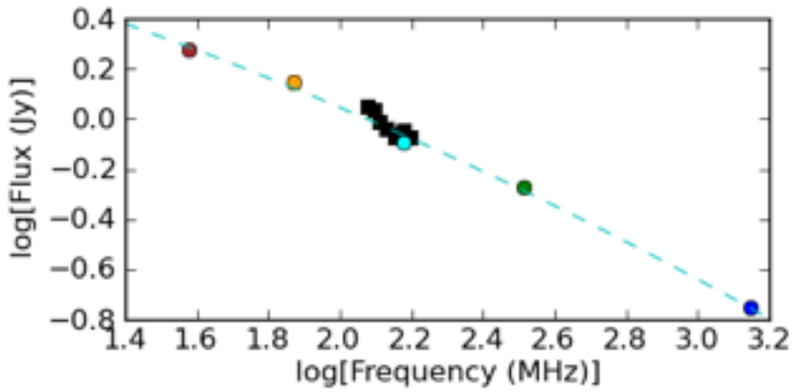
MVF fluxes

SET1



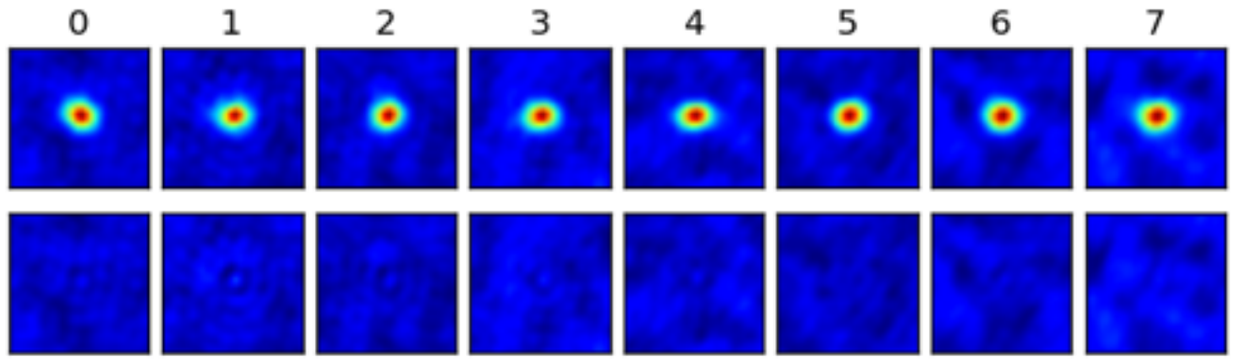


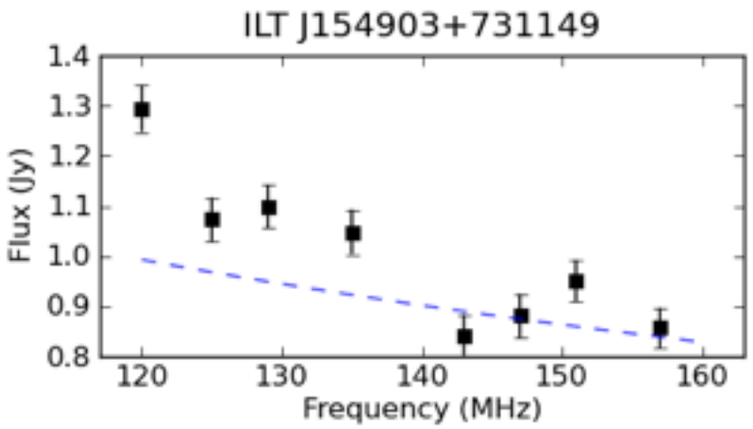


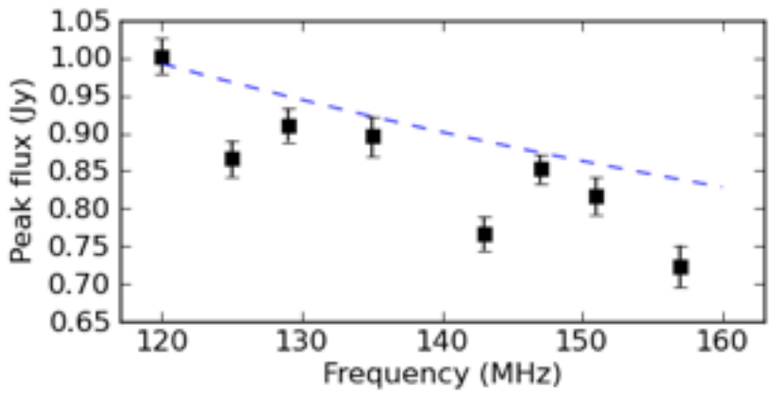


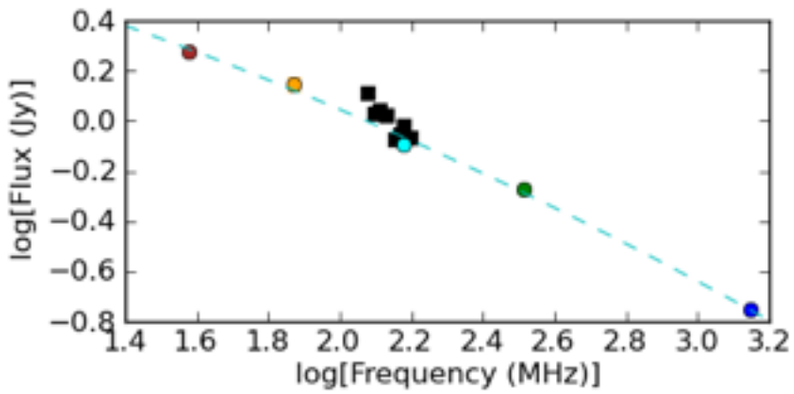
MVF fluxes

SET2

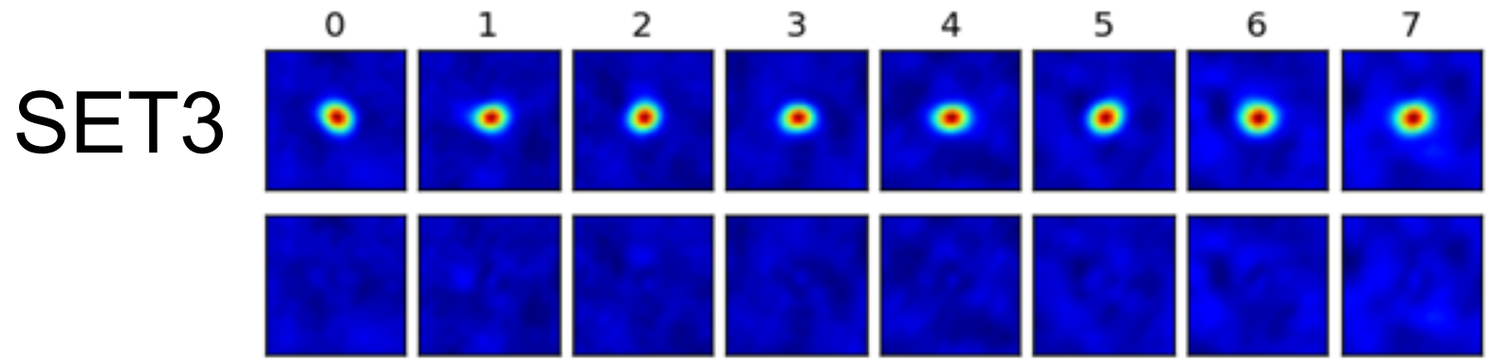








MVF fluxes


SET3
0
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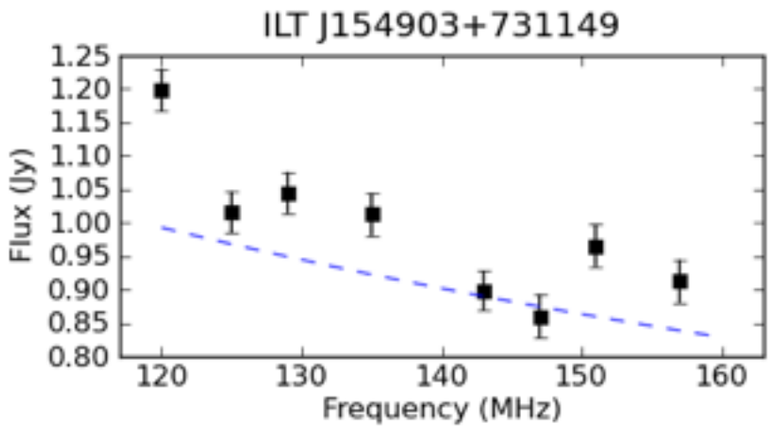
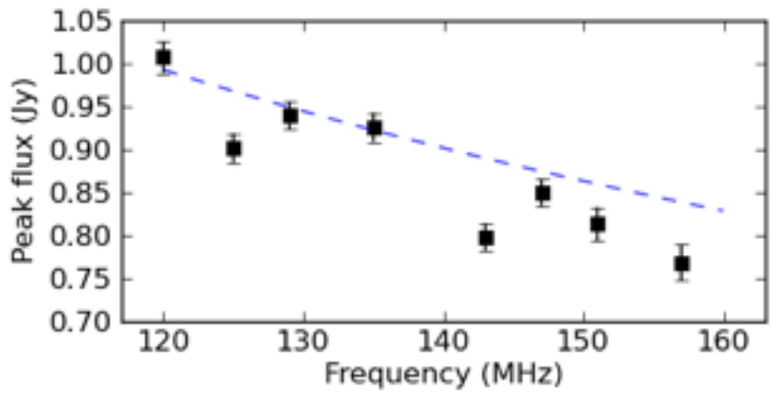
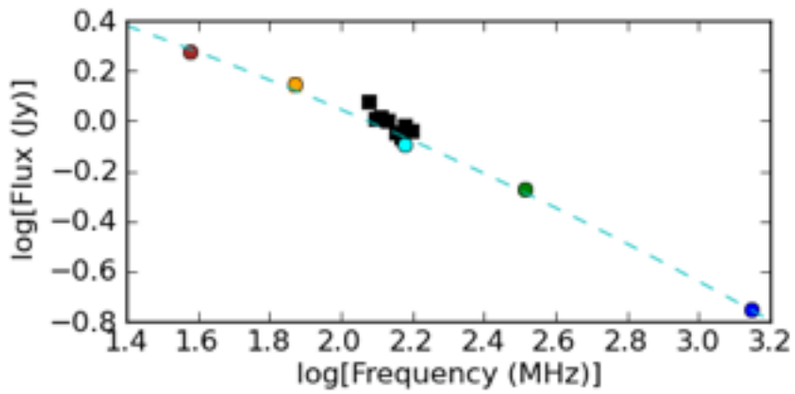
7


ILT J154903+731149
Flux (Jy)
Frequency (MHz)


Peak flux (Jy)
Frequency (MHz)


log[Flux (Jy)]
log[Frequency (MHz)]