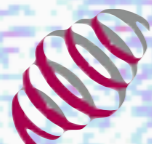


LOFAR Two-metre Sky Survey: LoTSS



**Leiden Observatory
Leiden University**

ASTRON



LOFAR

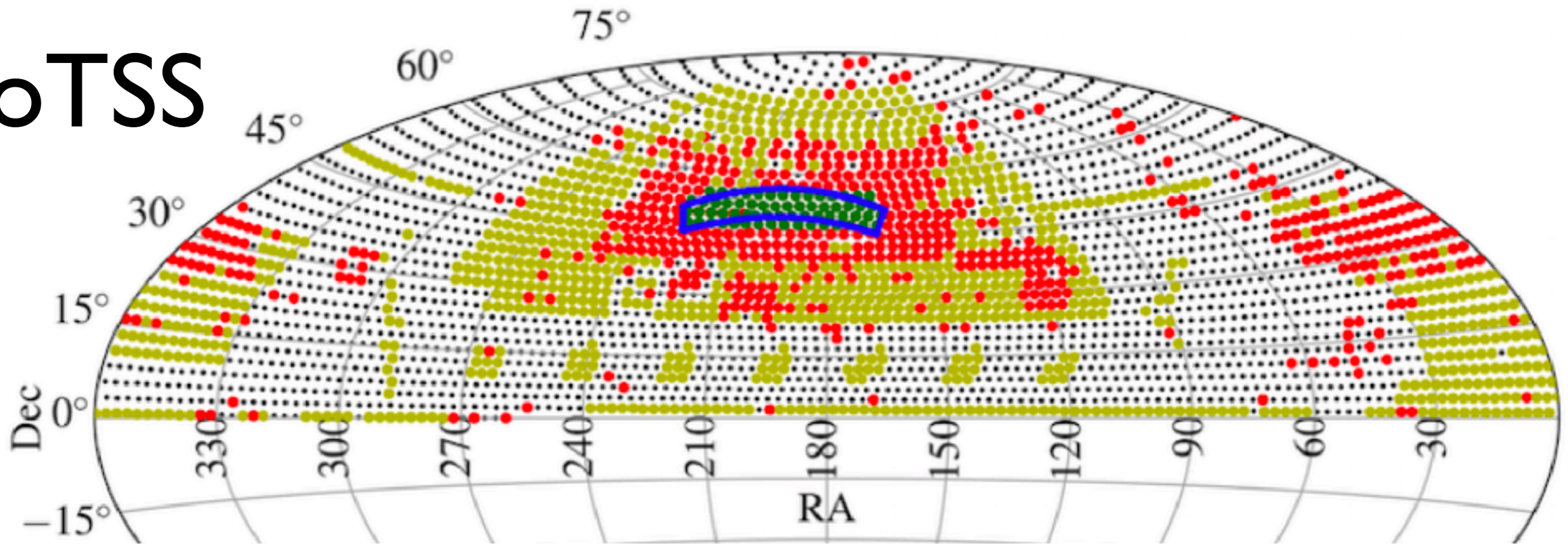
**Reinout van Weeren
LOFAR Surveys KSP**

An aerial photograph of the LOFAR radio telescope array. The array consists of numerous small, square-shaped antenna stations scattered across a vast green field. A winding river or canal is visible on the right side of the image. The sky is a pale blue with some light clouds. The text 'LOFAR' is overlaid in large, white, bold letters, with a vertical white line to its left. Below it, the text '(LOW-FREQUENCY ARRAY)' is written in smaller, white, all-caps letters.

LOFAR

(LOW-FREQUENCY ARRAY)

LoTSS



DRI: Shimwell+ (2019); Williams+ (2019); Duncan+ (2019)

PI: Röttgering

- Northern sky 120-168 MHz
- 3170 pointings of 8 hrs
- 6 arcsec resolution
- 0.1 mJy beam⁻¹ noise
- GRID processing



2019: Data Release I

(28 papers, A&A Feb 2019 special issue)

Observed

Approved for next observing cycles



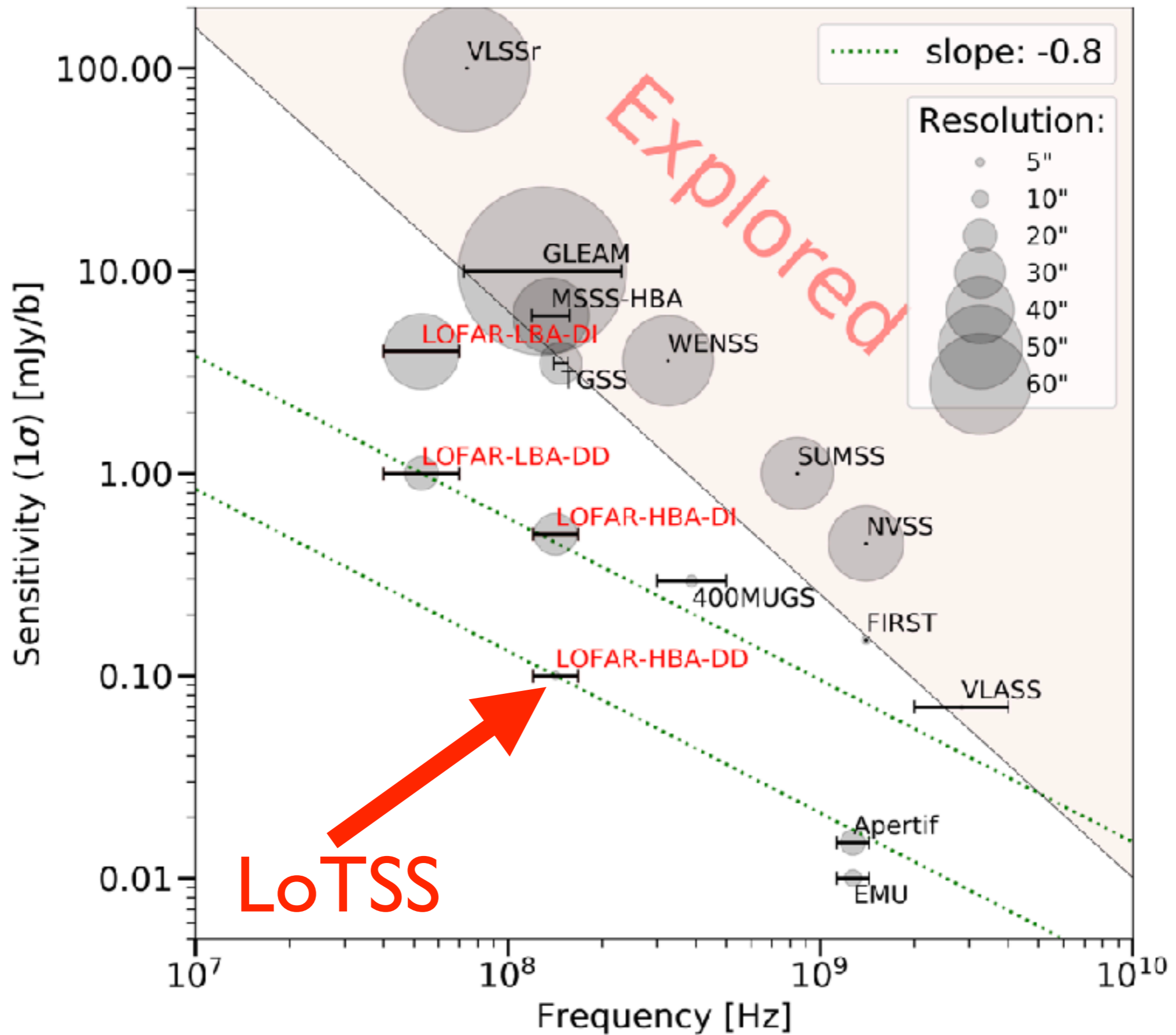
High-Band Antenna Station

LoTSS public data release 1

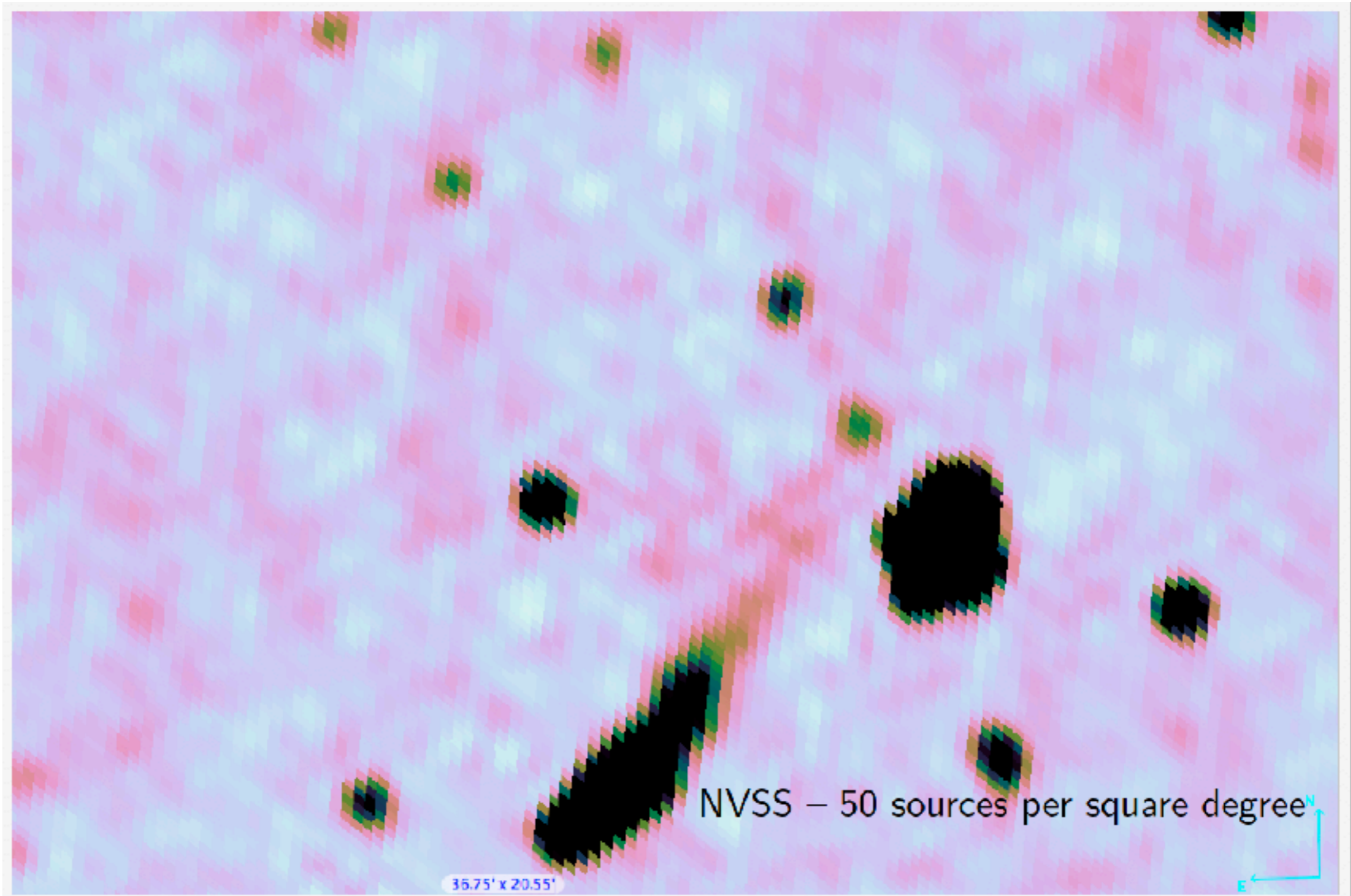
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W. L. Williams, M. J. Hardcastle, P. N. Best, J. Sabater, J. H. Croston, K. J. Duncan, T. W. Shimwell, H. J. A. Rottgering, D. Nisbet, G. Gurkan, L. Alegre, R. K. Cochrane, A. Goyal, C. L. Hale, N. Jackson, M. Jamrozy, R. Kondapally, M. Kunert-Bajraszewska, V. H. Mahatma, B. Mingo, L. K. Morabito, I. Prandoni, C. Roskowsinski, A. Shulevski, D. J. B. Smith, C. Tasse, S. Urquhart, B. Webster, G. J. White, R. J. Beswick, J. R. Callingham, K. T. Chyzy, F. de Gasperin, J. J. Harwood, M. Hoeft, M. Iacobelli, J. P. McKean, A. P. Mechev, G. K. Miley, D. J. Schwarz, R. J. van Weeren

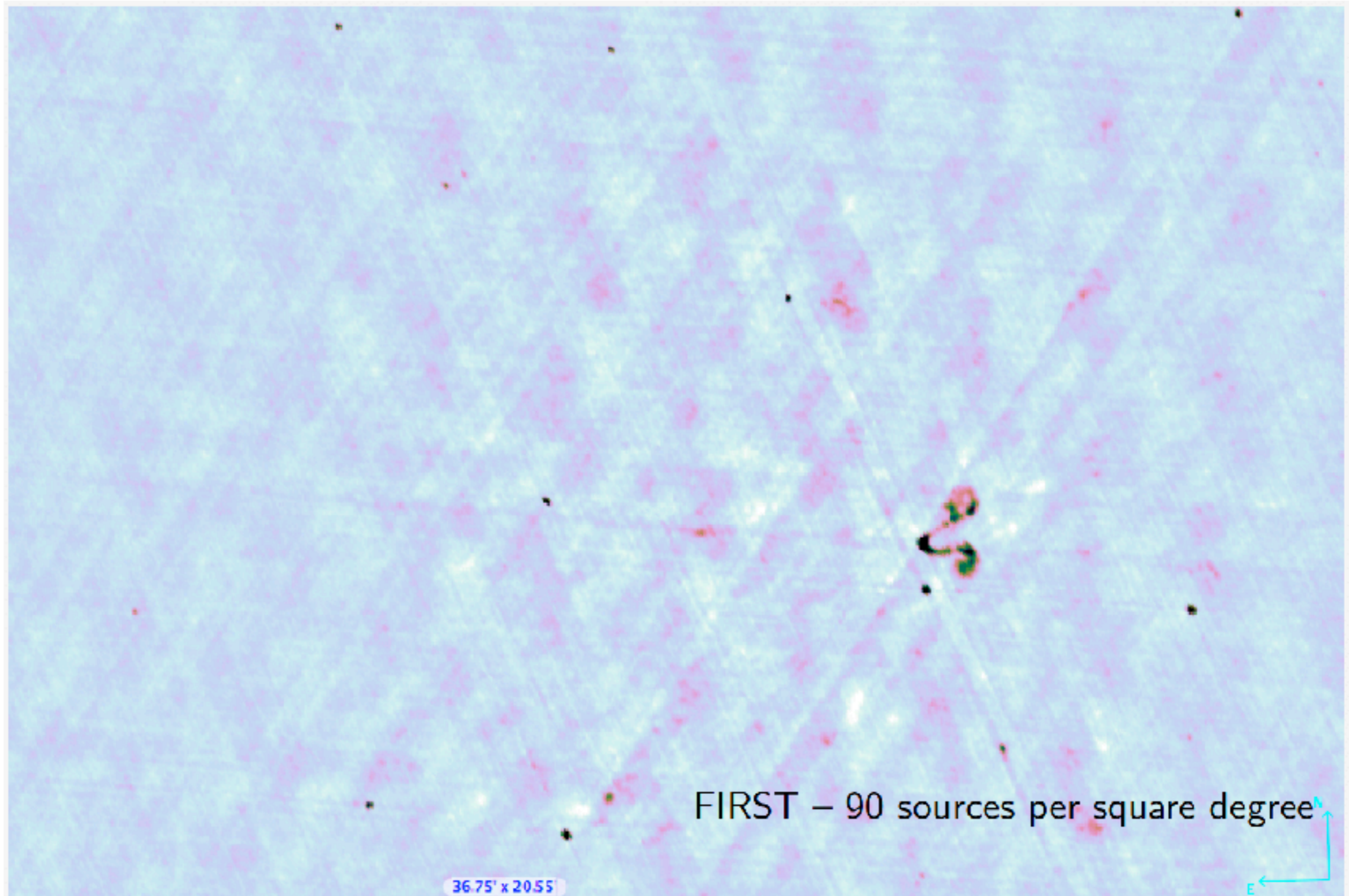
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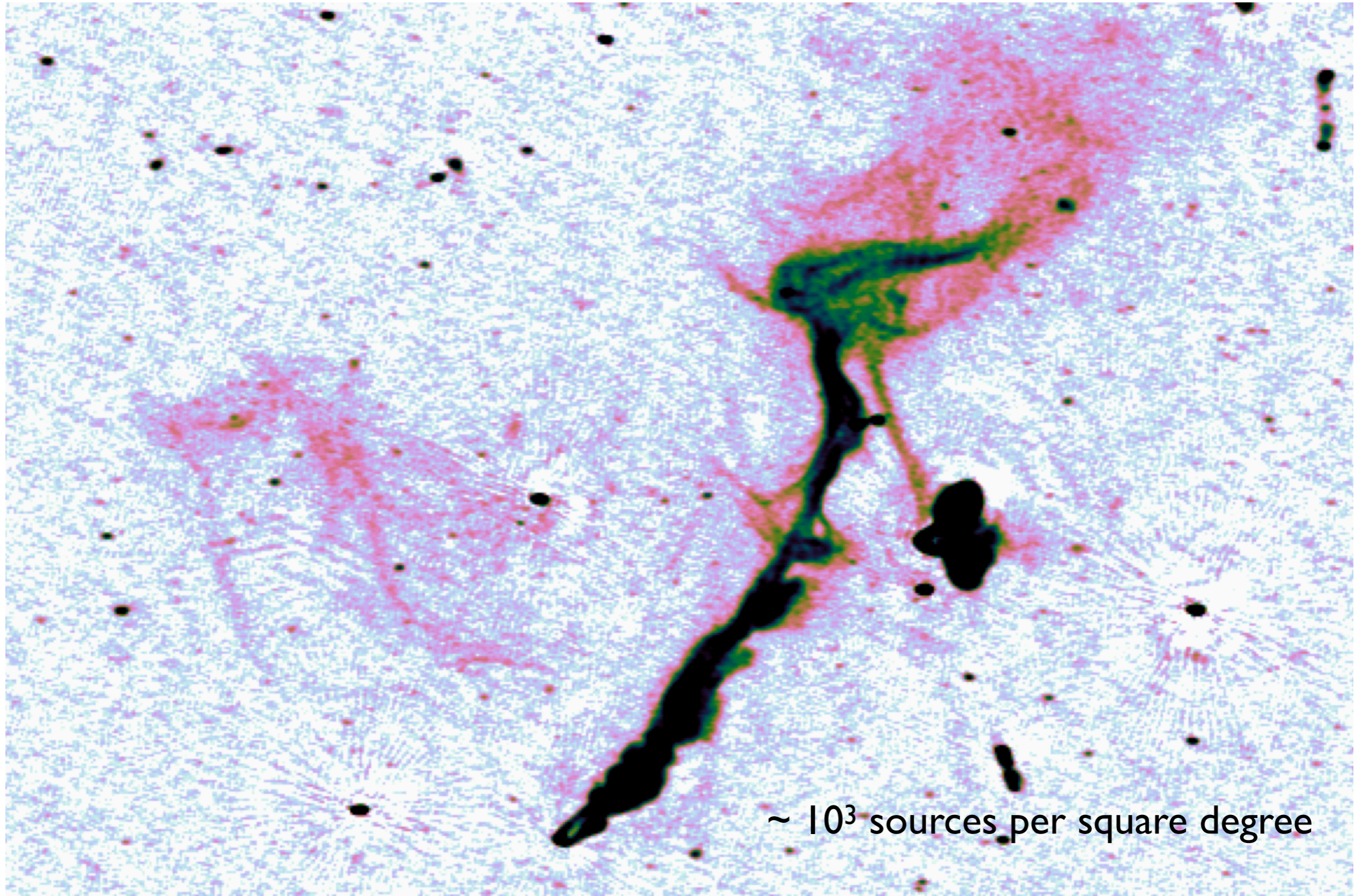
NVSS (1.4 GHz)



FIRST (1.4 GHz)



LoTSS (150 MHz)



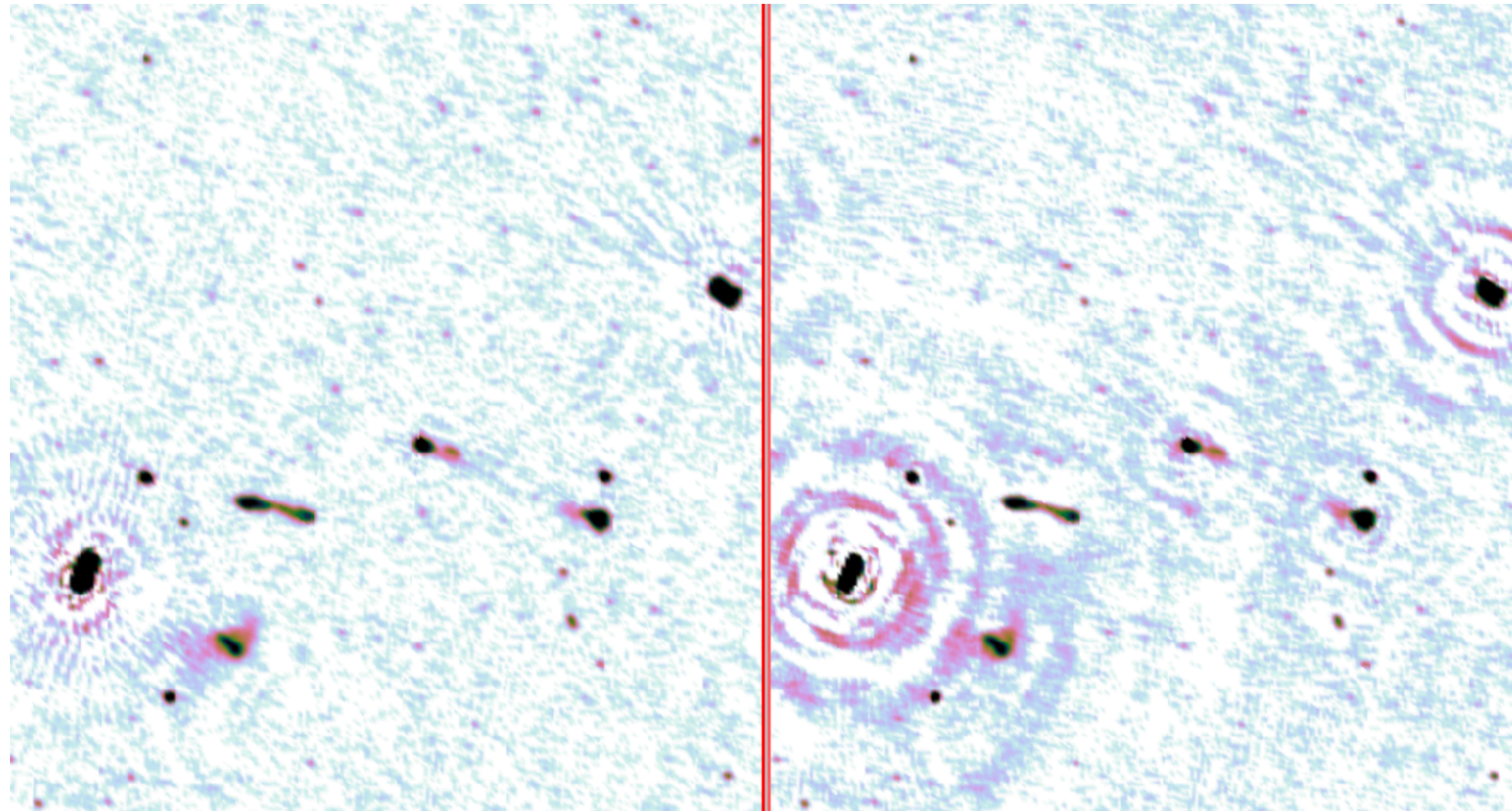
Current work



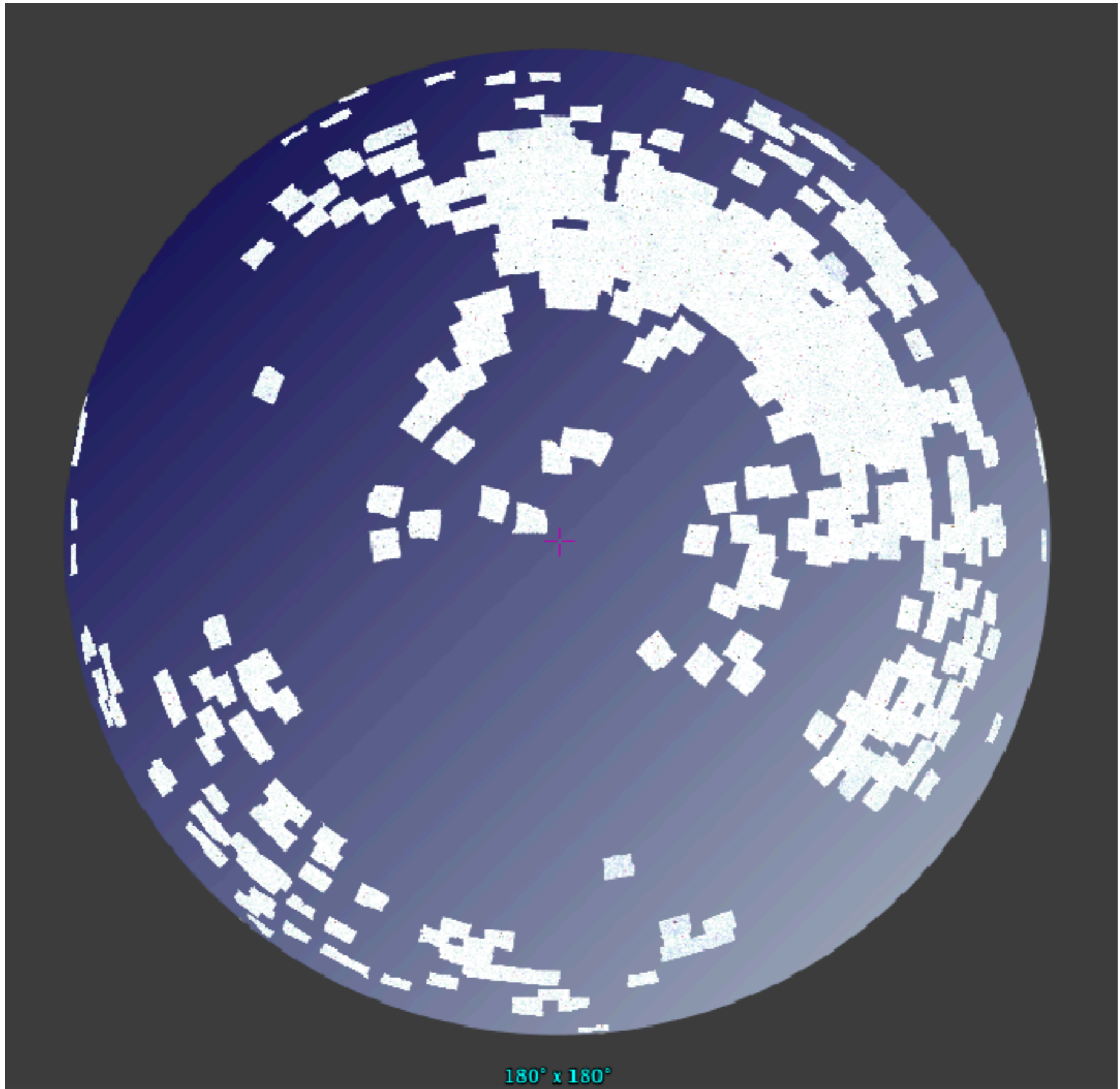
- Data Release 2 (DR2)
- Deep fields
- Long baselines
- Galaxy Cluster sample

DR2

DRI



Cyril Tasse (in prep)



180° x 180°

SUMMARY: LoTSS

- DATA RELEASE 1: February 2019 (A&A special issue)
- Improved calibration for Data Release 2 (DR2)
- Deep fields images ready, science exploitation ongoing
- Long baselines images being made
- Work ongoing on first large galaxy cluster sample

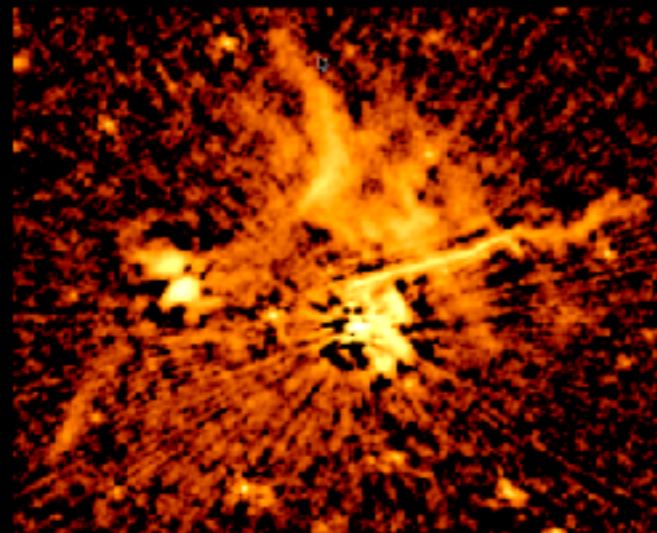
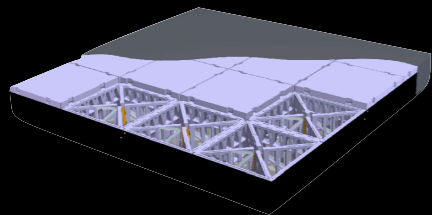
<https://lofar-surveys.org>

LOFAR upgrade

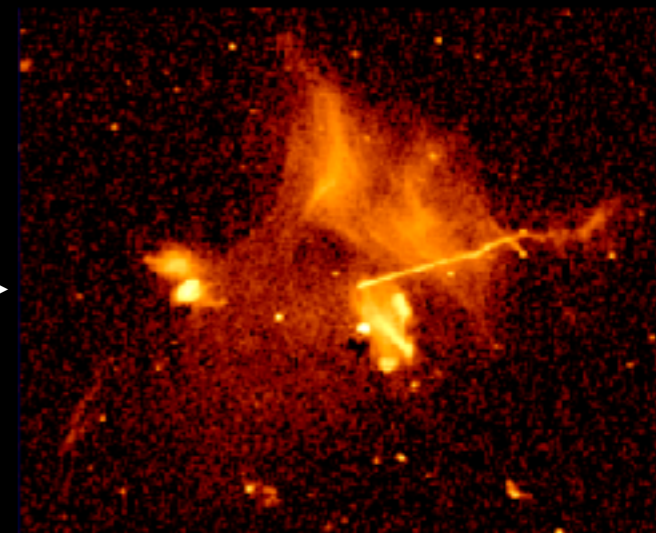
Scientifically limited

Rich in science

High-Band
120-170 MHz



Breakthrough techniques

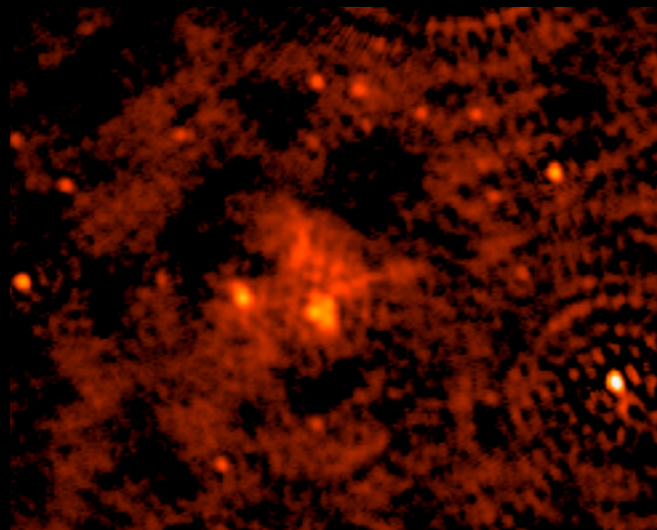
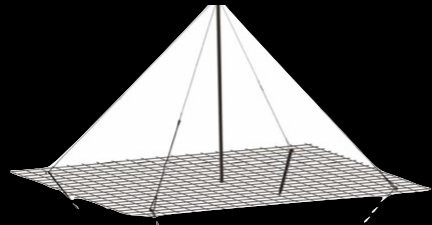


No ionospheric correction

Ionosphere well modeled

Transfer Information

Low-Band
30-70 MHz



DUPLLO

The Goal

2x



Precision clock