

# LOFAR

## Imaging Busy Week #6

### Status Update

On behalf of:

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David Rafferty, Cyril Tasse, Valeriu Tudose,  
Bas van der Tol, Joris van Zwieten

**ASTRON**



# Purpose

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  - Learning how to build up improved sky models
  - Including direction dependent calibration
  - Characterization of ionospheric phase screens (Bas)

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- Observations
  - New data (2 x 3 hr) available in the “David Rafferty Point Source Field” (DRPSF): 5 brightish sources, none overly dominant
  - HBA\_BOTH, 115-163 MHz, 3 second integration, “19” stations (=7C+5R)
  - First three hours on brightest source in the field ( $\sim 33$  Jy), second three hours on fourth brightest source in the field ( $\sim 6$  Jy); pointing switch at transit

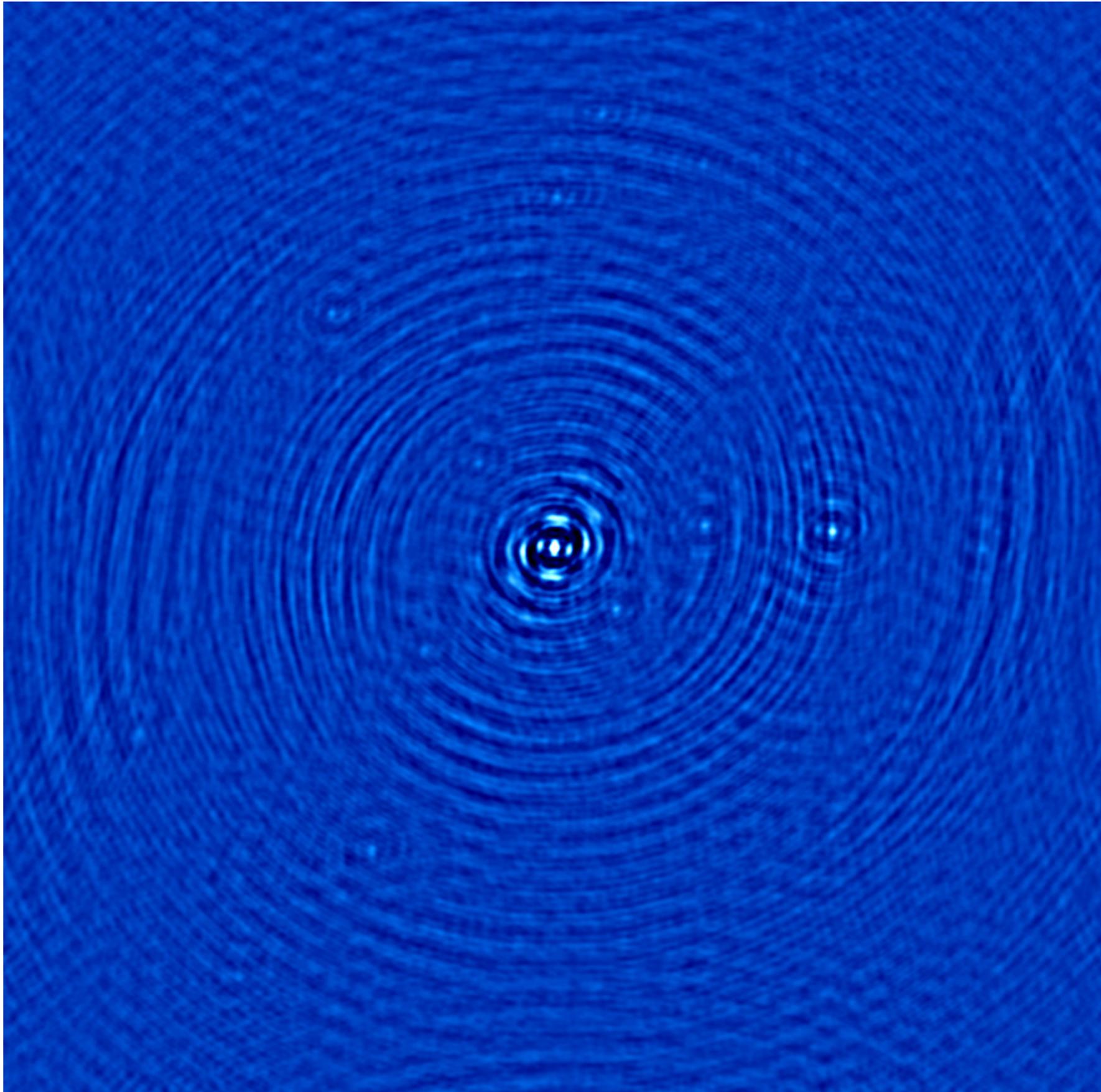
# Successes

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- Images from scratch on the first day!
- More stations makes calibration easier
  - convergence not so sensitive to model
  - far less solution-based flagging needed!  
(still some ... but also in CASA !!)
- Successfully using deconvolution (most successfully in CASA)
- Calibration major cycle closed

# DRPSF as seen by LOFAR

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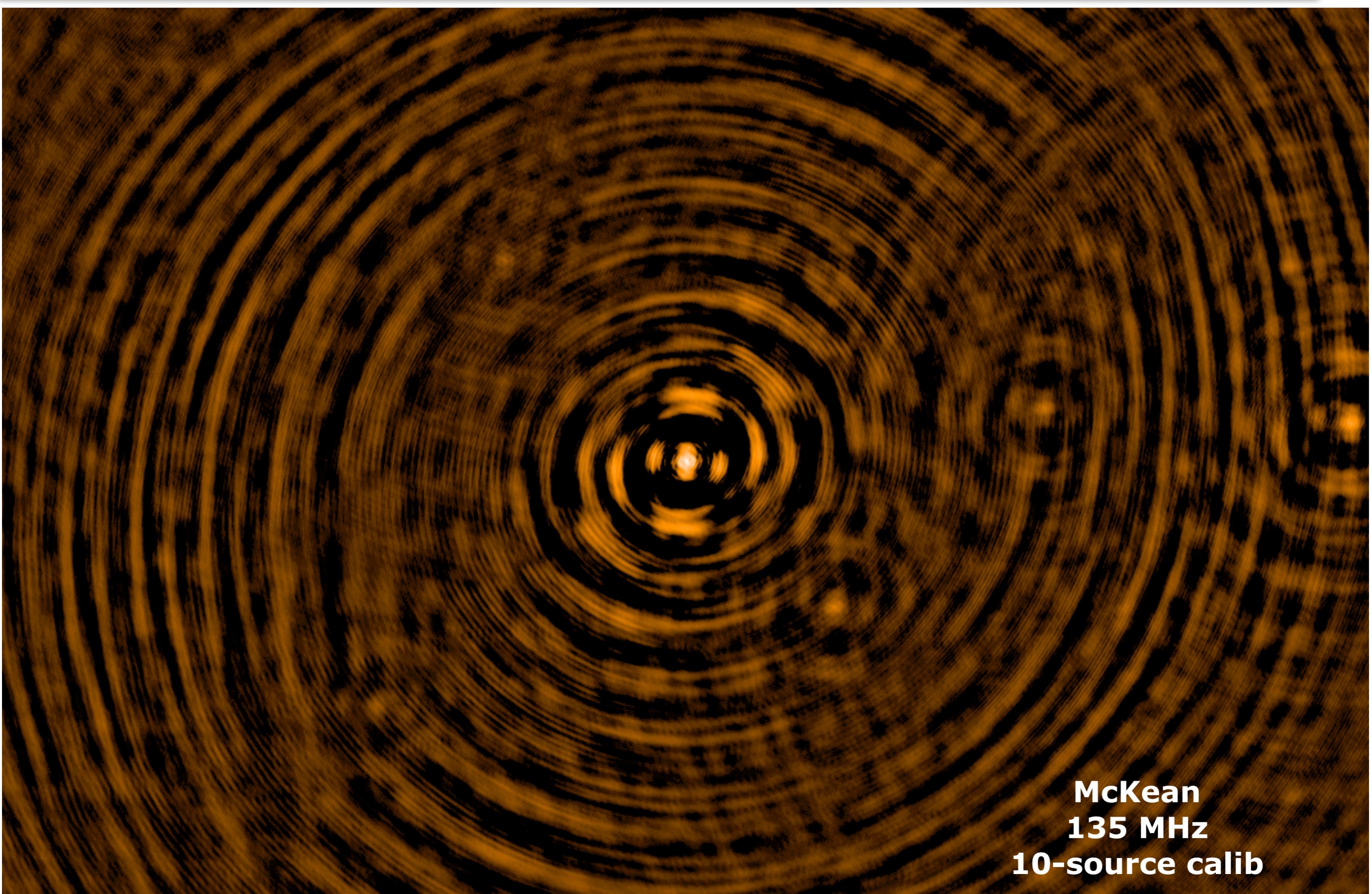


Morganti

127 MHz  
1-source  
skymodel

# DRPSF as seen by LOFAR

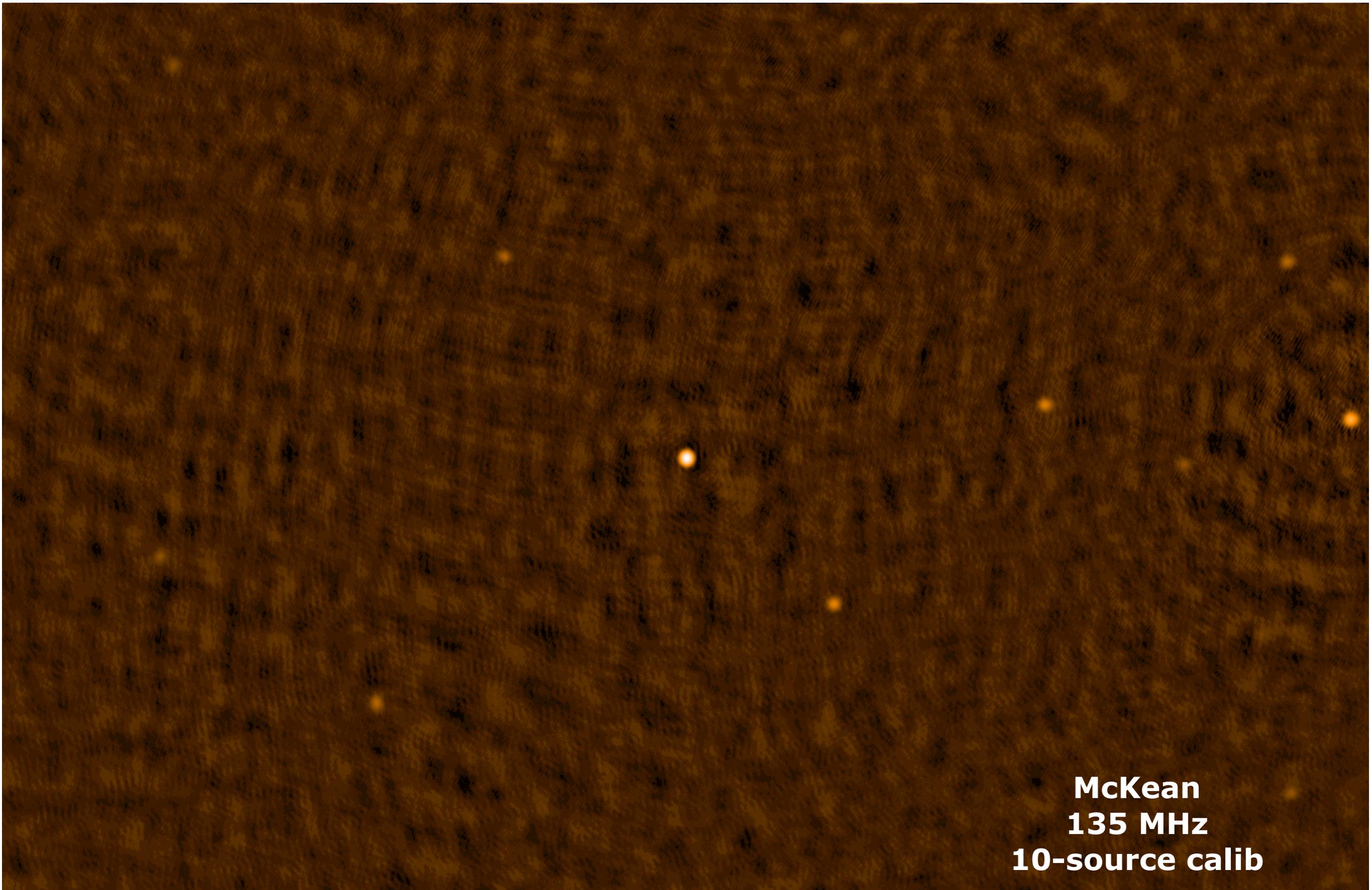
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**McKean**  
**135 MHz**  
**10-source calib**

# DRPSF as seen by LOFAR

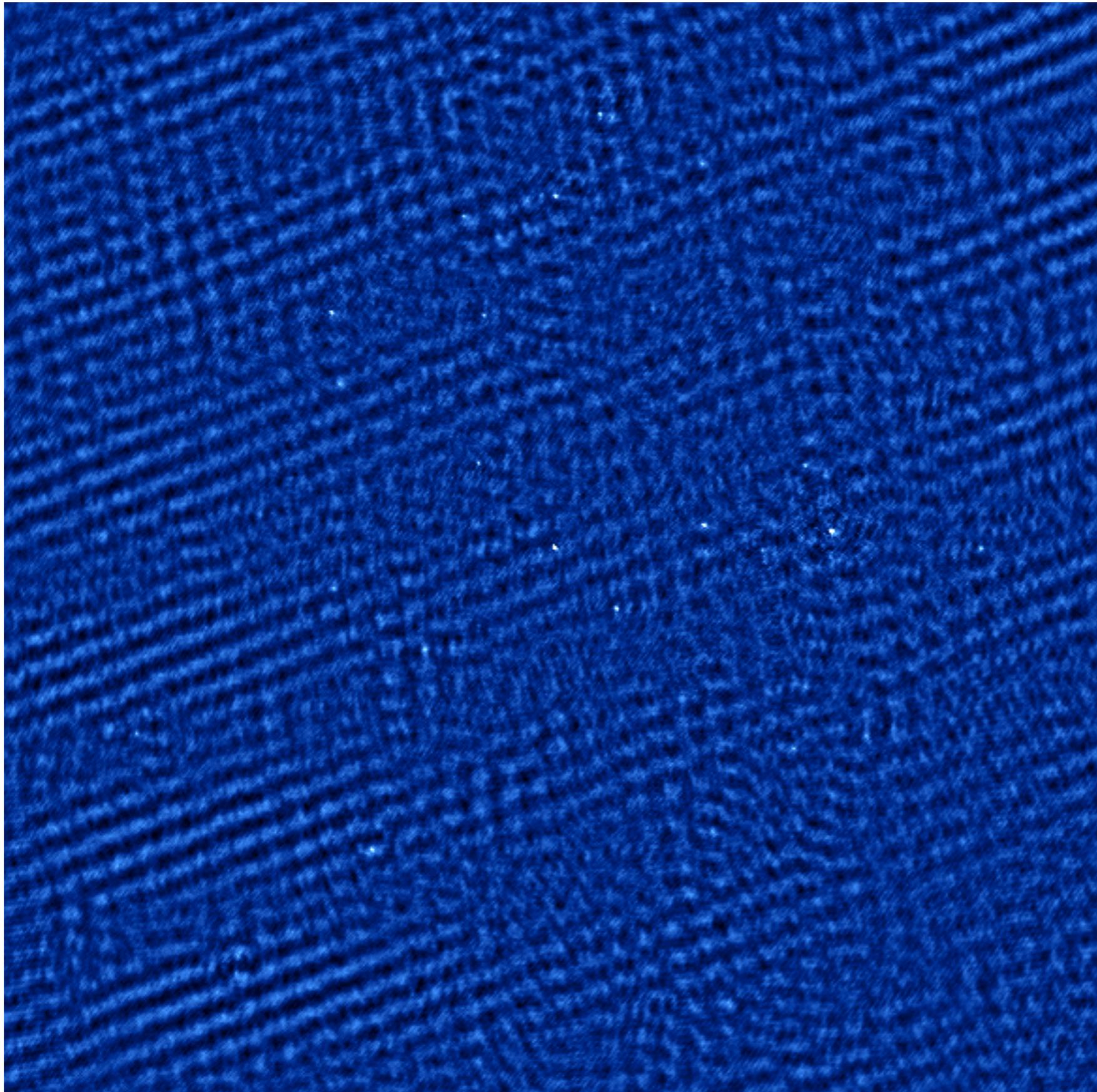
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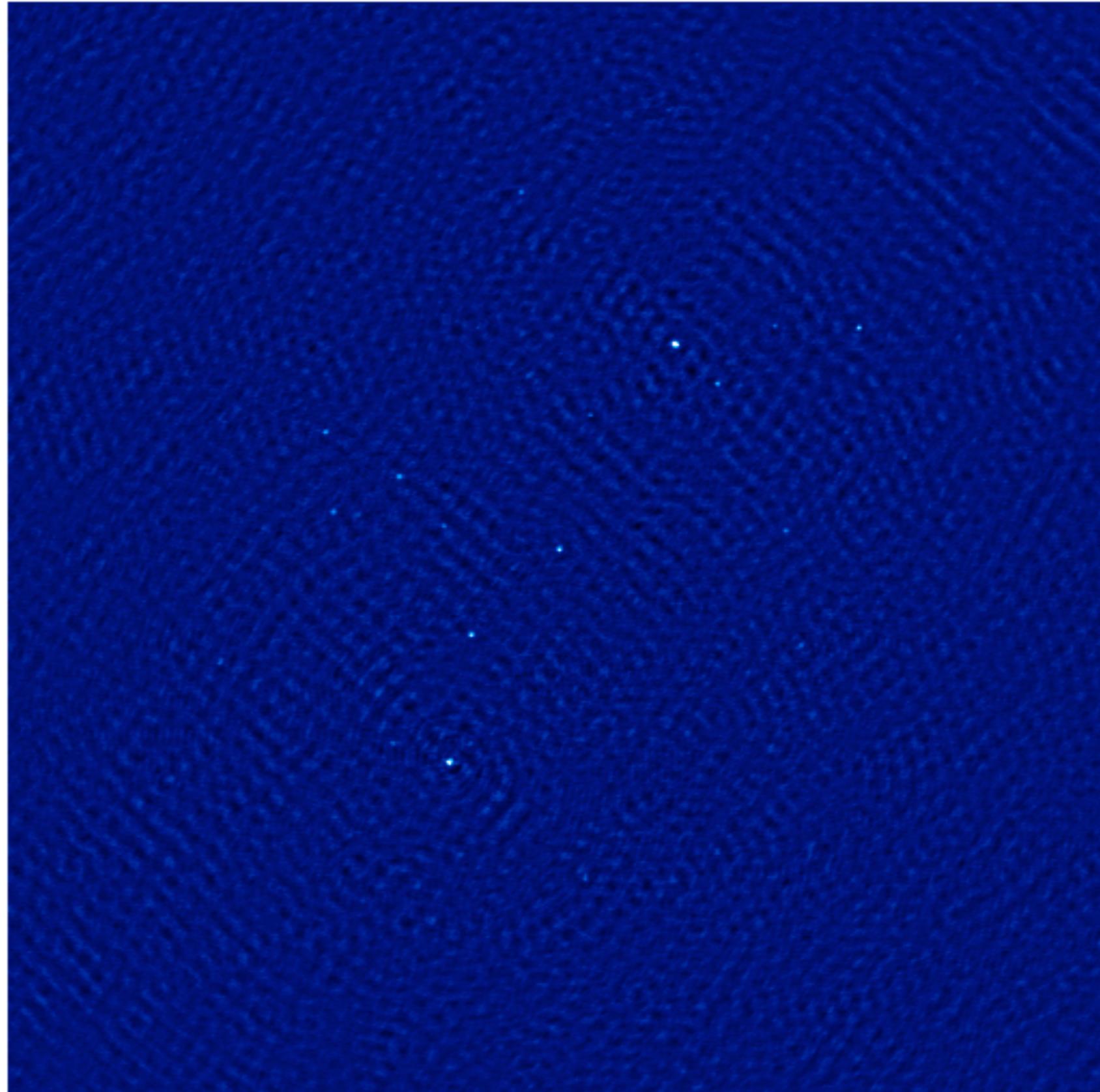


Tudose  
imaged  
and cleaned  
with  
cimager

144 MHz

# DRPSF as seen by LOFAR

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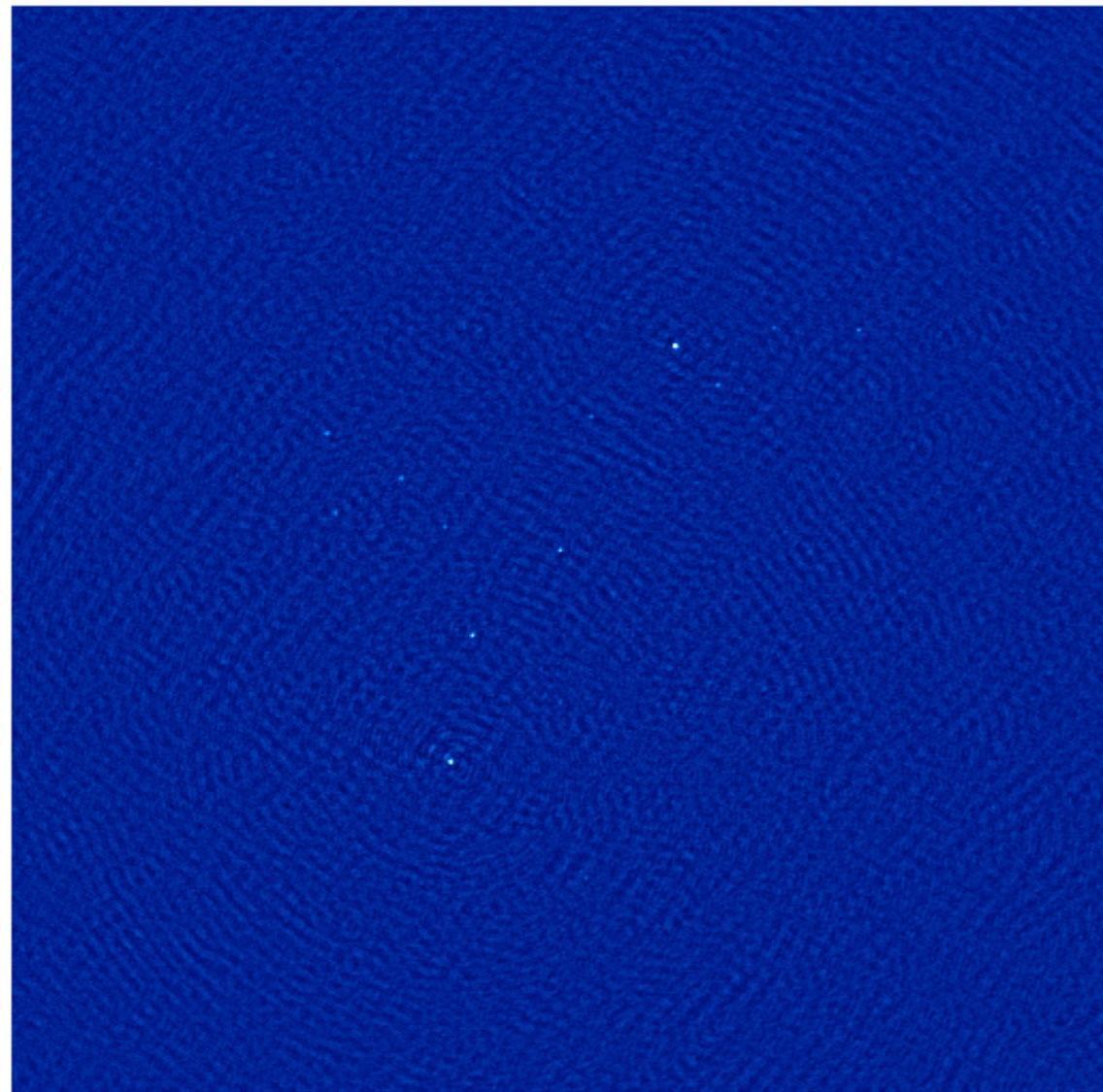
De Gasperin  
124 MHz

1-source  
calibration

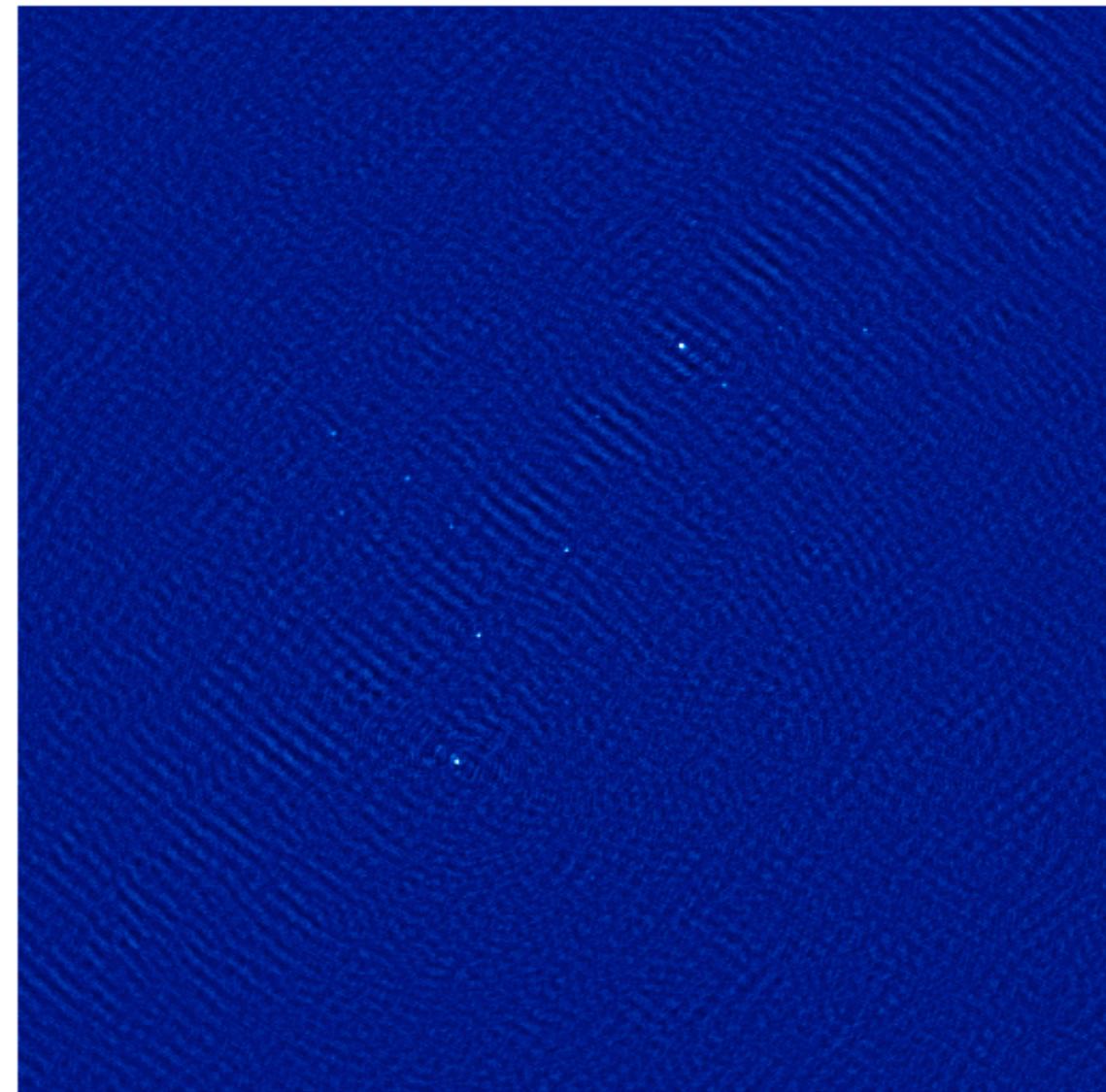
# DRPSF as seen by LOFAR

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calib problem flagged



with calib problem



De Gasperin  
158 MHz

1-source  
calibration

0.05

0.1

0.15

0.2

0.25

0.3

0.35

0.4

# Imagers

- CASA often used for now. It's ***crucial*** to understand the reasons why!
- Perhaps a table like this is useful to focus CImager development?

Feature	CASA	CImager
CLEAN	yes	yes, but no ability to define regions (?)
speed	fast	can be, but fine-tuning, trial & error needed
wide-field	yes, "easy"	yes, but requires user to specify parameters
major cycle integration	CLEAN components readily used in BBS	????

- Not to say that CImager is useless ... we are using it ...