Welcome!

Dr. M.A. Brentjens

ASTRON Netherlands Institute for Radio Astronomy

ASTERICS all hands meeting, Amsterdam

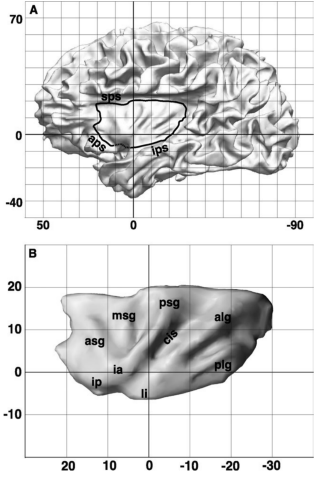
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Figure 1.

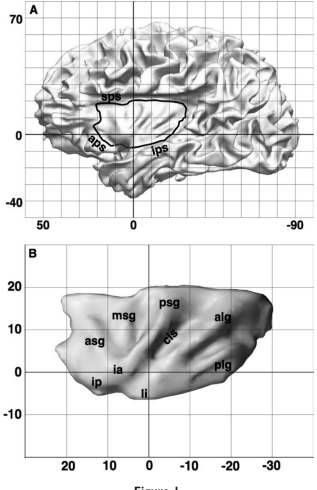
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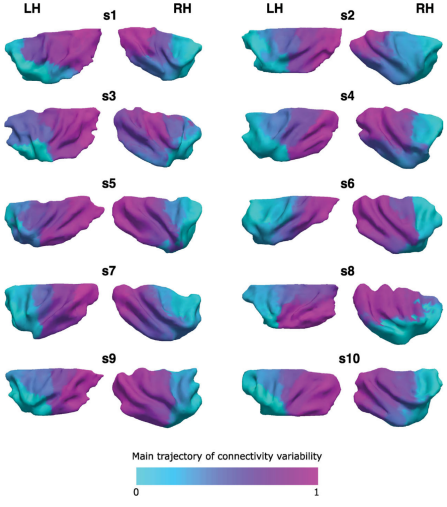
Figure 1.


LH
s1
RH
LH
s2
RH
s3
s4
s5
s6
s7
s8
s9
s10
Main trajectory of connectivity variability
0
1

◆ Human Brain Mapping 33:2005–2034 (2012) ◆

Probabilistic Tractography Recovers a Rostrocaudal Trajectory of Connectivity Variability in the Human Insular Cortex

Leonardo Cerliani,[1,2,3]* Rajat M. Thomas,[4] Saad Jbabdi,[5] Jeroen C.W. Siero,[1,2,6] Luca Nanetti,[1,2] Alessandro Crippa,[1,2,7] Valeria Gazzola,[1,2,3] Helen D'Arceuil,[8] and Christian Keysers[1,2,3]

[1]*BCN NeuroImaging Center, University of Groningen, A. Deusinglaan, 2-9713AW Groningen, The Netherlands*
[2]*Department of Neuroscience, University Medical Center Groningen, A. Deusinglaan, 2-9713AW Groningen, The Netherlands*
[3]*Social Brain Laboratory, Netherlands Institute for Neuroscience, Royal Netherlands Academy of Arts and Sciences, Amsterdam, The Netherlands*
[4]*Kapteyn Astronomical Institute, Faculty of Mathematics and Natural Sciences, University of Groningen, 9700AV Groningen, The Netherlands*
[5]*Oxford Centre for Functional Magnetic Resonance Imaging of the Brain (FMRIB), Department of Clinical Neurology, University of Oxford, United Kingdom*
[6]*Department of Radiology, University Medical Center Utrecht, Utrecht, The Netherlands*
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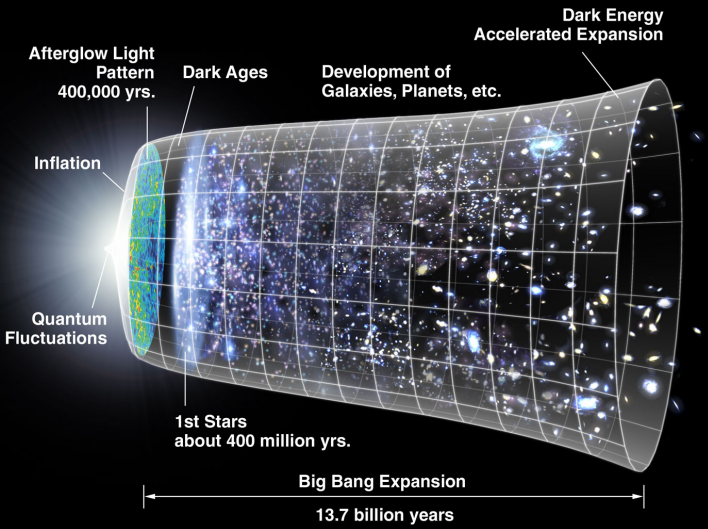
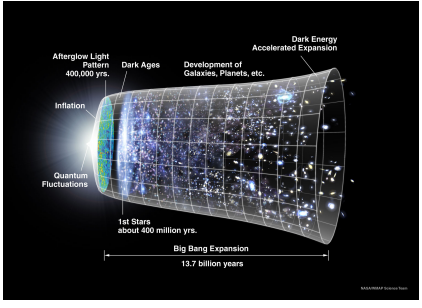
LOFAR Epoch of Reionization Key Science Project

- Aim: use LOFAR to find when first galaxies ionized universe

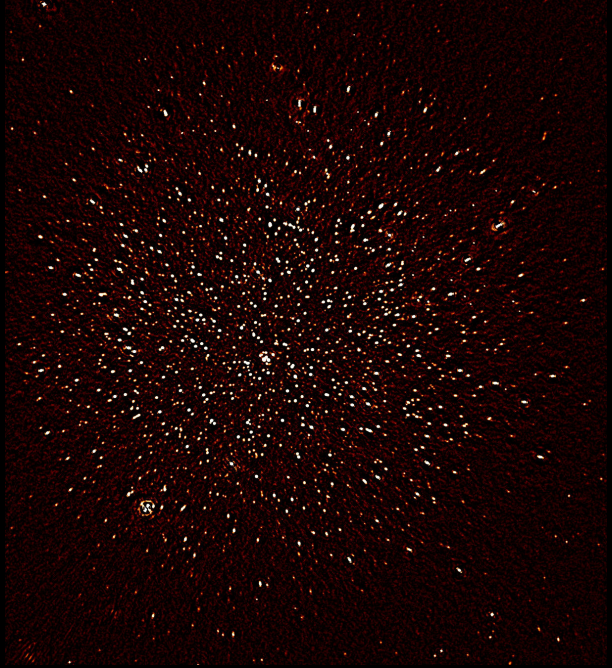


NASA/WMAP Science Team



LOFAR Epoch of Reionization Key Science Project

- Aim: use LOFAR to find when first galaxies ionized universe
- Incredibly hard problem
- Subtract rest of universe
- For 10 years: consistently produced best LOFAR images by far



LOFAR Epoch of Reionization Key Science Project team

- Computer scientist turned astronomer
- Electrical Engineer turned astronomer
- Astronomer turned software engineer turned astronomer
- Electrical engineer turned signal processing expert
- Astronomer turned HPC specialist and professional haggler
- Theoretical astronomers / universe simulation experts
- Several PhD students that ended up *everywhere* in industry and academia

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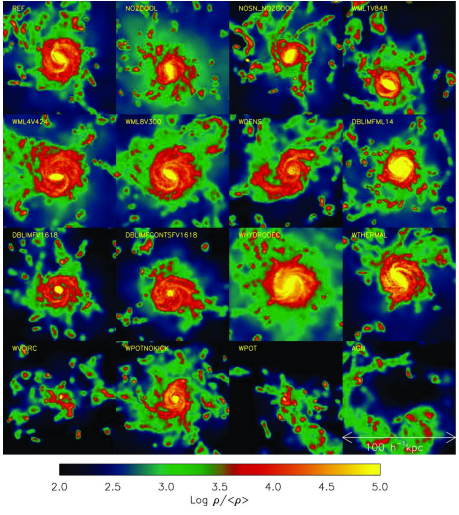
- Comms engineer turned astronomer turned brain researcher
- A handful “proper” astronomers



M.R. Haas

- Studied galaxy formation at StScI
- Large cosmological simulations
- Looked for interesting galaxies
- I.e.: “different” clusters of dark matter particles

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- Went to insurance company
- Identifies fraud
- I.e: “different” clusters of medical insurance transactions

SF2

Figure: *Jasmina Magdalenic, in prep.*

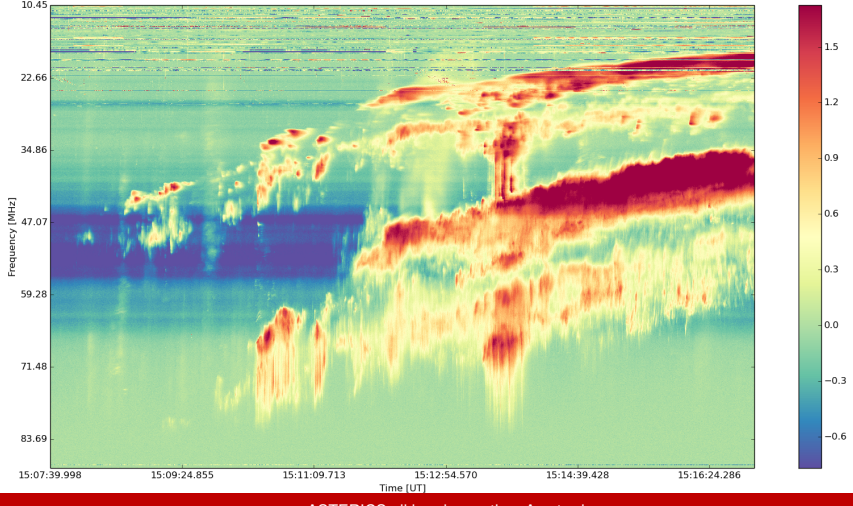
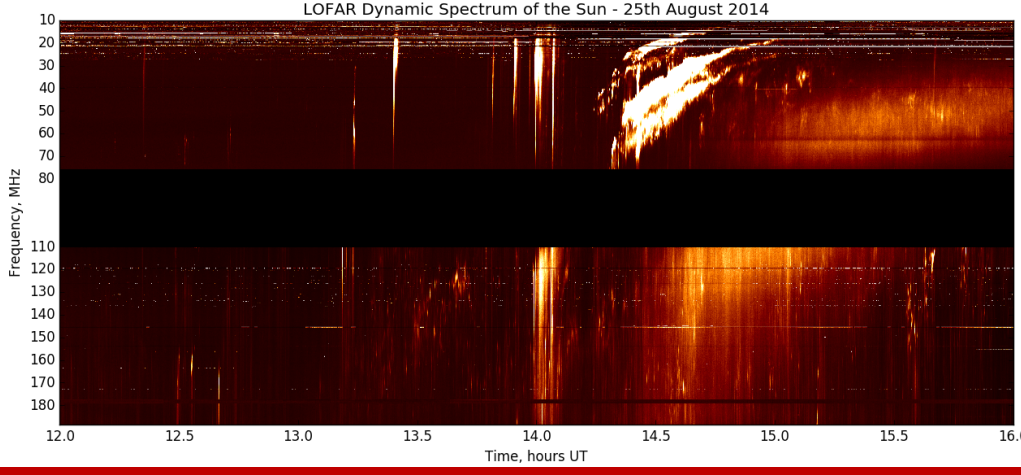


Figure: *Richard Fallows*



DISTURB

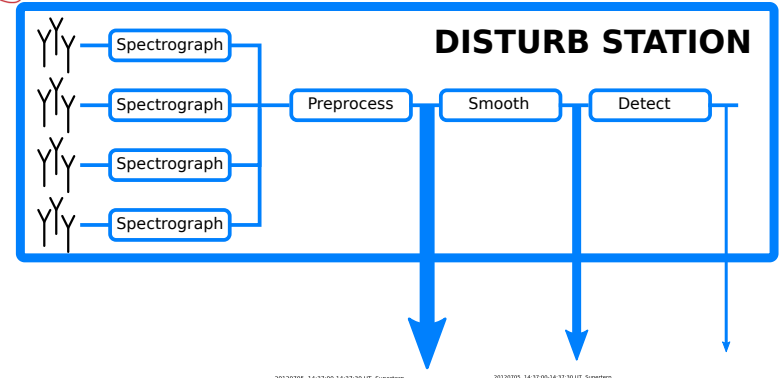
- Disturbance-detection by
- Intelligent
- Solar radio
- Telescope of
- (Un)perturbed
- Radiofrequency
- Bands

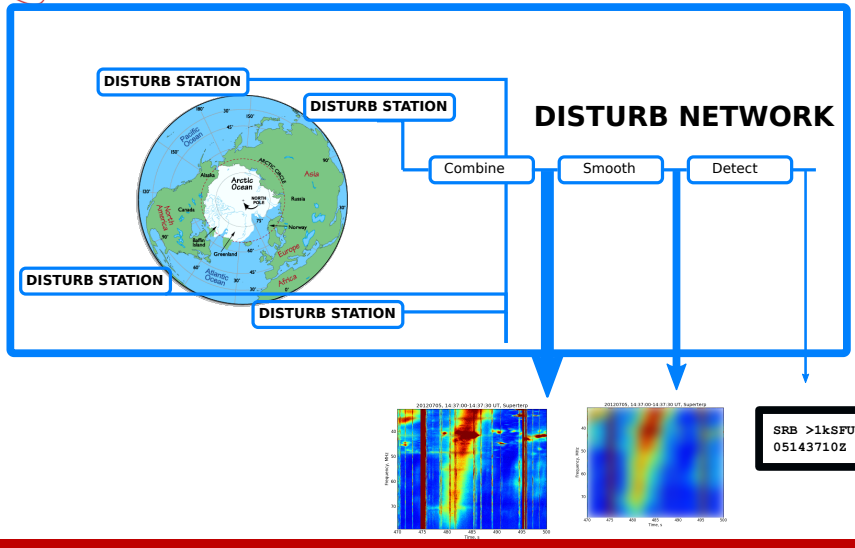
Proposal

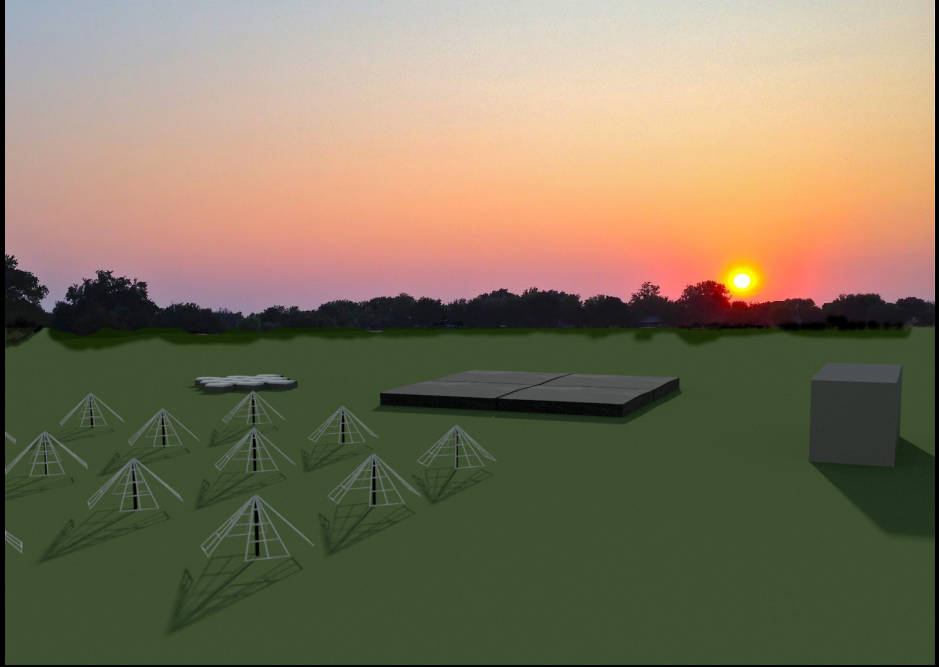
- Defense Technology Project
- Phased array spectrograph
- 10–3000 MHz
- Near-real-time data
- NO FINISHED PRODUCT

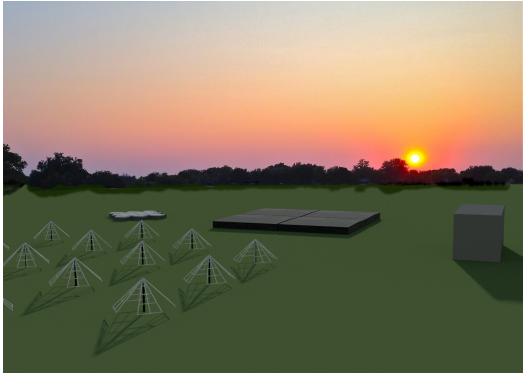
Consortium

- S&T (Delft)
- Astron
- KNMI
- Defense “sponsor”: Joint Meteo Group, RNLAF


DISTURB STATION
Spectrograph
Spectrograph
Spectrograph
Spectrograph
Preprocess
Smooth
Detect
20120705, 14:37:00-14:37:30 UT, Superterp
Frequency, MHz
Time, s
20120705, 14:37:00-14:37:30 UT, Superterp
Frequency, MHz
Time, s
SRB >1kSFU EVENT START
05143710Z 55-77MHZ....

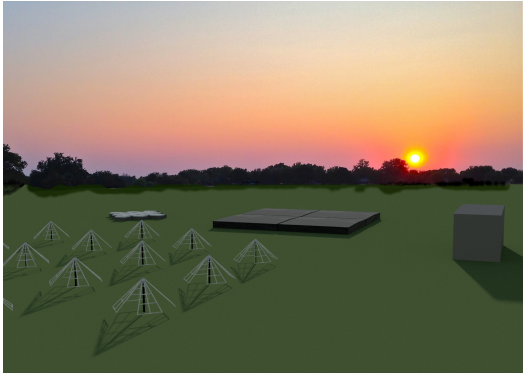

DISTURB STATION
DISTURB STATION
DISTURB NETWORK
Combine
Smooth
Detect
DISTURB STATION
DISTURB STATION
Arctic Ocean
Pacific Ocean
Atlantic Ocean
Asia
Europe
Africa
Alaska
Canada
Russia
Norway
Greenland
Baffin Island
NORTH POLE
Arctic Circle
SRB >1kSFU EVENT START
05143710Z 55-77MHZ....





Therefore:

- Meet new people
- Ask silly questions
- . . .



Therefore:

- Meet new people
- Ask silly questions
- . . .
- PROFIT!