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The International LOFAR telescope is the world's most powerful very-low-frequency and long-baseline radio interferometer until at least 2030.



Co-host:



BigScience in het Noorden / ILO-net industriemiddag
10 oktober 2023
@ ICD-Shared Facility Center, Drachten

LOFAR

Business opportunities uit toekomstige aanbestedingen

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Netherlands Institute for Radio Astronomy



About **ASTRON**

ASTRON Divisions:

- Innovation & Systems (R&D)
- Science & Science operations
- Business Support

ASTRON is hosting:

- JIVE
- NOVA optical-infrared laboratory
- Operating two Radio Telescopes



CAMRAS
25 meter Dish Radio telescope



WSRT
Westerbork
Radio Synthesis Radio Telescope



LOFAR
International Low Frequency Array Radio telescope

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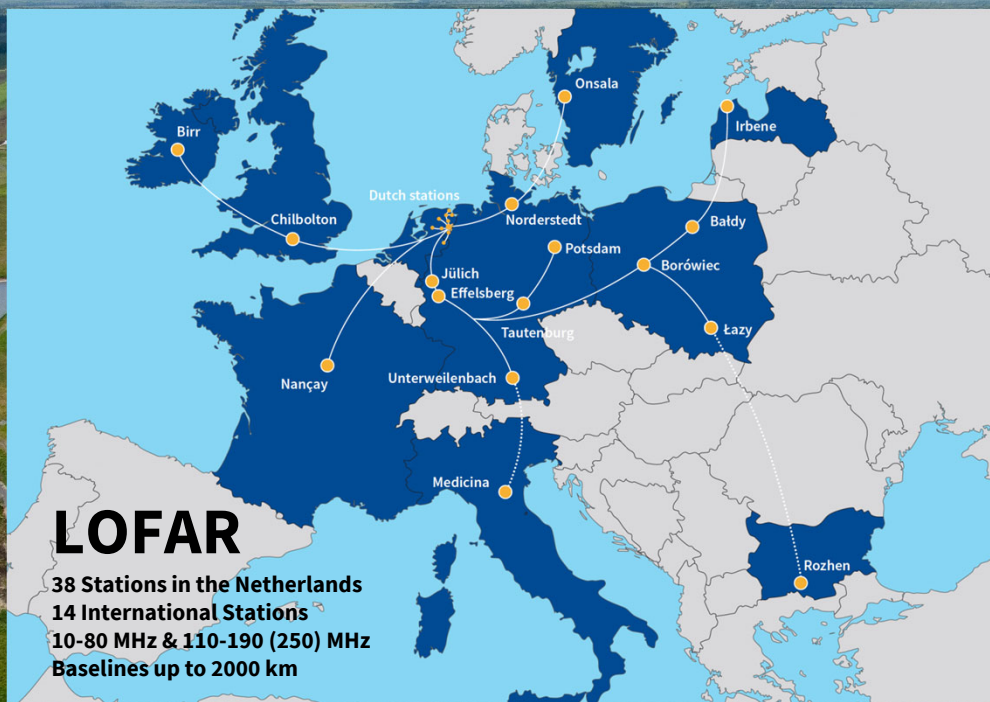


The International LOFAR telescope is the world's most powerful very-low-frequency and long-baseline radio interferometer



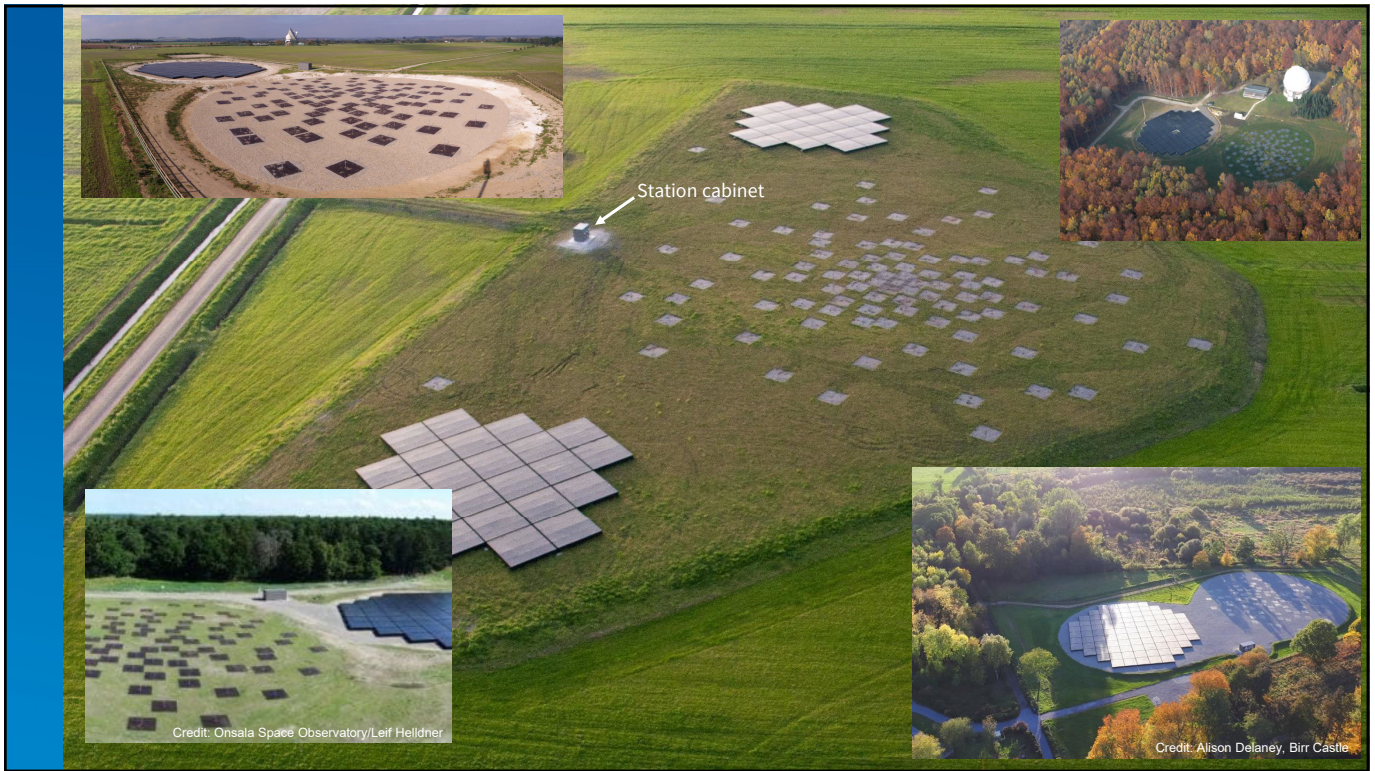
Aerial photo of the LOFAR Central Core @ Buinen/Exloo Netherlands

International LOFAR Telescope



LOFAR
38 Stations in the Netherlands
14 International Stations
10-80 MHz & 110-190 (250) MHz
Baselines up to 2000 km

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International LOFAR Telescope

Station LV614 (Letland)
Irbene, nabij Ventspils

"The making of": an International LOFAR station

Credits fotos: M. Gerbers, H. Meulman (ASTRON), R. Pauliks (VIRAC, Ventspils University, Latvia) Credits video: N. Ebbendorf (ASTRON)

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Business Opportunities LOFAR

- Nieuw te bouwen stations in Italië en Bulgarije
- LOFAR 2.0 Hardware (reeds aanbesteed 2021) : OMBOUW bestaande stations
- Aanvullende hardware voor deze twee nieuwe stations
- Kavels:
 - Drie soorten coax cable assemblies (3 kavels)
 - Electronical boards (PCB Assembly van AHBA-board)
 - Twee shielded 20 ft containers (EMC shielded)
- RFQ : plm. Q1-2024
 - Open tender
 - Meervoudig onderhands



Via TenderNed




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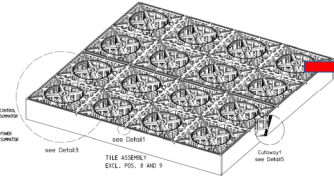
International LOFAR stations

Electronics in the High Band Antennas

•It's a lot!



96 HBA tiles



One HBA tile: 4x4 Dual-pol. Antennas






Each HBA tile has:

- 332 x Structural parts (EPS, 9 types)
- 16x AHBA-FE electronics (dual pol. LNA + BF)
- 16x4 Dipole plate
- 16x2 Intra-tile coax cable
- 1x Summator-P
- 1x Summator-S



Shipping:

✓ Antennas	..
✓ Electronics	..
✓ Mechanics	..
✓ Thingamajigs	..
Nr. of items*:	33.336 pcs

+ ~12x

* ref: I-LOFAR Transport list, 2017

International LOFAR stations

Electronics in the High Band Antennas (AHBA-FE board)

Nº of boards: 2 (stations) * 96 (HBA tiles) * 16 (per HBA-tile) = min. **3072 pcs** (excl. spares)

Tendering (@ TenderNed)

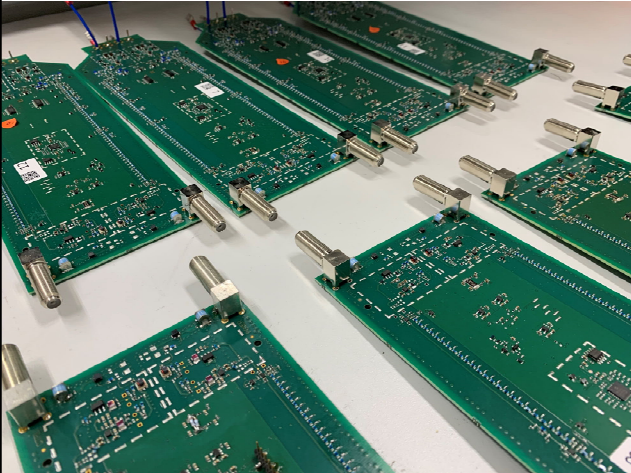
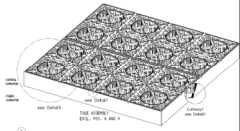





Foto: early prototype AHBA-FE
Not potted yet

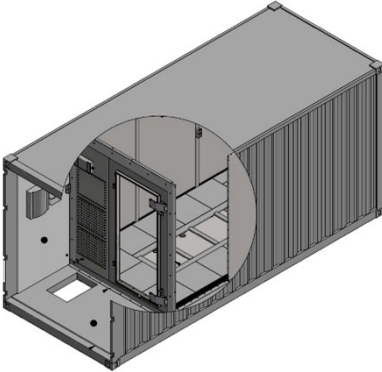
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International LOFAR stations



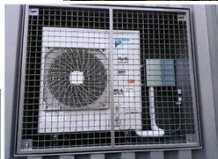
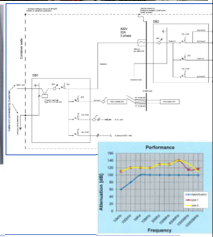




Shielded Instrumentation Container

Number of containers needed: 2

Meervoudig onderhands






- ✓ Modified 20 ft sea container
- ✓ 2 compartements
- ✓ EMC shielded
- ✓ Air conditioned
- ✓ Cable entries for coax cables

Wireless Data Lab (WDL)

providing access to R&D Infrastructure of ASTRON to support SME (=MKB) in product development




➤ **Sharing test and measurement facilities:**

- EMC test facility
- Antenna test range
- Laboratories (equipment)



➤ **Knowledge sharing by:**

- RF Courses
- Technical support during product development
- Experts Brainstorm

<https://www.astron.nl/wireless-data-lab/>

EUROPESE UNIE
Europees Fonds voor regionale ontwikkeling

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International LOFAR Telescope

Thank you.
Q ?

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