

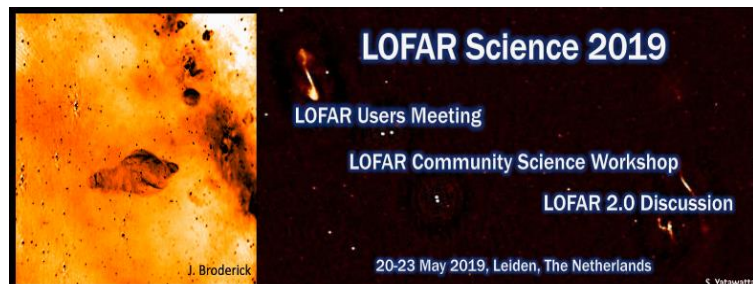


LOFAR NEWSLETTERS NOVEMBER-DECEMBER 2018

Previous LOFAR newsletters are collected [here](#).

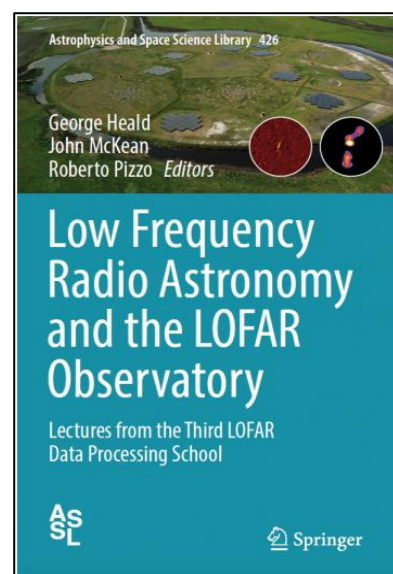
Announcements:

- The '2019 LOFAR Users Meeting', 'LOFAR Community Science workshop' and 'LOFAR 2.0 discussion' will take place in Leiden (The Netherlands).



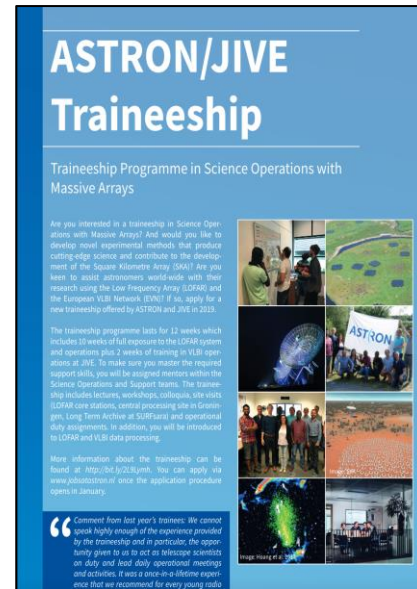
The workshops will begin on Monday, May 20 at 11 am and will finish on Thursday, May 23 at lunch. Details about the meetings as well as the first announcement can be found [online](#). The registration will open at the end of January when the second announcement will be circulated.

- The volume 'Low Frequency Astronomy and the LOFAR observatory' (G. Heald, J. McKean & R. Pizzo editors) has been published by Springer as part of their Astrophysics and Space Science Library series. The book is based on material from the Third LOFAR Data Processing School, which took place at ASTRON in November 2014. This book was inspired by the excellent standard reference 'Synthesis Imaging in Radio Astronomy II' (1999), by Taylor, Carilli and Perley eds. With the LOFAR volume, the ambition is to provide additional information that is specifically needed to supplement the education of young radio astronomers working at low

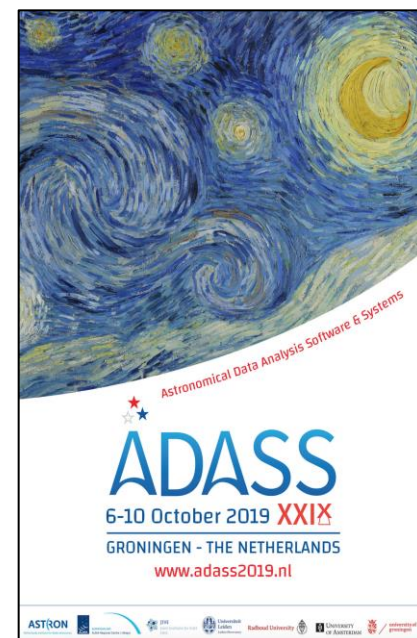


frequencies, and especially with LOFAR. Many aspects of the rapidly evolving LOFAR system have matured since the school. While these are obviously tracked regularly on the LOFAR webpages, we consider this book an important reference documentation of the LOFAR system and invite users to make it part of their collection. Details on how to purchase the book can be found [here](#).

- Following the successful pilot programme in 2018, a new 'Traineeship in Science Operations with Massive Arrays' will be organized in 2019 at ASTRON and JIVE. The programme enables astronomers (post doc, PhD or graduate student level) to spend a trimester (12 weeks) at the institute in Dwingeloo in the Netherlands. Under the supervision of Telescope Scientists, the trainees will develop fundamental skills and novel experimental methods on systems using technologies that produce cutting-edge science now and contribute to the development of the SKA. Information on how to apply for the traineeship can be found [here](#). The deadline for the submission of applications is 15 February 2019.



- ASTRON, together with six other Dutch astronomical institutes, will organize the 29th annual international Astronomical Data Analysis Software & Systems (ADASS) conference between 6-10 October 2019, in Groningen (The Netherlands). ADASS provides a *unique* forum for scientists and programmers concerned with algorithms, software and software systems employed in the acquisition, reduction, analysis, and dissemination of astronomical data. An important element of the program is to foster communication between developers and users with a range of expertise in the production and use of software and systems. More information about the event, as well as the form to propose for specific conference themes, can be found on the [conference website](#).



Array status:

- 38 stations operational in the Netherlands: 24 core and 14 remote stations. 13 international stations operational: DE601, DE602, DE603, DE604, DE605, FR606, SE607, UK608, DE609, PL610, PL611, PL612, IE613.
- The overview of non-operational antenna elements for LBA and HBA is available [here](#).
- Station calibration:
 - o new LBA Outer calibration data collection was successful for Dutch stations. Processing done, analysis ongoing. International stations to follow in January 2019.
 - o HBA-low calibration data collected for all stations.

Observing System Status:

- The status of the observing system was nominal during the past two months. Worth noting:
 - o Mid November a bug has been fixed that was preventing Responsive Telescope observing.
 - o Oscillating tiles at a few stations were detected during BF observations and were disabled.

Software development status (J. Annyas):

- A prototype LOFAR station monitor system has been built. In here, information from stations test and RTSM is displayed in a combined

overview. Through this, maintenance actions can be planned more efficiently. More data from the maintenance logs and WinCC will be included to make the overview even more complete.

- The EOSC-pilot project delivered a proof of concept, in which data can be selected and processed in the LTA using a default pipeline.

SCIENCE DELIVERY FRAMEWORK – PRODUCTION PIPELINE ENHANCEMENT (SDF-PPE; R. Pizzo & T. Shimwell)

- The SDF-PPE project started in September 2018. Its goal is to maximize the scientific return of the ASTRON-operated observing facilities through the deployment in production of the best available processing pipelines generating advanced data products that are closer to science than those produced by the current operational pipelines. The project has two components:
 1. Deployment of available advanced processing pipelines in the Radio Observatory (RO) production system, which in due course should also include LTA facilities.
 2. Research to further advance calibration and Imaging software techniques. This will be pursued within a forum of volunteers (Calibration and Imaging Research Forum - CIRF).

Over the past trimester, important steps were made to port in production Prefactor 3.0, producing direction independent calibrated data and images. A commissioning plan has been finalized. Based on the current timeline and set of priorities, it is expected that Prefactor 3.0 will be commissioned and characterized by 1 June 2019. The RO might be able to offer it to the users already in Cycle 12, on a shared risk basis.

COBALT 2.0 Phase 1 (R. Kaptijn)

- COBALT2.0 will be the next generation correlator and beamformer for the LOFAR telescope and will represent a significant upgrade of the currently operational COBALT correlator/beamformer. The main objective of the Cobalt2.0 project is to deliver LOFAR MegaMode (LMM) and replace

COBALT hardware. LMM is simultaneous observations serving half a dozen scientific surveys and space weather applications in parallel, greatly increasing the efficiency with which LOFAR is used for scientific research. The project has been split up into two phases. Phase 1 covers only replacing the COBALT1 hardware (tendering, installation, validation and commissioning).

- The new GPU cluster has been ordered and will be delivered at the beginning of January 2019.
- The new cluster is highly compatible with the old COBALT correlator, but much more powerful. Therefore, the time needed for the replacement will be limited.
- The tender for the cluster went smooth and delivered a good result. The new (science) capabilities are larger than expected.

LOFAR Efficiency Improvement (LEI) Phase 1 (R. Kaptijn)

- The main objective of the LEI project is to have a robust, future-proof, evolvable and efficient software environment for monitoring and control of the current LOFAR system. The project is split up into phases. The main objective of phase 1 (currently active) is to replace MoM and the surrounding systems (MoMDB, OTDB, Scheduler).
- A PMP (Project Management Plan) for phase 1 of the project has been approved by the ASTRON MT.
- A formal review of the requirements is planned for February 2019.
- Progress in the last quarter of 2018 was limited due to resources being requested by higher priority projects.
- The backlog of work is defined well enough for the team to start implementation as soon as they become available in February 2019.

Observing Programmes

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- Cycle 11 observing programme: ~18% complete. The observing schedule can be found [here](#).
 - Cycle 10 observing programme: 95% complete. The rest is being observed with second priority during Cycle 11.

Calendar next LOFAR activities:

The dates of LOFAR Status Meetings, roll-outs and stop days are listed in an online calendar that is available [here](#). In particular, we emphasize:

- LOFAR Cycle 12 proposal call: end January 2019
- [AARTFAAC 2.0 workshop](#): 11-12 February 2019
- [LOFAR science week](#): 20-23 May 2019
- Next LOFAR bulletin: February 2019