

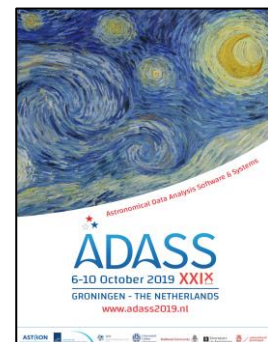


LOFAR NEWSLETTERS MAY-JUNE 2019

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

Announcements:

- Cycle 12 allocations are advertised on the [ASTRON website](#). Cycle 12 started on 1 June and will run till 30 November.
- The '2019 LOFAR Users Meeting', 'LOFAR Community Science workshop' and 'LOFAR 2.0 discussion' took place in Leiden (The Netherlands) on 20-23 May. 130 participants attended the events. The slides of the presentations as well as the photos taken during the meetings are available on the workshop's [website](#).
- The LOFAR 4 software Release has been deployed on 24 June. It provides C++11, Python 3, and CasaCore 3 support. The LOFAR Imaging Cookbook, as well as the SOS-supported docker/singularity images, have been updated to reflect these changes.
- The second traineeship in 'Science Operations with Massive Arrays' has started on 6 May and will continue till 26 July. Four trainees have been selected from a total of 77 applicants. The programme provides full exposure to LOFAR operations and data reduction techniques.
- ASTRON, together with seven other Dutch astronomical institutes, is organizing 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. The key themes for this year's conference have been finalized and can be found [here](#). You can register for the conference [here](#). Early bird registration closes on 30 August. More information about the event 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.
- A new international station is under construction in Latvia and will become available for observations by the end of 2019
- A new international station will be built in Italy by the end of 2022.
- The overview of non-operational antenna elements for LBA and HBA is available [here](#).
- Station calibration:
 - o DE602,DE603,UK608,IE613 received new calibration tables for the HBA-low mode.
 - o All remote stations (except RS407) received new LBA_Outer calibration tables.
 - o A Tied Array Beam holography experiment in LBA_Outer mode was performed in June with new LBA Outer calibration tables temporarily in place. New inter-station delays are being calculated from the TAB holography data; after that the new calibration tables will be installed permanently.
 - o A new calibration method for LOFAR (holography) is under development and will become available by the end of the year.

Observing System Status:

- The software roll out performed on 23 April caused instabilities to the operational system. These were resolved by rolling back the system to the previous software version. The problems have been fixed and the system was brought successfully to version 4.0 of the LOFAR software on 24 June.
- Efforts are ongoing to monitor and improve the staging performance of the Juelich LTA site. These have already led to positive outcomes.

Software development status (J. Annyas):

- Prepared the transfer to the Git repository for the LOFAR software, which is planned planned for the beginning of July.

- Made major progress with and almost completed the commissioning of COBALT2.

Science Delivery Framework – Production Pipeline Enhancement (SDF-PPE; R. Pizzo & T. Shimwell)

- Prefactor 3.0 has been ported to CEP4. This pipeline produces direction-independent calibrated visibilities and wide-band images of the target field, together with diagnostic plots. Commissioning and characterization is complete for the HBA and is close to completion for the LBAs. For Cycle 12, the Radio Observatory has selected a few appropriate projects that will obtain data products processed through this pipeline. Remaining development work is required to offer the pipeline on a large scale and this will be performed during the summer.
- A plan is in progress about the next steps to be taken within the project, in particular concerning the next pipelines to bring to production.

COBALT2.0 Phase 1 (R. Kaptijn)

- COBALT2.0 is the next generation correlator and beamformer for the LOFAR telescope and represents a significant upgrade of the currently operational COBALT correlator/beamformer.
- The main objective of the COBALT2.0 project is to deliver the LOFAR MegaMode (LMM) and replace COBALT hardware. LMM will support 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).
- Commissioning is almost finished. The current plan is put COBALT2.0 in production before the summer holiday period.

LOFAR2.0 (W. van Cappellen)

- The development team successfully completed a review of the system requirements and architecture of the first stage of LOFAR2.0 in April. The next major milestone is the Preliminary Design Review (PDR) of the Station and Timing Distributor. The PDR is the last tollgate before starting the detailed design and will consider the requirements and the baseline designs of the station and the clock distribution network.

- An important discussion session about the activities and plans for LOFAR2.0 took place in Leiden on 23 May. The slides presented at the meeting are available [here](#). Particularly impressive were the latest results from long-baseline imaging, which demonstrated how LOFAR's future lies in exploiting its unparalleled angular resolution (0.2 arcseconds in the high-band). The LOFAR2.0 day was a great way to round out an inspiring week of LOFAR science results with a look towards the science to come in the next decade.

Observing Programmes

- Cycle 12 observing programme: 15% complete. The observing schedule can be found [here](#).
- Cycle 11 observing programme: ~98% complete. The observing schedule can be found [here](#).

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:

- Cycle 13 proposals submission deadline: 11 September, 12 UT (noon)
- Progress reports submission deadline: 16 October, 12 UT (noon)
- Next LOFAR bulletin: August 2019