LOFAR Surveys KSP users meeting contribution

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Proposals

- In our case the long term proposal produced little benefit and additional work. The allocation (and maybe time available) for the 2nd cycle was too small and a further proposal was needed in addition to a report to justify the ongoing long term proposal.

- Northstar does not accept long lists of targets.

- Time between receiving the proposal feedback and finalising the plans for accepted observations has been too short. Furthermore the feedback is not sufficiently detailed for us to know how to improve the proposal in the future.

- The surveys aim to observe the entire northern sky so would benefit from additional flexibility in the locations of proposed targets to ease scheduling clashes and maximise observing efficiency.

Observing

- A working 4-bit mode will allow us to double the survey speed (currently we want to observe 14,000hrs for the Tier-1 survey and this would reduce it to 7,000 hours).
- It remains unclear which LBA configuration should be used for a wide-area survey. Finishing commissioning and testing of LBA sparse is required.
- Poor ionospheric conditions can ruin datasets. Is there anything that can be done to give the user a better idea of the ionospheric conditions during an observation?

Ingesting data

- Our pipelines are written in the CITT developed generic pipeline framework. Can the observatory run some of our pipelines on our datasets? This would dramatically speed up science.
- To make our calibrated datasets more widely available and allow for further scientific exploitation it would be good to ingest our calibrated datasets back into the LTA

Retrieving data

- The download rate from the LTA is very slow. At 15mb/s one of our datasets (16TB) takes two weeks to download and we cannot take the data from the LTA fast enough.

- The staging of the data takes a long time, perhaps 1 week for a 16TB dataset. Can this be made faster?

Doing science

- Installing and maintaining LOFAR software remains challenging
- Software improvements (e.g. NDPPP solver with a phase slope) and automated pipelines must continue to be developed within the CITT.
- The long known issues with the beam model, that are required to get reliable in-band spectral index measurements, still persist.
- Running the generic pipeline on a grid or cloud system would be good (e.g Amazon or SURFsara).

Knowing what is going on

- We do not always receive emails that the data is available in the archive after the observation.
- Communication of developments can be further improved. The LSM seems poorly attended, is there perhaps a more efficient way of disseminating the crucial information?
- The communication of CITT priorities and the opportunity for users to give input through the advisory committee or otherwise could be improved.

Conclusions

The observatory has been excellent in supporting our project and our observing programs have been successful. There are some key issues that would significantly enhance our scientific productivity:

- Making data retrieval much faster by either decreasing download times or running pipelines to reduce data sizes (a factor of 16 reduce in data size).
- Software development to remove the need to use BBS and move to only NDPPP.
- 4-bit mode is very important as it could half the observing time required to complete the surveys.