

Summary of the 2nd Solar LOFAR KSP Meeting

2009-08-13

The 2nd meeting of the LOFAR Key Science Project (KSP) "Solar Physics and Space Weather" was held at the Astrophysical Institute Potsdam (AIP) in Potsdam on June 24/25, 2009.

27 participants from 9 countries (incl. Germany) had one morning and two afternoon sessions filled with talks and discussion.

The topics were:

- i) information about the present state of the LOFAR project
- ii) information about national subprojects (e.g. LOIS, D-LOFAR, UTR-2)
- iii) offers/suggestions of cooperation to solve the specific solar problems to use LOFAR for observations of the Sun
- iv) proposals for the LOFAR commissioning phase
- v) discussions on a possible participation in the EU's FP7 Space Work Programme.

The status reports on the LOFAR project at ASTRON in Europe, especially in the Netherlands, and on the solar KSP (abbreviation: SKSP) were given by M. Wise and G. Mann, respectively.

M. Wise informed that there is one complete core station ready to work (range 30-240 MHz). Meanwhile the LOFAR station in Effelsberg was completed with the HBAs in last week.

According to M. Wise, the start of the imaging phase is expected for summer 2010 based on a part of the Dutch antenna network. This is the time of commissioning solar imaging with LOFAR. Then, it is important to define the necessary steps of software development, if the imaging phase calibration becomes an essential point. A. Kerdraon offered his support because of his Nancy RH experience.

A further key point of imaging are ionospheric corrections. M. Wise informed that there is a test software ready for calculating the instrument's response to brightness distribution models. For SKSP, 3 tasks are necessary to perform:

- to study the simulation software, which is already available at ASTRON. It actually includes the simplest possible ionospheric model to see the response on standard low frequency solar images
- to search for new solutions (i.e. summarizing state of the art)
- to include the ionospheric knowledge as offered by N. Jakowski, in terms of GPS based service SWACI

For several reasons, it is important to start with spectrographic observations in a single station mode. This can be done with the Dutch's core station or the German stations in Effelsberg and Tautenburg. The colleagues from the AIP will bring forward the integration of existing software / make necessary modifications, and make test runs with the core station at earliest convenience.

The aim is to offer this software for independent single station mode, too, after the test phase. The software development is coordinated by the AIP, especially by Frank Breitling and tasks are distributed to available developers on request. Please, contact concerning this subject G. Mann (e-mail: GMann@aip.de) and/or F. Breitling (e-mail: fbreitling@aip.de).

E. Kontar will check for an available person for software development in Python. Then, the AIP should delegate a sub-task to Glasgow.

C. Marque and J. Magdalenic-Zhukov will try to search for a suitable person to participate. AIP should delegate a sub-task to ROB.

LOIS is working about alternative techniques to use the information content of cosmic radio waves. B. Thide invited the SKSP community for participating in LOIS. Furthermore, he offered the opportunity for using his close contacts to IBM for software developments for the SKSP.

R. Fallows demonstrated the possibility to use LOFAR for solar wind studies by detecting scintillations of remote radio sources. The Aberystwyth University intends to perform the software development for measuring interplanetary scintillations with LOFAR. A corresponding working package has to be determined.

A. Konovalenko presented UTR2-observations of low frequency solar radio bursts. As a part of preparing the science background for the SKSP, a catalogue of burst records with UTR2 would be useful. UTR2 is very important for calibration at the low frequency edge of LOFAR.

G. Mann informed that a call in the EU's FP7 framework for a space work programme is expected on July 31, 2009. That represents a possibility to organize the activities of the SKSP community with the aim to get a financial support. From this point of view, G. Mann mentioned that we can do this with respect to the topic "SPA.2010.2.3-01 Security of space assets from space weather events". The SKSP community shows some interest concerning this subject.

In the first week of October, the AIP will call the SKSP community for scheduling the 3rd SKSP meeting.

Gottfried Mann
(GMann@aip.de)