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# report on the 2011 Apr 11--12 LOFAR Technical Operations Meeting in Dwingeloo

# 2011 Apr 19 James M Anderson --MPIfR start

Original agenda:

12:30-13:30 lunch (Hooghoudt room)

13:30-17:00 Welcome

Short overview of main developments and events since the previous ILT TO meeting

Overview of expected events in the coming year

Role of the LOFAR Commissioning Coordination group (LCCG)

Station operation; ILT (array) mode and stand alone mode, station monitoring

Station maintenance: station test, repairs, spare parts, experience gained, container maintenance

Information exchange: teleconferences, meetings, wiki's, issue trackers

wrap up

18:30- Dinner in Dwingeloo

Tuesday, April 12 (ASTRON antenna test field, Multimedia room)

9:30-12:00 Hands on workshop antenna repairs

Wrap up

12:30-13:30 Lunch (ASTRON canteen)

This was the second LOFAR Technical Operations Meeting. The previous meeting was held one year ago, and was attended by W Reich and K Schlich from Bonn (was there someone else too?). Attending were

JM Anderson	Ef MPIfR
A Horneffer	Ef MPIfR
M Kuniyoshi	Ef MPIfR
D McKay	Cb (EVO)
M Jahn	Jü Bochum
E Middelberg	Jü Bochum
L Helldner	On
T	On
B Ciardi	Uw MPA (EVO)
M Hoeft	Tb (EVO)
H Munk	ASTRON
T Grit	ASTRON
M Norden	ASTRON
C Vogt	ASTRON
H Meulman	ASTRON
A Polatidis	ASTRON

No representative from Nancay was present.

(For some reason, Ralf Kisky <[rkisky@mpifr-bonn.mpg.de](mailto:rkisky@mpifr-bonn.mpg.de)> was on the e-mail list, although I have no idea who this person is. 100 m operator?)

Web/wiki pages of interest

Overview of single station use:

<http://www.lofar.org/operations/doku.php?id=singlestation:start>

ILT LOFAR Operations Overview

<http://www.lofar.org/operations/doku.php?id=operator:operations>

International Station Contacts

[http://www.lofar.org/wiki/doku.php?id=operator:ilt\\_to\\_contacts#international\\_stations\\_contacts](http://www.lofar.org/wiki/doku.php?id=operator:ilt_to_contacts#international_stations_contacts)

Meeting notes:

#### Station Construction:

6 new stations were built in the Netherlands since 2010 April, 4 new Core stations and 2 new remote stations. 7 of the International stations are finished or nearly finished (Juelich still needs to construct the LBA field, to be done on 2011 April 20). Onsala still needs to be constructed in 2011. 7 NL stations are waiting to be constructed, ASTRON does not expect to start construction on them until after the summer break. (I expressed scepticism that they will be able to finish construction this year, if they start only in late September.) Potsdam-Bornim finally has a working network connection, and the connection to Juelich is being tested.

The network connection for International stations within the Netherlands needs to be upgraded. 2 additional 10 GE lines from Amsterdam to Groningen need to be installed. An additional 10 GE line from Aachen to Amsterdam is needed. Note: when the EVN goes to 4 Gb/s data links, the planned 2 time 10 GE lines from Aachen to Amsterdam will not be sufficient. Also, should the Hamburg station be built, there will be no room at all for eVLBI on the Aachen to Amsterdam link.

ASTRON is investigating the possibility of implementing a common clock for the LOFAR stations attached to the concentrator node in the Netherlands. In the future it may be possible to extend this to other stations.

There are no spare parts. ASTRON used up all spare parts when it built the 4 additional Core stations in 2010 which were not in the 36 station plan. ASTRON will have another round of manufacturing of spare parts done to generate spare parts for things LOFAR expects to need. An inventory of part failures is needed. Note that the Effelsberg station uses different parts for some of the electronics boards and possibly LBA antenna parts. The ASTRON engineers do not want to mix old electronics boards with new electronics boards, so for the foreseeable future, there will be no spare parts for some of the Effelsberg station components, and any failures will have to be repaired. This is known to include the RCU boards, of which the Effelsberg station has 192, and > 16 have failed in the past 18 months. See action items 1 and 2.

The Effelsberg antenna positions in ETRF or ITRF (x,y,z) need to be re-measured. See action item 3.

A document describing all of the procedures station managers are expected to be able to perform on their stations will be produced. Input on things that are needed to be able to be done is requested to be sent to H Munk. For Effelsberg, I want to turn many of the responsibilities for initial and emergency contact for the Effelsberg station by the ILT Operations to the 100 m operators. See action items 4 and 5.

Some of the known failure modes for parts were discussed. Effelsberg has a problem with the humidity being too low during winter months. RCU board failures, and possibly the rubidium clock failure may be caused by this problem. Electronics boards inside of the HBA tiles are failing because of high humidity conditions at other stations. Apparently the protective coating applied to the boards was defective. In cold weather, the HBA rubber tie-down straps become stiff and do not hold the HBA tile covers down. Inspections need to be done to check that all tie-down straps are secure. Also, many problems are seen following wind storms. Animal destruction of antenna parts is also seen at most stations. Regular inspections of the Effelsberg station are needed. See action item 6.

Additional minor issues were discussed. See action item 7.

On Tuesday, April 12, we were given a demonstration and practice session for repairing antenna parts for the LBA and HBA antennas. AH, MK, and JMA took part in this exercise. In the event that antenna repairs are needed, especially for the HBAs, one of them should be contacted.

Action Items:

1. Spare parts. JMA, AZ. Write up spare parts details into Ef-ILT station contract.
2. Spare parts. JMA, AH, KS. Check inventory of parts with ASTRON to see which parts we can share with new stations.
3. Antenna positions. Contact Axel Nothnagel to have the Effelsberg antenna positions measured in (x,y,z) coordinates for ETRF or ITRF.
4. Ef Operations Meeting. JMA, AK, MK, AH, MK. Meeting to discuss coordinating operations of the Effelsberg LOFAR station with the 100 m operations group.
5. Training Session. JMA, AH, AK, 100 m operations. A training session to teach the 100 m operators how to do basic things with the Effelsberg station, such as logging into the station control computer and emergency power shutdown procedures.
6. Visual station inspections. JMA, AK, Ef staff. Visual inspection routines for the Effelsberg LOFAR station need to be implemented. Persons at Effelsberg need to be trained to inspect the station for problems. A weekly and a monthly inspection process, needs to be developed and implemented. Inspections following stormy weather are also needed.
7. Effelsberg miscellaneous issues. JMA. Replace metal pins in the HBA field. Diameter of the LBA poles. Cable torque wrench.

Station control transfer software. Whitelist for lofarX computers.