The Effelsberg LOFAR Station and GLOW-Mode Operations

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for the MPIfR LOFAR Team

Impressions

DE601 Staff

- LOFAR Staff
  - Andreas Horneffer (“Station Manager”)
  - Olaf Wucknitz (permanent staff member)
- Effelsberg Staff (headed by Alex Kraus)
  - Operators

  (Jörg Barthel, Thomas Georgi, Alexander Hochguertel, Marcus Keseberg, Ralf Kisky, Klaus Schlich, Wilfried Schmitz, Norbert Tacken, Peter Vogt, Thomas Wedel)
  - Engineering and Maintenance Staff

  (Klaus Bruns, Klaus Schlich, Erik Mann, and many more)
- IT Department (headed by Andreas Oberreuter)
  - Jan Behrend (GLOW computers)
  - Y. Özdilmac & M.Krohs (network equipment)
  - and others

Oldest Station

- first “final” station to be built
  - LBA in 2007
  - HBA in 2009
- LBAs and stat
  electronics diff
  other stations
- different conta

LBA Problems

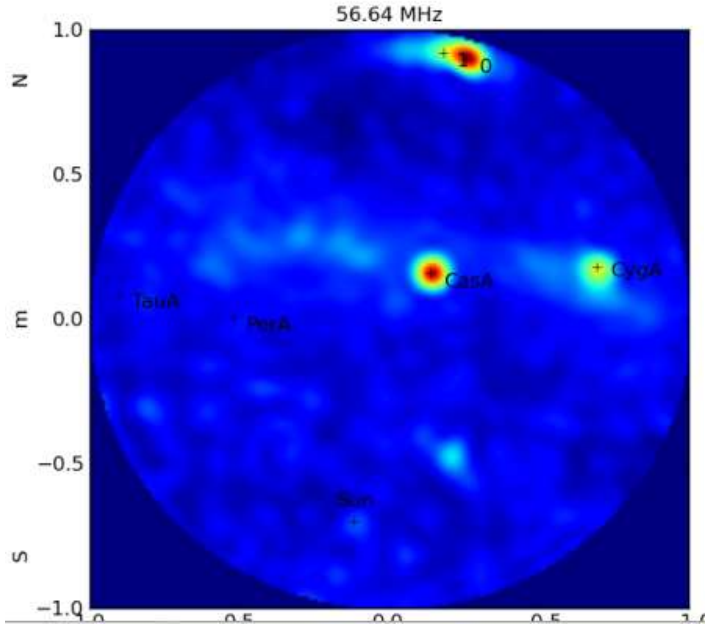
- the electronics of the LNA is molded too high in the plastic
  - water can get in and corrodes the upper LNA
  - (more) frequent replacement needed
- LBAs topple over
  - get righted by Effelsberg staff
- ToDo: Check LBA cables for more cuts

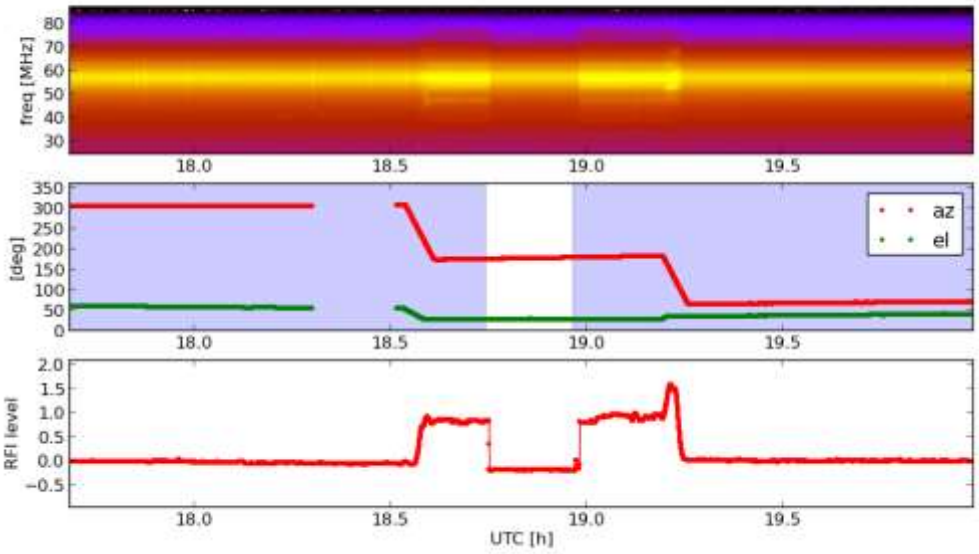
HBA Issues

- mostly the usual: broken rubber straps, defective FE modules and summators.
- no fabric between tiles allows weeds to grow

RFI from 100m

- the 100m both reflects RFI and generates RFI
  - one identified source: subreflector active surface
- mostly affects the low-band



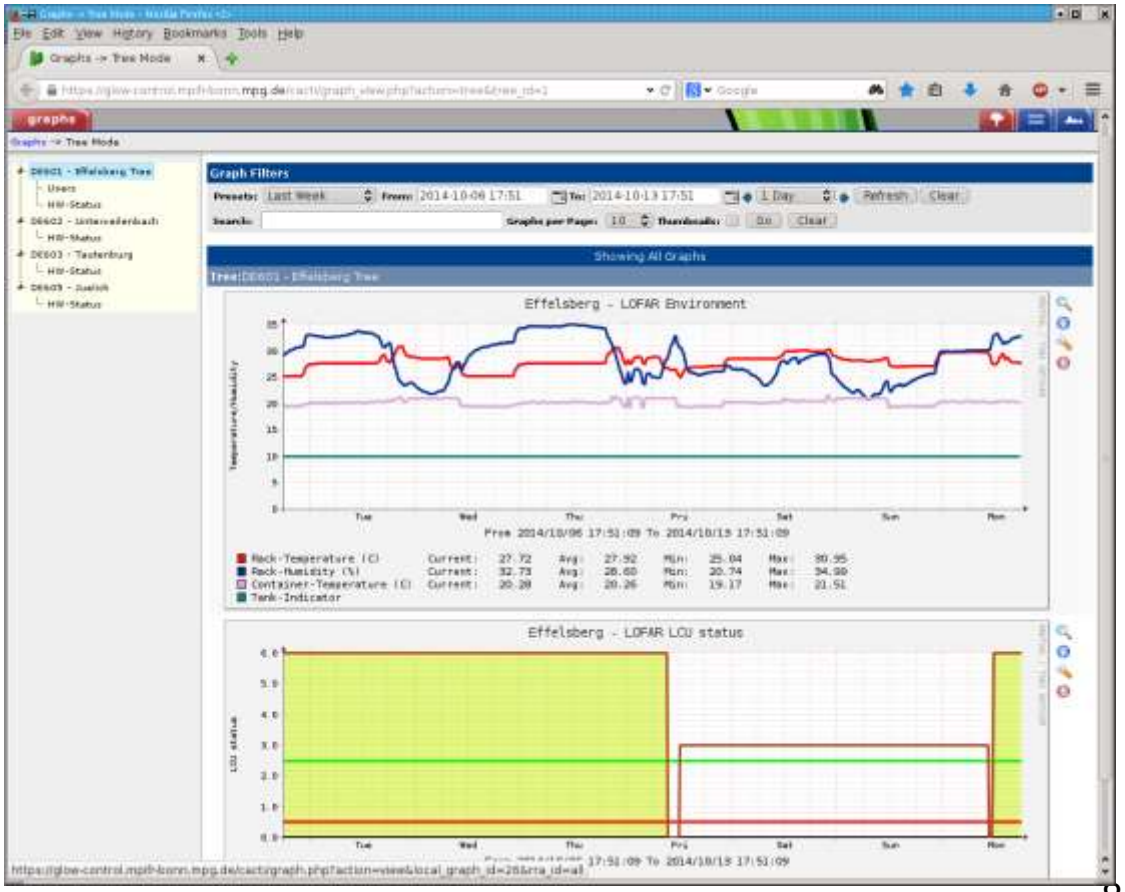


J. Koehler

O. Wucknitz

Station Monitoring

- we run iStnMonitor, plus container temperature and humidifier filling status
- also for the other GLOW Stations
- separate script for monitoring the 48V power supply



GLOW Mode

- goals:
  - enable observations with “remote” GLOW stations
  - allow data taking from all stations at one place
- approach:
  - network of all German LOFAR stations goes via Jülich
  - one VLAN for all GLOW stations
    - access to all stations from everywhere on the VLAN
    - only limited by network bandwidth
- similar to ILT split-array mode, but not using ILT resources
  - except for handover

GLOW-Mode News

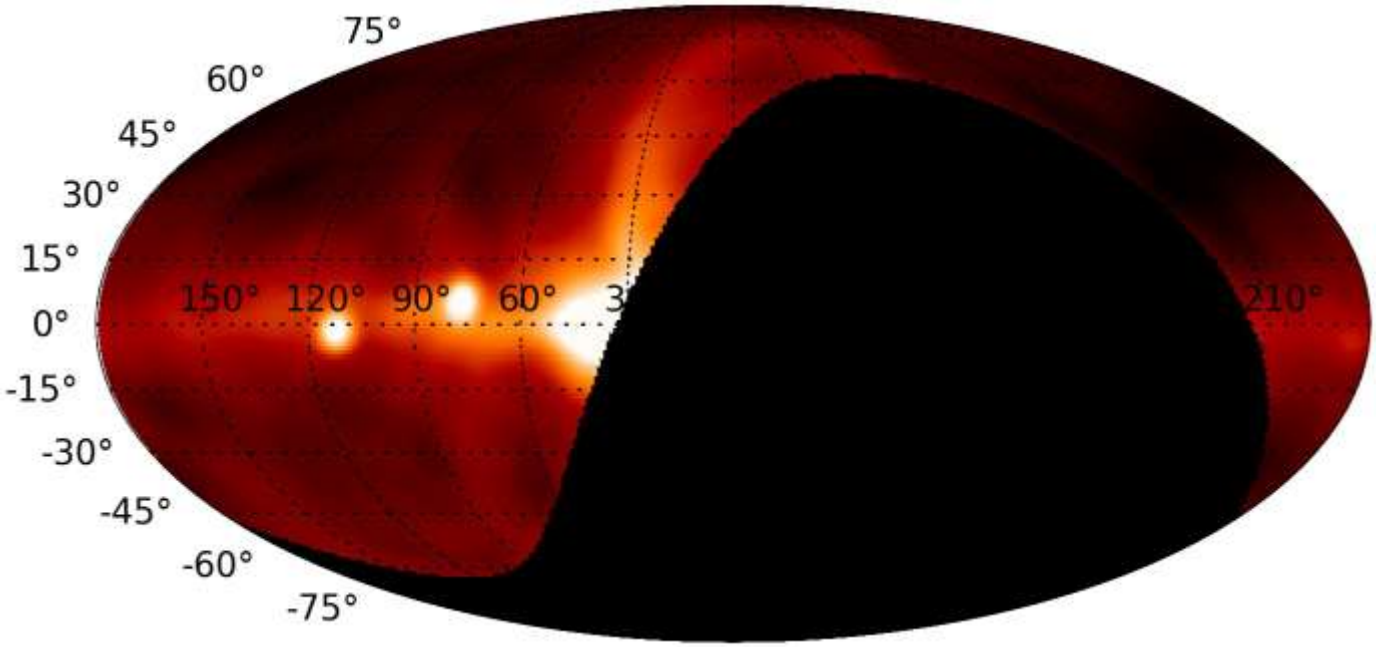
- October 2014
  - DE602 and DE605 included in observations
- December 2014
  - new data recoding machines in Bonn
- February 2015
  - first light of DE609 in GLOW mode
- November 2015
  - data-recording hardware arrives at Jülich
- February 2016
  - first observations with data-recording computers at Jülich

GLOW-Mode Operation

- operation coordination currently done by me
  - maintaining of station setup
  - check-in/-out of stations
  - set-up of stations for observations
- increasing amounts of work are taken up by people in Bielefeld
- coordination done via e-mail / telephone
  - e-mail list at: <glow-lofar-scheduling@lists.mpifr-bonn.mpg.de>
  - also to be used for GLOW mode proposals

Single Station Science

- lots of pulsar science
  - talks by C. Tiburzi and N. Porayko
- all sky imaging
  - PhD thesis by J. Koehler

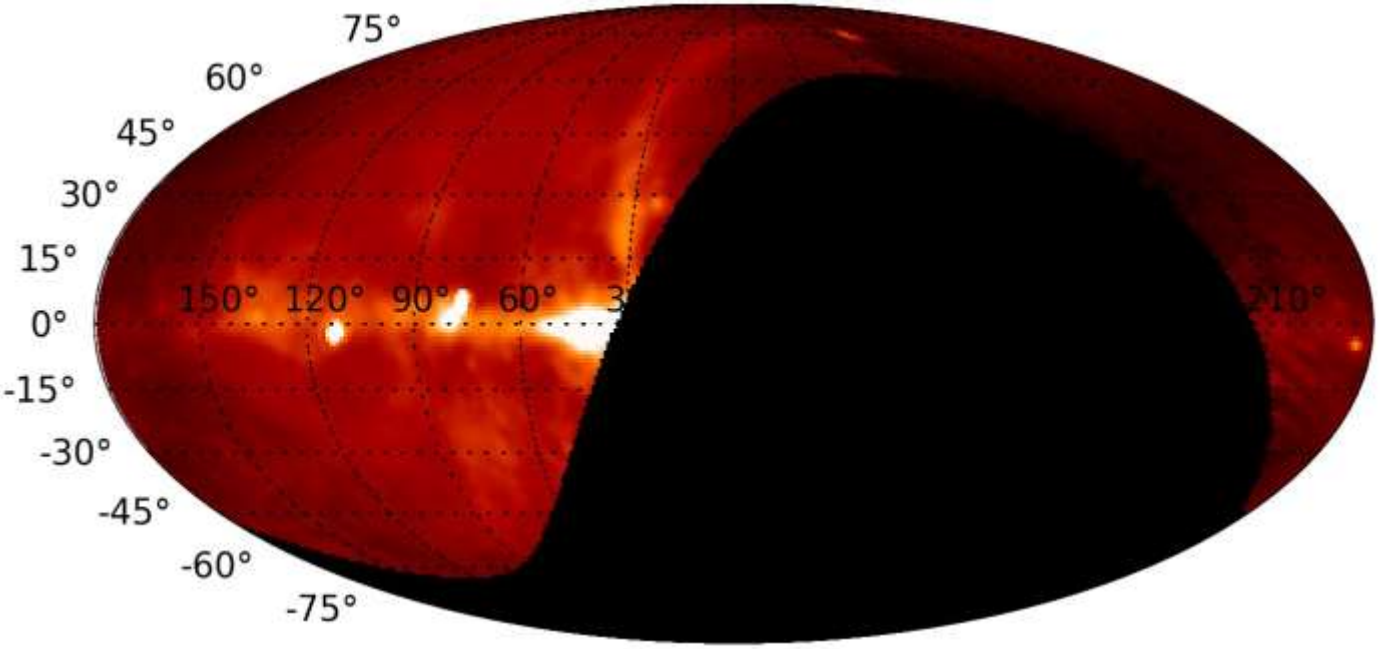


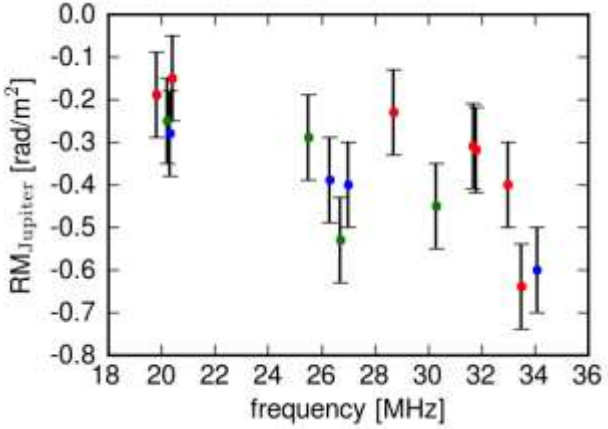
Northern sky at 45 MHz (J. Koehler)

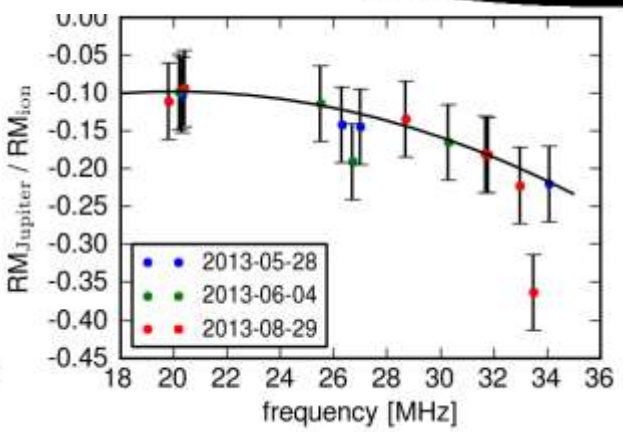
More Science

Max-Planck-Institut für Radioastronomie

Northern sky at 130 MHz (J. Koehler)







Faraday rotation of Jupiter bursts vs. frequency (J. Koehler)