ETH
Eidgenössische Technische Hochschule Zürich
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ISWI

n|w University of Applied Sciences
Northwestern Switzerland

CALLISTO status report/newsletter #74

New feature: Light curves of all operational Callisto

A new feature has been implemented on the e-Callisto website here:
http://soleil.i4ds.ch/solarradio/data/Lightcurves/
It presents one image per operational station per day where this image contains light curves from all frequencies which are protected by ITU. Unfortunately not all offices of communication in different countries are taking care in providing this protection. In many cases interference (rfi) is also self produced by local electronics (PC, network, printers, monitors, keyboards, mice, power supplies etc.)

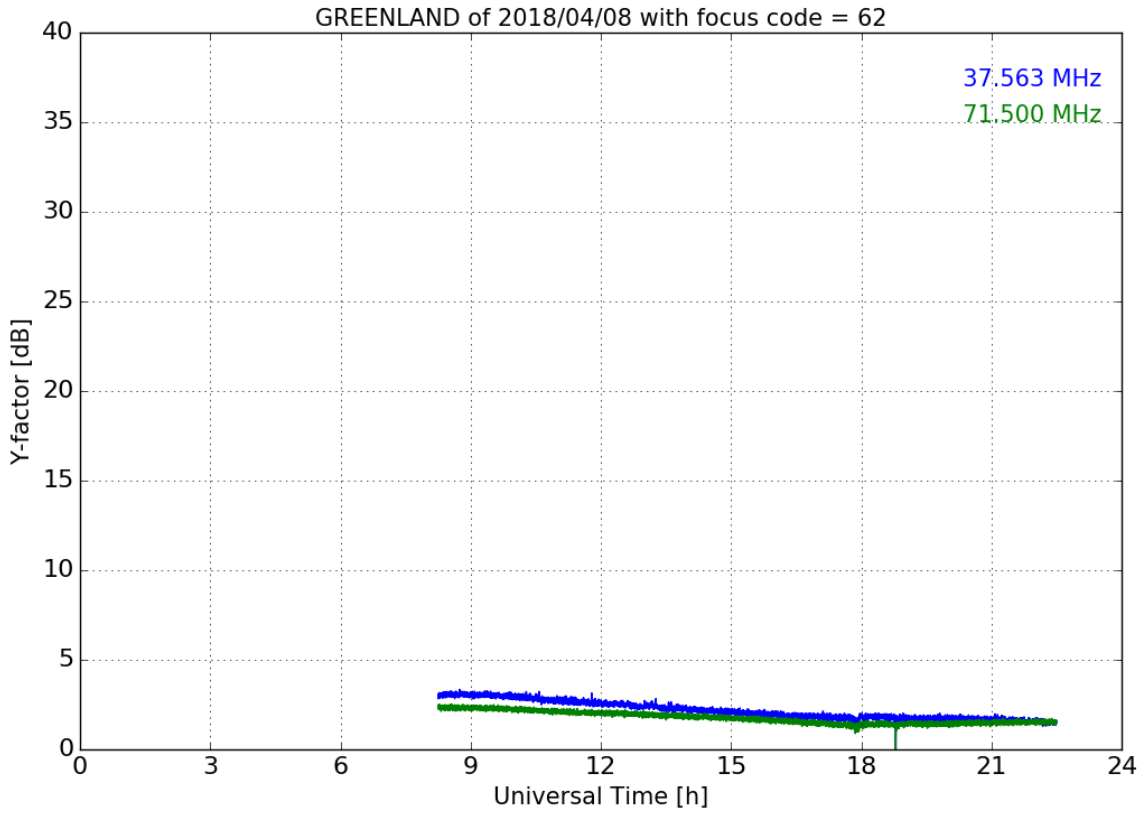

Fig. 1: Two low frequency light curves which are really quiet, there is no rfi observable. We can even 'see' the Milky Way passing through the antenna beam at around 9 UT. Antenna is a LWA + 90° hybrid and two Callisto to observe circular polarization.

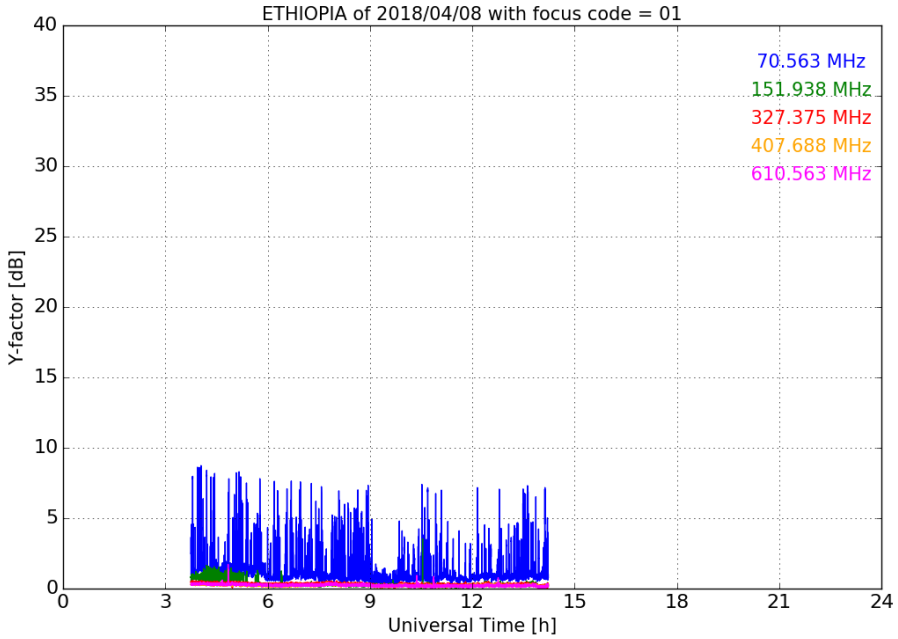

Fig. 1: Five light curves from Mekelle University in Ethiopia. 70.5 MHz is strongly interfered while 151.9 MHz, 327.3 MHz, 407.6 MHz and 610.5 MHz are really quiet. Antenna is a commercial LPDA CLP-5130 from CREATE.

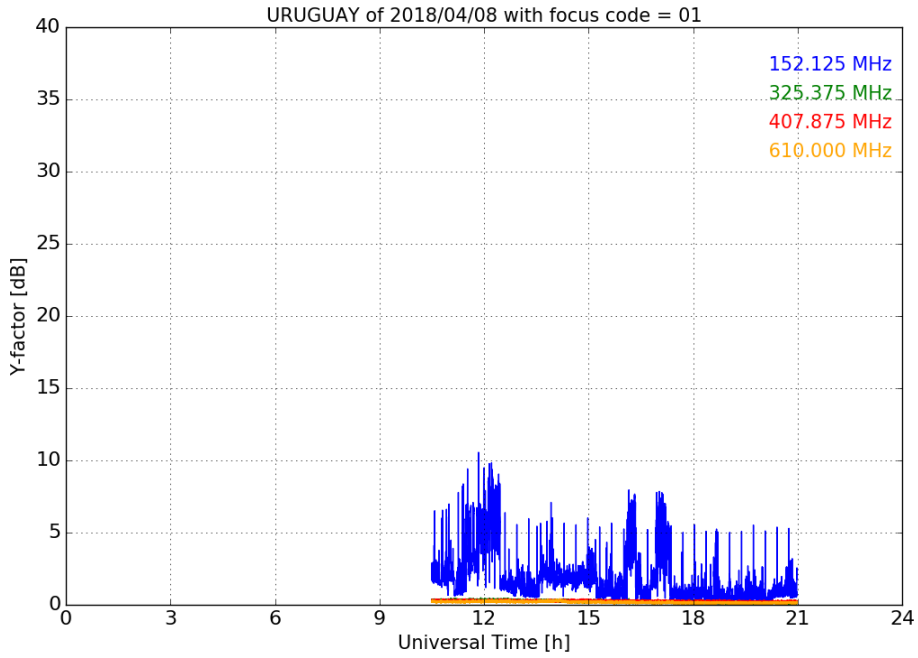

Fig. 2: Four light curves from Montevideo with 152.1 MHz completely interfered while 325.3 MHz, 407.8 MHz and 610.0 MHz are clean and should allow to observe solar radio bursts. Antenna is a home-designed LPDA.

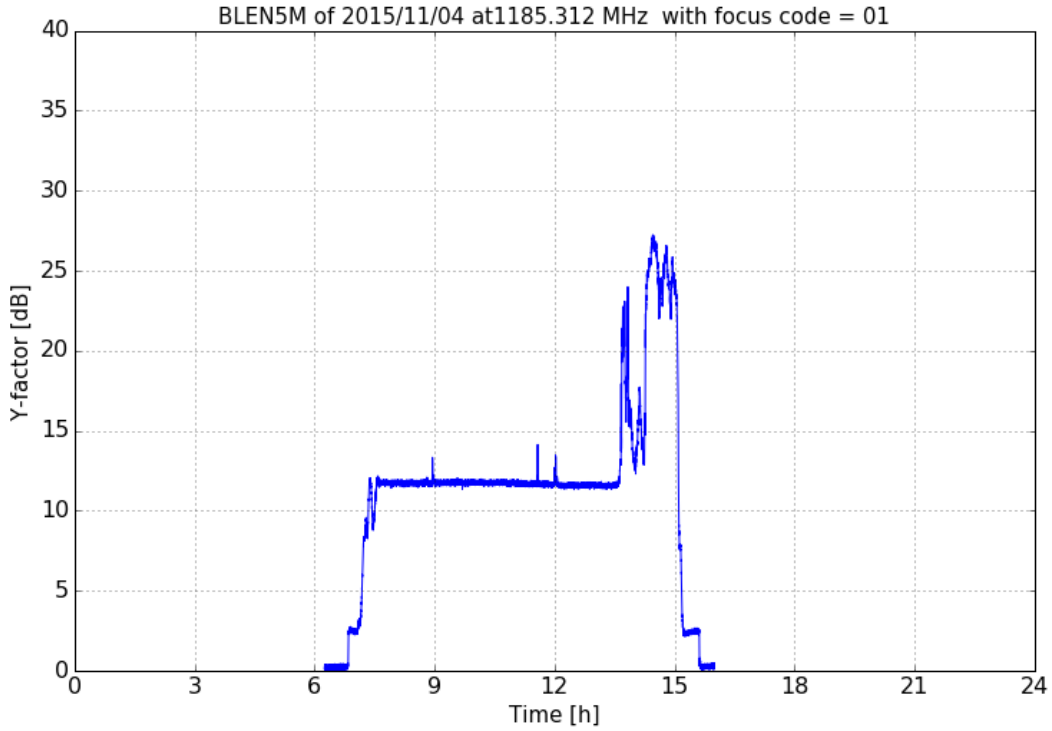

Fig. 3: A 'historic' observation of the big solar radio event from November 4th, 2015 which shut down Swedish airport. Instrument = 5m dish + corrugated horn-antenna at Bleien observatory, Switzerland.

Instrument status

LMRO Australia installed a new tracker drive to track the Sun with their LPDA.
INARAKI University Japan is operational again
INDONESIA is operational again with 3 instruments
AUSTRIA-MICHELBACH operational again
Currently about 50 out of 144 instruments provide data, the rest is not operational or they simply do not provide data due to several reasons. I'd like to encourage those stations to provide data to the central server which is part of the ISWI instrument array.
Suggestion: Those stations with low speed internet should update their PERL script which uploads FIT-files to the central server:

```
$ftp->put($old,$tmp);  # upload file
sleep(5);   # give network some time to upload before renaming it
$ftp->rename($tmp,$filename);  # once uploaded, rename to original filename
```

The sleep-function should guarantee that rename is applied after upload. The slower the network the higher the delay should be. Here the script waits 5 seconds before renaming the tmp-file back to *.fit

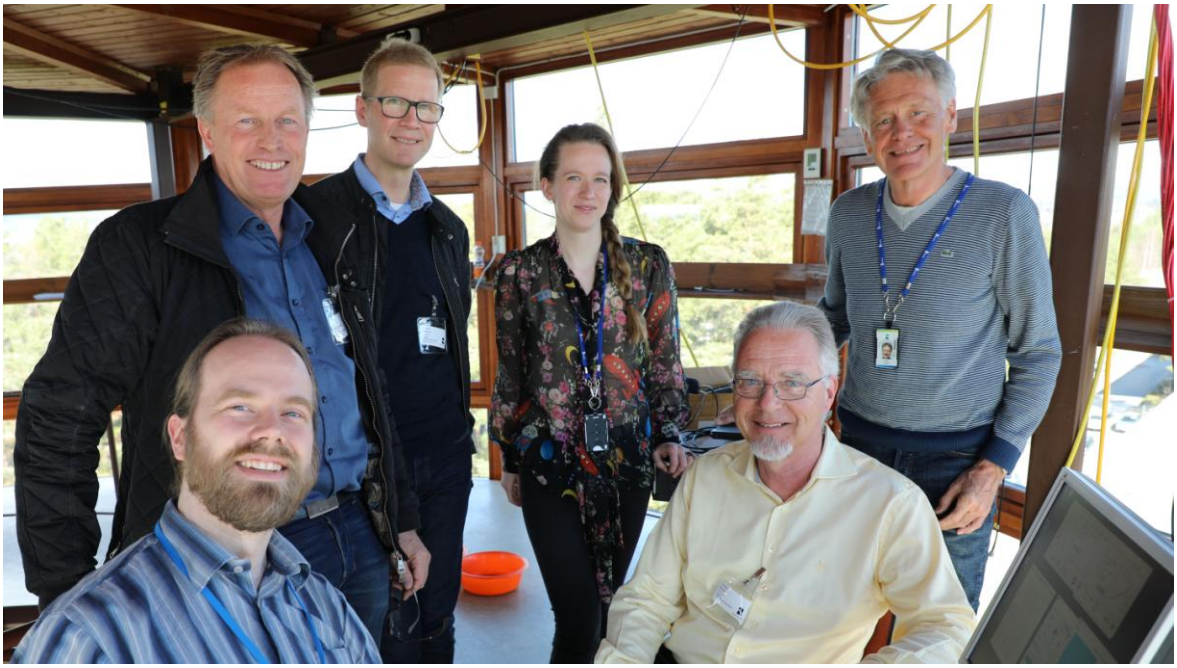

Fig. 4: Group picture at Space Centre in Hønefoss, Norway. During a workshop/demonstration of Callisto as a Space Weather Instrument. From left to right in the back: Pål Brekke, Andreas Ditlev Skjervold, Yngvild Linnea Andalsvik, Roger Hougen. Front from left to right: Knut Stanley and the author Christian Monstein.

CESRA news

New evidence for a coronal mass ejection driven fast drifting type II radio burst
by K. Ashnu et al.
http://cesra.net/?p=1818

Solar Type-IIIb Radio Bursts as Tracers for Electron Density Fluctuations in the Corona
by V. Mugundhan et al.*
http://cesra.net/?p=1831

LOFAR observations of Fine Fundamental and Harmonic Structures in Solar Radio Bursts
by Xingyao Chen et al*
http://cesra.net/?p=1848

AOB

- Links for LPDA design:
  - http://www.changpuak.ch/electronics/lpda.php
  - http://www.stroobandt.com/lpda/en/index.html

- CALLISTO or Callisto denotes to the spectrometer itself while e-Callisto denotes to the worldwide network.

- General information and data access here: http://e-callisto.org/

- e-Callisto data are hosted at Fachhochschule Nordwestschweiz (University of applied sciences FHNW) in Brugg/Windisch, Switzerland. Process control, user communication and scripts are conducted at *Institute for Particle Physics and Astrophysics (IPA)*, ETH Zurich.

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