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CALLISTO status report/news letter #49

New station commissioned at CONIDA, Lima/Peru

A new Callisto station has been set up in Lima at *Comisión Nacional de Investigación y Desarrollo Aeroespacial* (CONIDA). The antenna is a log-periodic dipole array (LPDA) with 23 elements in a fixed sky position covering 70-1000 MHz.

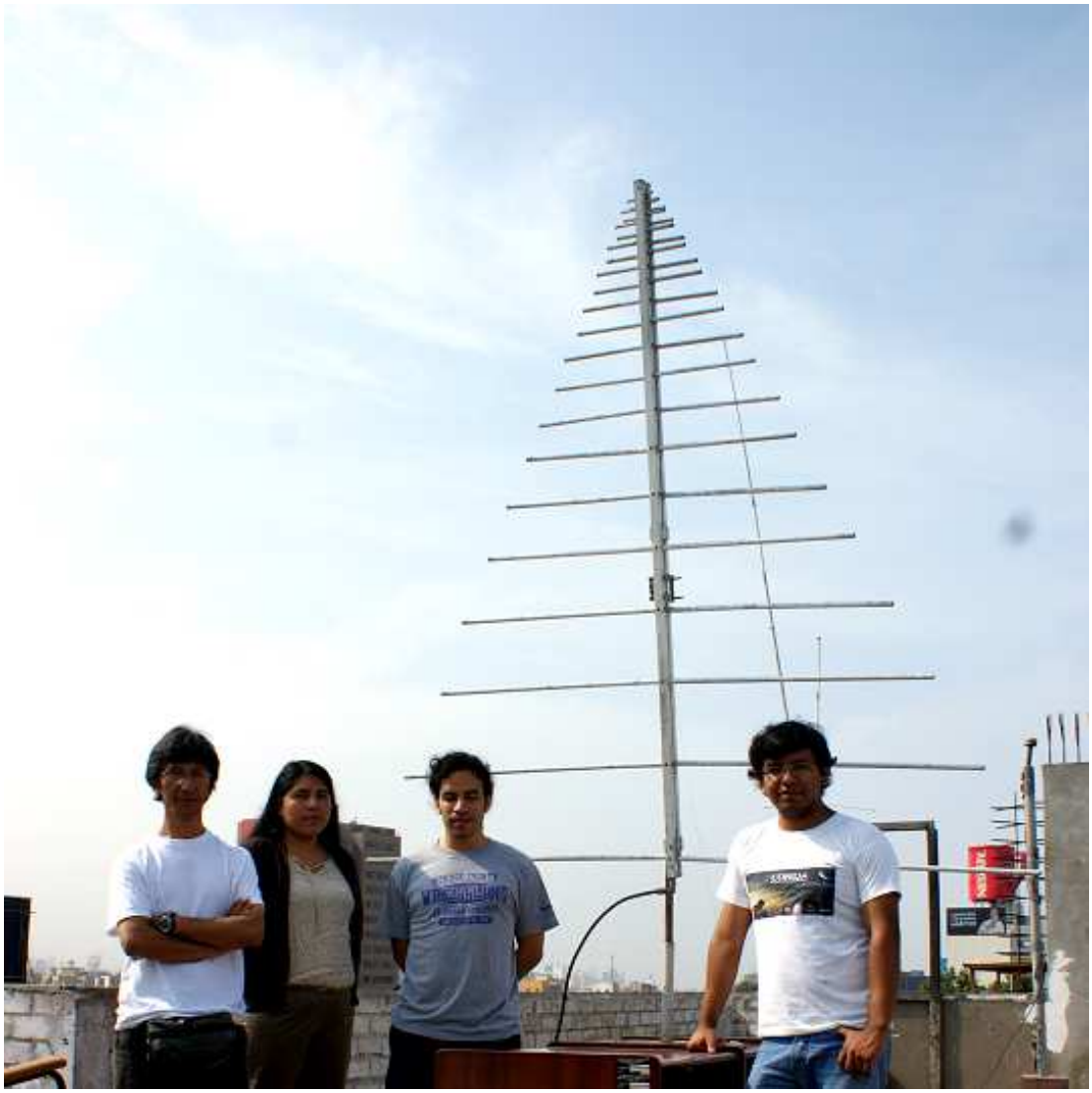

Figure 1: From left to right: Walter Guevara Day, Verónica Loaiza Tacuri, Javier Rengifo Gonzales and Martin Vuelta Rojas.

The frontend comprises a low noise amplifier 33LN-ZX60-S from Mini-Circuits. The Callisto spectrometer was manufactured by W. Reeve in Anchorage, Alaska. Data are already archived at FHNW and can be accessed for free here: http://soleil.i4ds.ch/solarradio/callistoQuicklooks/
The file identifier is: SanIsidro_YYYYMMDD_HHMMSS_FC.fit.gz

Longitude: 77º 03´27" South
Latitude: 12º 06´ 51" West of Greenwich
Altitude: 125 m.

Peru plays an important role regarding coverage of the American/Pacific region.

Welcome on board of the e-Callisto network!

New Callisto-website in Udhagamandalam (Ooty), Tamil Nadu/India provides solar radio burst data and burst lists

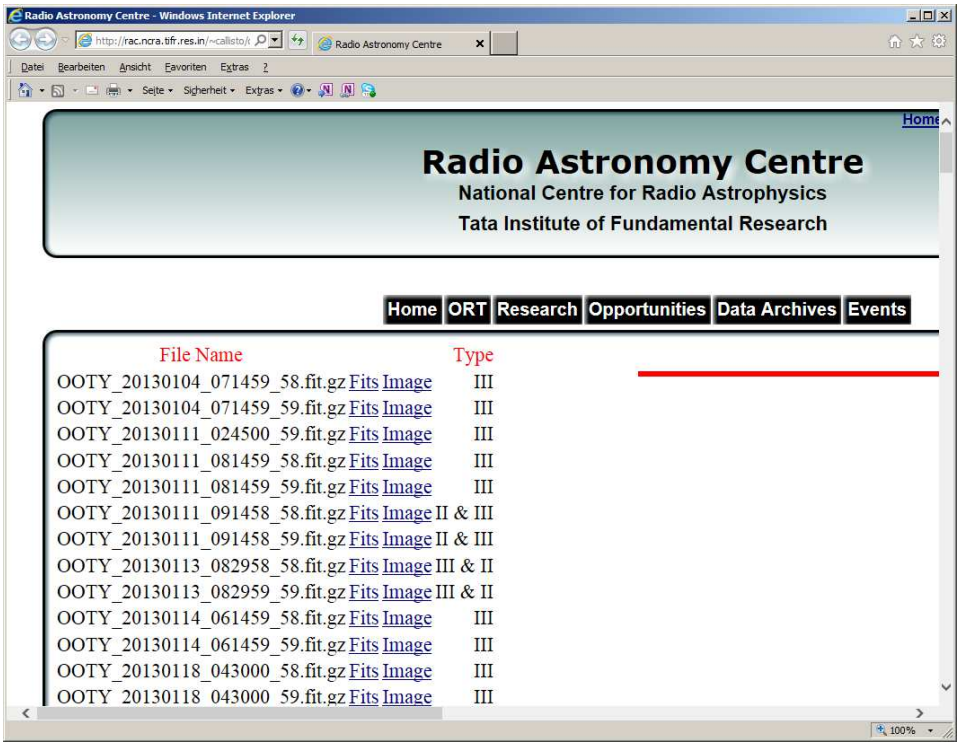

Figure 2: Website providing FITS-file, burst-images and information about burst type(s**). Well done!**
http://rac.ncra.tifr.res.in/~callisto/data/events_list/de2013/data_2013.html

Extremely low noise amplifier

If you aren't happy with your standard low noise amplifiers, the microwave expert Goran Popovic in California, USA did a great job in designing and building a low noise amplifier based on HEMT structures.
http://www.ad6iw.com/

See also: http://www.newsvhf.com/hemt-mmic-wideband-lna.pdf
My measurements showed an amazing low noise temperature of less than 0.4 K, see figure 3.

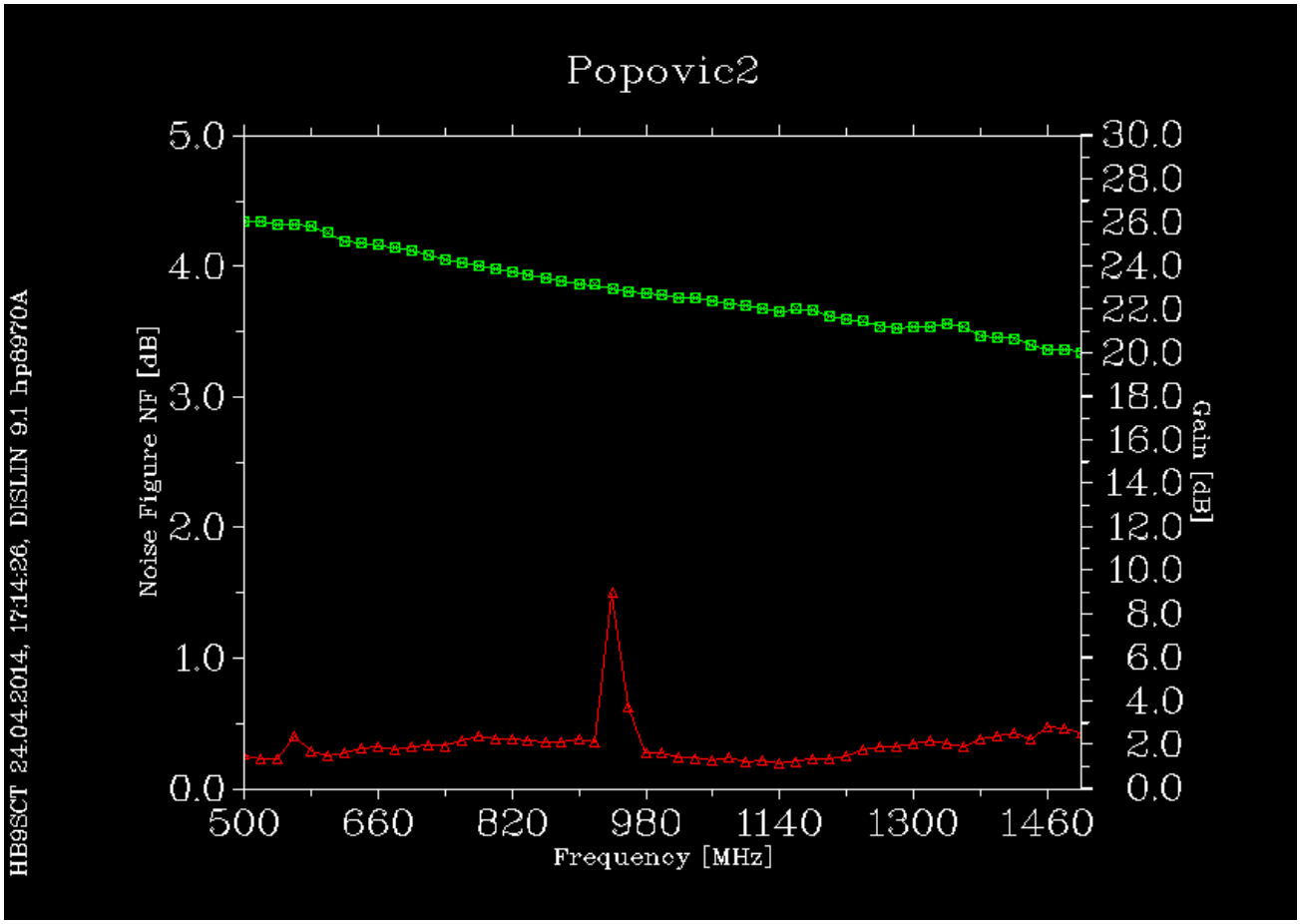

Figure 3: Noise figure (red plot with left y-axis) and gain (green plot with right y-axis) of a prototype L-band amplifier. The noise peak around 950 MHz is most probably due to local mobile phone transmitter. The LNA wasn't shielded during noise figure measurement. Noise temperature in L-band is lower than 30 kelvin.

Callisto runs under Wine on FEDORA

I just managed (with a lot of help and support from Karl Heinz Gansel DL6EBS Germany) to operate a Callisto on a Linux-like operating system FEDORA. FEDORA allows to run a Windows emulator called Wine and it works fine with Callisto software up to version V1.17. Newer versions don't run yet, probably due to a bug in the serial communication drivers/libraries. This, I'll check and repair as soon as possible.

Pending requests for Callisto

There is still quite some interest in Callisto spectrometers from several countries like: Algeria, Bulgaria, Columbia, Cuba, Ecuador, Greece, Morocco, Pakistan, Poland, Portugal, Rwanda, Romania, Turkey, Uruguay {list incomplete}

On the other hand several observatories in India do not yet provide data to the network. And some other observatories do not provide data anymore like Costa Rica, two in Hawaii, ERAC (Germany), Kenya, Egypt, Melbourne {list incomplete}

It would be nice, if those countries that do not provide data yet/anymore could spend their instruments to countries that want to do solar radio burst observations but cannot afford the hardware to set up their own station.

New production lot Callisto

Thanks to my apprentices Alexander and Thomas a small new series of Callisto spectrometer has been produced and is now in endurance test. Some of them show extremely good performance in terms of Allan-time (> 10000 s), see figure 4.
Usually the Allan-time of this kind of instruments is in the order of 600 s ... 1200 s, I'd like to understand why exactly this spectrometer performs such a good stability...

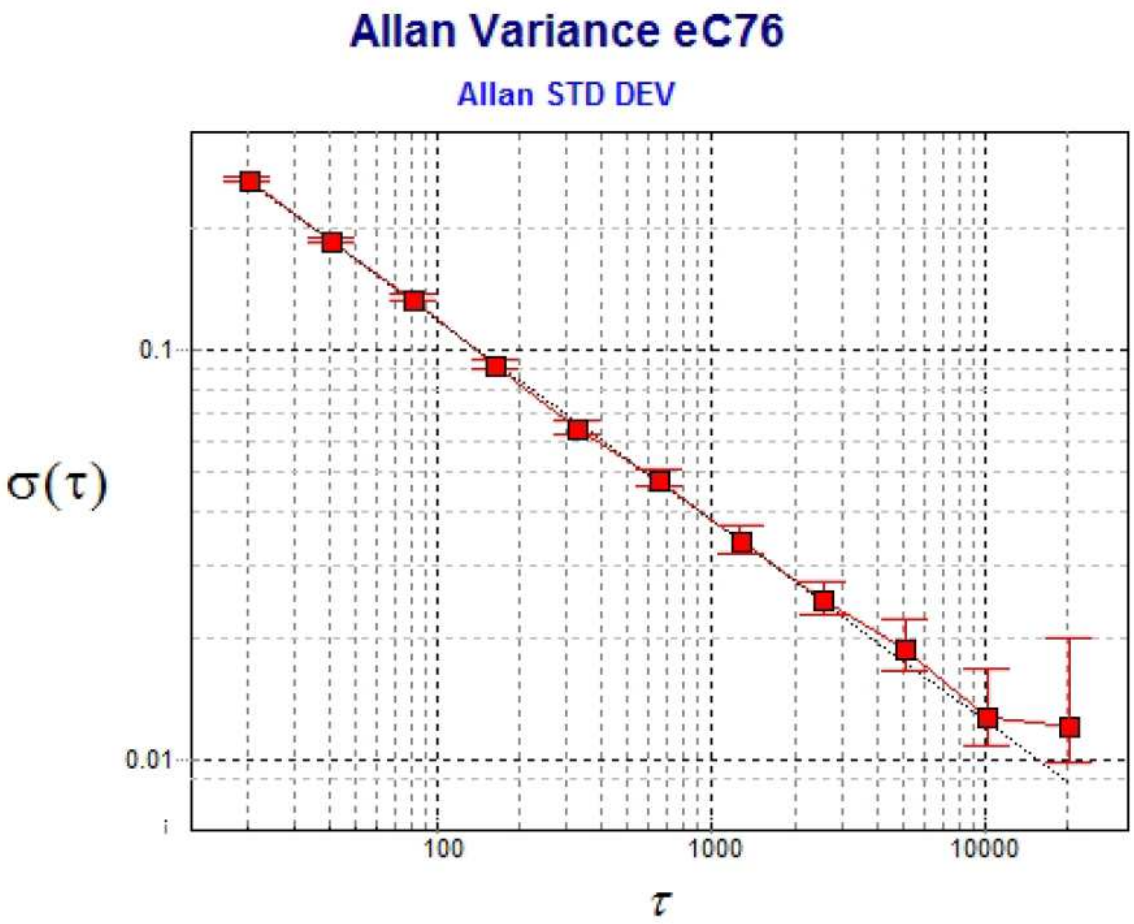

Figure 4: Allan time variance plot of Callisto eC76. X-axis denotes to integration time in seconds, y-axis shows standard deviation of the signal, both axis in log scale. Gray straight line depicts the radiometer equation based on Gaussian distributed noise.

AOB:

- The domain of the current FTP-server ftpexchange.imvs.technik.fhnw.ch at university of applied sciences in Brugg/Windisch will be taken out of service soon within the next few months. Those of you who actively send their FITS-files via FTP-Watchdog or with their own tool to this server, they should **now change** the adress of the server to the new address ftpexchange.cs.technik.fhnw.ch

- 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 Astronomy, ETH Zurich.

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On the other hand if you think someone else might be interested in this kind of info, please let me know his/her email-address to be added to the data base.

Christian Monstein, Institute for Astronomy, ETH Zurich, Switzerland. email: monstein(at)astro.phys.ethz.ch