CALLISTO status report/newsletter #90

Solar activity increasing

On May 22, 2021 there was a nice type II burst, recorded by several stations of the e-Callisto network. Burst was composed out of fundamental and 1st harmonic radiation, including split band. Some stations can provide dynamic spectrum up to 400 MHz. Here all observations are presented in alphabetical order.

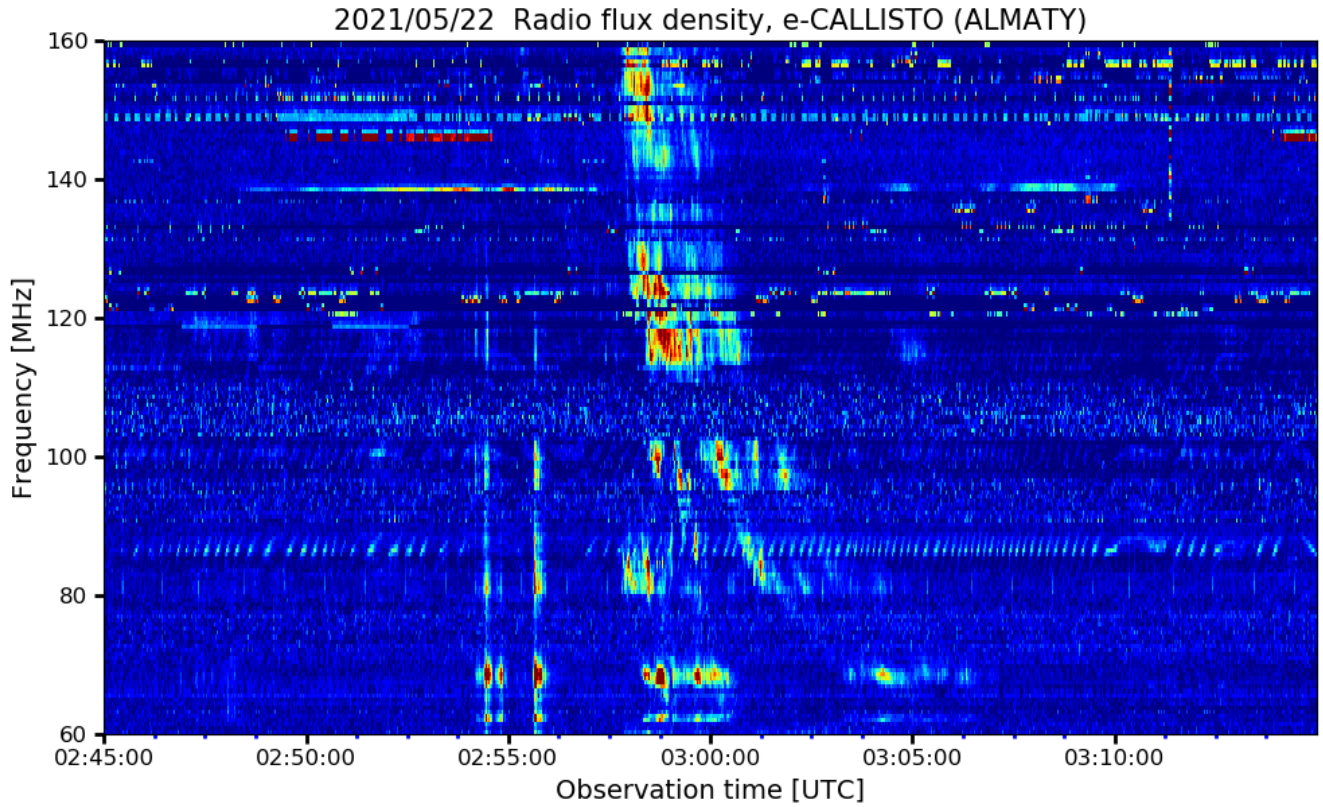

Fig. 1: Low frequency part, observed with CALLISTO in ALMATY, Kazakhstan.
More information about location: https://en.wikipedia.org/wiki/Tien_Shan_Astronomical_Observatory

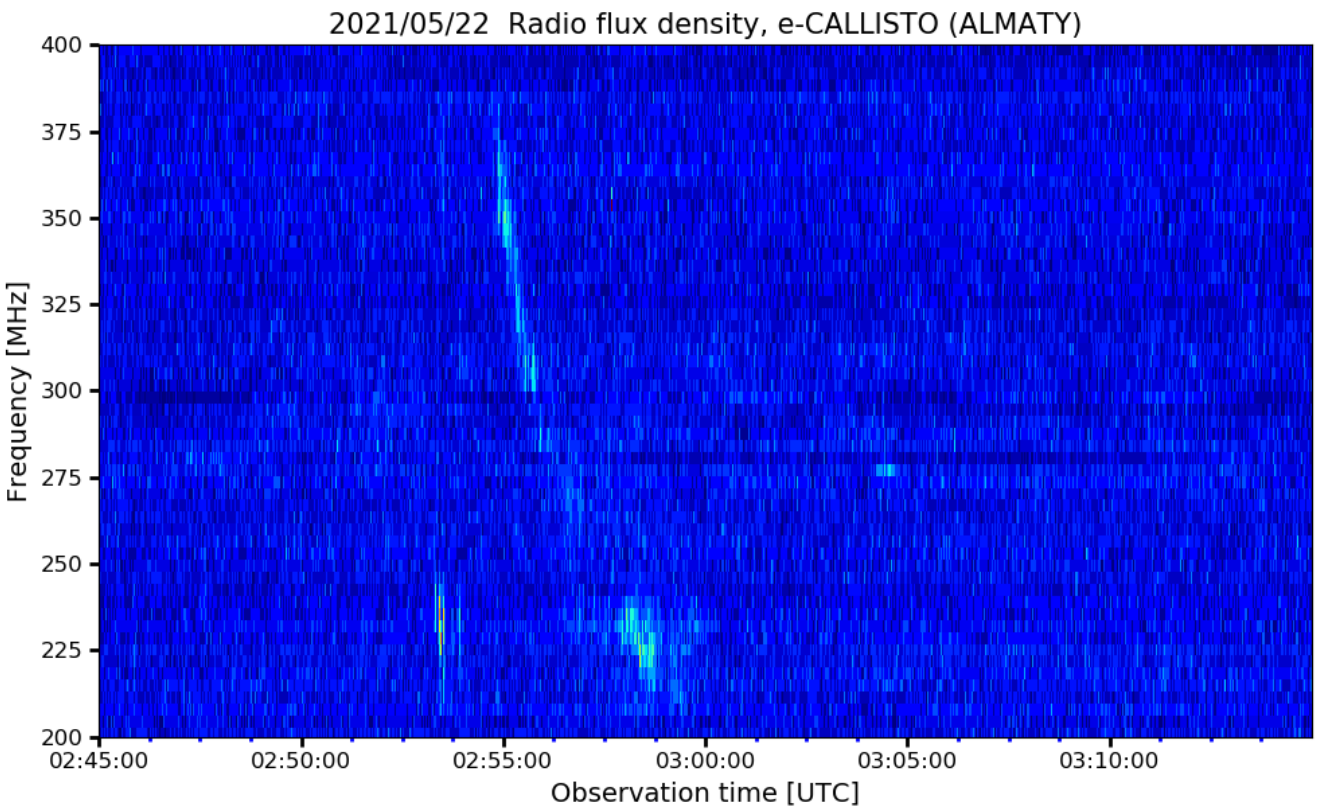

Fig. 2: High frequency part, observed with CALLISTO in ALMATY, Kazakhstan. While low frequency range shown in figure 1 is suffering from strong radio interference, the high frequency part is quite clean. We can also see the triggering type III burst around 02:54 UT.

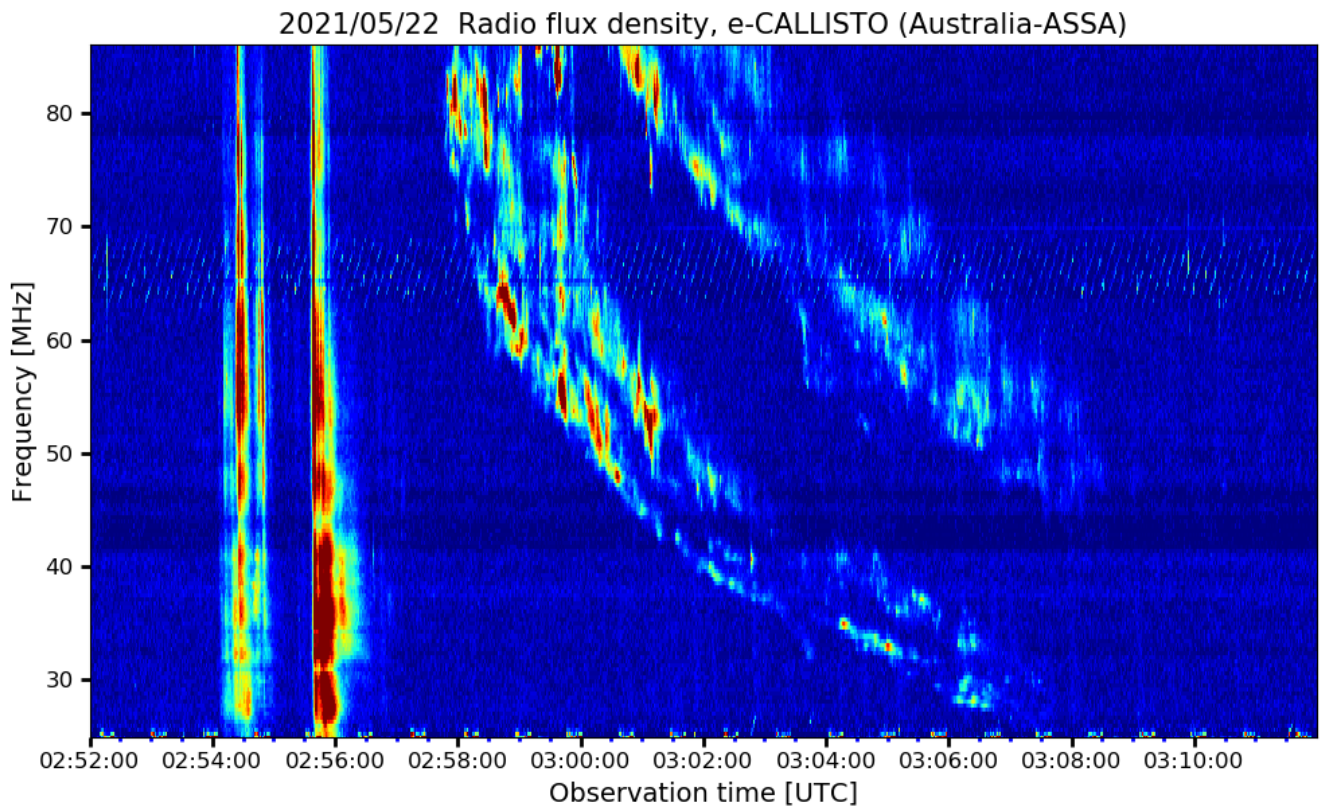

Fig. 3: Low frequency part, observed with LWA and CALLISTO at Astronomical Society of South Australia (ASSA). We clearly see fundamental and 1st harmonic as well as split band structure. More information about ASSA: https://www.assa.org.au/

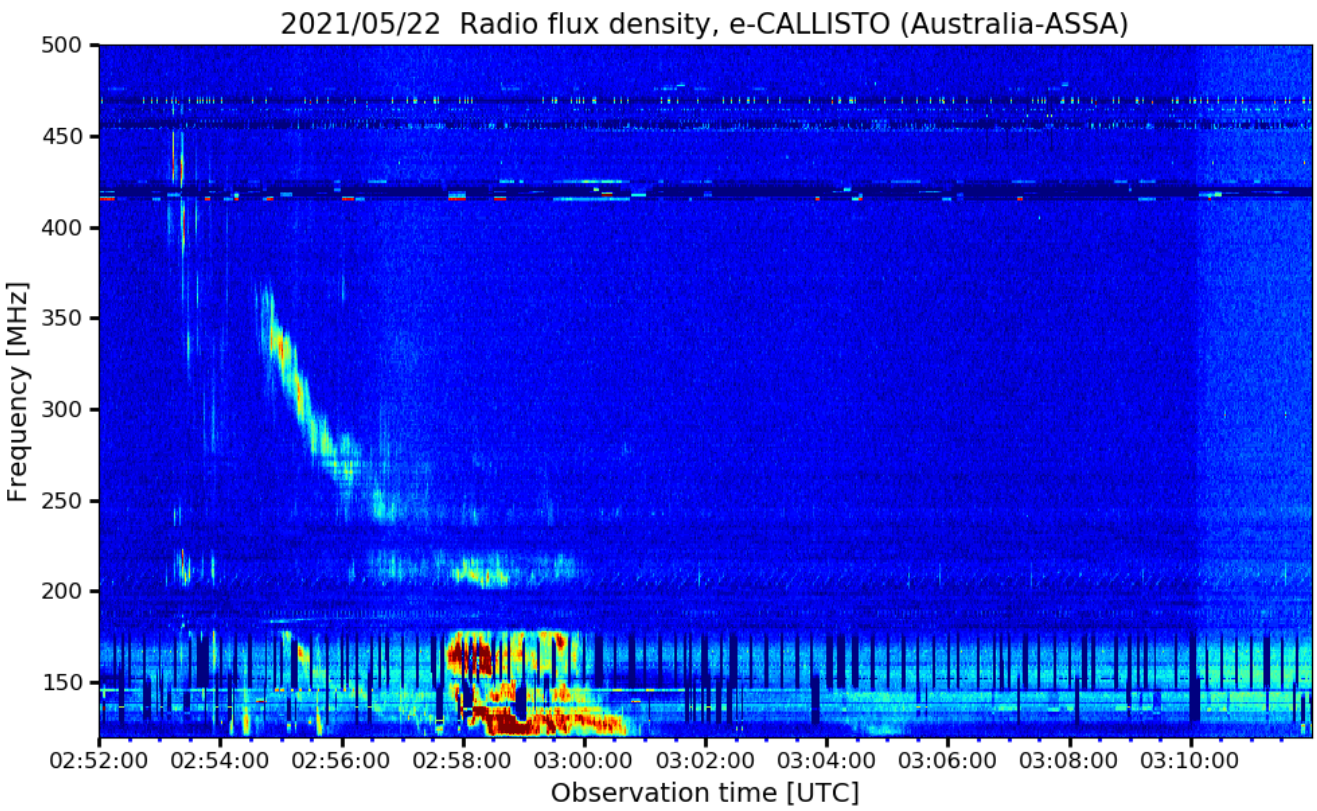

Fig. 4: The same burst as in figure 3, here the high frequency part, observed with LPDA and CALLISTO. Here, 1st harmonic is the dominant part in the dynamic spectrum.

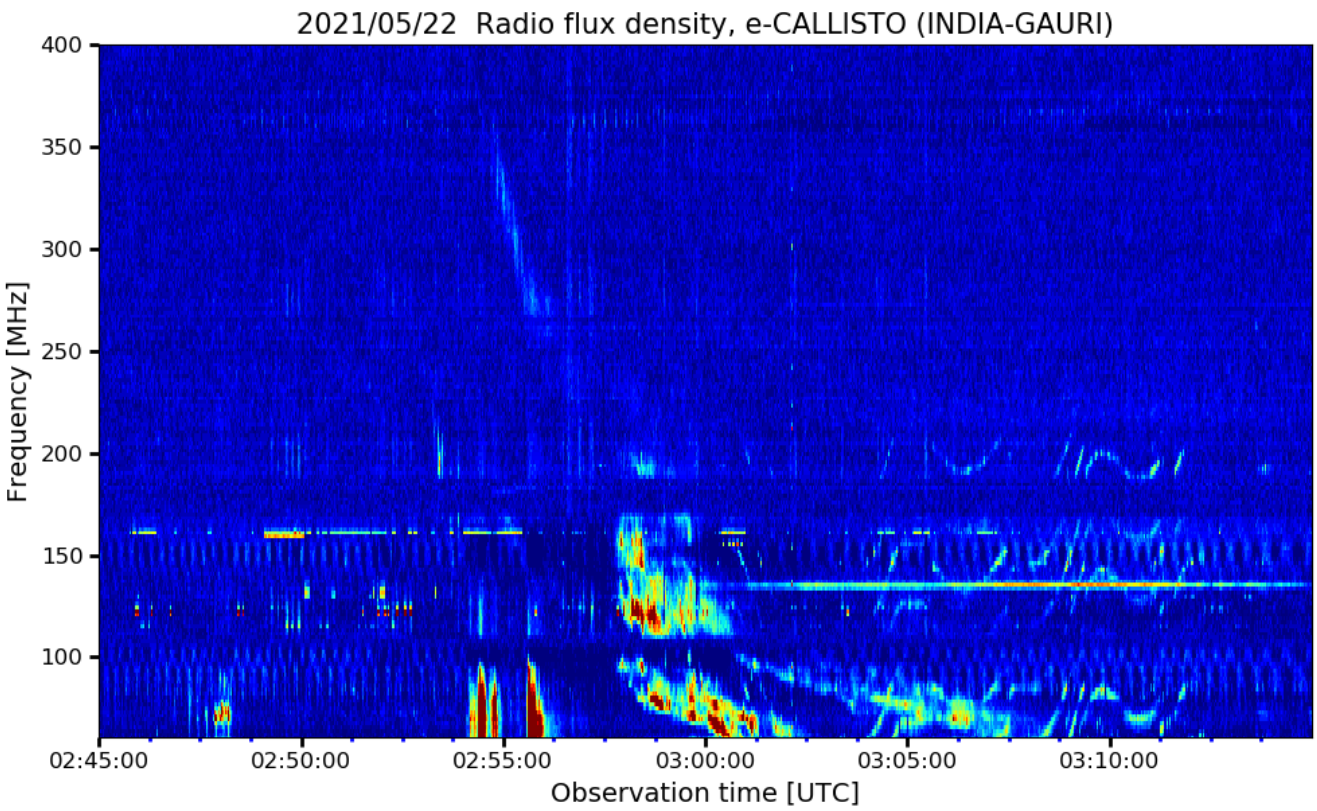

Fig. 5: Type II, observed at GAURIBIDANUR, India. FM-frequency range is notched out with a FM-reject filter.
Information about the observatory: https://en.wikipedia.org/wiki/Gauribidanur_Radio_Observatory

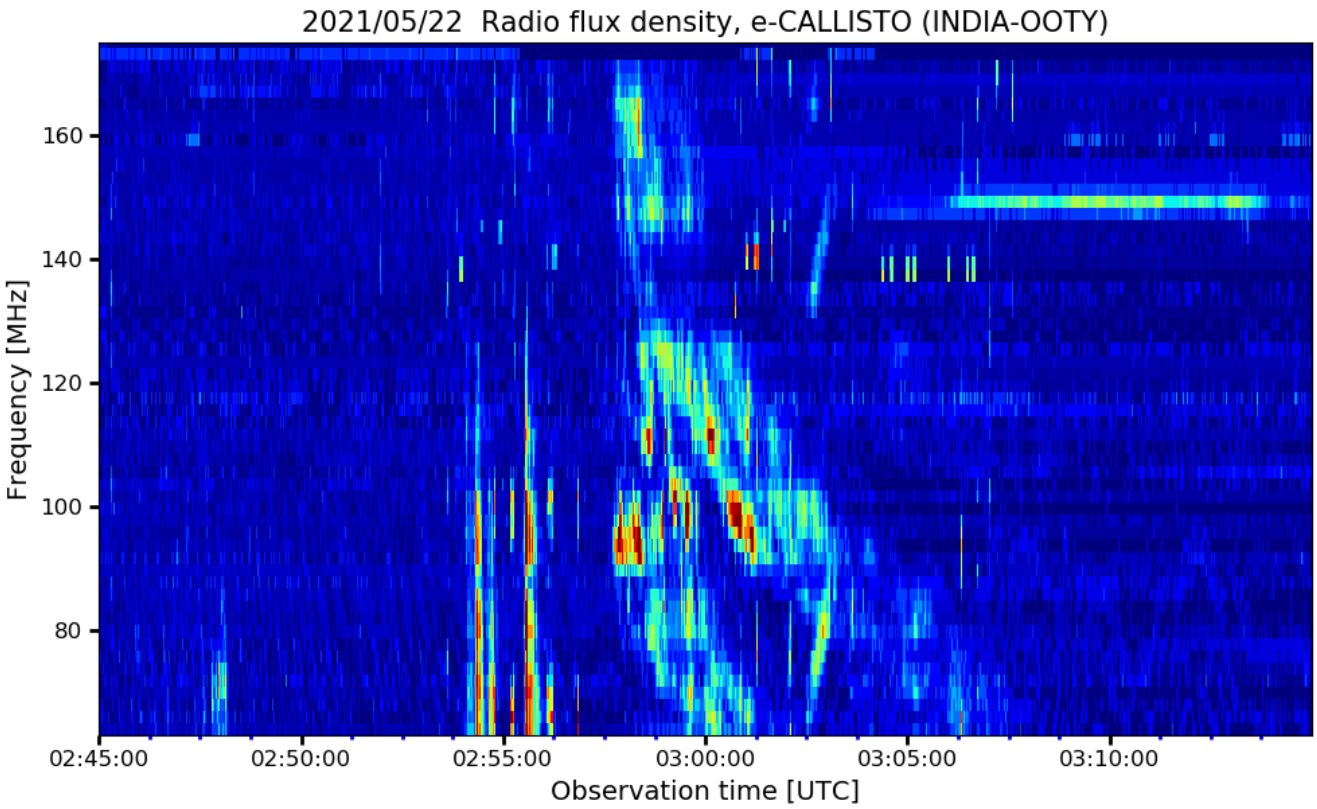

Fig.6: Same bust, observed with LPDA and CALLISTO in OOTY, India.
Information about the observatory: https://en.wikipedia.org/wiki/Ooty_Radio_Telescope

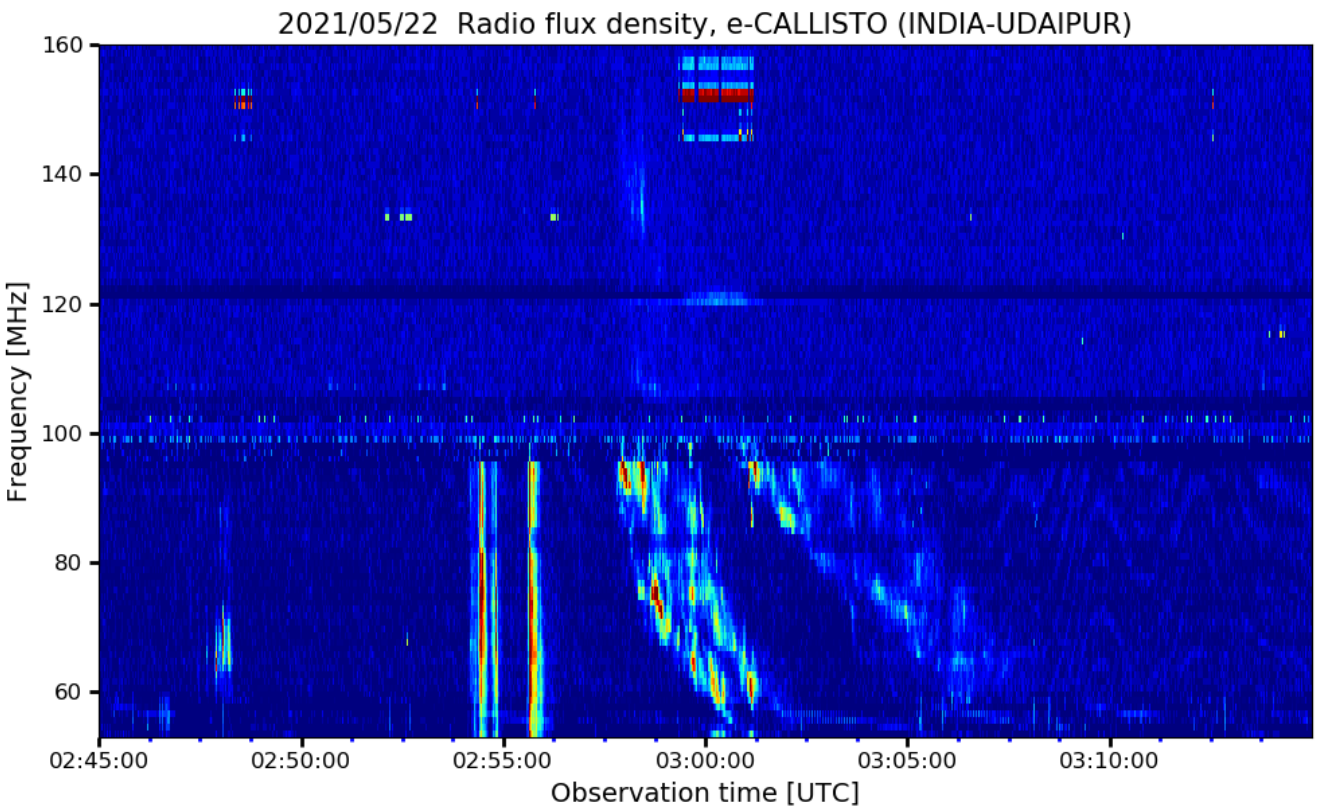

Fig. 7: Same burst, observed with LPDA and CALLISTO at Solar Observatory in Udaipur (USO), India. Information about location: https://en.wikipedia.org/wiki/Udaipur_Solar_Observatory

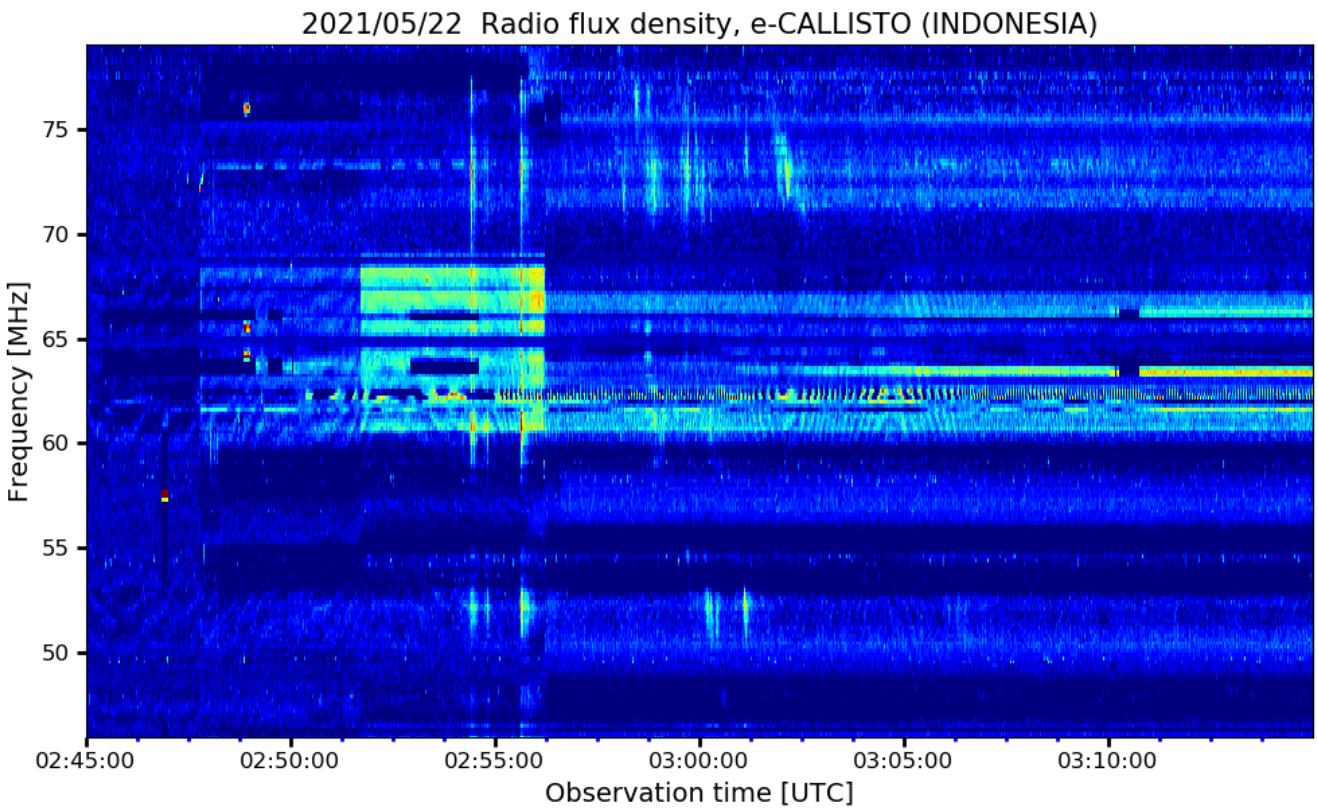

Fig. 8: Same burst, observed with LPDA in Sumedang, Indonesia.
More information here: https://ui.adsabs.harvard.edu/abs/2016ASPC..504..331M/abstract

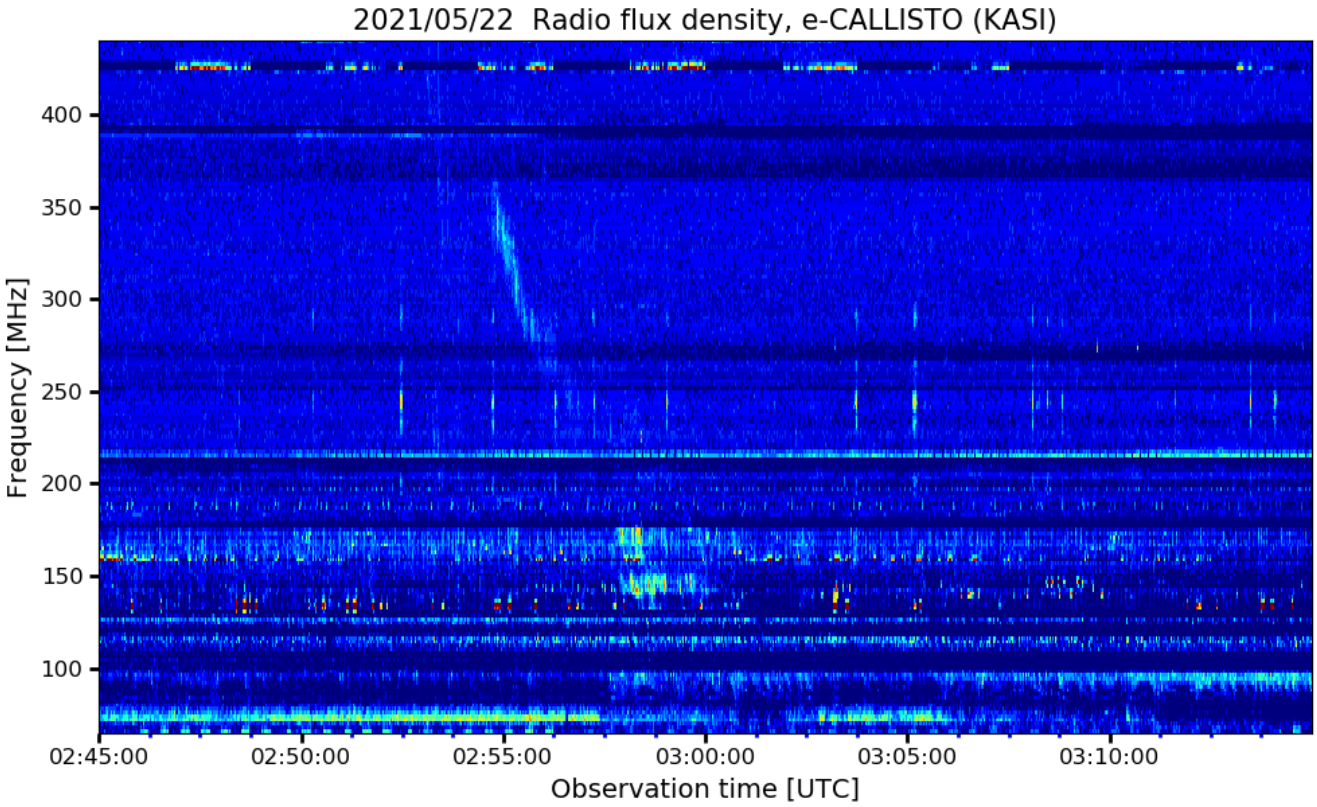

Fig. 9: Same burst, observed with LPDA and CALLISTO at KASI in Daejeon, South Korea. Antenna is tracking the Sun. Due to strong local rfi there is no low noise amplifier (LNA) installed. Nevertheless we can detect the burst in the dynamic spectrum.
More information here: https://de.wikipedia.org/wiki/Korea_Astronomy_and_Space_Science_Institute

CESRA NEWS

Analyzing the propagation of EUV waves and their connection with type II radio bursts
by combining numerical simulations and multi-instrument observations
by A. Koukras et al.*
http://www.astro.gla.ac.uk/users/eduard/cesra/?p=2817

Radio and X-ray Observations of Short-lived Episodes of Electron Acceleration in a Solar Microflare
by R. Sharma et al.
http://www.astro.gla.ac.uk/users/eduard/cesra/?p=2832

Discovery of correlated evolution in noise storm source parameters:
Insights on $\vec{B}$ dynamics during a microflare
by A. Mohan
http://www.astro.gla.ac.uk/users/eduard/cesra/?p=2846

Harmonic Electron Cyclotron Maser Emission Excited by Energetic Electrons Traveling inside a Coronal Loop
by M. Yousefzadeh et al.*
http://www.astro.gla.ac.uk/users/eduard/cesra/?p=2856

Parametric simulation studies on the wave propagation of solar radio emission: the source size, duration, and position
by Zhang et al.*
http://www.astro.gla.ac.uk/users/eduard/cesra/?p=2860

PIC Simulation of Double Plasma Resonance and Zebra Pattern of Solar Radio Bursts
by Li et al.*
http://www.astro.gla.ac.uk/users/eduard/cesra/?p=2937----------
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Papers with connections to e-Callisto:

https://arxiv.org/pdf/2102.02533.pdf
https://arxiv.org/pdf/2007.09203.pdf
https://arxiv.org/pdf/2104.01345.pdf
https://arxiv.org/pdf/2103.05942.pdf

News about station in Spain

Our LPDA antenna was placed on a dual (azimuth-elevation) rotator system (Yaesu G-5500) on Wed March 25th. Pictures in: https://celestina.web.uah.es/wordpress/?page_id=110
shows the antenna in its parking position (North) and in a fixed position (Az=180º, El=80º). The instrument was left in this fixed position until Apr 7th.
On Wed Apr 7th, automatic tracking was implemented, driven by an ARSVCOM control system via an EA4TX ARS-USB interface and the ***SonneUndMond*** (SuM) Sun tracking software provided with SatPC32.

Fig. 10: LPDA and tracking system in Sigüenza, Spain

Fig. 11: From left to right: Antenna tracker and power supply, CALLISTO, monitor and notebook for data analysis in Sigüenza, Spain.

AOB

- We got a new web-site with CALLISTO-related products here: http://www.e-callisto.org/Products/Products.html

- IRSOL is meant as the new core-station of the e-Callisto network
- Another access to Callisto data here: https://vwo.nasa.gov/ See also separate pdf
- 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 University of Applied Sciences, Institute for Data Science FHNW in Brugg/Windisch, Switzerland. Additionally, data are available at ESA site here: SSA Space Weather Portal (http://swe.ssa.esa.int/).
- In case you (as the responsible person for operating and maintenance of Callisto) are leaving the institute or, if you are retiring, please send me name and email address of the successor.

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