



Contribution ID: 179

Type: Poster

Solar radio flare observations with the Radio Neutrino Observatory Greenland (RNO-G)

The Radio Neutrino Observatory Greenland (RNO-G) hunts for neutrinos at the highest energies interacting in the deep glacial ice. Seven of its 35 stations (24 antennas/station) have been taking data since 2022. RNO-G is sensitive in the 80-750 MHz region and records snapshots of time-domain waveforms of with GSa/s sampling rate whenever signals above the thermal noise floor trigger a station. RNO-G regularly observes solar flares coincidentally with dedicated solar observing radio instruments like Callisto and SWAVES, and with X-class GOES X-ray flares. Data is available in full time- and frequency resolution for all flares. The recorded waveforms show significant impulsivity on O(10's ns) timescales. While these pulses constitute a unique calibration source for the absolute pointing of RNO-G, they also indicate small-scale emission in the sub-structure of radio flares.

In this contribution we highlight the time-domain features seen in the solar flares observed with RNO-G in order to promote the availability and potential usefulness of RNO-G data to the solar physics community.

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Session Classification: Coffee break and poster session 2

Track Classification: Multi-scale energy release, flares and coronal mass ejections