

Observation of solar radio bursts in the Radio Neutrino Observatory Greenland (RNO-G)

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The Radio Neutrino Observatory Greenland (RNO-G) is an in-ice neutrino detector currently under construction. It is designed to detect ultra-high-energy neutrinos with energies exceeding ~ 10 PeV, and currently 8 of the foreseen 35 stations have been deployed and are taking data. This contribution discusses observations of solar radio bursts by RNO-G stations, which include both deep antennas (up to 100 m in the ice) and near-surface antennas, operating in the 80–700 MHz frequency range.

While solar radio bursts represent a background for neutrino detection, they also can serve as a calibration source due to the known position of the Sun. Additionally, in RNO-G the high sampling rate of the recorded waveforms enables the study of radio bursts with nanosecond-scale temporal resolution.

We present examples of impulsive signals recorded during solar radio bursts with RNO-G in the summer periods of 2022 and 2023. The reconstruction of signal directions and results of antenna position calibration using solar flares are also discussed.

Collaboration you are representing

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