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The Radio Neutrino Observatory in Greenland: Design and Construction

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The Radio Neutrino Observatory - Greenland (RNO-G) is currently under construction in proximity of Summit, 3216 m above sea level.

The observatory consists of an array of independent stations, each including both a deep component (with fifteen vertically and horizontally polarized antennas in three 100m-deep boreholes, configured partially as a phased array trigger) and a shallow component (with nine Log-Periodic Dipole Antennas just below the surface, for cosmic ray identification and reconstruction). All the antennas are readout by a central Data Acquisition unit that has been designed and developed to be low-noise and low power in the 80-750MHz bandwidth.

Each station is autonomous and relies on a renewable-energy power system and built-in wireless communications to transfer data to Summit station. Currently 7 of 35 planned stations have been installed and are in operation. This talk will review the instrument design, status, and initial performance of these stations and plans to complete the construction of the full RNO-G array.

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