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GRAND and latest progress of its prototype array

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GRAND is a planned large-scale, worldwide radio array designed for autonomous self-triggered detection of ultra-high-energy cosmic rays and neutrinos. GRANDProto300 is one of pioneering prototype array of the GRAND experiment. It consists of 300 radio antennas and will cover an area of $(200, \text{km}^2)$ in a radio-quiet region of western China. Serving as a test bench for the GRAND experiment, GRANDProto300 aims to achieve autonomous radio detection and reconstruction of highly inclined air showers. It is designed to detect ultra-high-energy cosmic rays in the energy range of $(10^{16.5} - 10^{18}, \text{eV})$ at a rate comparable to that of the Auger Observatory. Over the past two years, significant improvements have been made to both the hardware and firmware of GP300. Currently, 65 antenna units have been deployed at the site. We present the current status of detector commissioning, including updates on hardware, calibration results such as GPS timing and antenna positioning. Additionally, we discuss the solar radio bursts associated with solar flares, the galactic radio emissions detected, and preliminary cosmic ray candidates.

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