

Observation of non-thermal planetary radio emissions with EISCAT 3D

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EISCAT 3D is developing as incoherent scatter radar to study the terrestrial ionosphere and atmosphere. Due to large aperture area and low noise temperature of the receiving system of EISCAT 3D and the uniqueness of the receiving frequency of 233 MHz, it can also be a useful tool to study non-thermal radio emissions from the solar system planets. In this paper, feasibility and advantage of EISCAT 3D for observing non-thermal planetary radio emissions are presented. Following topics will be discussed. (1) Time variability of Jovian synchrotron radiation, (2) Radio emissions from lightning discharges occurred in the atmospheres of Mars and Saturn, and (3) Recent trials to detect incoherent radio emissions from extra-solar planets.