

Japan's Activities for the EISCAT_3D Project

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The European Incoherent Scatter (EISCAT) Scientific Association started construction of the first stage of the EISCAT_3D radar in September 2017 under international collaboration. The EISCAT_3D radar is expected to be operational in January 2023. At the first stage, a core site with a transmission power of about 4~5 MW and two receive-only remote sites will be operated. The ground preparation for the three sites is in progress, and each radar unit will be installed at the sites in summer 2022.

The National Institute of Polar Research (NIPR) had been contributing to the EISCAT_3D construction by supplying radar transmitter power amplifiers (SSPAs) in collaboration with the EISCAT scientific association and ISEE Nagoya University. The high energy-efficient SSPAs have been used for engineering verification tests at the EISCAT Tromsø and Kiruna sites since 2016. In February 2020, NIPR has concluded an MoU with EISCAT to supply in-kind Subarray Transmitter Units which are selected for the first stage by the EISCAT Headquarters through the international tendering process. After these contributions to the EISCAT_3D construction, NIPR establishes the Advanced Radar Research Promotion Center in April 2022 to promote joint usage and collaborative research of the EISCAT_3D radar. The Japan's integrated research project named "Study of coupling processes in solar-terrestrial system" which includes the EISCAT_3D radar in addition to the Equatorial MU (EMU) radar and the global network of observations and data has been constantly approved by the Science Council of Japan as one of high-priority programs of the Master Plan 2014/2017/2020. The EISCAT_3D radar will be used to study energy and mass transport on the Earth.

In this paper, we report the prospects of Japan's activities for the EISCAT_3D project.

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