

Current Status of the EISCAT_3D project and the Japan' s contribution

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The European Incoherent Scatter(EISCAT) Scientific Association with associate members from Sweden, Norway, Finland, UK, China and Japan, has officially started the construction of the 1st stage of EISCAT_3D in September 2017 toward its completion by the end of 2021, including the commissioning of the radar system. EISCAT_3D is the major upgrade of the existing EISCAT mainland radars, with a multi-static phased array system composed of one core (transmit-receive) site and 4 receive-only remote sites to provide us 50-100 times higher temporal resolution than the present system. The construction of EISCAT_3D is planned to implement by 4-staged approach, starting from the core site with half transmitting power about 5MW and 2 receiving-remote sites in Sweden and Finland as the 1st stage. At Skibotn, the core site in northern Norway, geoengineering surveys and groundworks have been almost completed with the extension of power lines and optical fiber cables. The site buildings are scheduled to be built in 2020 summer to start the installation of the radar systems.

The National Institute of Polar Research (NIPR) has been contributing in-kind to the construction of EISCAT_3D by supplying radar transmitter units in collaboration with the EISCAT scientific association and ISEE/Nagoya University. The EISCAT_3D program in Japan was successfully granted by the Science Council of Japan as one of the high-priority programs of the Master Plan 2014/2017/2020 and the Roadmap 2014 program by MEXT (Ministry), as a core facility of a comprehensive program: "Study of Coupling Processes in the Solar-Terrestrial System" . Under these positive evaluations, high energy-efficient transmitter power amplifiers (SSPAs) has been developed and provided for the engineering verification test at the EISCAT Tromso site since 2016. In February 2020, NIPR has concluded an MOU with EISCAT to supply in-kind the Subarray Transmitter Units which have been selected through the international tendering process by the EISCAT_3D project office.

In this paper, we will overview the recent progress of the project and our prospect for the contribution to the EISCAT_3D project.

Keywords: incoherent scatter radar, space weather, Arctic