EISCAT_3D – Next Generation Space Radar in the European Arctic

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EISCAT is currently building EISCAT_3D, the World's most advanced 3-dimensional imaging radar for atmospheric, ionospheric and near-Earth space investigations. EISCAT_3D is a European Strategy Forum for Research Infrastructures (ESFRI) Landmark in the Environment domain.

The fully steerable, tri-static, phased-array incoherent scatter radar is located in Skibotn (Norway), Karesuvanto (Finland), and Kaiseniemi (Sweden). The transmit-receive array at Skibotn consists of about 10,000 aerials and ten 91-aerial outrigger receivers in the immediate vicinity. The receive-only arrays of Kaiseniemi and Karesuvanto consist of about 5,000 aerials each.

It is foreseen that EISCAT_3D will be able to make first science observation with a subsystem of the Skibotn radar (NO-7) with 637 kW. Thereafter, EISCAT_3D will gradually expand to fully tri-static operations.

EISCAT_3D will eventually replace the 930-MHz UHF and the 224-MHz VHF radars at Tromsø, even though some overlap is planned for calibration purposes and tri-frequency observations.

Here we will give an overview of the current status of EISCAT and EISCAT_3D and it's future use for ionospheric as well as space object/space debris work.