

The EISCAT_3D System and Status

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The EISCAT Scientific Association has been operating incoherent scatter radars in the arctic since the early 1980s. Those systems have been extremely productive over the decades, supporting a wide range of scientific topics within geospace research and resulting in more than 2000 publications in peer-reviewed journals. For the past several years the EISCAT community, with significant support from the European Commission, has been working toward a new set of radar systems to replace the now aging infrastructure. This distributed radar, called EISCAT_3D, will provide the scientific community with new measurement capabilities that far exceed, both quantitatively and qualitatively, those presently available.

EISCAT_3D, when it is fully implemented, will consist of five phased array antennas strategically positioned in northern Norway, Sweden, and Finland. One of the antennas will include a distributed 10 MW peak power transmitter with full polarization capabilities, rapid steering, and antenna aperture coding options. The receive antenna arrays will be capable of instantaneously covering the entire transmit beam, thus providing a large number of intersecting volumes for vector drift measurements. The overall system will, furthermore, have sufficient sensitivity to provide order of magnitude improvements in both spatial and temporal resolution over the present radars.

We will present an overview of the system in this talk along with an update on the present status of the overall project.

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