

## NeIC EISCAT\_3D support project: Nordic computing challenge

*Friday, March 10, 2017 10:50 AM (30 minutes)*

EISCAT\_3D will establish a system of distributed phased array radars that will enable comprehensive three-dimensional vector observations of the atmosphere and ionosphere above Northern Fenno-Scandinavia.

The use of new radar technology, combined with the latest digital signal processing, will achieve ten times higher temporal and spatial resolution than obtained by present radars while simultaneously offering, for the first time, continuous measurement capabilities.

The flexibility of the

EISCAT\_3D system will allow the study of atmospheric phenomena at both large and small scales unreachable by the present systems.

The EISCAT\_3D system will, in its first stage, consist of three radar sites: one with both transmitting (TX) and receiving (RX) capabilities and two with only RX capabilities.

The sites will be located in remote locations in three different countries (Finland, Norway and Sweden) and will be separated geographically by approximately 130 km.

Two additional receive sites, at distances 200-250 km from the transmit site, are planned for the full EISCAT\_3D system.

In addition to the radar sites, EISCAT\_3D will also have an operations centre and one or more data centres.

The NeIC EISCAT\_3D support (E3DS) project aids the future EISCAT\_3D project in planning and tendering their required e-infrastructure.

This includes the gathering of the EISCAT\_3D use-cases and transforming these into a set of standard requirements for the various components of the overall EISCAT\_3D computing e-infrastructure.

The NeIC EISCAT\_3D support project interacts with EISCAT\_3D and Grid and Cloud e-infrastructure projects. This interaction is needed to match the expertise in EISCAT\_3D with corresponding expertise in the existing e-infrastructure projects in the various fields.

In effect, the E3DS project builds the collaborations among EISCAT\_3D, national e-infrastructure providers and network providers.

The NeIC EISCAT\_3D support project contributes by making it possible to expand and enhance the usage of existing Nordic e-infrastructures.

By introducing a new field of research to the existing Nordic e-infrastructure the overall capabilities will be extended.

Adding another large field of research into the existing e-infrastructures can spread the load of resource and cost-sharing.

In return the EISCAT\_3D project will benefit from already supported and maintained e-infrastructures for computing and storage.

Ideally, the EISCAT\_3D project will be able to use the e-infrastructure transparently and focus on atmospheric science.

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**Session Classification:** Earth, Environmental Science & Biodiversity II

**Track Classification:** Earth & Environmental Sciences & Biodiversity Applications