



## **KAIRA - Kilpisjärvi Atmospheric Imaging Receiver Array**

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KAIRA (Kilpisjärvi Atmospheric Imaging Receiver Array) is a new project of the Sodankylä Geophysical Observatory in Finland. KAIRA is a dual array of omni-directional VHF radio antennas, which will be constructed during 2011. The antennas are phased together to form a wide-bandwidth, multi-beam, electronically steerable receiver system. It makes extensive use of the proven LOFAR antenna and digital signal-processing hardware, and the rapid multi-beam digital switching will provide huge gains in scientific capability and observational efficiency. KAIRA will act as either a stand-alone passive receiver, as a radar receiver for EISCAT's VHF transmitter in Tromsø or possibly for use in conjunction with other Fenno-Scandinavian VHF experiments. It will be used for conducting scientific observations of atmospheric and astrophysical phenomena as well as engineering experiments. In addition to being a powerful observing instrument in its own right, KAIRA will act as a pathfinder for technologies to be used in the proposed EISCAT\_3D system which will ultimately replace EISCAT's present generation of radars on the Scandinavian mainland. It will also remain compatible with the LOFAR project and might provide a crucial extreme northern baseline to future LOFAR extensions. This presentation shall provide a summary of the project and the current status, as well as the anticipated technical challenges and our strategies to overcome them.