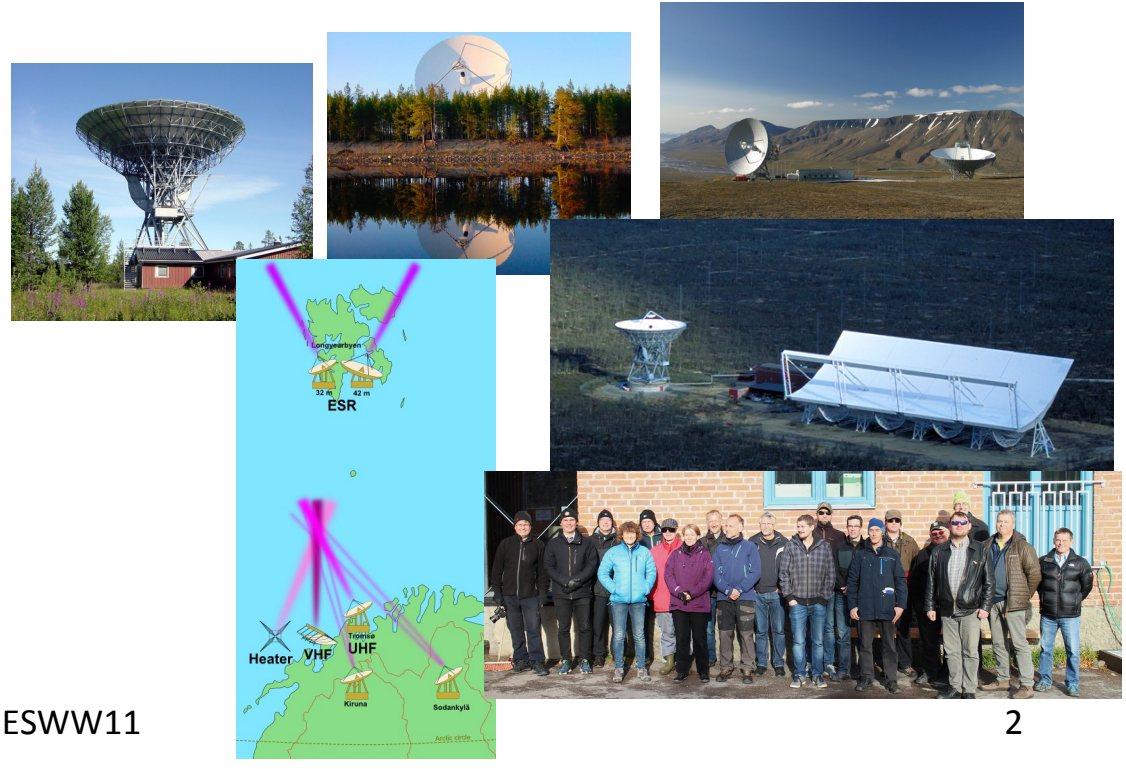
The EISCAT_3D radar system: Conclusions from the Preparatory Phase

Anders Tjulin, Ingrid Mann and Craig Heinselman
EISCAT Scientific Association

This project has received funding from the European Union's Seventh Framework Programme for research, technological development

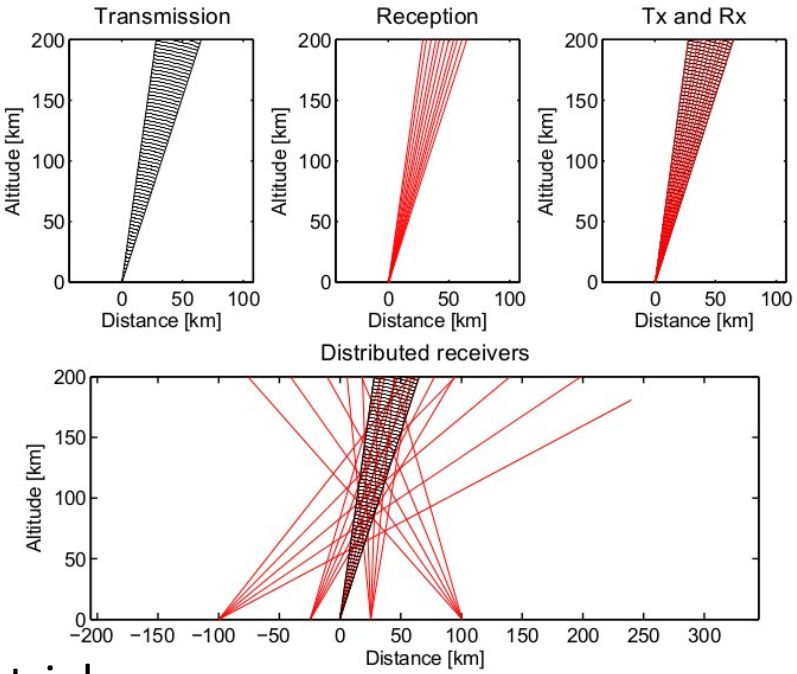
EISCAT Scientific Association

- International research organisation
  - Solar-terrestrial physics
  - Atmospheric science
- Operates three incoherent radar systems and some additional instruments
  - Tromsø (Norway), Kiruna (Sweden), Sodankylä (Finland), Longyearbyen (Svalbard)



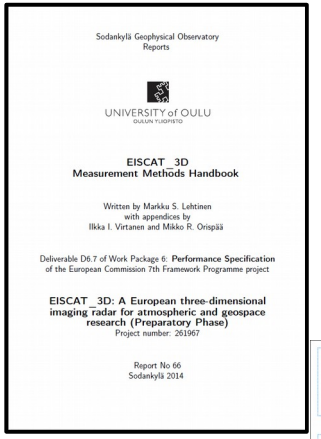
EISCAT_3D

- The next generation research radar
- Multiple phased arrays
- State-of-the-art signal processing and beam-forming techniques
- Unique set of capabilities for one system:
  - Resolution of space-time ambiguity
  - 3D volumetric capability
  - Sub-beam width measurements
  - Continuous monitoring of solar variability on terrestrial atmosphere and climate
  - Model validation for space weather and global change



The road to implementation

- Design Study (FP6) 2005 – 2009
- Preparatory Phase (FP7) 2010 – 2014:
  - Science Case
  - Handbook of Measurement Principles
  - Performance Specification
  - Technical Work
  - Consortium Building


Sodankylä Geophysical Observatory Reports

UNIVERSITY of OULU

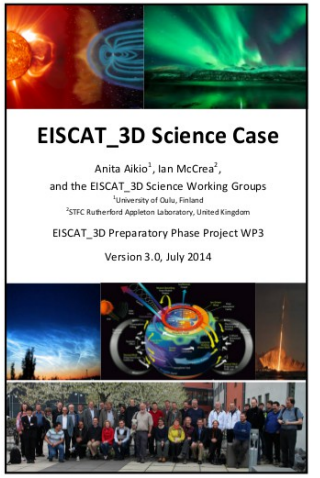
EISCAT_3D
Measurement Methods Handbook

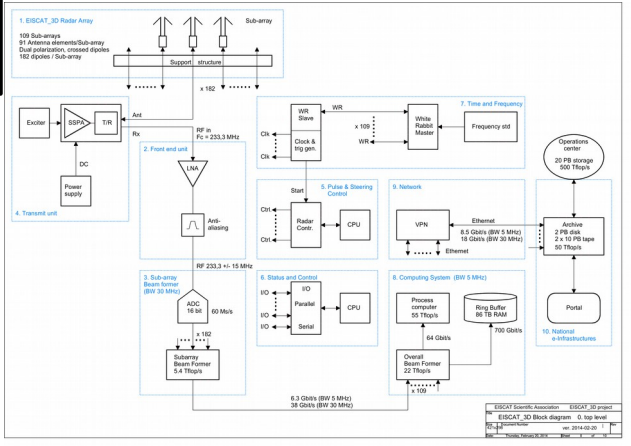
Written by Markku S. Lehtinen
with appendices by
Ilkka I. Virtanen and Mikko R. Orispää

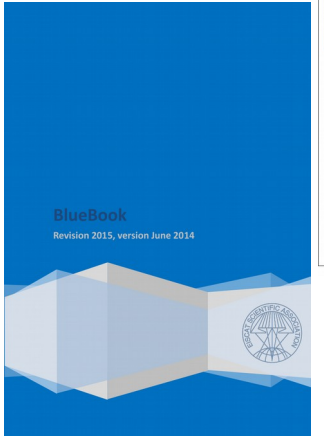
Deliverable D6.7 of Work Package 6: Performance Specification of the European Commission 7th Framework Programme project

EISCAT_3D: A European three-dimensional imaging radar for atmospheric and geospace research (Preparatory Phase)
Project number: 261967

Report No 66
Sodankylä 2014

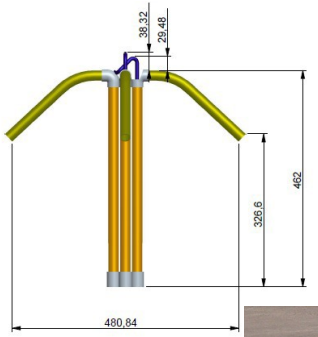


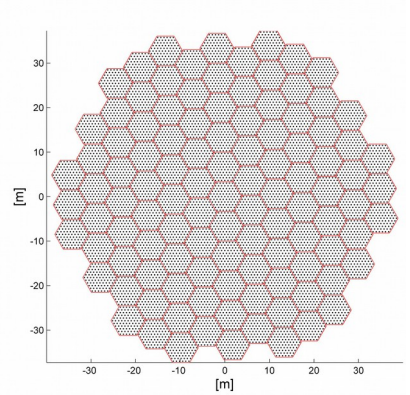


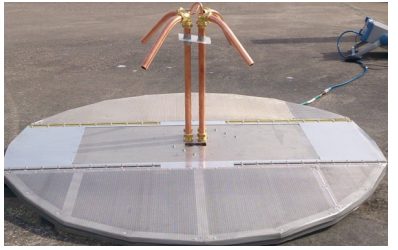


Building for the future

- Construction in four stages
- First stage planned to be in full operation in 2021







Information

- Much more information available online
  - About EISCAT: www.eiscat.se
  - About EISCAT_3D: www.eiscat3d.se