

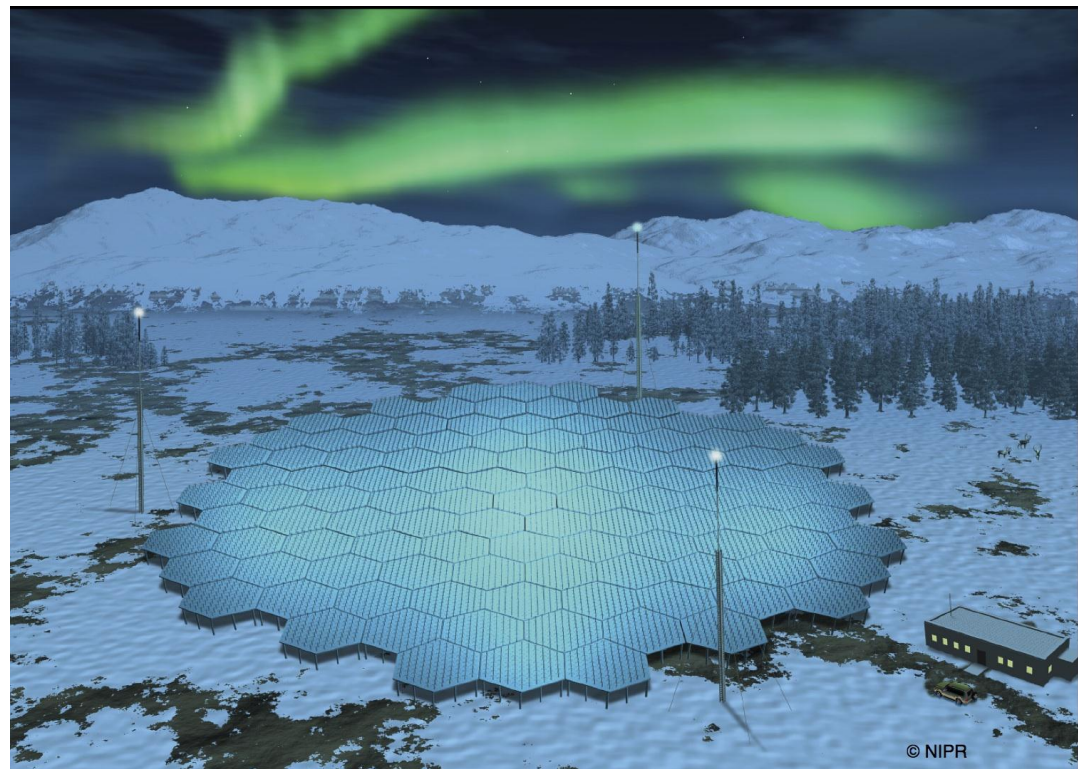


EISCAT_3D Status



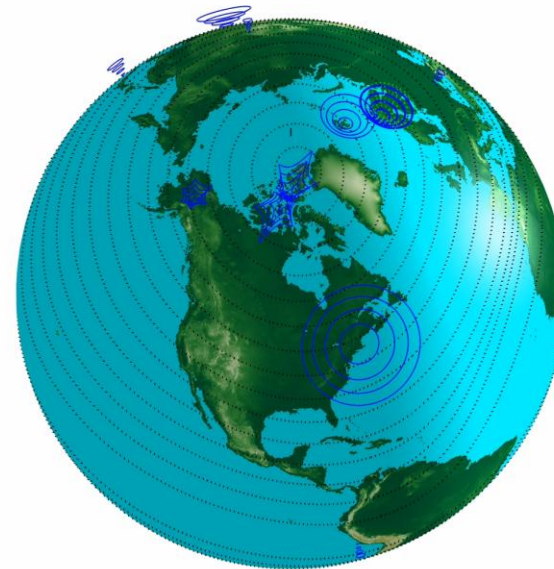
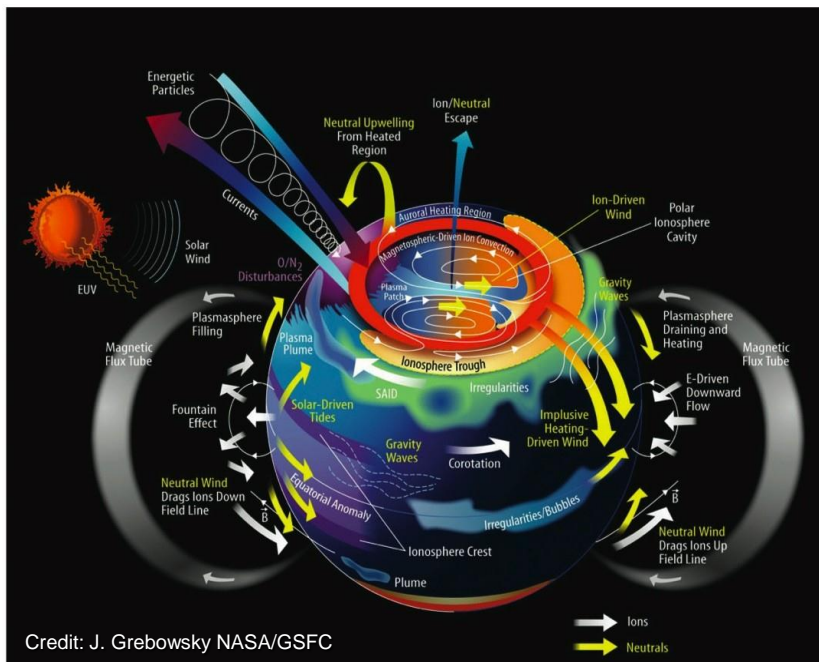
EISCAT Scientific Association

- Founded in 1975, first operations 1981, first Svalbard operations 1996
- Research infrastructure for incoherent scatter radar observations of the high-latitude ionosphere and upper atmosphere
- "The aim of the Association is to provide access to radar, and other, high-latitude facilities of the highest technical standard for non-military scientific purposes".
- EISCAT_3D Locations: Kiruna, Sweden (HQ and Data Center); Kaiseniemi, Sweden; Karesuvanto, Finland; Skibotn, Norway (Tx)



Space Weather/Geospace Research

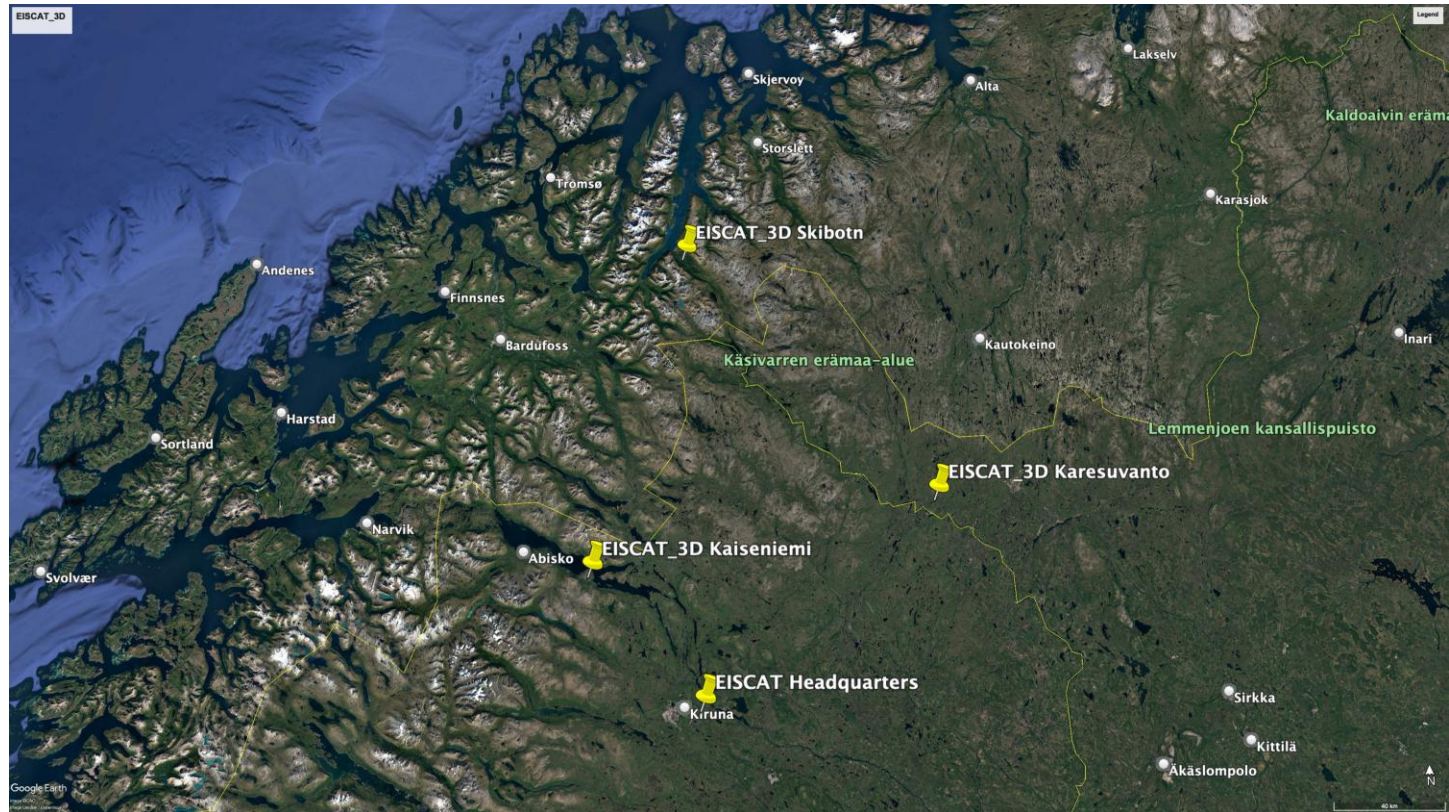
Incoherent Scatter Radars



Some measurements are coordinated via the International Union of Radio Science (URSI)



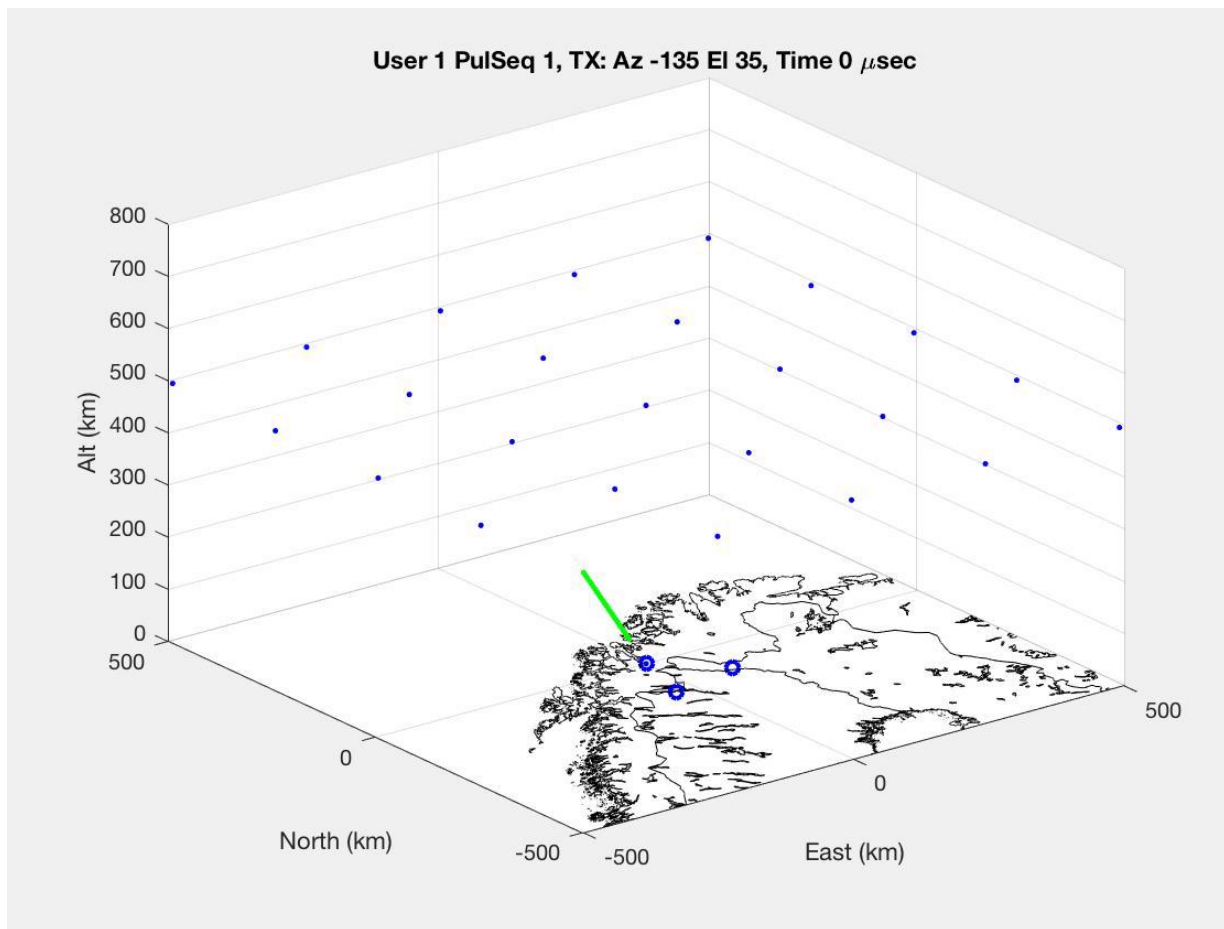
EISCAT_3D Locations



All sites connected by dedicated wavelengths on high-speed fibers, no direct internet access.

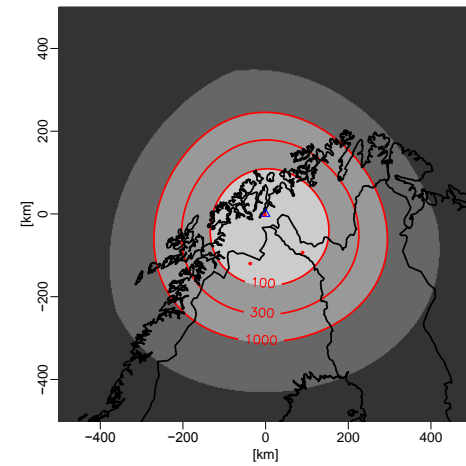
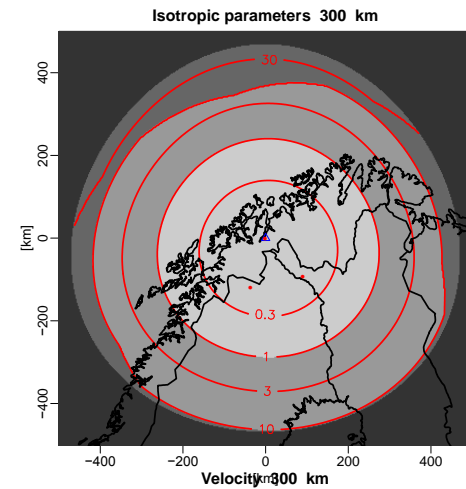
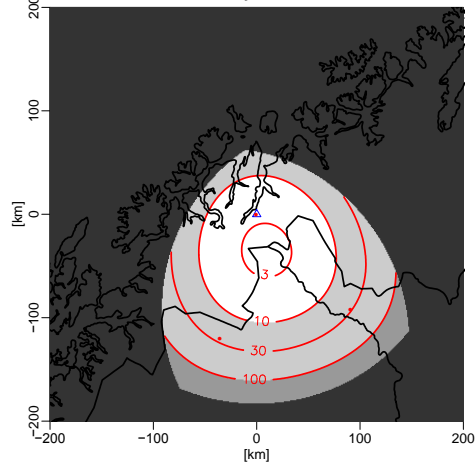
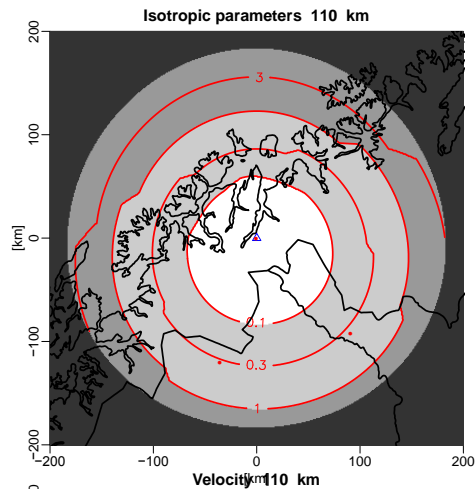


EISCAT_3D TRI-STATIC ISR





SENSITIVITY (INTEGRATION TIMES FOR 5% ERRORS UNDER 'NORMAL' IONOSPHERIC CONDITIONS)





Status of major tenders

- Antenna Unit (AU)
 - Production is complete and shipment is underway
 - An additional 9920 antenna elements have been produced and were shipped in the AUs for Karesuvanto and Kaiseniemi
 - Cargo ship AAL KOBE is presently (20 July) at Dalian, China, arrival at the port in Tønsvik, Norway is expected between 20 and 25 August
- First Stage Receive Unit (FSRU)
 - First 119 units have been produced and are in storage awaiting installation (55 for Kaiseniemi, Sweden, 54 for Karesuvanto, Finland, 10 for outriggers in Skibotn, Norway.
 - New design (more resilient to RF interference) has been tested and awaits parts for production
 - Expected delivery batch 1 (55) – ½ October 2022, ½ December 2022
 - Expected delivery batch 2 (54) – January 2023
- Subarray Transmitter Unit (SAT)
 - First production articles completed and tested (one SAT)
 - Full-scale production now awaiting parts
 - Expected delivery
 - 9 SATs (Delivery Review Board) June 2022, (Acceptance) October 2022
 - 10 SATs (Delivery Review Board) August 2022, (Acceptance) October 2022
 - 12 SATs December 2022
 - 6 SATs Q4 2023
- Pulse and Steering Control Unit (PSCU)
 - Delivered to Ramfjordmoen in February 2022



AU PRODUCTION





AU PRODUCTION



Movie by ECRIEE



AU SHIPMENT





FIRST STAGE RECEIVER UNIT (FSRU) PRODUCTION



FSRU serial production



Lower: FSRU testbench used during serial production



FSRU STORAGE OF 1ST 119 UNITS



Photos by DA-Design



SUBARRAY TRANSMITTER UNIT (SAT) PRODUCTION



Photos by DA-Design



PULSE AND STEERING CONTROL UNIT (PSCU) PRODUCTION AND DELIVERY



One PSCU unit has 16 channels that provide the analogue input signal for 16 SSPAs
All 444 PSCUs are delivered and stored in EISCAT facilities, Ramfjordmoen.

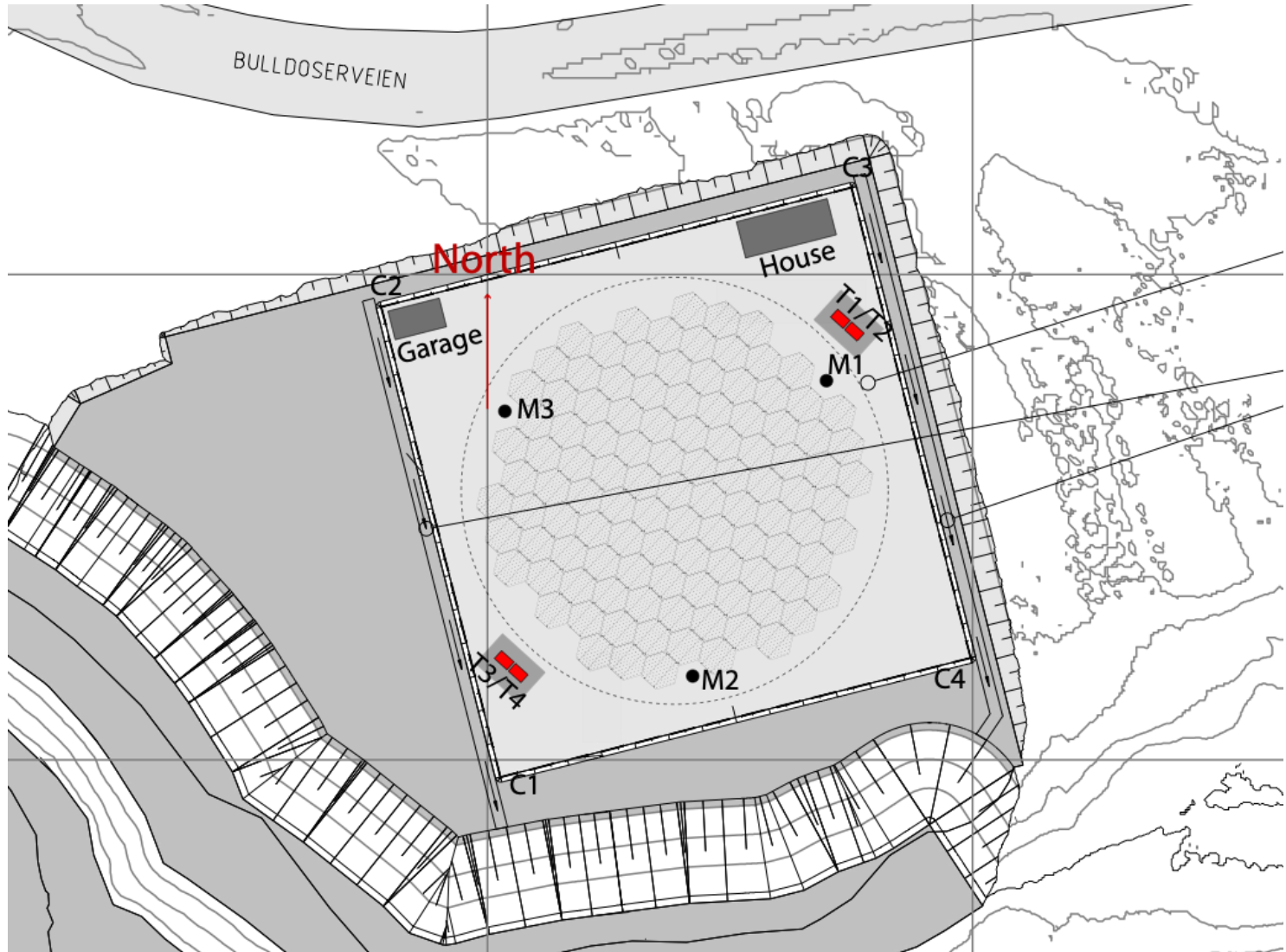


Site Preparation

- Skibotn, Norway
 - Ground preparation complete
 - Monitored the site for settlement
 - Transformer buildings are in place and power distribution equipment installed. Power available.
 - Site building and site garage are completed
- Karesuvanto, Finland
 - Ground preparation complete
 - Site building and site garage are being built/installed now
 - Construction power is available
- Kaiseniemi, Sweden
 - Site leveling/ground preparation completed
 - Contracts for power and fiber are in progress
 - Construction power is available



Skibotn





Skibotn, Norway



2021-09-30

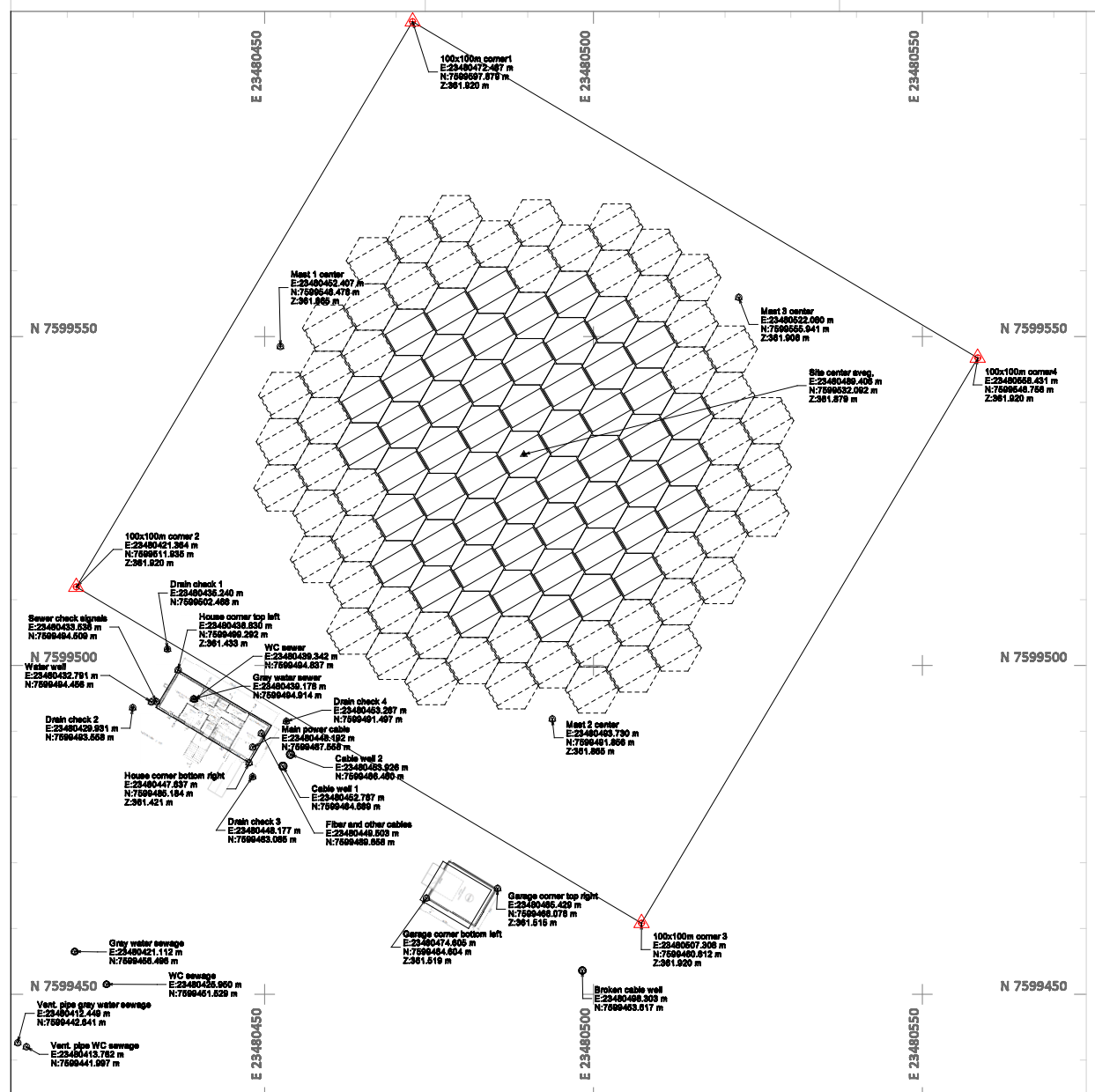


Skibotn





Karesuvanto





Karesuvanto, Finland



2022-06-10



Kaiseniemi, Sweden



2022-06-20



Kaiseniemi, Sweden



2022-06-20



Schedule

- As of today, we still hope to have the system in a state for mono-static operations by early 2023 and tri-static operations by late 2023.
- Several critical things need to go right for this to happen
 - Completion of site preparations in Kaiseniemi on schedule
 - Installation of Antenna Units in Skibotn not blocked by additional COVID-driven border closings
 - Availability of electronics parts for the equipment (e.g., for SATs, FSRUs)
 - Permission to operate from all relevant government agencies
 - Restrictions with regards to export control (similar to U.S. ITAR)
 - Restrictions due to potentially sensitive measurements
- Our goal remains to keep the mainland systems operational until EISCAT_3D is available for users