EISCAT_3D Norway Newsletter

Newsletter Introduction

This newsletter is released every 3 months and covers recent space science contributions and developments involving the Norwegian EISCAT_3D community. Norwegian EISCAT news and contributions are also included. If you wish to be included in the mailing list for the newsletter distribution, please use the contact details at the bottom of the page. Previous newsletters are available on the EISCAT_3D Norway website.

EISCAT_3D Update

From Harri Hellgren on the EISCAT Slack (February 21, 2023) “In Skibotn installation work has come to the point where all 109 containers and antenna frames are in places. Work continues with additional items and possible with calibration masts."

Credit: EISCAT

Autumn Courses at UNIS

UNIS has atmosphere/space courses in the autumn that are open for applicants:

AGF 210 - The Middle Polar Atmosphere

AGF 223 - Upper Atmospheric and Space Physics Observational Techniques and Instrumentation

This is a 30 ECTS package in total, which includes physics and instrumentation for atmospheric and space studies, including EISCAT and other radars. Bachelor and Master students are welcome.

Application deadline: 15 April, 2023

New Norwegian SAC Representative

Dr. Lasse Clausen from the University of Oslo is the new Norwegian representative on EISCAT’s Scientific Advisory Committee (SAC). The SAC duties have been taken over from Dr. Lisa Baddeley from UNIS. Note that Dr. Baddeley is still in charge of scheduling and any requests for radar time should be directed to her. The new SAC representative deputy is Dr. Karl Laundal from the University of Bergen. More information about the EISCAT council and Science Advisory committee can be found on the EISCAT website (link below).

https://eiscat.se/about/organisation/eiscat-council/

ERC Consolidator Grant

Congratulations to Dr. Karl Magnus Laundal of the University of Bergen on his successful European Research Council Consolidator Grant proposal. Dr. Laundal’s proposal is titled Dynamic Magnetosphere Ionosphere Thermosphere coupling (DynaMIT) and involves investigating the connection between space and the terrestrial atmosphere. EISCAT_3D is an important part of the last half of the project timeline. A link to the news release is provided below.

(link to article)

EISCAT Campaign: GEMINIDS

A multi-institute international radar campaign was run to investigate the Geminids meteor shower with the EISCAT Ramfjordmoen (Tromsø) VHF and UHF radars, MAARSY, KAIRA, and the Sodankyla EISCAT receiver in December 2022. Meteor head echoes were measured over 3 days with the systems to investigate the distribution of meteors and their sources at different radar frequencies. Analysis of the measurements is ongoing and will be presented at conferences later this year.

The measurements were a collaboration between members of the following institutes:
- UiT The Arctic University of Norway, Norway
- Swedish Institute of Space Physics, Sweden
- EISCAT Scientific Association, Sweden
- Institute of Atmospheric Physics, Germany
- University of Oulu, Finland

EISCAT Campaign: Investigating Energy Deposition During Substorms

Dr. Noora Partamies from UNIS and Dr. Maxime Grandin from the University of Helsinki ran a radar campaign in the first week of March both at ESR and Tromsø. The aim of the campaign is to investigate the energy deposition during substorms using the data from these new experiments and also from archived data. Dr. Grandin will be visiting UNIS in May-July for a few months to further collaborate on this project.

NASA VorTex Rocket Launch

As per the links below, "the science objective of the Vorticity Experiment (VortEx) is to characterize mesoscale dynamics (10-500 km) in the upper mesosphere and lower thermosphere (90-120 km), a region which also contains the Earth's turbopause. Rocket and ground-based measurements will be combined to distinguish, on one hand, between divergence in the horizontal flow field and divergent motions, such as gravity waves, and on the other hand, vorticity in the horizontal flow field and vortical motions, such as expected to occur in quasi-stratified mesoscale turbulence. These processes are crucial for a better description of subgrid processes and eddy diffusion in global atmospheric models."

The rockets are launched from the Andøya Space Center and the Principal Investigator of the mission is Dr. Lehmacher from Clemson University.

The first launch occurred on March 23, 2023 at 21:00 UTC from Andøya rocket range, Norway

Information on the rockets and launch can be found at:

Andøya Article

NASA VorTex link

Video of Launch

Group for AI Auroral Image Analysis

A discussion group for AI in auroral image analysis has been created, organized by Dr. Derek McKay and Dr. Noora Partamies. An international group of about 10 people were present for the first online chat and the next meeting is planned for May 10 at 17:00 CET. Discussions will also continue in the optical meeting in August. This group discusses optical image analysis for now, but progress in AI analysis will have interesting benefits for other space science fields, for example for EISCAT science. It is recommended that those interested in the group contact Dr. Partamies and Dr. McKay.

EISCAT Symposium 2024

The EISCAT Symposium is held every 2 years and there are plans for Norway to host the meeting in the late summer or autumn of 2024. The Space Physics group at UiT has agreed to organize. Exact dates and details are still to be determined.

EISCAT Norway Radar Time Allocation

The procedure to apply for radar time has been updated, with the following application deadlines.

70% of time is available for the **Feb. 1, 2023** deadline
30% of time is available for the **Sept. 14, 2023** deadline

Note that 30% of the radar time for 2023 will be reserved for initial EISCAT-3D operations for trigger modes. This data will be available to the full Norwegian EISCAT community.

These details are also available in a presentation posted under "Discussion and Newsletters" on the EISCAT_3D Norway website:
https://uit.no/eiscat3dnorway

EISCAT_3D User Meetings

An EISCAT_3D user meeting is planned for autumn, 2023. Until that time short, half-day online meetings are planned to be held.

https://www.space.irfu.se/workshops/E3D_User2023/

47th Annual European Meeting on Atmospheric Studies by Optical Methods

The 47th Annual European Meeting on Atmospheric Studies by Optical Methods will be held in Stockholm, Sweden, on August 20-24, 2023.

Meeting topics include:
(1) New developments in optical instrumentation from the ground, space and other platforms.
(2) Optical science from the troposphere to the thermosphere/ionosphere, including:
- atmospheric composition, aerosols and clouds
- airglow
- aurora
- noctilucent clouds
- meteors
- sprites, jets etc.

(3) Optical calibration techniques.
(4) Analysis techniques.
(5) Optical atmospheric measurements in education.

More information will be posted on the meeting website:
http://www.su.se/misu/opticalmeeting

Nordic Observatory Meeting (NOM)

Tromsø Geophysical Observatory will chair the next NOM, which will be a hybrid meeting held in Tromsø, Norway, at the Auroral Observatory and online on May 16, 2023. The meeting will be one day 09:00-17:00 CEST (07:00-15:00 UTC).

Recent EISCAT Norway Publications

Stamm, J., Vierinen, J., Gustavsson, B., and Spicher, A.: A technique for volumetric incoherent scatter radar analysis, Ann. Geophys., 41, 55–67, https://doi.org/10.5194/angeo-41-55-2023, 2023.

Gunnarsdottir, T. L., Poggenpohl, A., Mann, I., Mahmoudian, A., Dalin, P., Haeggstroem, I., and Rietveld, M.: Modulation of polar mesospheric summer echoes (PMSEs) with high-frequency heating during low solar illumination, Ann. Geophys., 41, 93–114, https://doi.org/10.5194/angeo-41-93-2023, 2023.

Daniel Kastinen, Juha Vierinen, Tom Grydeland, Johan Kero, Using radar beam-parks to characterize the Kosmos-1408 fragmentation event, Acta Astronautica, Volume 202, Pages 341-359, https://doi.org/10.1016/j.actaastro.2022.10.021, 2023.

EISCAT_3D Software Discussion

The minutes from the EISCAT_3D Software discussion held at UiT on December 7, 2022 are now posted to the EISCAT_3D Norway website.

E3D Norway Discussion and Newsletters

Future International EISCAT 3D Meetings

Information about EISCAT and EISCAT_3D User Meetings is distributed via the mailing list moderated by EISCAT. To subscribe, email listmaster@eiscat.se. A Slack account is also organized for EISCAT_3D Discussions. To receive an invitation for the Slack channels, email channelmaster@eiscat.se.

Questions, Suggestions, Changes?

The next newsletter will be released in March, 2023. If there are any questions about EISCAT_3D, suggestions for the format of this newsletter, or changes that should be implemented, please let us know with the contact information at the bottom of the page. Thank you.