

## 2021 Workshop: Initiative MLT

Long title

Grand Challenge: Initiative Mesosphere / Lower Thermosphere

Grand Challenge

Conveners

Kolbjorn Blix

Douglas Rowland

Gerald Lehmacher

Description

This is the second planning meeting to discuss science investigations and topics as well as logistics planning for the upcoming Grand Challenge Initiative -- Mesosphere/Lower Thermosphere (GCI-MLT). GCI-MLT is a follow on to the successful GCI-Cusp campaign which has been ongoing since Dec 2018. GCI-MLT will have an expanded scope, with more international participation, a more geographically diverse set of observations, and more diversity in platforms (ground-based, balloon, aircraft, rocket, satellite) to address critical problems in MLT physics. GCI-MLT is an "umbrella" designed to coordinate and provide synergies for projects that will be funded through regular funding agencies. GCI-MLT does not provide funding, but it does provide a way for us all to work together and maximize the impact of our research. We will discuss status on existing and potential plans for investigations that may fit into the GCI-MLT. We work towards forming GCI-MLT around several existing rocket and balloon missions, and then developing proposals for other investigations (ground-based, balloon, rocket, aircraft, satellite) that will fit around these "anchor" missions. Of particular interest for this meeting are proposals for balloon, rocket, and aircraft investigations that may have been proposed to European, Japanese and US space agencies in fall 2020, and subsequently plans for such proposals in 2021.

More info on the Grand Challenge Initiative CUSP (predecessor) & M/LT:

<https://www.grandchallenge.no/>

Agenda

Program

[1800-1805: Kolbjørn Blix \(Andøya Space, Norway\)| Agenda Information](#) (pdf)

1805-1810: CHAIR: Doug Rowland (NASA Goddard, USA) | Updated GCI CUSP status, M/LT plans

[1810-1815: Gerald Lehmacher \(Clemson Uni., USA\) | VortEx, Andøya, February 2023 - update for new launch window](#) (pdf)

1815-1823: Boris Strelnikov (Leibniz-Institute of Atmospheric Physics, Germany) | Sounding rocket project PMWE

1823-1831: Jörg Gumbel (Stockholm University, Sweden) | Swedish Airglow Studies Related to GCI M/LT

1831-1839: Diego Janches (NASA/GSFC, USA) | Update: Balloon Sodium Lidar to measure Tides in the Antarctic Region (B-SoLiTARe)

1839-1847: Andres Spicher (U of Tromsø, Norway) | Activity and future plans for studies of dust in the mesosphere at Dep. Physics and Technology, UIT

1847-1855: Kathrin Schoppmann (DLR MORABA, Germany) | MORABA sounding rocket sensor platform for atmospheric research

1855-1903: Gerd Baumgarten (Leibniz-Institute of Atmospheric Physics, Germany) | Fingerprints of turbulence in noctilucent clouds

1903-1911: William Ward (University of New Brunswick, Canada) | Waves and airglow: Coupling across the MLT

1911-1919: Nickolay Ivchenko (KTH, Sweden) | Update on the SYSTER sounding rocket project

1919-1927: Tomasz Noga (Lukasiewicz Research Network - Institute of Aviation) | Polish contribution to GCI-M/LT

1927-1935: Martina Faenza (Nammo Raufoss AS, Norway) | Prelim. title: Nucleus, Norwegian sounding rocket for mesosphere research

1935-1943: Hein Olthof (T-Minus Engineering B.V., Holland) | Update on T-Minus DART rocket and successor: DART-XL

1945-2000: Discussions/Conclusions

2000 (ish): Finish

## Justification

According to the GCI M/LT white paper the project is planned to start in 2023 (delayed due to COVID-19) with the VortEx campaign. This gives us a perfect opportunity to plan complementary and new campaigns during and after VortEX. The white paper has entries from 9 nations on possible science topics, technologies, platforms, ground based observatories and potential research partners. To ensure the best possible scientific outcome and value for the funding institutions money, we should use this workshop to do short (5 min) presentations (either live or pre-recorded) on proposed/planned experiments/campaigns and allow discussions/comments. During our CEDAR 2020 workshop the organizers proposed the formation of a GCI M/LT PI-coordination group, as well as time/place/type of follow-up meeting. It's now time to follow up on those actions.

## Summary

Meeting started 1800 CET and lasted until 20:10 CET. We had roughly 80 participants and 14 talks from 7 of the 9 participating countries. An initial technical issue with Zoom caused a 10 minute delay and new Zoom-links to be distributed, but overall it went as planned.

As we hoped, we received updates on already planned (and some funded) projects, new initiatives and requests/offers for cooperation. Based on this, as well as our experiences during the run-up to the GCI CUSP, we found that it was time to start planning a physical meeting as the next step in the process around GCI M/LT. This will therefore be sought to be resolved through a dedicated session during this year's AGU Fall Meeting. A session proposal for AGU FM was submitted within the deadline.

The session was not recorded, but talks will be made available shortly through the GCI website: <https://www.grandchallenge.no/>

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