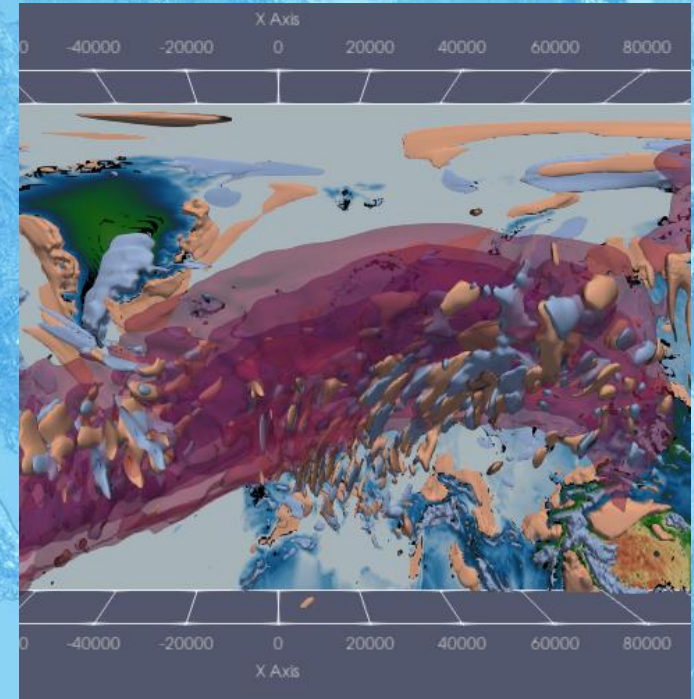


THE WAVEGUIDE CAMPAIGN

STUDYING GW AT THE POLAR VORTEX EDGE



Natalie Kaifler for the campaign team

HALO aircraft

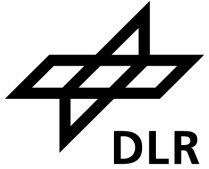
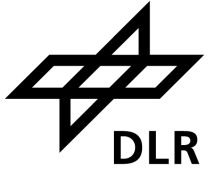


Photo: Andreas Minikin (DLR-FX)

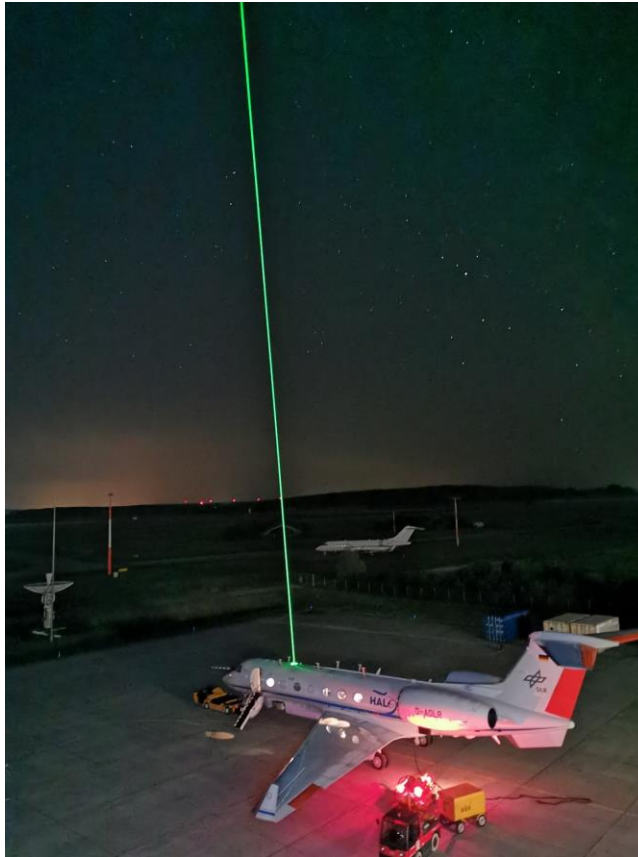
- High altitude, long range aircraft
- based on a Gulfstream G 550 business jet
- instrumentation for atmospheric physics
- unique research platform

Instrumentation

BAHAMAS
insitu wind and turbulence

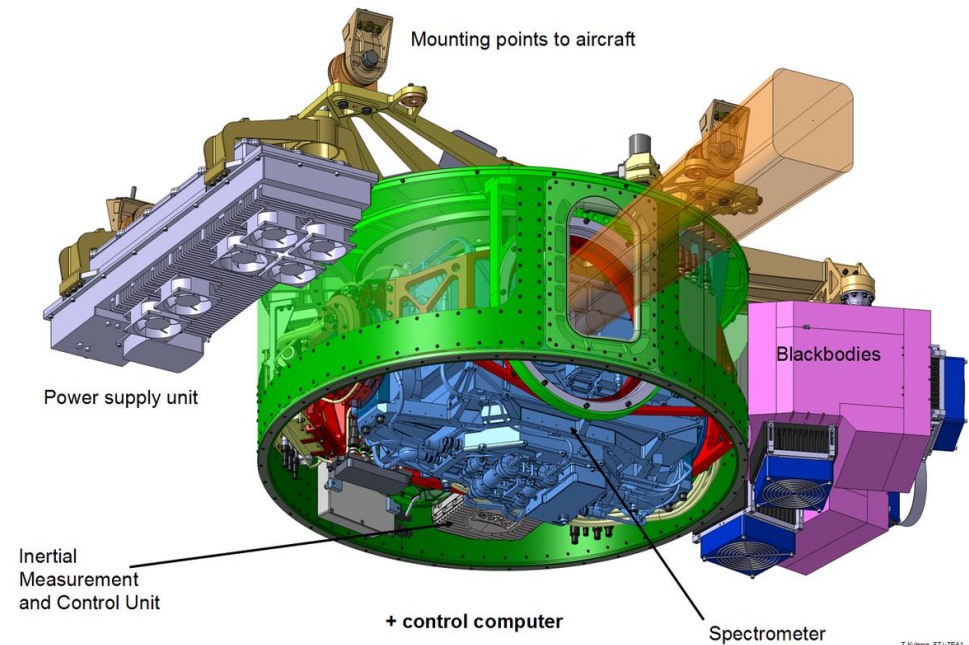
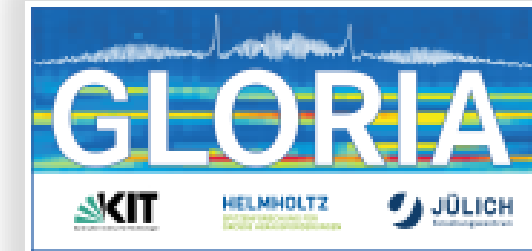


ALIMA



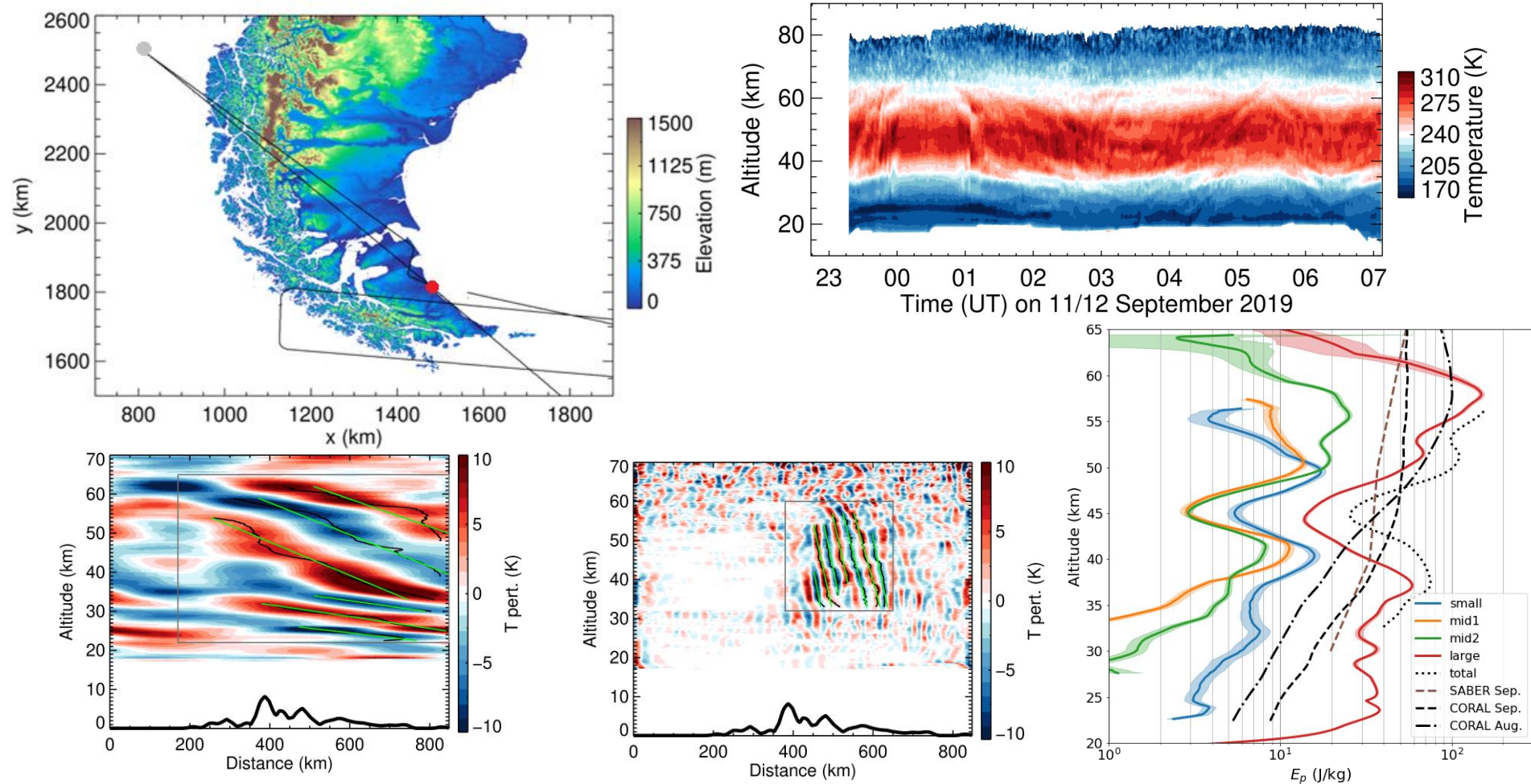
Upward-looking Rayleigh-Doppler lidar
developed at DLR

GLORIA



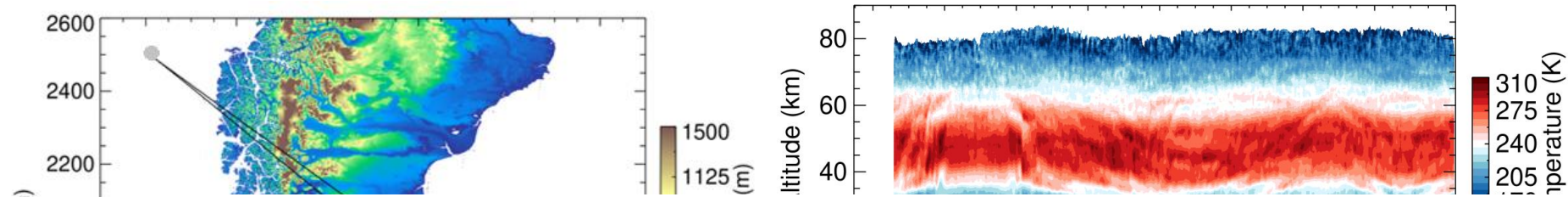
<https://gloria.helmholtz.de/Instrument.php>
limb-viewing imaging Fourier transform
spectrometer

ALIMA capabilities – Example from SouthTRAC campaign

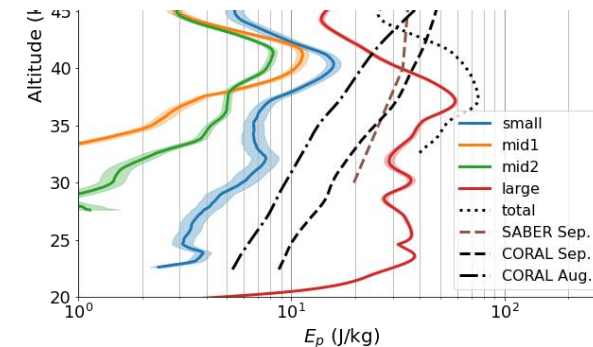
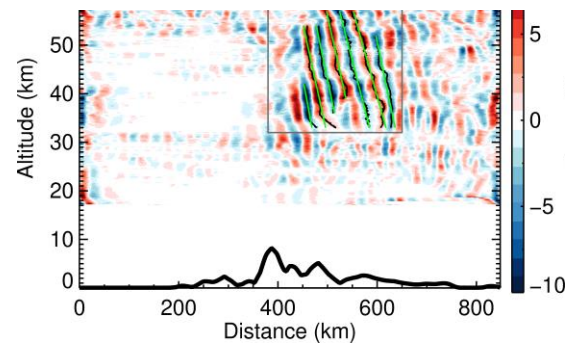
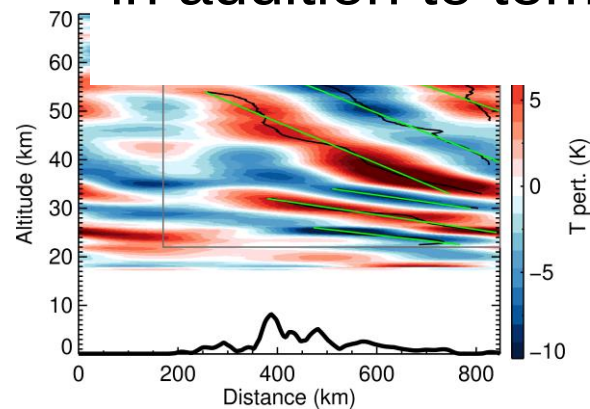


B. Kaifler et al., JGR, 2025, [10.1029/2025JD043683](https://doi.org/10.1029/2025JD043683)

ALIMA capabilities – Example from SouthTRAC campaign



For WAVEGUIDE, horizontal wind measurements in turns and vertical wind measurements on straight legs are planned in addition to temperature measurements



B. Kaifler et al., JGR, 2025, [10.1029/2025JD043683](https://doi.org/10.1029/2025JD043683)

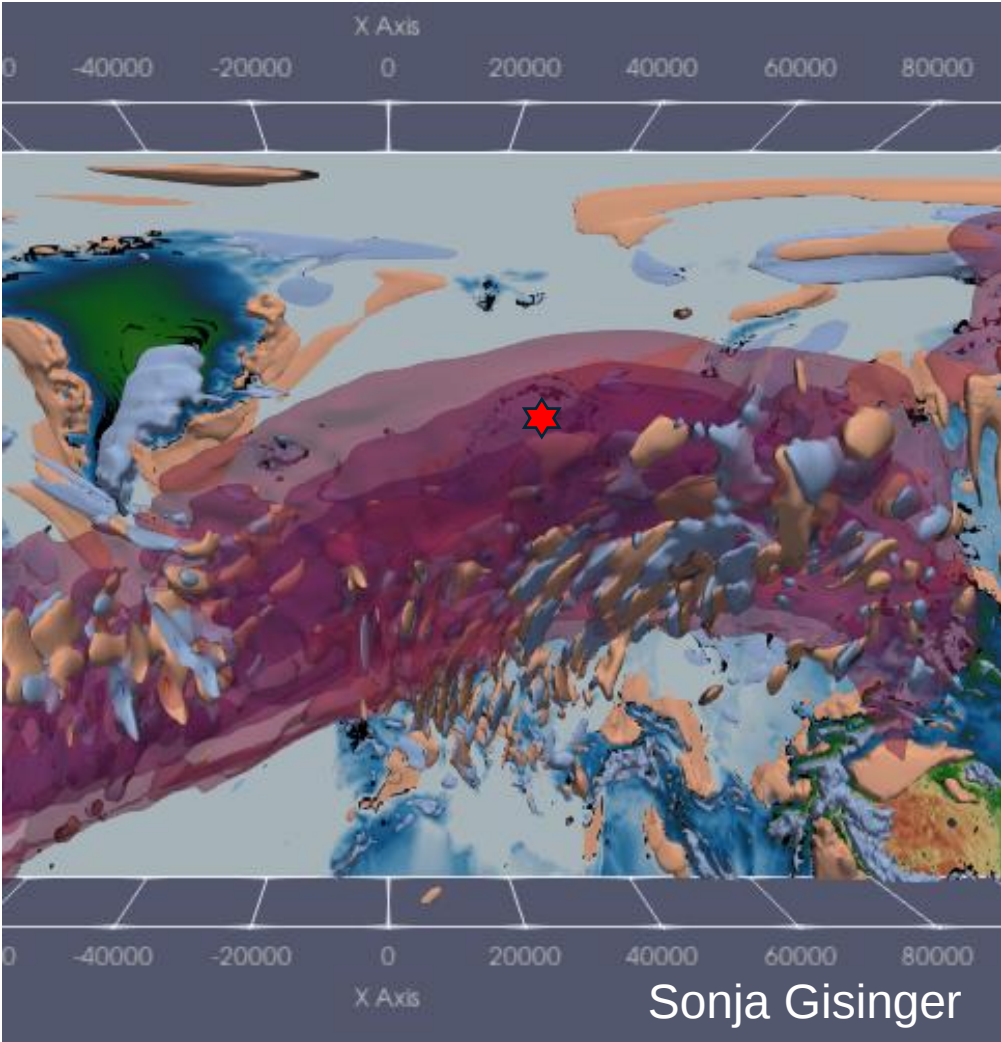
Selected science objectives



- Non-orographic internal GWs in the vicinity of the polar night jet
- Mountain wave breaking and secondary waves
- GWs inside the polar vortex and above the pole, polar lows, and Arctic convection

Key figures

Campaign base	Kiruna, Sweden
Period	3 weeks in Dec 2026
Flight hours	90 h
Number of flights	12 including transfer
Start local time	14:30
Flight length	8-10 h
Target area	West, north, south of Kiruna



Case 13 Jan 2016: ERA5 horizontal wind and T'