



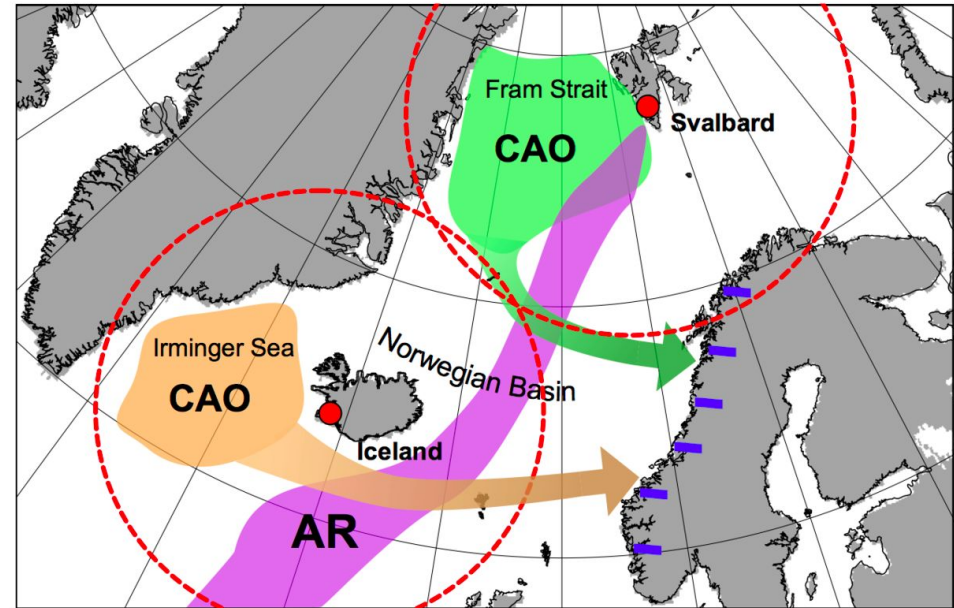
Controlled Meteorological Balloons

A contribution to the ISLAS22 field campaign

Lars R. Hole, Paul B. Voss, Alena Dekhtyareva, Marina Dütsch, Aina M. Johannessen, Marvin Kähnert, Sander Løklingholm, Trygve Larssønn Søvik & Harald Sodemann (project leader)

ISLAS - and ERC funded project

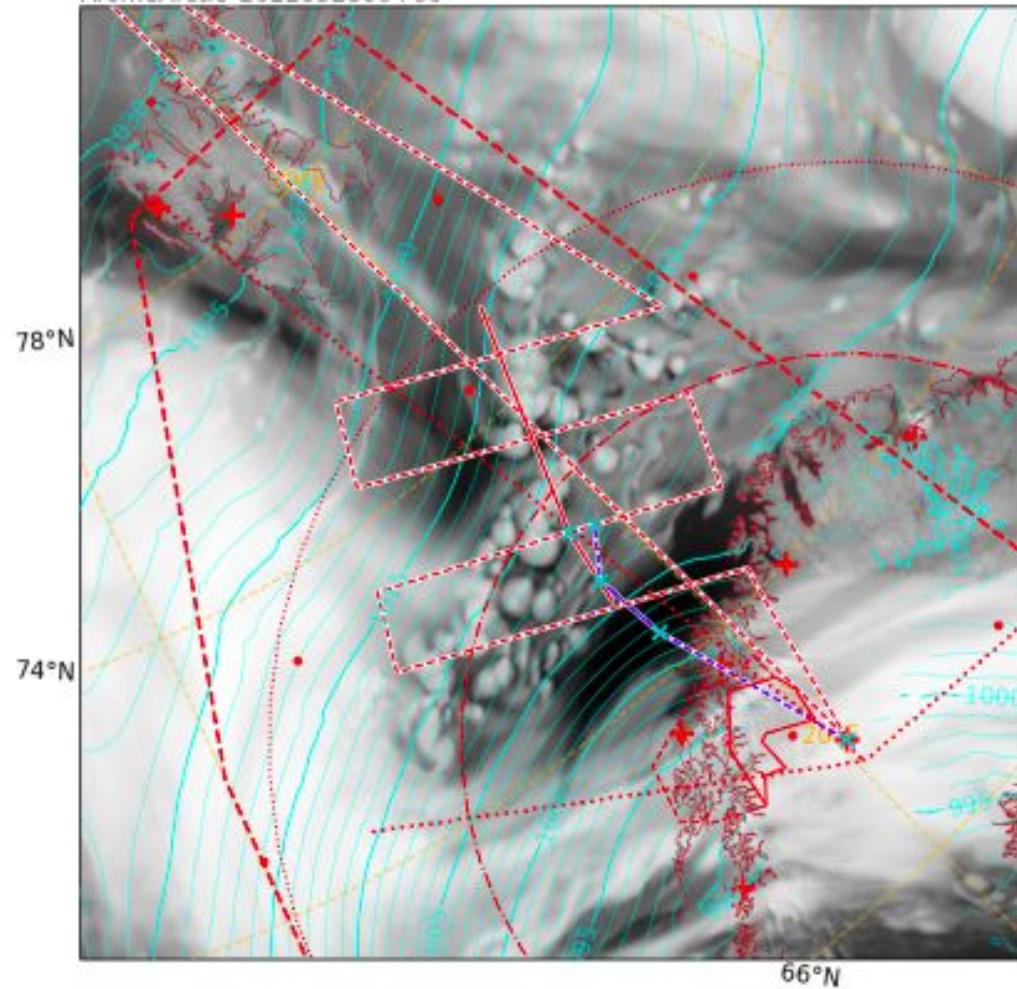
- Isotopic links to atmospheric water's sources (ISLAS)
- The purpose is to better understand the hydrological cycle - where does the precipitation come from?
- Fingerprinting water molecules using stable water isotopes
- Surface sampling, aircraft and balloons
- ERC grant over 60 months / 1.9 mEuro
- lead by Harald Sodemann, UiB



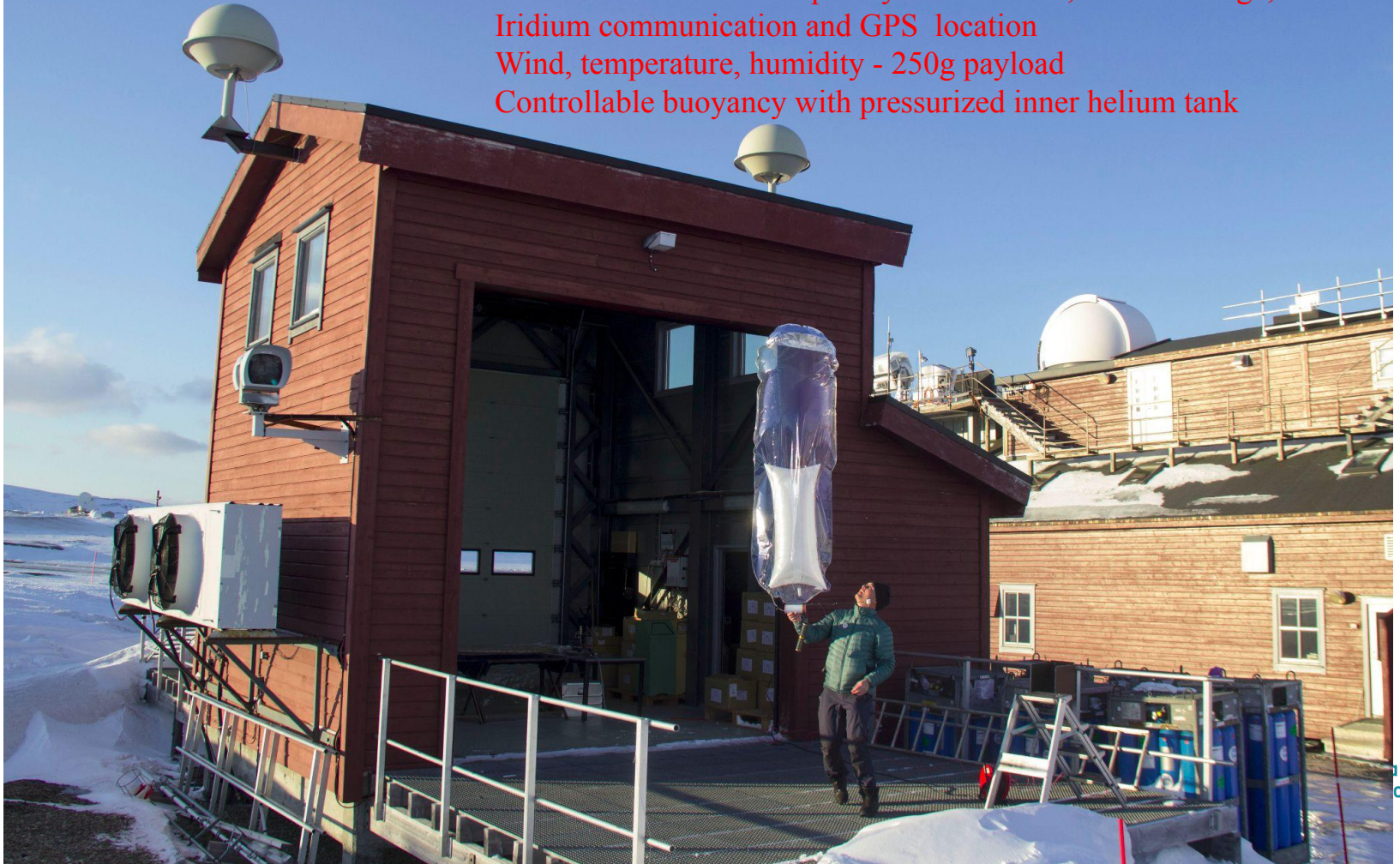
The ISLAS team in Kiruna



Disse er med på arbeidet: Sander Løklingholm, Marina Dütsch, Iris Thurnherr, Mari Berntsen Steinslid, Marvin Kähnert, Tim Carlsen, Andrew Seidl, Harald Sodemann og Alena Dekhtyareva Foto: Privat/UiB



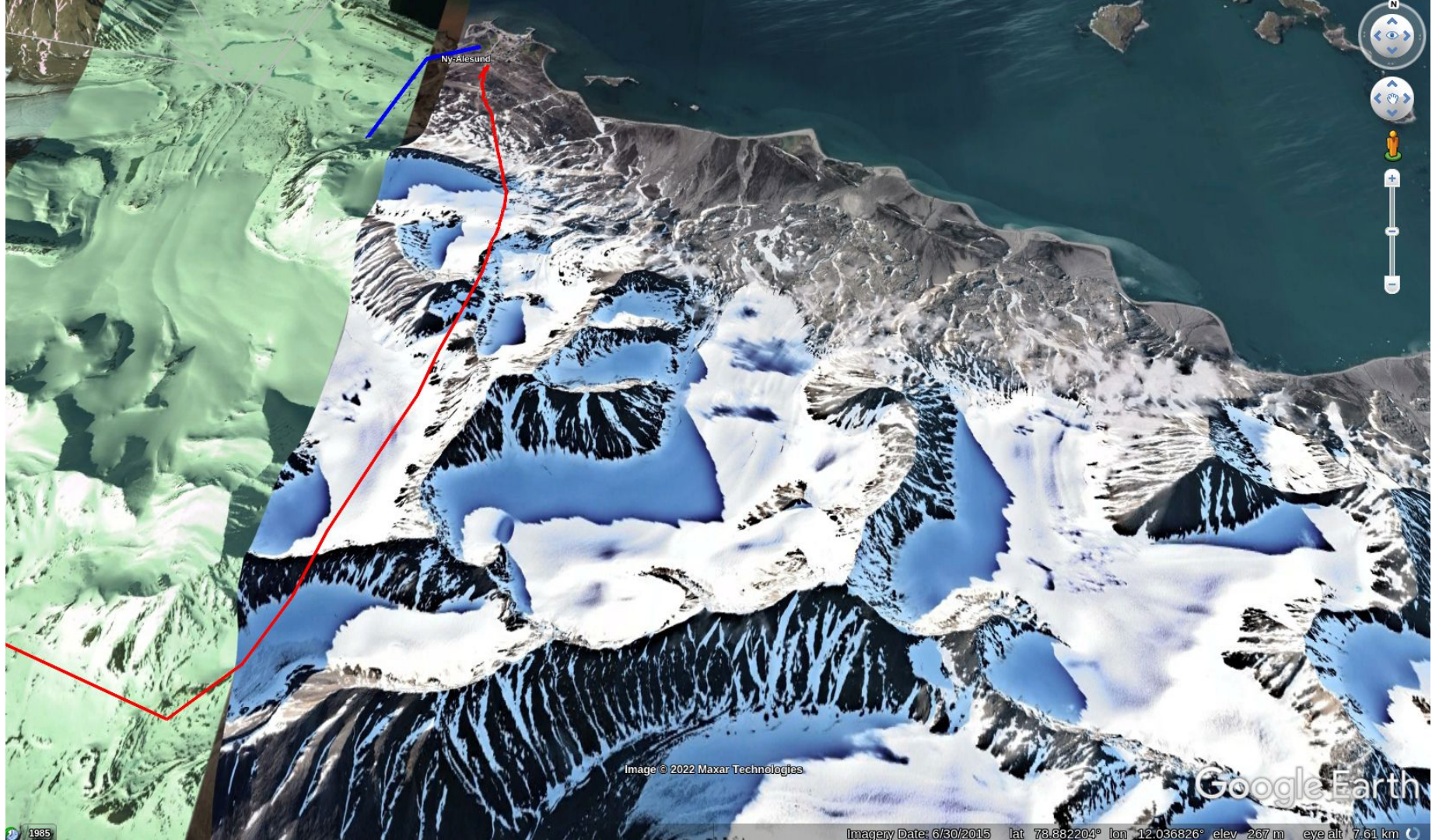
CMET balloons - developed by Paul B. Voss, Smith College, MA
Iridium communication and GPS location
Wind, temperature, humidity - 250g payload
Controllable buoyancy with pressurized inner helium tank



Controlled Meteorological Balloon Flight Data



Svalbard 2022 [220324a](#) [220325a](#) [220328a](#) [220330a](#) [220404a](#) [220404b](#)
Svalbard 2021 [210326a](#) [210329a](#)
Arctic 2018 [180918a](#) [180921a](#)
Antarctica 2017 [170112a](#) [170115a](#) [171104a](#) [171110a](#) [171117a](#) [171122a](#)
Amazon 2016 [160824a](#) [160825a](#) [160825b](#) [160826a](#) [160826b](#) [160826c](#) [160827a](#) [160828a](#) [160828b](#)
Antarctica 2016 [160113a](#) [160118a](#) [160128a](#)
Antarctica 2014 [140129a](#)
Antarctica 2013 [130116a](#) [130118a](#) [130121a](#)
Amazon 2011 [110625a](#) [110625b](#)
Svalbard 2011 [110505a](#) [110506a](#) [110506b](#) [110507a](#) [110510a](#)



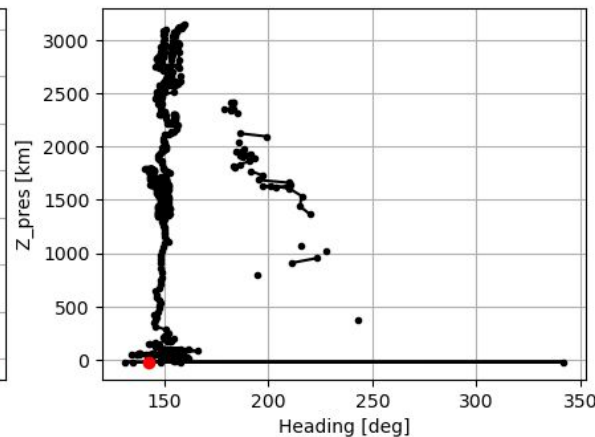
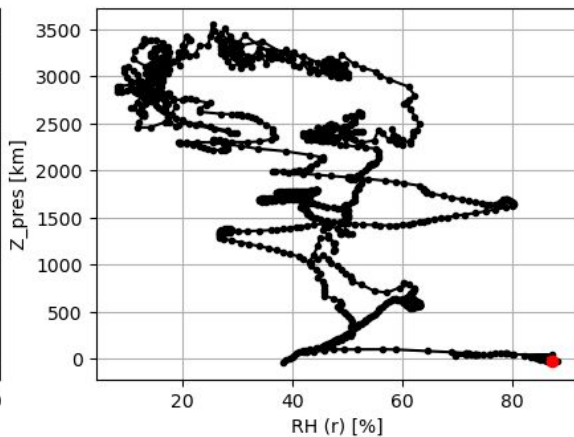
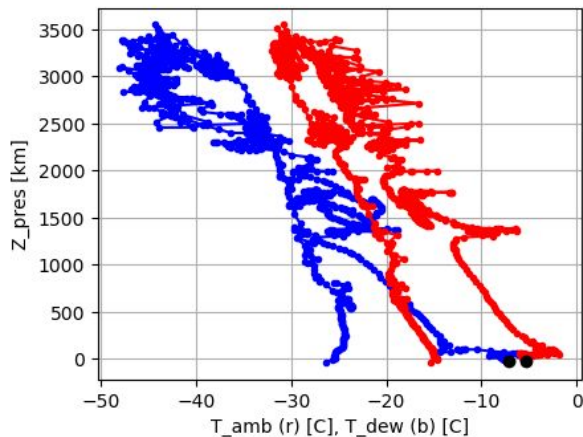
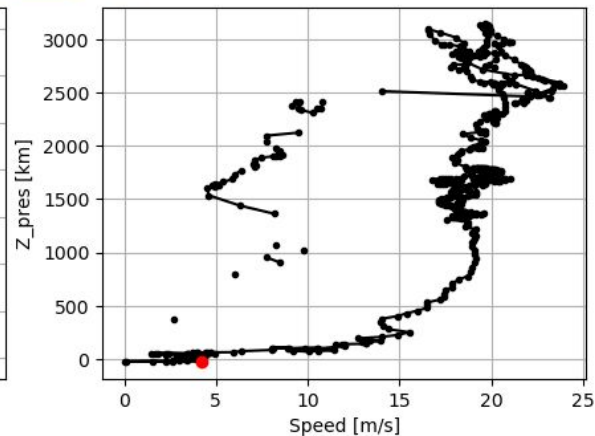
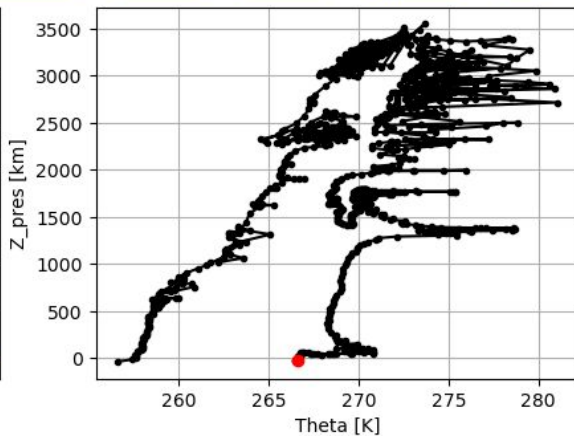
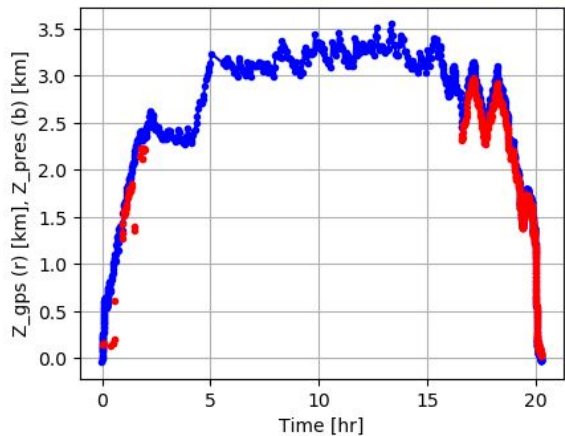
Ny-Alesund

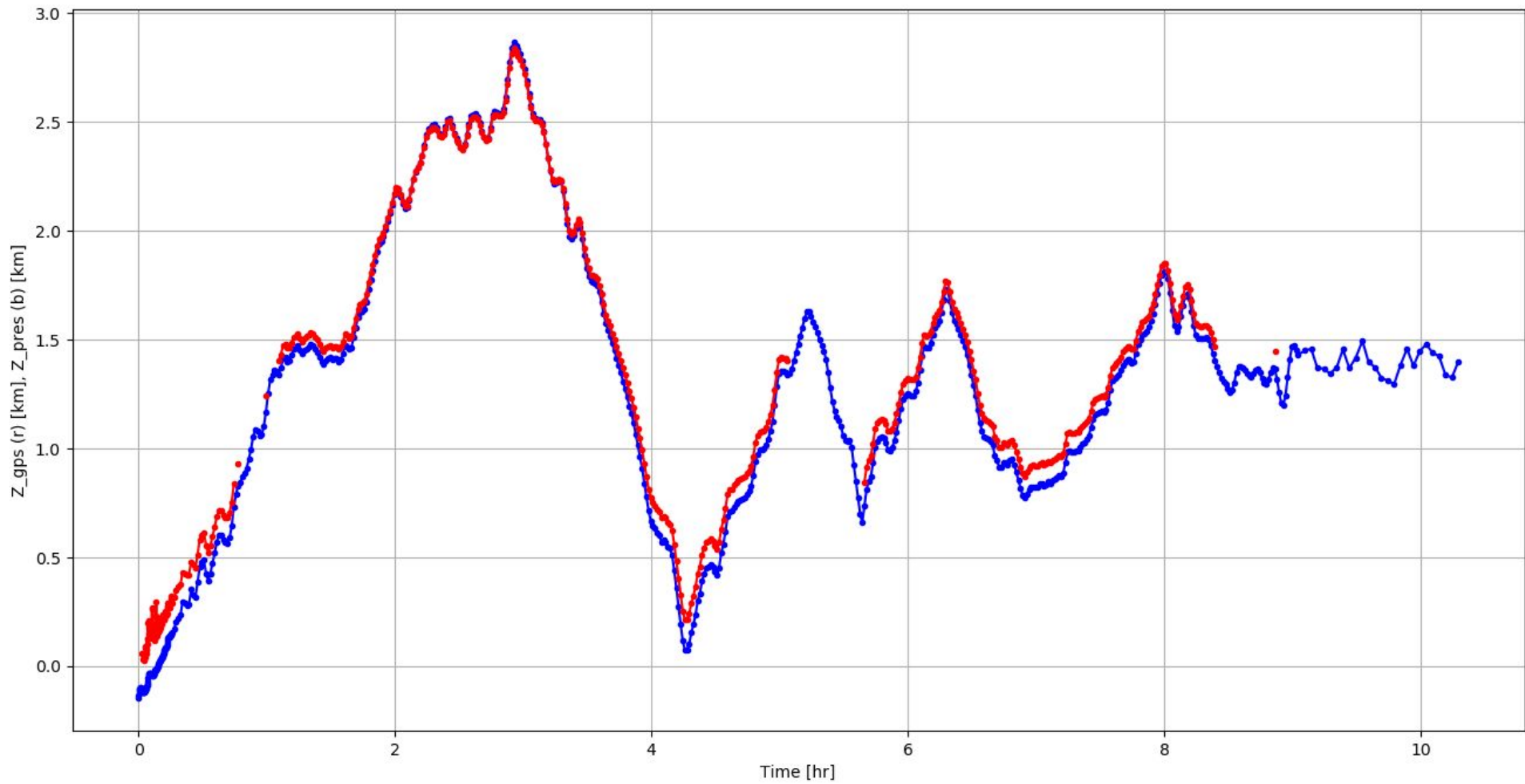
Image © 2022 Maxar Technologies

Google Earth

1985

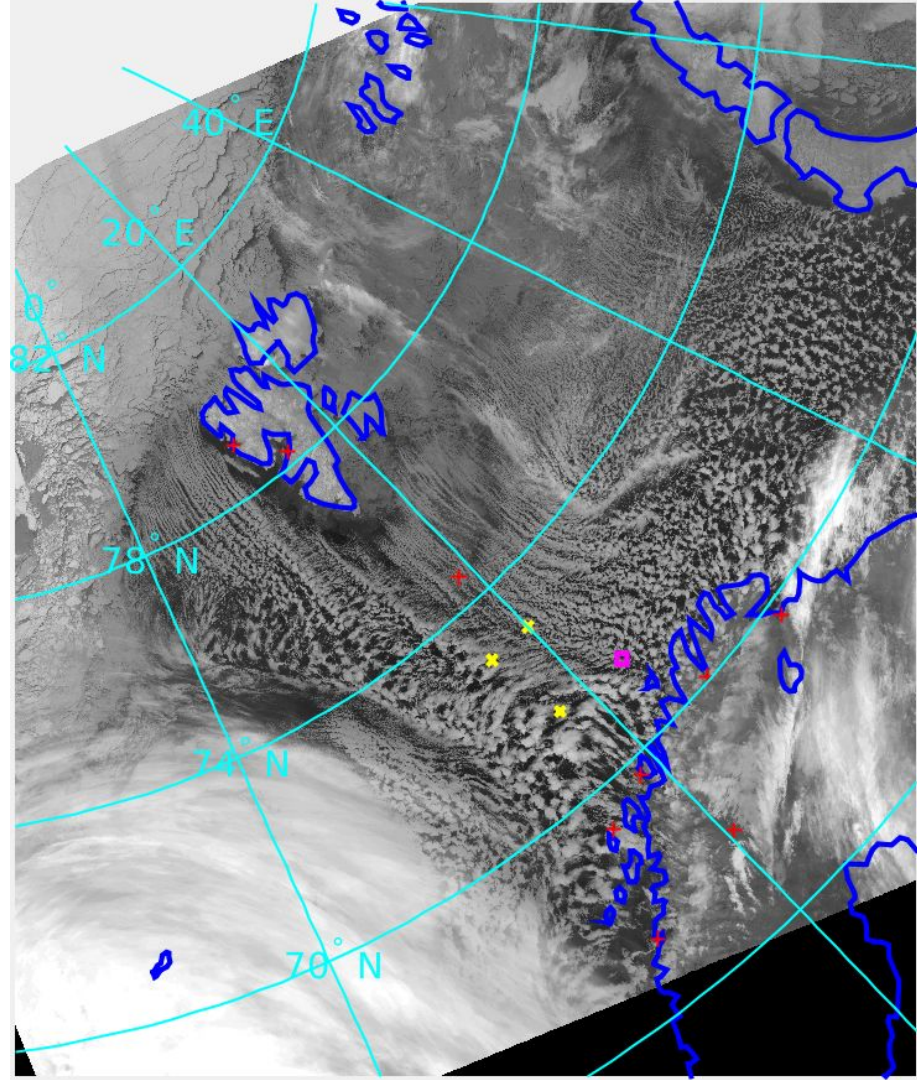
Imagery Date: 6/30/2015 lat 78.882204° lon 12.036826° elev 267 m eye alt 7.61 km





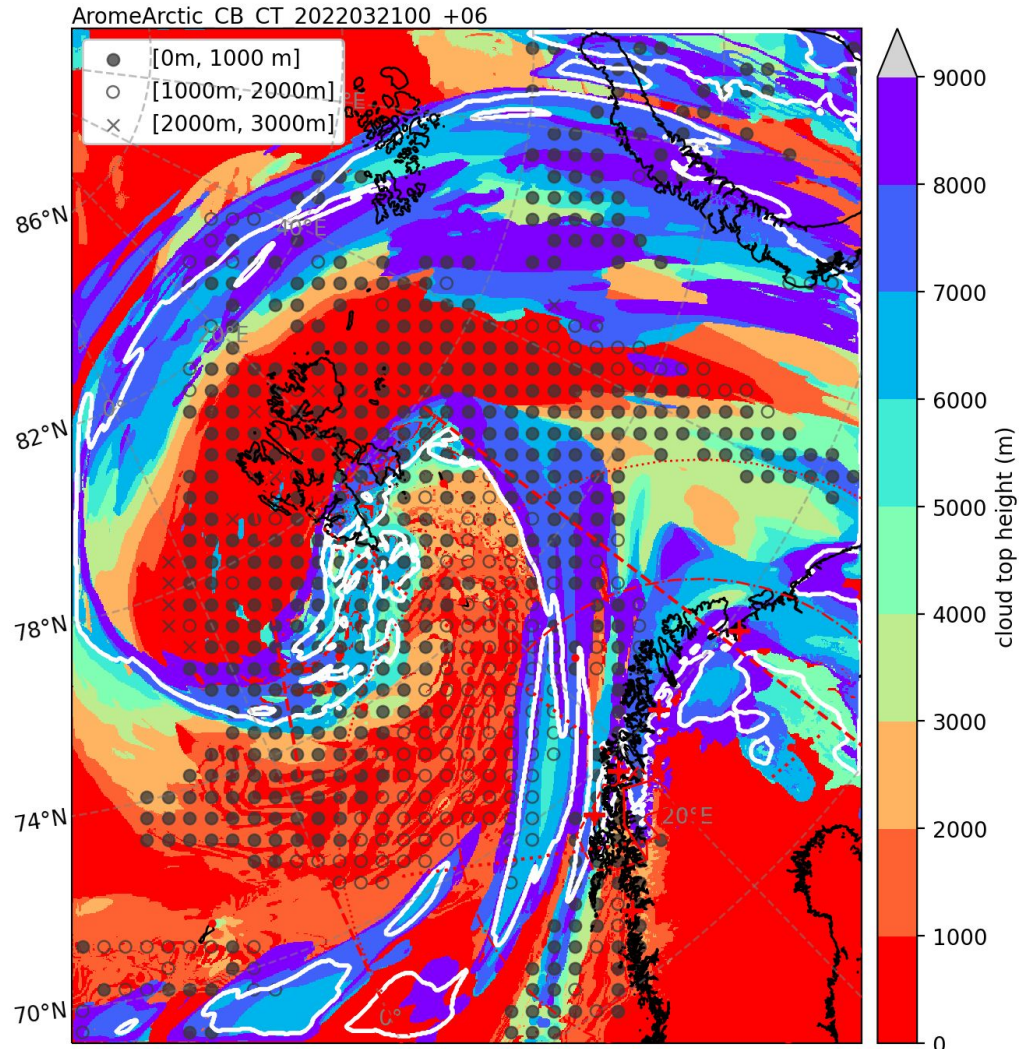
Cold air outbreaks may lead to polar lows

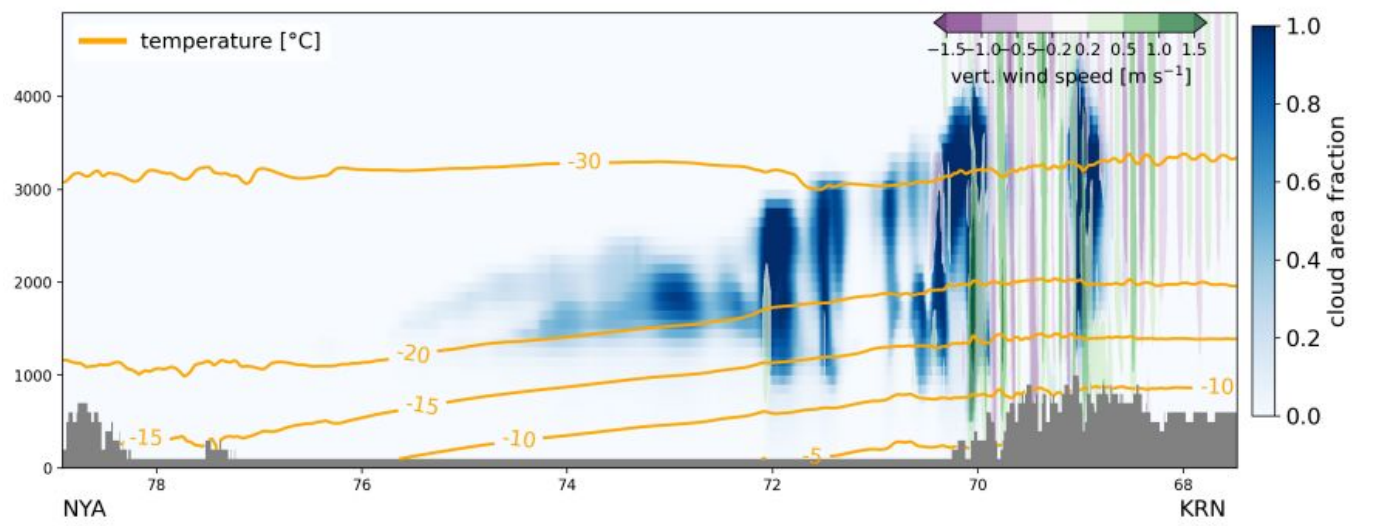
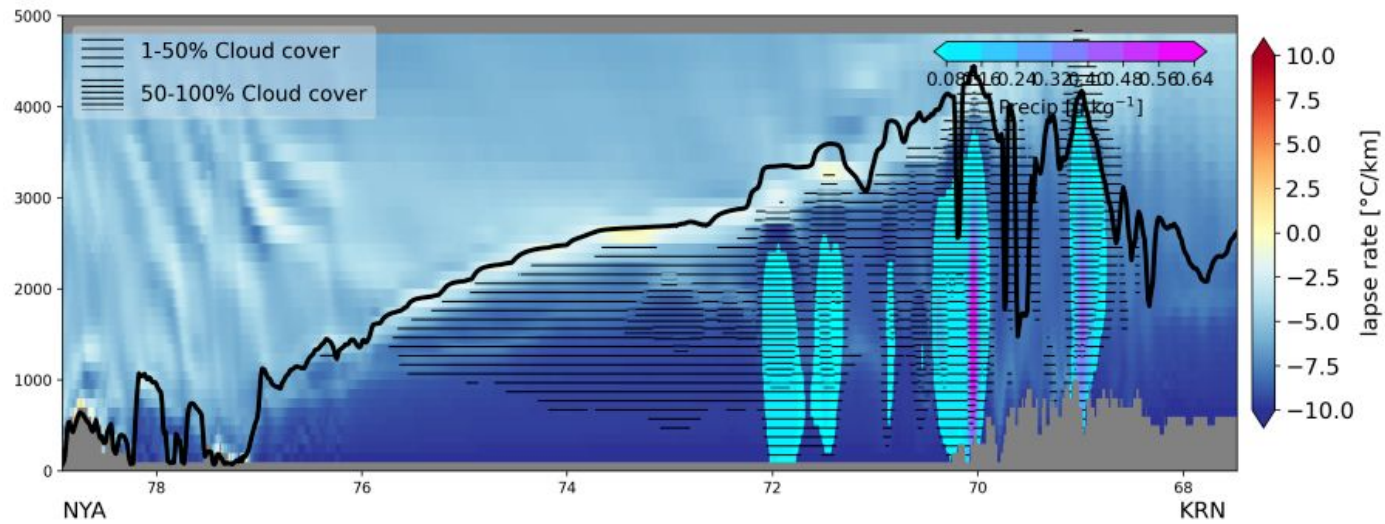
Courtesy: Alena Dekhtyareva, UiB



AROME Arctic 2.5km forecasting model from MET Norway (thredds.met.no)

Courtesy:
Marvin Kähnert, UiB



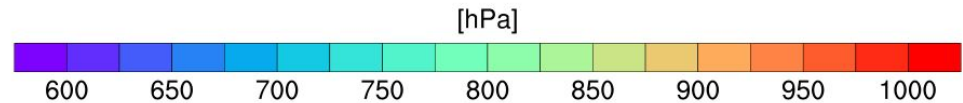
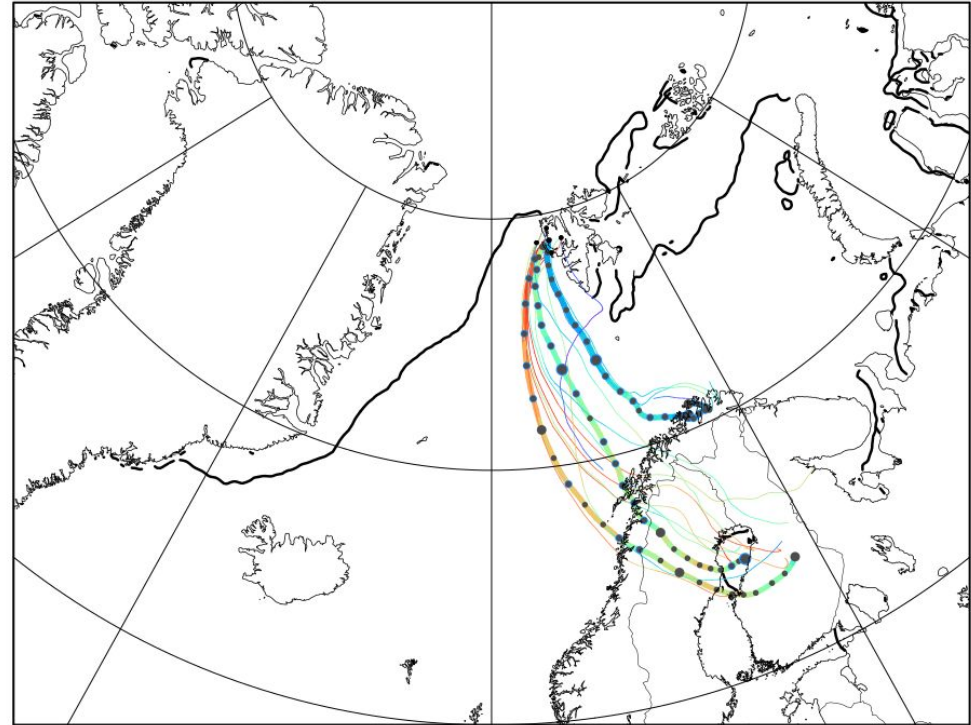


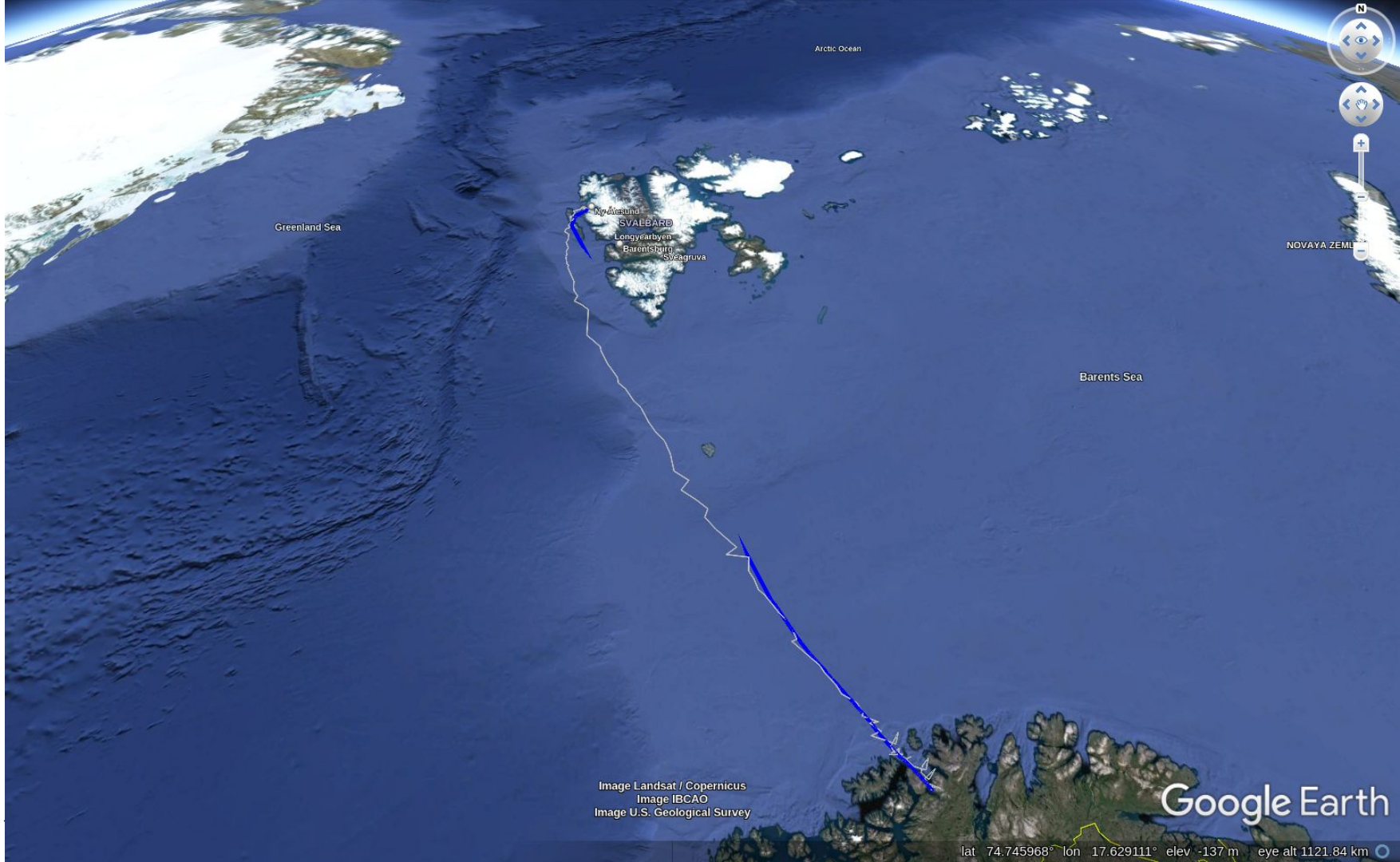
Courtesy:
 Marvin Kähnert, UiB

Trajectories from MeteoSwiss for planning (based on ECMWF)

initialization: 20220401_06
(72h forward)

NyAlesund (from 10,150,300 hPa AGL)





Greenland Sea

Arctic Ocean

NOVAYA ZEMEL

Barents Sea

Ny-Alesund
SVALBARD
Longyearbyen
Barentsburg
Sveagruva

Image Landsat / Copernicus
Image IBCAO
Image U.S. Geological Survey

Google Earth cal

lat 74.745968° lon 17.629111° elev -137 m eye alt 1121.84 km



Langstrand

Hellefjord

Akkarfjord

Hammerfest

Forsøl

Brennsvik

Klubbukt

Buollánluohjávri

gian
rological
ite

Du kan tjene 1000 kroner om du finner denne



Slik ser forskningsballongen ut. Foto: Fieke Rader, Observatory Engineer, AWIPEV Arctic Research Base

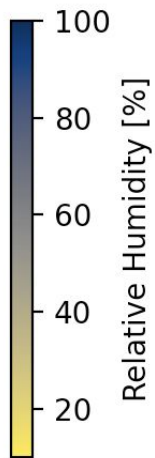
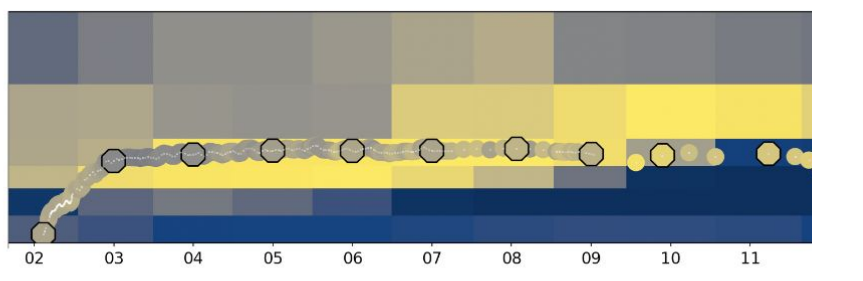
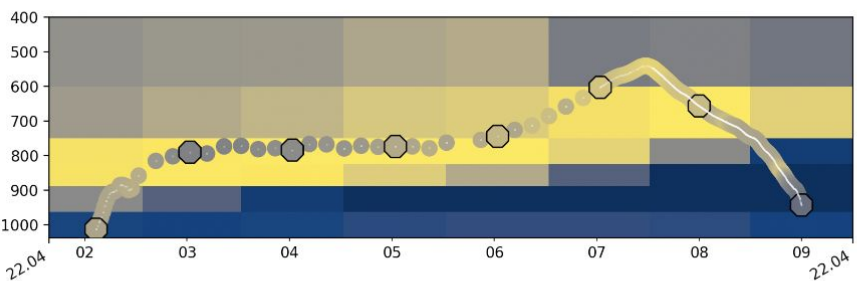
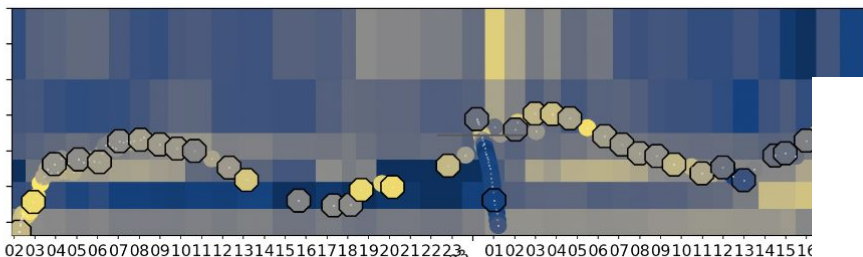
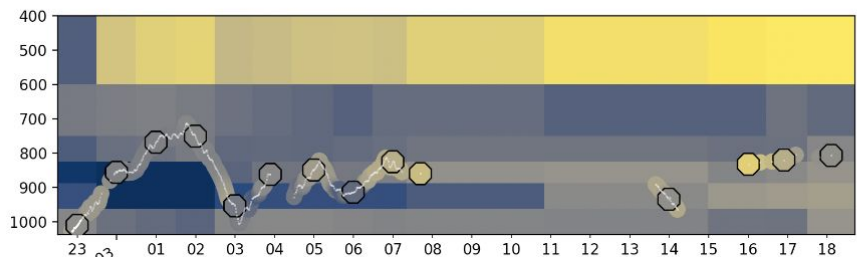
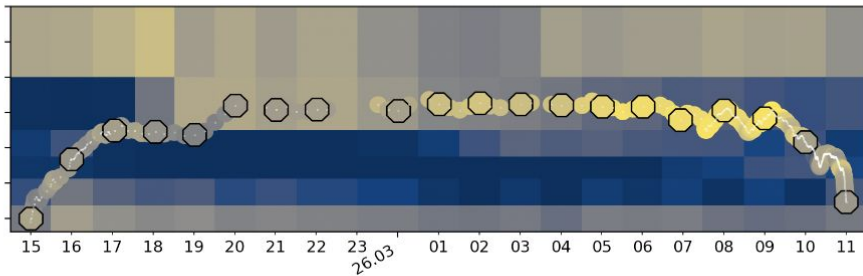
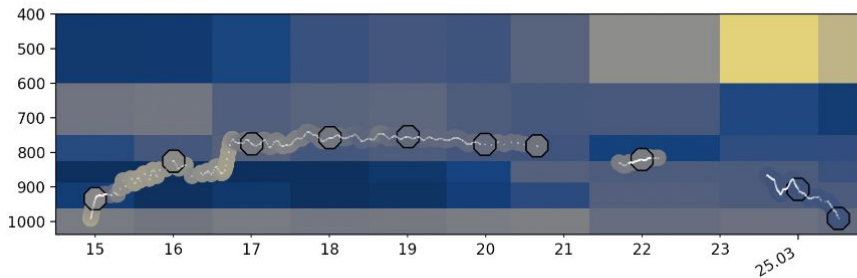
Av [Christel-Beate Jorildatter](#)

Publisert:
27.03.22 19:56

Del

	CMET Launches during ISLAS2022 Campaign					
	#1	#2	#3	#4	#5	#6
Launch date and time	24 Mar 2022 15:00 UTC	25 Mar 2022 15:00 UTC	28 Mar 2022 23:00 UTC	30 Mar 2022 02:00 UTC	04 Apr 2022 02:00 UTC	04 Apr 2022 02:00 UTC
End date and time	25 Mar 2022 00:30 UTC	26 Mar 2022 11:10 UTC	29 Mar 2022 14:10 UTC	31 Mar 2022 01.10 UTC	04 Apr 2022 09:10 UTC	04 Apr 2022 11:30 UTC
Maximum altitude (m)	2569	3547	2869	3088	4995	2270
Latitude range (°N)	76.80 to 78.92	70.54 to 78.96	75.97 to 78.95	74.64 to 78.96	78.88 to 79.00	78.88 to 79.03
Longitude range (°E)	11.33 to 11.95	10. 86 to 24.40	4.02 to 11.91	7.95 to 11.86	5.21 to 11.86	5.23 to 11.86

RH for CMET1 to CMET6



Dual launch



Questions?

lrh@met.no

