



# Flight Plan for: 24 March 2021

**HALO**

Take Off: 8:50 UTC  
Duration: 7:51 (8) Hours

Pilots: ??  
??

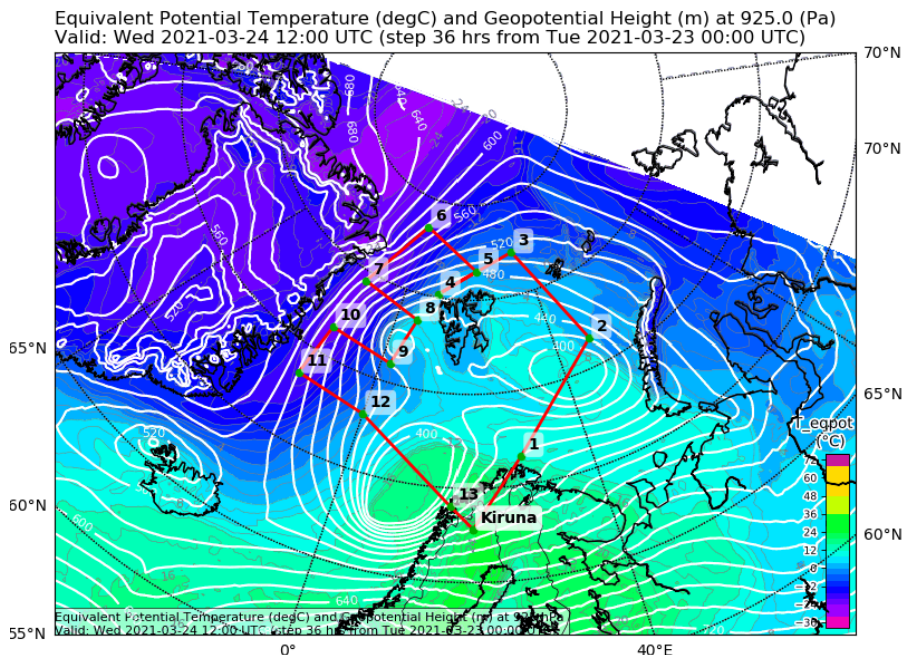
## Crew:

Mission PI	Ehrlich / Crewell?
WALES	Gross
HAMP	Jansen
Specmacs	Pörtge
Smart/Velox	Schäfer
Dropsonde	Gorodetskaya
Service	Schemann

## Waypoints:

**Kiruna:** 67.82 N, 20.34 E  
**W1:** 71.54 N, 28.50 E  
**W2:** 76.50 N, 48.00 E  
**W3:** 82.26 N, 36.08 E  
**W4:** 80.17 N, 9.76 E  
**W5:** 81.53 N, 21.95 E  
**W6:** 83.50 N, 0.00 E  
**W7:** 79.50 N, 12.00 W  
**W8:** 78.60 N, 5.50 E  
**W9:** 76.00 N, 2.00 E  
**W10:** 76.50 N, 13.00 W  
**W11:** 73.00 N, 14.00 W  
**W12:** 69.00 N, 17.00 E  
**Kiruna:** 67.82 N, 20.34 E

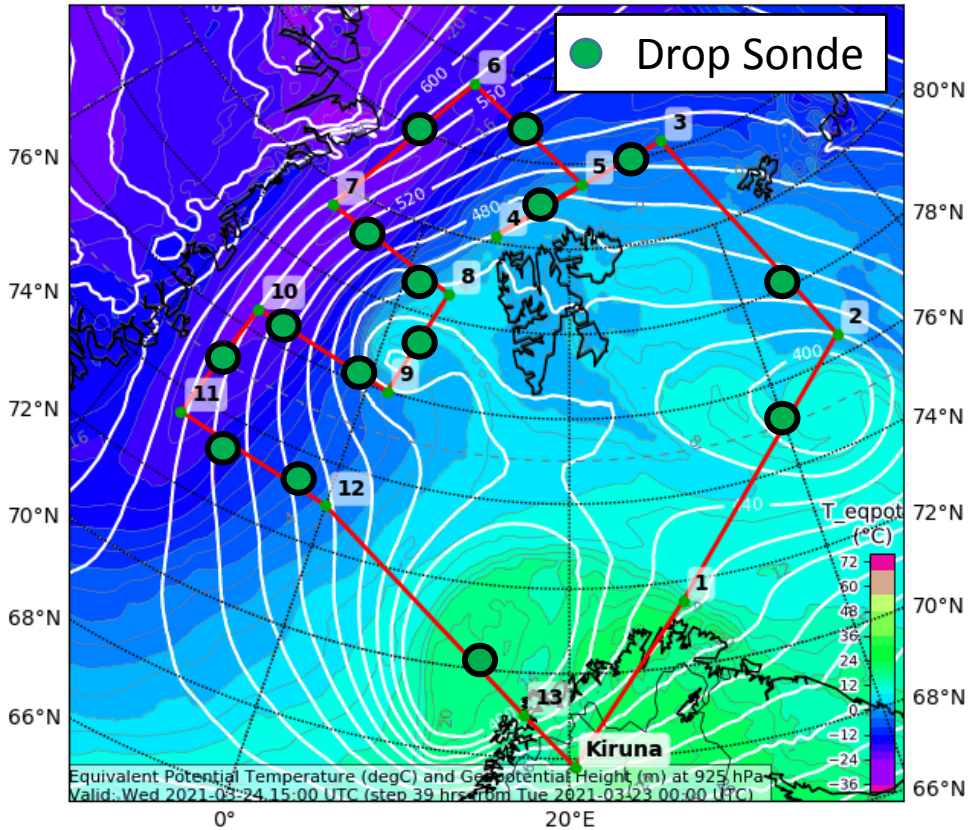
## Overview Map:





## Detailed Map:

Equivalent Potential Temperature (degC) and Geopotential Height (m) at !  
Valid: Wed 2021-03-24 15:00 UTC (step 39 hrs from Tue 2021-03-23 00:0



## Flight Plan (including drop sondes):

Location	Lat (+-90)	Lon (+-180)	Flightlevel	Pressure (hPa)	Leg dist. (km [nm])	Cum. dist. (km [nm])	Leg time	Cum. time	Time (UTC)
0 Kiruna	67.82	20.34	0	1 013.25	0 [0]	0 [0]	00:00:00	00:00:00	2021-03-24 08:00:29
1	71.54	28.51	370	216.63	520 [281]	520 [281]	00:37:54	00:37:54	2021-03-24 08:38:24
2	76.5	48	370	216.63	808 [436]	1329 [718]	00:58:52	01:36:47	2021-03-24 09:37:16
3	82.26	36.08	370	216.63	685 [369]	2014 [1087]	00:49:51	02:26:38	2021-03-24 10:27:08
4	80.17	9.76	370	216.63	499 [269]	2514 [1357]	00:36:22	03:03:00	2021-03-24 11:03:30
5	81.53	21.95	370	216.63	263 [142]	2778 [1500]	00:19:11	03:22:12	2021-03-24 11:22:42
6	83.5	0	370	216.63	383 [207]	3162 [1707]	00:27:56	03:50:08	2021-03-24 11:50:38
7	79.5	-12	370	216.63	486 [262]	3648 [1970]	00:35:23	04:25:32	2021-03-24 12:26:02
8	78.6	5.5	370	216.63	382 [206]	4031 [2176]	00:27:52	04:53:24	2021-03-24 12:53:54
9	76	2	370	216.63	302 [163]	4334 [2340]	00:22:01	05:15:26	2021-03-24 13:15:56
10	76.5	-13	370	216.63	400 [216]	4734 [2556]	00:29:10	05:44:36	2021-03-24 13:45:06
11	73.5	-14	370	216.63	336 [181]	5071 [2738]	00:24:27	06:09:04	2021-03-24 14:09:34
12	73	0	370	216.63	452 [244]	5523 [2982]	00:32:57	06:42:02	2021-03-24 14:42:32
13	69	17	370	216.63	757 [409]	6281 [3391]	00:55:09	07:37:12	2021-03-24 15:37:42
14 Kiruna	67.82	20.34	0	1 013.25	189 [102]	6471 [3494]	00:13:49	07:51:01	2021-03-24 15:51:31

### Total:

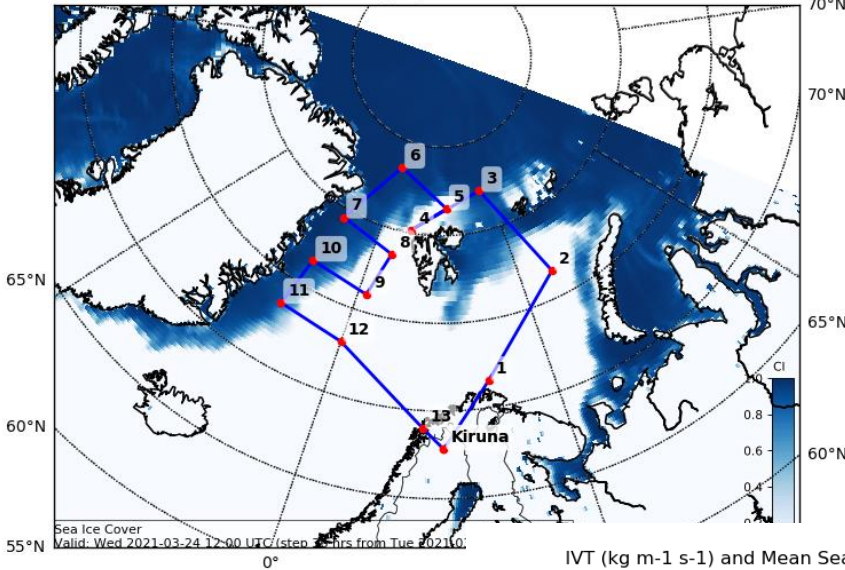
### 8 hr 00 min



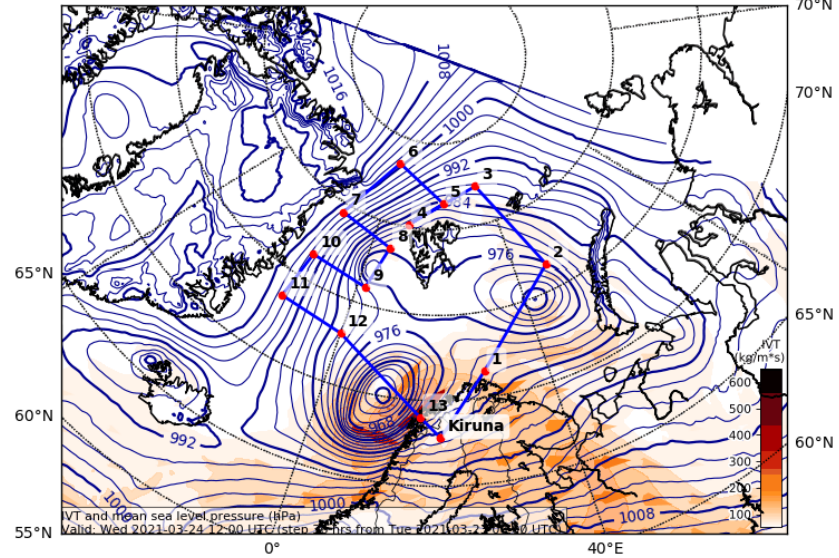


## Additional Maps:

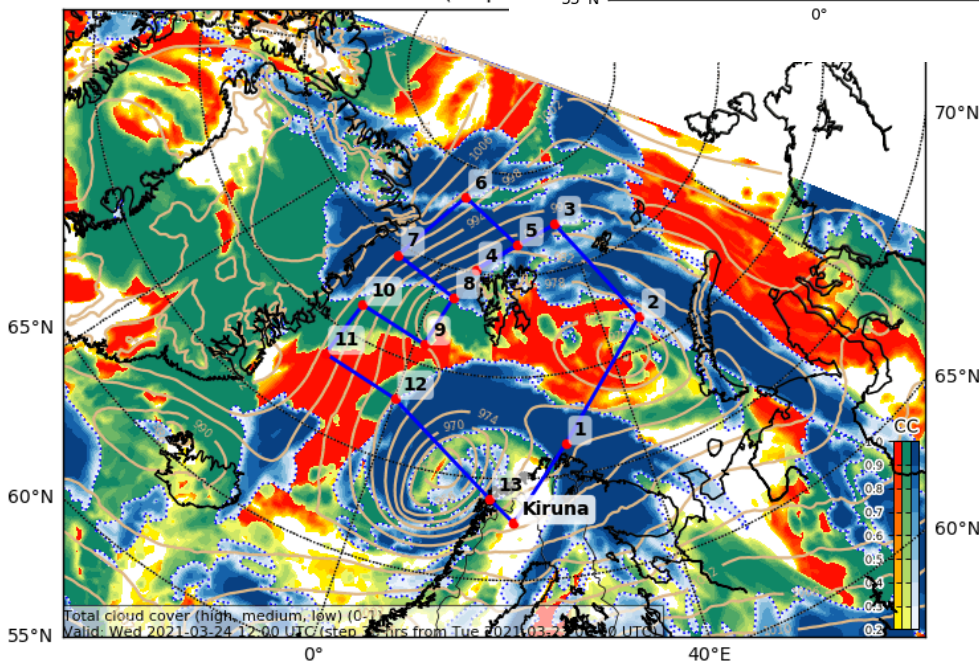
Sea Ice Cover Fraction (0-1) (pseudocolor plot)  
Valid: Wed 2021-03-24 12:00 UTC (step 36 hrs from Tue 2021-03-23 00:00 UTC)



IVT (kg m<sup>-1</sup> s<sup>-1</sup>) and Mean Sea Level Pressure (hPa)  
Valid: Wed 2021-03-24 12:00 UTC (step 36 hrs from Tue 2021-03-23 00:00 UTC)



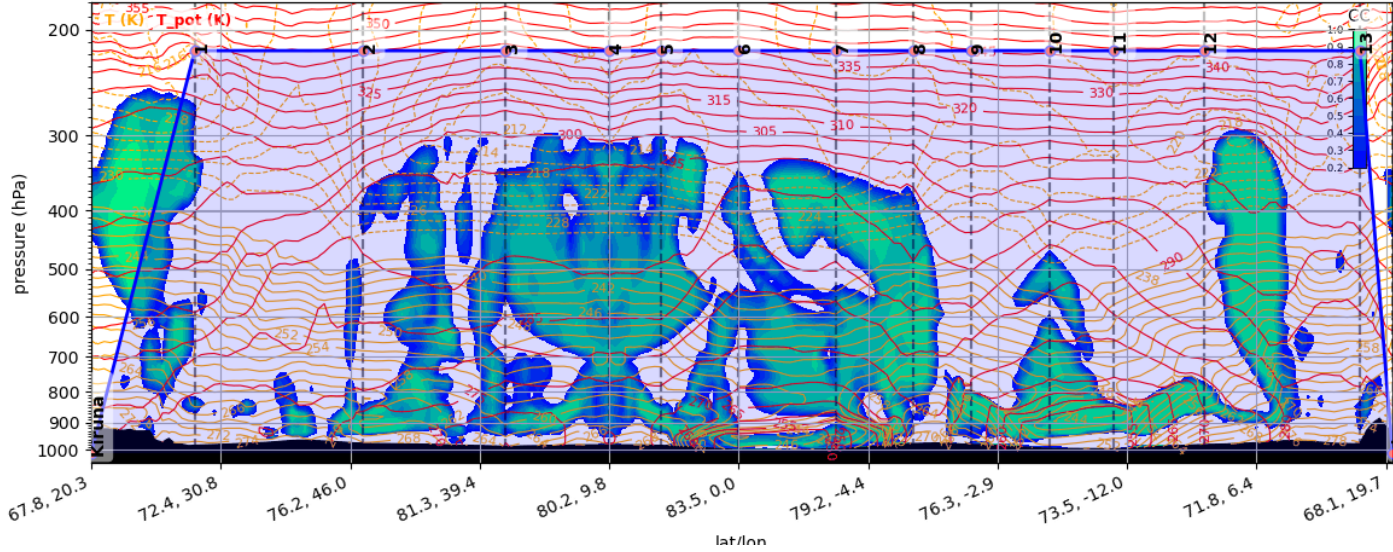
Cloud Cover (0-1) (Total Cloud Cover)  
Valid: Wed 2021-03-24 12:00 UTC (step 36 hrs from Tue 2021-03-23 00:00 UTC)



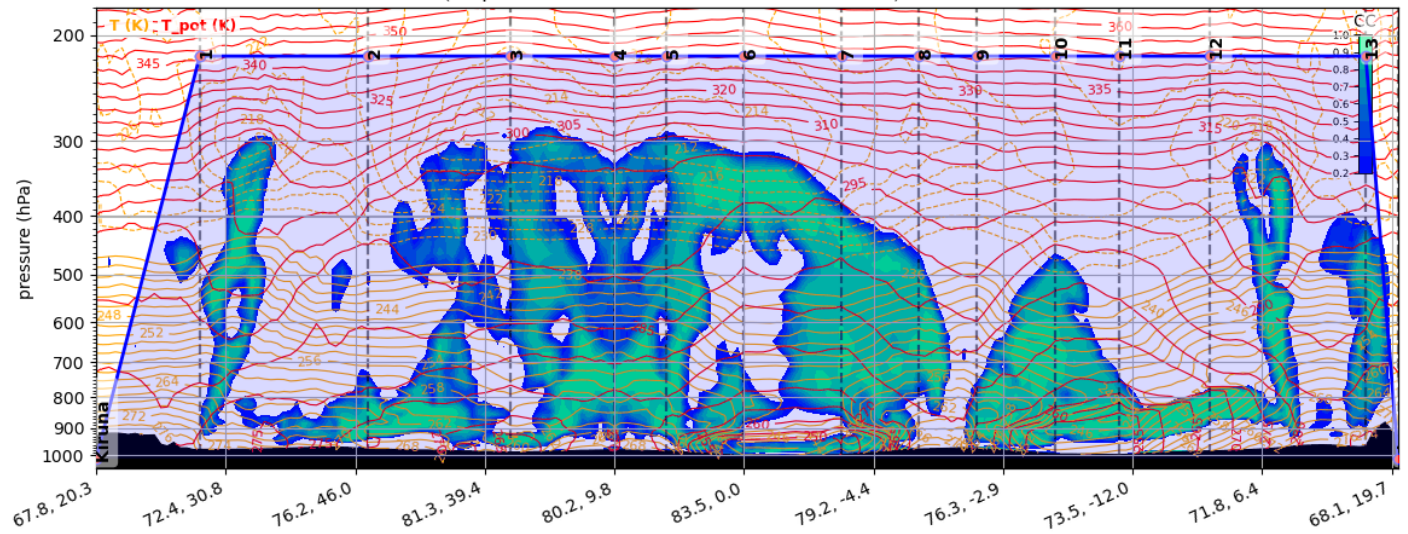


## Additional Maps:

Cloud Cover (0-1) Vertical Section  
Valid: Wed 2021-03-24 09:00 UTC (step 33 hrs from Tue 2021-03-23 00:00 UTC)



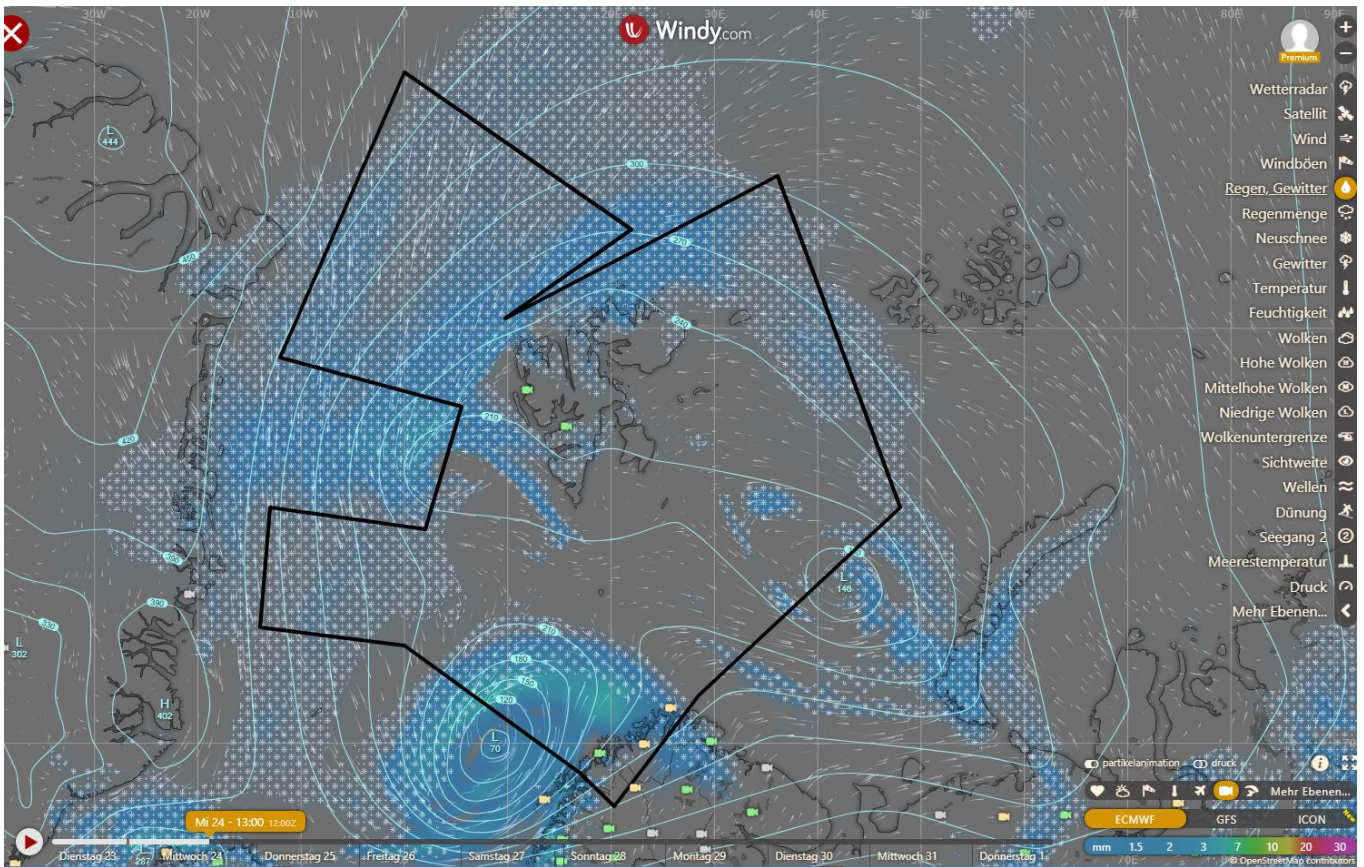
Cloud Cover (0-1) Vertical Section  
Valid: Wed 2021-03-24 15:00 UTC (step 39 hrs from Tue 2021-03-23 00:00 UTC)







## Additional Maps:

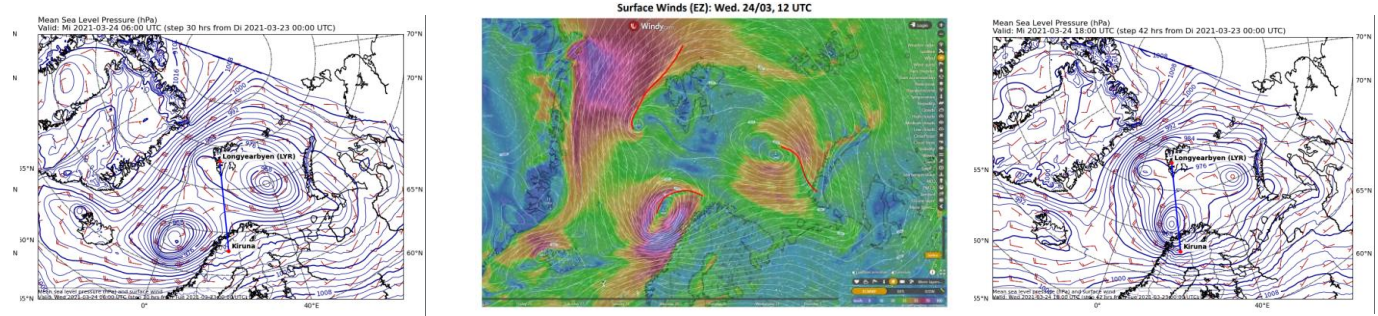




## Objectives of the Flight:

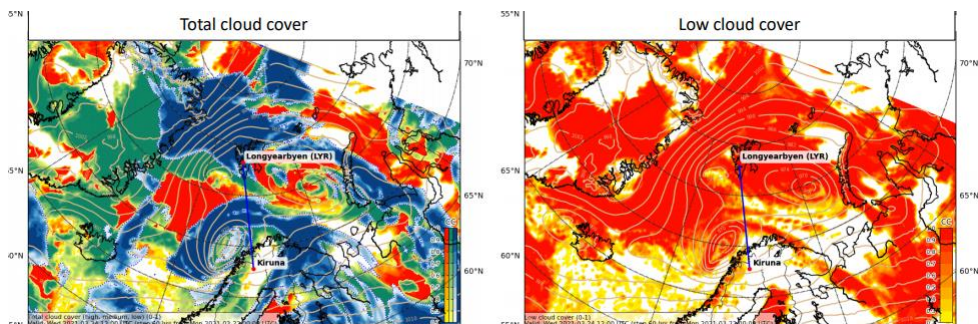
Remote sensing of different cloud and precipitation regimes associated with an aggregation of low pressure systems. One aged low pressure system located over the Barents Sea will be crossed first. Then HALO will follow the warm moist air of this pressure system, first westward north of Svalbard and then southward along the Fram Strait. North of Svalbard, where a Polynia had opened, joint flights with Polar 5/6 are planned, all aircraft flying along the flow (low altitude). The second part of the flight aims to follow this northerly flow, which then is parallel to the sea ice edge. Trajectory analysis show, that here in low altitudes cold air from the central Arctic are combined with the warmer moist air transported by the low pressure system in higher altitudes. HALO aims to characterize this contrasting conditions. West of Svalbard a small low pressure system is forecasted and will be crossed by HALO. HALO will follow this northerly flow towards South, where the sea ice ends. In the last part of the flight, HALO will cross a low pressure system which developed west of Scandinavia.

## General Weather Situation:



ECMWF Surface Pressure and Wind field.

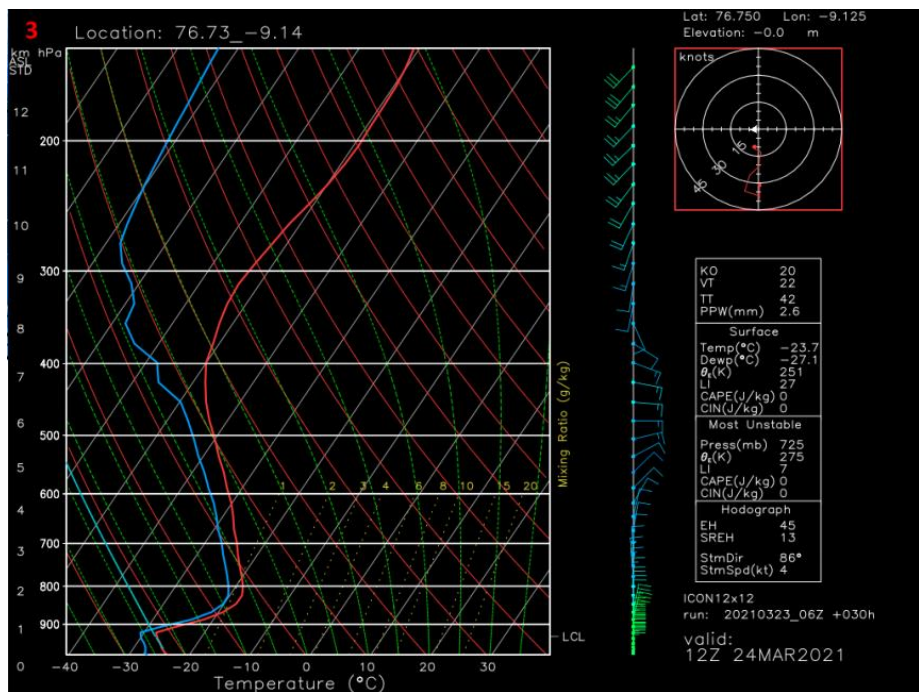
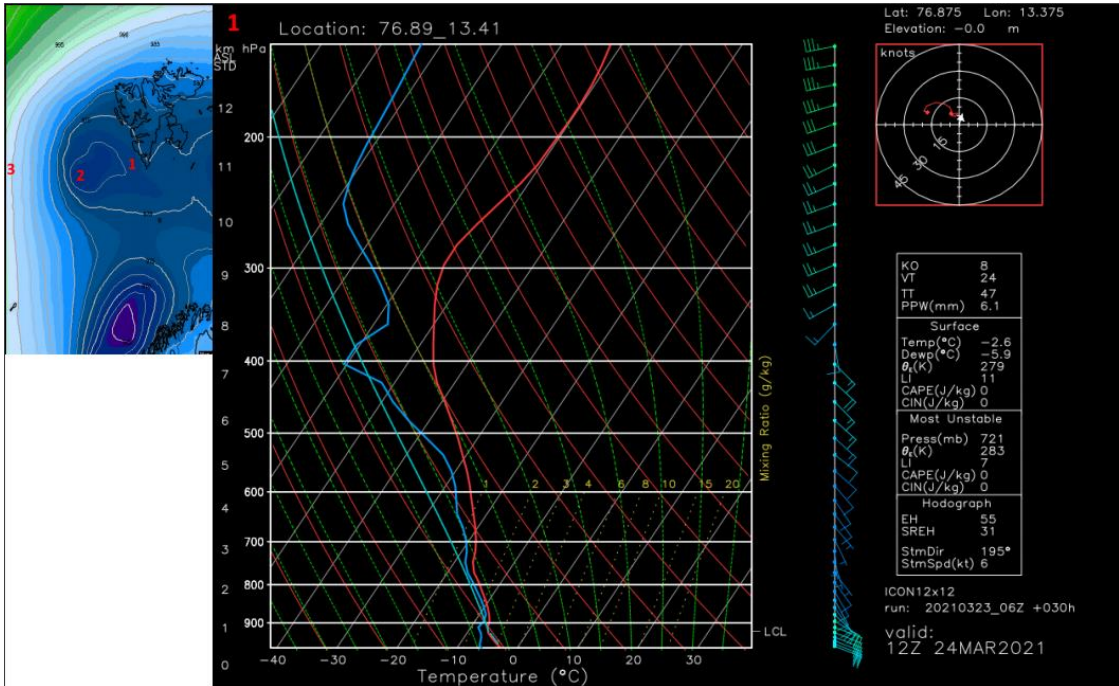
An aged low pressure system remains stable in the Barents Sea and shuffles warm moist air towards Svalbard. The conditions are quite stable and predicted by all models.



ECMWF Low, mid-level and high cloud cover.

The track of the southern low pressures system did change slightly in the last forecast runs. This might affect, if HALO arrives in time to measure a cross section through this system.





West of Svalbard, the atmospheric profiles differ significantly between the air mass over sea ice and the air mass over ocean. Over the sea ice dry cold air is floating southwards below the higher moist and warm air mass, which is still in this case also transported from north but with a slight east component.