



Flight Plan for: 26 March 2021

HALO

Take Off: 09:00 UTC
Duration: 07:30 Hours

Pilots: ??
??

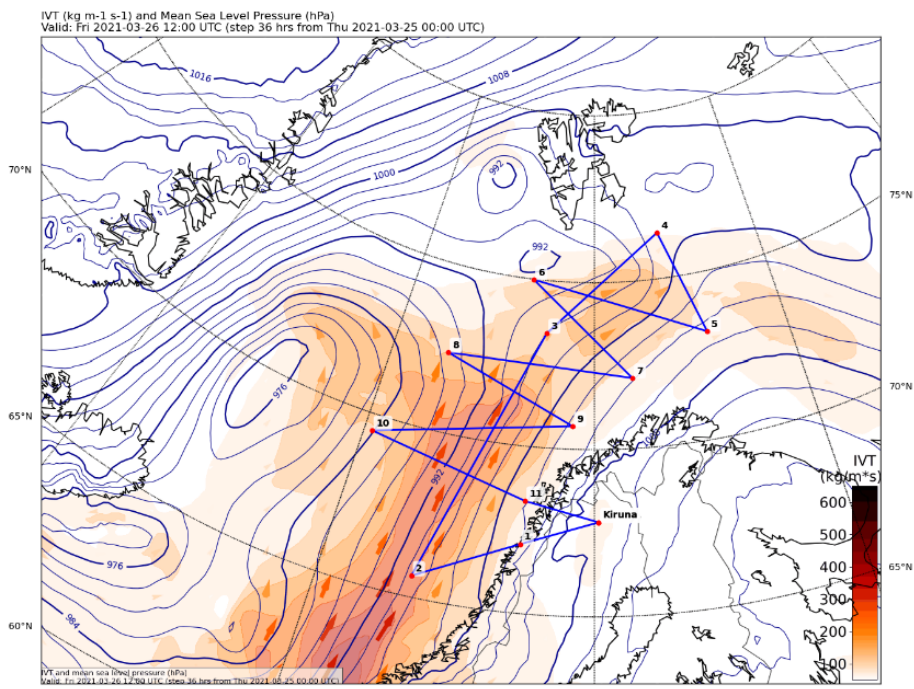
Crew:

Mission PI	Schemann
HAMP	Ori
SpecMacs	Dorff
Wales	Groß
Smart	??
Dropsondes	Ament

Waypoints:

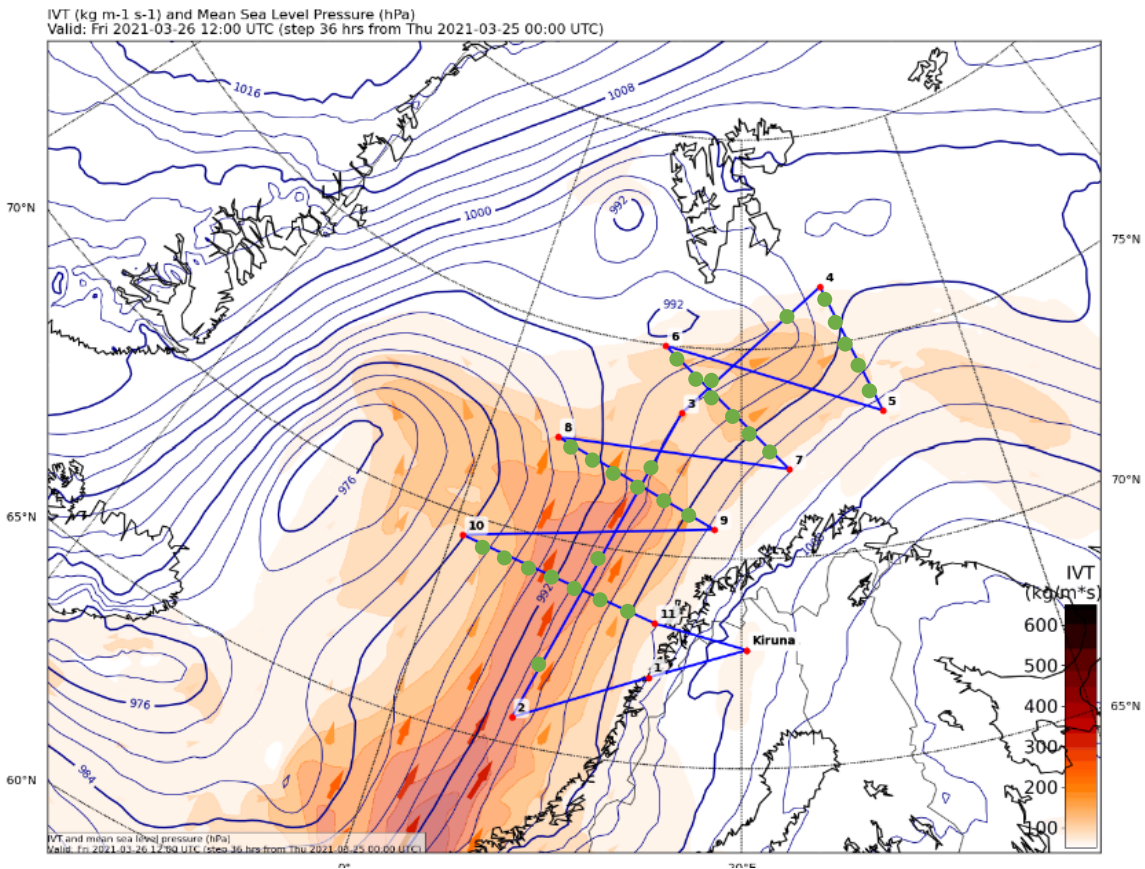
W1	67.066 N	14.294 O
W2	65.631 N	6.682 O
W3	73.428 N	14.994 O
W4	76.375 N	27.969 O
W5	73.215 N	31.774 O
W6	74.989 N	12.984 O
W7	72.109 N	23.710 O
W8	72.381 N	5.399 O
W9	70.689 N	18.028 O
W10	69.502 N	0.701 O
W11	68.366 N	14.370 O

Overview Map:





Detailed Map:



Flight Plan (including drop sondes):

KRN – W1 ascend FL 360: 146 NM	20 min
W1 – W2 @FL360: ferry to center of WAT in South, 203 NM	28 min
W2 – W3 @FL360: along main axis auf WAI , 500 NM (3 sondes)	67 min
W3 – W4 @FL360: following WAT in north-eastern dir., 269 NM (2 sondes)	36 min
W4 – W5 @FL360: first border leg, 199 NM (5 sondes)	27 min
W5 – W6 @FL360: first internal leg, 326 NM	44 min
W6 – W7 @FL360: second border leg, 251 NM (6 sondes)	34 min
W7 – W8 @FL360: second internal leg, 335 NM	46 min
W8 – W9 @FL360: third border leg, 261 NM (6 sondes)	35 min
W9 – W10 @FL360: third internal leg, 361 NM	49 min
W10 – W11 @FL360: forth border leg, 203 NM (7 sondes)	41 min
W11 – KRN descend to airport, 203 NM	19 min
(all at cruising speed)	

Total:

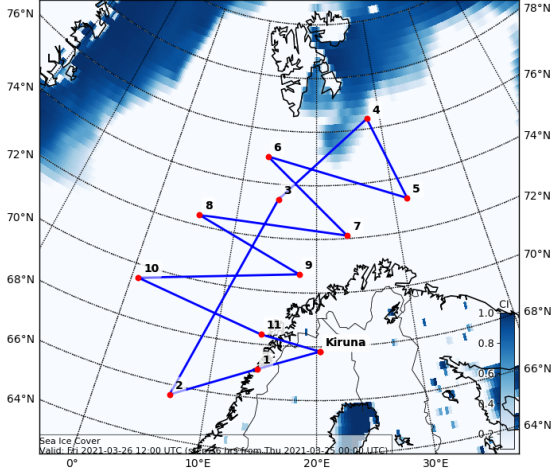
7 hr 27 min

6106 NM, 29 sondes

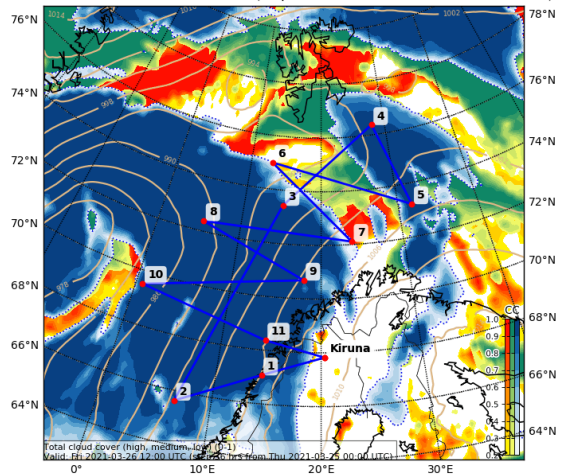


Additional Maps:

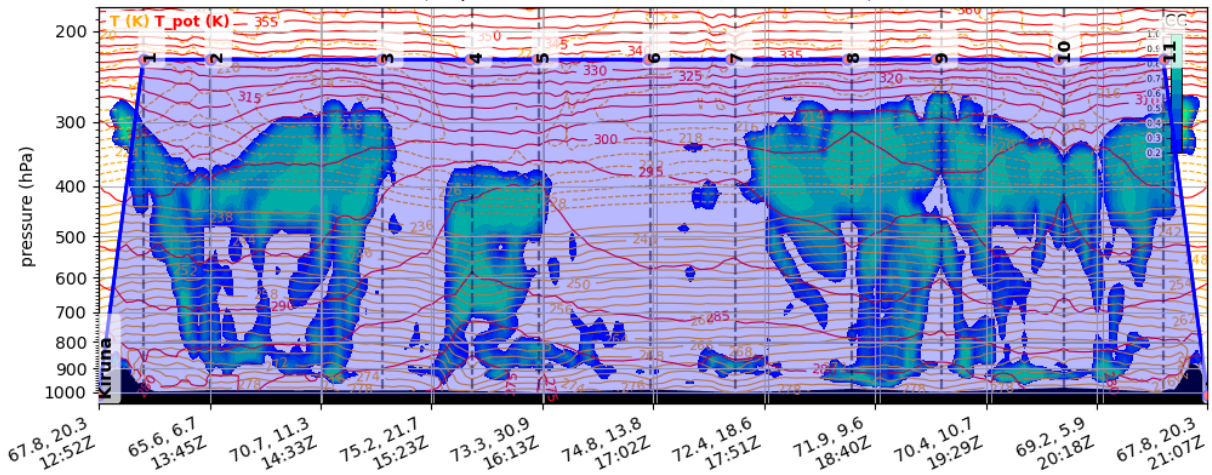
Sea Ice Cover Fraction (0-1) (pseudocolor plot)
Valid: Fr 2021-03-26 12:00 UTC (step 36 hrs from Do 2021-03-25 00:00 UTC)



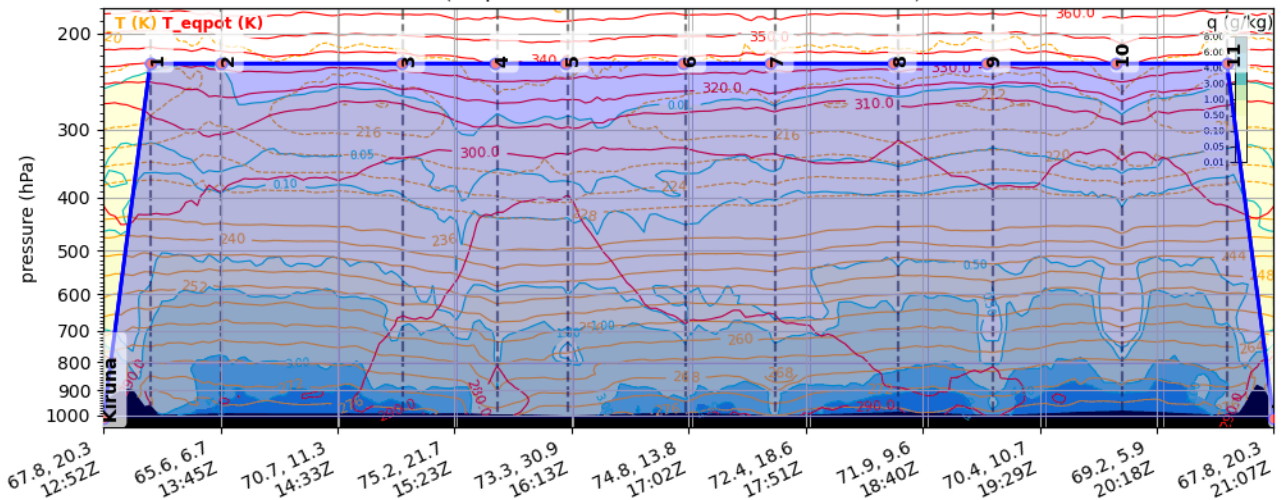
Cloud Cover (0-1) (Total Cloud Cover)
Valid: Fr 2021-03-26 12:00 UTC (step 36 hrs from Do 2021-03-25 00:00 UTC)



Cloud Cover (0-1) Vertical Section
Valid: Fr 2021-03-26 12:00 UTC (step 36 hrs from Do 2021-03-25 00:00 UTC)



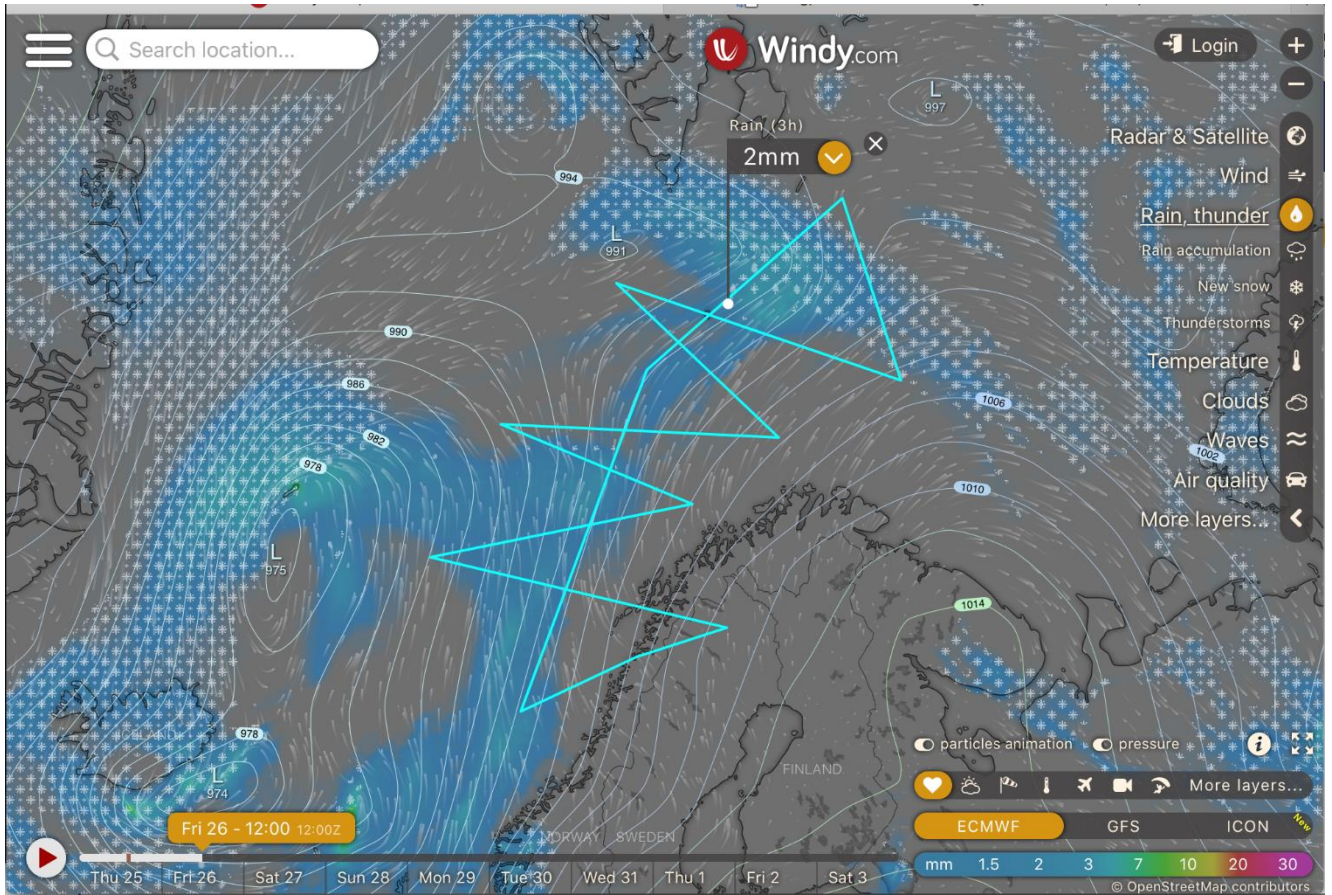
Specific Humidity (g/kg) Vertical Section
Valid: Fr 2021-03-26 12:00 UTC (step 36 hrs from Do 2021-03-25 00:00 UTC)





Additional Maps:

Precipitation





Objectives of the Flight:

- Sample temporal and spatial evolution of warm air transport (WAT) by one downstream leg at the center of WAT and revisiting these air masses while returning to KRN along a saw-tooth pattern.
- Analyze moisture (and energy) budget in three sections: estimation of horizontal fluxes by dropsond curtains at border legs perpendicular to the flow; observing precipitation and water loading during internal legs
- POLAR 5 and POLAR 6 add complementary information at northern outflow of WAT.

General Weather Situation:

A chain of low pressure systems is situated on a meridional axis from Iceland to Svalbard, causing the meridional advection of warmer and moist airmasses ($IWV > 10$ mm) from the south along an axis westerly of Norway towards Southeast of Svalbard which represents the outflow region that will not be exceeded during observation time. Advection is most intense between the low north of Iceland and north of the ridge and the Norwegian coast line.

Over Svalbard, wind is calm, varying from south easterly to north easterly directions. Between 12 and 18 UTC right to the south of Svalbard, the meridional wind is separated into a western and eastern flow. To the west of Svalbard, a small cyclone still produces some snow in the Fram Strait with north easterly winds.

Along the flow, the low pressure system north of Iceland partly causes a split up of the major current towards west for flows western of $0^{\circ}E$. The smaller of the cyclones follows the anticyclonic pathway to the east, while the main cyclone continues northwards and connects to the low centered to the west of Svalbard. The persistent warm air flow blows away the resilient occlusion front over Svalbard.

In the entire region of interest, clouds are expected to be frequent and deep primarily in the warm air transport core. Precipitation in liquid and frozen form will arise along the warm air transport region. An ancient high level cloud region is located south of Svalbard ahead of the air mass advection.

Uncertainties in the actual location of low centres are expected and might majorly be relevant in the outflow region south east of Svalbard when hitting the sea ice edge. Takeoff conditions are expected to be quite feasible after early morning fog will presumably dissolve before take-off time of 09:00 UTC.

