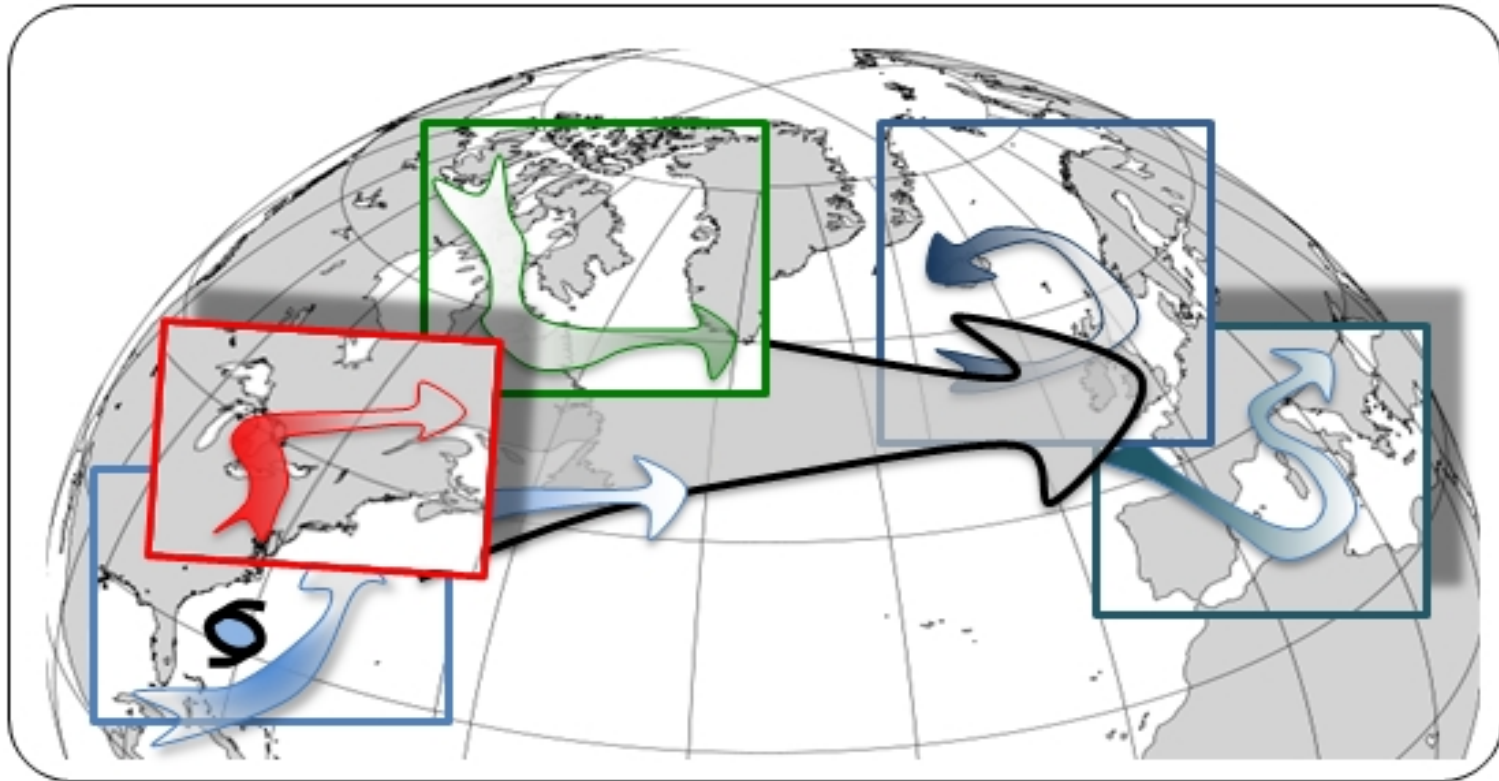


NAWDEX - Weather Discussion

12 October 2016, Keflavik 16 UTC



NAWDEX – Weather Discussion

12 October 2016, Keflavik 16 UTC

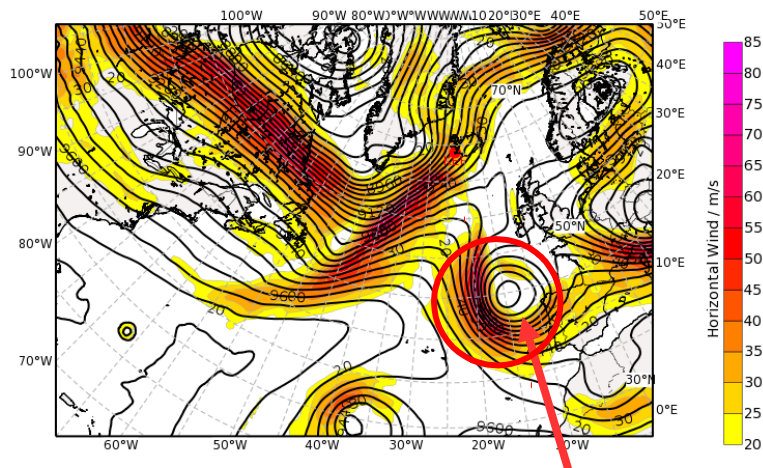
Key issues for today:

- SAFIRE flight today (HALO & Falcon are canceled)
- Current synoptic situation and forecast until Sunday 16th
- HALO flight Thursday
- Falcon flights (x2) on Thursday
- Intercomparison flight of UK FAAM, HALO and Safire Falcon Friday
- Ground based observation update

Forecast

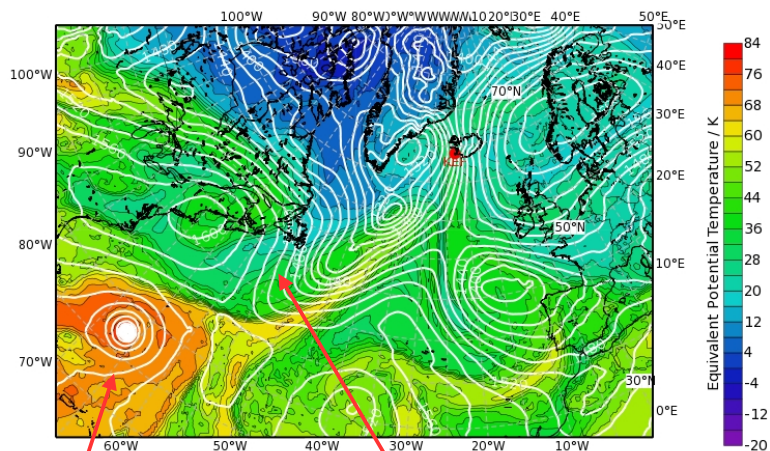
Analysis – 12 Oct 2016, 00 UTC

Geopotential Height (m) & Horizontal Wind (m/s) at 300 hPa
Valid: Wed, 12 Oct 2016, 00 UTC (step 000 h from Wed, 12 Oct 2016, 00 UTC)



Cut-off “Brigitte”

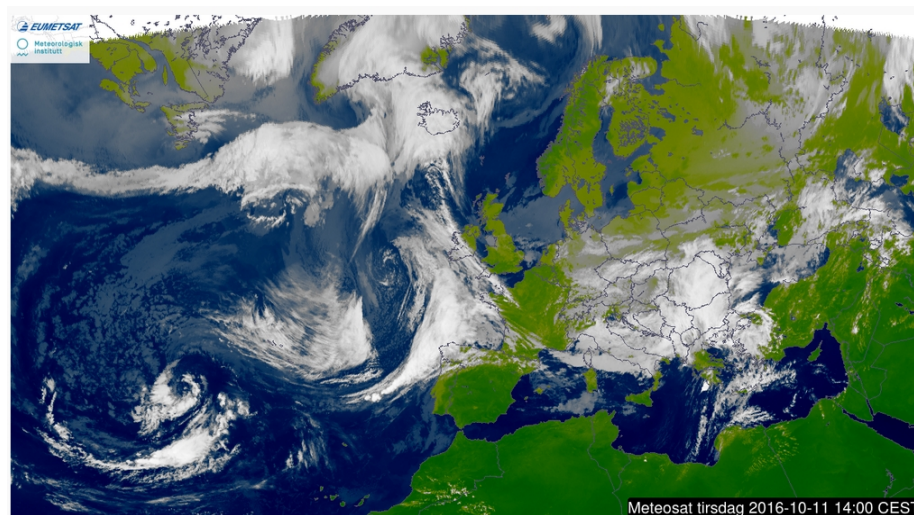
Equivalent Potential Temperature (degC) & Streamlines at 850 hPa
Valid: Wed, 12 Oct 2016, 00 UTC (step 000 h from Wed, 12 Oct 2016, 00 UTC)



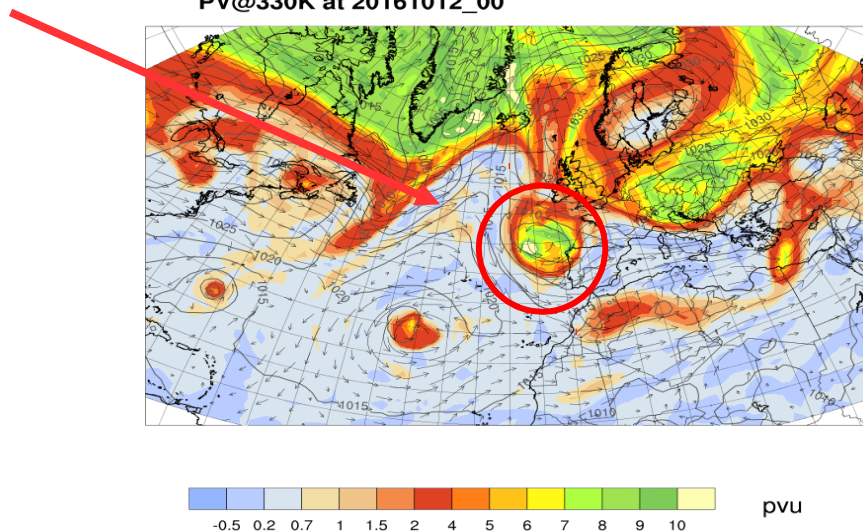
TC Nicole

“Downstream
Cyclone”

Z300, SAT (TO UPDATE)
THE850, PV300



PV@330K at 20161012_00



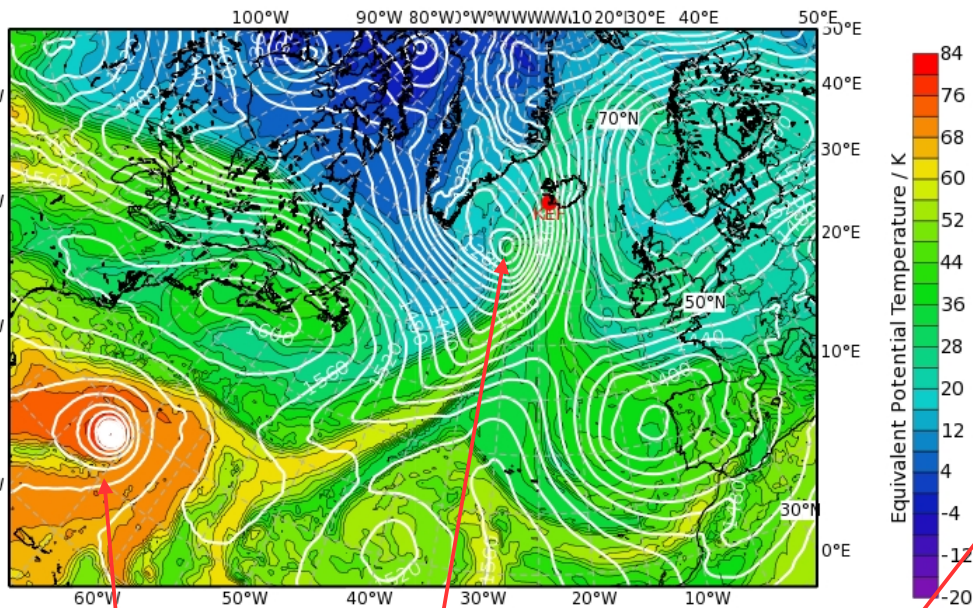
p.u.

Forecast for Wed, 12 Oct 2016 12 UTC

THE850, PV320K, PV330 K BT12/00Z

New ridge: Þór

Equivalent Potential Temperature (degC) & Streamlines at 850 hPa
Valid: Wed, 12 Oct 2016, 12 UTC (step 012 h from Wed, 12 Oct 2016, 00 UTC)

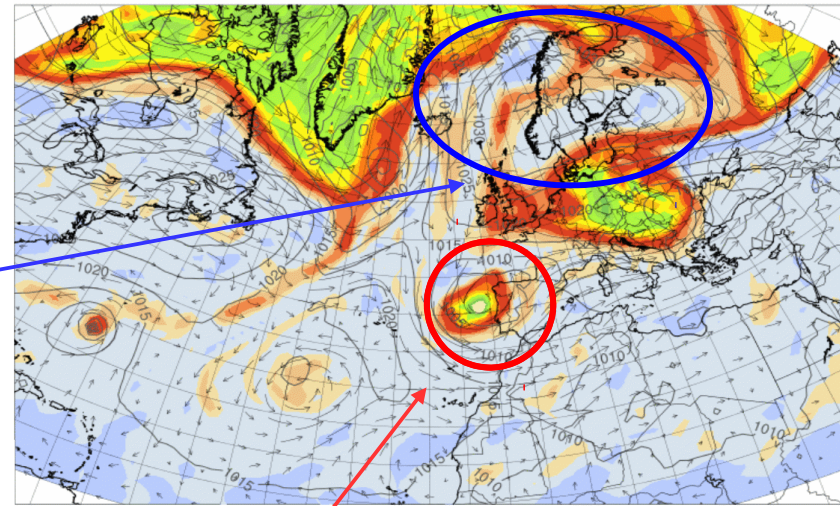


TC Nicole

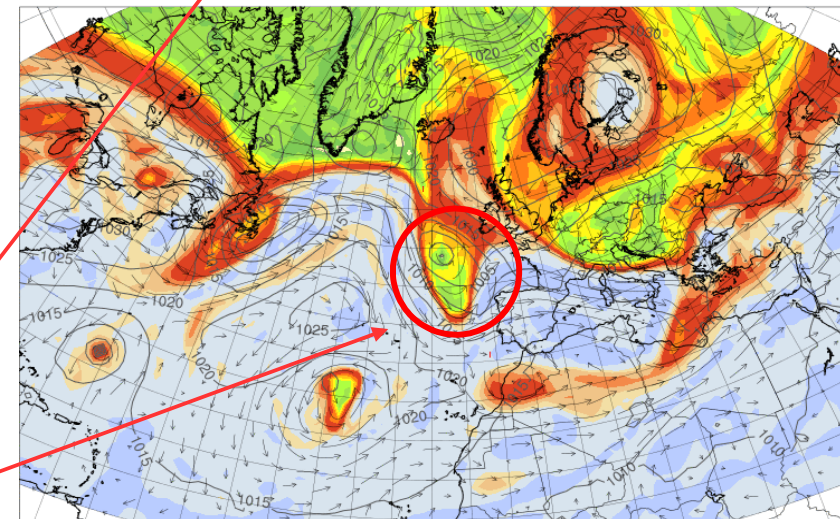
Downstream
cyclone

Cut-off "Brigitte"

PV@320K at 20161012_12



PV@330K at 20161011_12



NAWDEX Weather Discussion

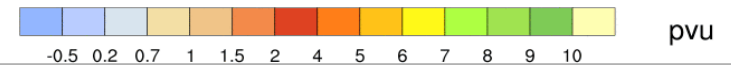
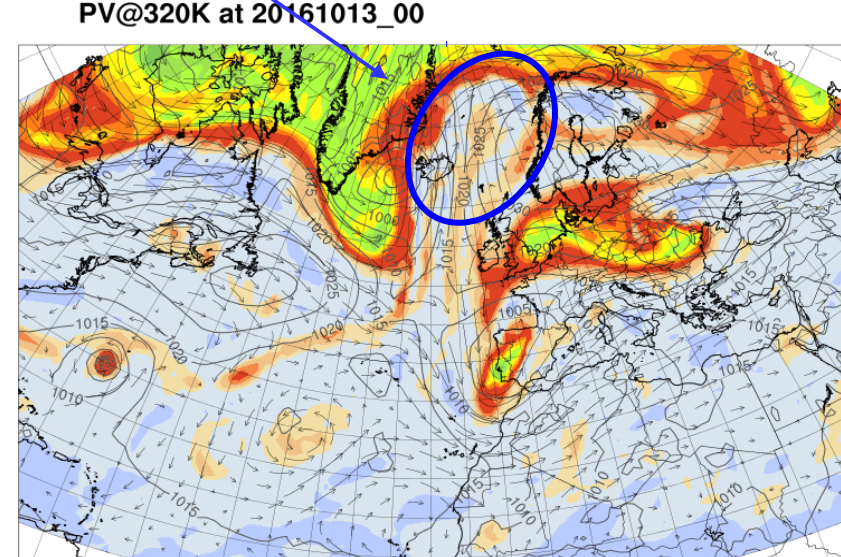
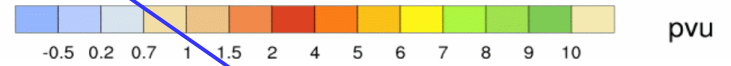
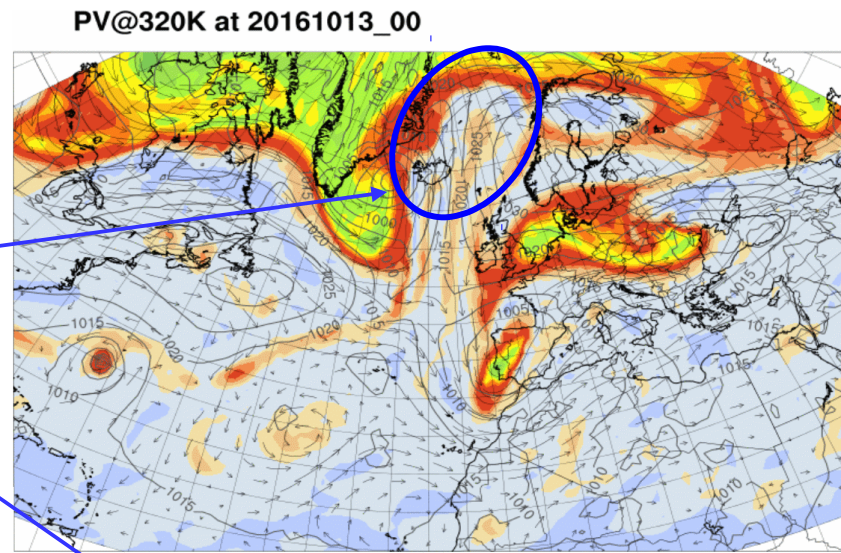
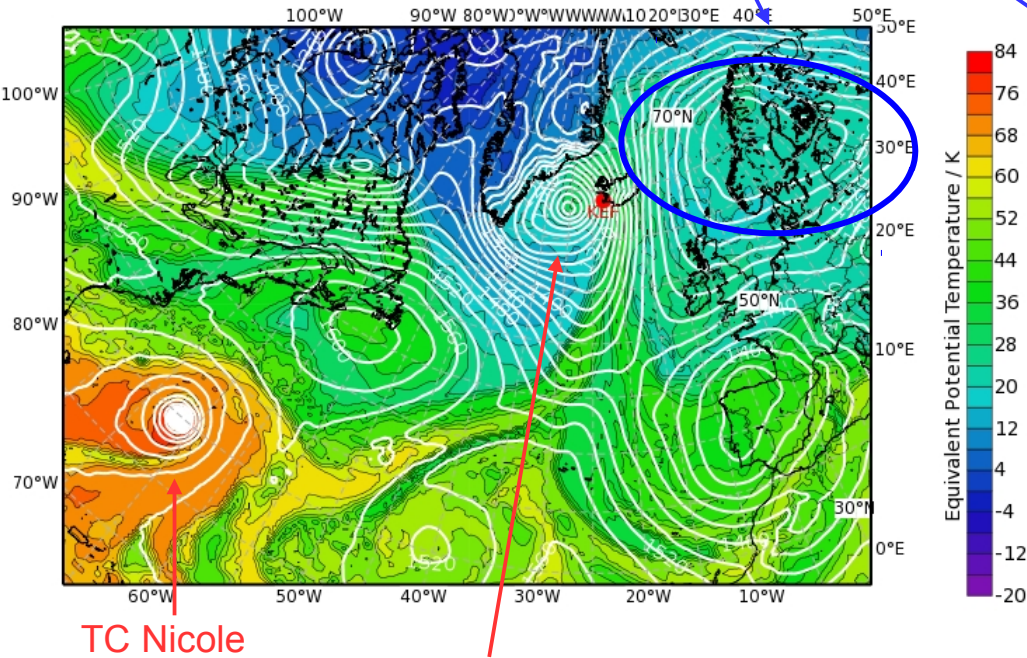
Keflavik, 12 October 2016

Forecast for Thu, 13 Oct 2016 00 UTC

THE850, PV320K, PV330 K BT12/00Z

Ridge: Þór

Equivalent Potential Temperature (degC) & Streamlines at 850 hPa
Valid: Thu, 13 Oct 2016, 00 UTC (step 024 h from Wed, 12 Oct 2016, 00 UTC)

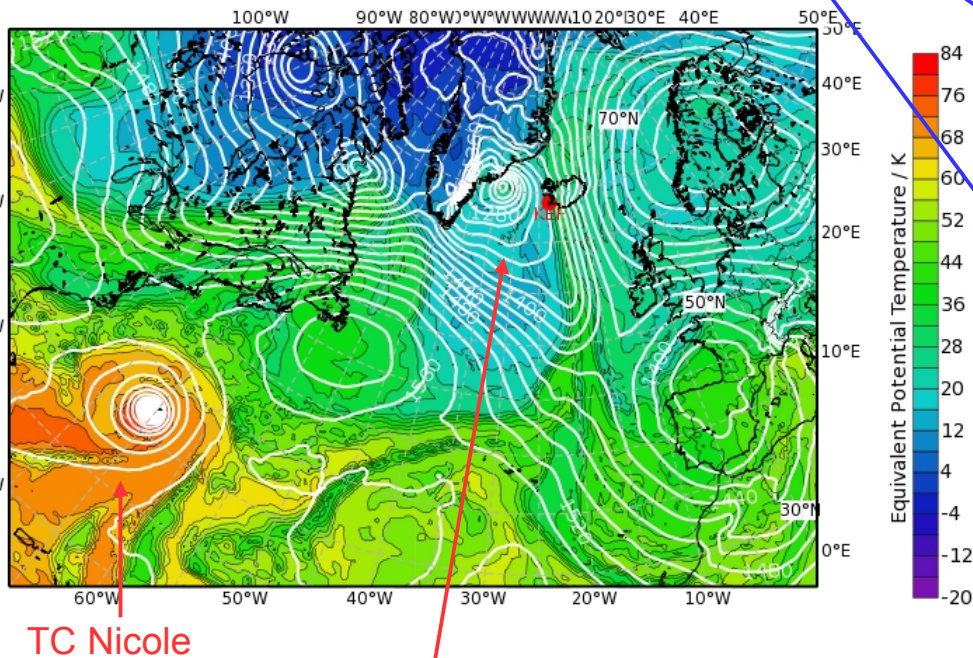


Forecast for Thu, 13 Oct 2016 12 UTC

THE850, PV320K, PV330 K BT12/00Z

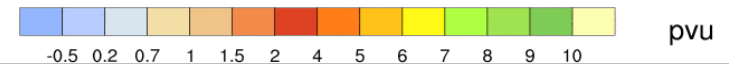
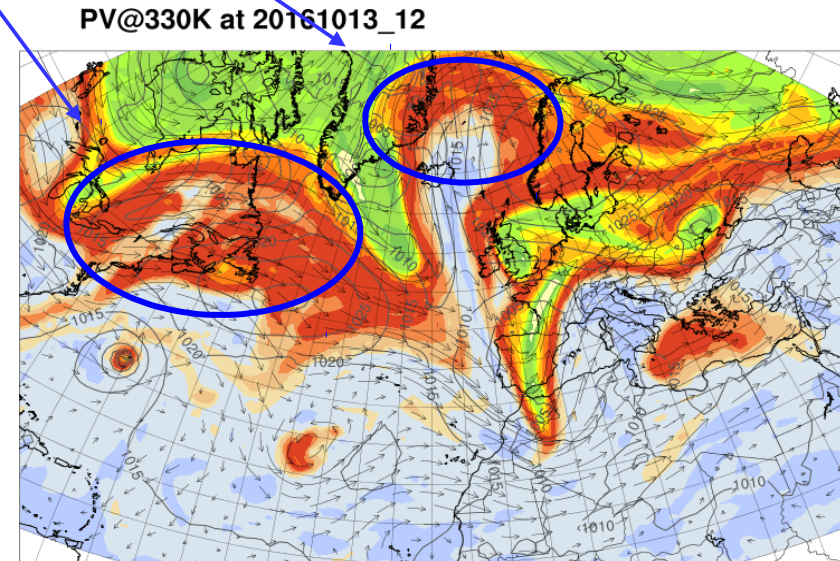
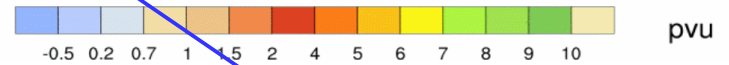
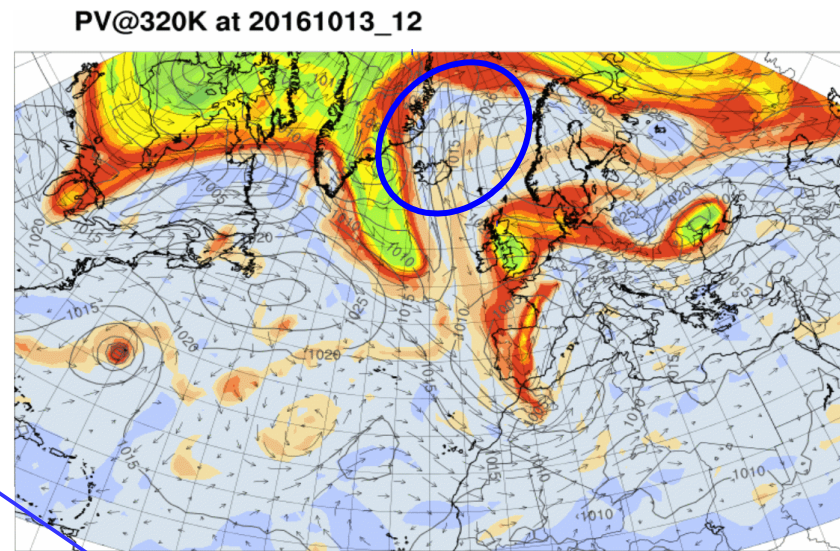
Weak PV gradient

Equivalent Potential Temperature (degC) & Streamlines at 850 hPa
Valid: Thu, 13 Oct 2016, 12 UTC (step 036 h from Wed, 12 Oct 2016, 00 UTC)



TC Nicole

Downstream
cyclone

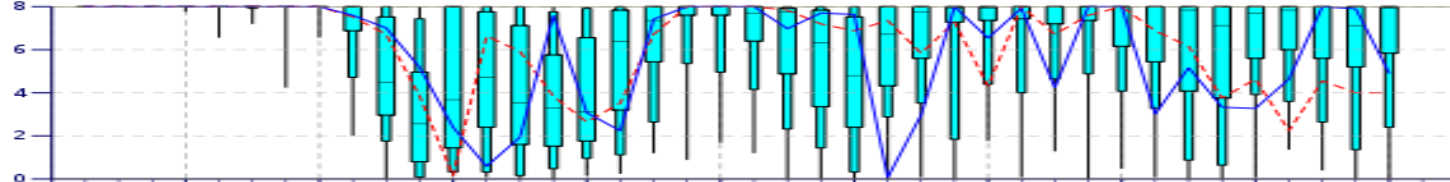


ENS Meteogram

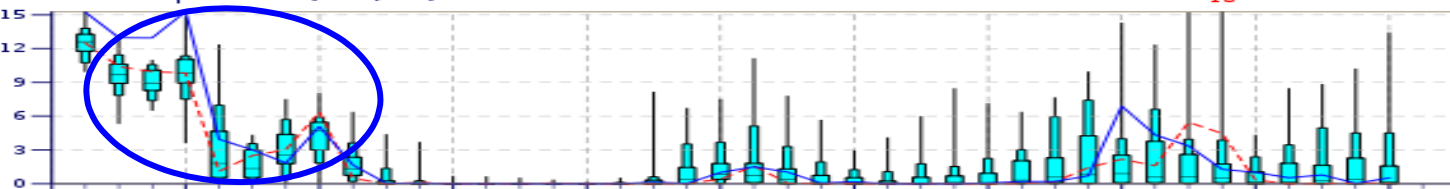
Keflavík, Iceland 63.89°N 22.26°W (ENS land point) 5 m

High Resolution Forecast and ENS Distribution Wednesday 12 October 2016 00 UTC

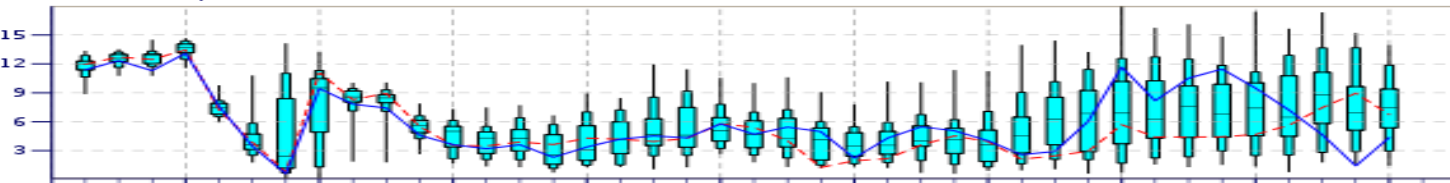
Total Cloud Cover (okta)



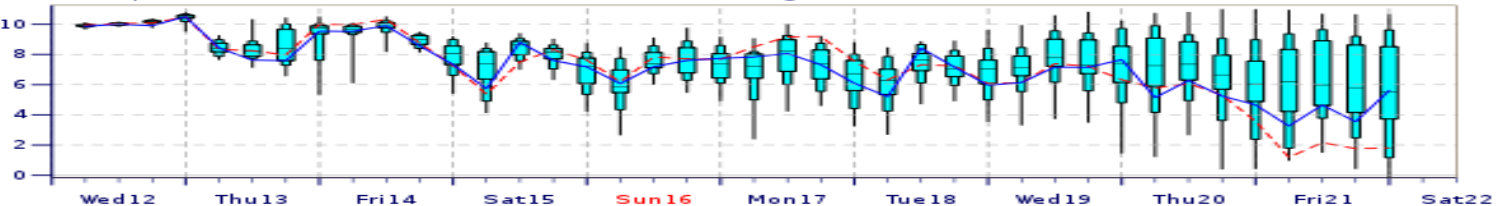
Total Precipitation (mm/6h)



10m Wind Speed (m/s)



2m Temperature(°C) reduced to 5 m (station height) from 83 m (HRES) and 46 m (ENS)



Wed 12
Oct
2016



m ax
90%
75%
median
25%
10%
m in

ENS Control(16 km)

High Resolution (8 km)

Latest TAF Report:

2016-10-12, 15 UTC to 2016-10-13, 15 UT: Wind 30 kt from South/Southeast, Gusts up to 40 kt

BCMG 2016-10-13, 02 to 04 UTC: Wind 20 kt from South, Gusts up to 30 kt

BCMG 2016-10-13, 10 to 13 UTC: Wind 10 kt from South/Southeast

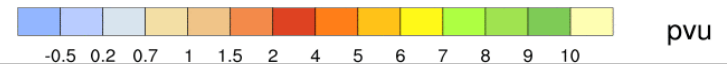
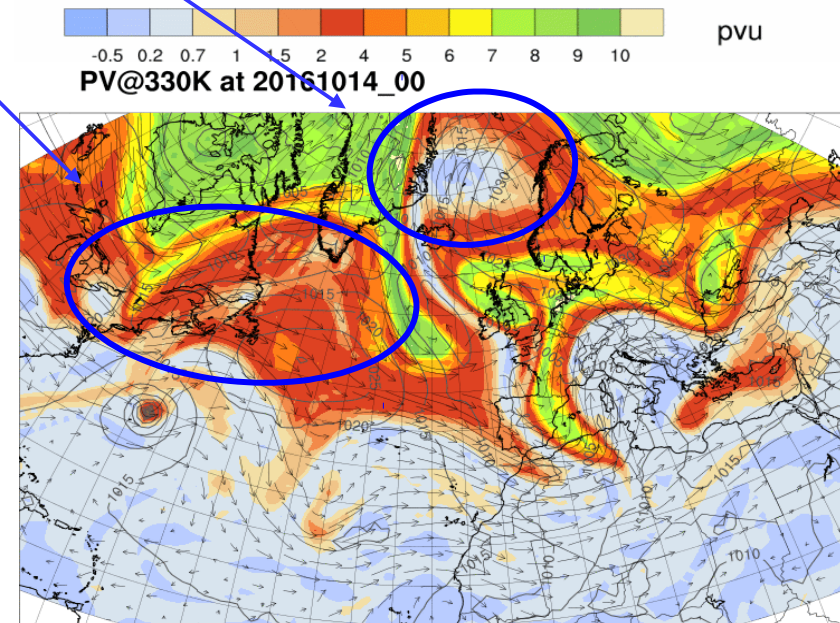
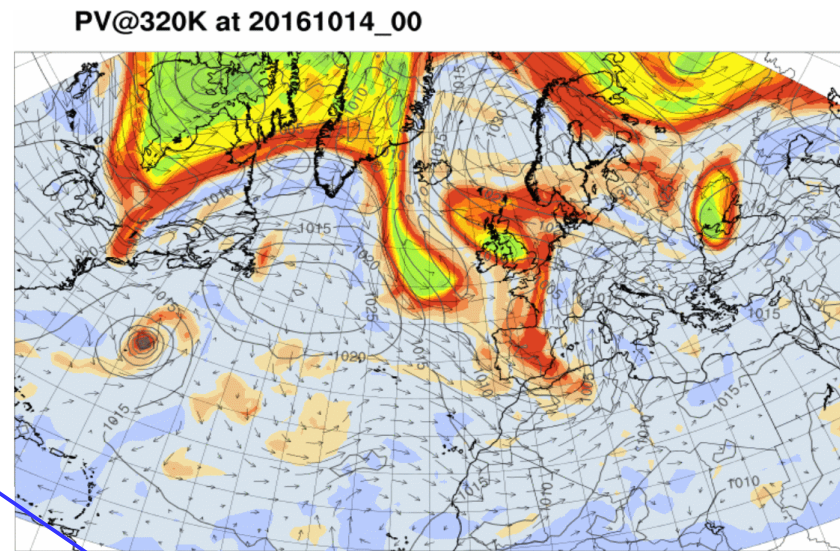
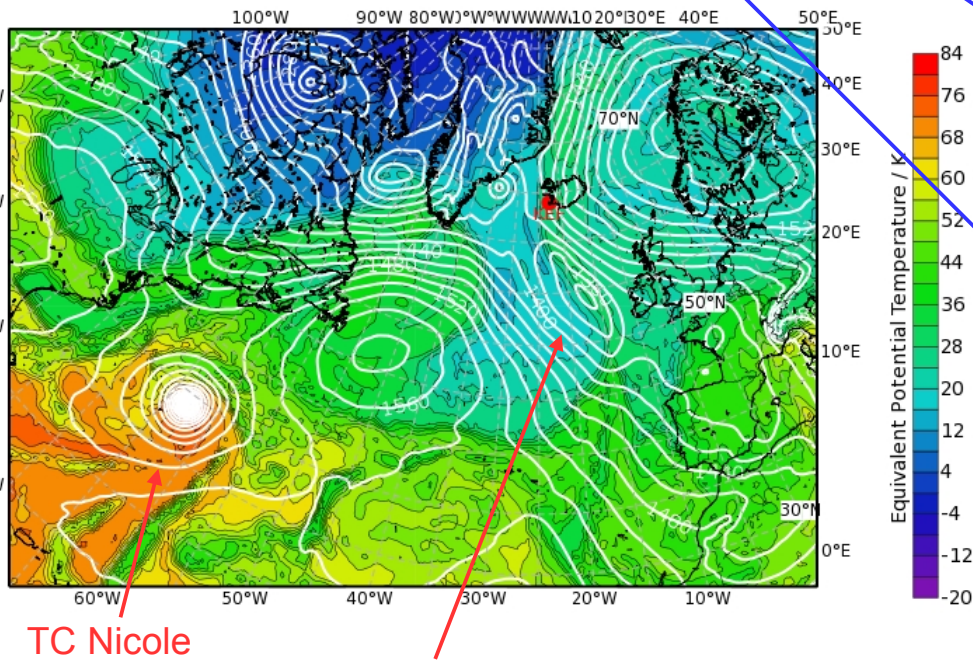
Forecast for Fri, 14 Oct 2016 00 UTC

THE850, PV320K, PV330 K BT12/00Z

Ridge: Þór

Weak PV gradient

Equivalent Potential Temperature (degC) & Streamlines at 850 hPa
Valid: Fri, 14 Oct 2016, 00 UTC (step 048 h from Wed, 12 Oct 2016, 00 UTC)

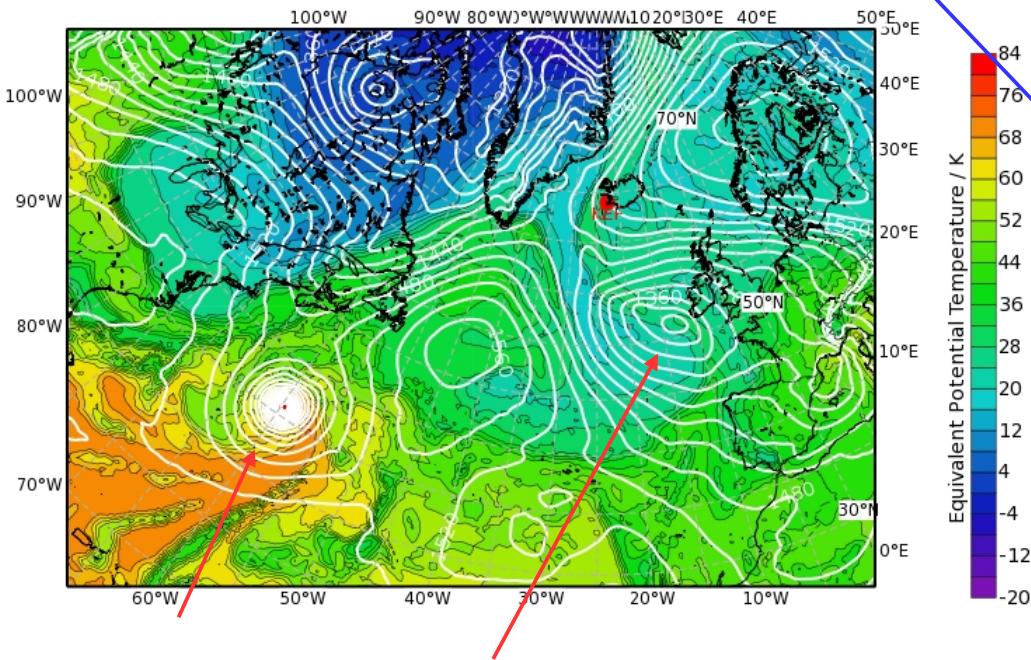


Forecast for Fri, 14 Oct 2016 12 UTC

THE850, PV320K, PV330 K BT12/00Z

Weak PV gradient

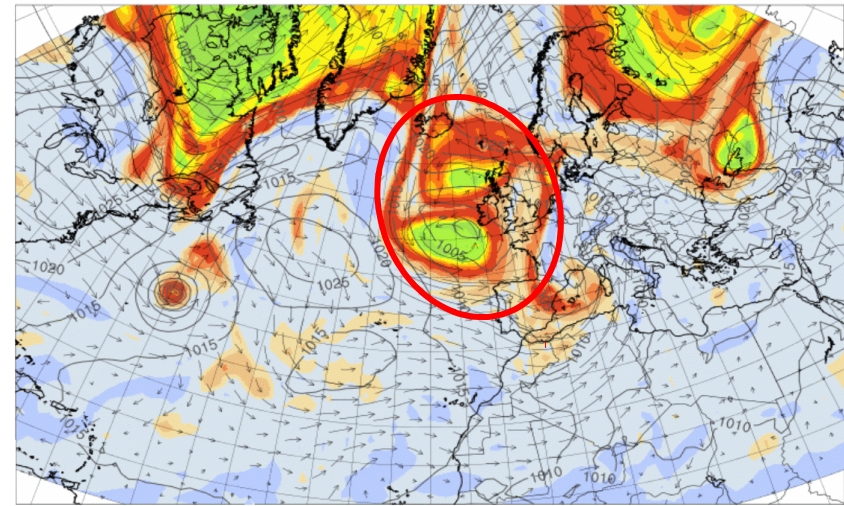
Equivalent Potential Temperature (degC) & Streamlines at 850 hPa
Valid: Fri, 14 Oct 2016, 12 UTC (step 060 h from Wed, 12 Oct 2016, 00 UTC)



TC Nicole

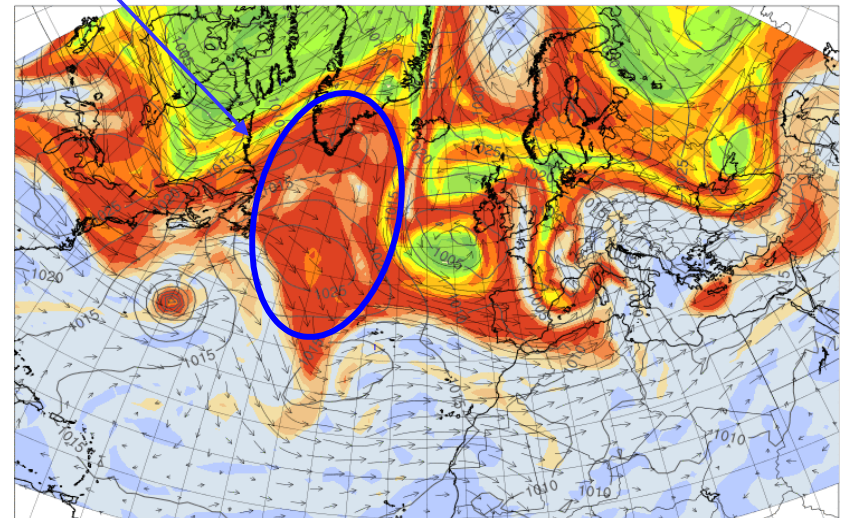
Frontal cyclone

PV@320K at 20161014_12



-0.5 0.2 0.7 1 1.5 2 4 5 6 7 8 9 10 p.u.

PV@330K at 20161014_12



-0.5 0.2 0.7 1 1.5 2 4 5 6 7 8 9 10 p.u.

WCB Ens Probabilities (BT: 12/00z)

Thu 13

Fri 14

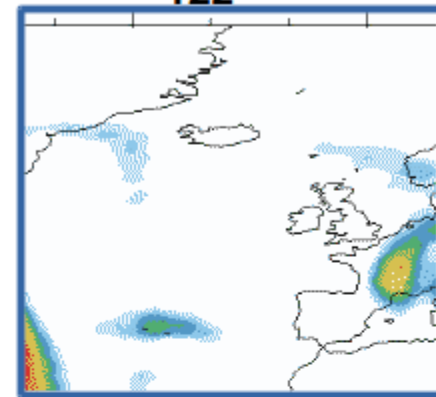
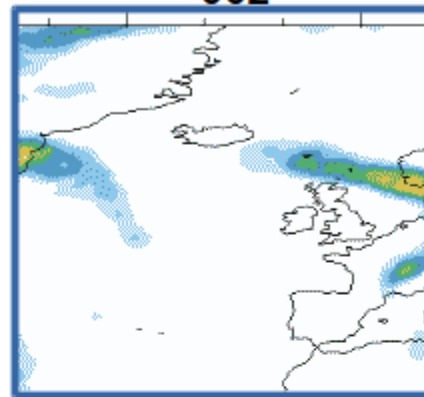
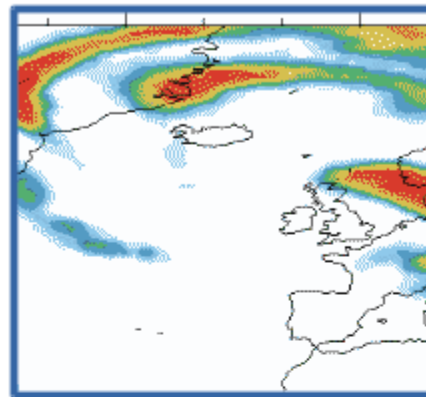
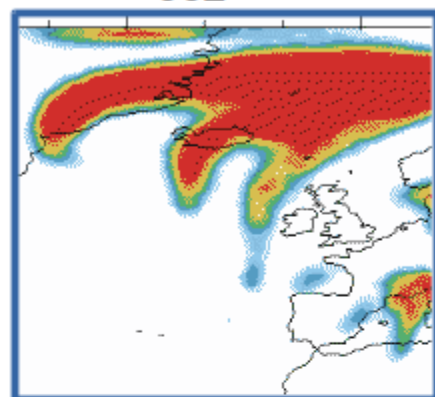
00z

12z

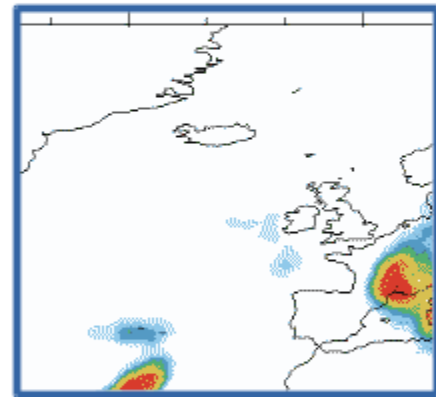
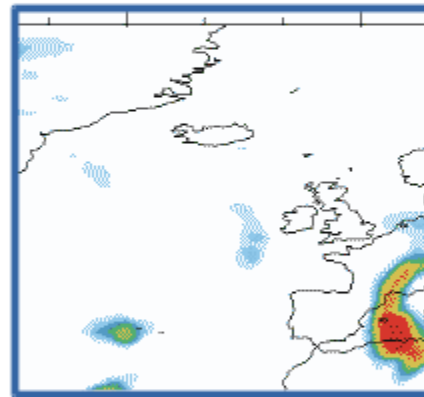
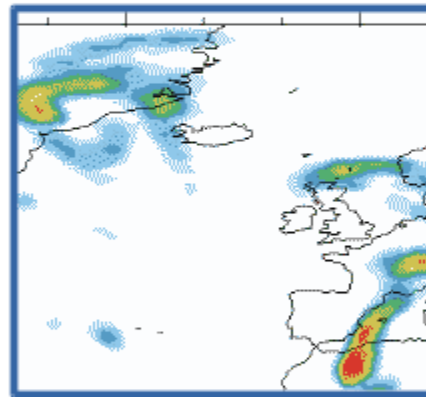
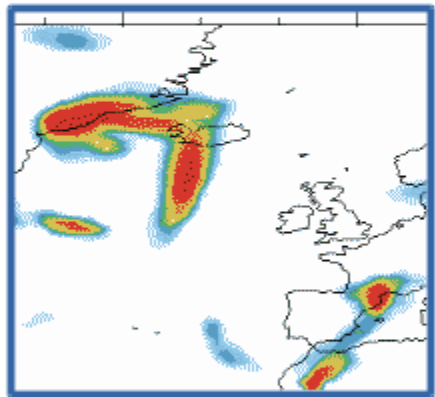
00z

12z

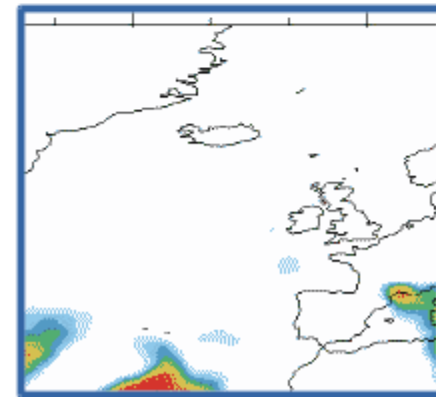
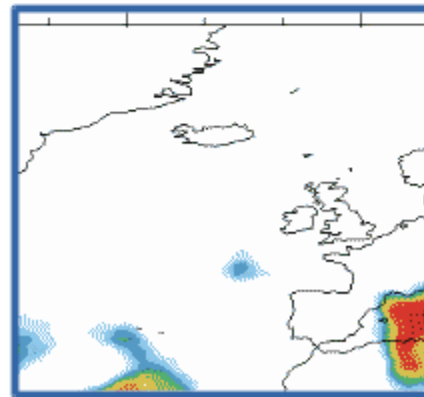
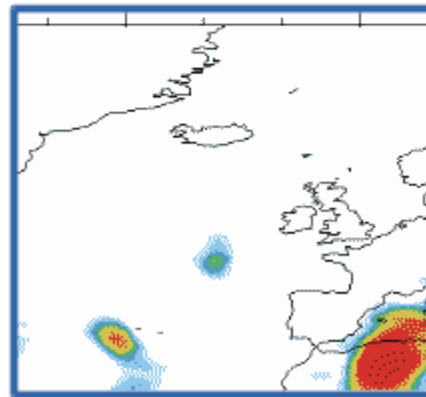
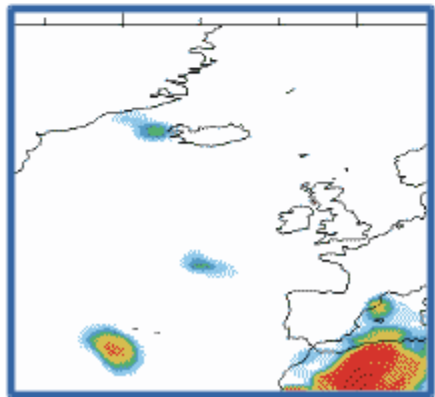
OUTFLOW



ASCENT



INFLOW



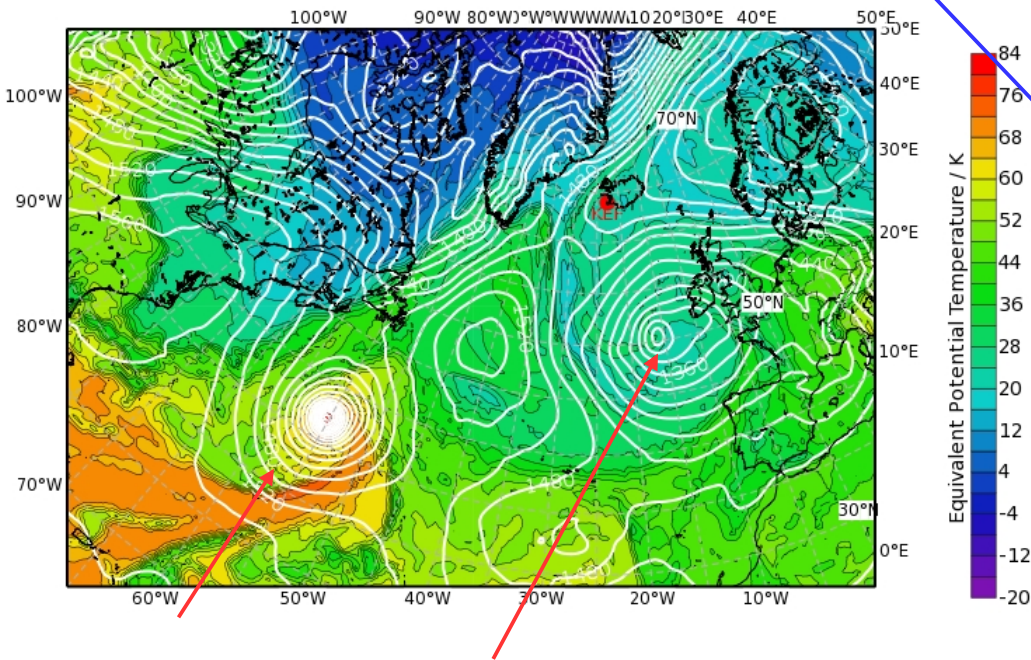
Outlook for the weekend

Forecast for Sat, 15 Oct 2016 00 UTC

THE850, PV320K, PV330 K BT12/00Z

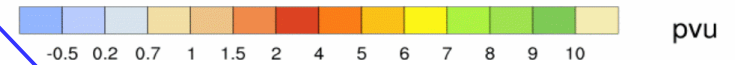
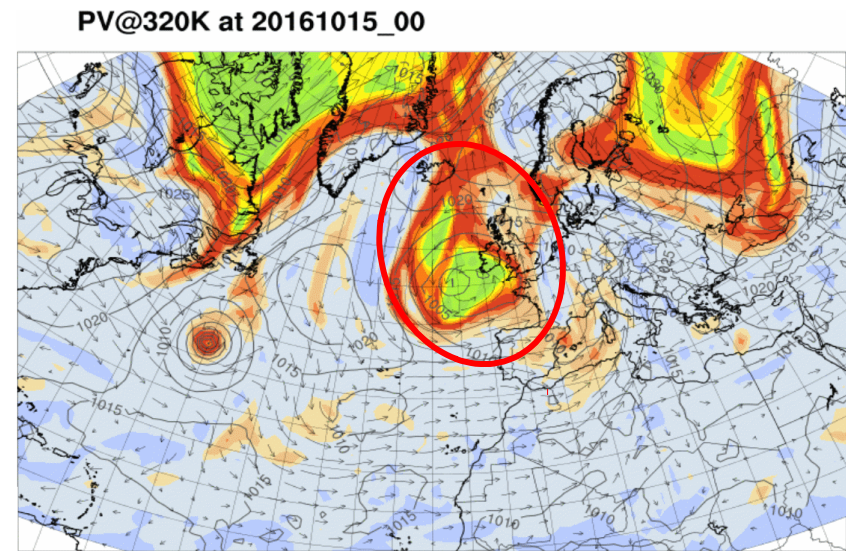
Weak PV gradient

Equivalent Potential Temperature (degC) & Streamlines at 850 hPa
Valid: Sat, 15 Oct 2016, 00 UTC (step 072 h from Wed, 12 Oct 2016, 00 UTC)

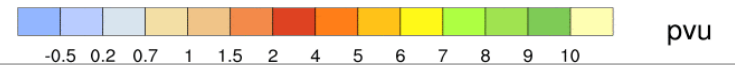
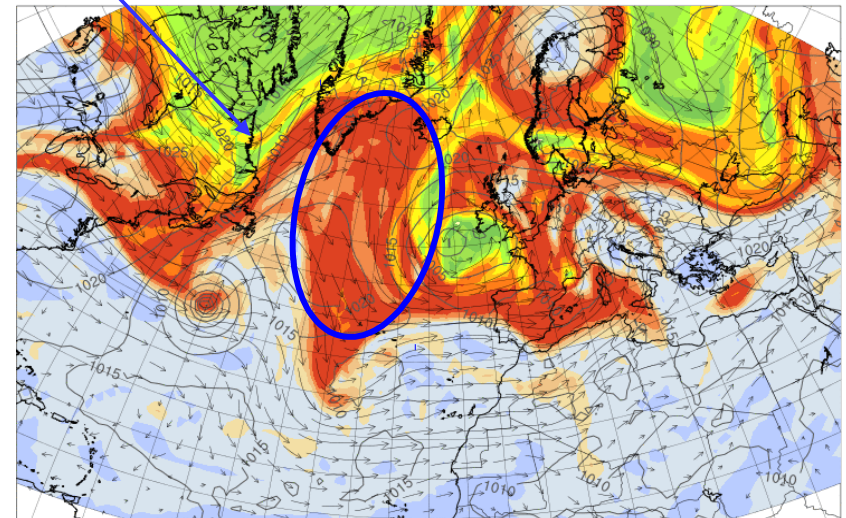


TC Nicole

New cyclone



PV@330K at 20161015_00

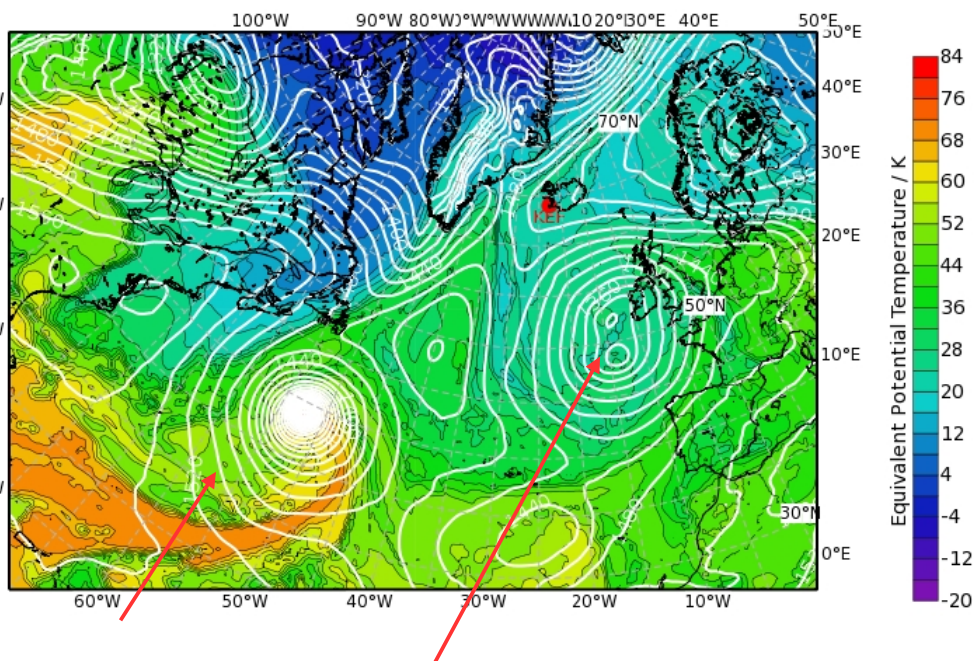


Forecast for Sat, 15 Oct 2016 12 UTC

THE850, PV320K, PV330 K BT12/00Z

Cut off merging is almost complete

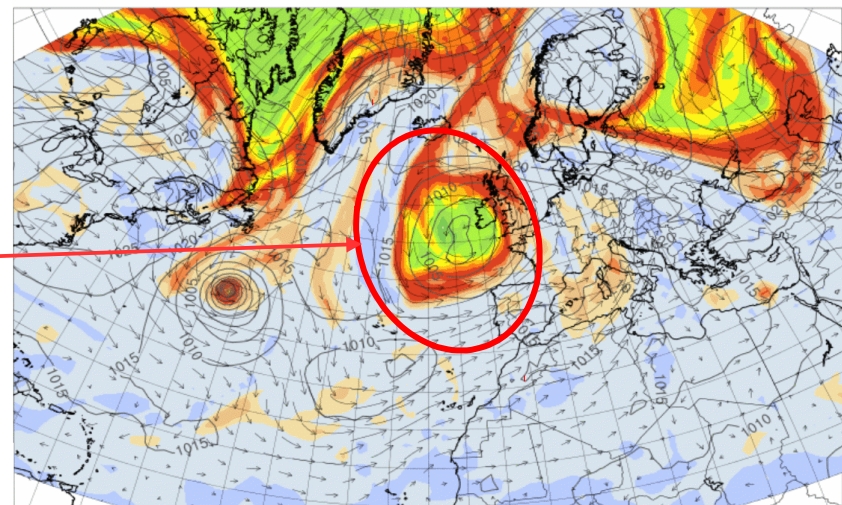
Equivalent Potential Temperature (degC) & Streamlines at 850 hPa
Valid: Sat, 15 Oct 2016, 12 UTC (step 084 h from Wed, 12 Oct 2016, 00 UTC)



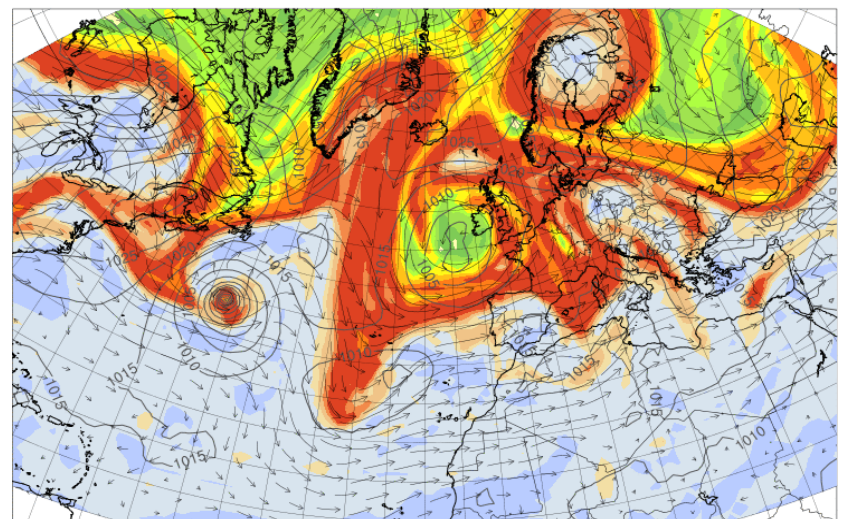
TC Nicole

New cyclone

PV@320K at 20161015_12



-0.5 0.2 0.7 1 1.5 2 4 5 6 7 8 9 10 pvu
PV@330K at 20161015_12

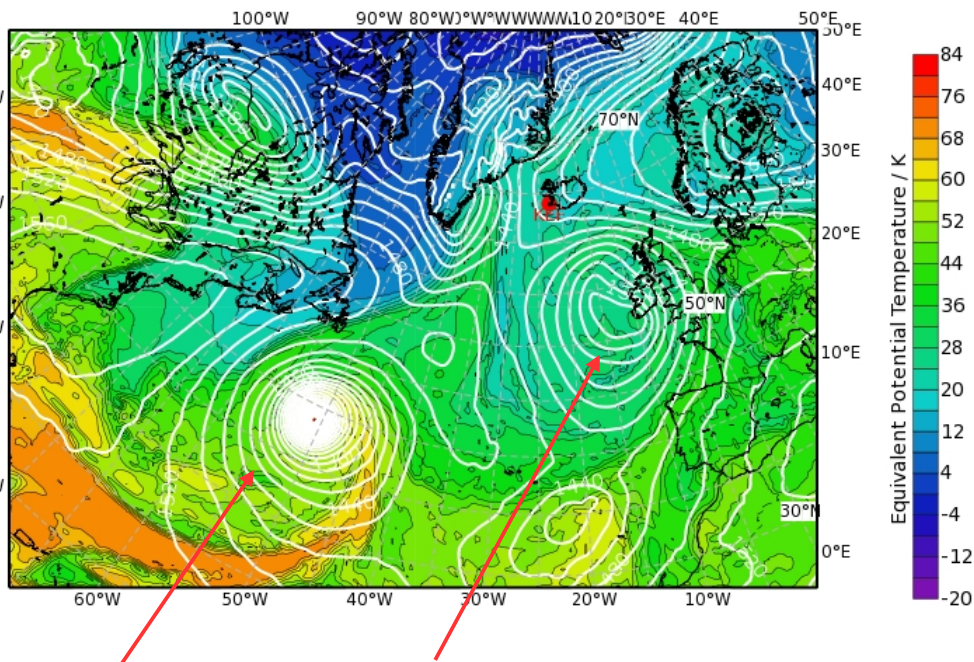


-0.5 0.2 0.7 1 1.5 2 4 5 6 7 8 9 10 pvu

Forecast for Sun, 16 Oct 2016 00 UTC

THE850, PV320K, PV330 K BT12/00Z

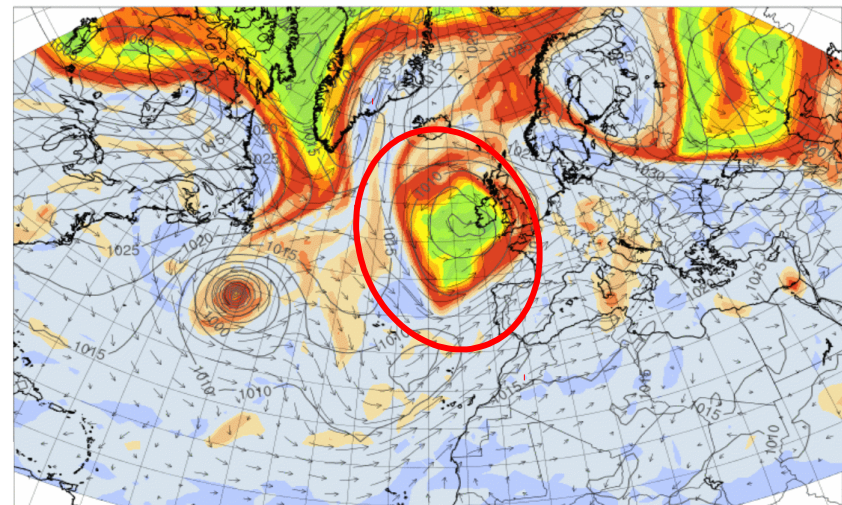
Equivalent Potential Temperature (degC) & Streamlines at 850 hPa
Valid: Sun, 16 Oct 2016, 00 UTC (step 096 h from Wed, 12 Oct 2016, 00 UTC)



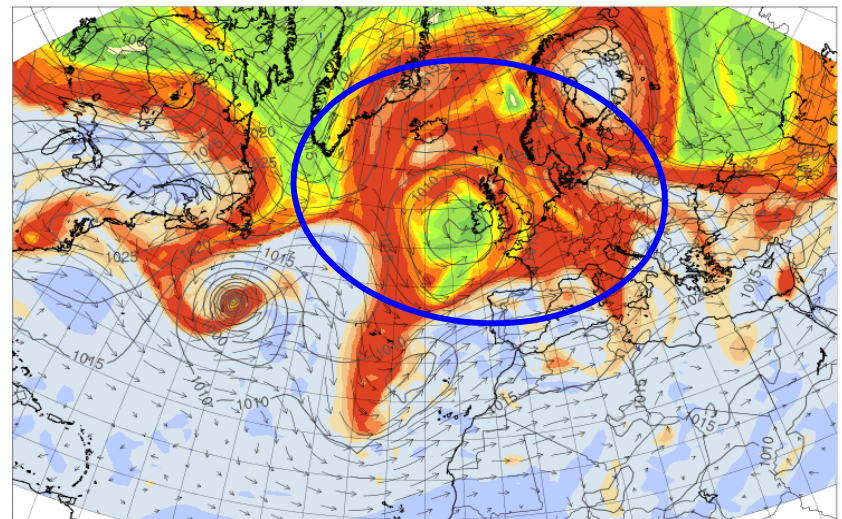
TC Nicole

New cyclone

PV@320K at 20161016_00



-0.5 0.2 0.7 1 1.5 2 4 5 6 7 8 9 10 pvu
PV@330K at 20161016_00

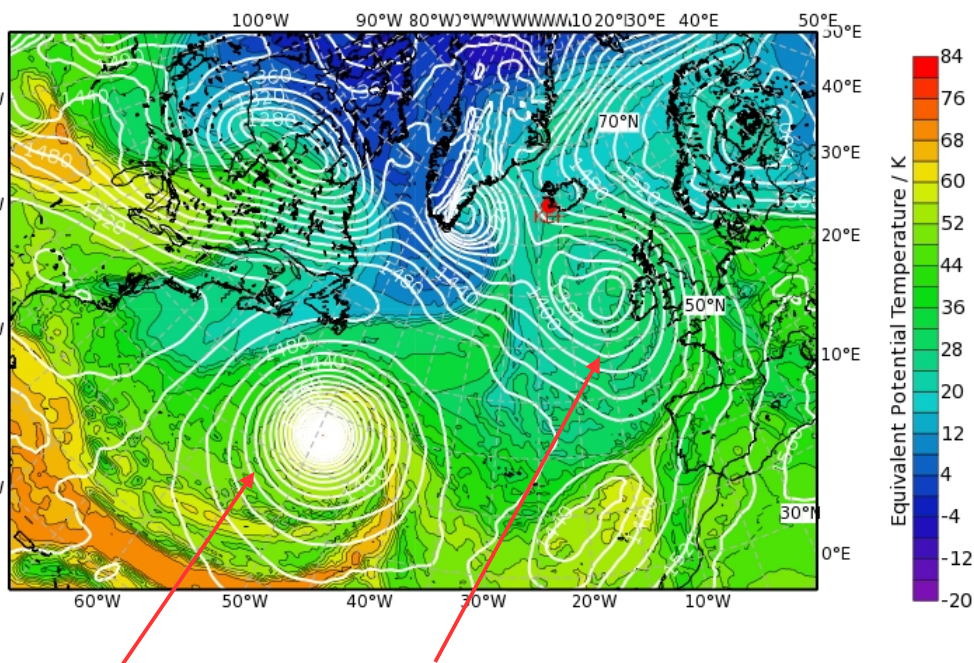


-0.5 0.2 0.7 1 1.5 2 4 5 6 7 8 9 10 pvu

Forecast for Sun, 16 Oct 2016 12 UTC

THE850, PV320K, PV330 K BT12/00Z

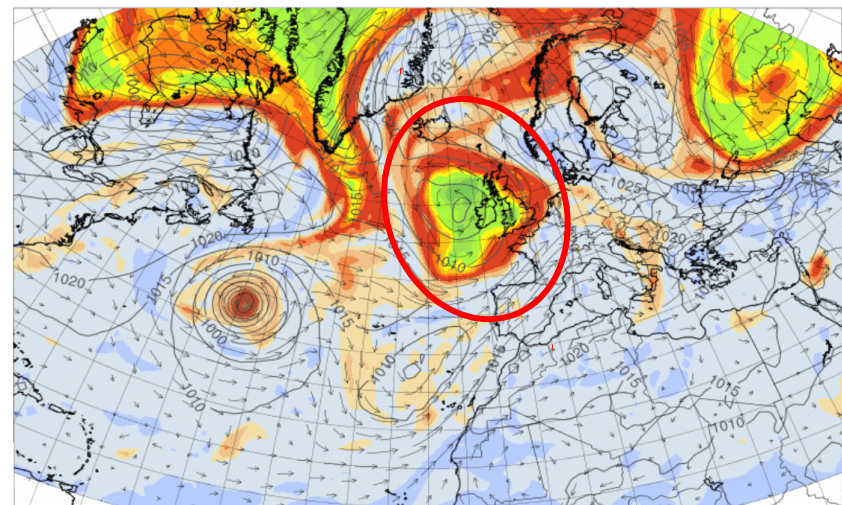
Equivalent Potential Temperature (degC) & Streamlines at 850 hPa
Valid: Sun, 16 Oct 2016, 12 UTC (step 108 h from Wed, 12 Oct 2016, 00 UTC)



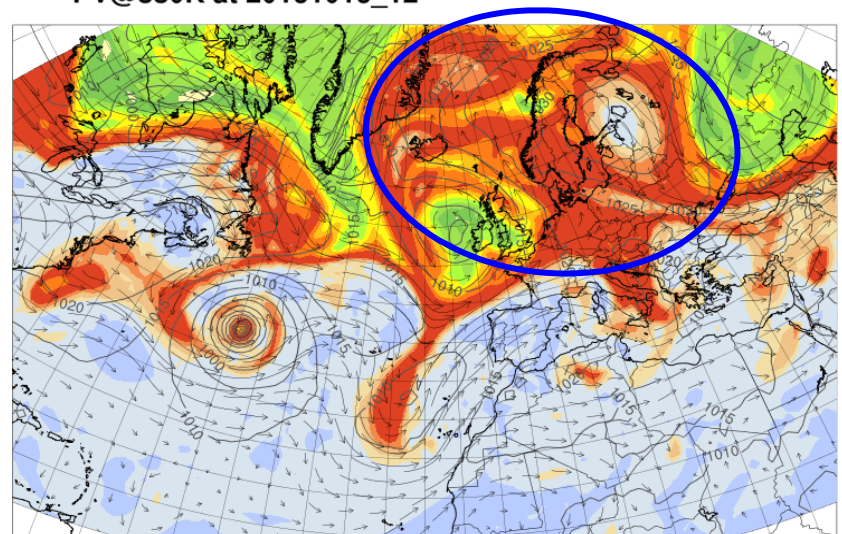
TC Nicole

New cyclone

PV@320K at 20161016_12



PV@330K at 20161016_12



PV@330K at 20161016_12

WCB Ens Probabilities (BT: 12/00z)

Sat 15

Sun 16

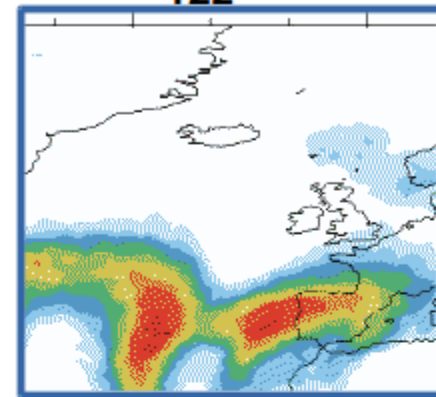
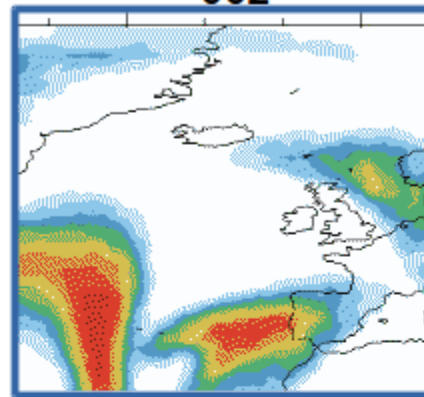
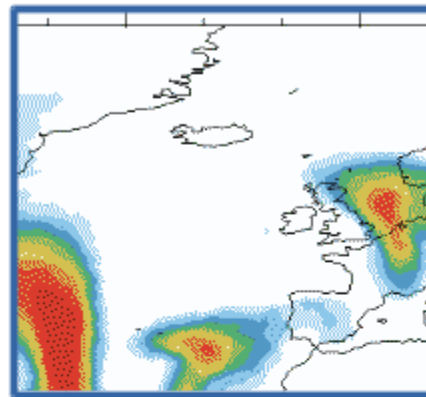
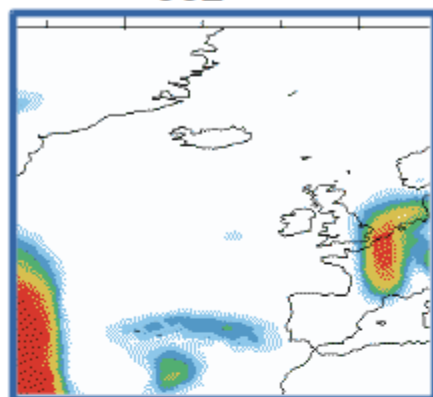
00z

12z

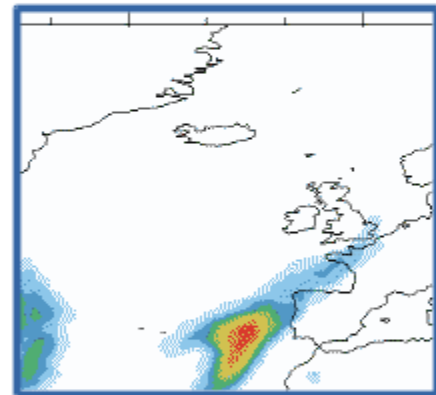
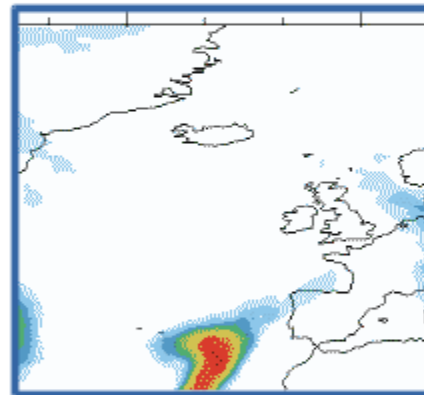
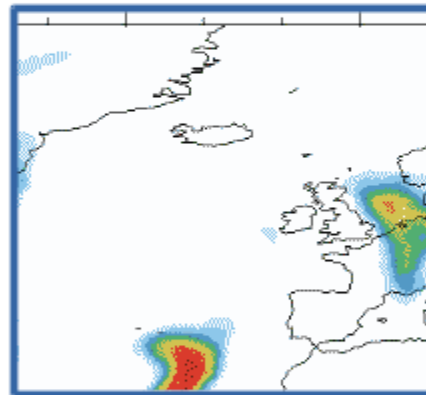
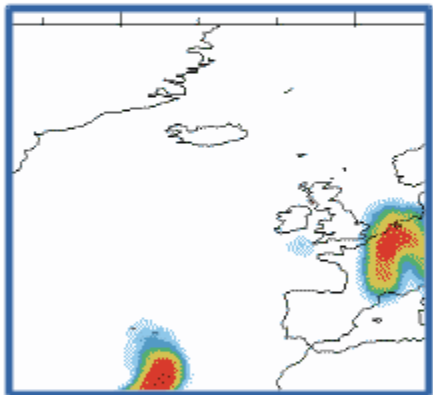
00z

12z

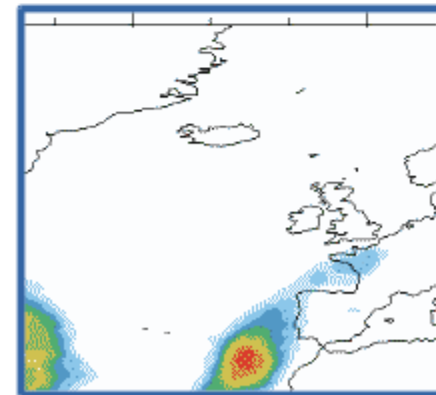
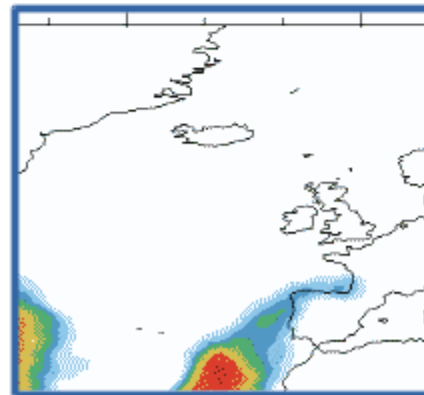
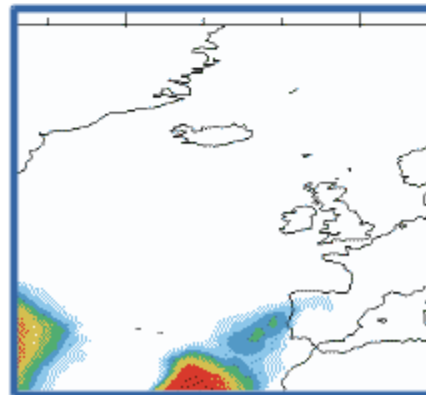
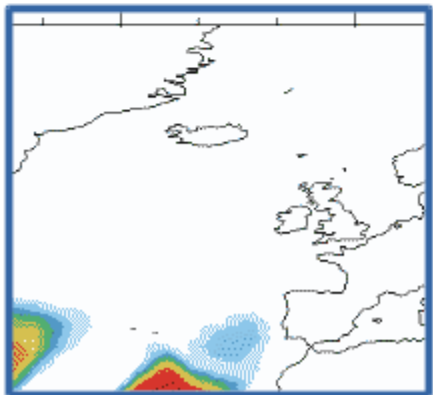
OUTFLOW



ASCENT



INFLOW

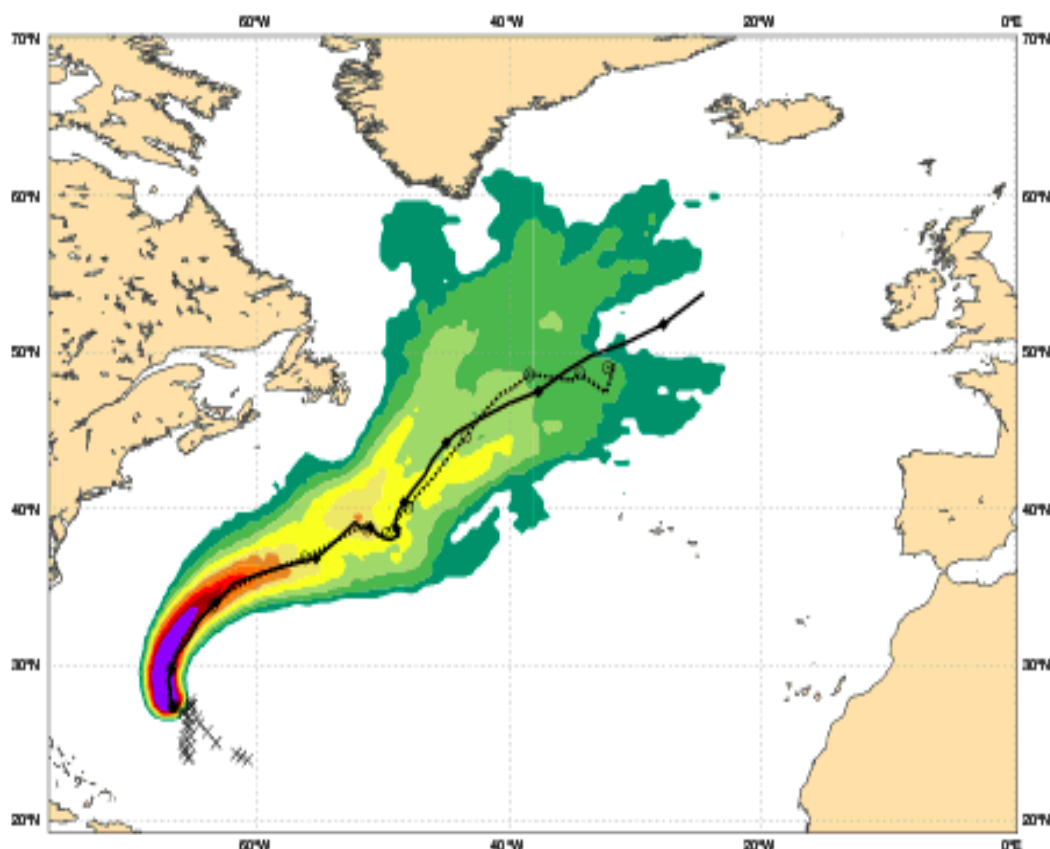


Date 20161012 00 UTC @ECMWF

Probability that **NICOLE** will pass within 120 km radius during the next 240 hours

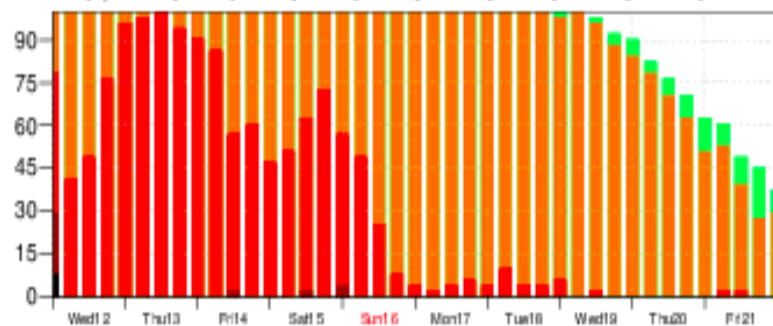
tracks: **solid**=HRES; **dot**=Ens Mean [reported minimum central pressure (hPa) **974**]

5-10 10-20 20-30 30-40 40-50 50-60 60-70 70-80 80-90 > 90%

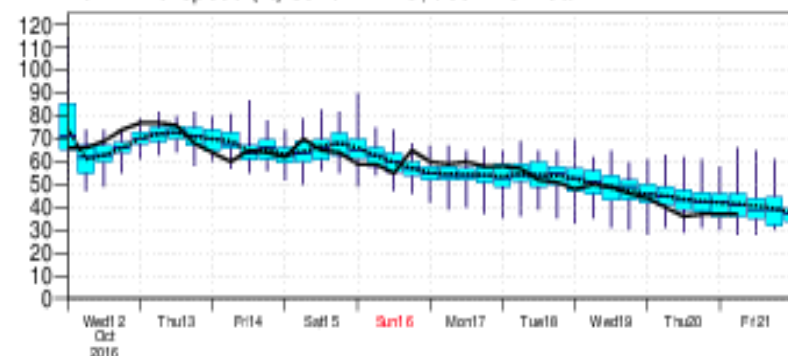


Probability (%) of Tropical Cyclone Intensity falling in each category

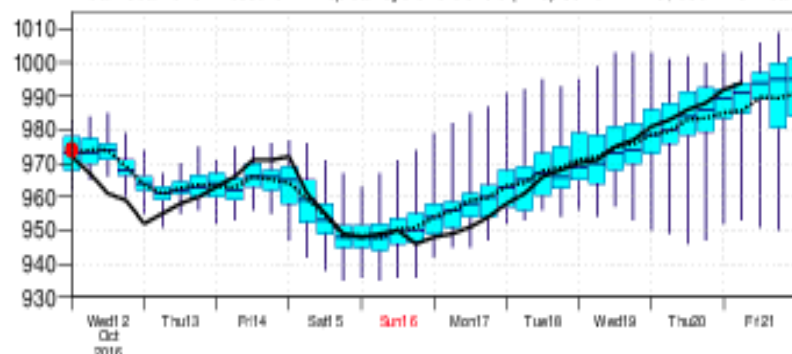
TD[up to 33] **TS** [34-63] **HR1** [64-82] **HR2** [83-95] **HR3** [> 95 kt]



10m Wind Speed (kt) **solid**=HRES; **dot**=Ens Mean



Mean Sea Level Pressure in Tropical Cyclone Centre (hPa) **solid**=HRES; **dot**=Ens Mean



List of ensemble members numbers forecast Tropical Cyclone

Intensity category in colours: **TD**[up to 33] **TS**[34-63] **HR1**[64-82] **HR2**[83-95] **HR3**[> 95 kt]

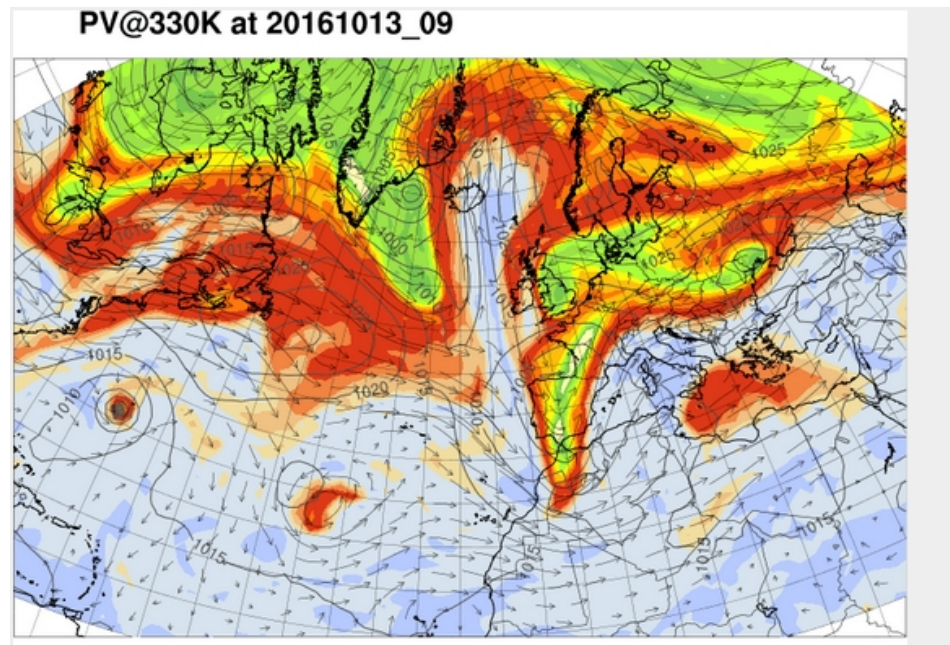
+024 h: hr: d: 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50
+048 h: hr: d: 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50
+072 h: hr: d: 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50
+096 h: hr: d: 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50
+120 h: hr: d: 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50
+144 h: hr: d: 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50
+168 h: hr: d: 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50
+192 h: hr: d: 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50
+216 h: hr: d: 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50
+240 h: hr: d: 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50

HALO flight on Thursday

HALO Flight on Thursday 13.10.16: “Iceland-ridge”

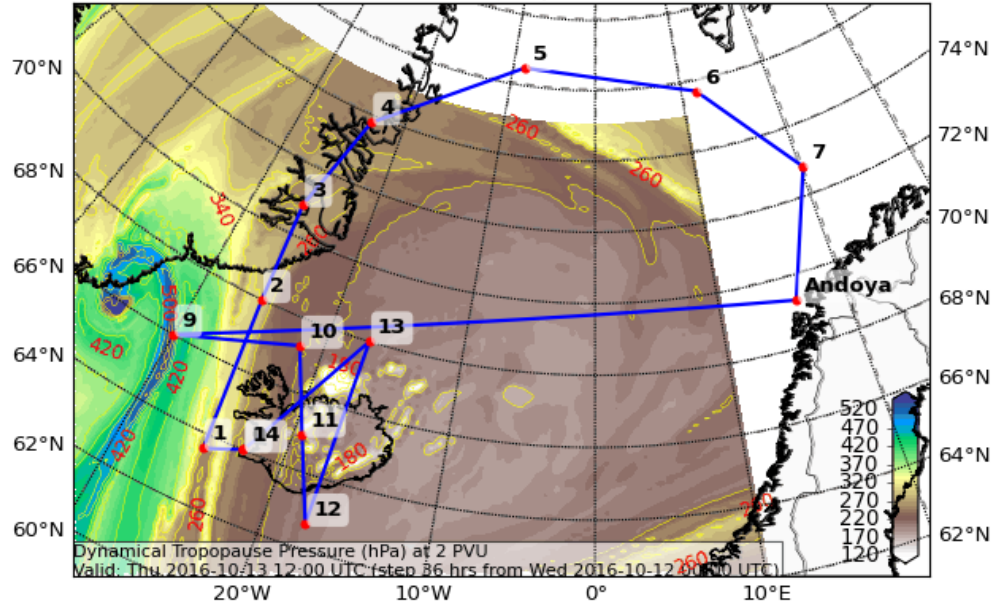
Objectives / features:

- Tropopause structure in ridge (moisture gradient)
- CAT measurement
- WCB outflow
- Satellite underpass (13:50)
- PV gradient measurement (PV-o-meter, with Falocon)
- Overflight of radar station “Andoya”
- Orographic gravity waves over Iceland
- Dropsonde and radiosonde sampling

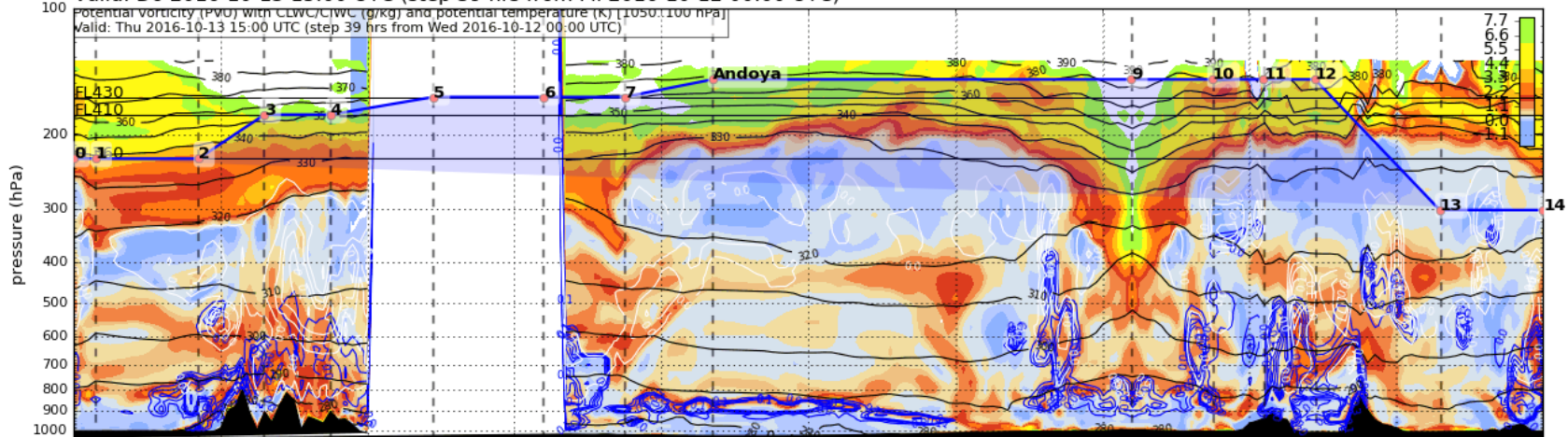


HALO Flight on Thursday 13.10.16: "Iceland-ridge"

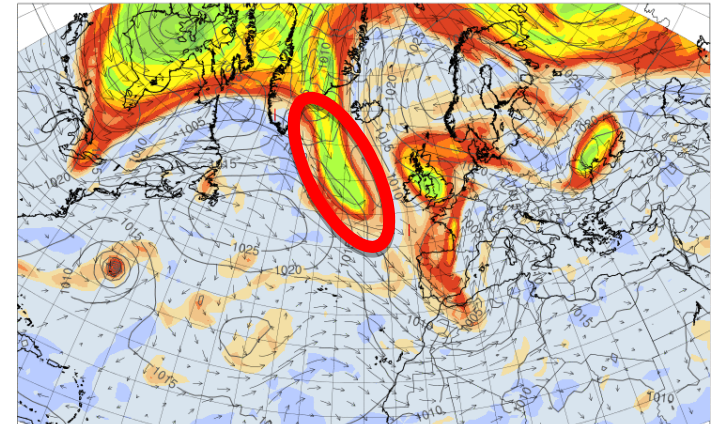
Dynamical Tropopause (Pressure (hPa)) at 2000 (10^{-3} PVU)
Valid: Do 2016-10-13 12:00 UTC (step 36 hrs from Mi 2016-10-12 00:00 UTC)



Potential Vorticity (PVU) Vertical Section (Northern Hemisphere)
Valid: Do 2016-10-13 15:00 UTC (step 39 hrs from Mi 2016-10-12 00:00 UTC)



FALCON 1st flight on Thursday

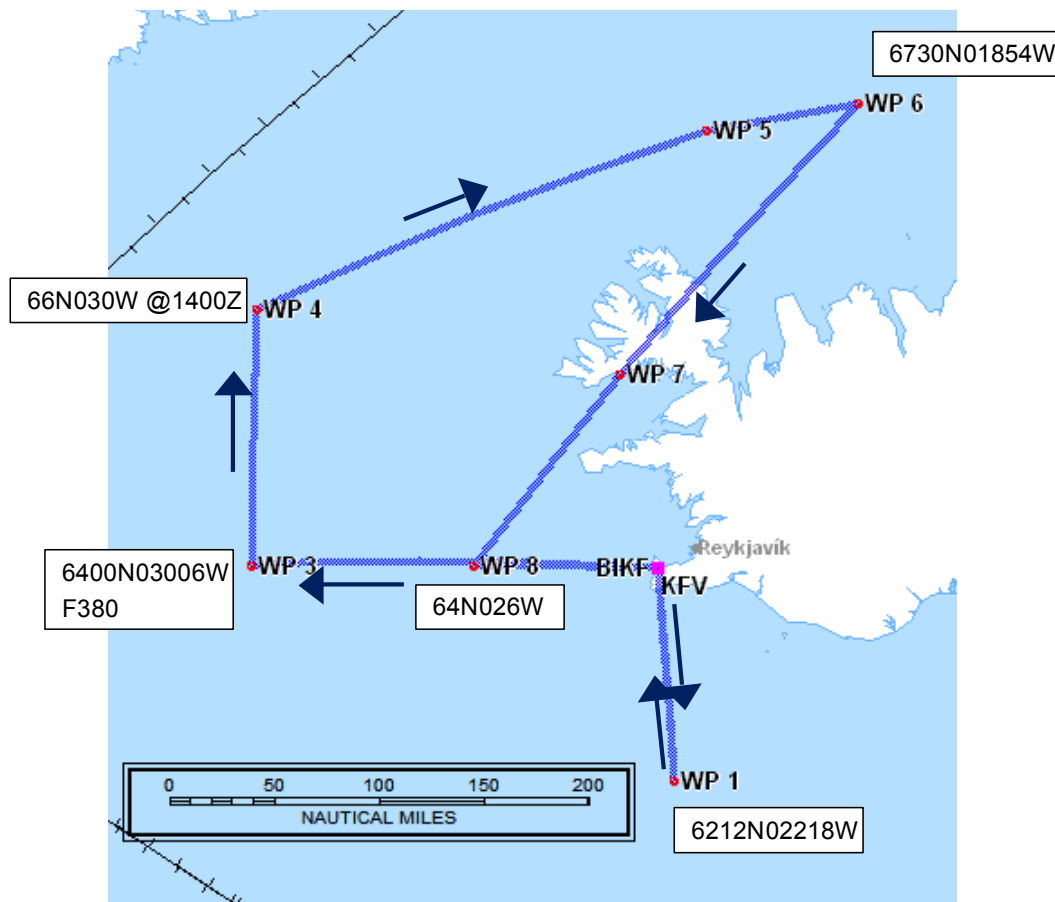


Thursday First Falcon Flight

Objectives:

- cross jet stream on eastern flank of PV streamer
- Box-flight
- In-situ wind measurements while ascending (along jet)
- Take off 12.35UTC, landing 15.35UTC
- Meeting with HALO @ WP4 14.00UTC

D-CMET - Meteorological Research Flight - „NAWDEX“ Campaign



Date of flight: **13 OCT 2016**

Callsign: **D-CMET**
Type of Aircraft: FA20

Departure Aerodrome: BIKF
Destination Aerodrome: BIKF
Alternate Aerodrome : BIAR, BIRK

Takeoff: 1235z
EET: 3h00m
(1172NM)

Requested Flight levels FL360 M074
FL380 at WP3

Routing

DCT
6212N02218W DCT (WP1)
KfV DCT (WP2)
6400N03006W DCT (WP3)
66N030W DCT (WP4)
6718N02142W DCT (WP5)
6730N01854W DCT (WP6)
6530N02318W DCT (WP7)
64N026W DCT (WP8)
KfV

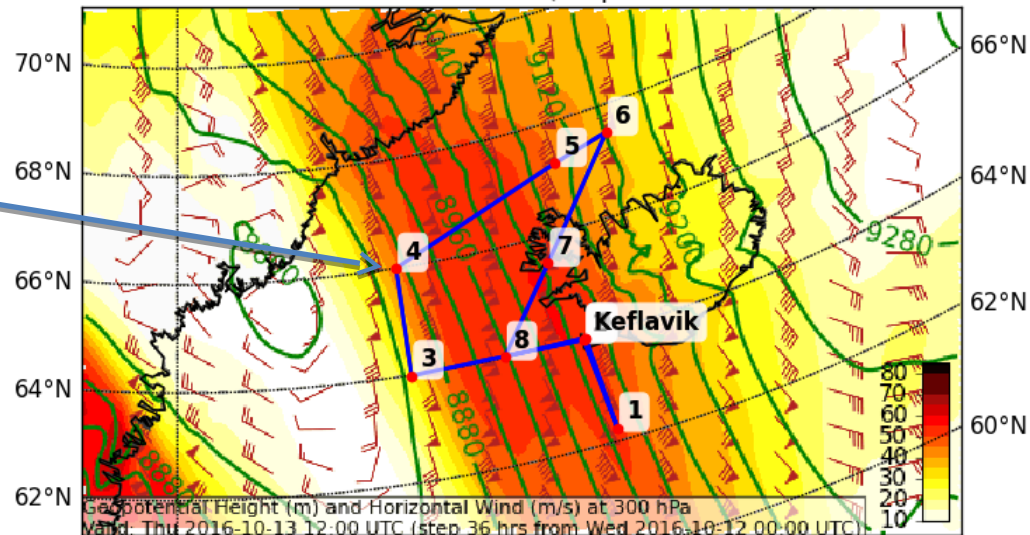
Remarks

meet with DADLR WP4-WP5, common leg,
ETA WP4 1408

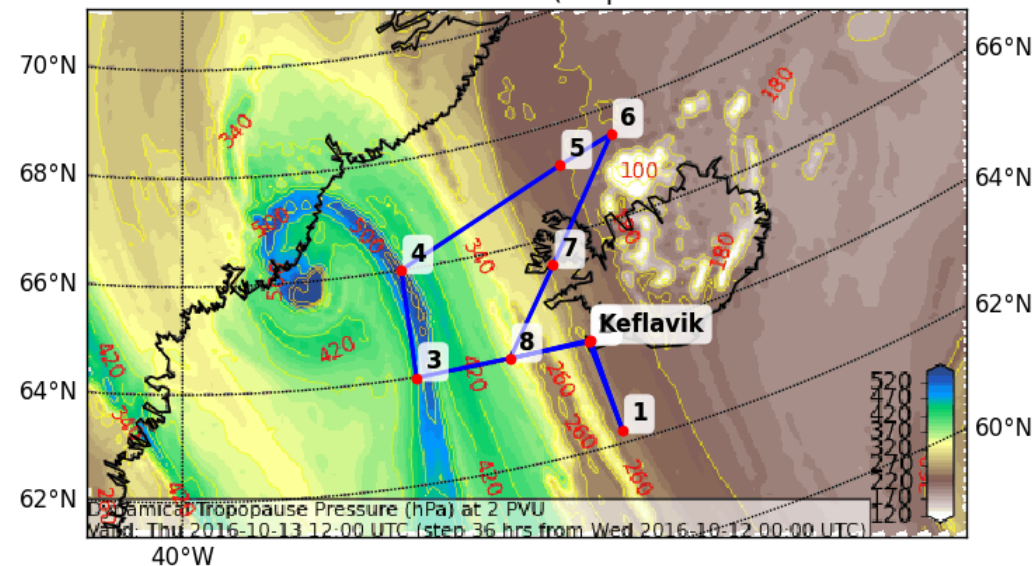
Thursday first Falcon flight

Geopotential Height (m) and Horizontal Wind (m/s) (Wind Speed 10-85 m/s) at 300 (hPa)
Valid: Do 2016-10-13 12:00 UTC (step 36 hrs from Mi 2016-10-12 00:00 UTC)

14.00UTC



Dynamical Tropopause (Pressure (hPa)) at 2000 (10^{-3} PVU)
Valid: Do 2016-10-13 12:00 UTC (step 36 hrs from Mi 2016-10-12 00:00 UTC)

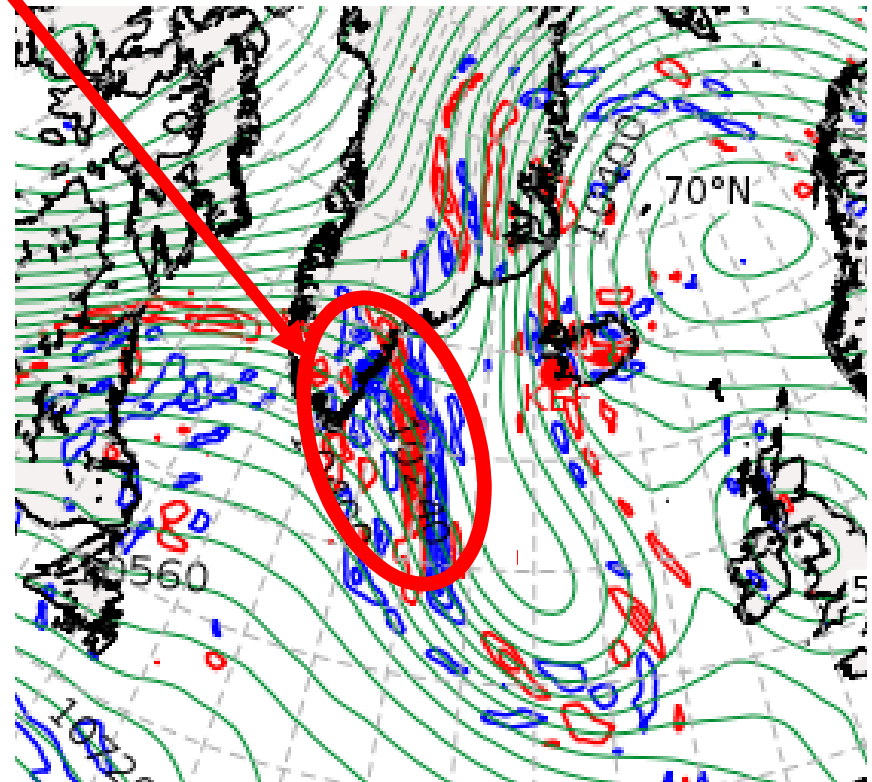


FALCON 2nd flight on Thursday

Objectives

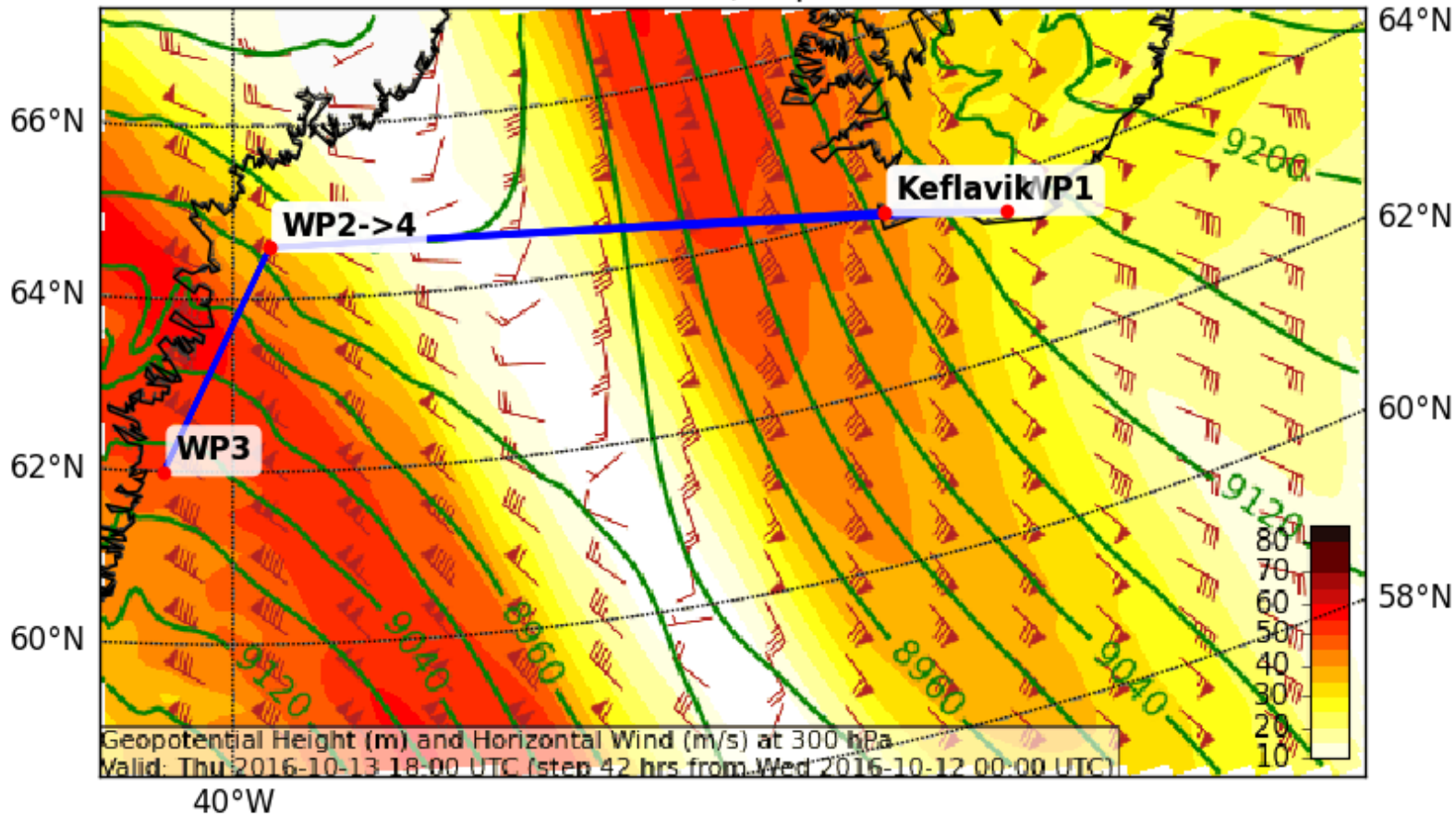
- Sampling of strong jet on western side of PV streamer
- In a region of spontaneous inertia-gravity waves emission from curved anticyclonic jet.

DIVERGENCE@250hPa
21UTC



Thu 13 18Z – DLR Falcon Plan (2nd flight)

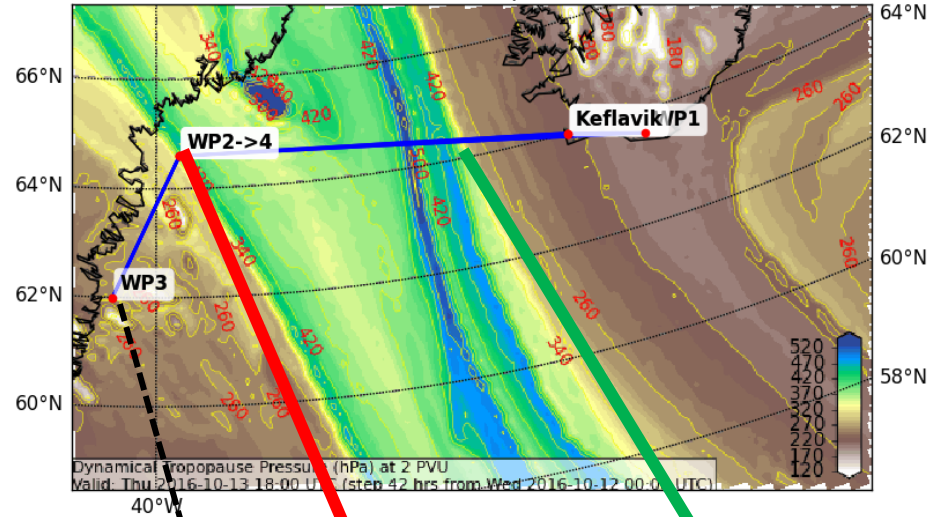
Geopotential Height (m) and Horizontal Wind (m/s) (Wind Speed 10-85 m/s) at 300 (hPa)
Valid: Thu 2016-10-13 18:00 UTC (step 42 hrs from Wed 2016-10-12 00:00 UTC)



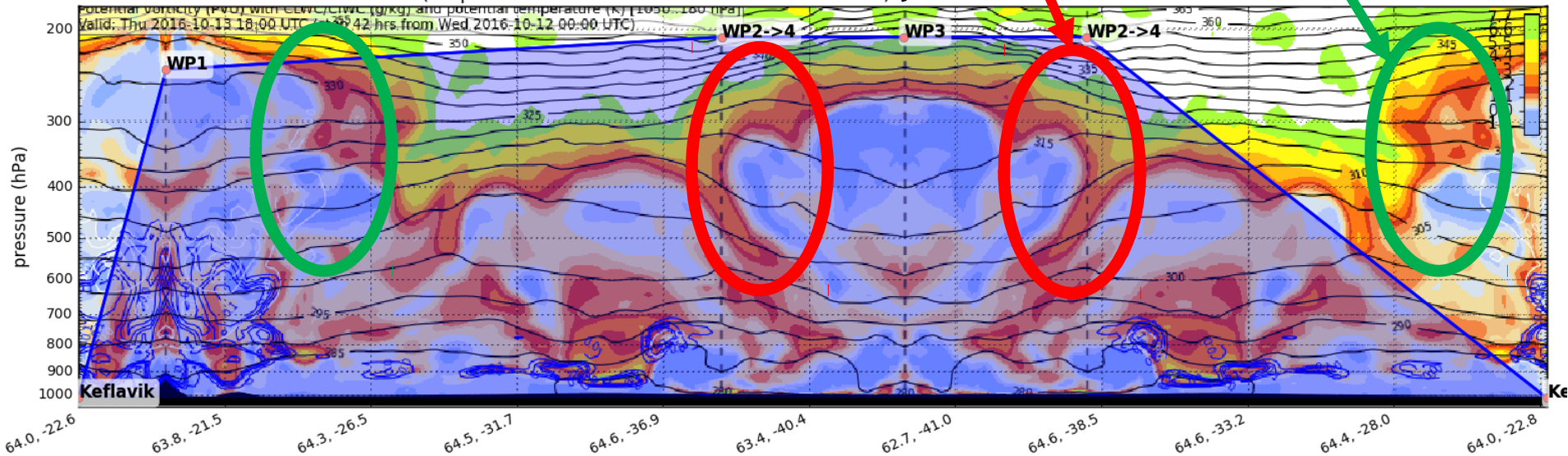
Waypoints 2 and 4 shifted to 39W to avoid crossing of Gander air space.

Thu 13 18Z – DLR Falcon Plan (2nd flight)

Dynamical Tropopause (Pressure (hPa)) at 2000 (10^{-3} PVU)
Valid: Thu 2016-10-13 18:00 UTC (step 42 hrs from Wed 2016-10-12 00:00 UTC)



Potential Vorticity (PVU) Vertical Section (Northern Hemisphere)
Valid: Thu 2016-10-13 18:00 UTC (step 42 hrs from Wed 2016-10-12 00:00 UTC)

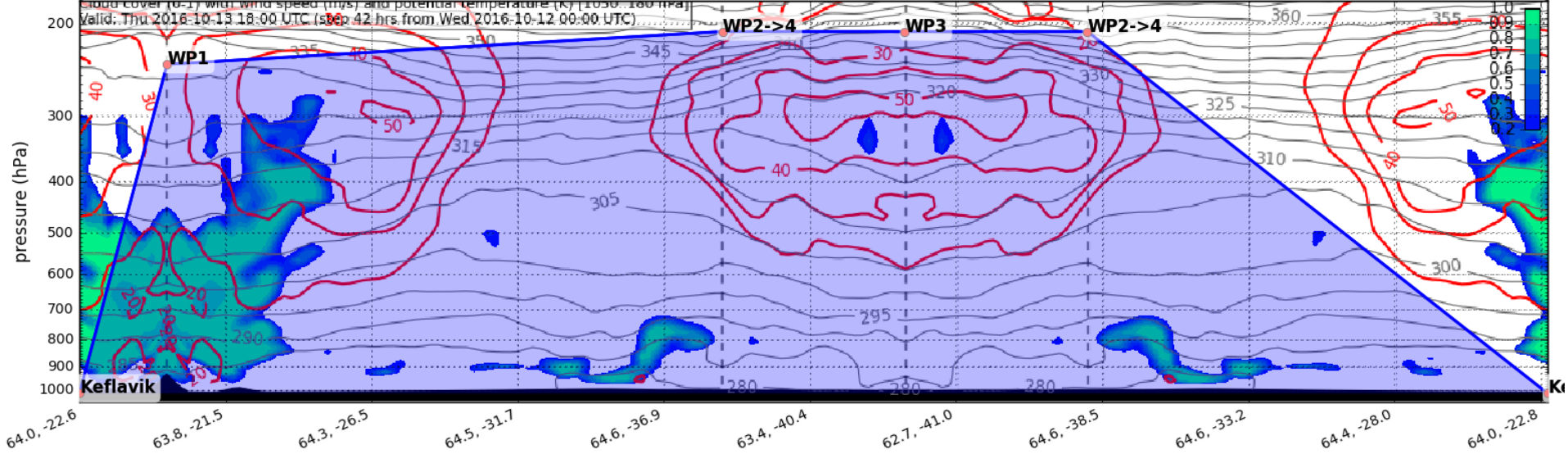


Thu 13 18Z – DLR Falcon Plan (2nd flight)

Cloud Cover (0-1) and Wind Speed (m/s) Vertical Section

Valid: Thu 2016-10-13 18:00 UTC (step 42 hrs from Wed 2016-10-12 00:00 UTC)

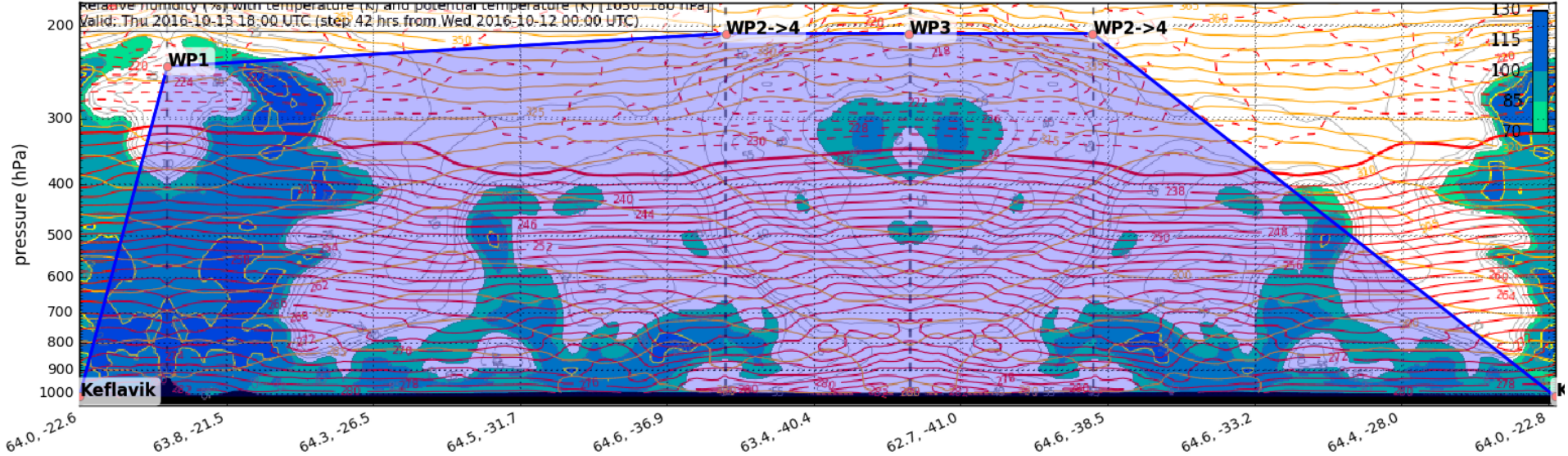
Valid: Thu 2016-10-13 18:00 UTC (step 42 hrs from Wed 2016-10-12 00:00 UTC)



Relative Humidity (%) Vertical Section

Valid: Thu 2016-10-13 18:00 UTC (step 42 hrs from Wed 2016-10-12 00:00 UTC)

Valid: Thu 2016-10-13 18:00 UTC (step 42 hrs from Wed 2016-10-12 00:00 UTC)



HALO SAFIRE flight on Friday – Intercomparison with UK FAAM

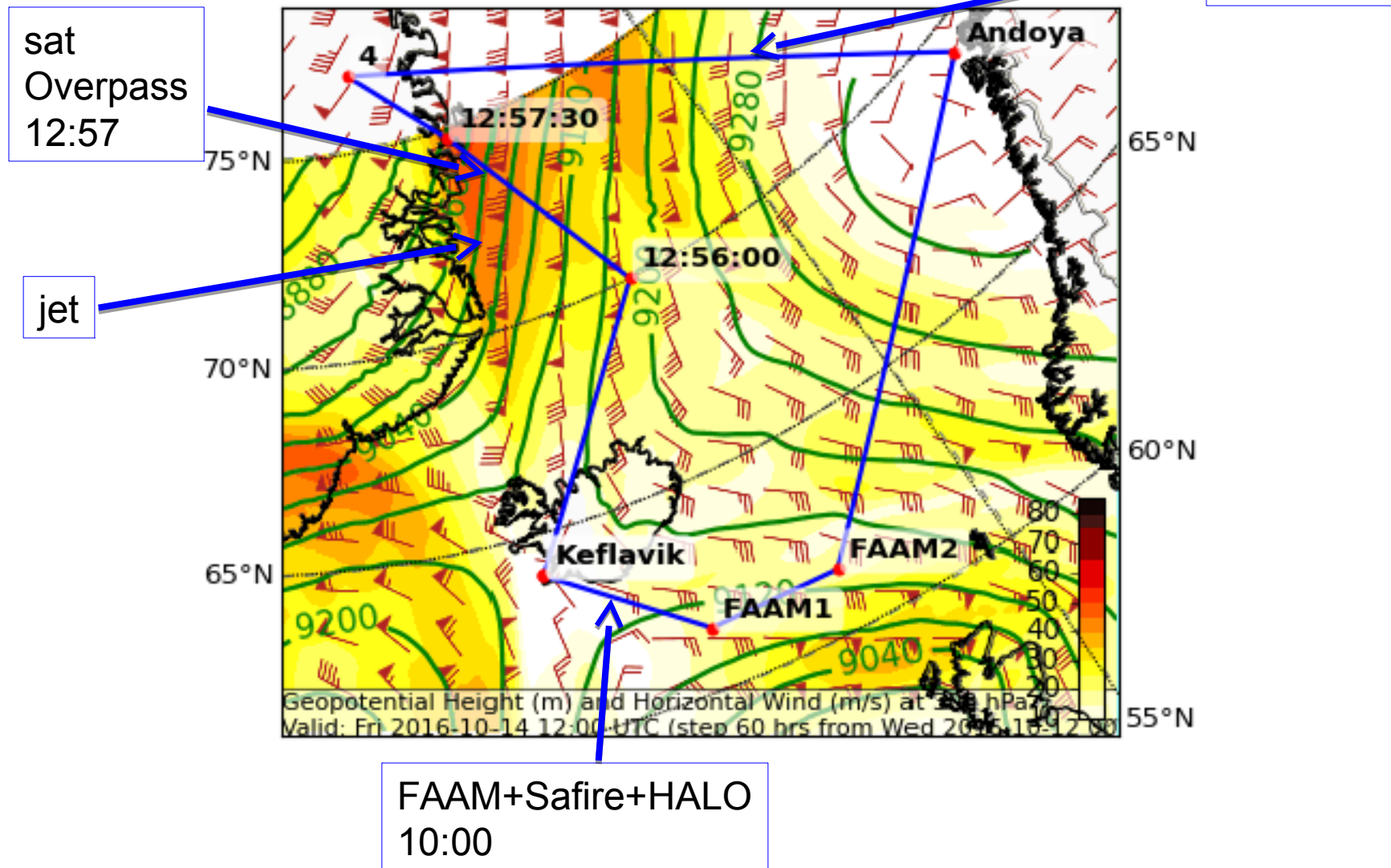
HALO flight Fri 14 Oct

System under investigation:
„Blocking Peter II“

Main objectives:

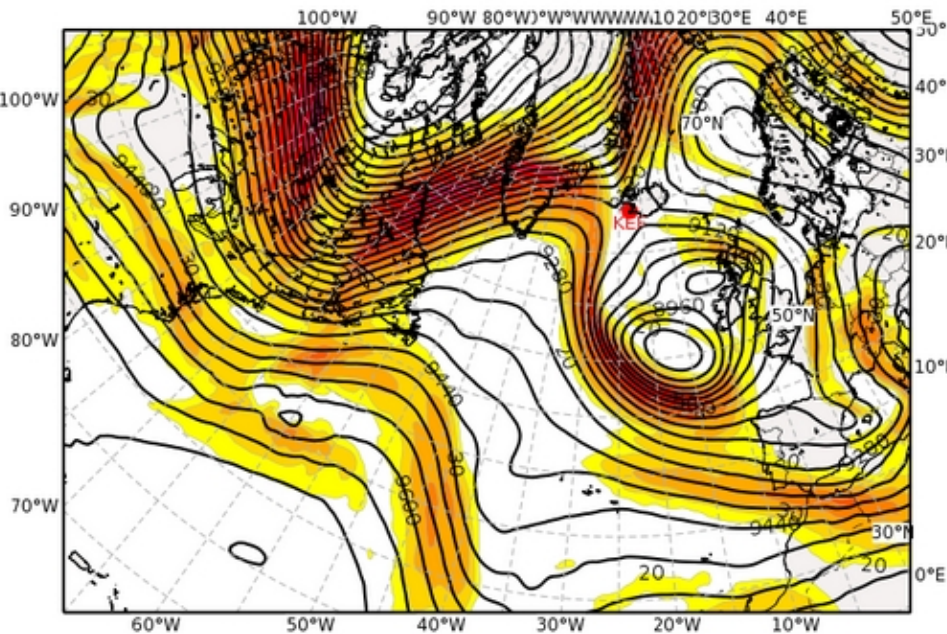
- Instrument comparison (FAAM 10:00)
- Sat overpass (12:53)
- Moisture structure of the blocking ridge?
- WCB outflow?
- jet, coordination with DLR Falcon?

HALO flight Fri 14 Oct

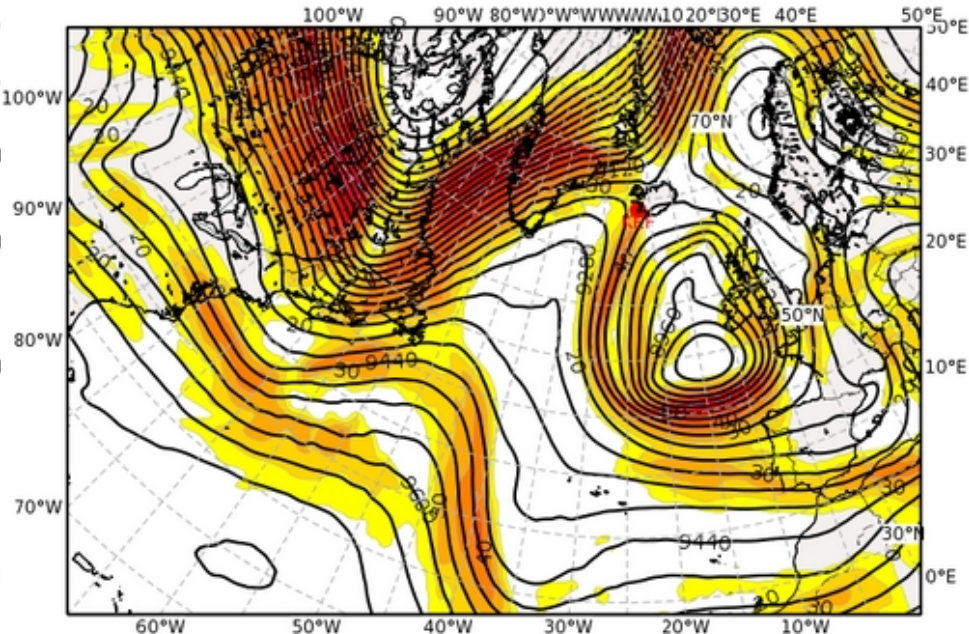


HALO flight Fri 14 Oct

09 UTC

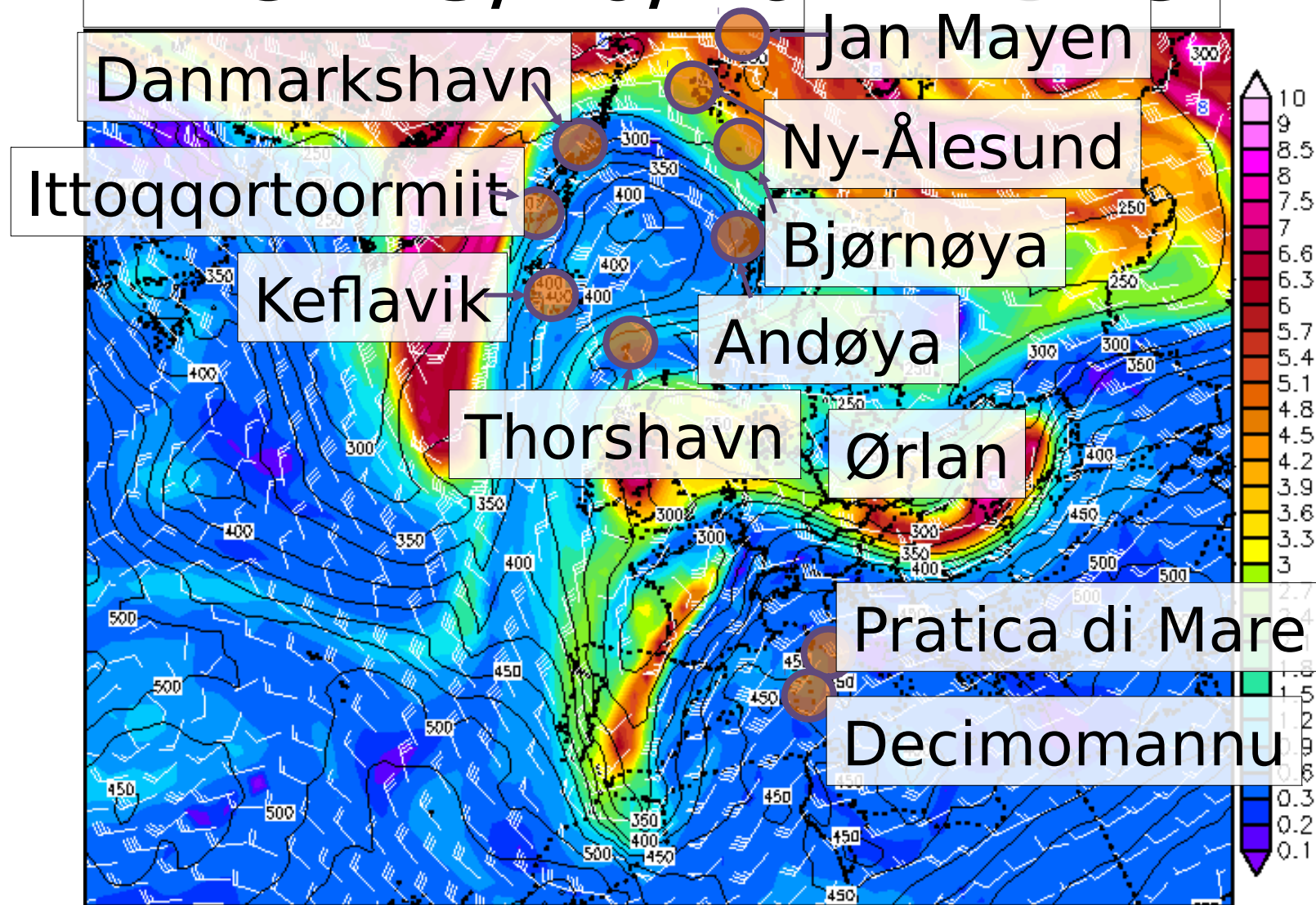


18 UTC



Ground based observation updates

THU. 13/10/16 12 UTC



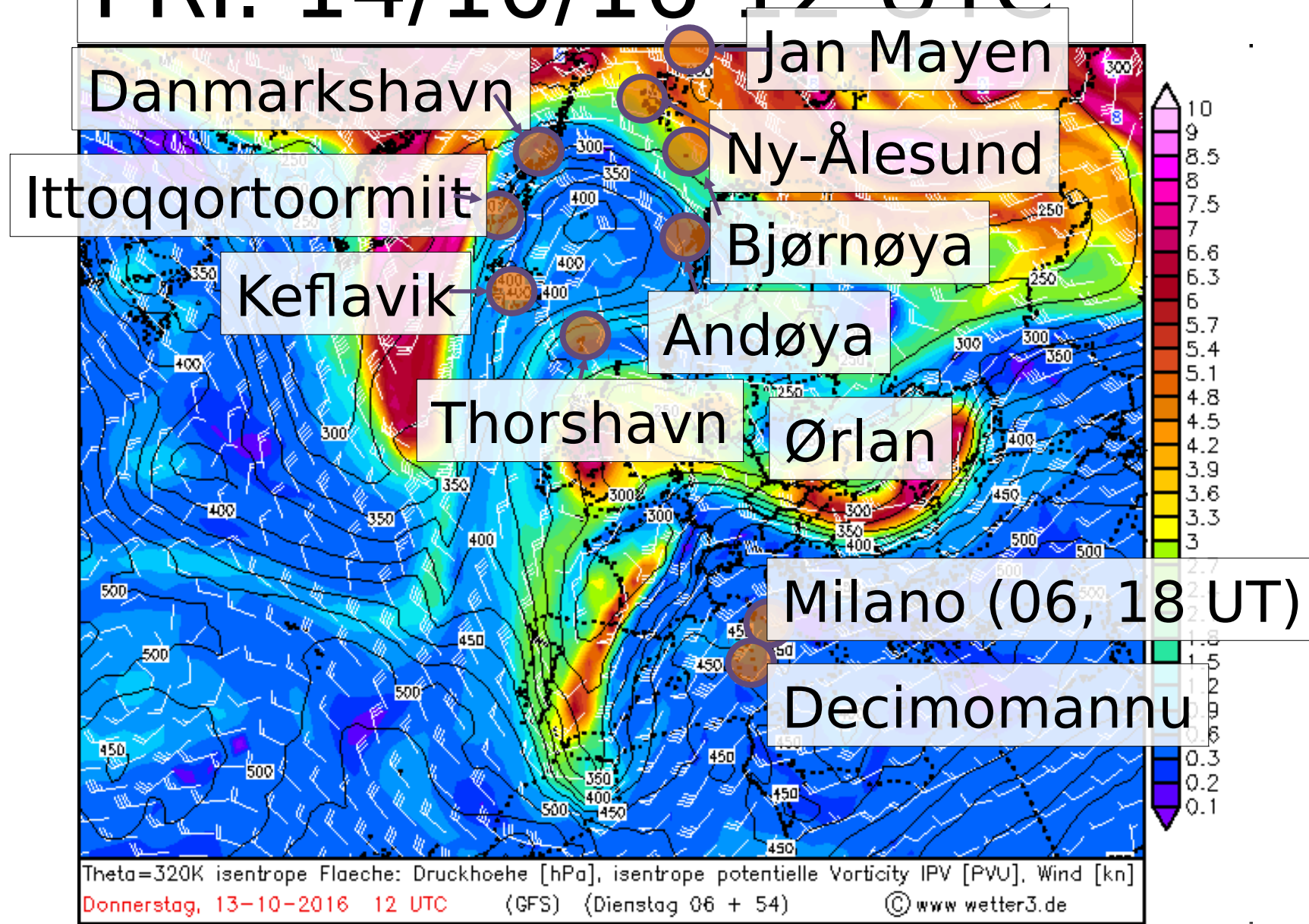
Theta=320K isentrope Fläche: Druckhöhe [hPa], isentrope potentielle Vorticity IPV [PVU], Wind [kn]

Donnerstag, 13-10-2016 12 UTC

(GFS) (Dienstag 06 + 54)

© www.wetter3.de

FRI. 14/10/16 12 UTC



NAWDEX – Weather Discussion

12 October 2016, Keflavik 16 UTC

Today's summary:

- SAFIRE is flying, HALO & FALCON are not
- Thursday flights are well planned
- Intercomparison flight of UK FAAM, HALO and Safire Falcon Friday, more updates tomorrow.