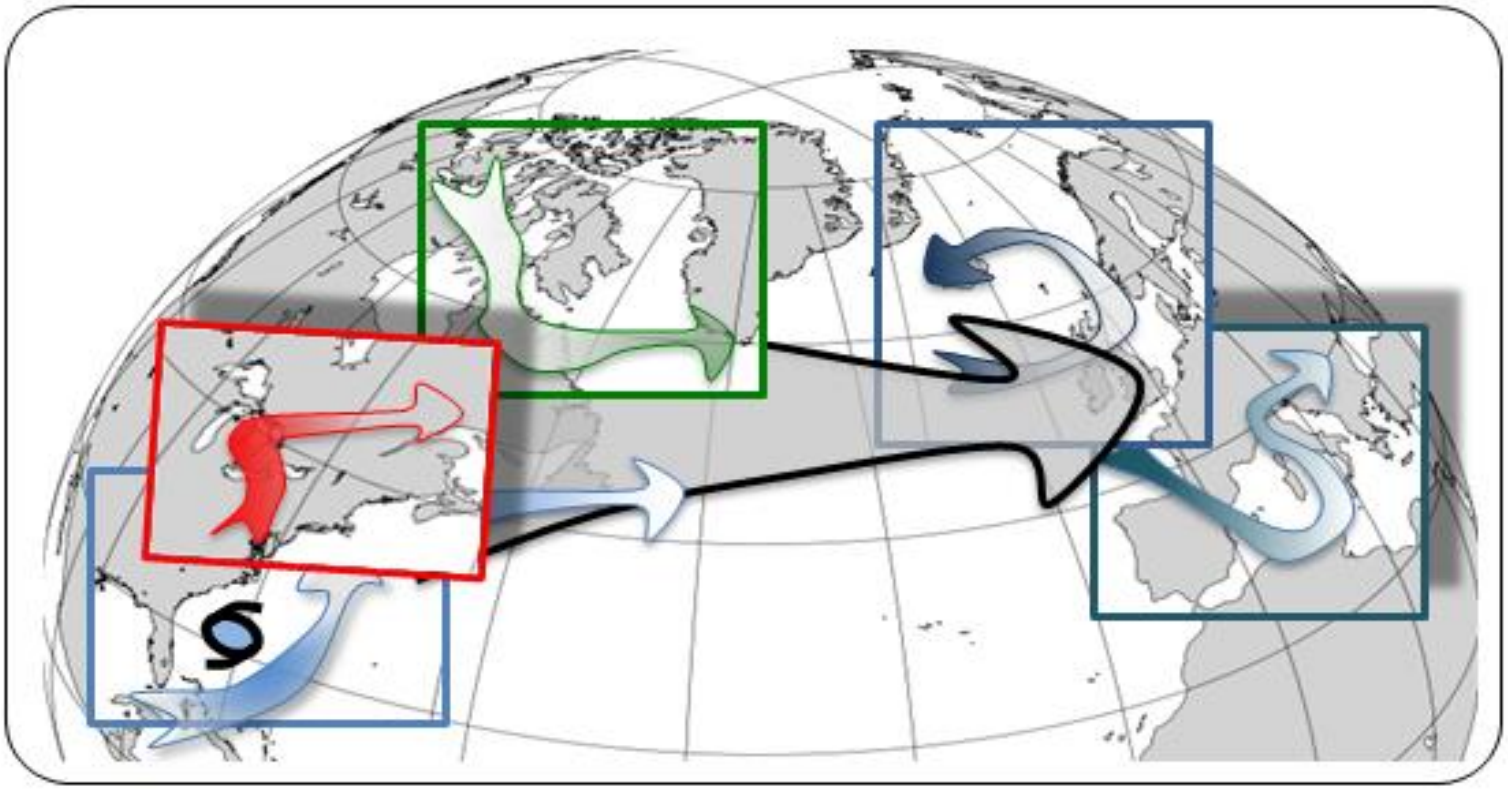
NAWDEX – Weather Discussion

30 September 2016, Keflavik 11 UTC



NAWDEX – Weather Discussion

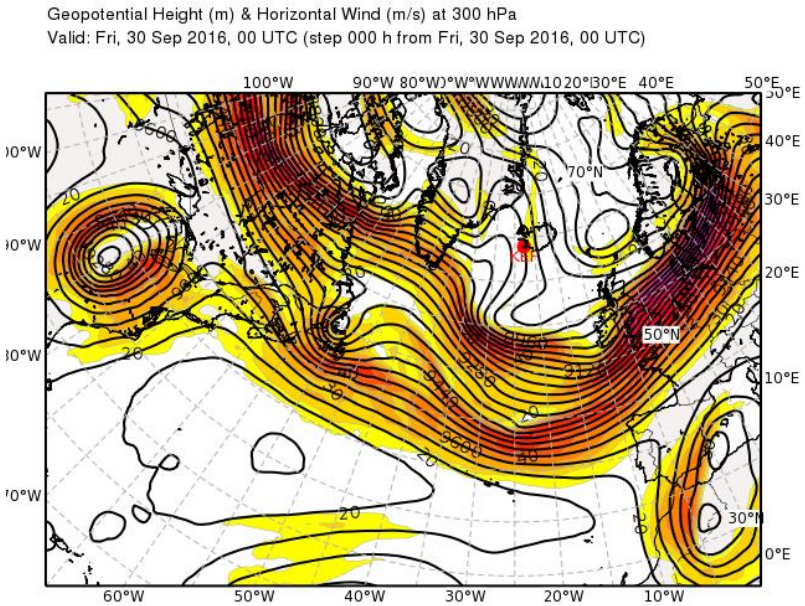
30 September 2016, Keflavik 11 UTC

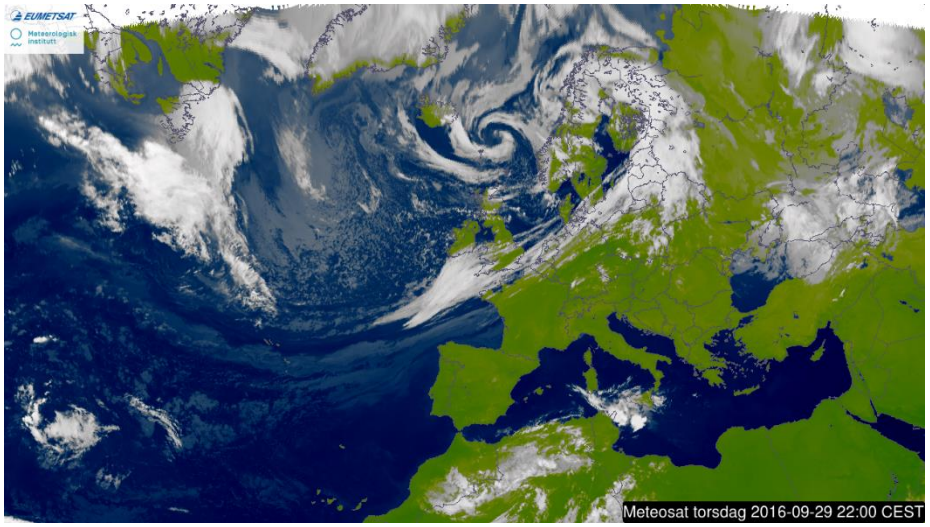
Key issues today

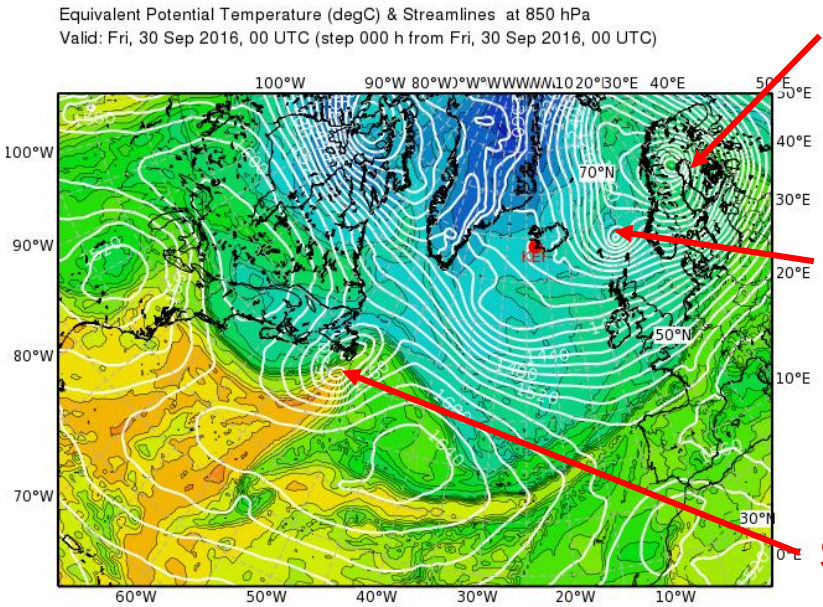
1. Evolution of „Saturday cyclone“ Sat-Mon
2. New frontal wave cyclone Mon-Thu
    - Strong WCB
    - Inflow within reach on Tuesday
    - Ascent within reach on Tue-Thu
    - Outflow within reach Wed-Thu
    - High forecast uncertainty for ridgebuilding and downstream PV streamer formation over Europe, potential HIW in Europe
3. Extratropical transition of TC Matthew

Analysis – 30 Sep 2016, 00 UTC

Z300, SAT
THE850, RH700



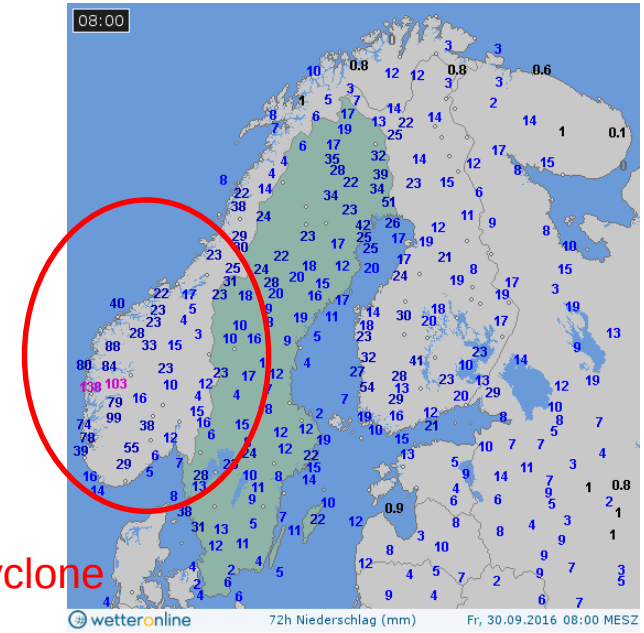




Walpurga

Ex-Karl

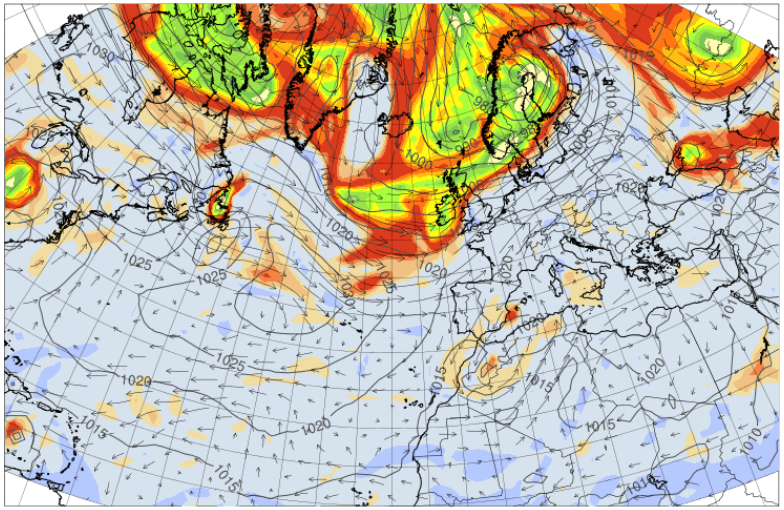
Saturday cyclone

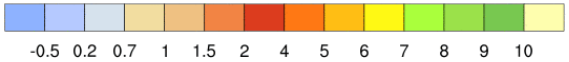


Forecast – 30 Sep 2016, 12 UTC

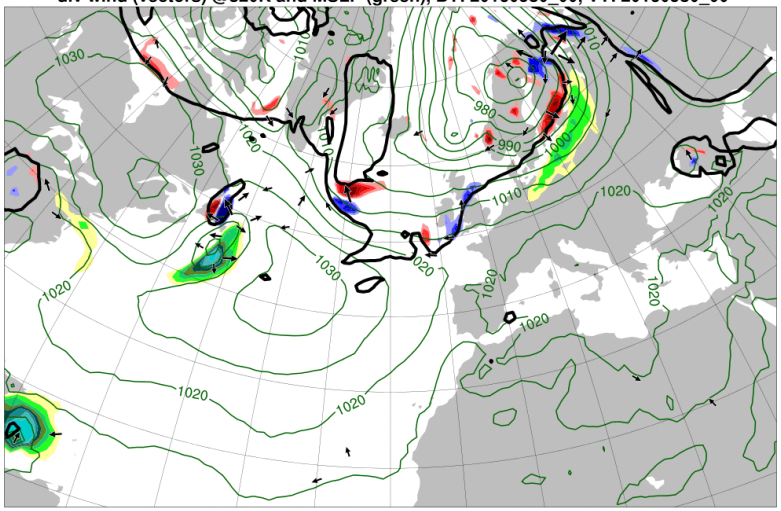
PV320K, irrwind320K, THE850K, trajectories

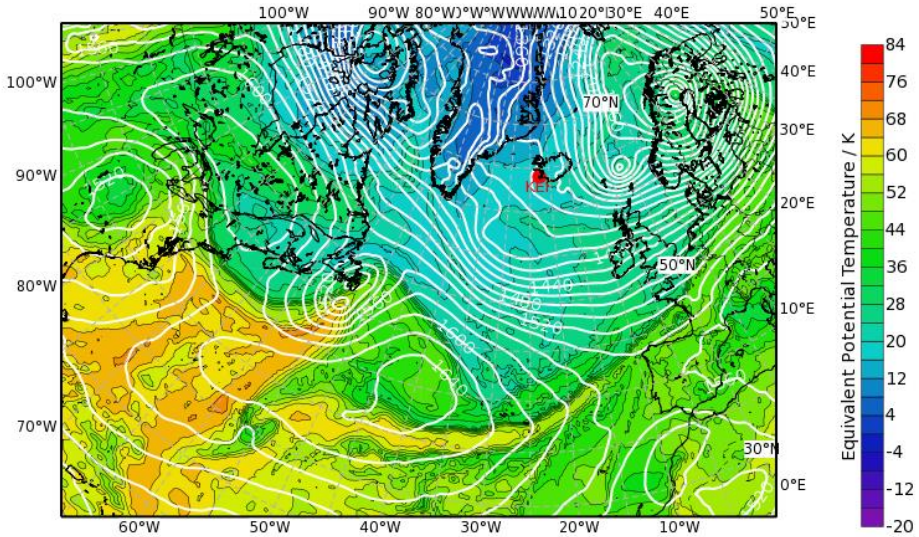
PV@320K at 20160930_00



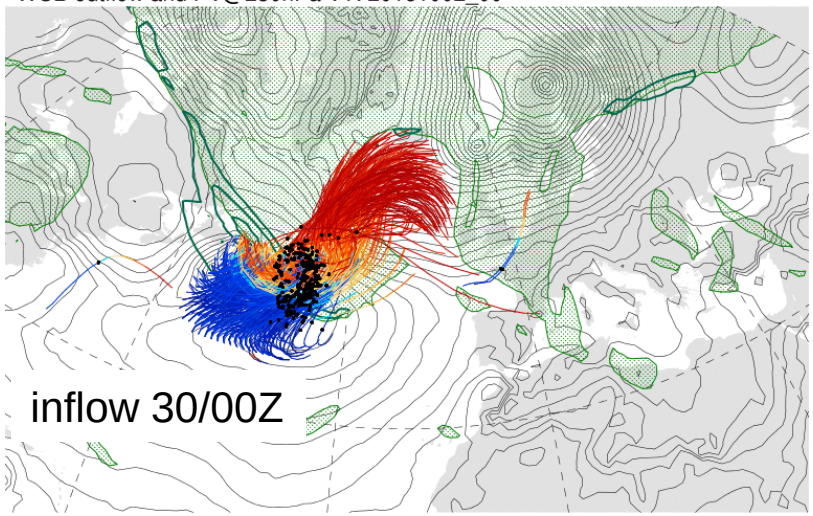


2 PVU (black), PV adv by div wind (shading),
div wind (vectors) @320K and MSLP (green), BT: 20160930_00, VT: 20160930_00





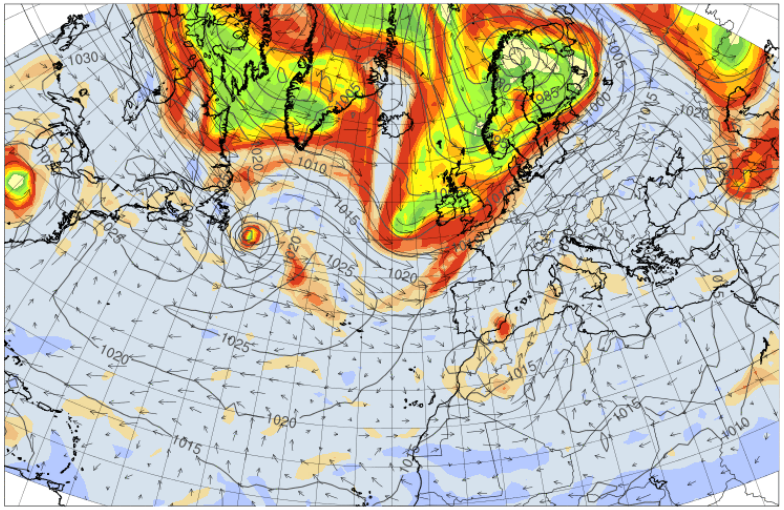
Trajectory start and SLP VT: 20160930_00
WCB outflow and PV@250hPa VT: 20161002_00



BT30/00Z

Forecast – 30 Sep 2016, 12 UTC

PV@320K at 20160930_12



pvu

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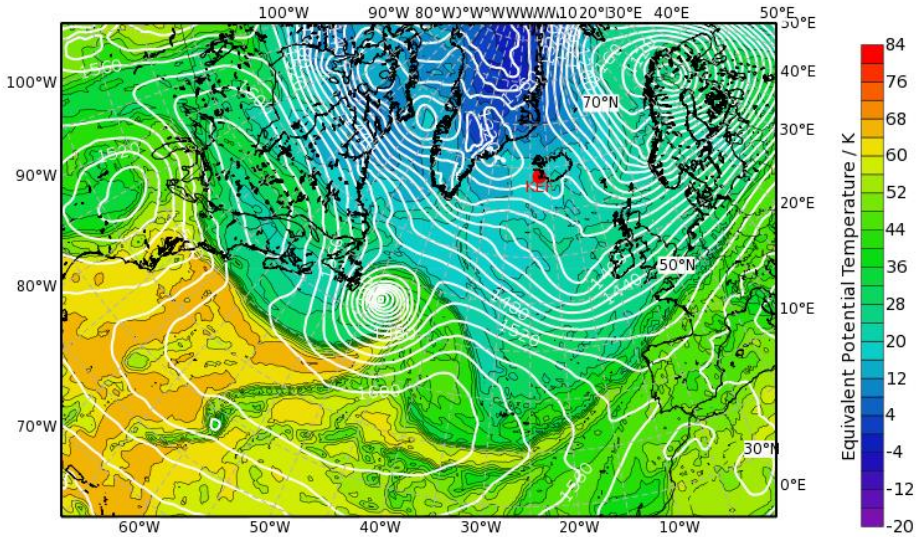

PV320K, irrwind320K, THE850K, trajectories

2 PVU (black), PV adv by div wind (shading),
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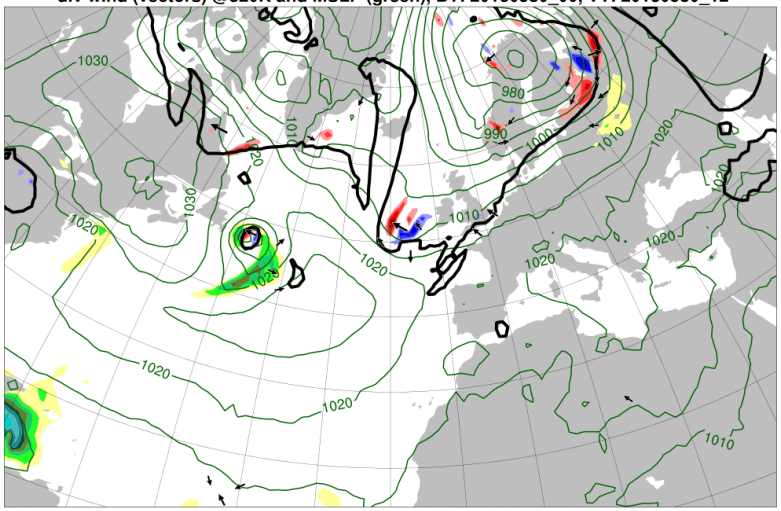
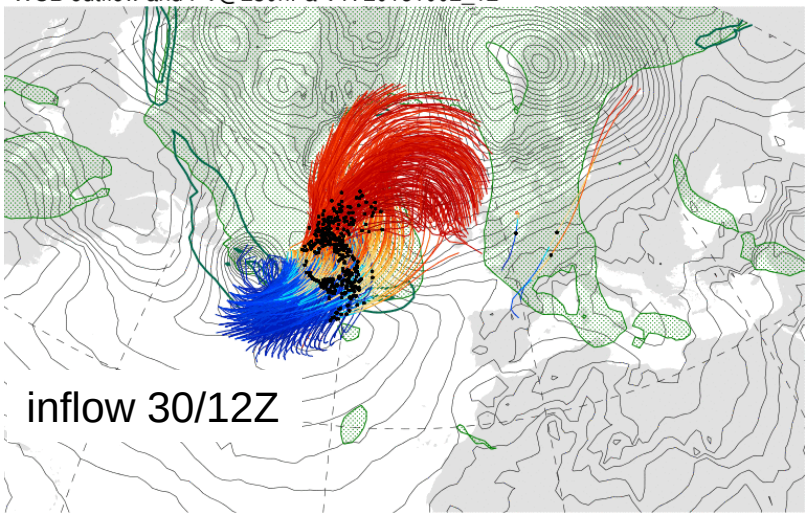


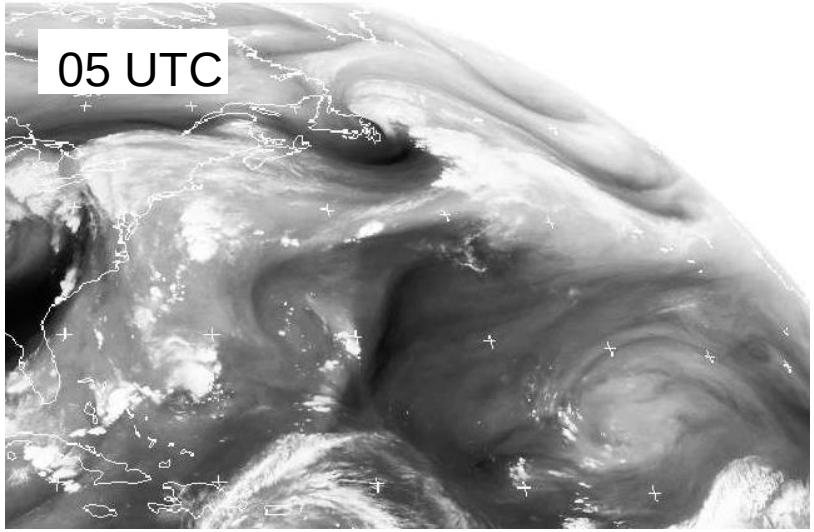
500 600 700 800 900 1000 1100 1200 kg/(m s)

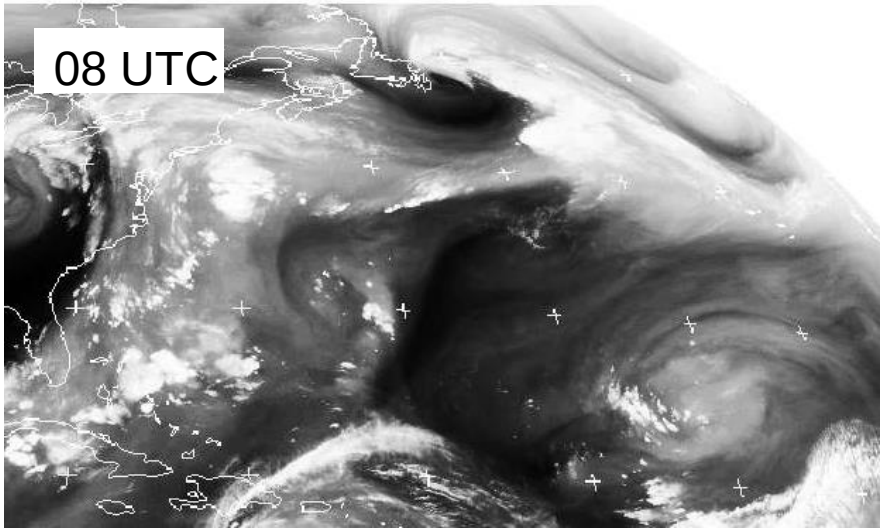
Trajectory start and SLP VT: 20160930_12
WCB outflow and PV@250hPa VT: 20161002_12

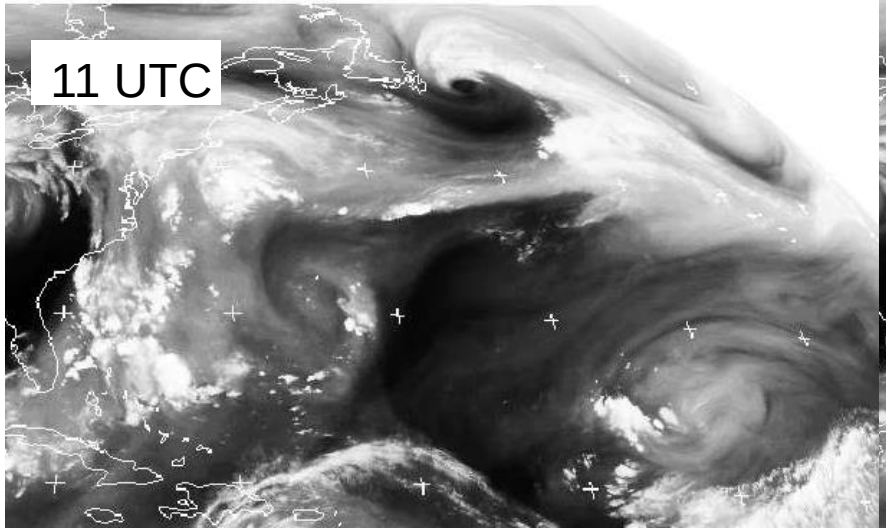


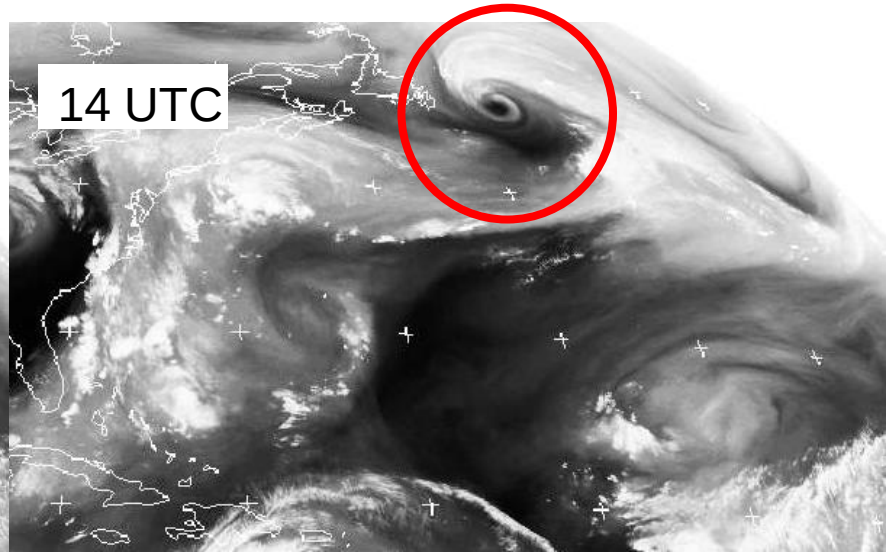
200 300 400 500 600 700 800 900 1000 hPa

An early view on the "Saturday cyclone"



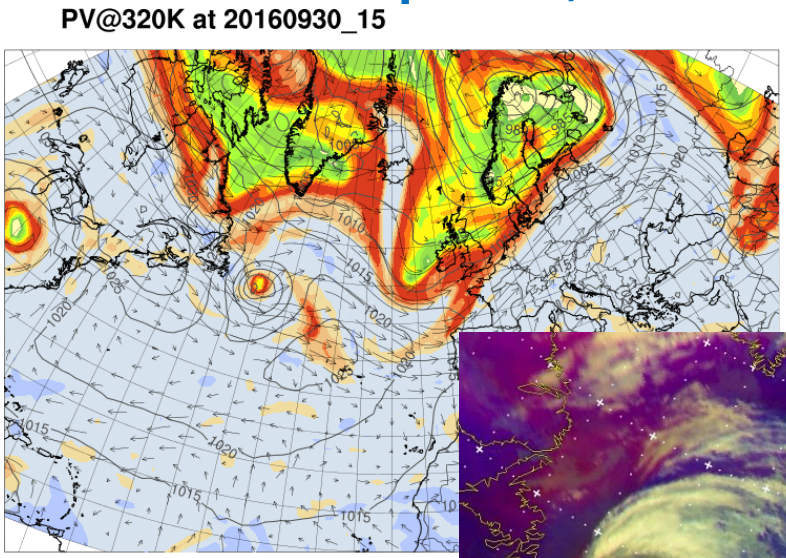


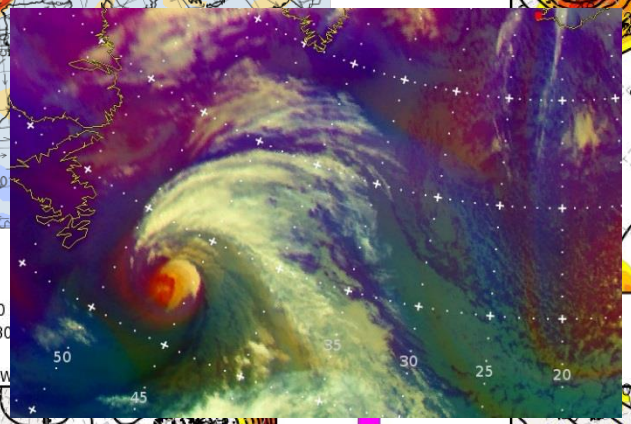


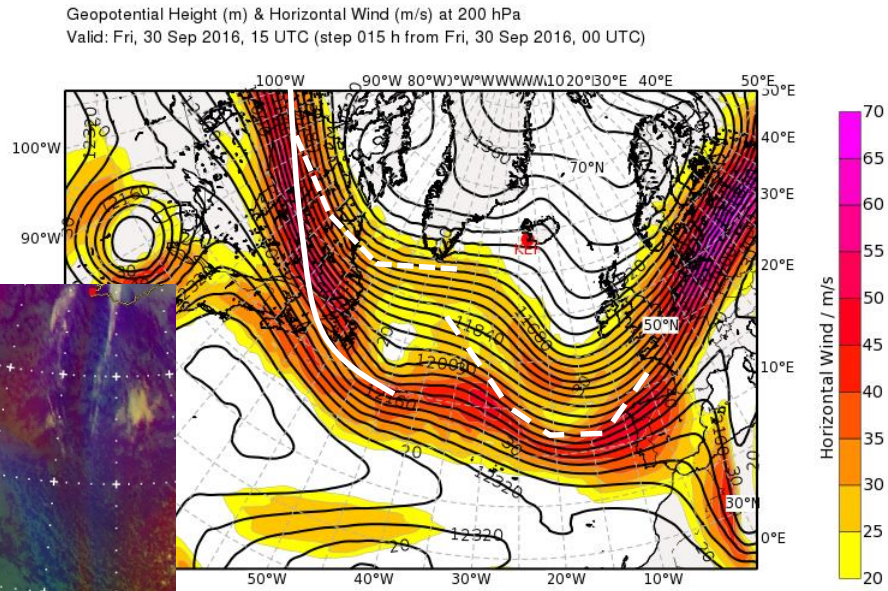


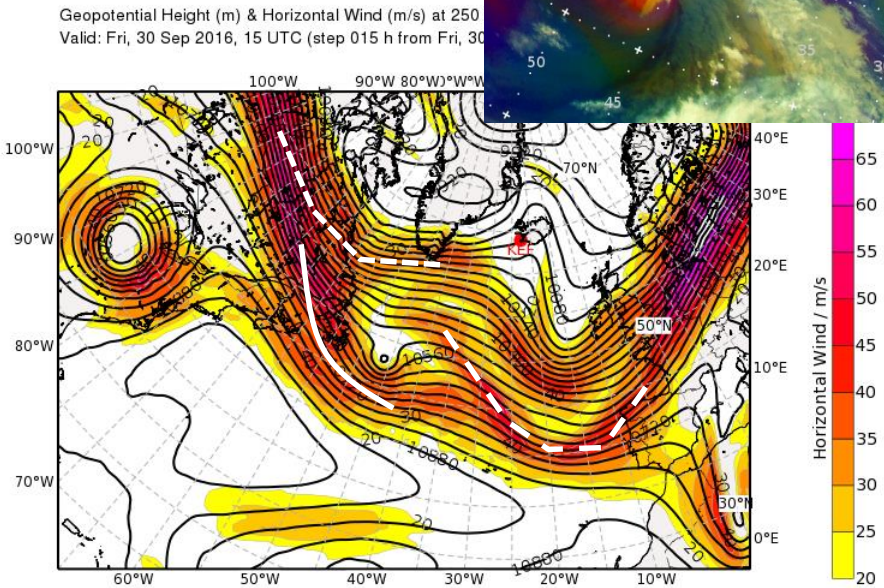
Forecast – 30 Sep 2016, 15 UTC

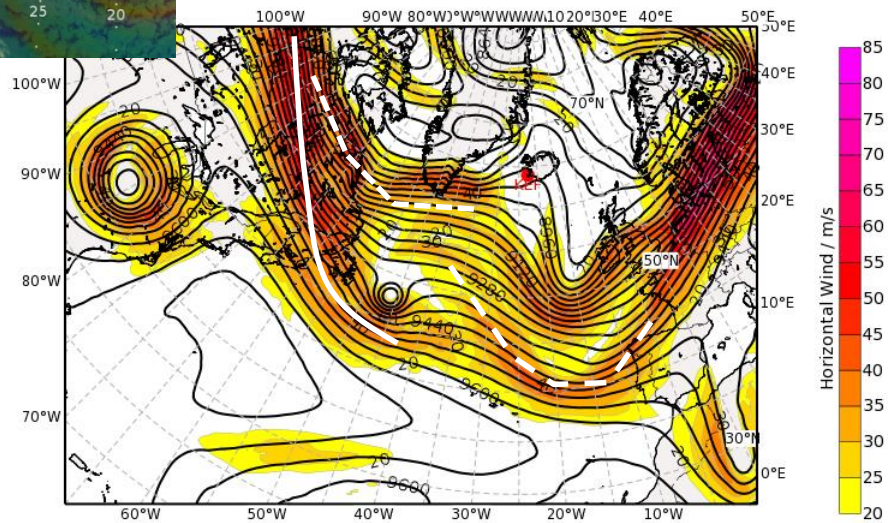
PV320K, Z200, Z250, Z300





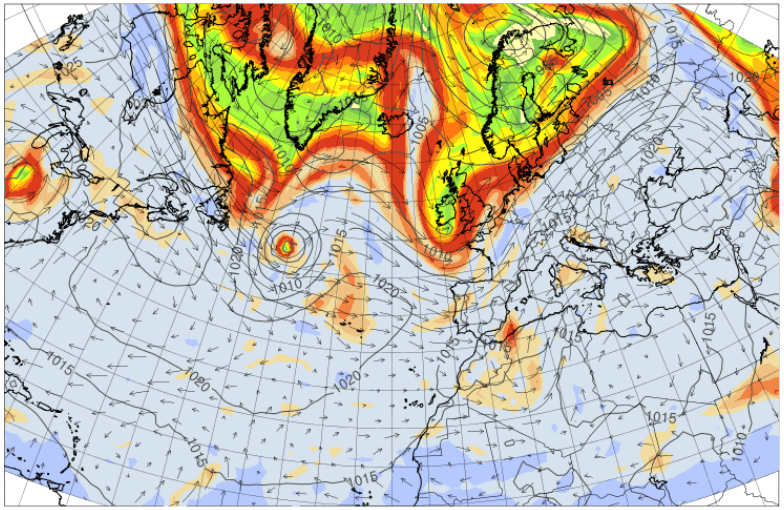






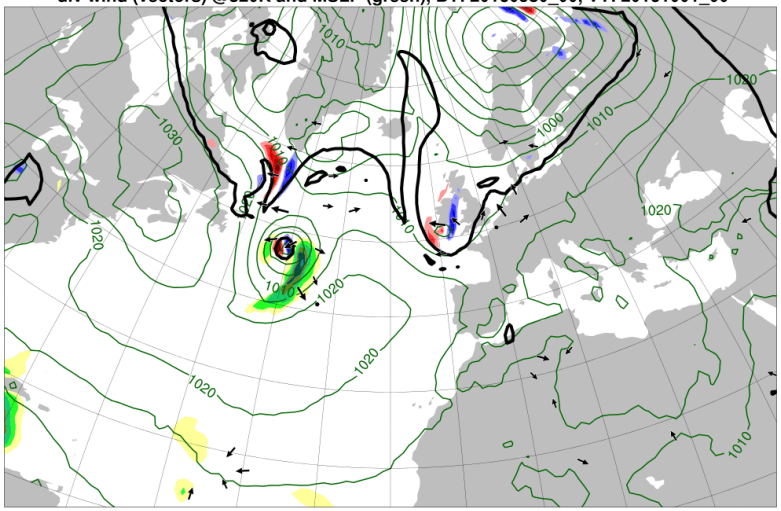
Forecast – 1 Oct 2016, 00UTC

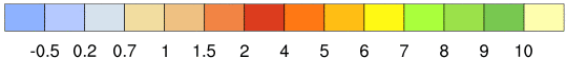
PV@320K at 20161001_00

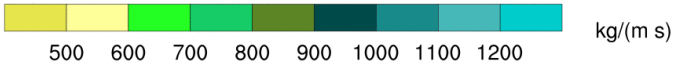


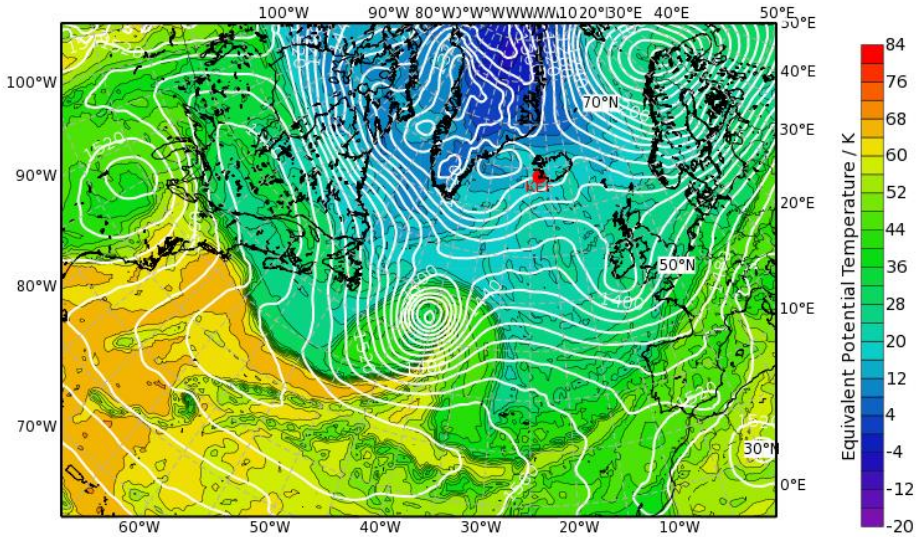
PV320K, irrwind320K, THE850K, trajectories

2 PVU (black), PV adv by div wind (shading),
div wind (vectors) @320K and MSLP (green), BT: 20160930_00, VT: 20161001_00

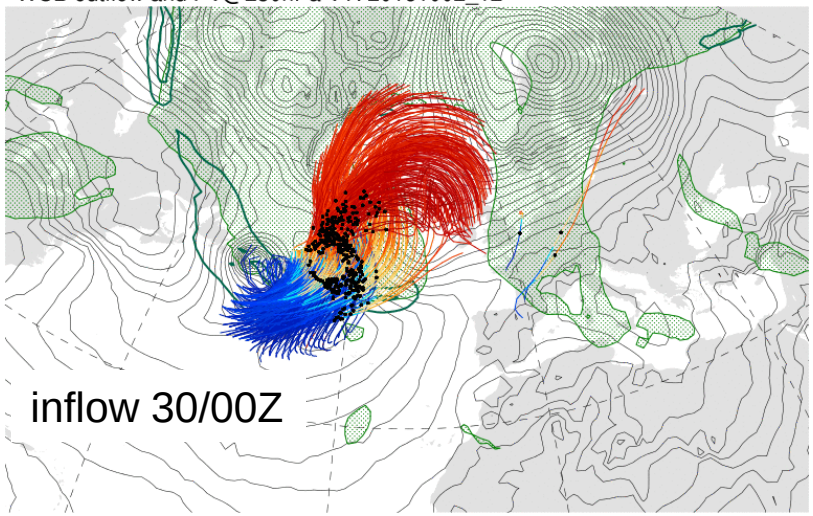


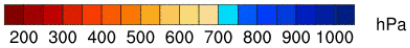






Trajectory start and SLP VT: 20160930_12
WCB outflow and PV@250hPa VT: 20161002_12

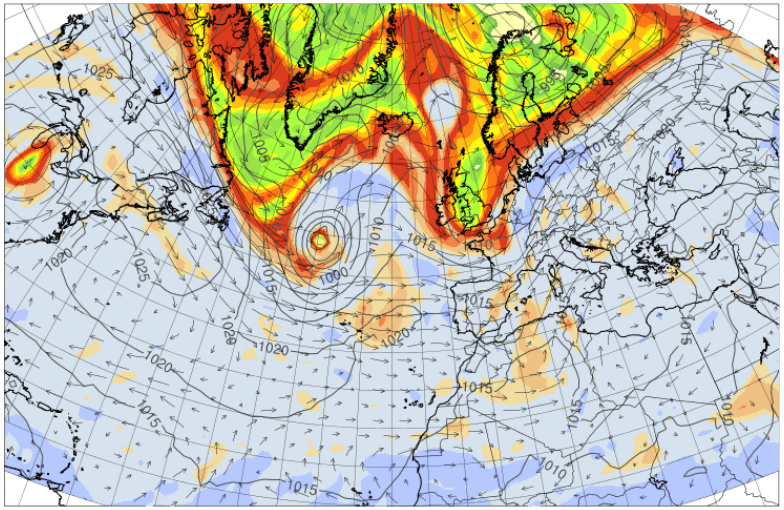




BT30/00Z

Forecast – 1 Oct 2016, 12UTC

PV@320K at 20161001_12



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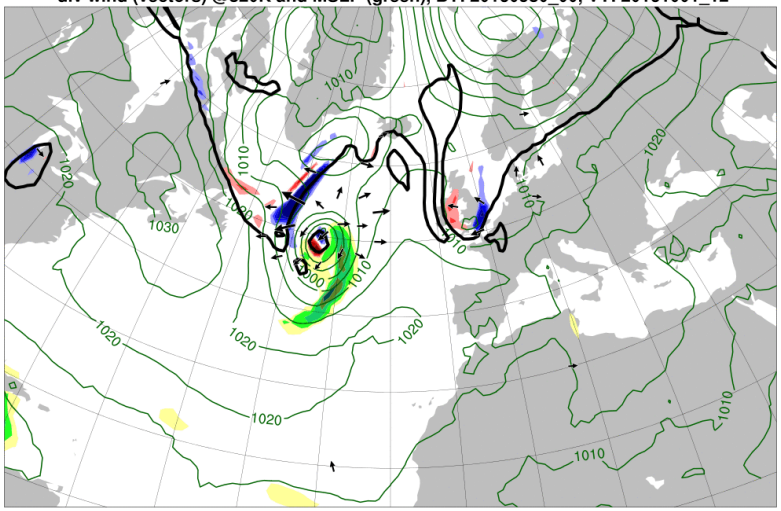
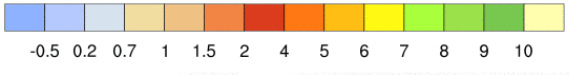
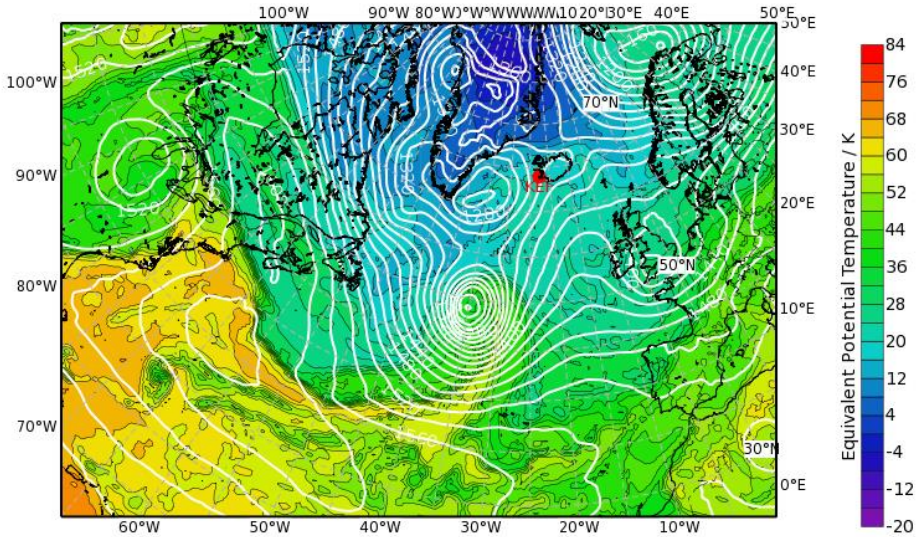
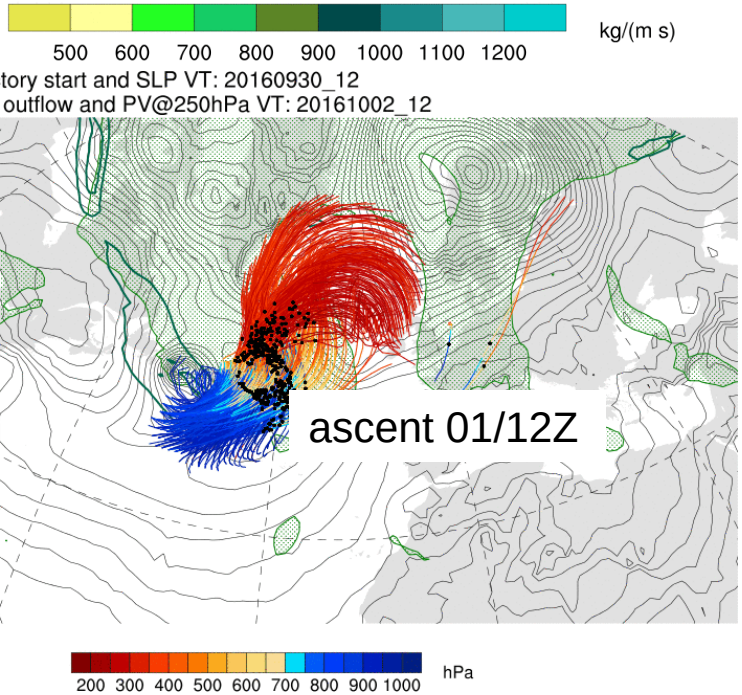




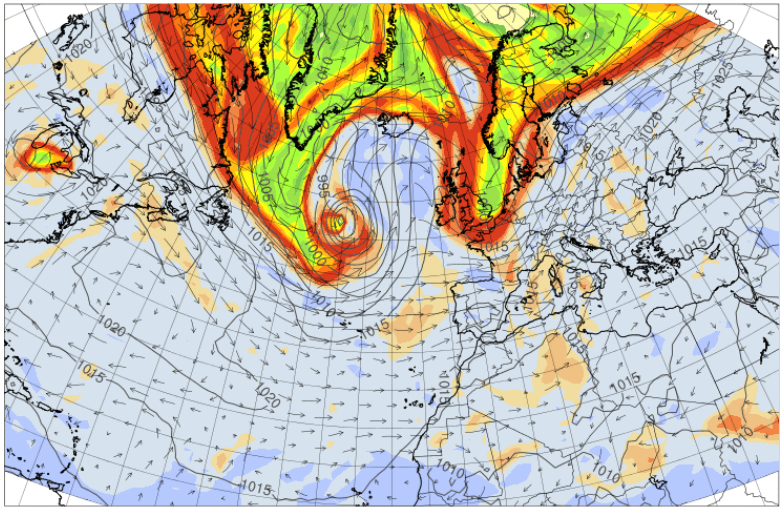




BT30/00Z

Forecast – 2 Oct 2016, 00UTC

PV@320K at 20161002_00



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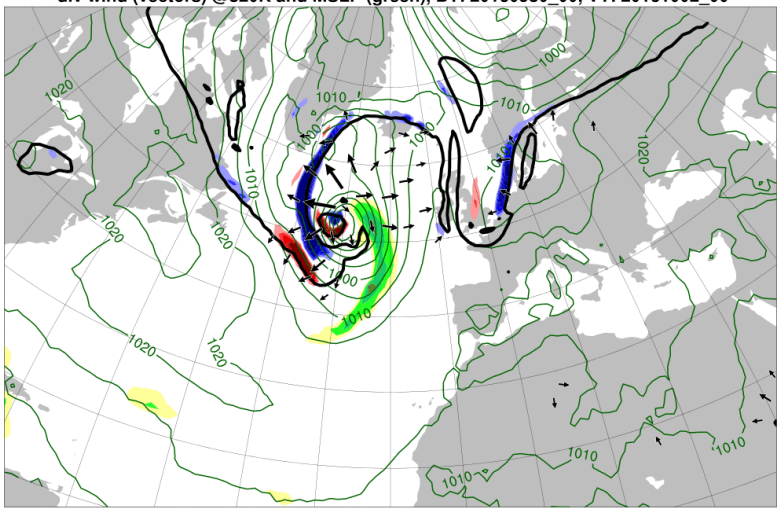
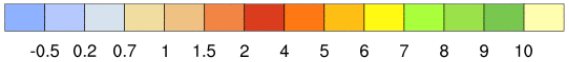
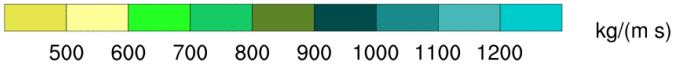
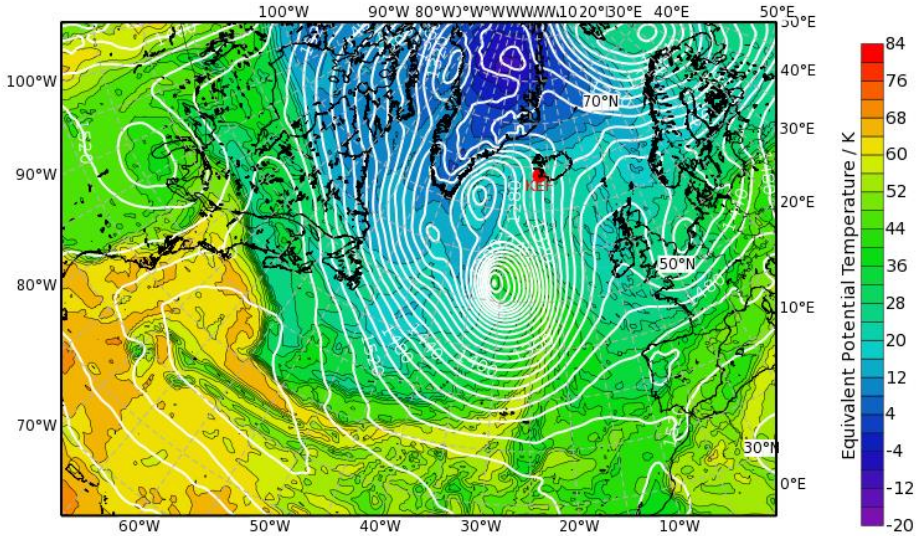
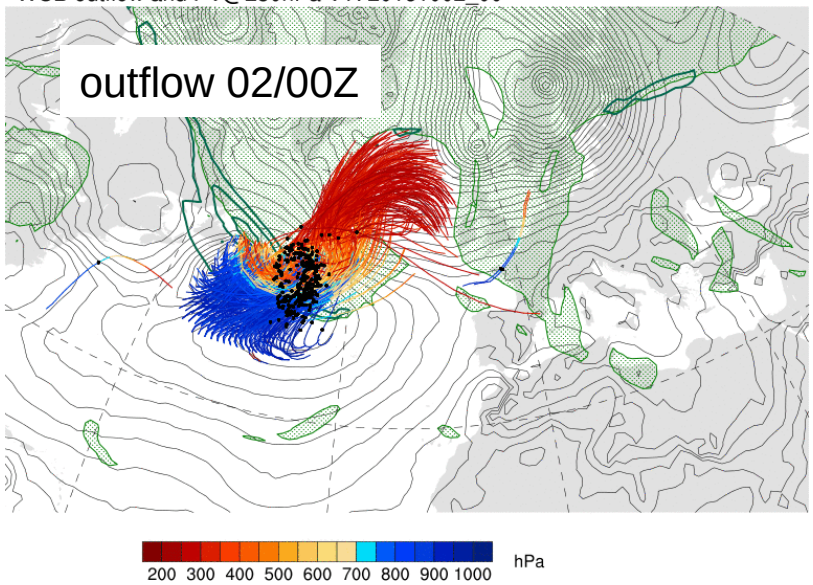








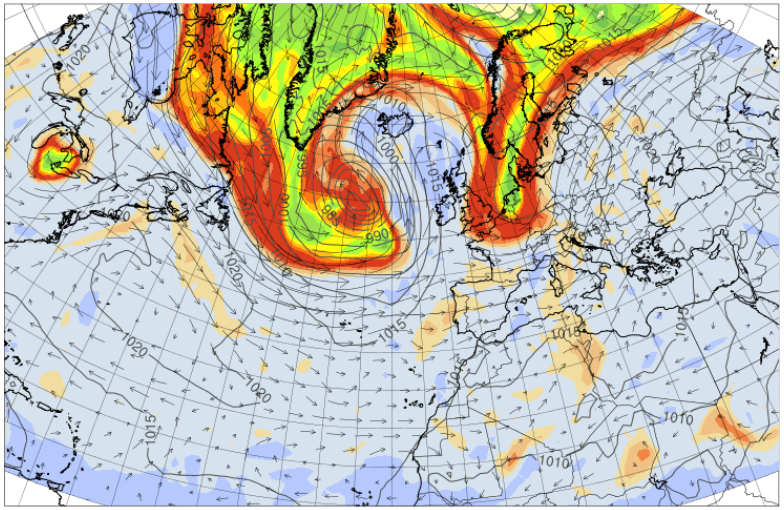
Trajectory start and SLP VT: 20160930_00
WCB outflow and PV@250hPa VT: 20161002_00



BT30/00Z

Forecast – 2 Oct 2016, 12UTC

PV@320K at 20161002_12



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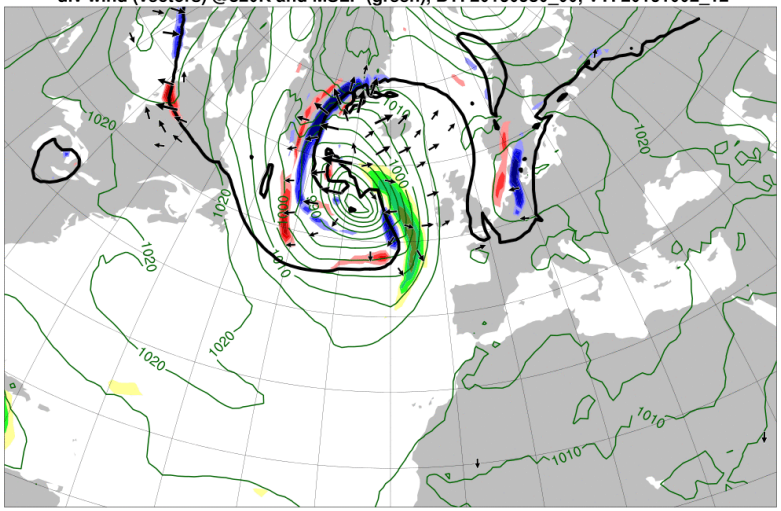
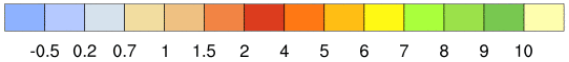
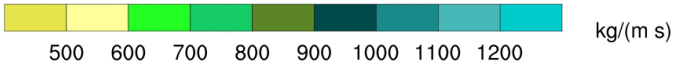
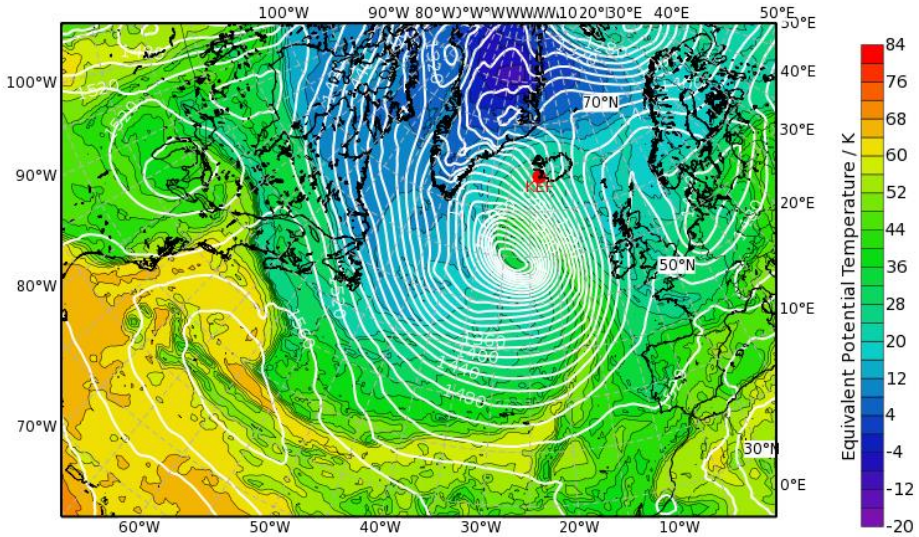
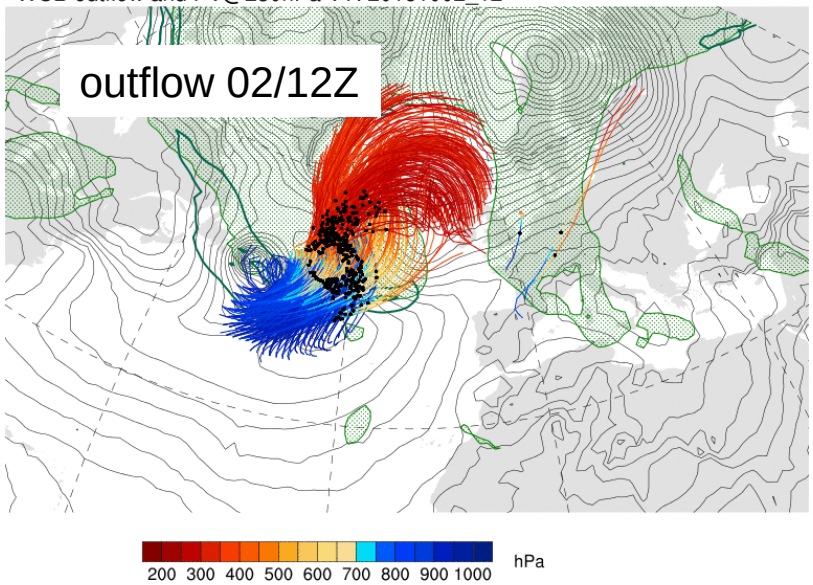






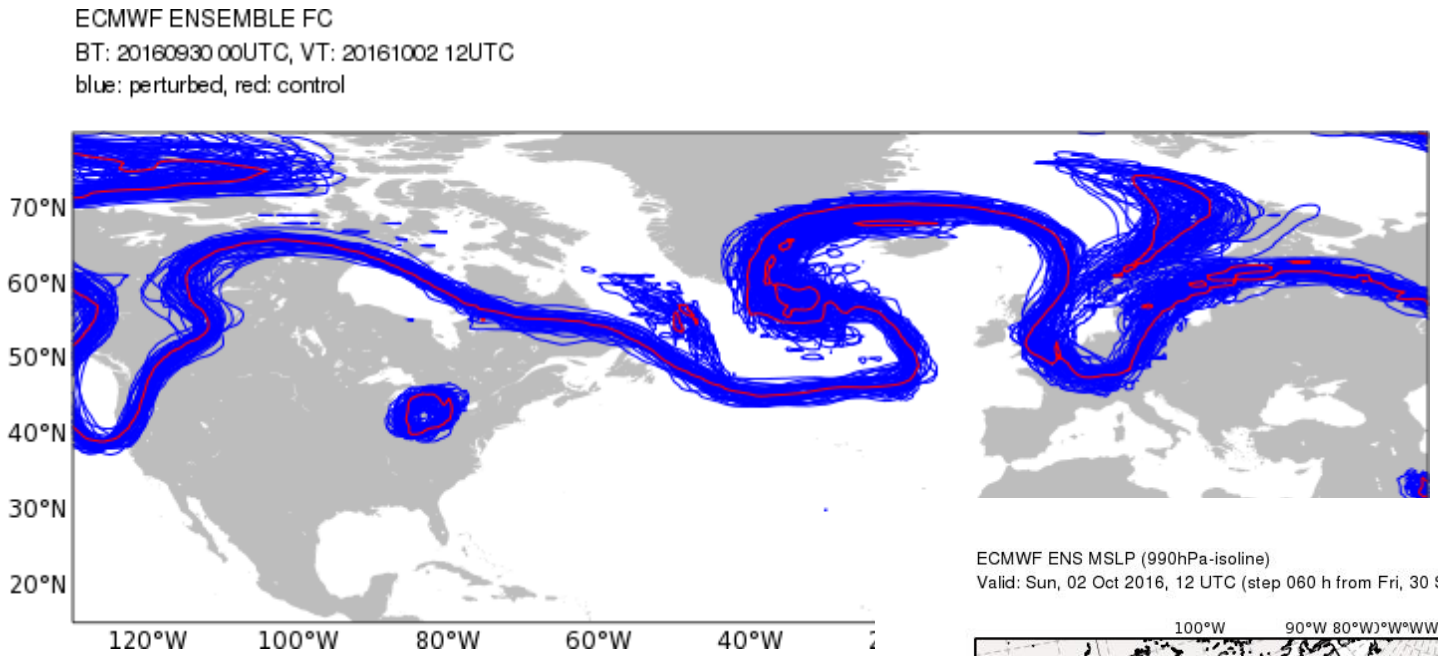


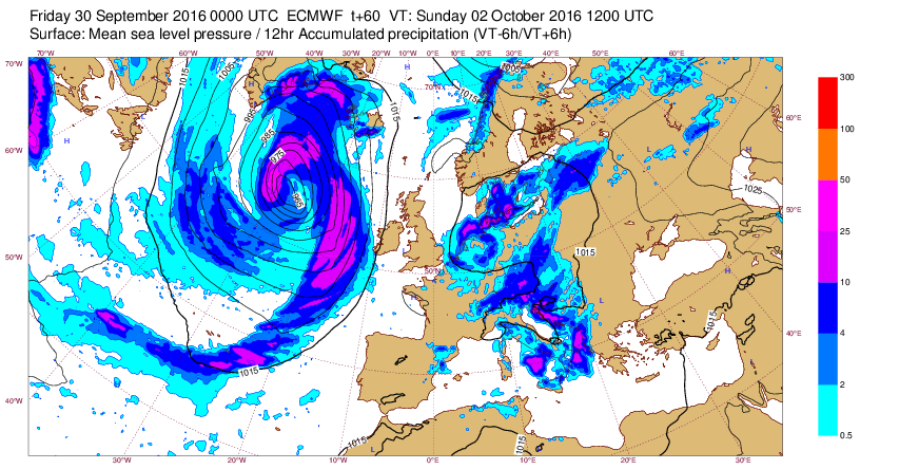
Trajectory start and SLP VT: 20160930_12
WCB outflow and PV@250hPa VT: 20161002_12

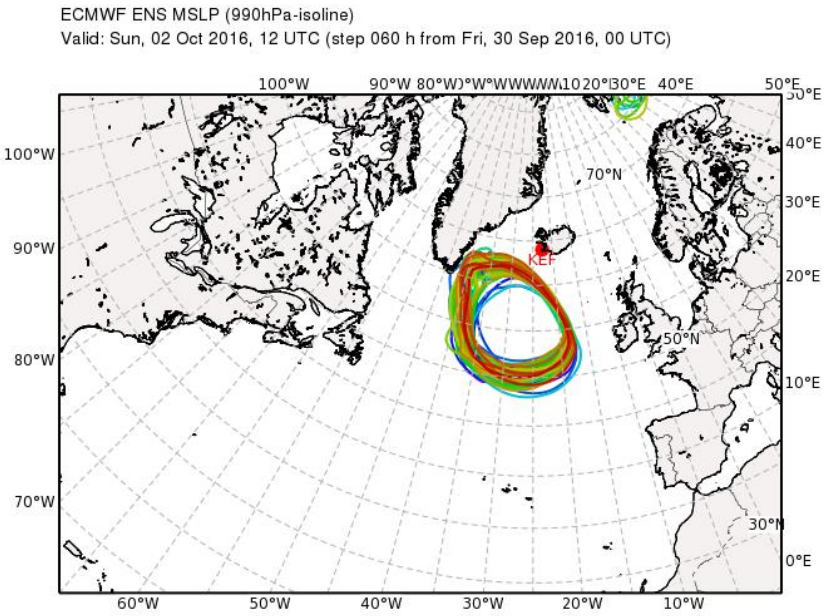


Outlook Sun 02/12Z to Sun 09/12Z : 2PVU@320K, MSLP990 Spaghetti (based EC Ens 30/00Z)

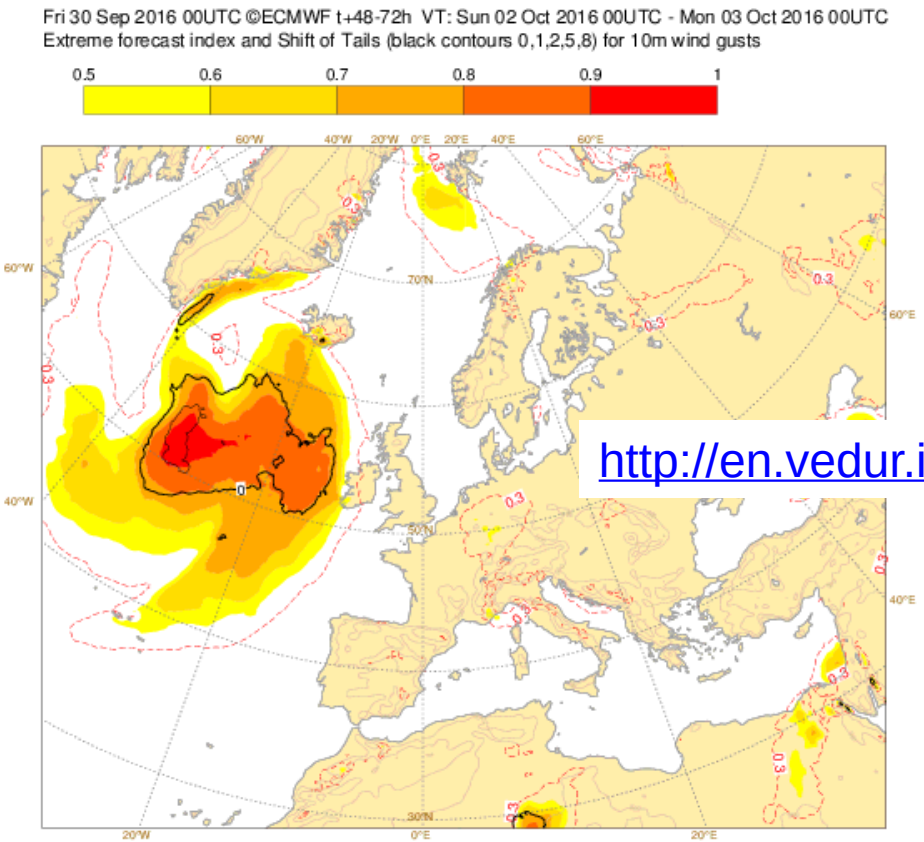
Sun 02/12Z

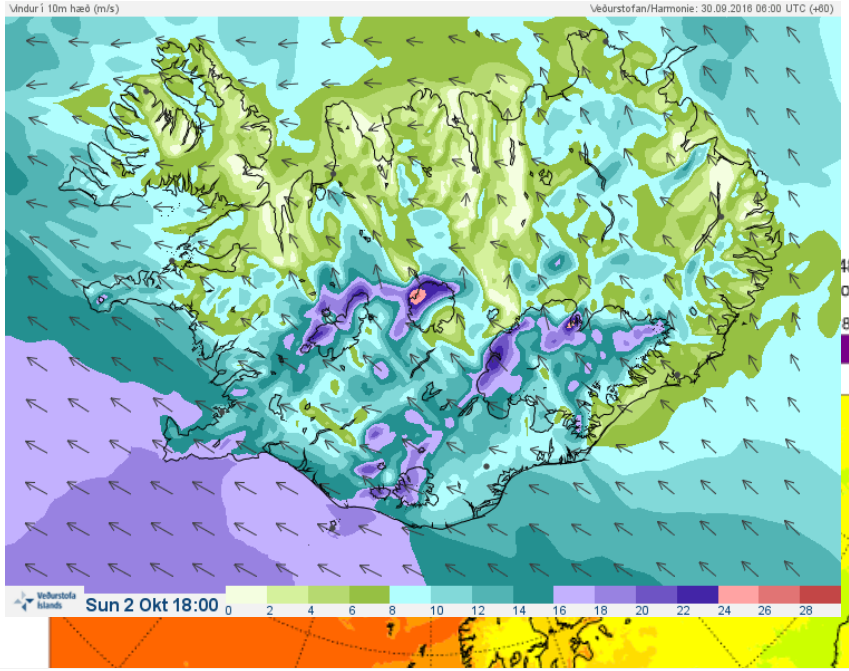




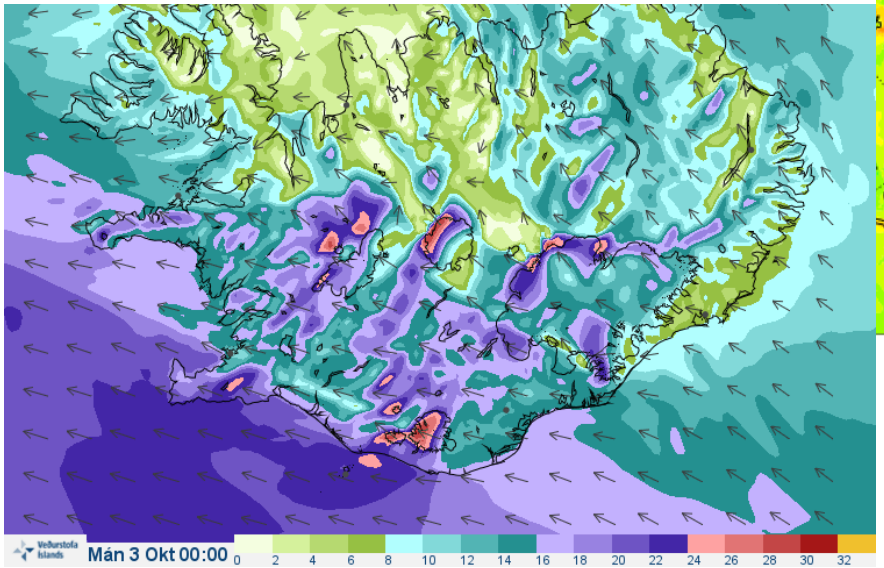


EFI gusts for Sun (BT: 30/00z)





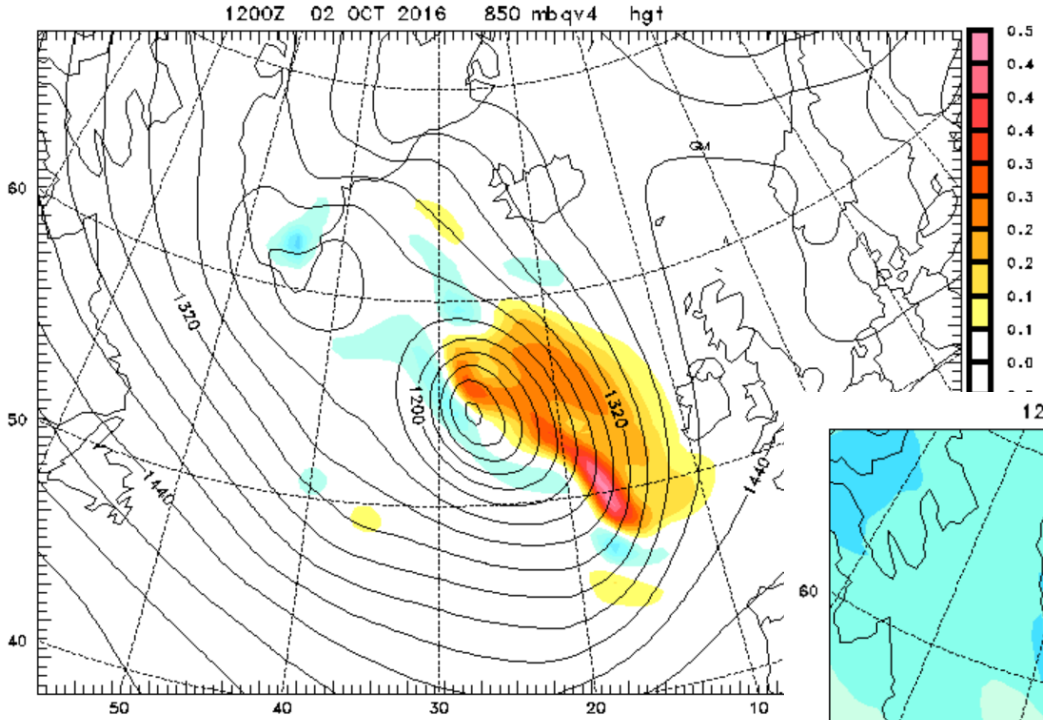
http://en.vedur.is/weather/forecasts/elements/#type=wind



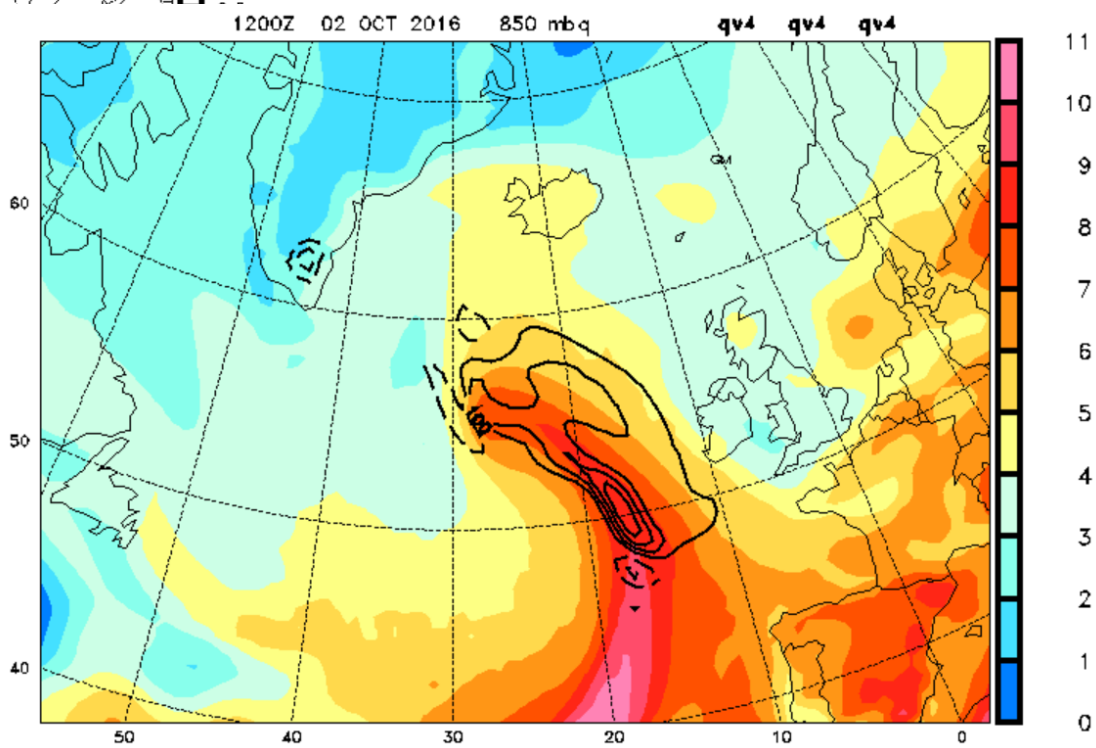
COAMPS Sensitivity (24h) Valid 12Z 2 Oct (Sunday Flight)

Box centered on cyclone (kinetic energy – cyclone strength)
Sensitivity centered on mid-Atlantic low. 00Z sondes from Azores?

850 q Sensitivity and heights

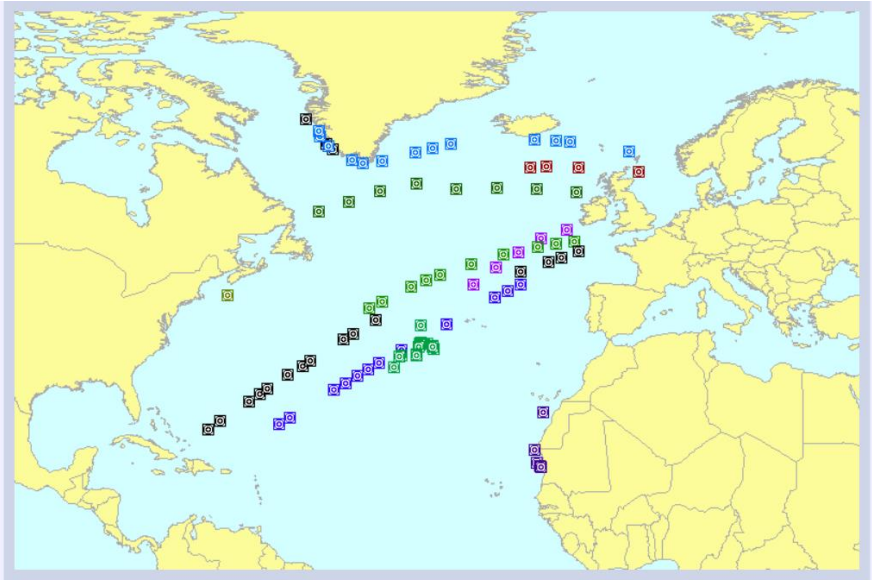


850-mb q (color) and q sensitivity

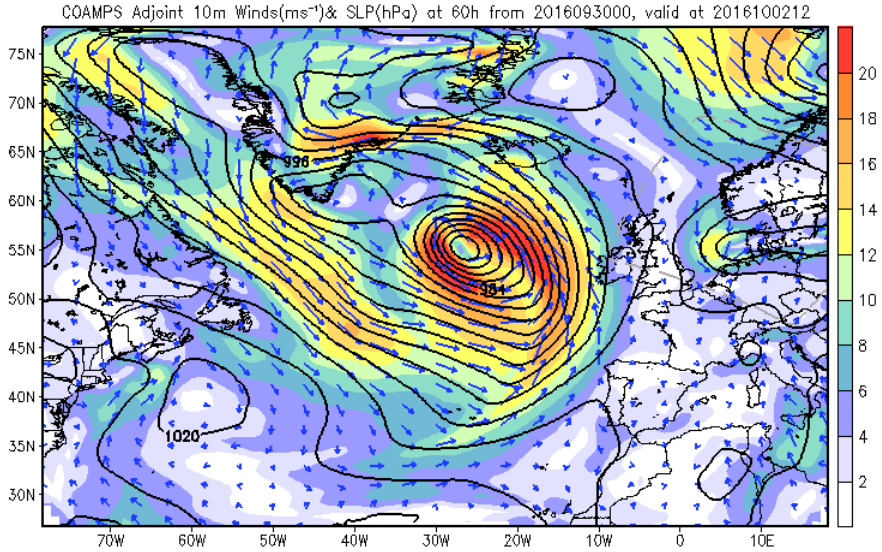


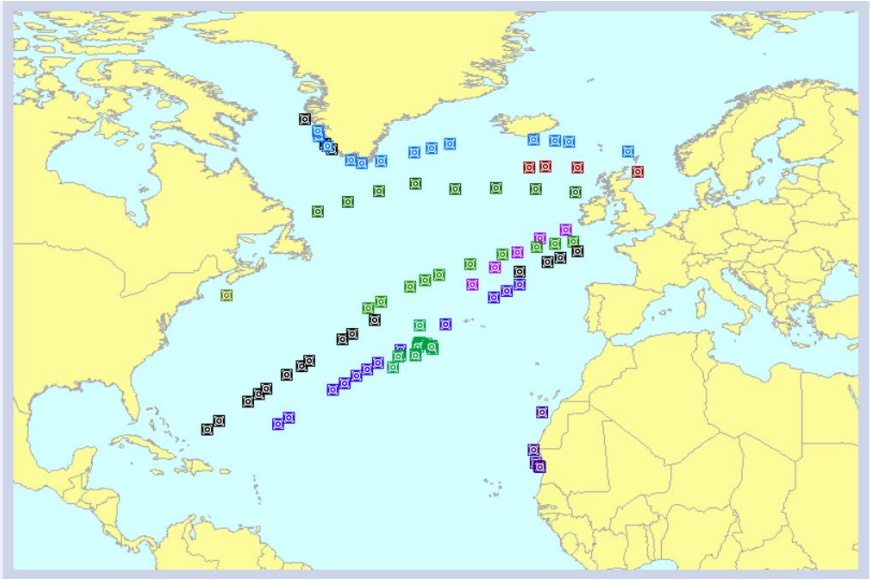
COAMPS Sensitivity (48h) Valid 12Z 2 Oct (Sunday)

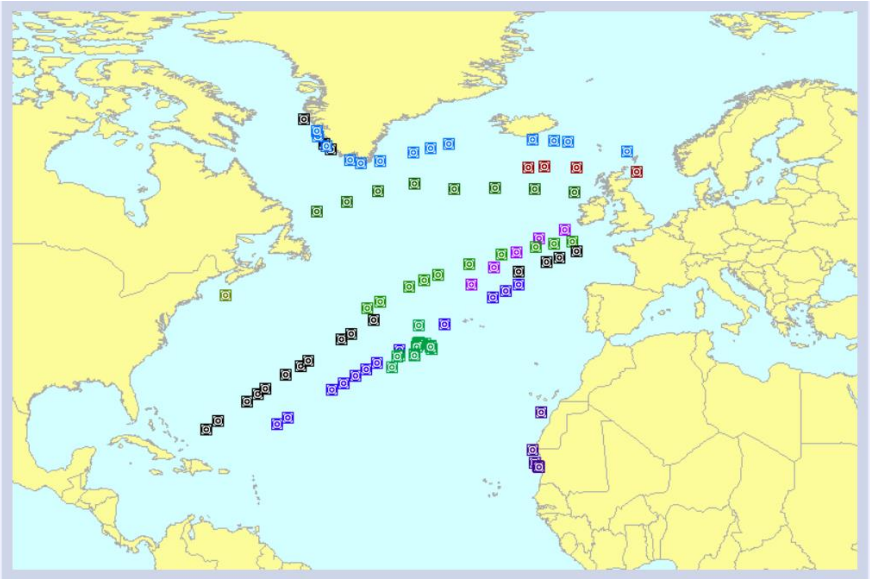
Radiosondes from ships, Azores



SLP, 10-m winds valid 12Z 2 OCT

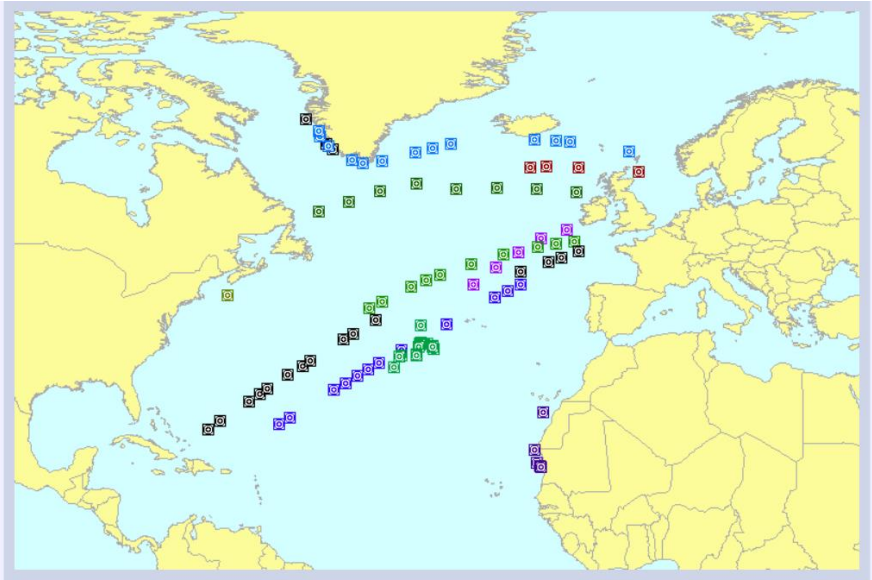




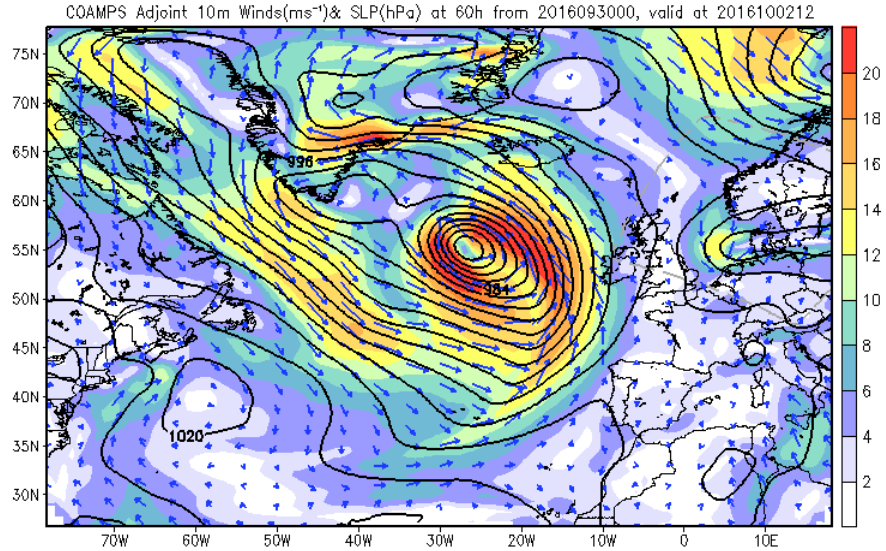


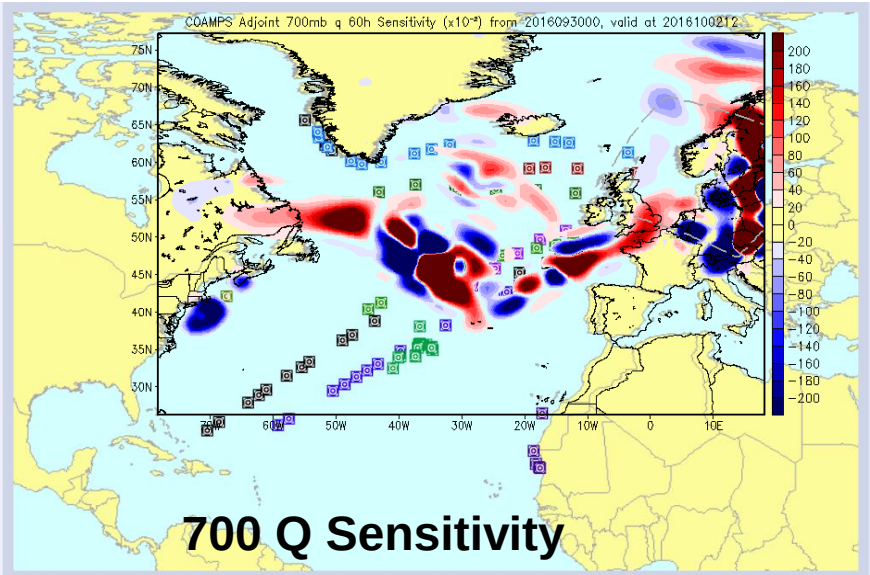
COAMPS Sensitivity (48h) Valid 12Z 2 Oct (Sunday)

Radiosondes from ships, Azores

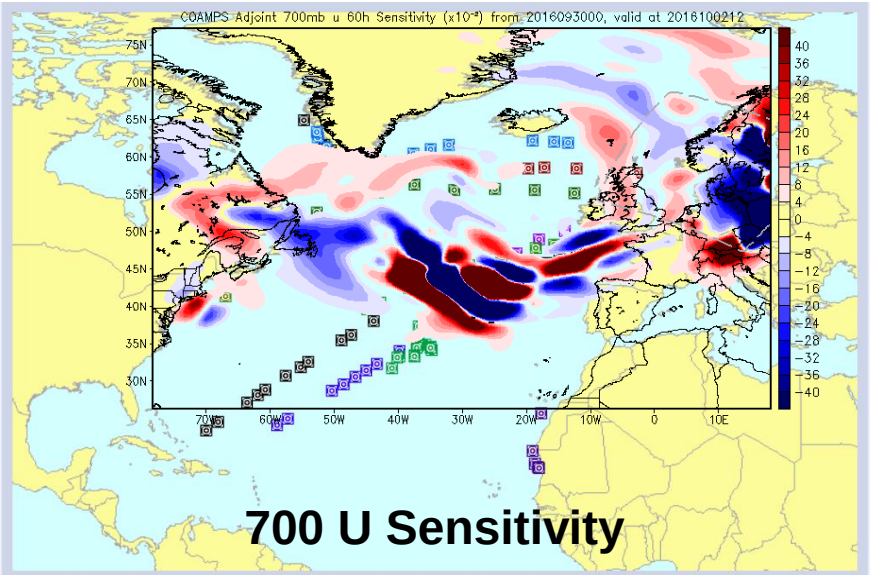


SLP, 10-m winds valid 12Z 2 OCT





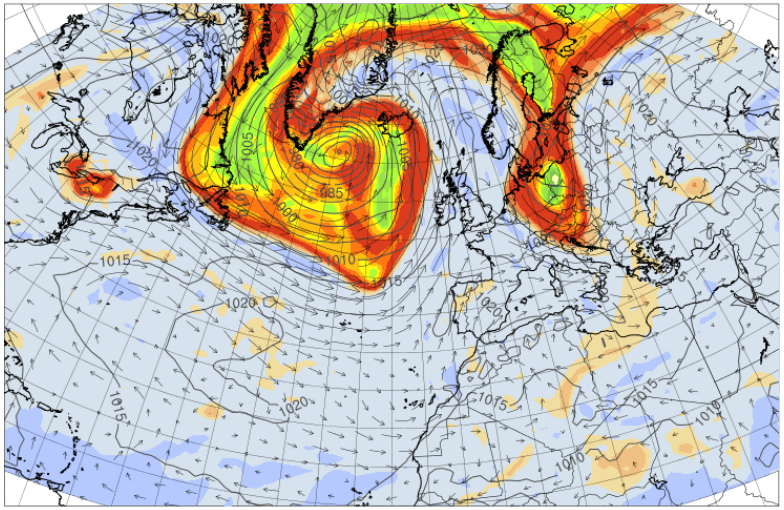
700 Q Sensitivity



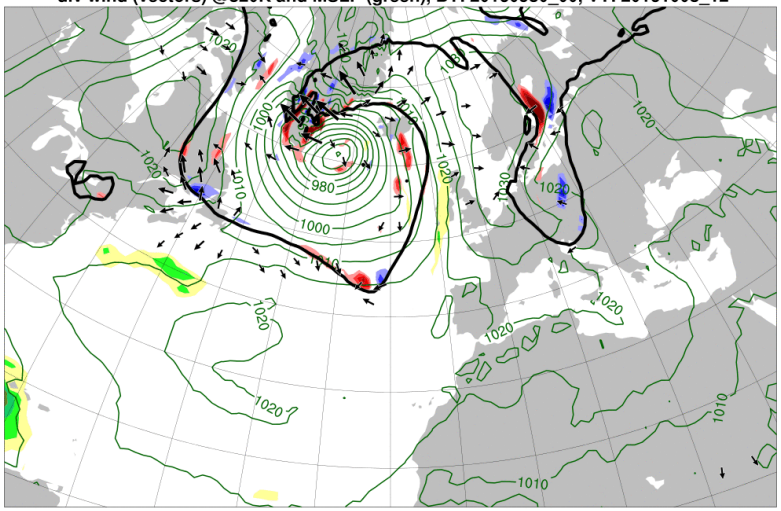
700 U Sensitivity

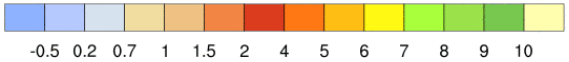
Forecast – Mon 3 Oct 2016, 12UTC PV320K, irrwind320K, THE850K, trajectories

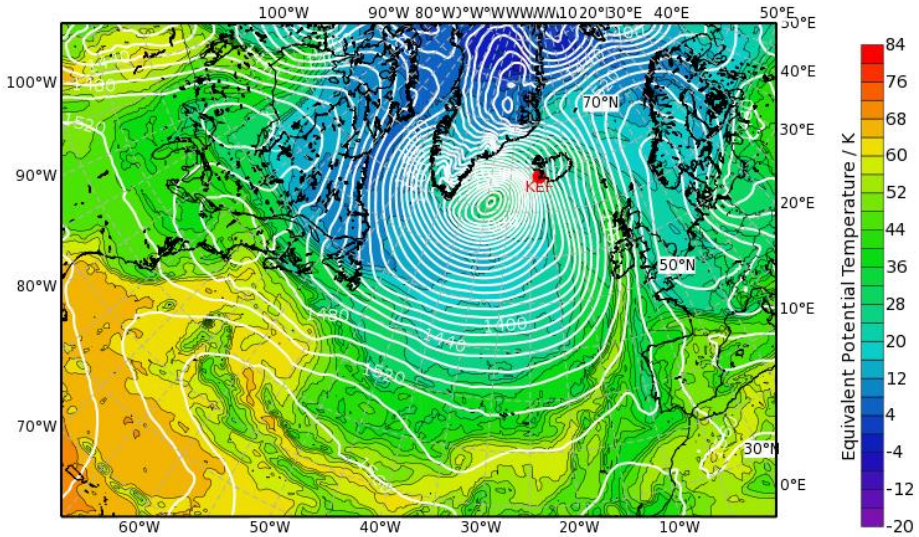
PV@320K at 20161003_12

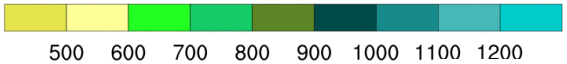


2 PVU (black), PV adv by div wind (shading),
div wind (vectors) @320K and MSLP (green), BT: 20160930_00, VT: 20161003_12



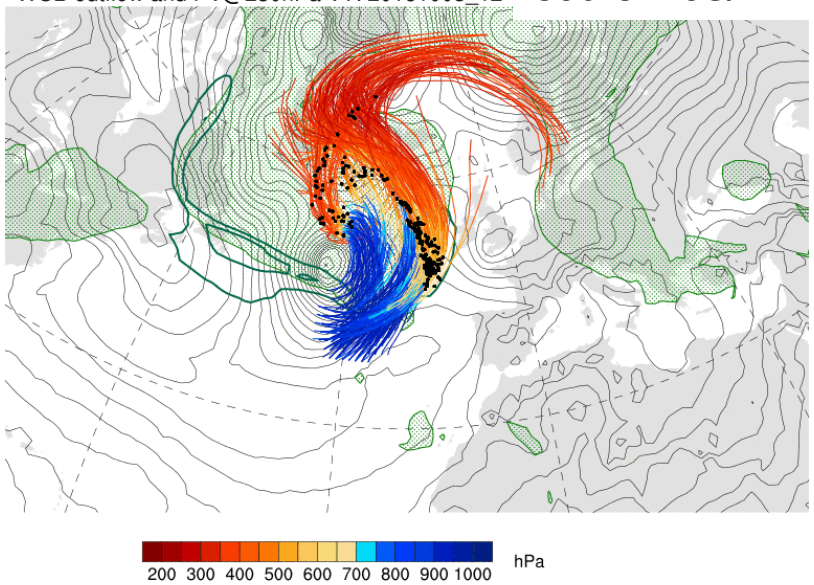






Trajectory start and SLP VT: 20161001_12
WCB outflow and PV@250hPa VT: 20161003_12

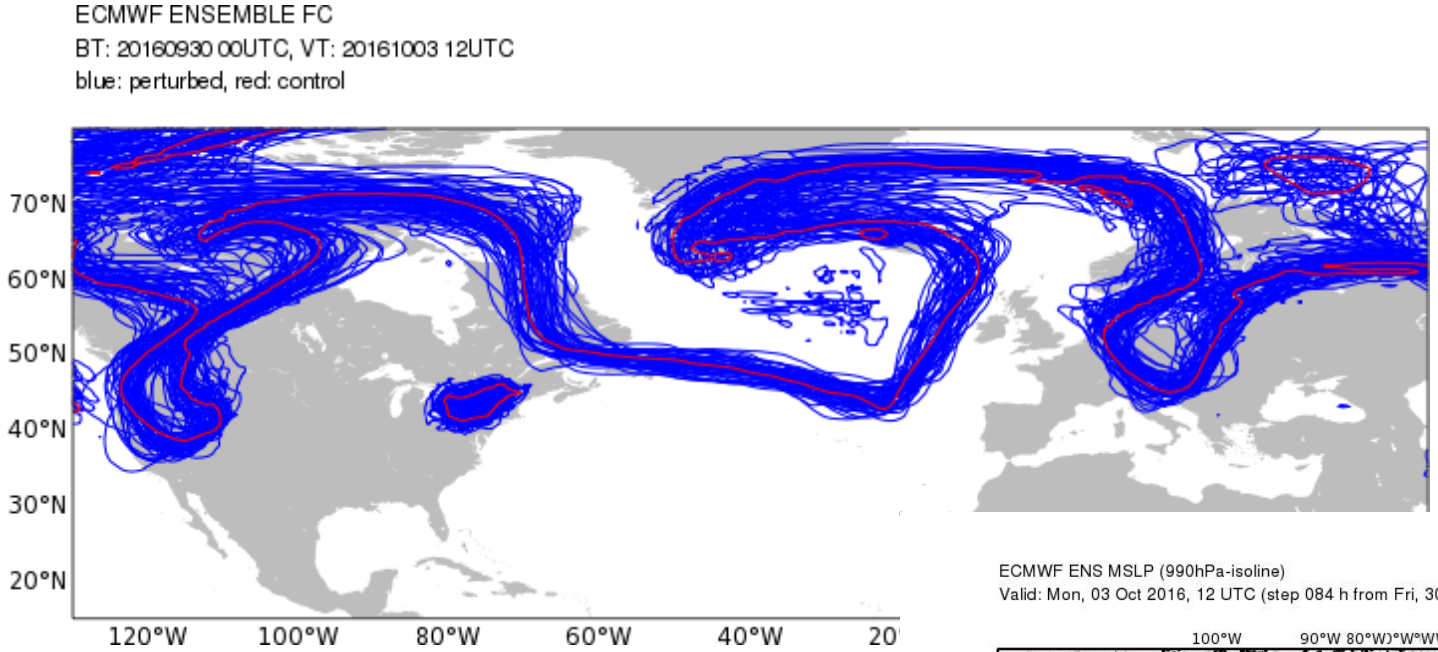
outflow 03/12Z

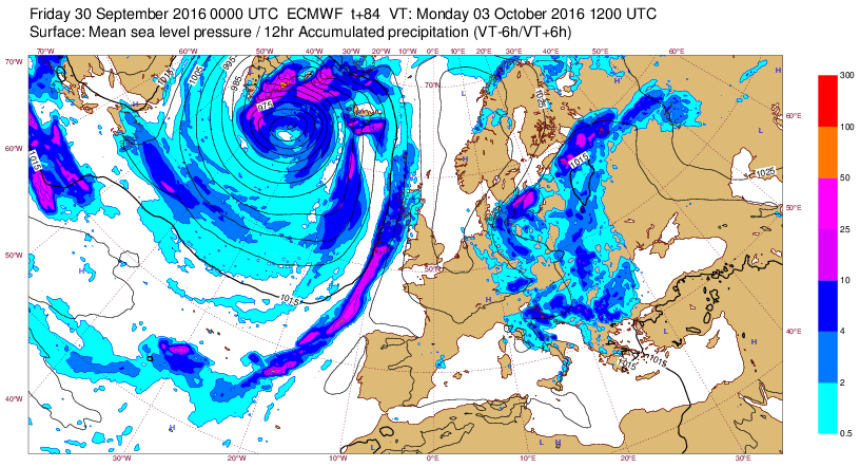


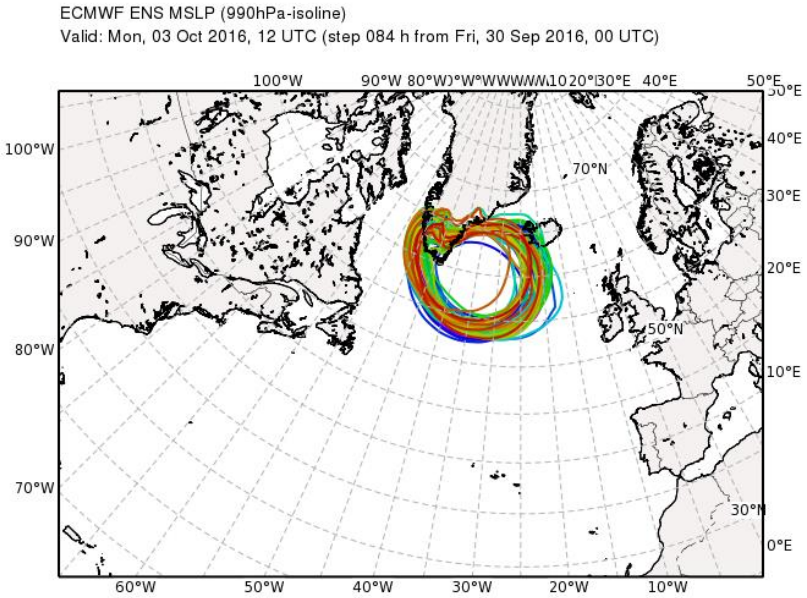
BT30/00Z

2PVU@320K, MSLP990 Spaghetti (based EC Ens 30/00Z)

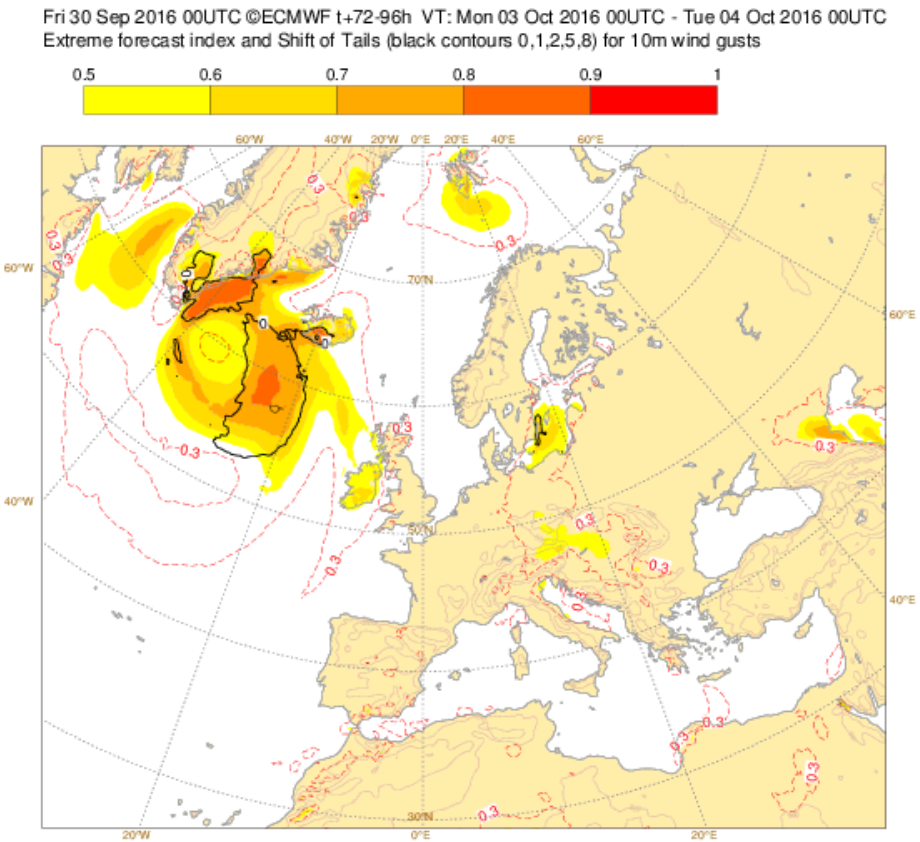
Mon 03/12Z

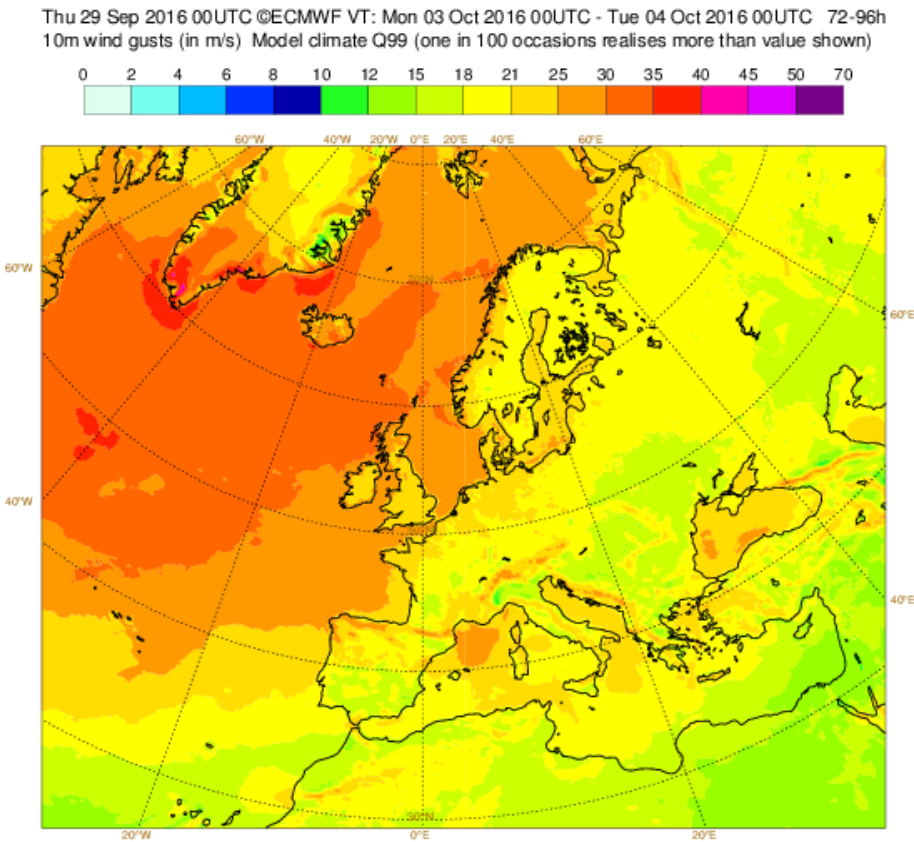






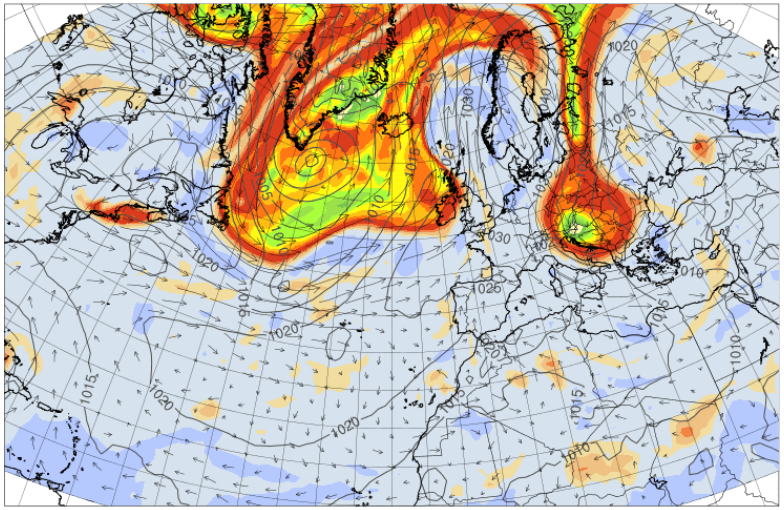
EFI gusts for Mon (BT: 30/00z)





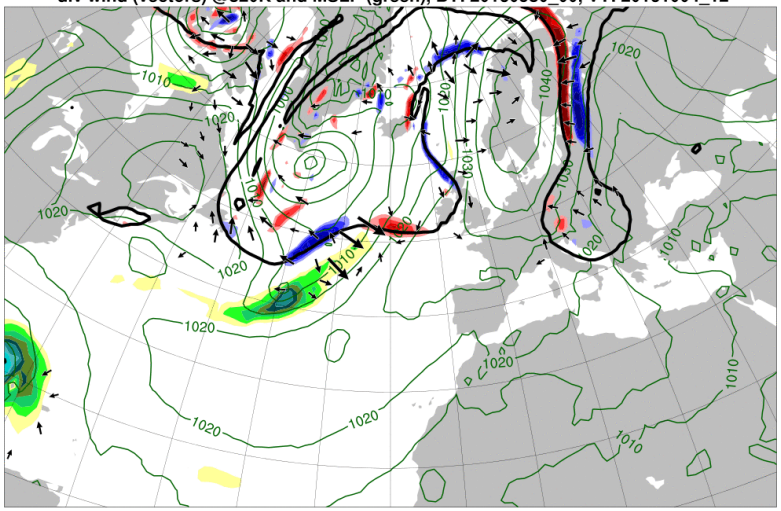
Forecast – 4 Oct 2016, 12UTC

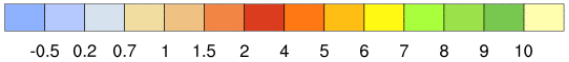
PV@320K at 20161004_12

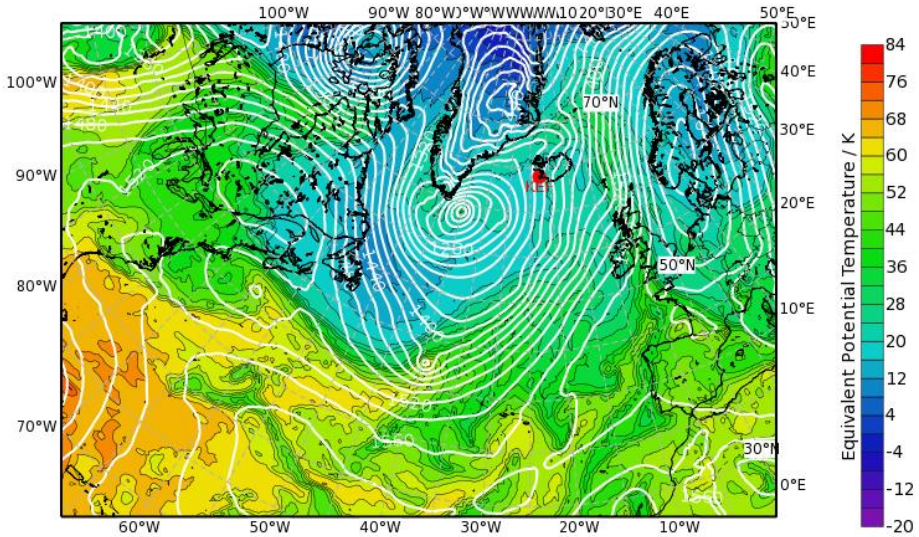


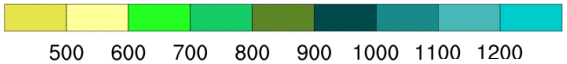
PV320K, irrwind320K, THE850K, trajectories

2 PVU (black), PV adv by div wind (shading),
div wind (vectors) @320K and MSLP (green), BT: 20160930_00, VT: 20161004_12



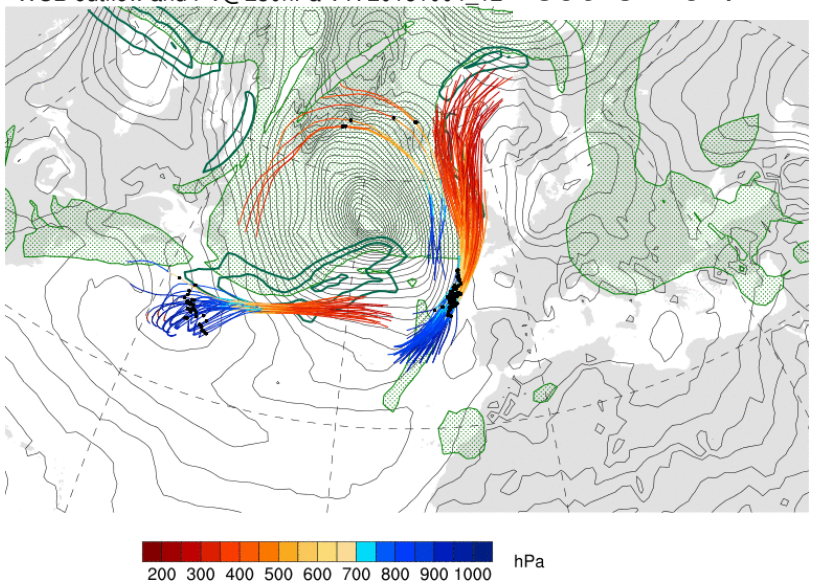






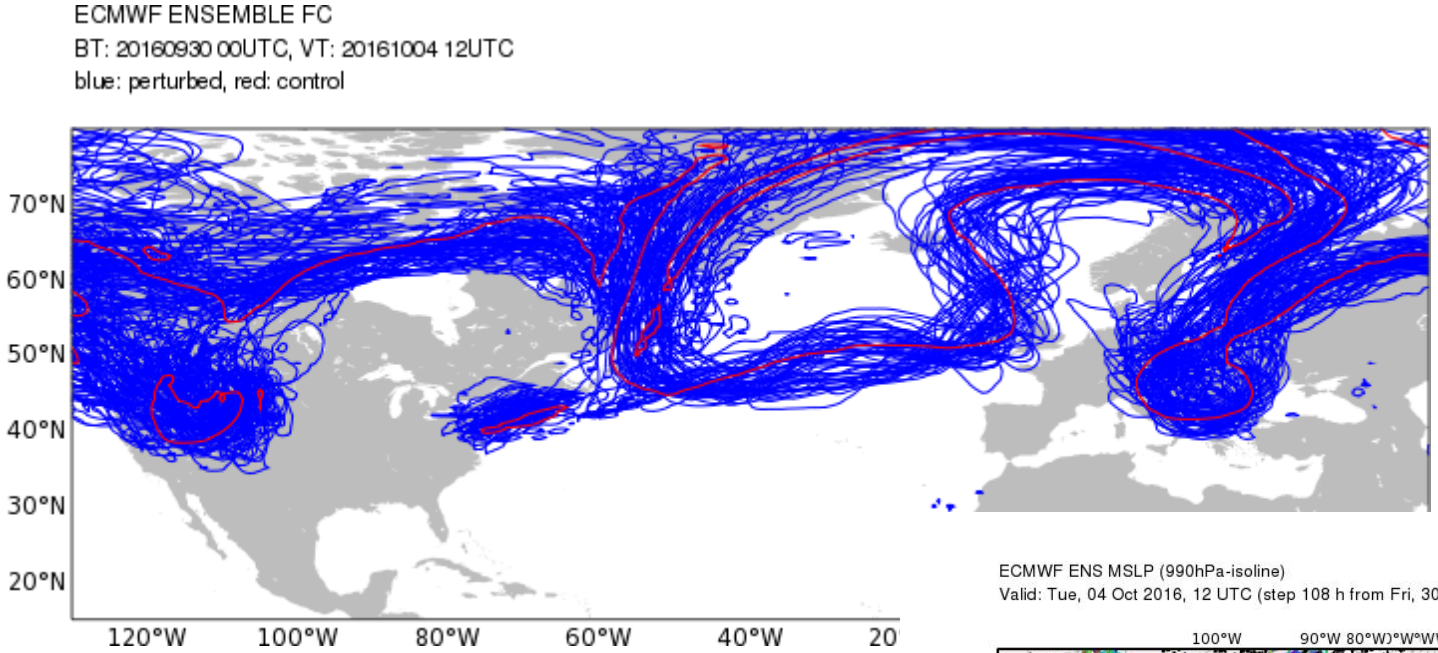
Trajectory start and SLP VT: 20161002_12
WCB outflow and PV@250hPa VT: 20161004_12

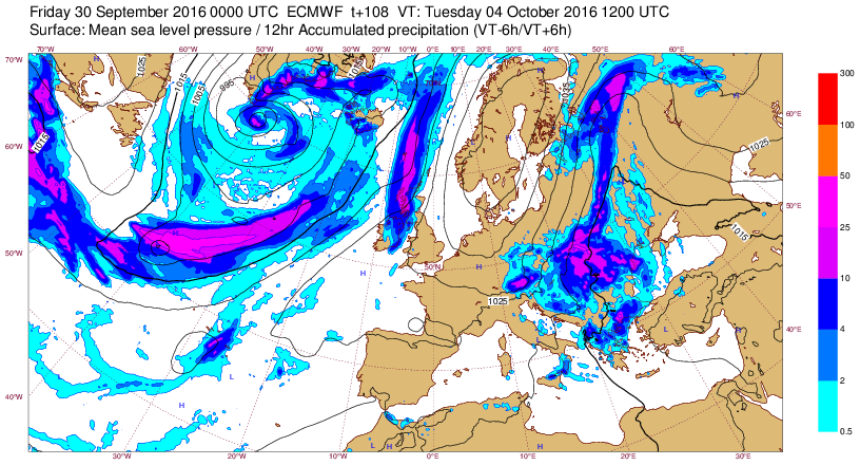
outflow 04/12Z

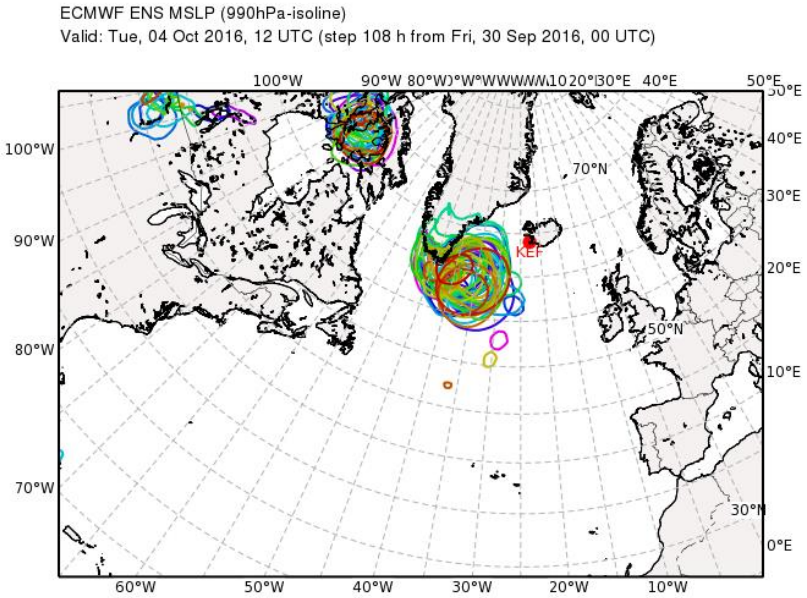


2PVU@320K, MSLP990 Spaghetti (based EC Ens 30/00Z)

Tue 04/12Z



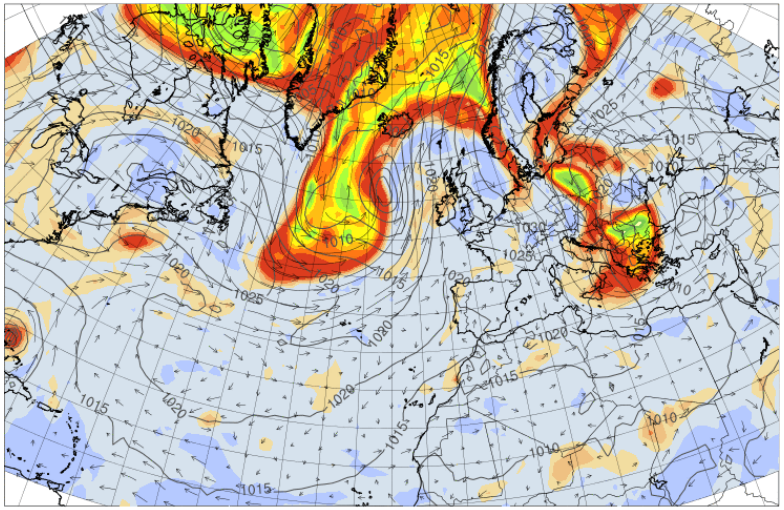




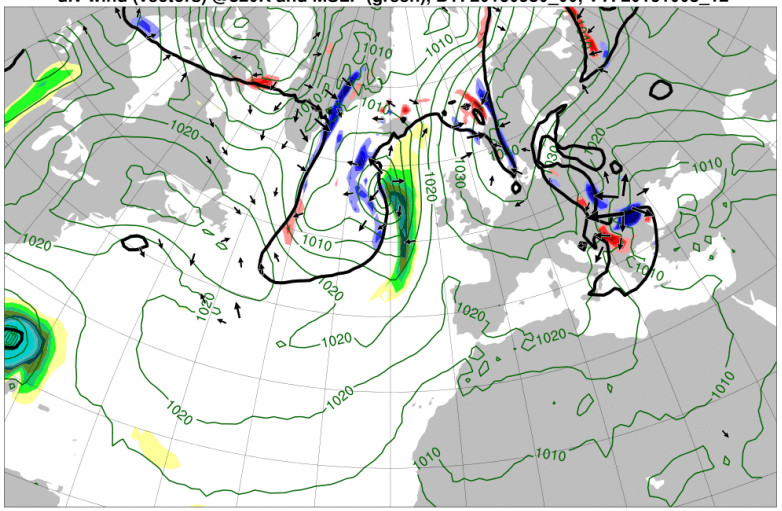
Forecast – 5 Oct 2016, 12UTC

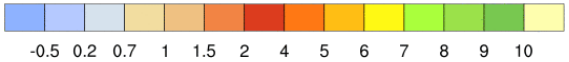
PV320K, irrwind320K, THE850K, trajectories

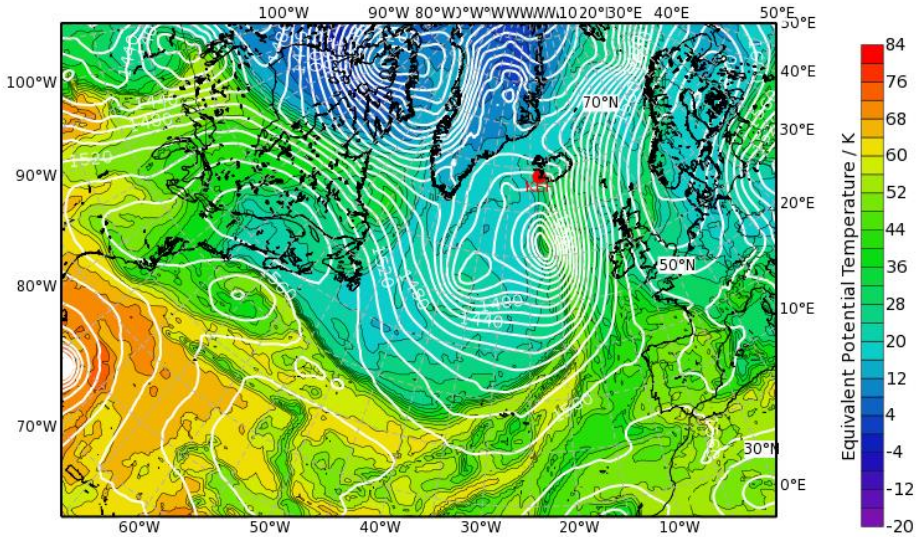
PV@320K at 20161005_12

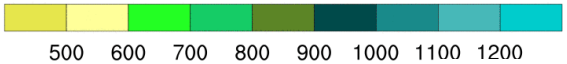


2 PVU (black), PV adv by div wind (shading),
div wind (vectors) @320K and MSLP (green), BT: 20160930_00, VT: 20161005_12



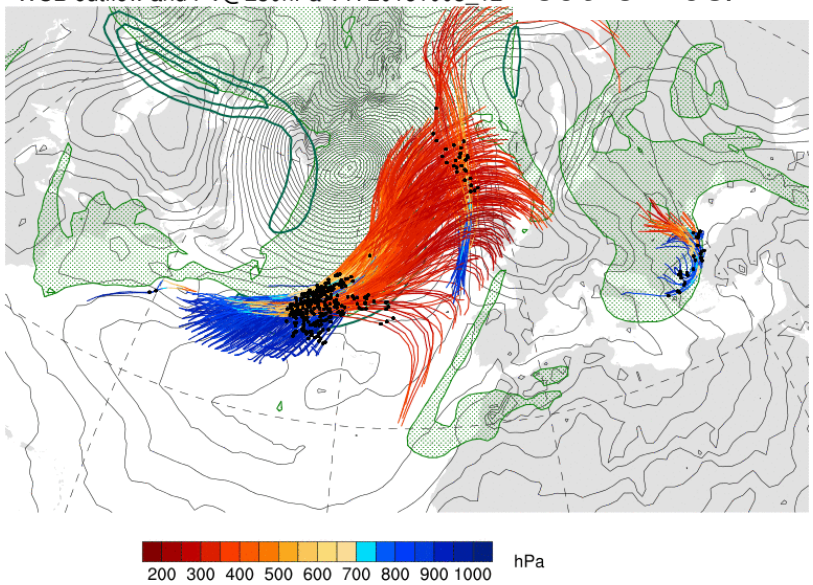






Trajectory start and SLP VT: 20161003_12
WCB outflow and PV@250hPa VT: 20161005_12

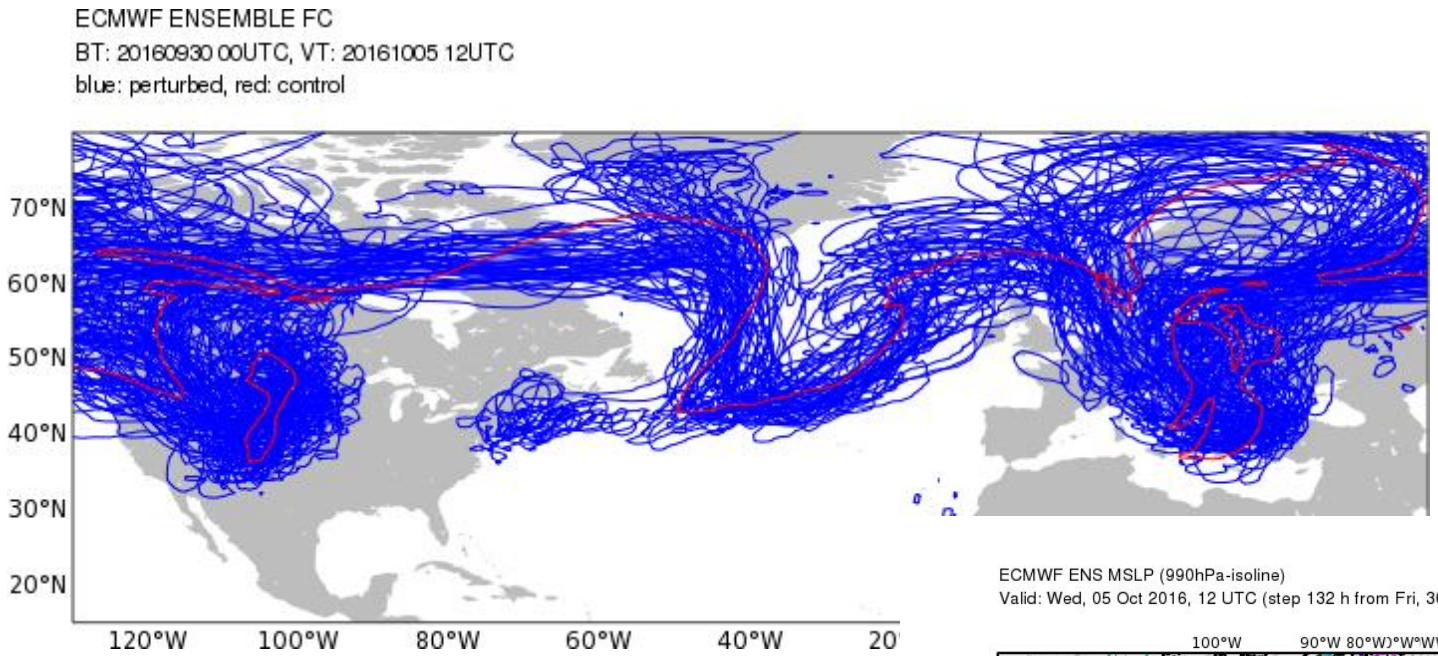
outflow 05/12Z

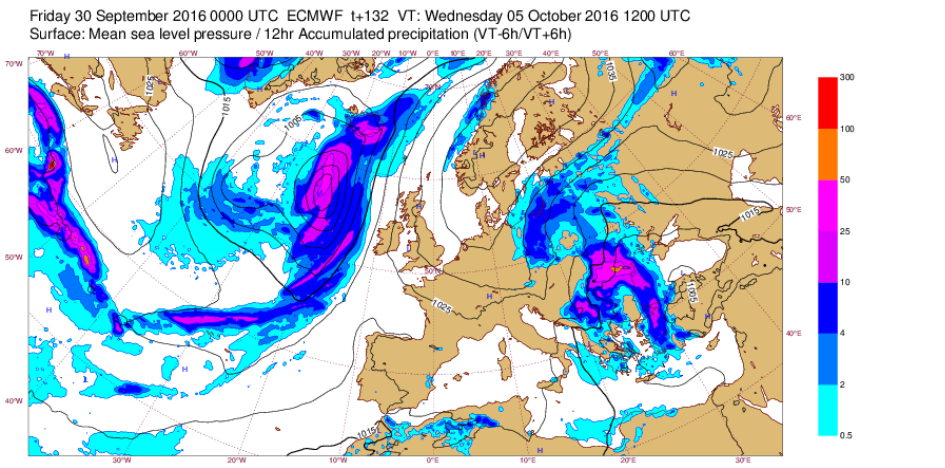


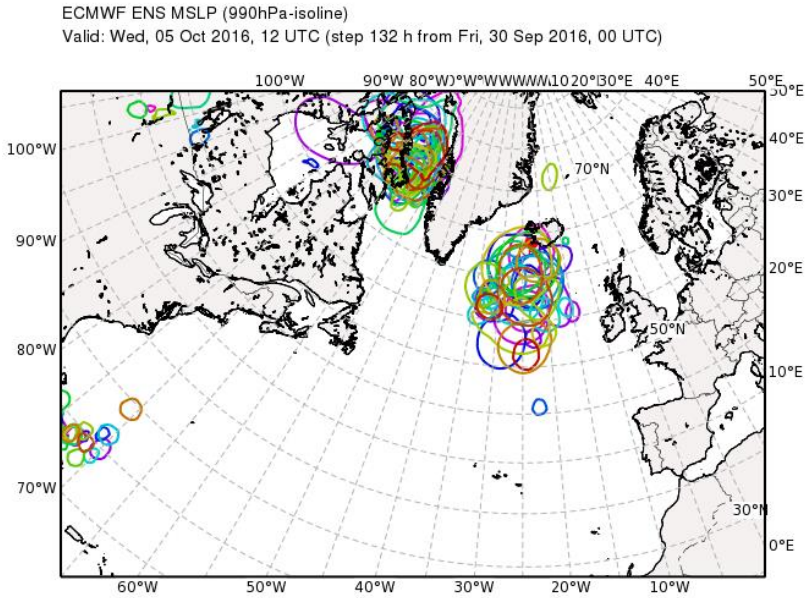
BT30/00Z

2PVU@320K, MSLP990 Spaghetti (based EC Ens 30/00Z)

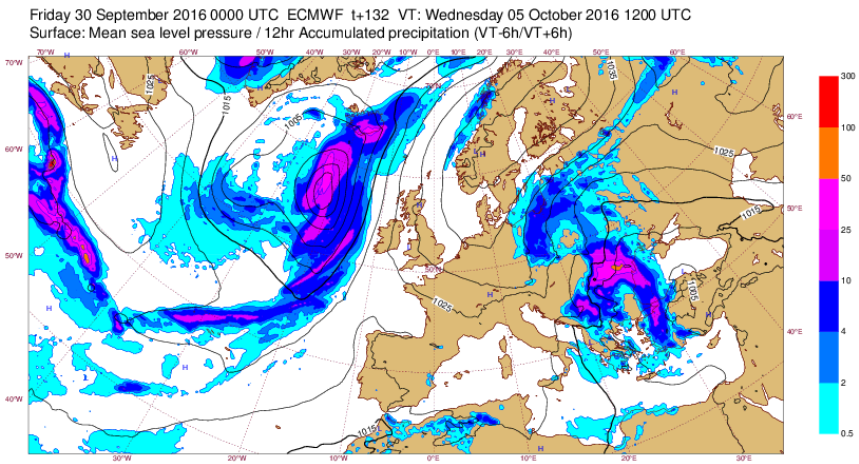
Wed 05/12Z



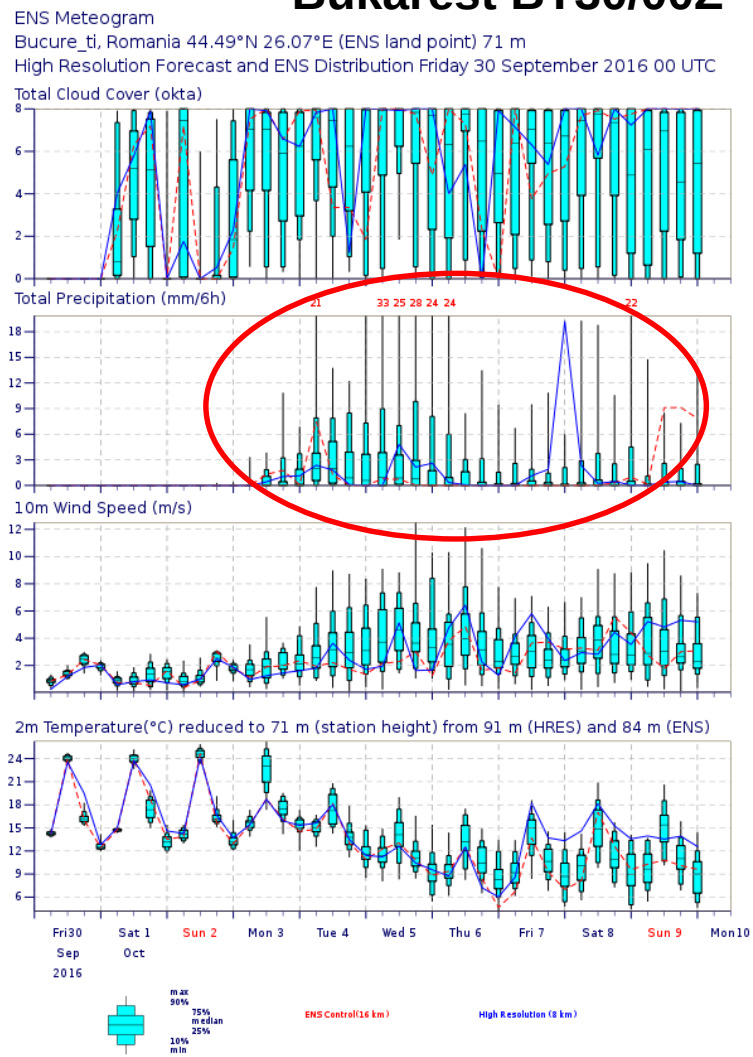




Potential downstream HIW in eastern Europe

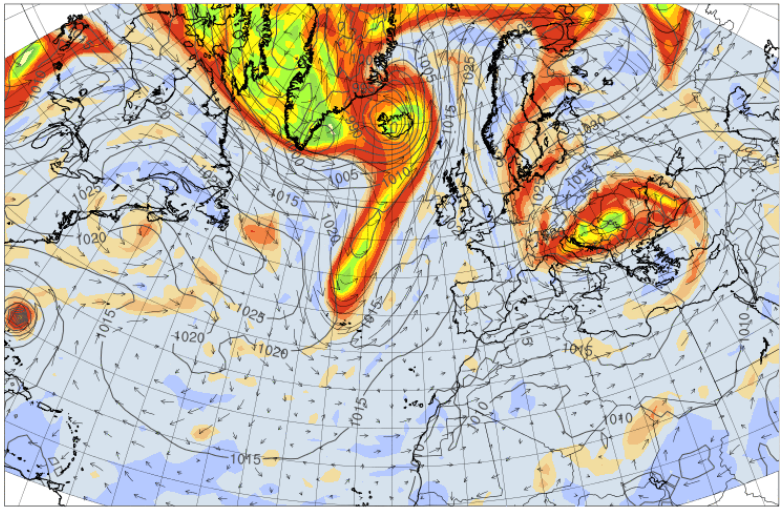


Bukarest BT30/00Z



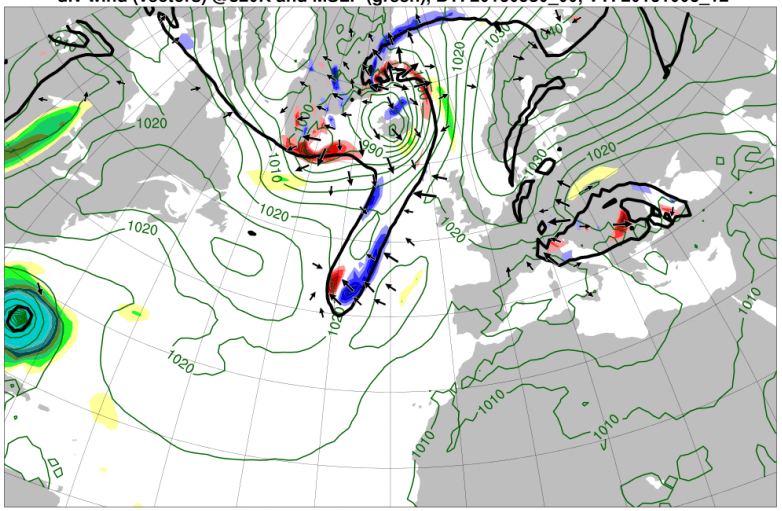
Forecast – 6 Oct 2016, 12UTC

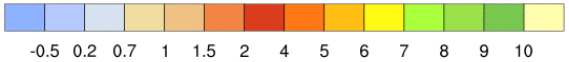
PV@320K at 20161006_12

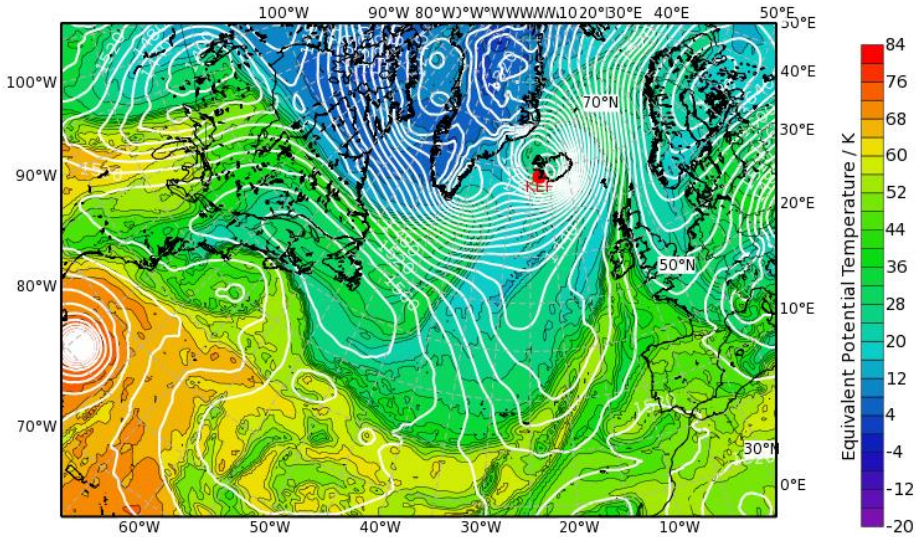


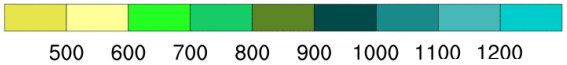
PV320K, irrwind320K, THE850K, trajectories

2 PVU (black), PV adv by div wind (shading),
div wind (vectors) @320K and MSLP (green), BT: 20160930_00, VT: 20161006_12



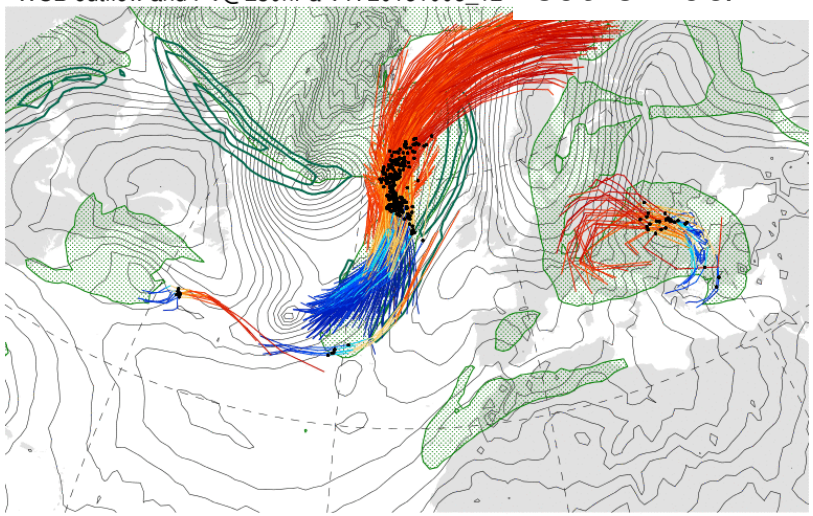






Trajectory start and SLP VT: 20161004_12
WCB outflow and PV@250hPa VT: 20161006_12

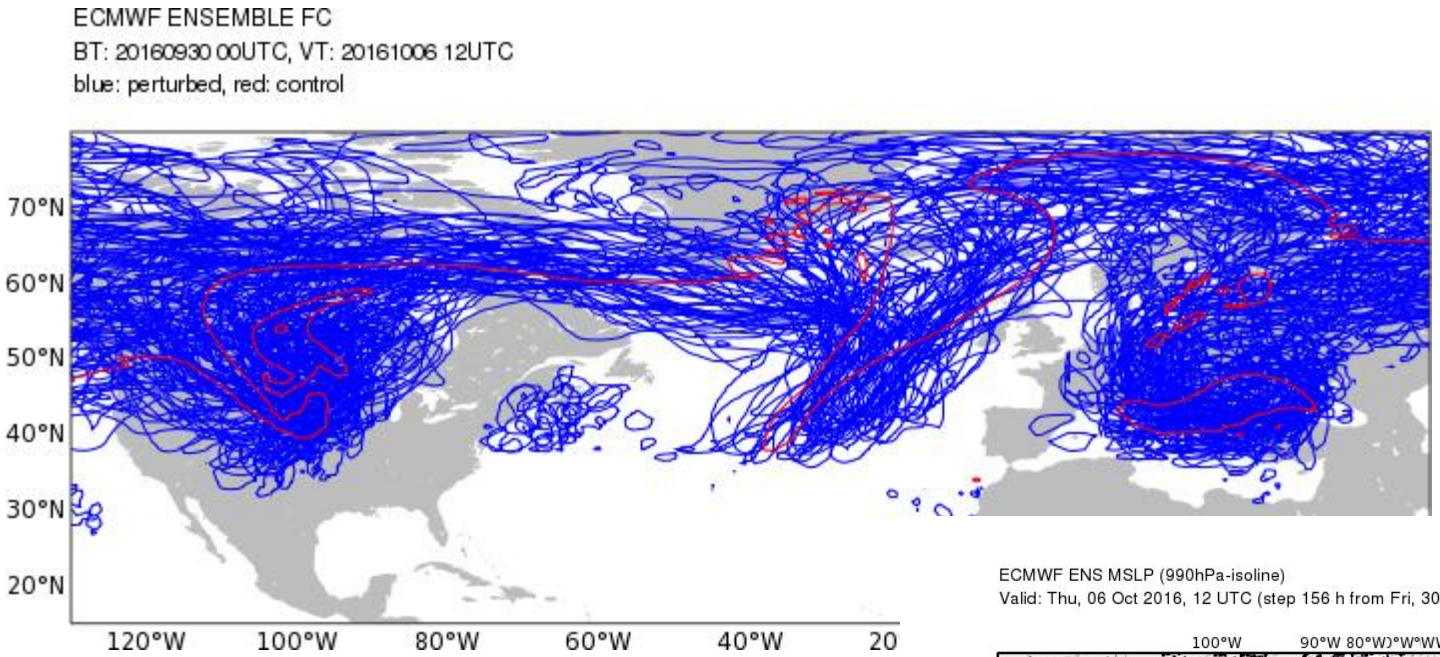
outflow 06/12Z

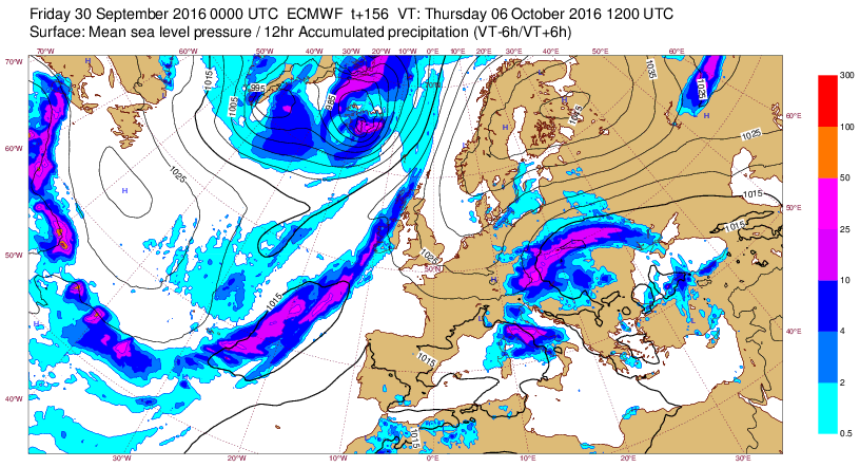


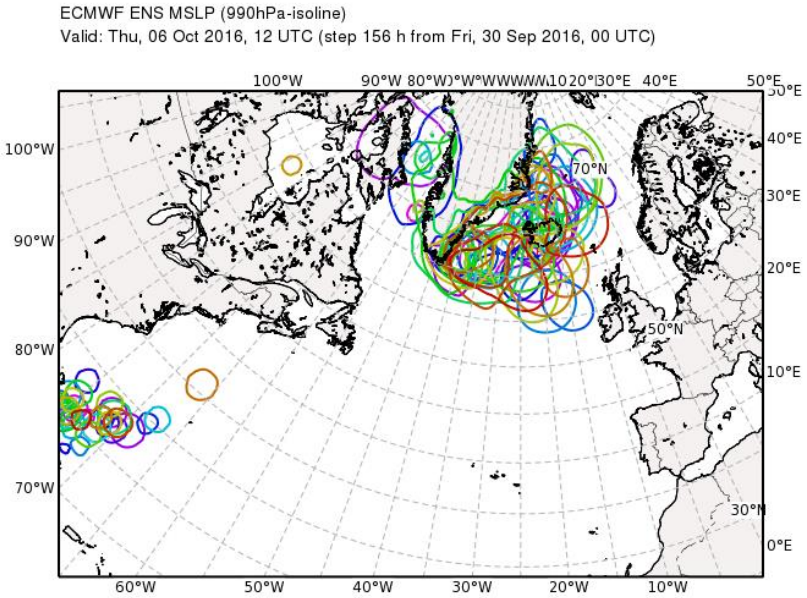
BT30/00Z

2PVU@320K, MSLP990 Spaghetti (based EC Ens 30/00Z)

Thu 06/12Z



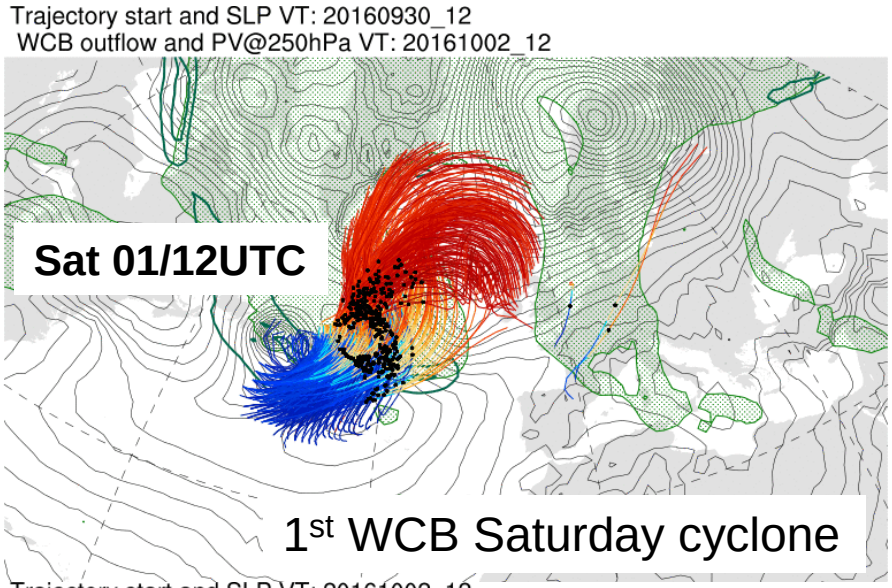


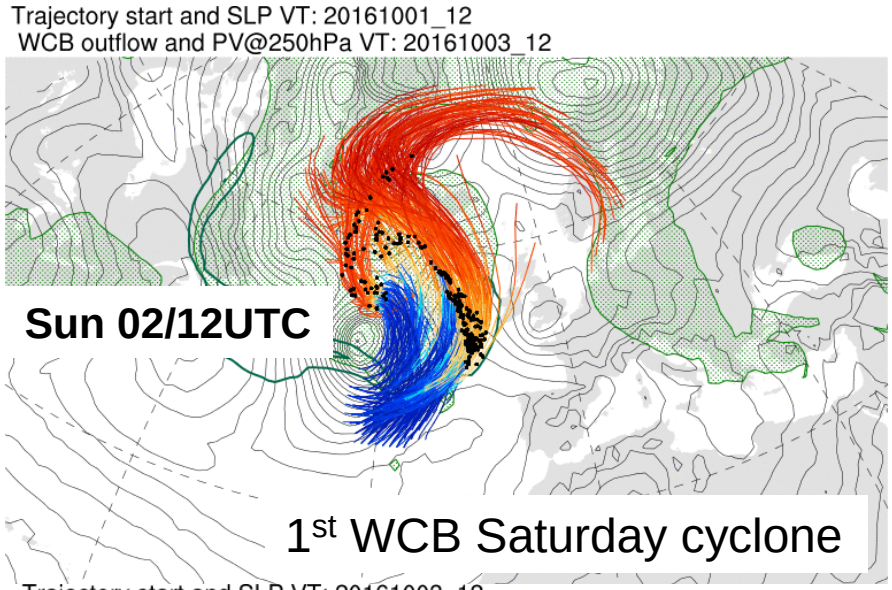


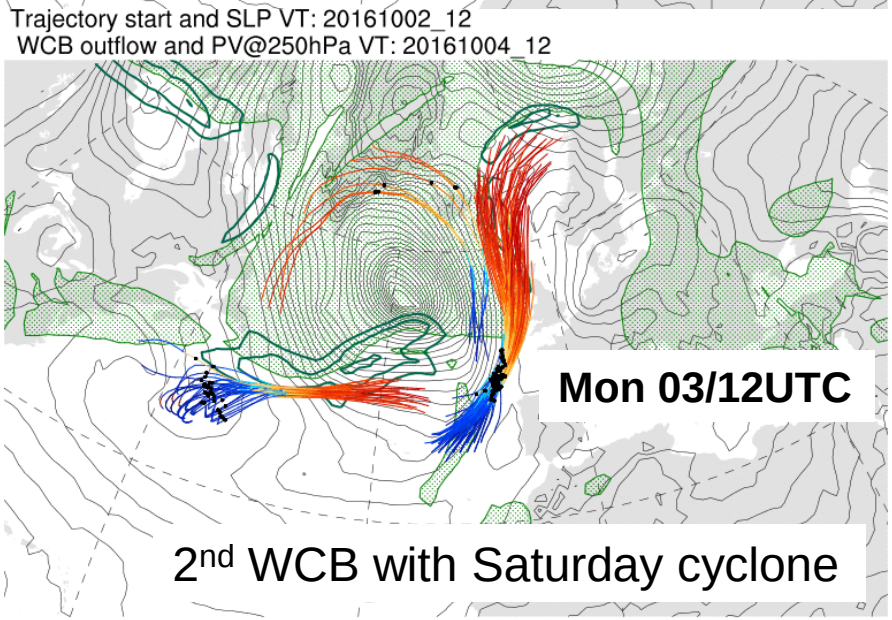
Summary upcoming WCB activity

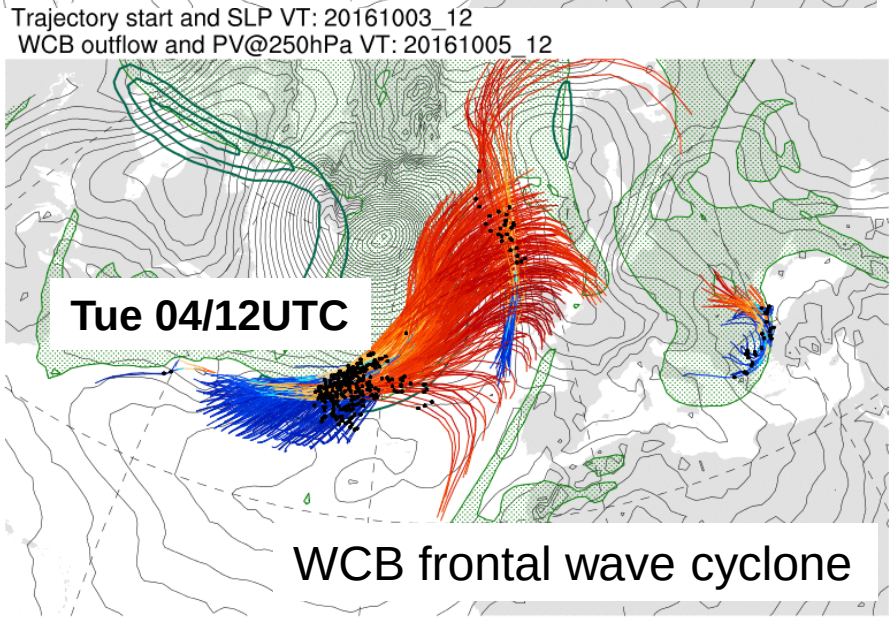
WCB activity Sat-Tue 1-4 Oct 2016

labels for ascent times **BT30/00Z**

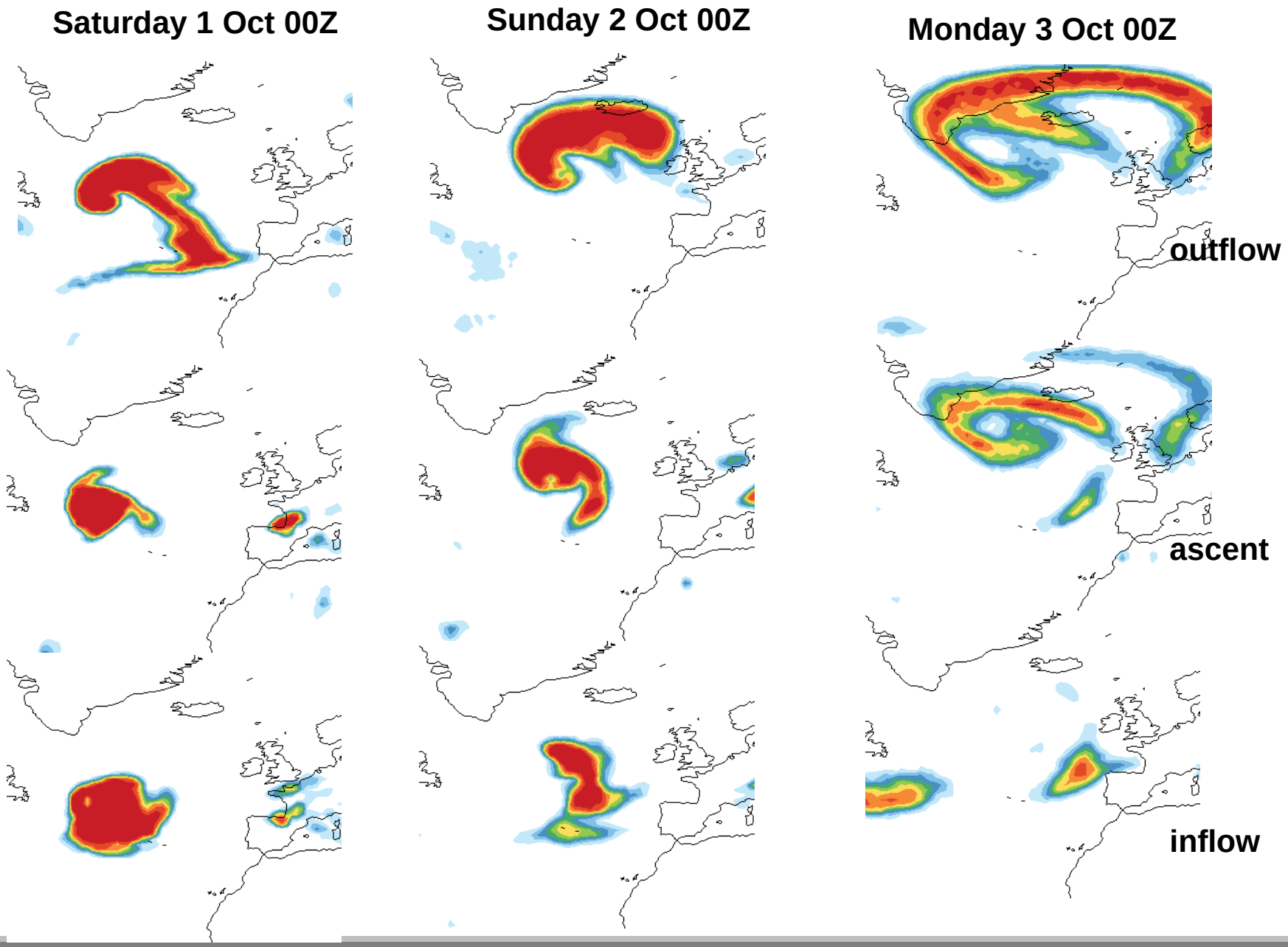








WCB Ens probablities

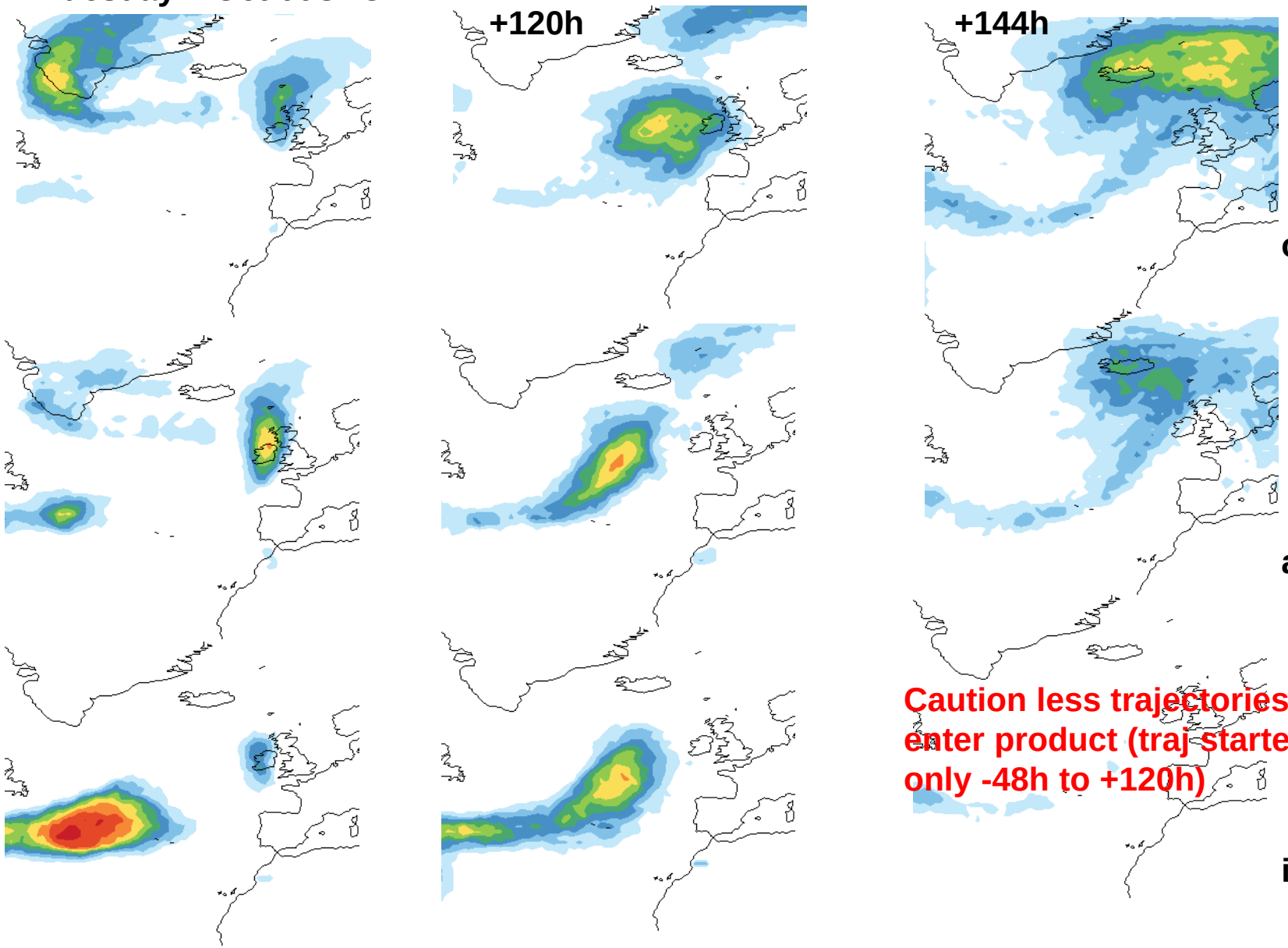


WCB Ens probablities

Tuesday 4 Oct 00UTC

Wed 5 Oct 00UTC +120h

Thu 6 Oct 00UTC +144h



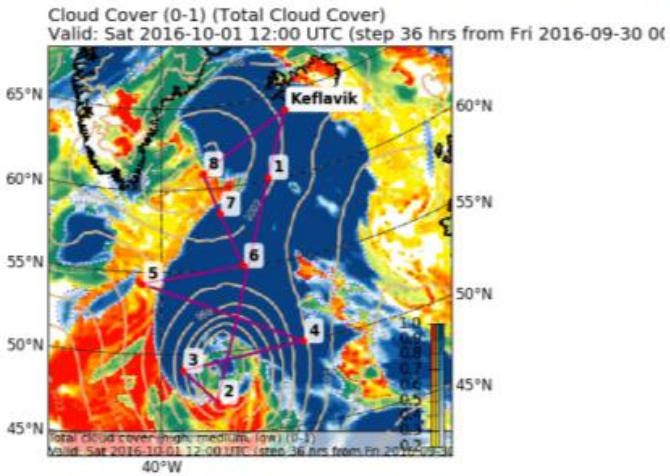
Caution less trajectories enter product (traj started only -48h to +120h)

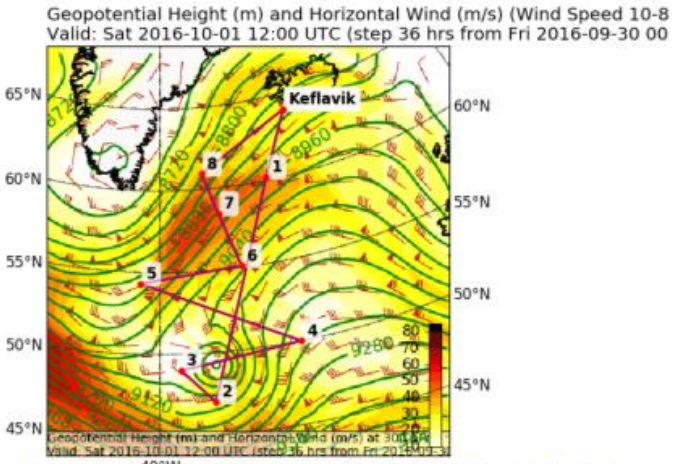
Saturday 1 October IOP6

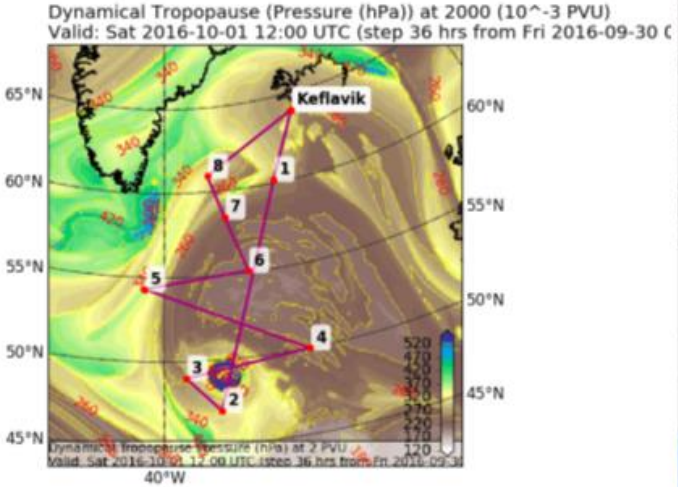
HALO flight

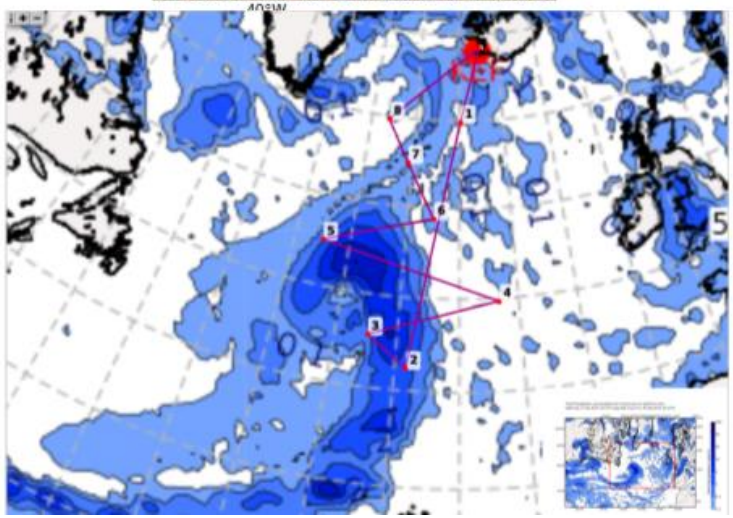
Saturday 1 October IOP6

Flight Plan for Sat (1. October)
Valid time: 12 UTC



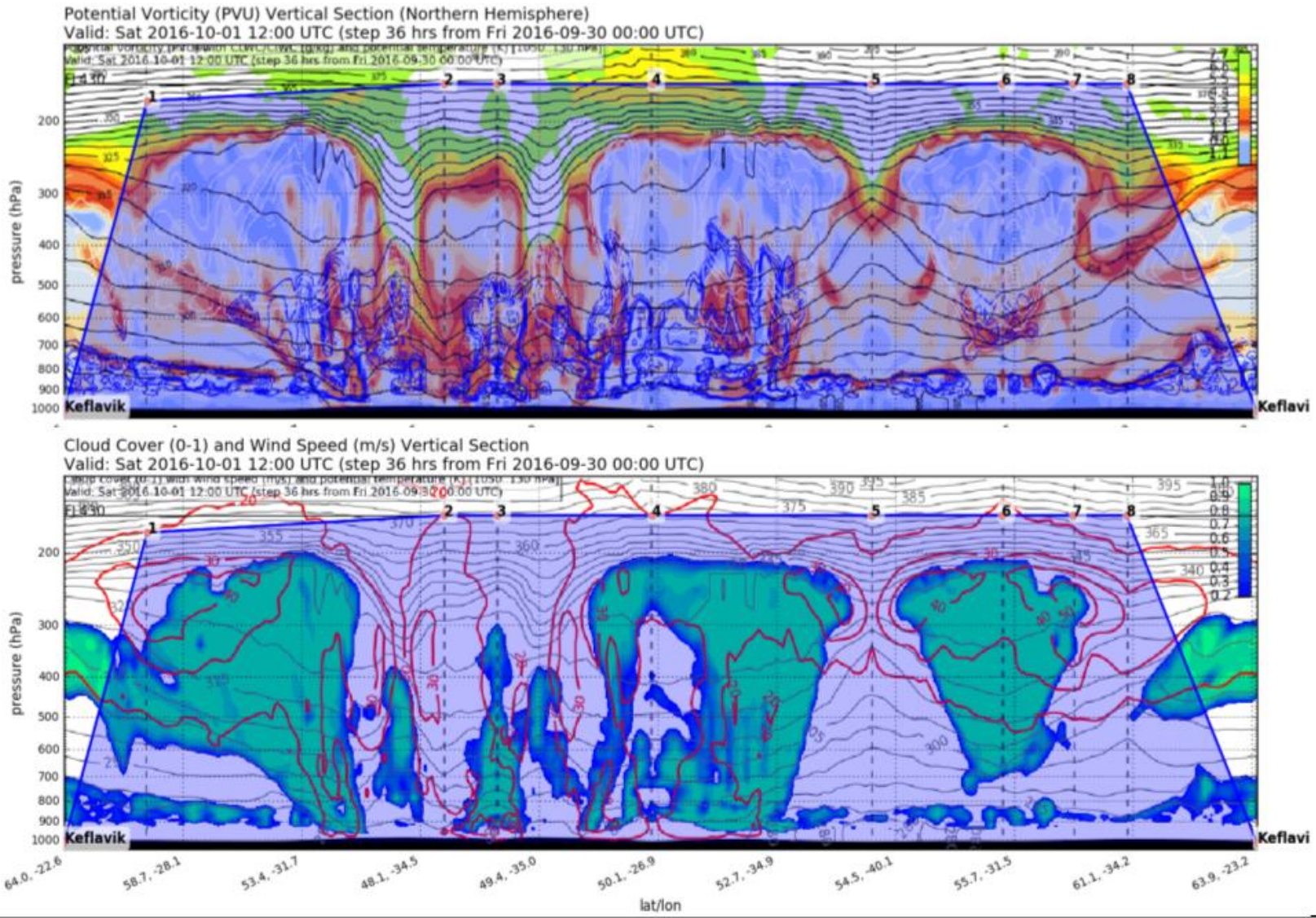




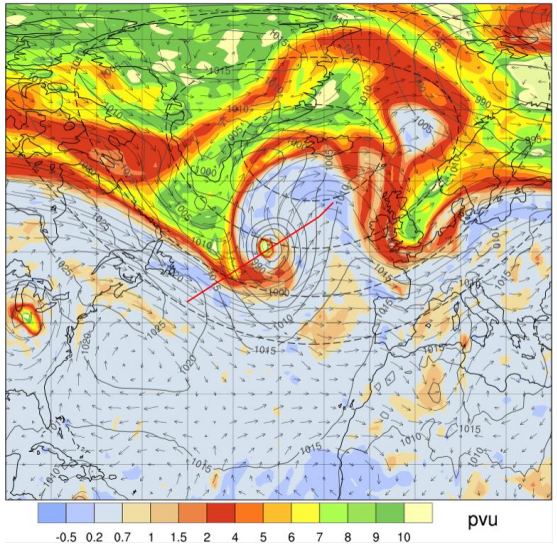


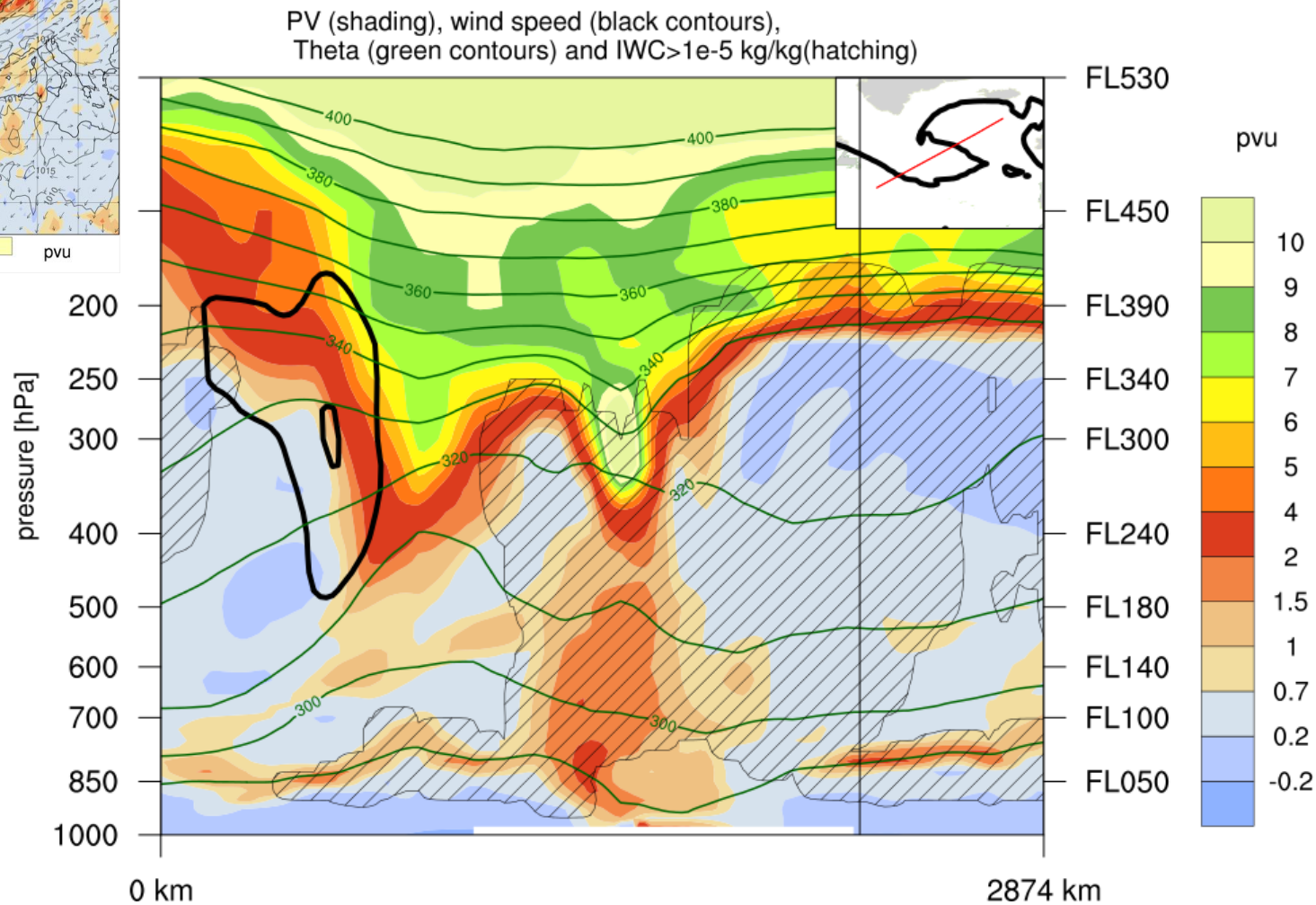
Saturday 1 October IOP6

Valid time: 12 UTC

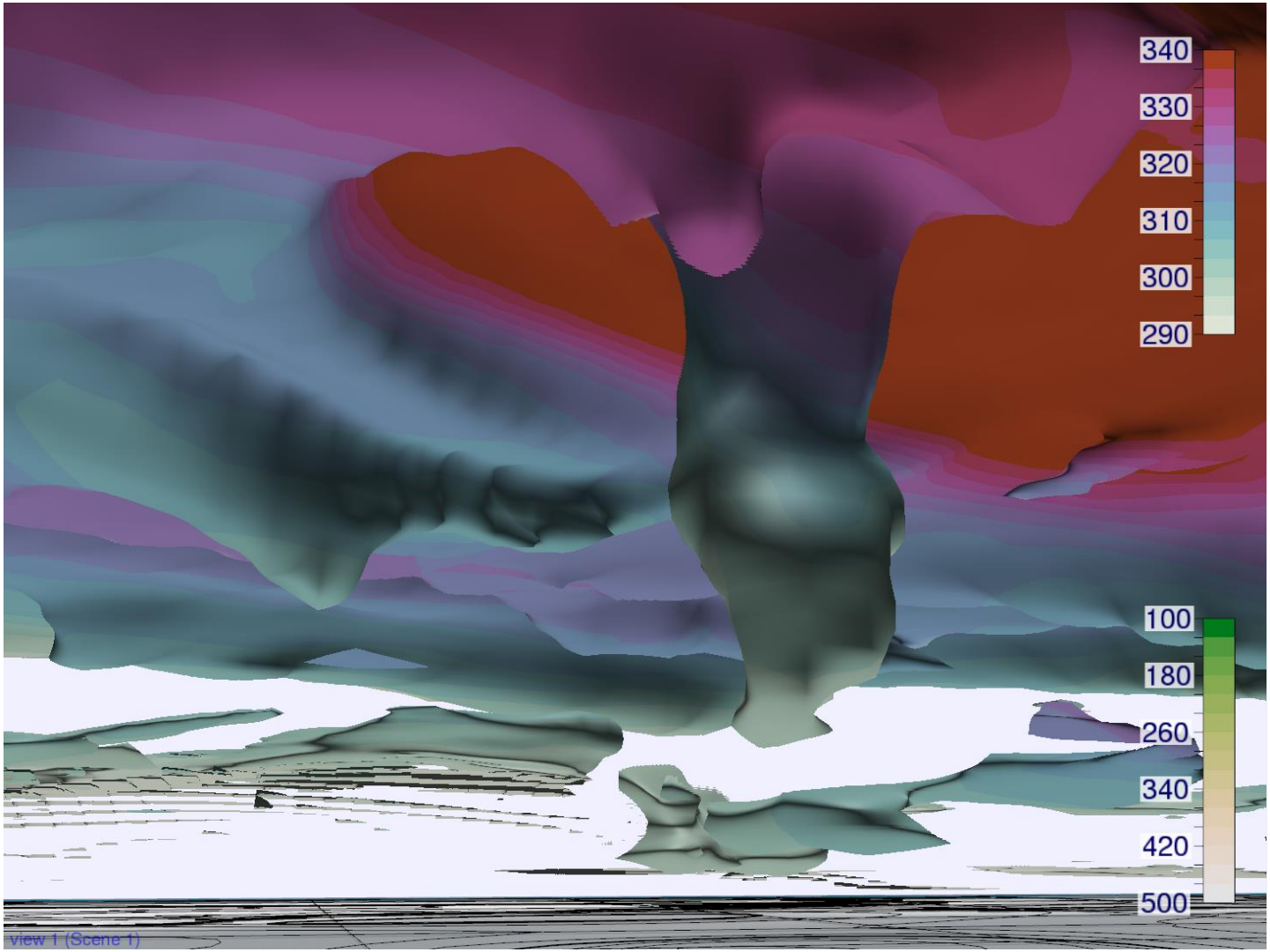


Forecast – Saturday cyclone, 01/10 18 UTC

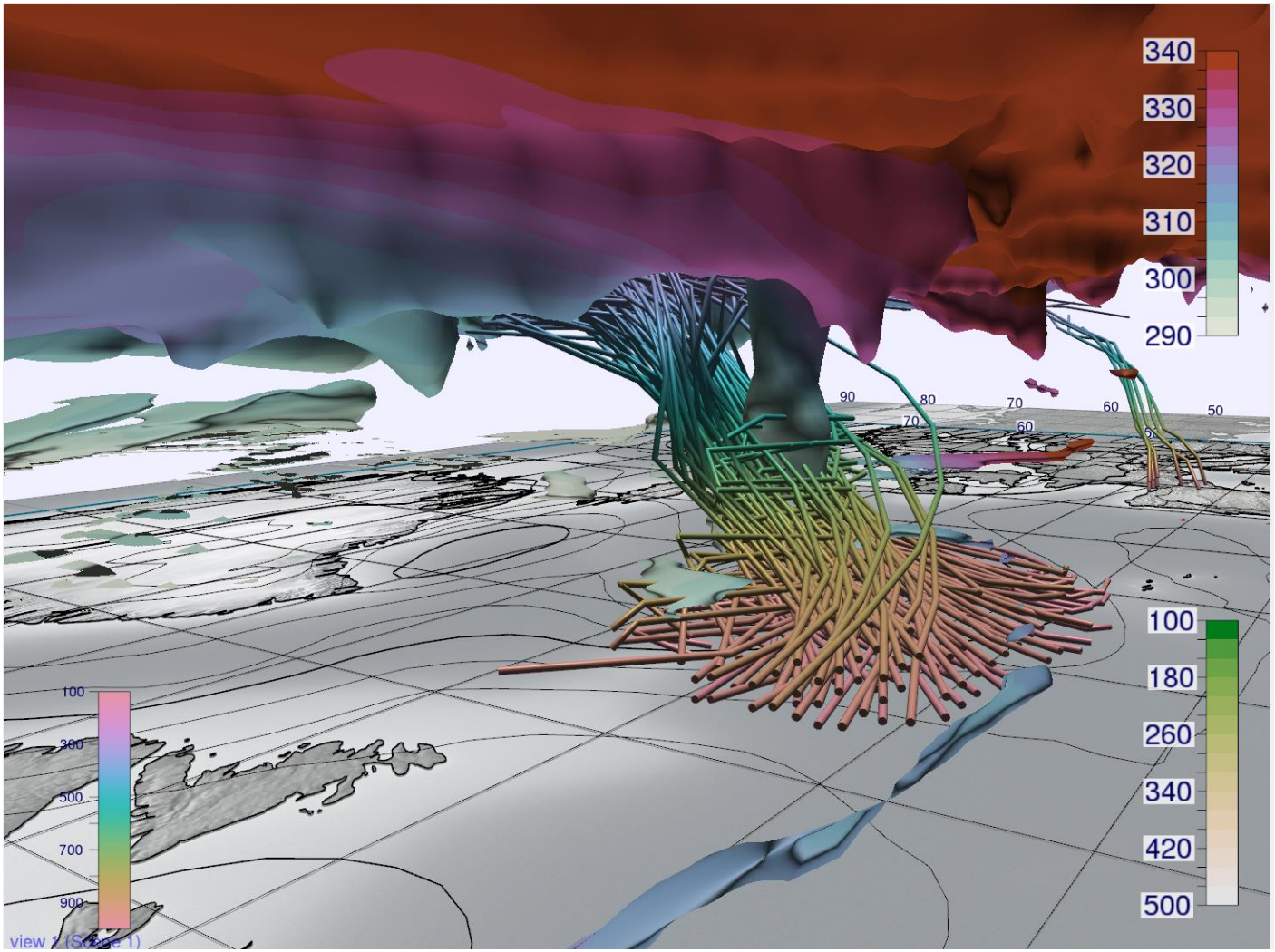




Forecast – Saturday cyclone, 01/10 18 UTC



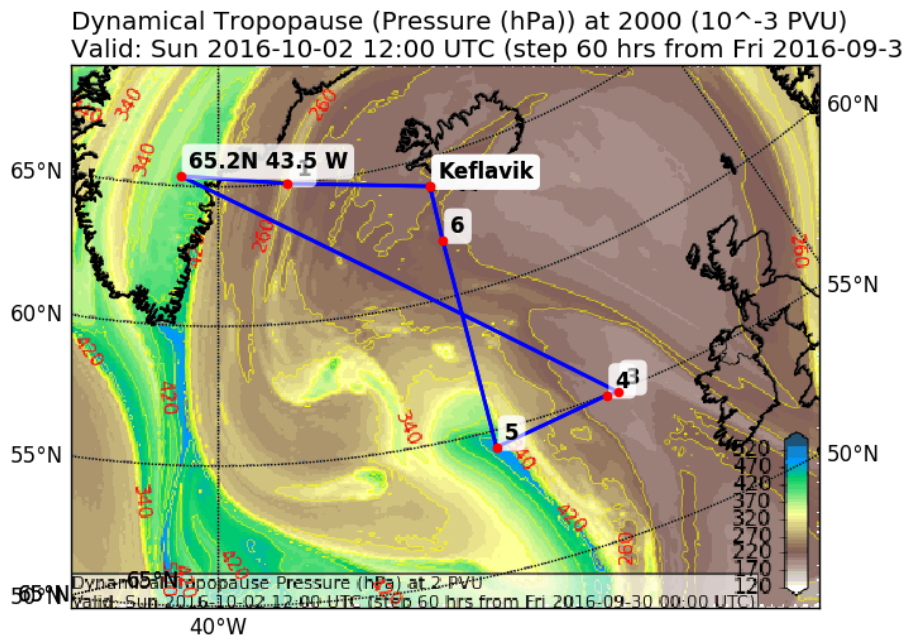
Forecast – Saturday cyclone, 01/10 18 UTC

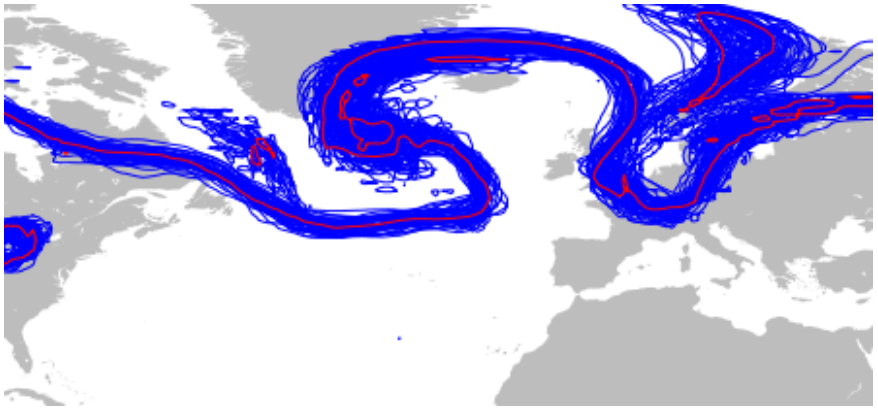


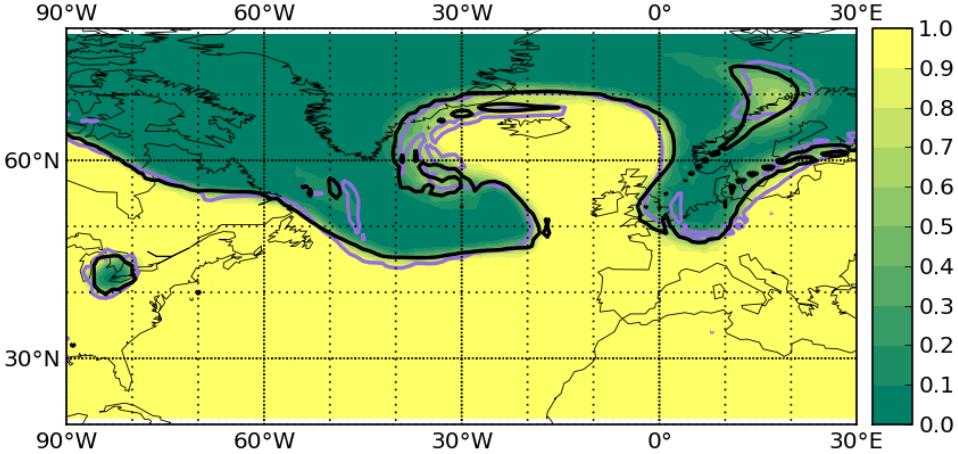
Sunday 2 October IOP7

HALO, FALCON, SAFIRE flights

Sunday 2 October IOP7: uncertainty in wave guide





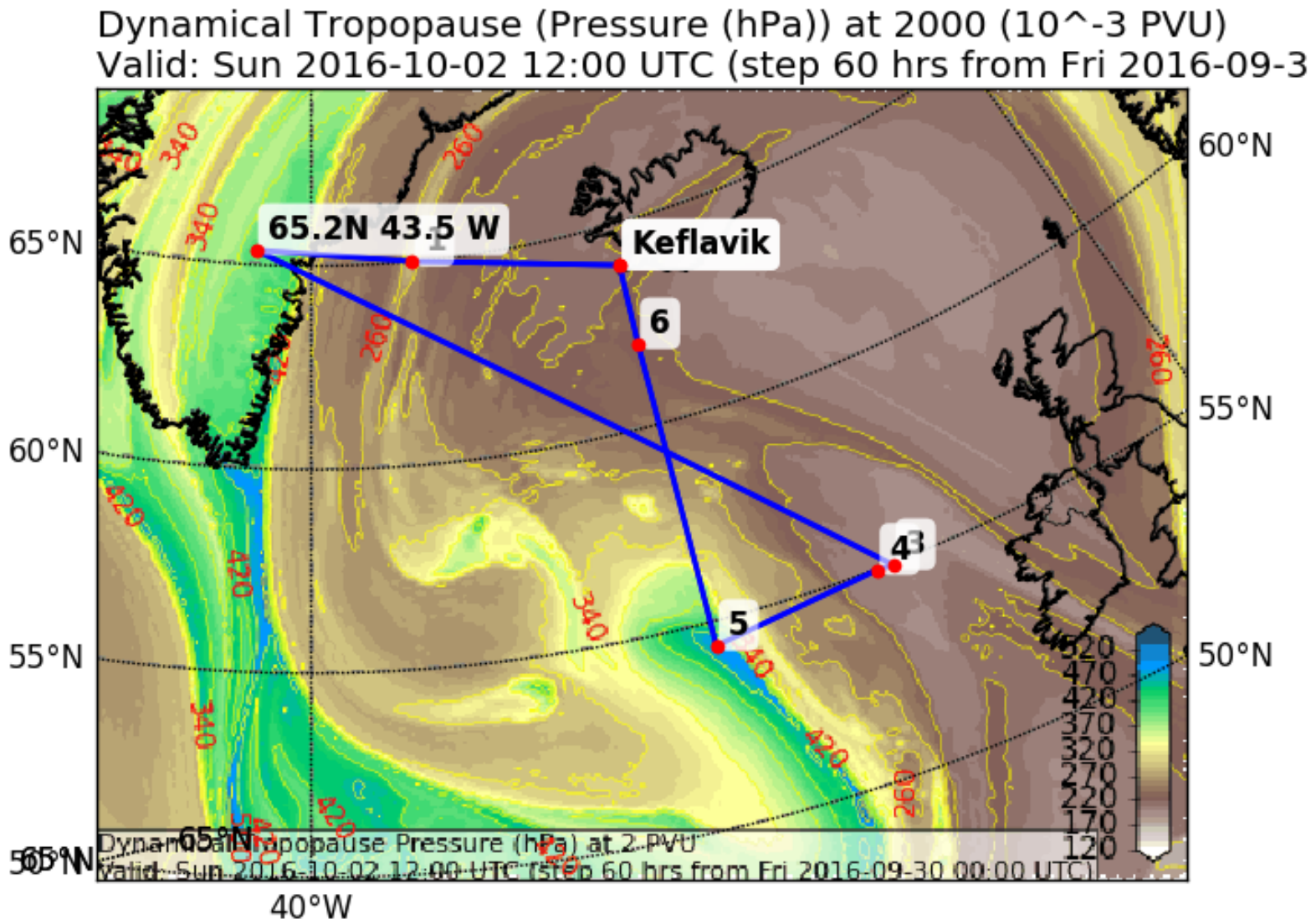


IOP7: HALO, French- and DLR Falcon flights on Sunday 2 Oct

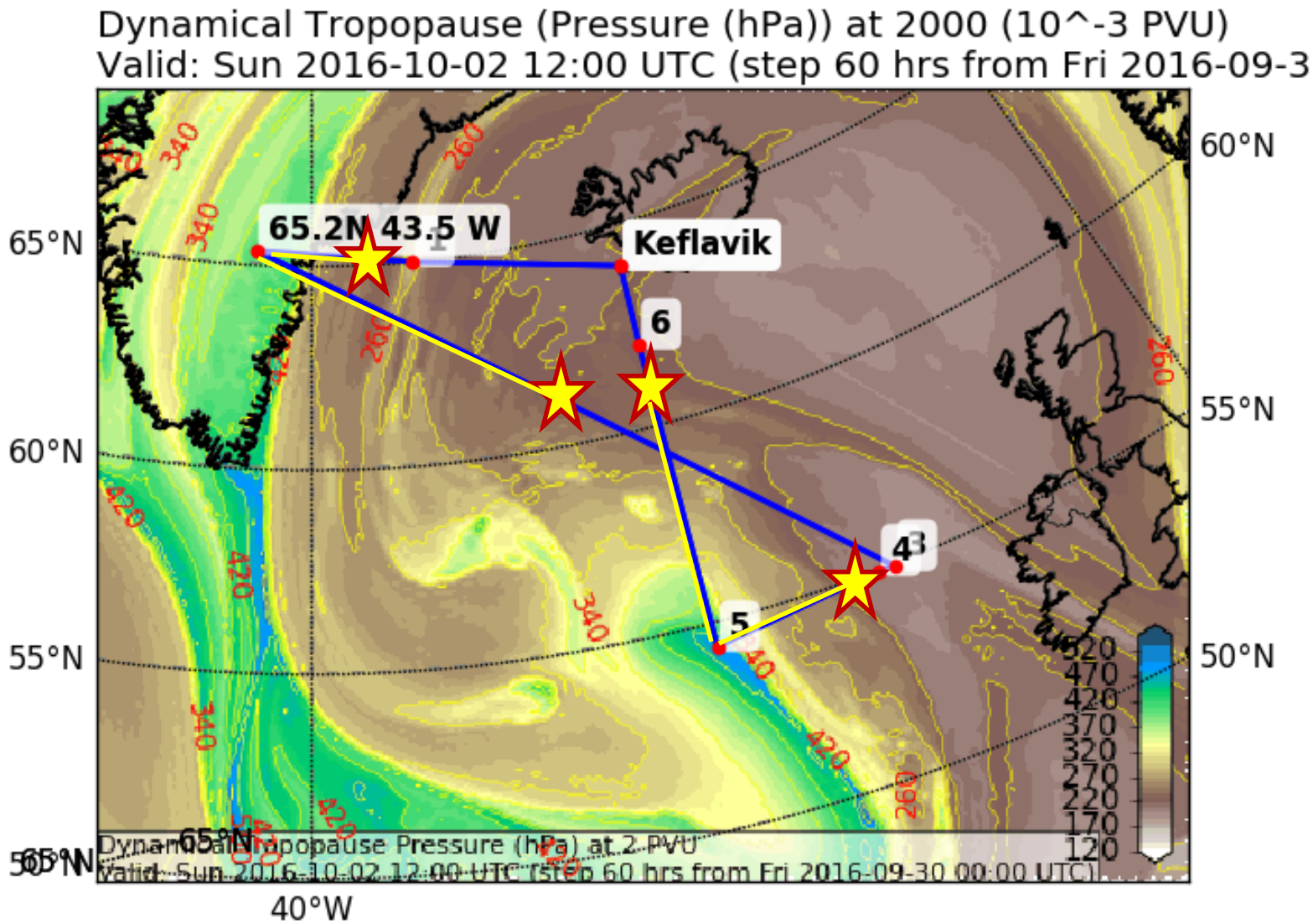
Take-off:

- DLR Falcon 8:20 UTC
- French Falcon 8:30 UTC
- Halo 8:40 UTC

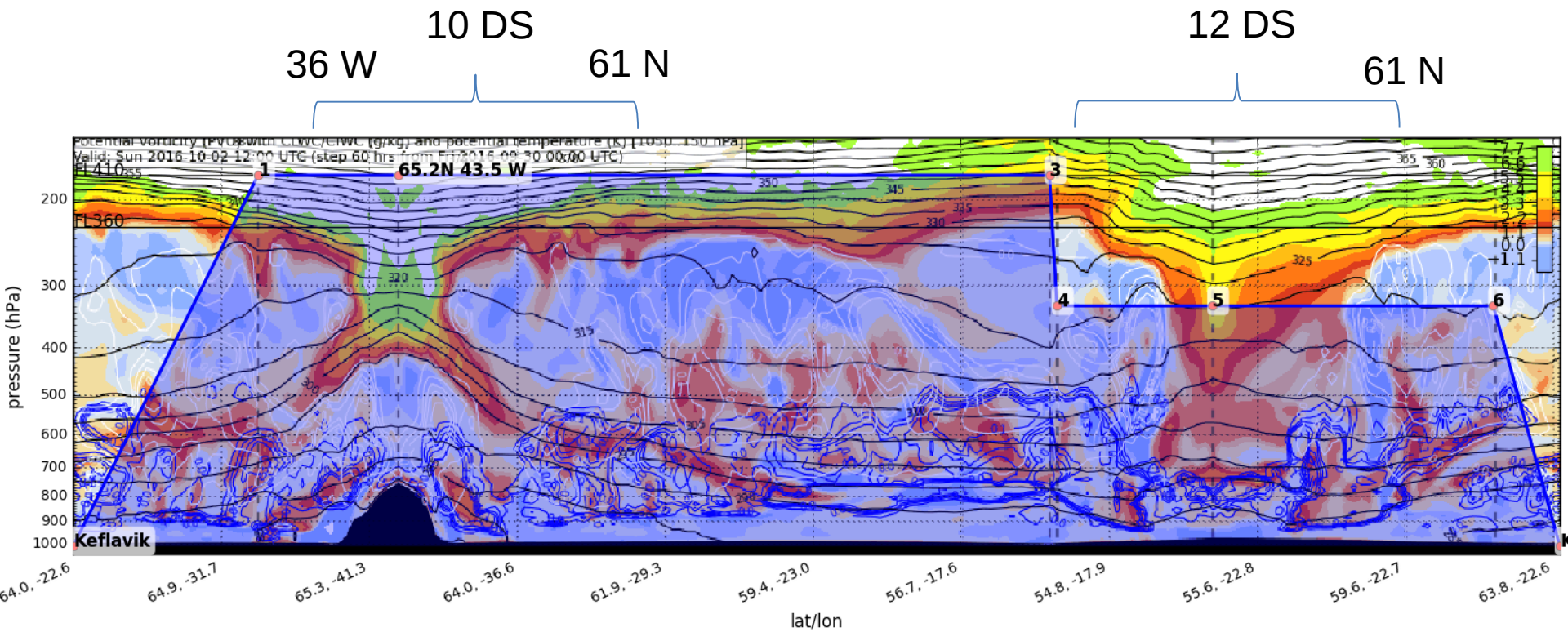
IOP7: HALO flight



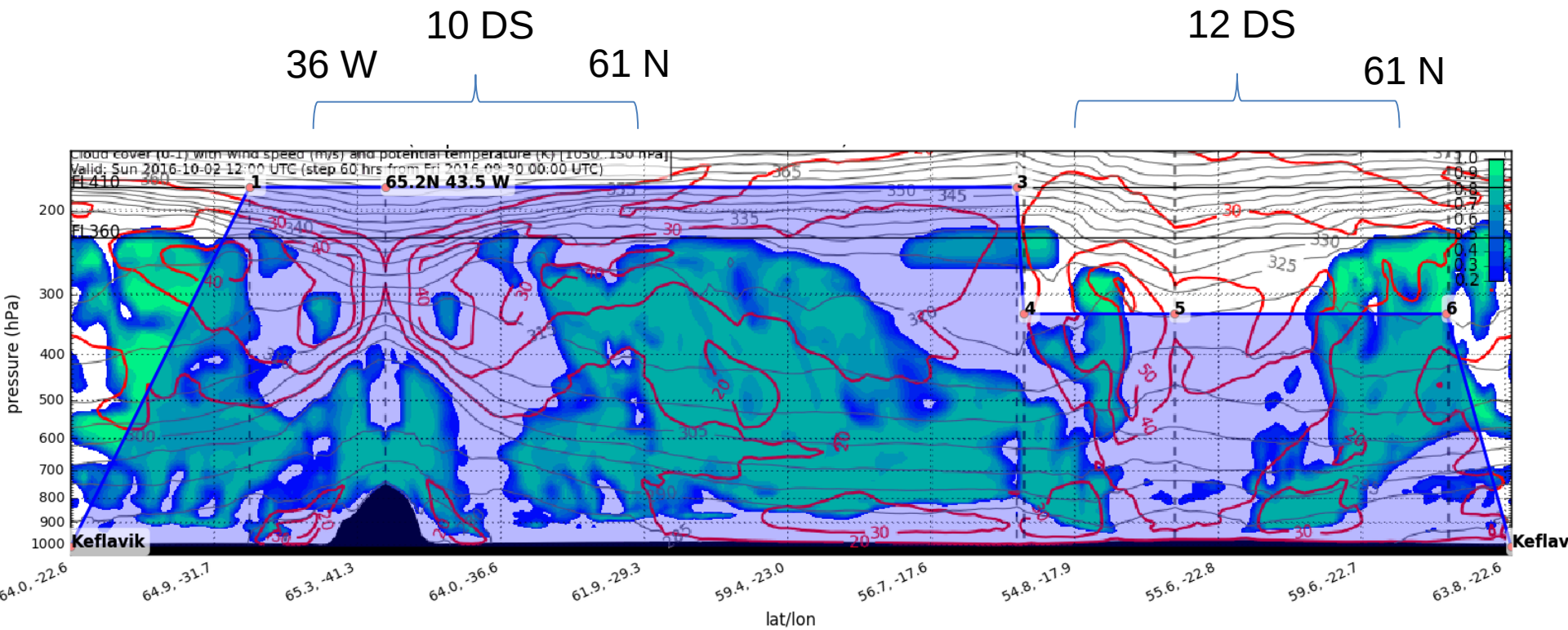
IOP7: HALO flight - dropsondes



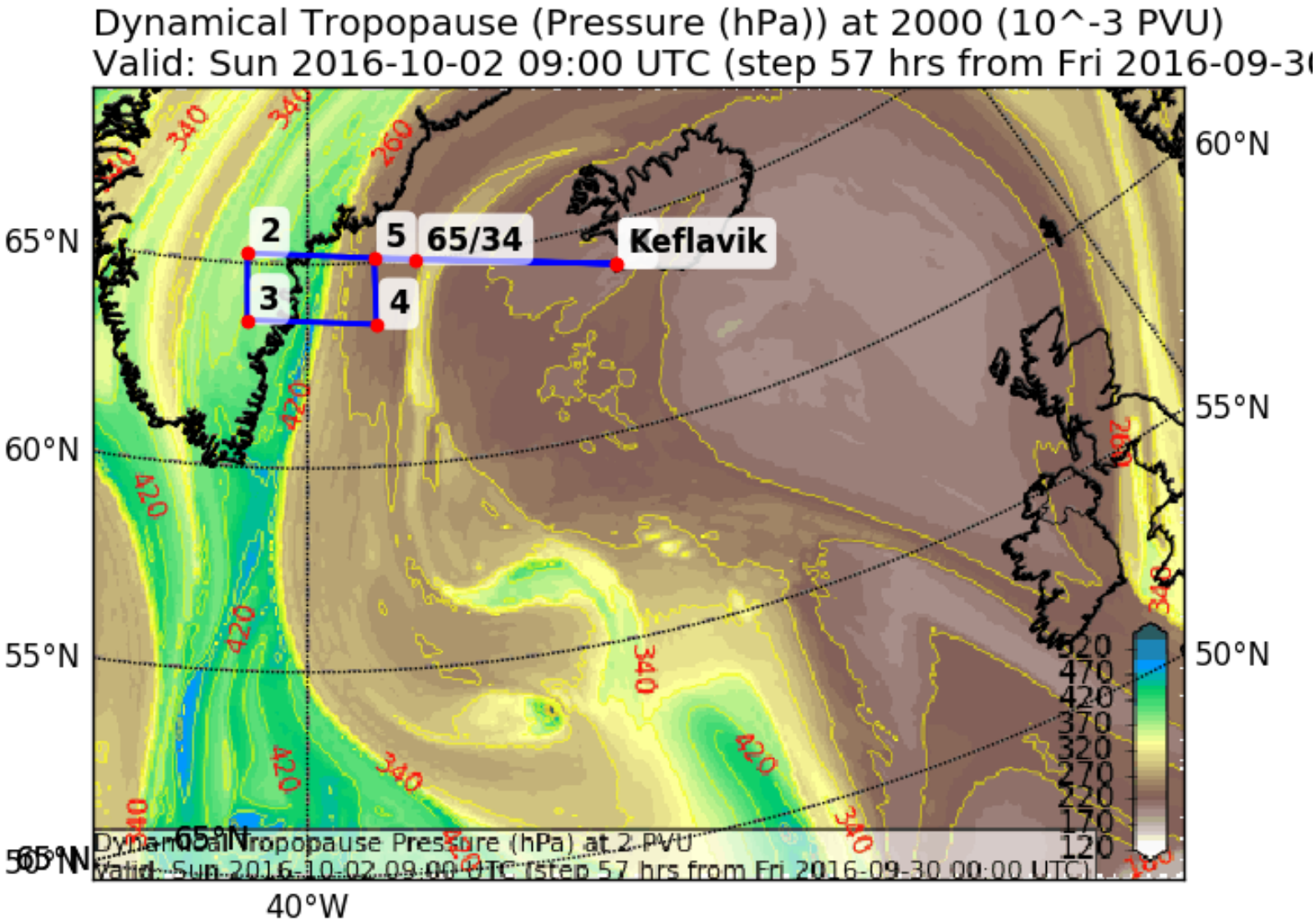
IOP7: HALO flight - dropsondes



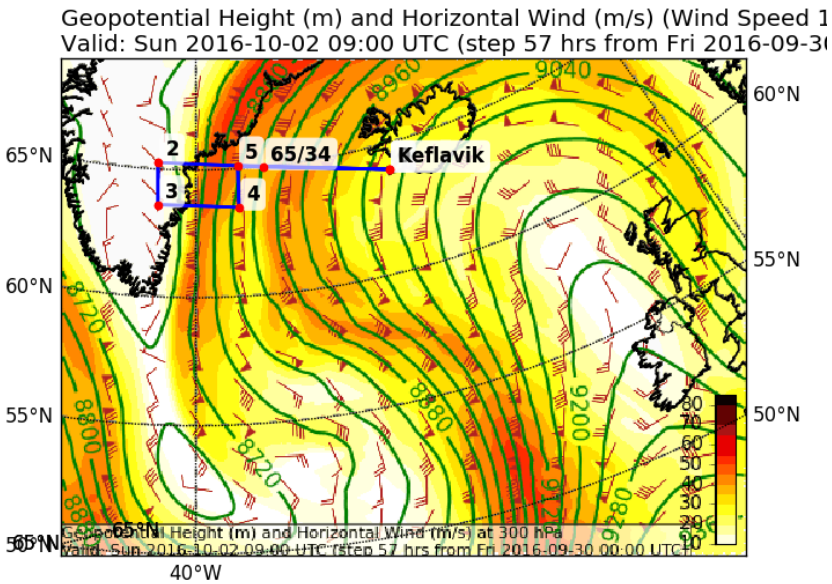
IOP7: HALO flight - dropsondes

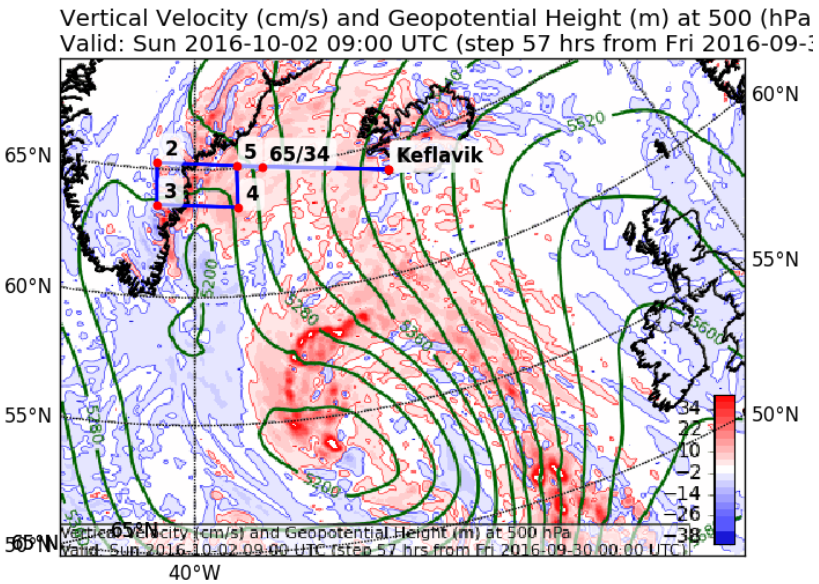


IOP7: Falcons flight

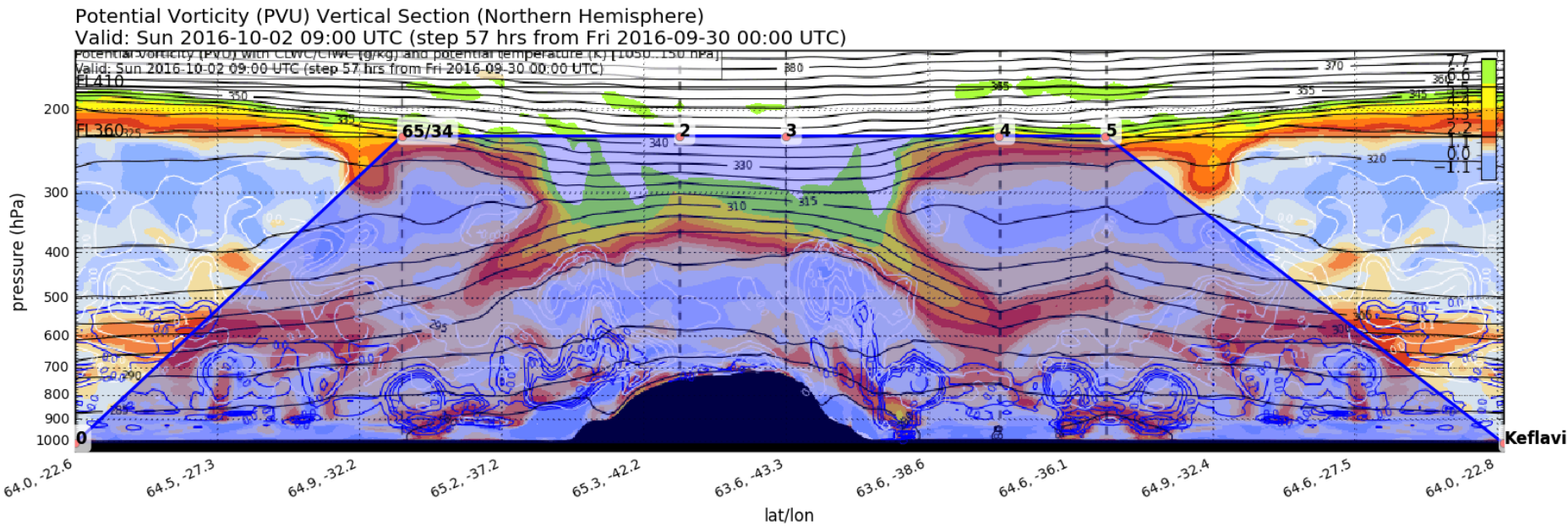


IOP7: Falcons flight

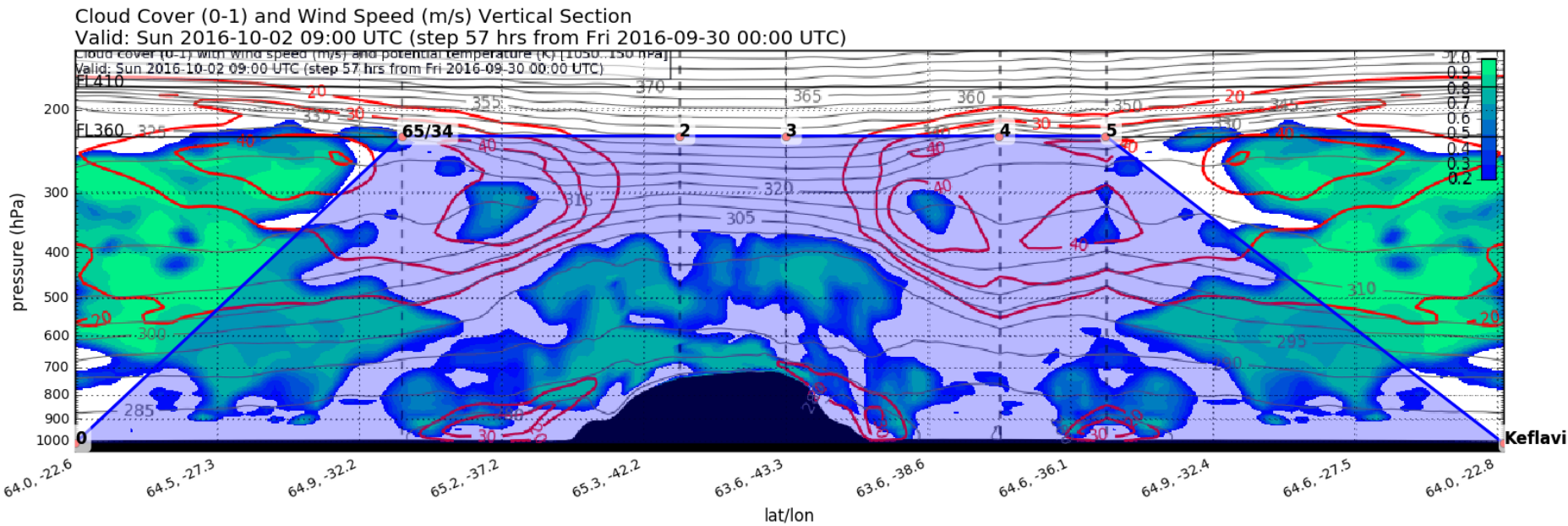




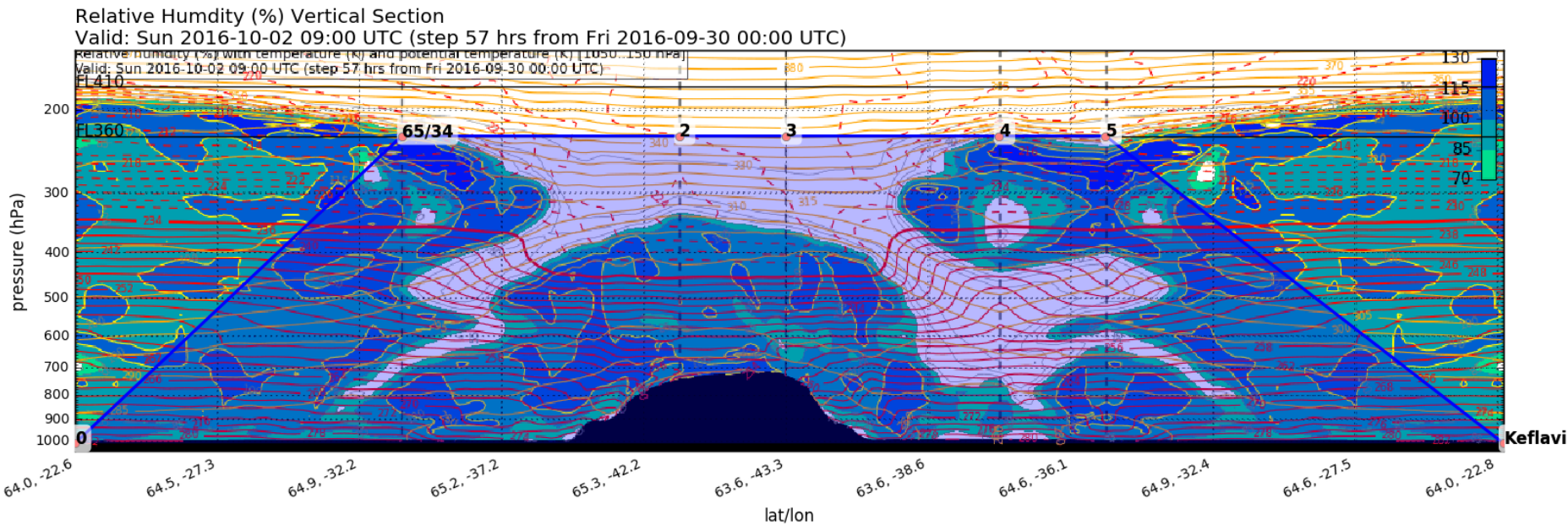
IOP7: Falcons flight



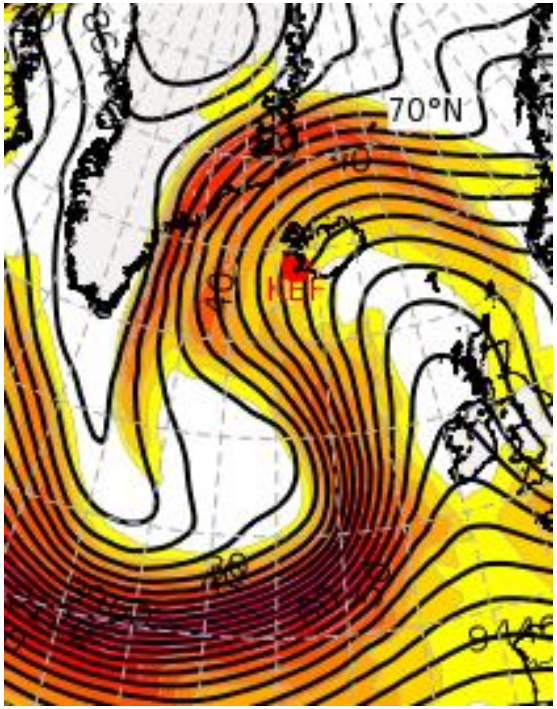
IOP7: Falcons flight

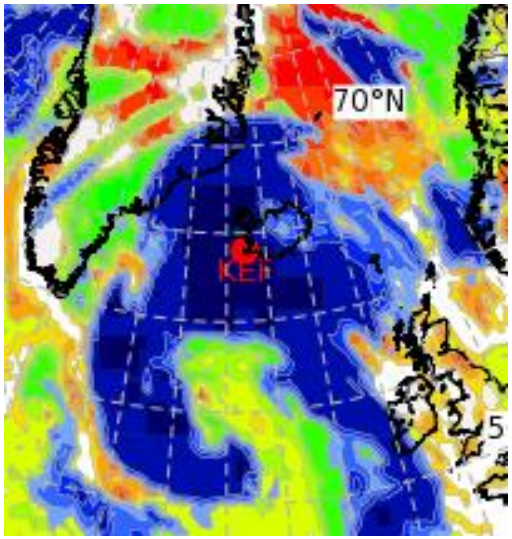


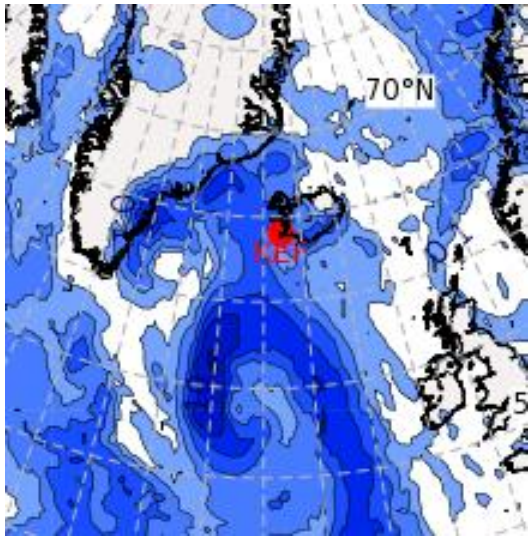
IOP7: Falcons flight



Sunday 2 October IOP7



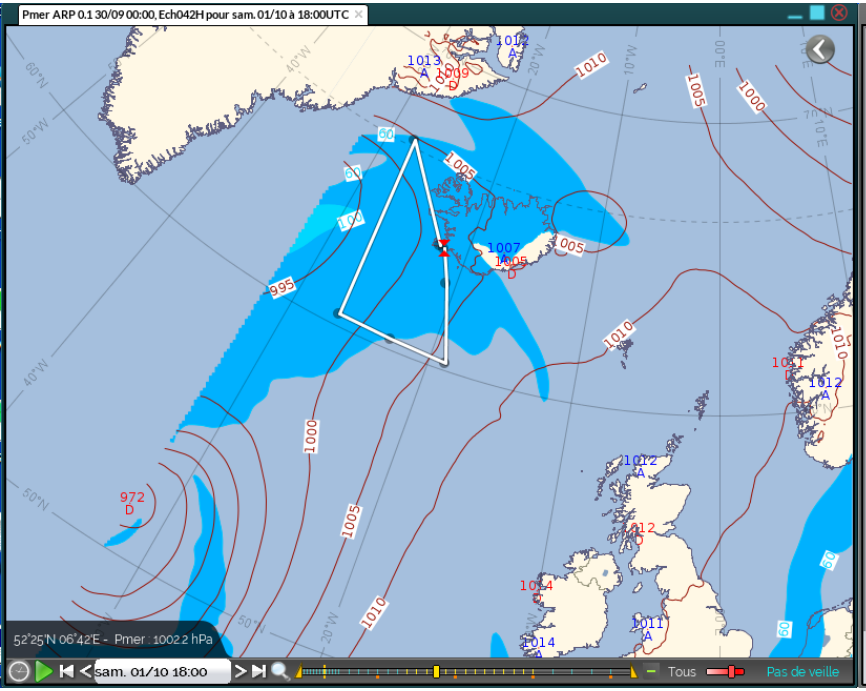


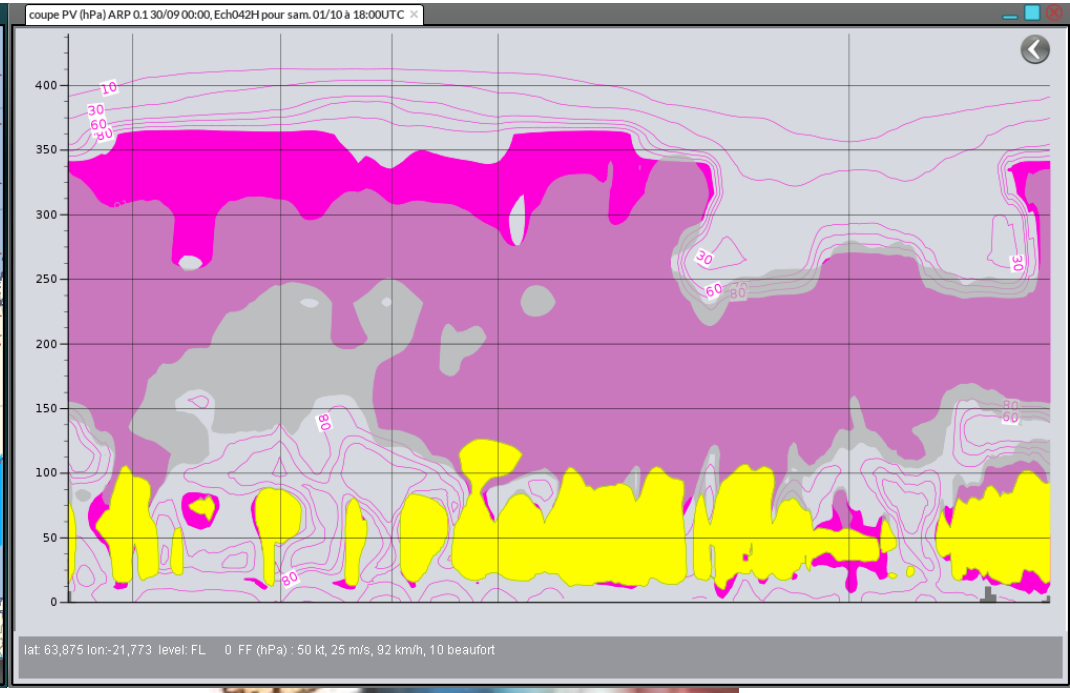


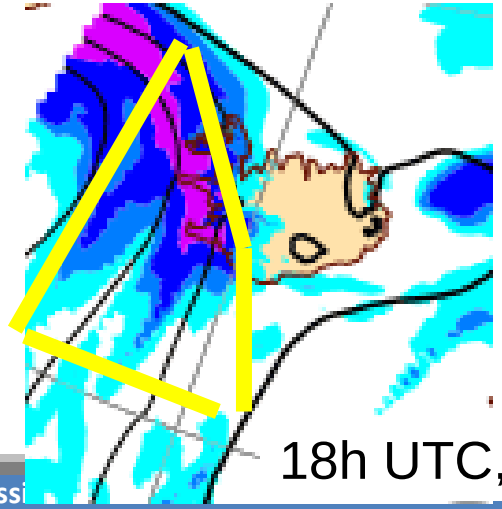
Z300, clouds, precipitation Sun 02/12Z BT 30/00Z

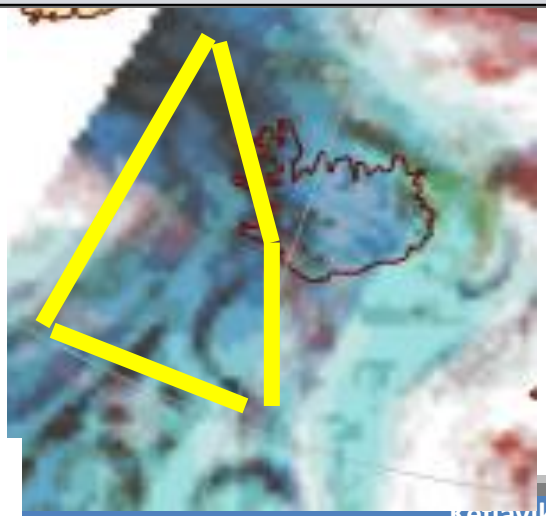
IOP7: SAFIRE flight Sunday 2 Oct

SAFIRE-French Falco:Test flight planned On Saturday between 15 UTC and 18 UTC





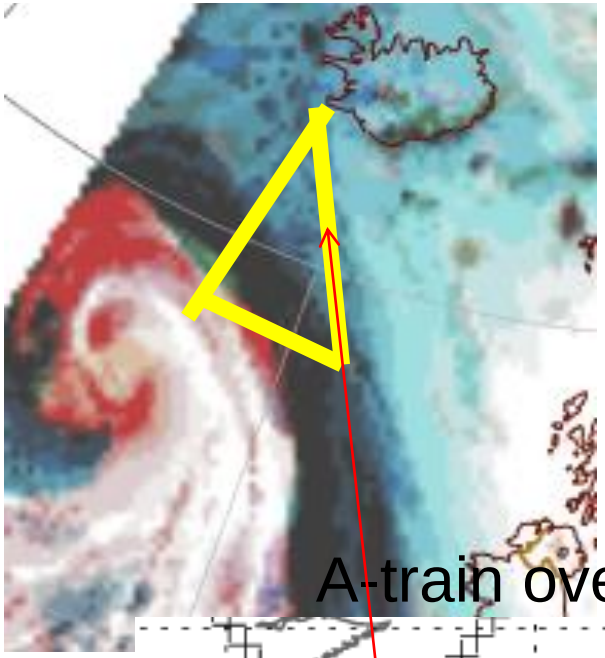




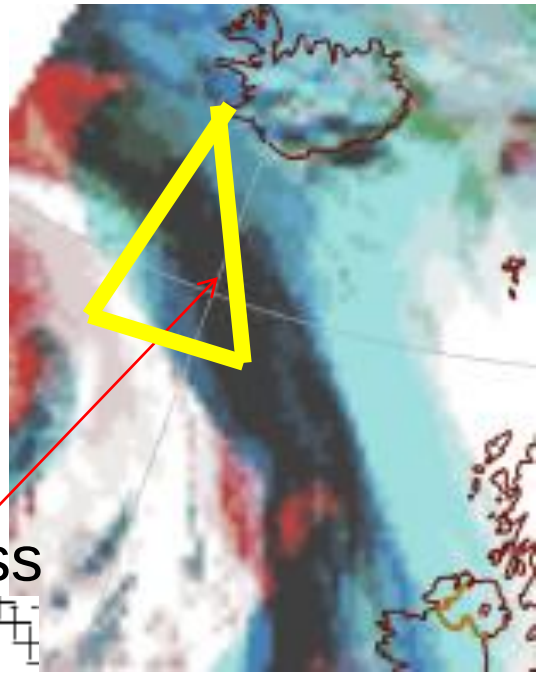
18h UTC, 1 Oct

Second flight of SAFIRE French Falcon on Sunday afternoon

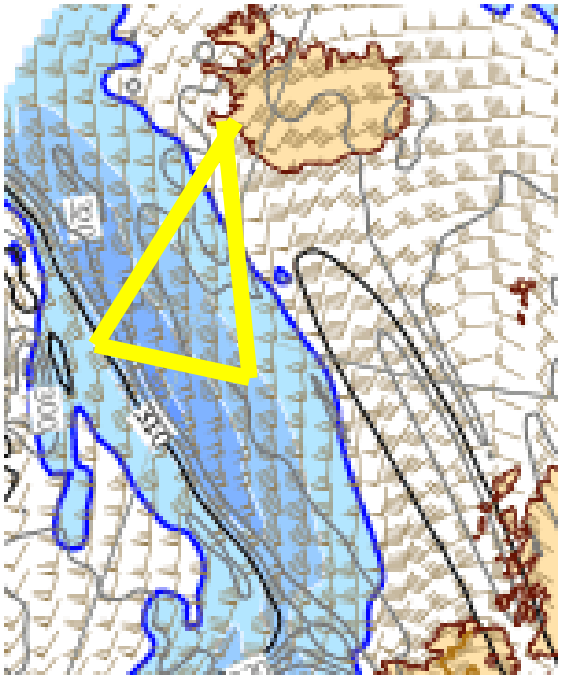
Cloud cover 2 Oct 12UTC



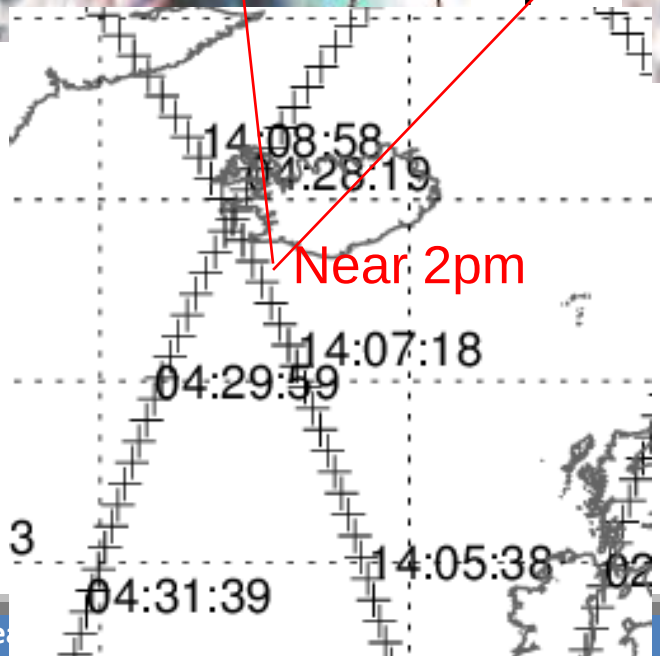
Cloud cover 2 Oct 18UTC



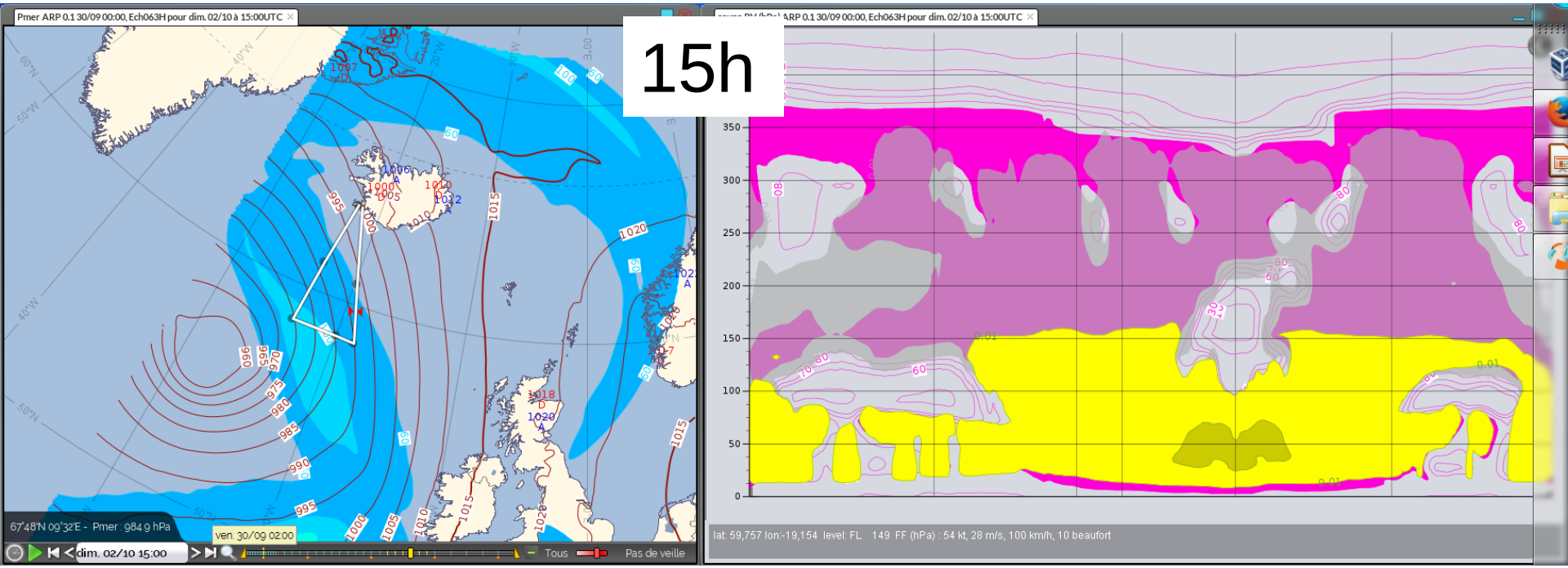
Jet at 1.5 PVU

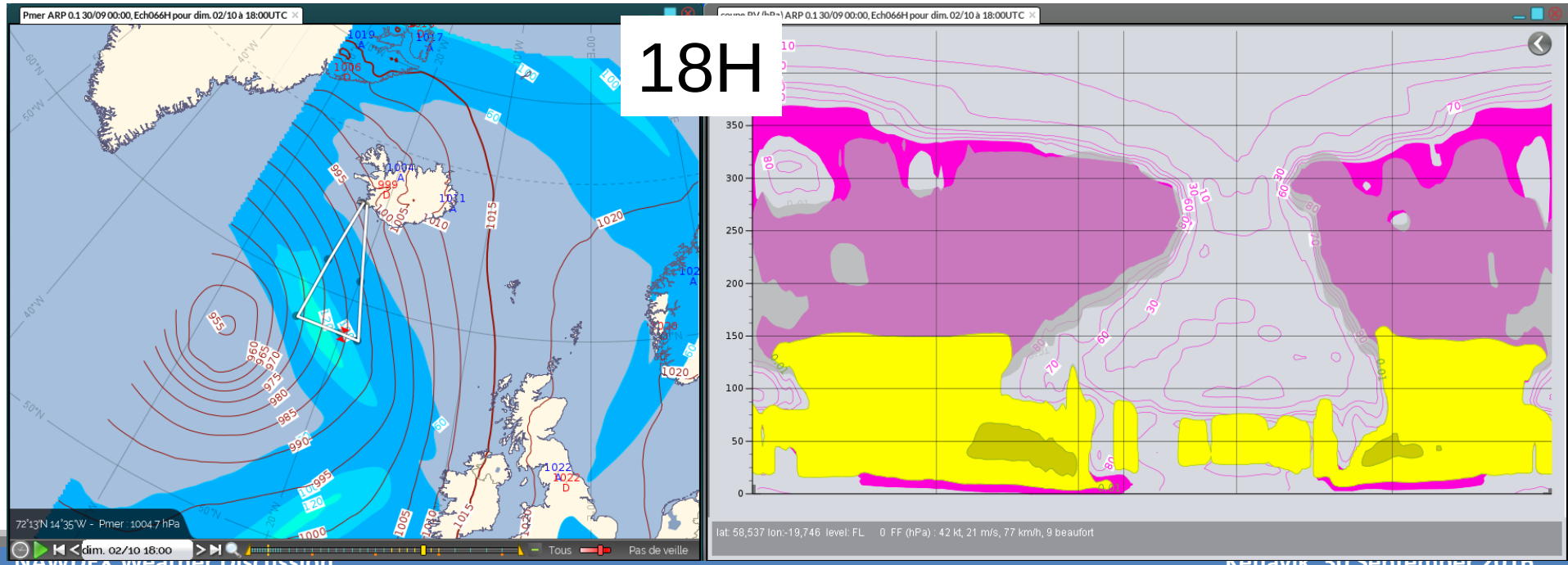


A-train overpass



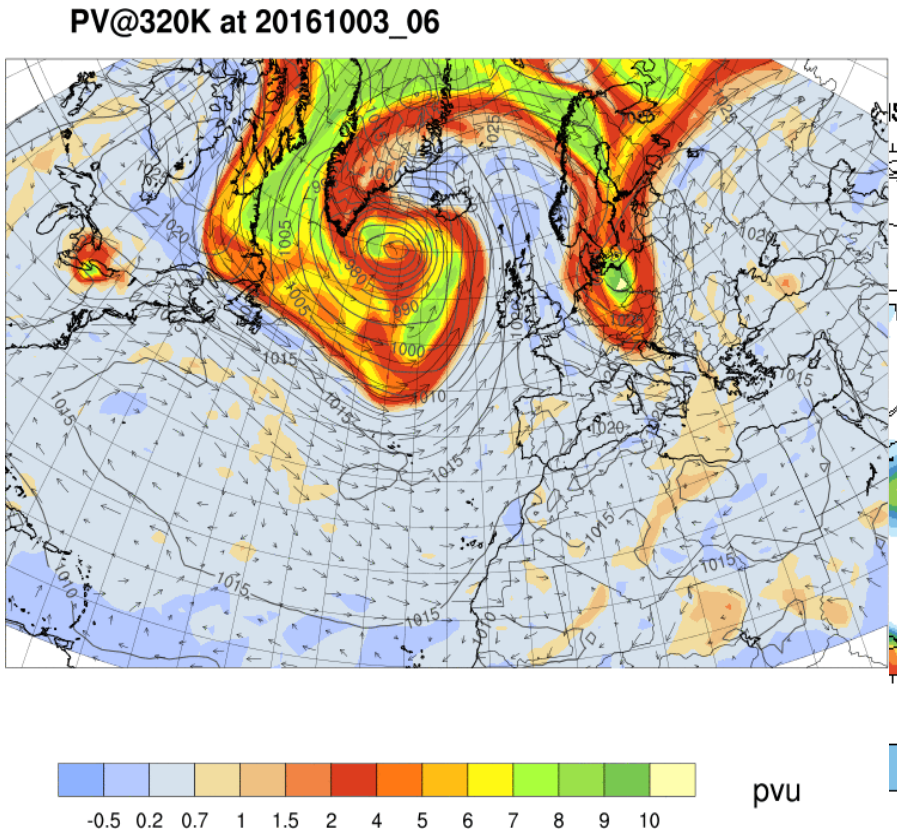
- Overpass of A-train near 2pm / mainly deep clouds
- Then crossing PV gradient /jet twice.

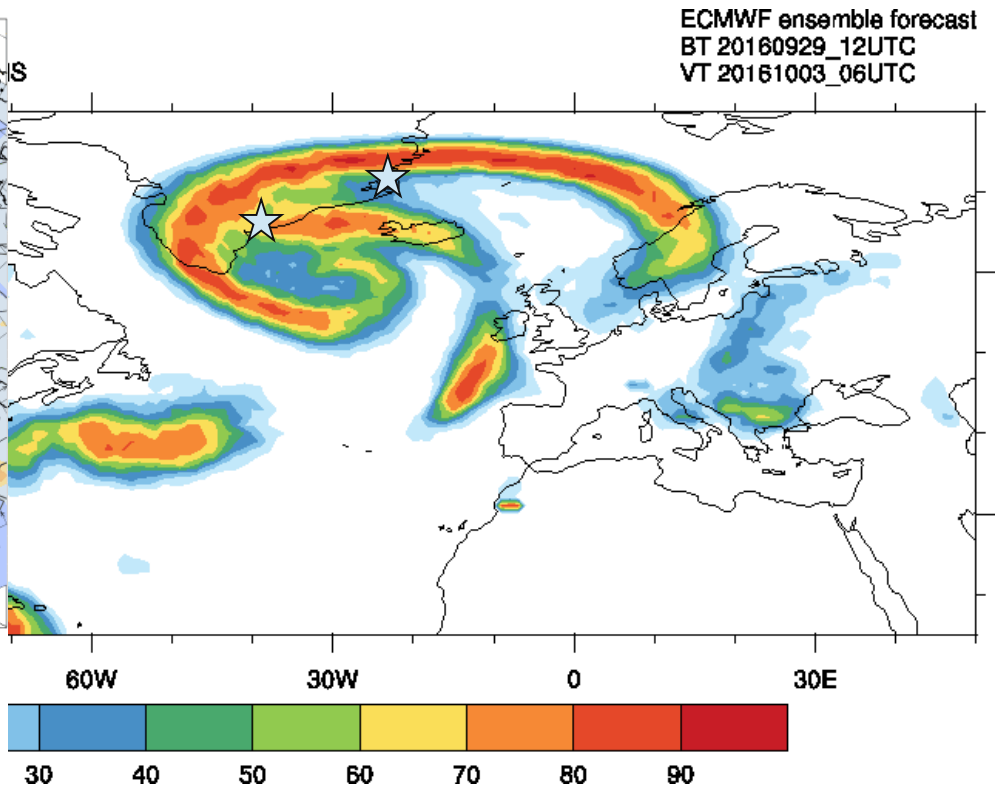

15h
Pmer ARP 0.1 30/09 00:00, Ech063H pour dim. 02/10 à 15:00UTC
67°48'N 09°32'E - Pmer : 984.9 hPa
ven. 30/09 02:00
dim. 02/10 15:00
Tous
Pas de veille
lat: 59,757 lon:-19,154 level: FL 149 FF (hPa) : 54 kt, 28 m/s, 100 km/h, 10 beaufort


18H
Pmer ARP 0.1 30/09 00:00, Ech066H pour dim. 02/10 à 18:00UTC
72°13'N 14°35'W - Pmer : 1004.7 hPa
dim. 02/10 18:00
Tous
Pas de veille
lat: 58,537 lon:-19,746 level: FL 0 FF (hPa) : 42 kt, 21 m/s, 77 km/h, 9 beaufort

Radiosoundings

Monday 03 10 2016: Greenland sondes

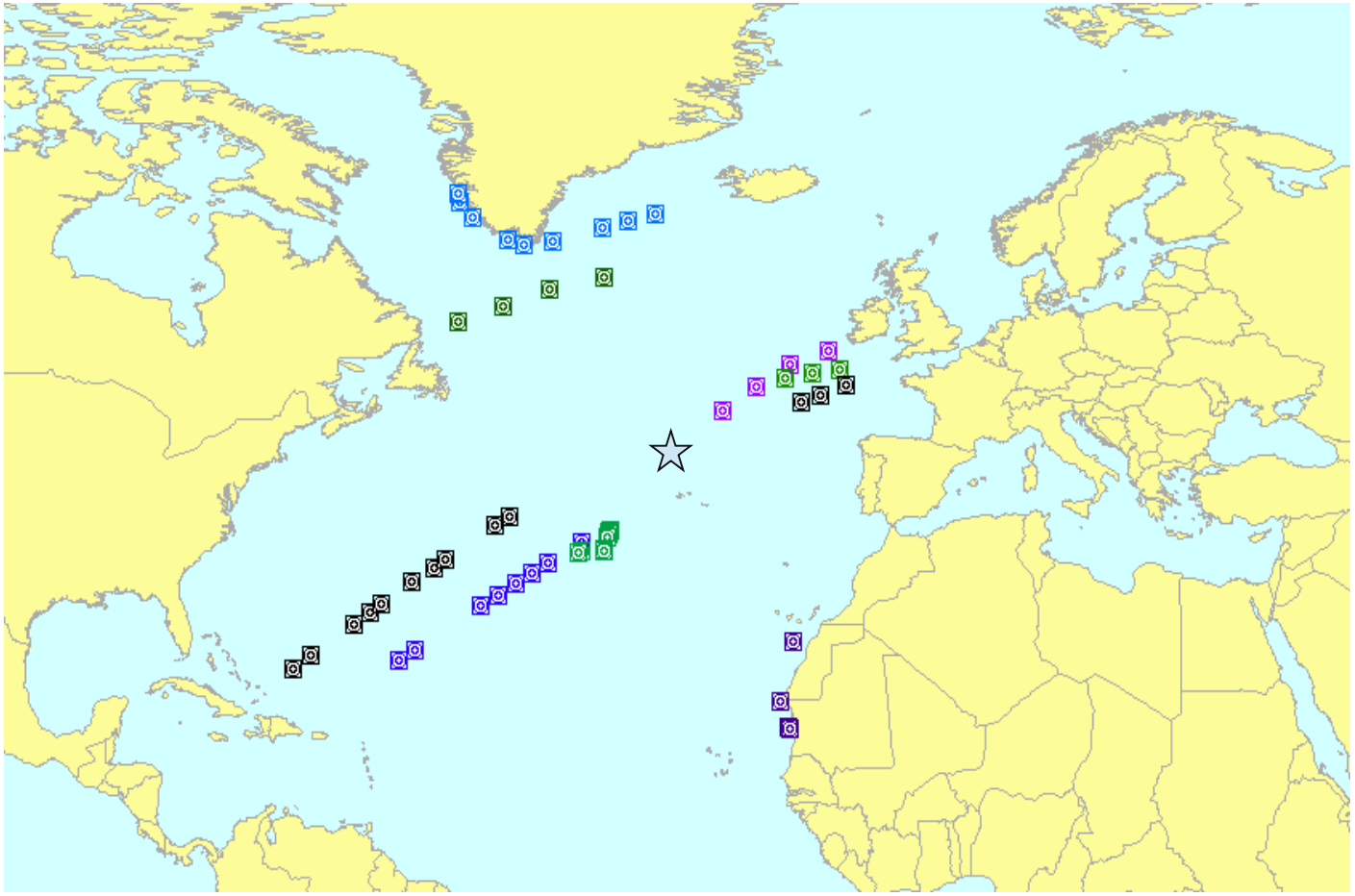




Regular sondes: 00, 12

Request: 03, 06?

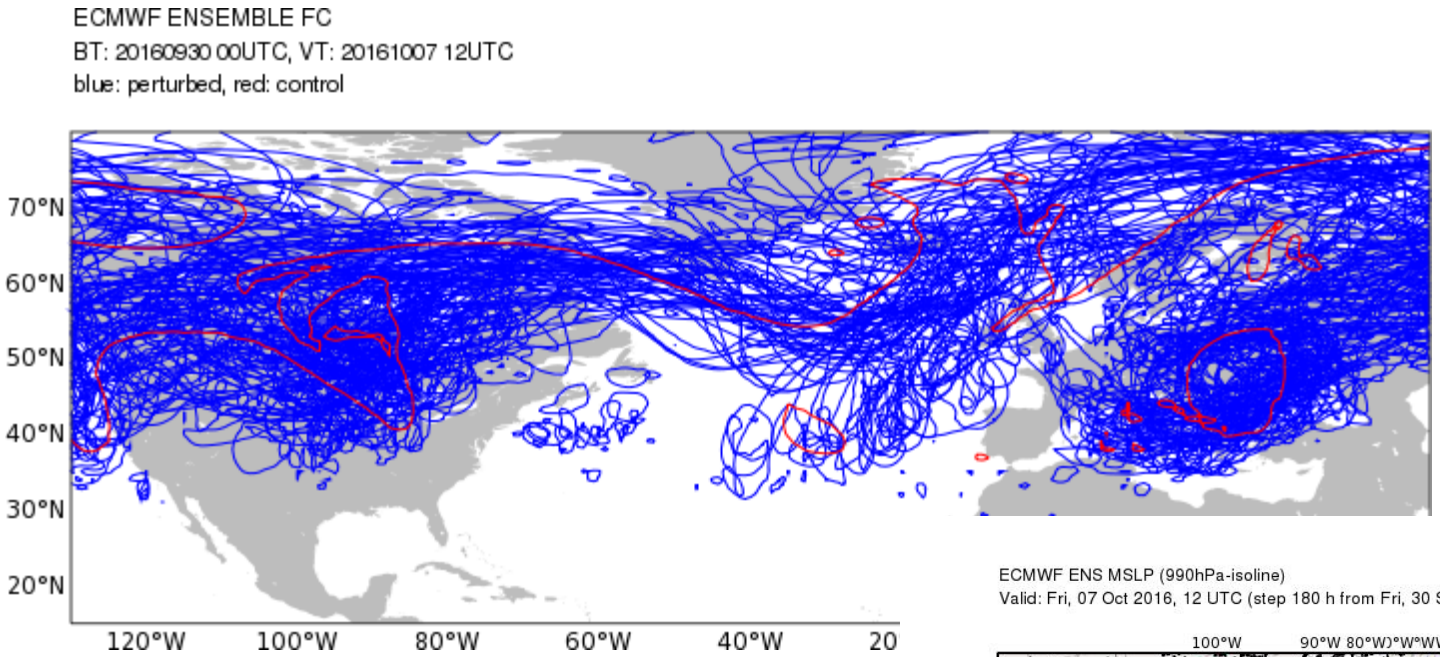
Ship requests: 02 10 2016, 06

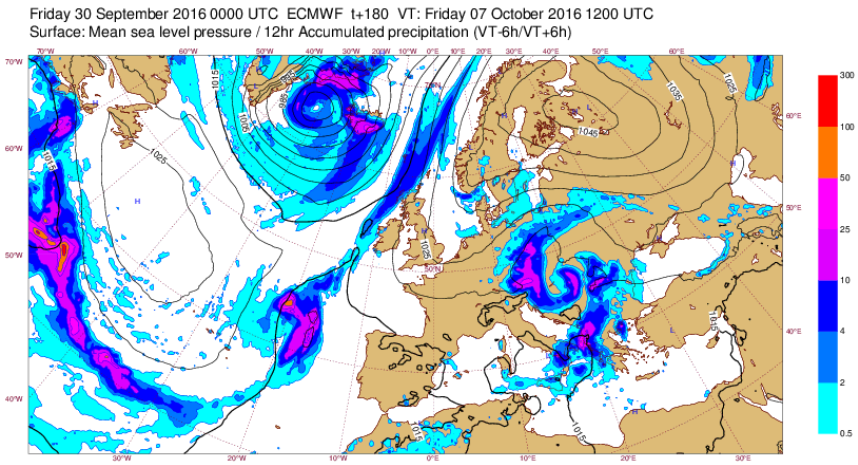


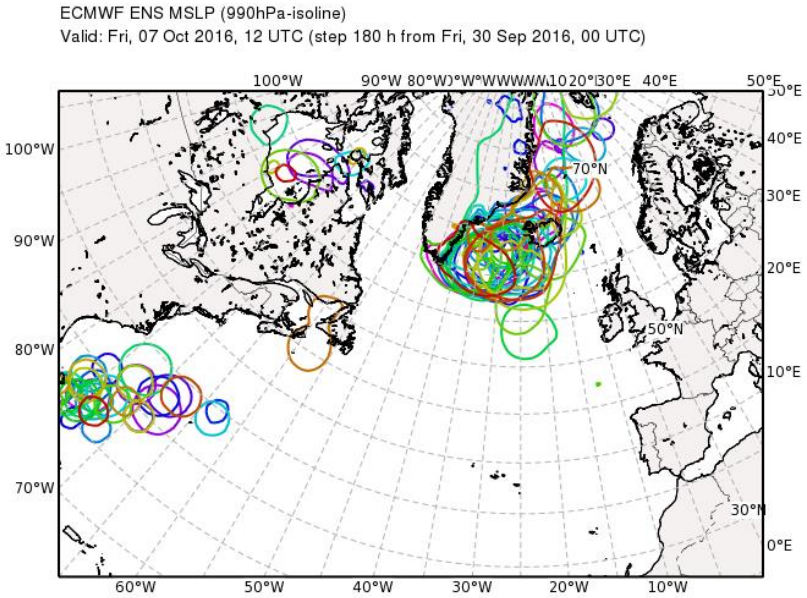
Outlook

Outlook Sun 02/12Z to Sun 09/12Z : 2PVU@320K, MSLP990 Spaghetti (based EC Ens 30/00Z)

Fri 07/12Z

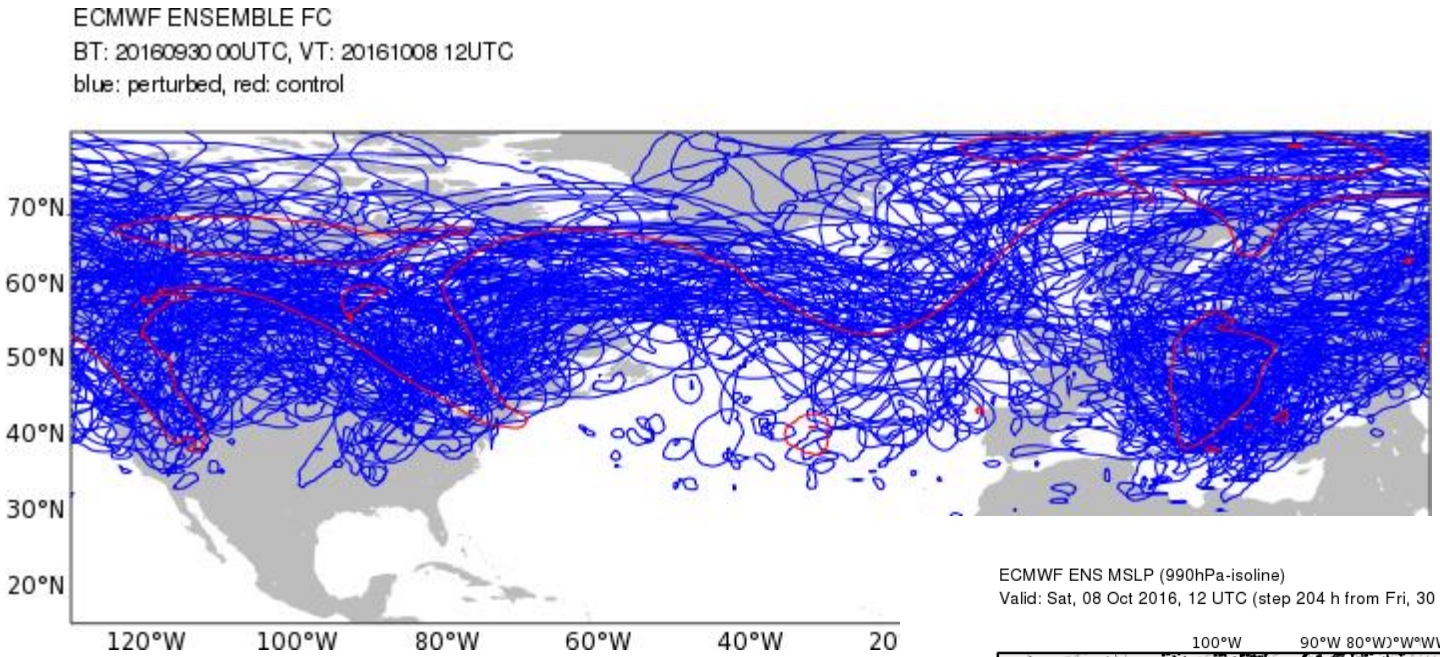


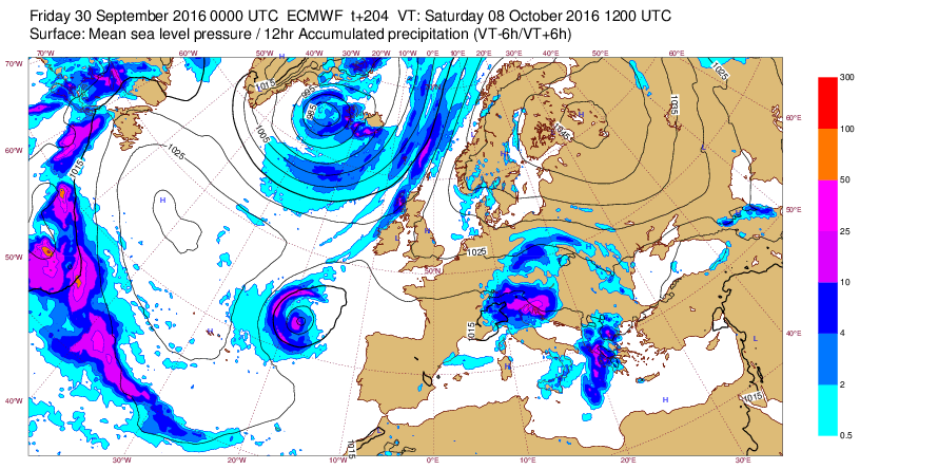


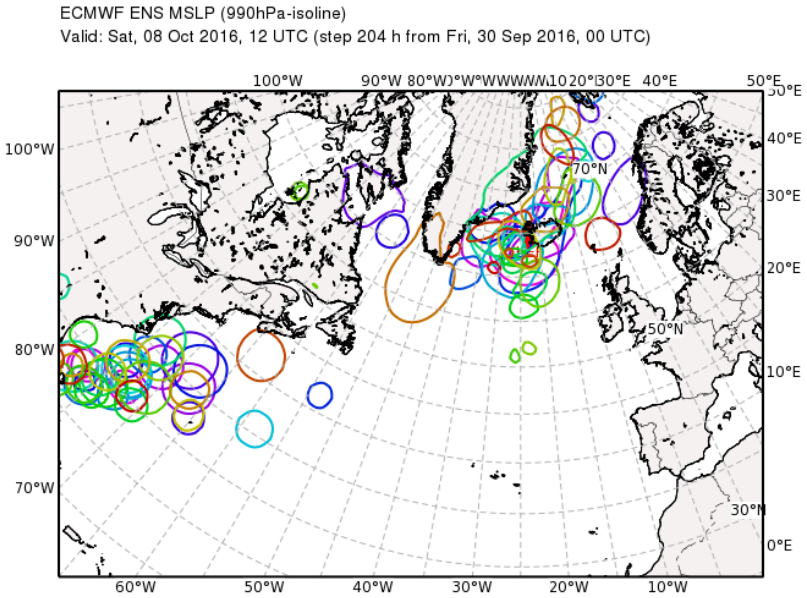


Outlook Sun 02/12Z to Sun 09/12Z : 2PVU@320K, MSLP990 Spaghetti (based EC Ens 30/00Z)

Sat 08/12Z

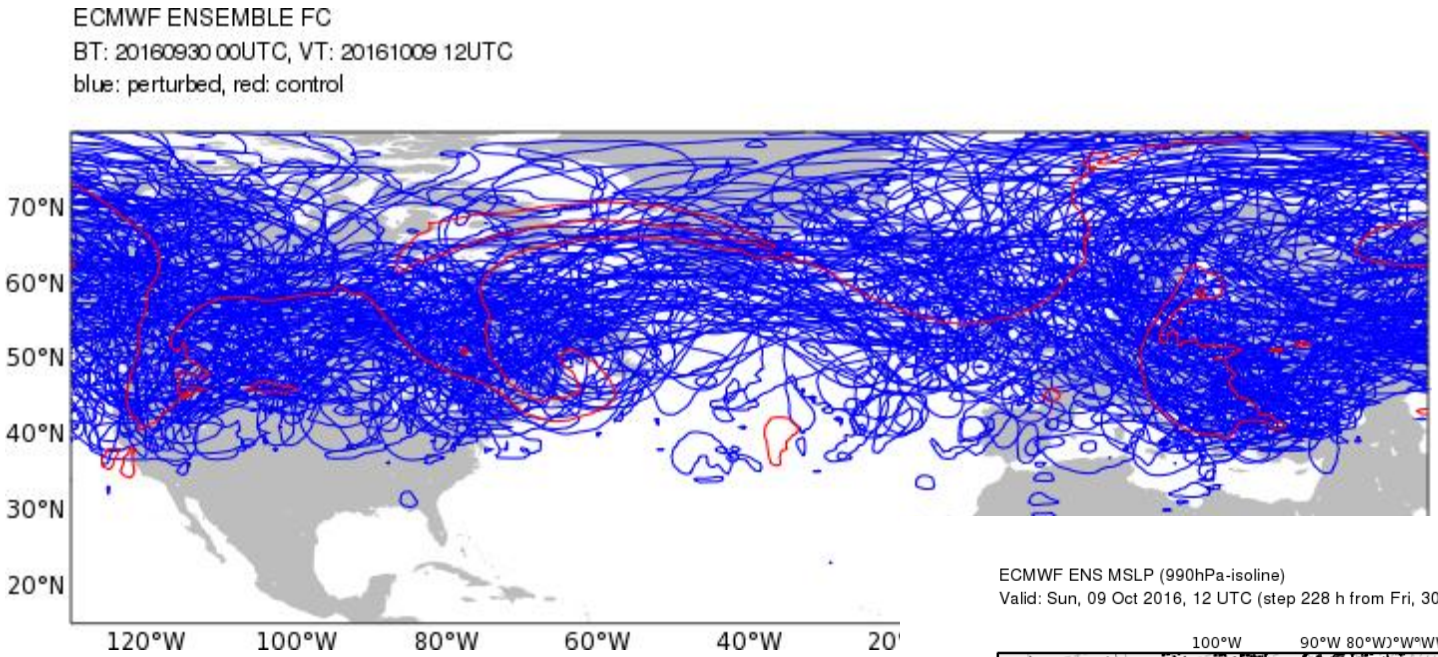


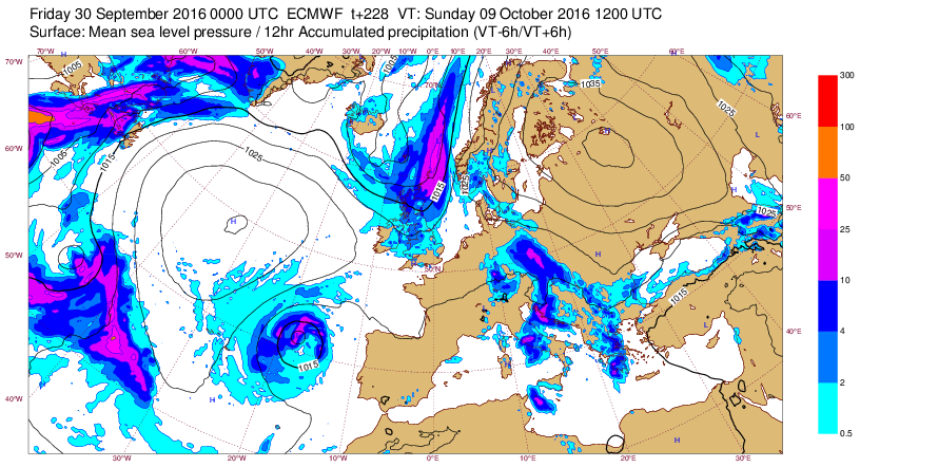


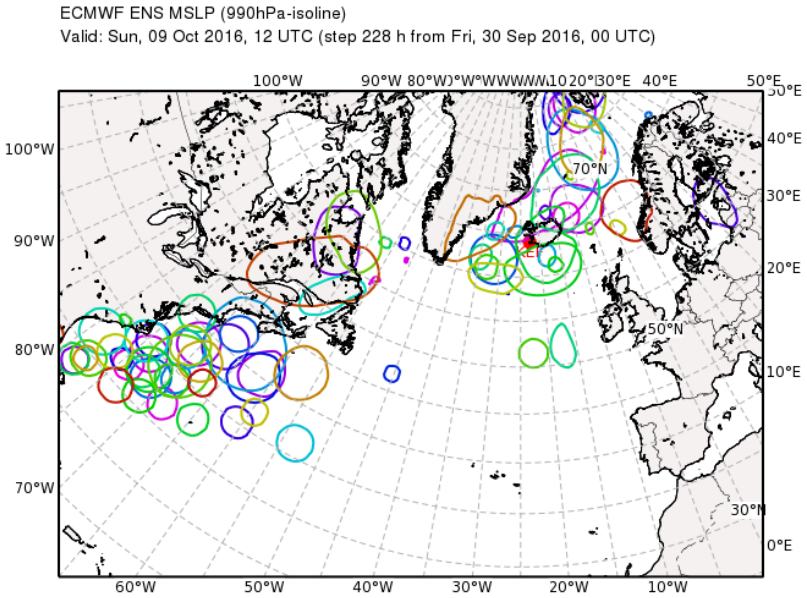


Outlook Sun 02/12Z to Sun 09/12Z : 2PVU@320K, MSLP990 Spaghetti (based EC Ens 30/00Z)

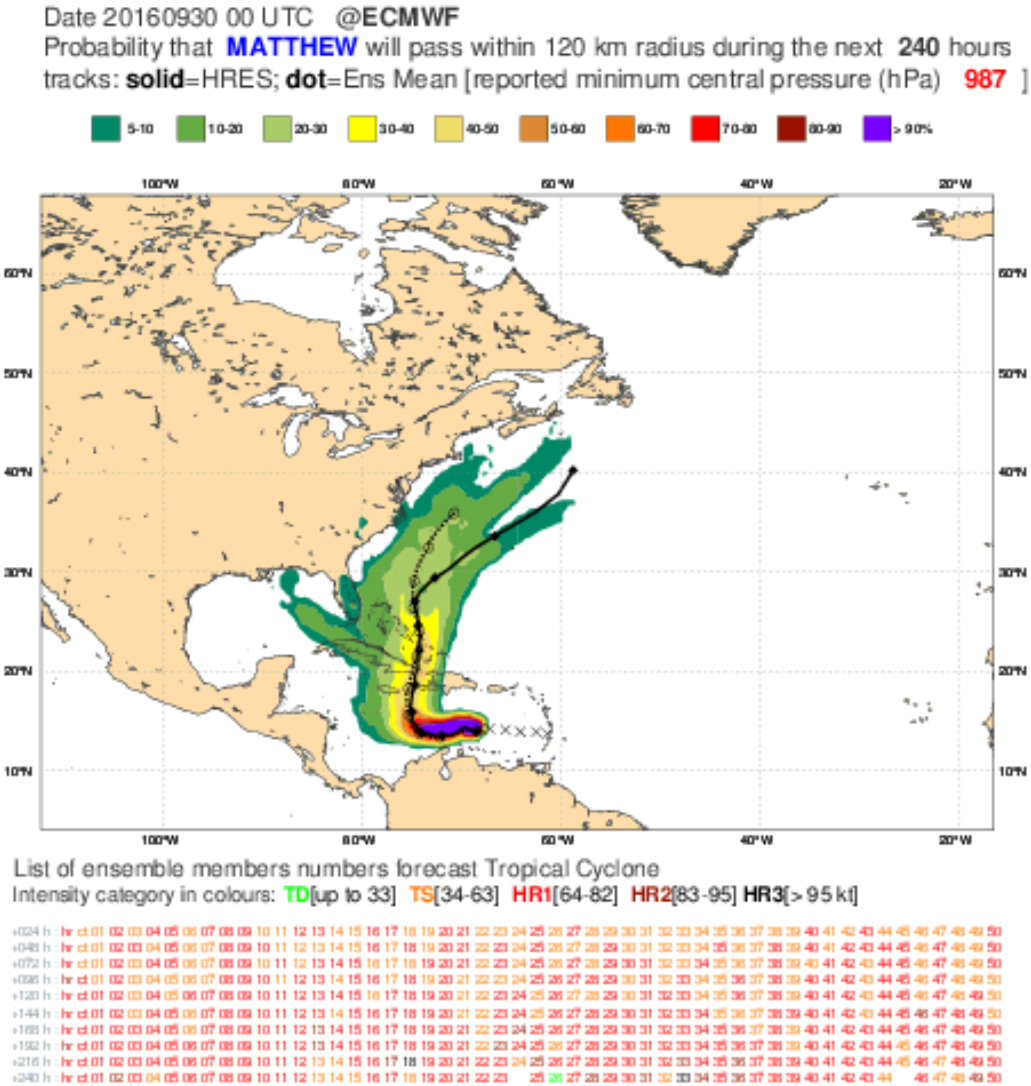
Sun 09/12Z

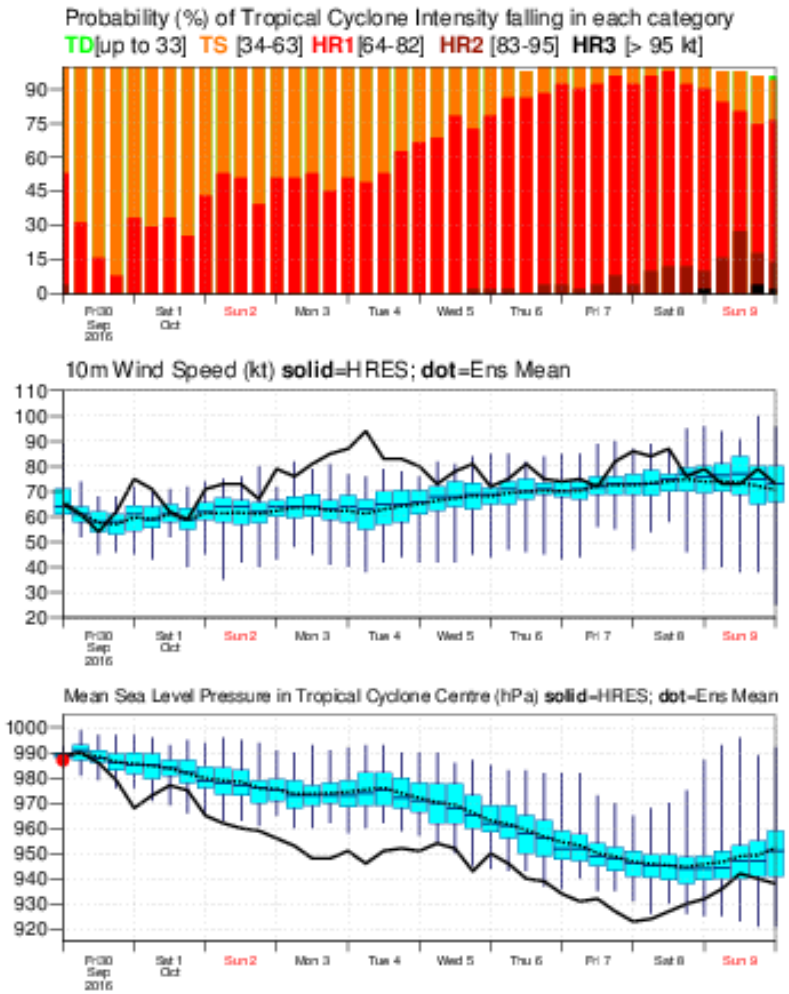






TC Matthew track (BT: 30/00z)





Summary

- **Saturday 1 October IOP6**
  - **HALO** Tropopause structure in WCB regions, cut-off reabsorption; SAT overpass; no dropsondes
- **Sunday 2 October IOP7**
  - **HALO** and **FALCON** and **SAFIRE** Tropopause structure, WCB outflow/ascent regions; 25 HALO dropsondes
  - **SAPFRE** afternoon A-Train overpass
- **Outlook Monday – Thursday :**
  - Monday cyclone near Iceland
  - New frontal wave cyclone within reach Tue-Thu
    - Ridgebuilding and PV streamer formation, HIW (precip) eastern Europe and Iceland
  - Extratropical transition of TC Matthew Thu-Sun