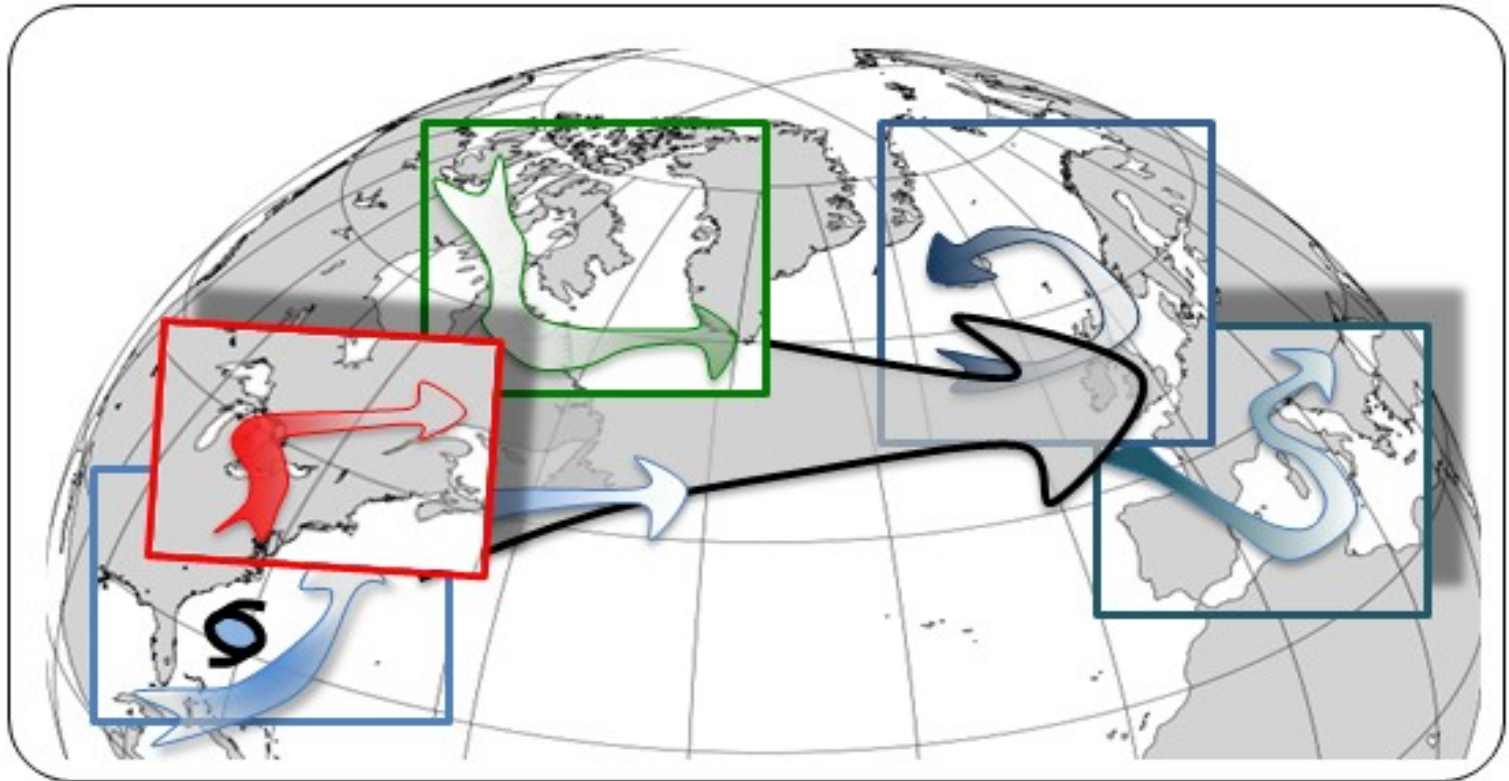


NAWDEX – Weather discussion

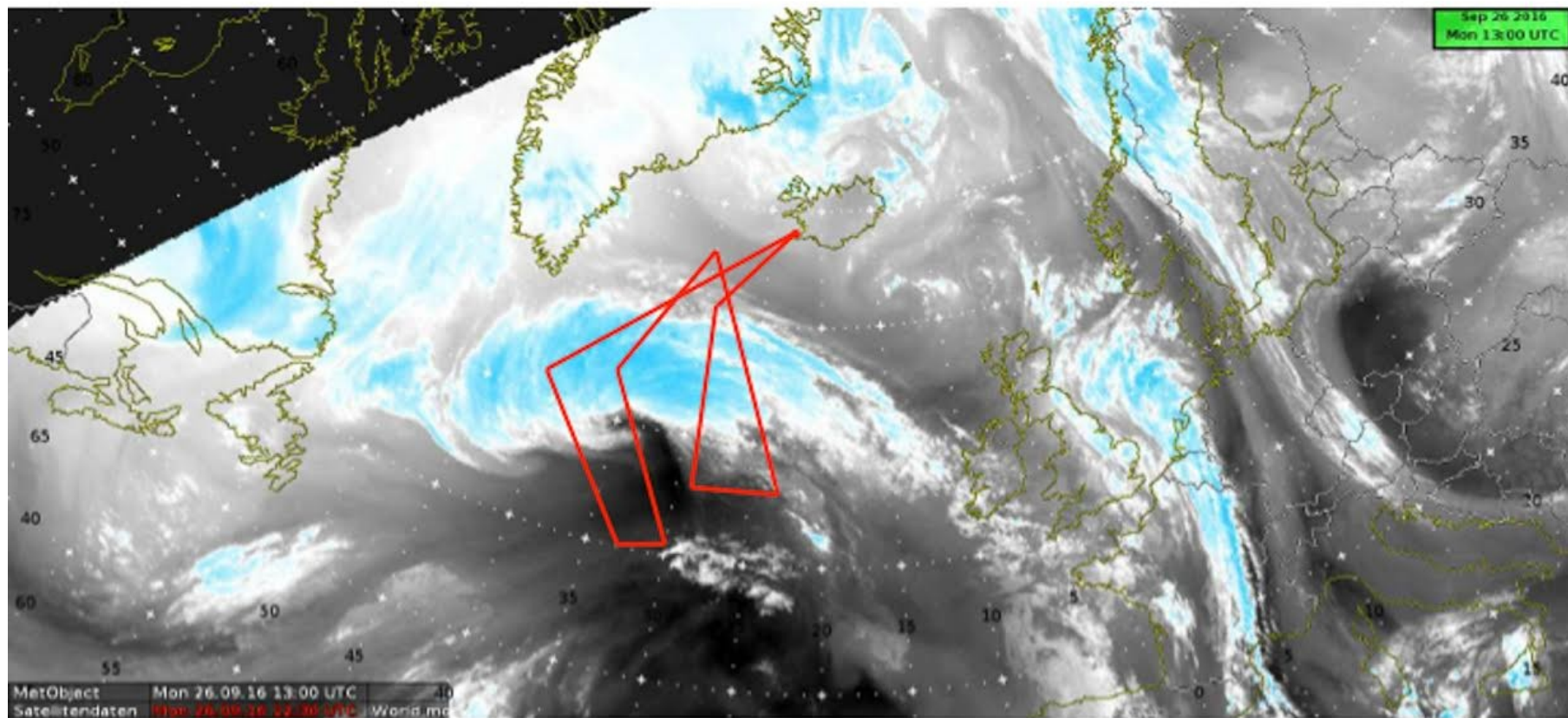
26 September 2016, Keflavik, Iceland



Agenda

- HALO flight today
- Current synoptic situation
- Forecast until Friday
- DLR-Falcon/UK FAAM BAE 146 coordinated flight Tuesday
- HALO flight Tuesday
- Additional radiosoundings over Europe
- Outlook

HALO flight today

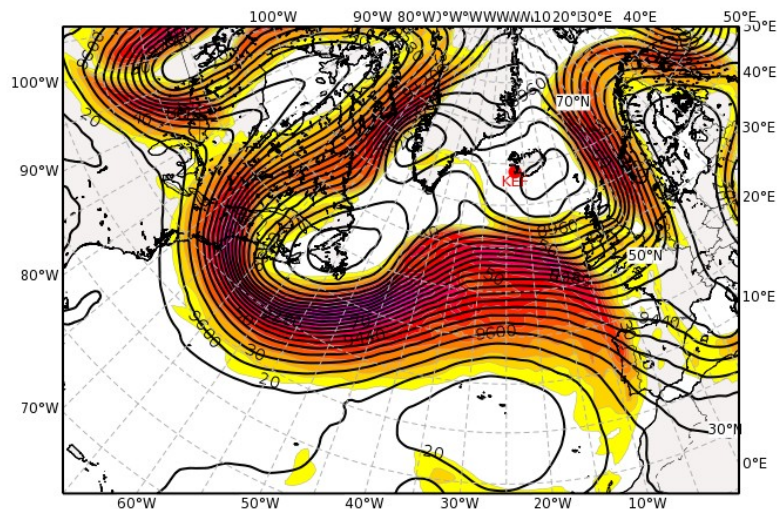


Current synoptic situation and forecast until Friday

Analysis – 26 Sep 2016, 00 UTC

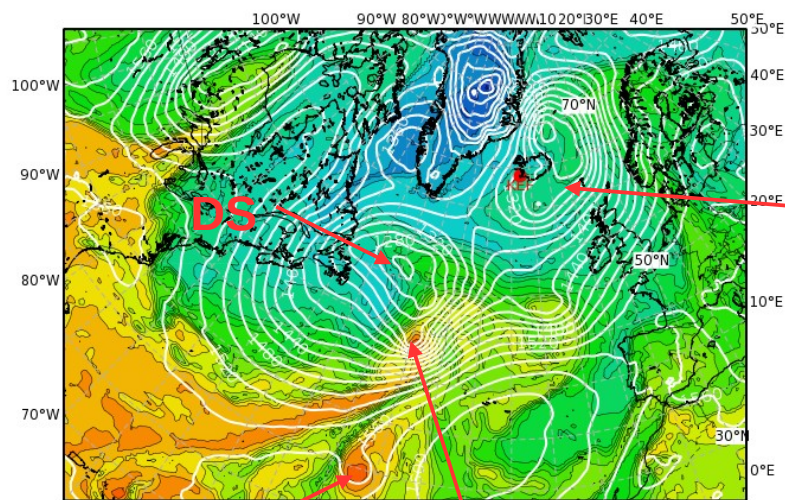
Geopotential Height (m) & Horizontal Wind (m/s) at 300 hPa

Valid: Mon, 26 Sep 2016, 00 UTC (step 000 h from Mon, 26 Sep 2016, 00 UTC)



Equivalent Potential Temperature (degC) & Streamlines at 850 hPa

Valid: Mon, 26 Sep 2016, 00 UTC (step 000 h from Mon, 26 Sep 2016, 00 UTC)

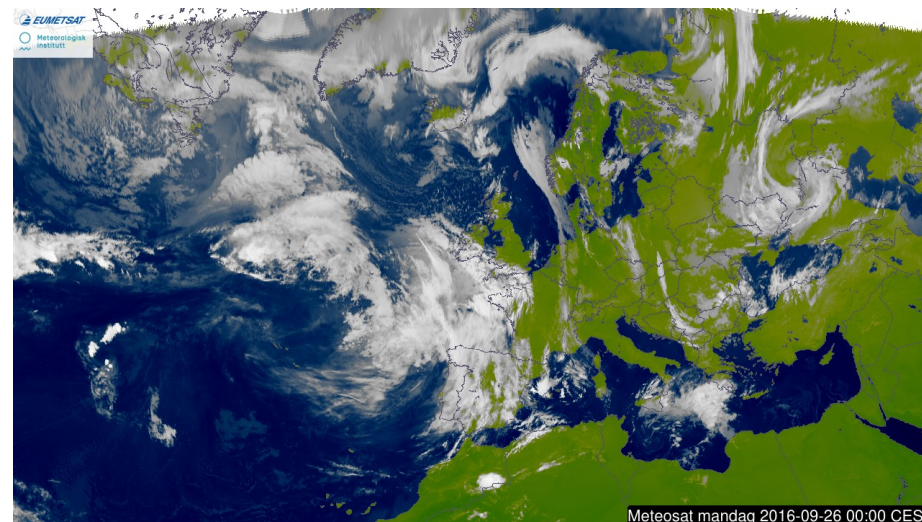


Lisa

Karl

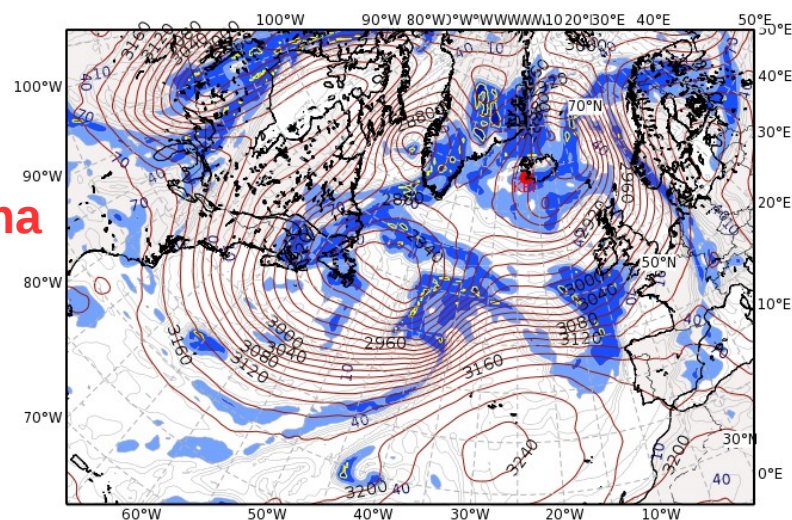
-Vladiana

Z300, SAT
THE850, RH700



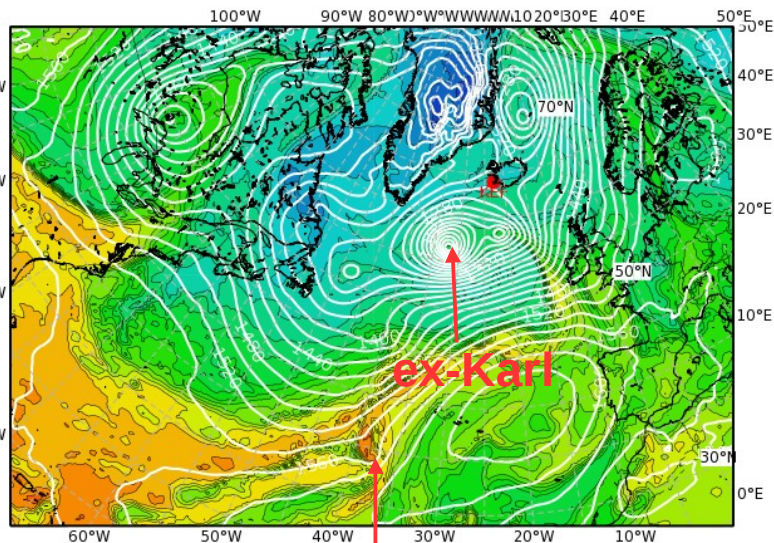
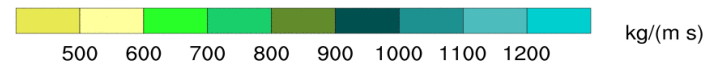
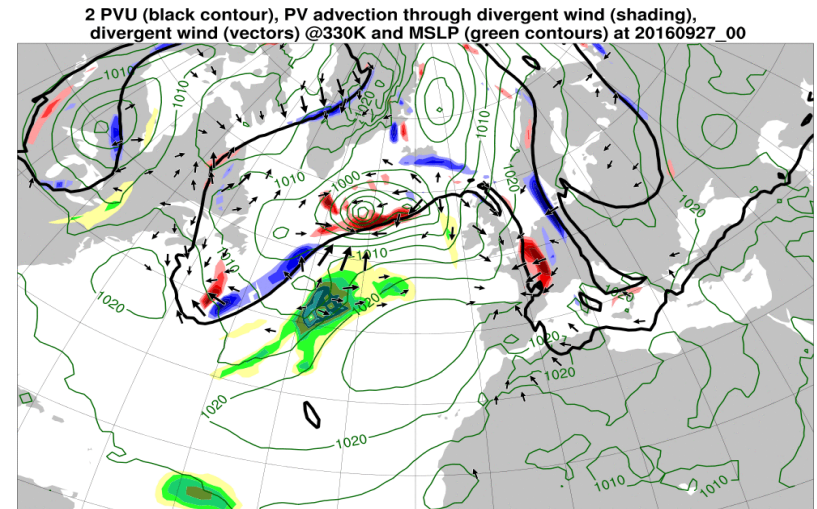
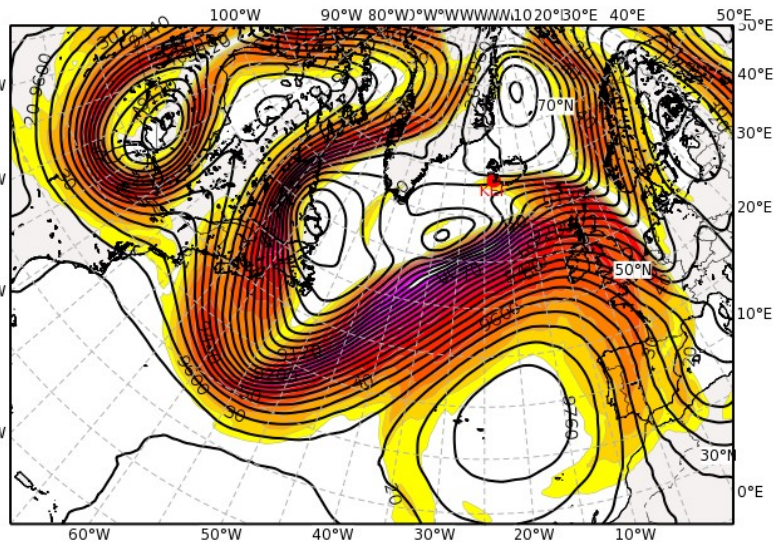
Relative Humidity (%) and Z (m) at 700 hPa

Valid: Mon, 26 Sep 2016, 00 UTC (step 000 h from Mon, 26 Sep 2016, 00 UTC)

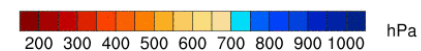
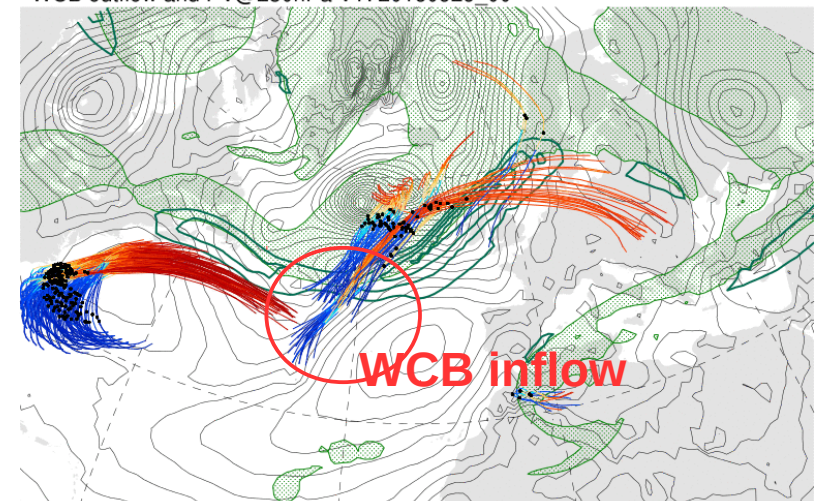


Forecast – Tue, 27 Sep 2016, 00 UTC

Z300, PV330, THE850, WCB



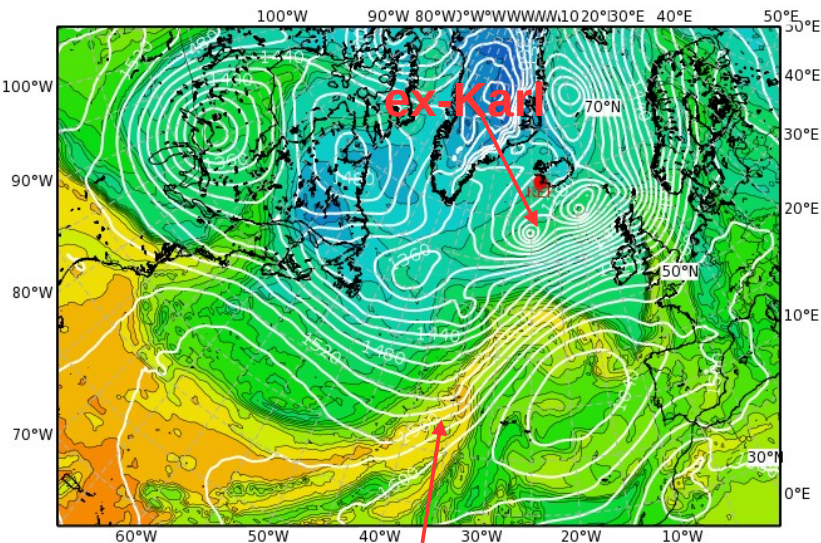
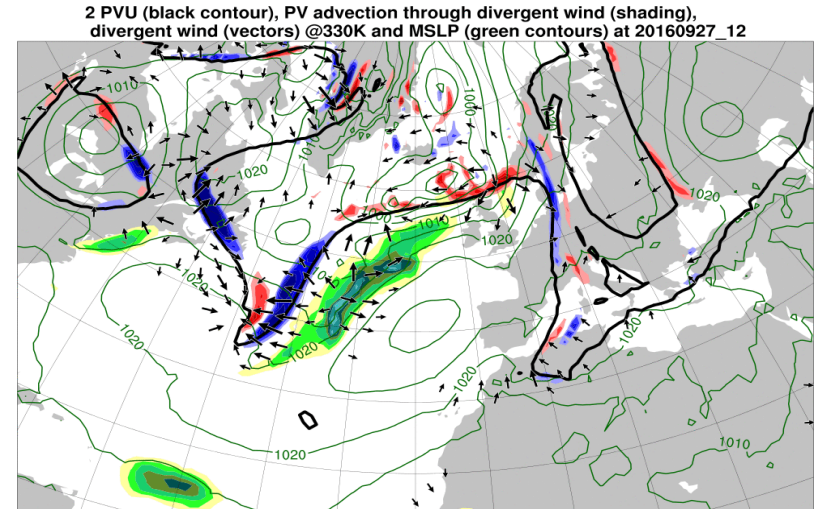
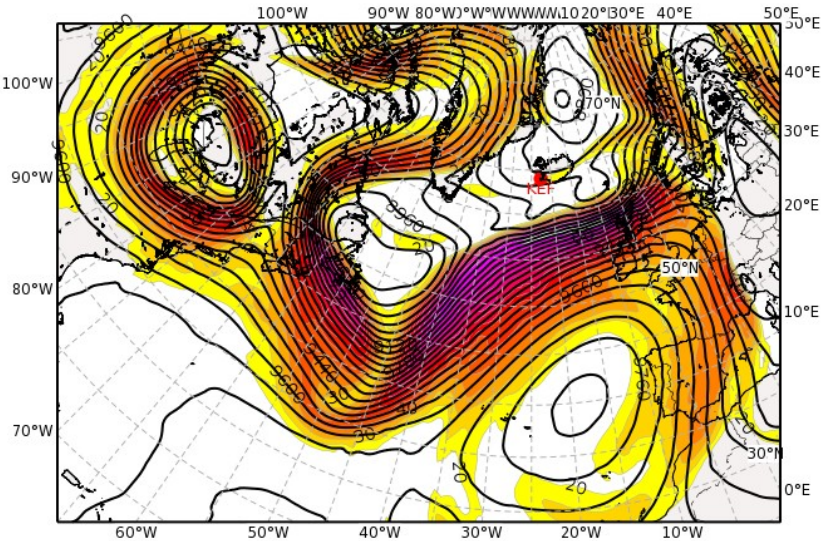
Trajectory start and SLP VT: 20160927_00
WCB outflow and PV@250hPa VT: 20160929_00



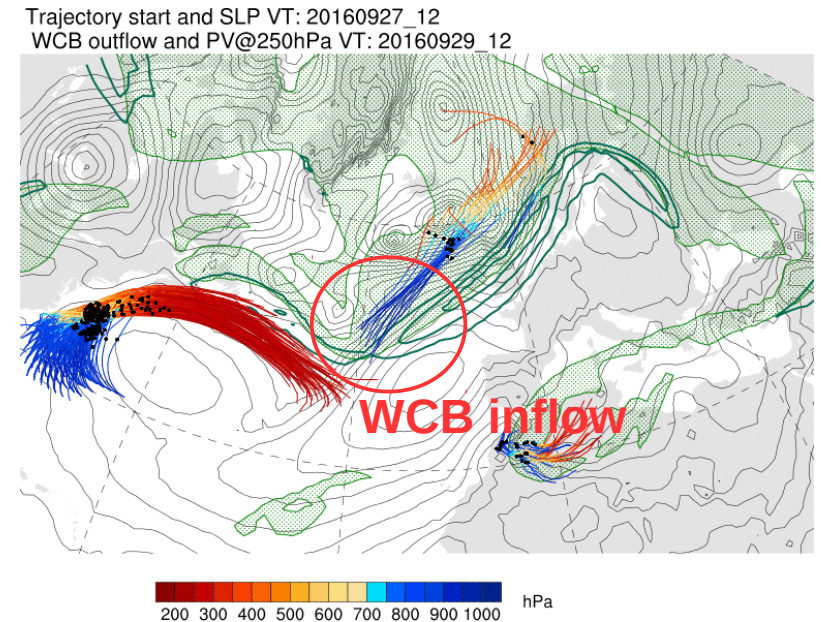
Lisa

Forecast – Tue, 27 Sep 2016, 12 UTC

Z300, PV330, THE850, WCB

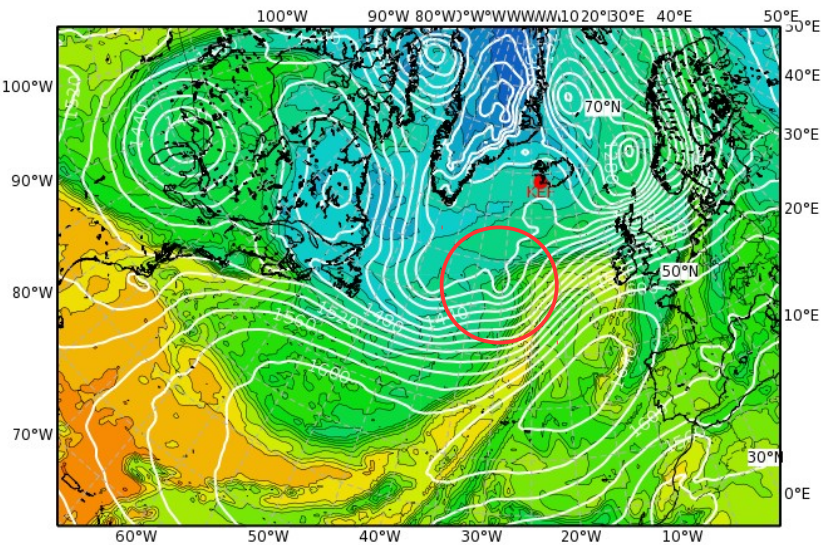
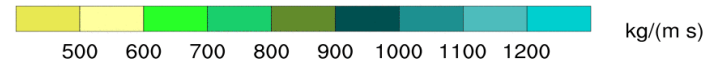
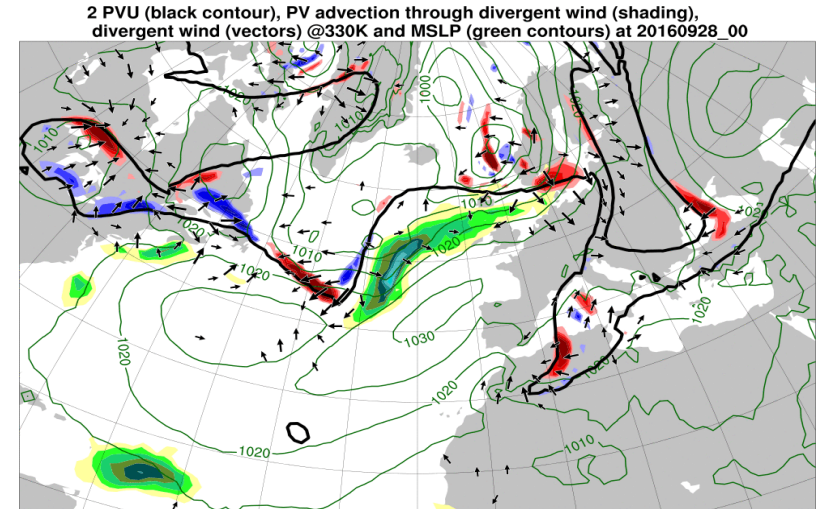
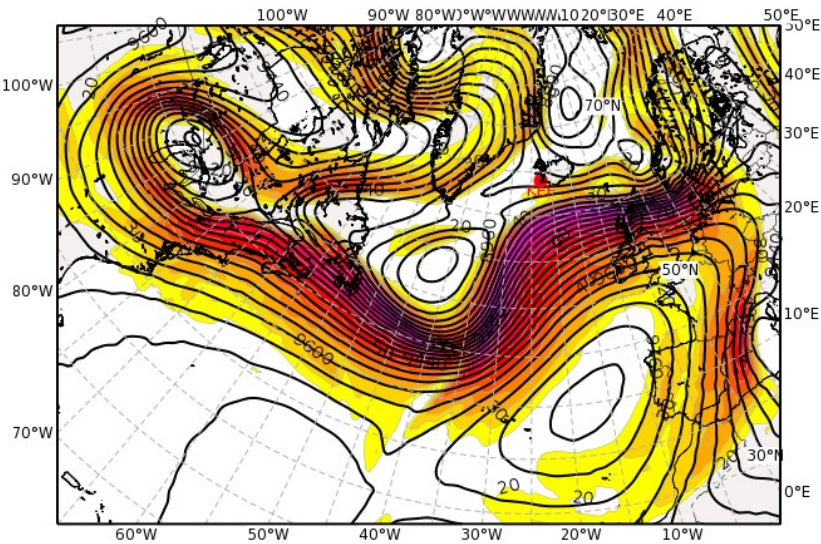


Lisa

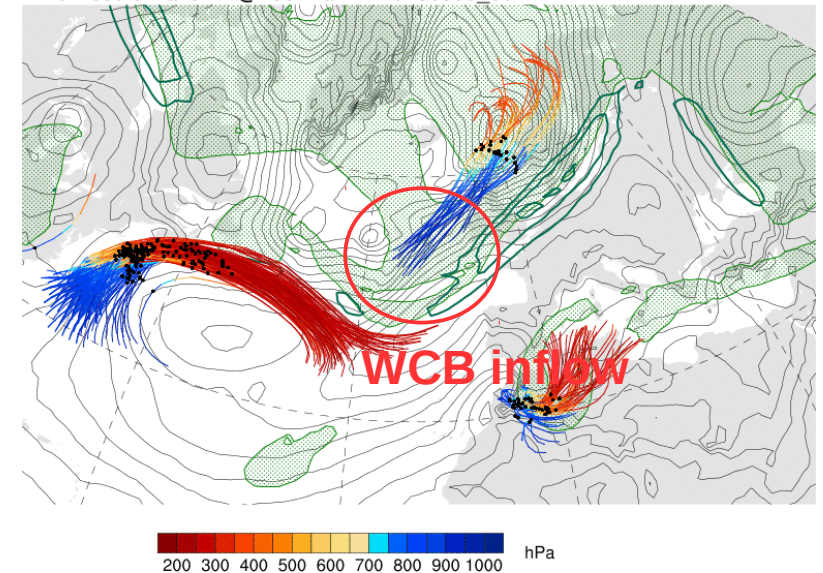


Forecast – Wed, 28 Sep 2016, 00 UTC

Z300, PV330, THE850, WCB

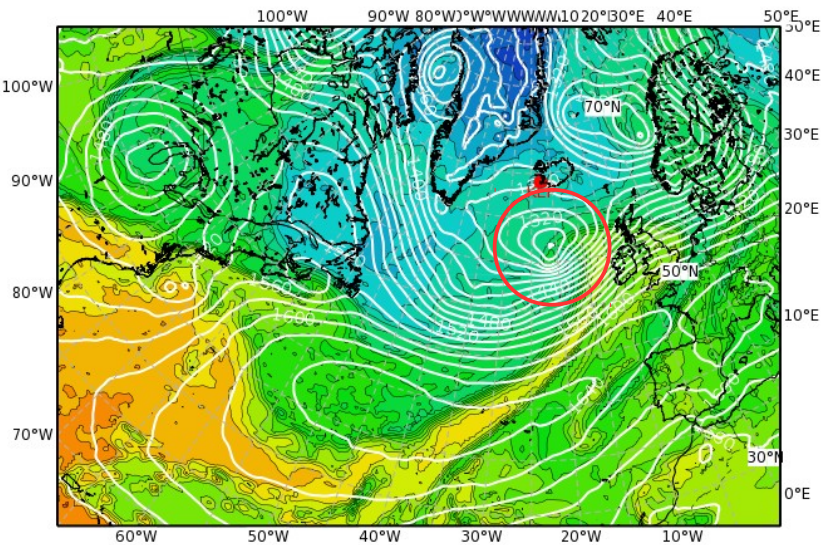
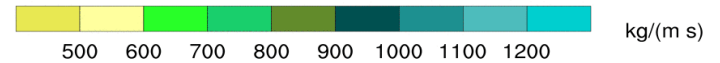
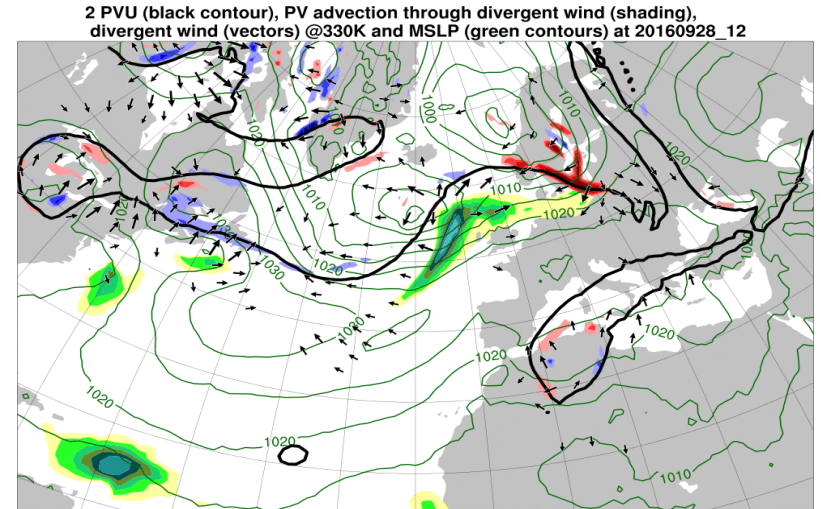
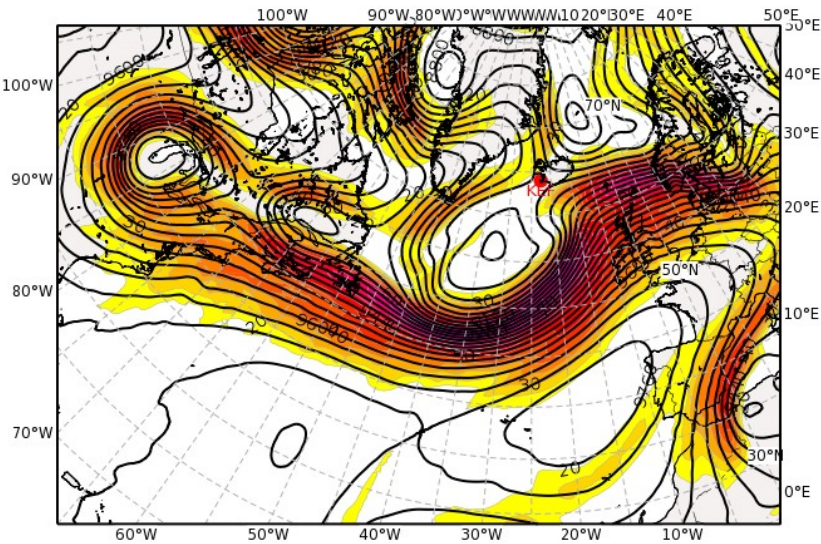


Trajectory start and SLP VT: 20160928_00
WCB outflow and PV@250hPa VT: 20160930_00

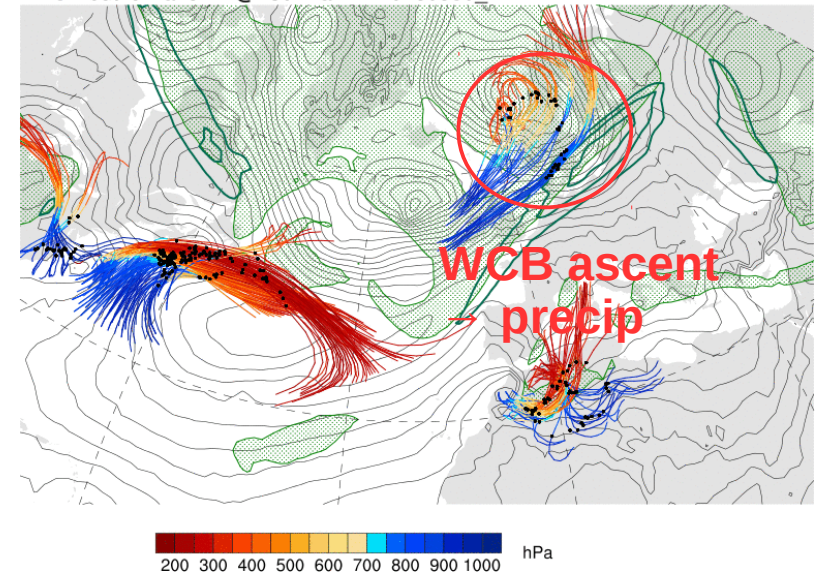


Forecast – Wed, 28 Sep 2016, 12 UTC

Z300, PV330, THE850, WCB

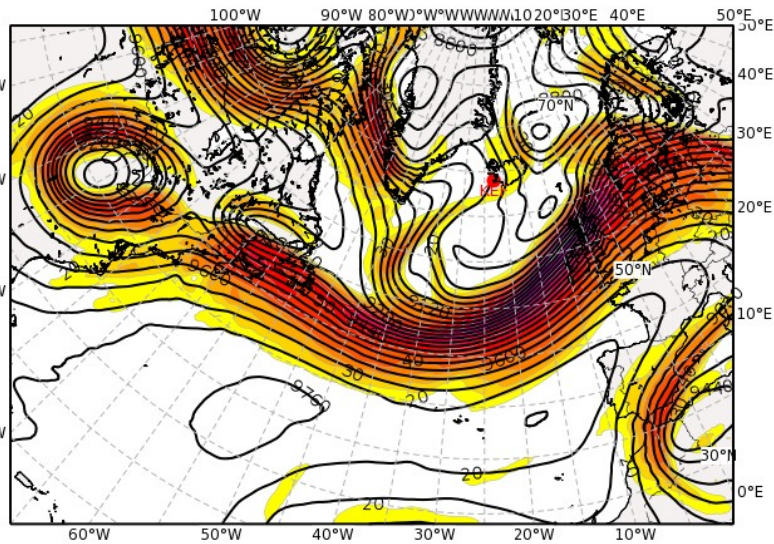


Trajectory start and SLP VT: 20160928_12
WCB outflow and PV@250hPa VT: 20160930_12

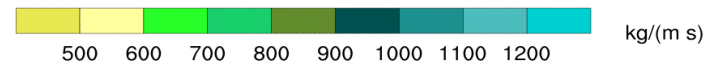
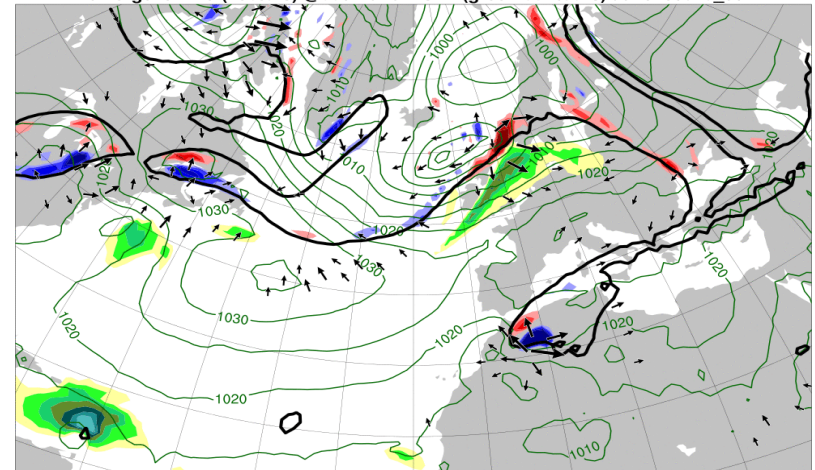


Forecast – Thu, 29 Sep 2016, 00 UTC

Z300, PV330, THE850, WCB

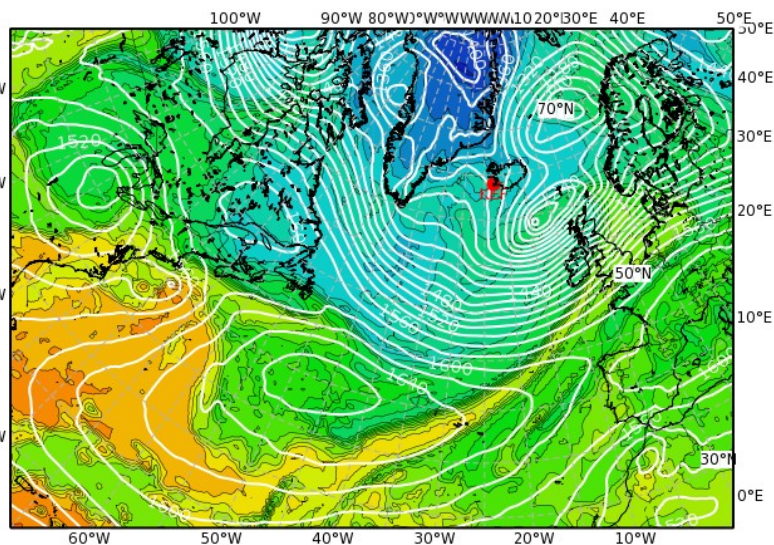
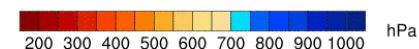
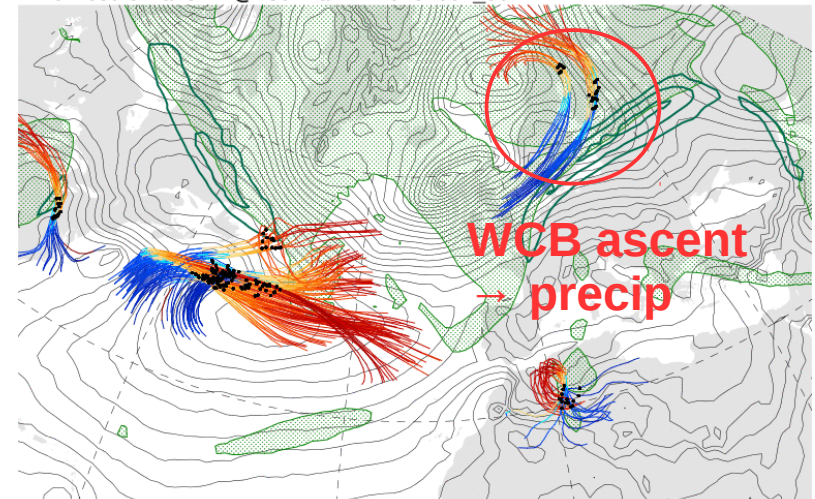


2 PVU (black contour), PV advection through divergent wind (shading), divergent wind (vectors) @330K and MSLP (green contours) at 20160929_00



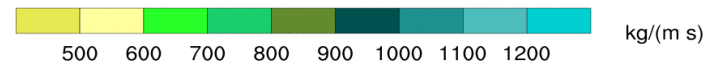
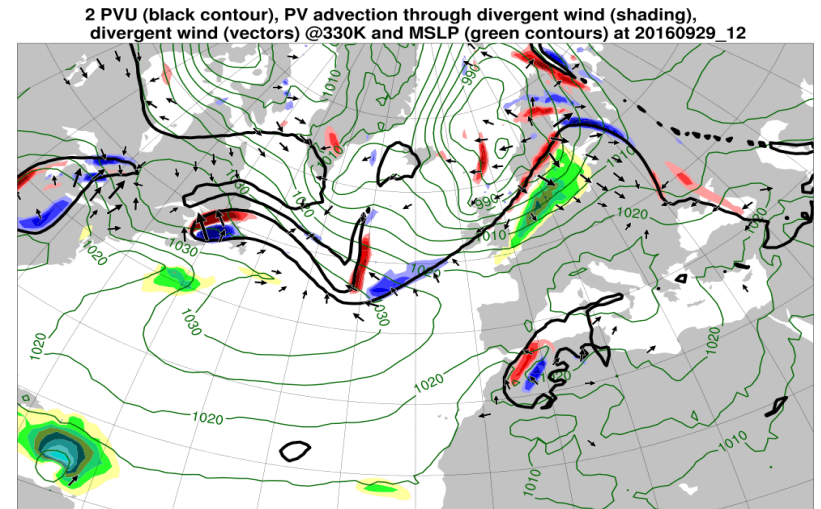
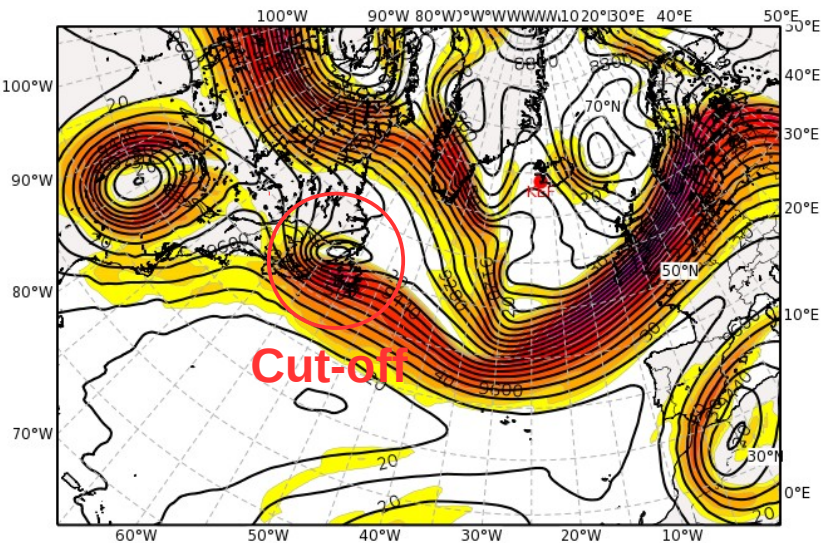
Trajectory start and SLP VT: 20160929_00

WCB outflow and PV@250hPa VT: 20161001_00



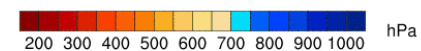
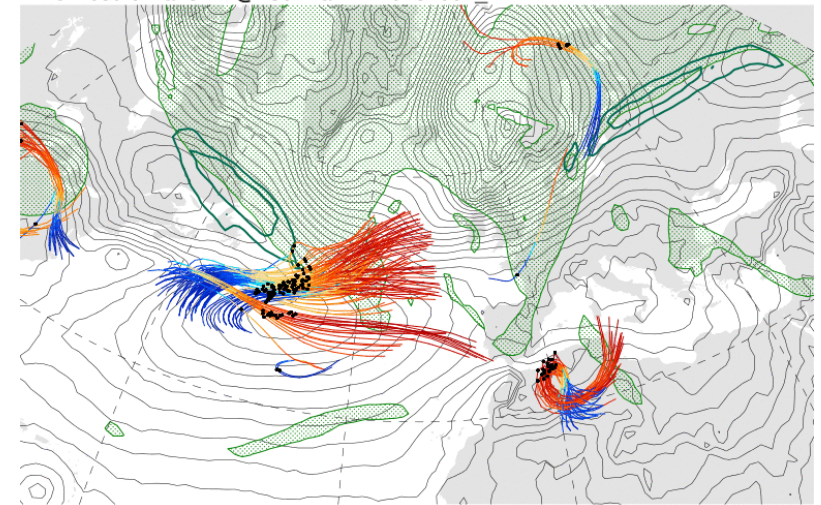
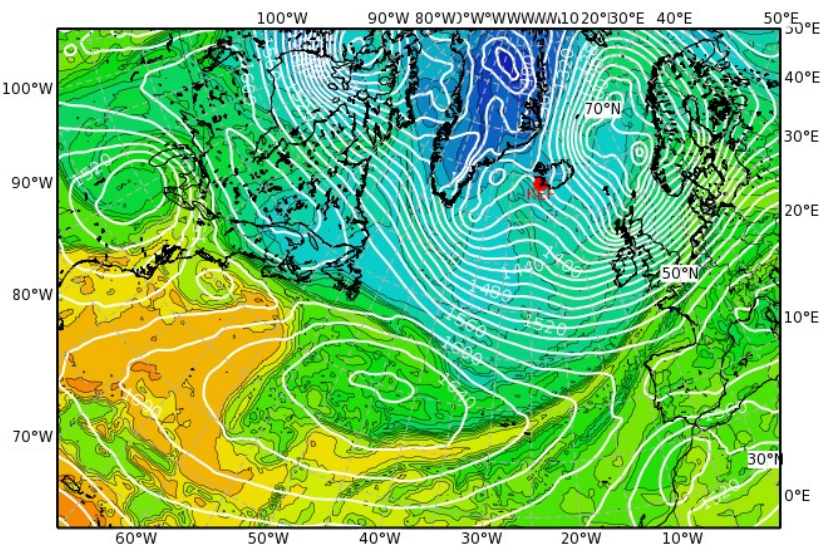
Forecast – Thu, 29 Sep 2016, 12 UTC

Z300, PV330, THE850, WCB



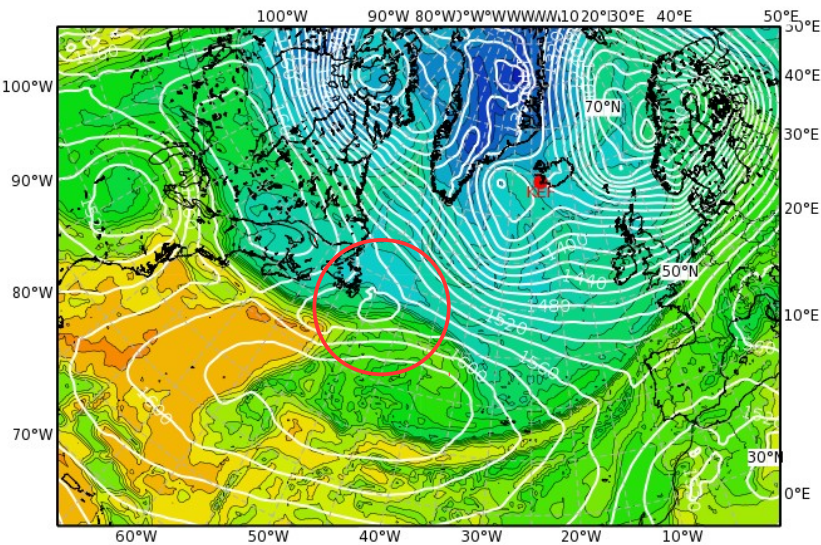
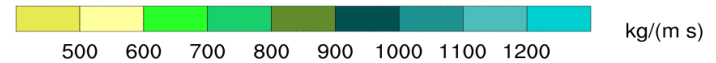
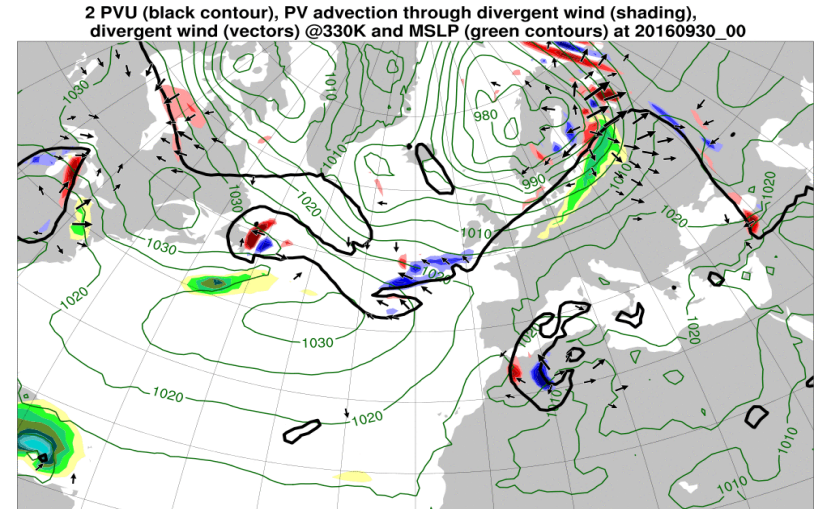
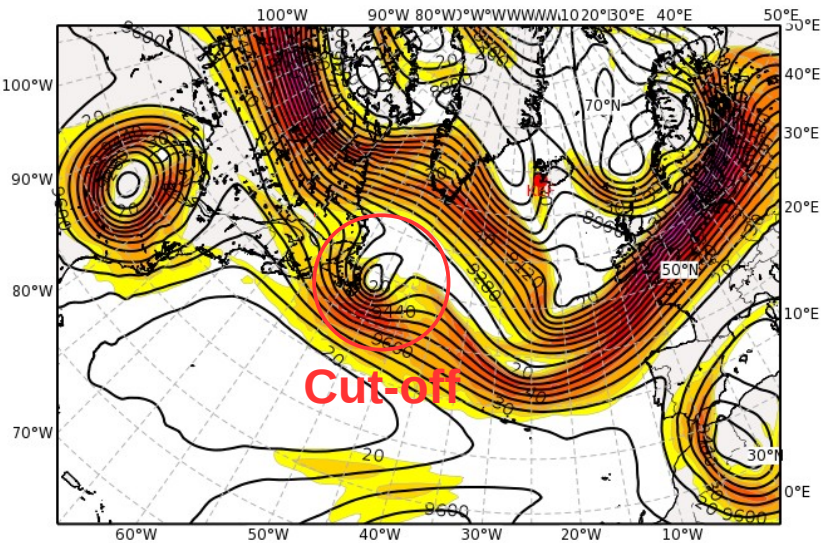
Trajectory start and SLP VT: 20160929_12

WCB outflow and PV@250hPa VT: 20161001_12

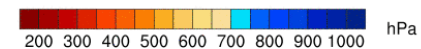
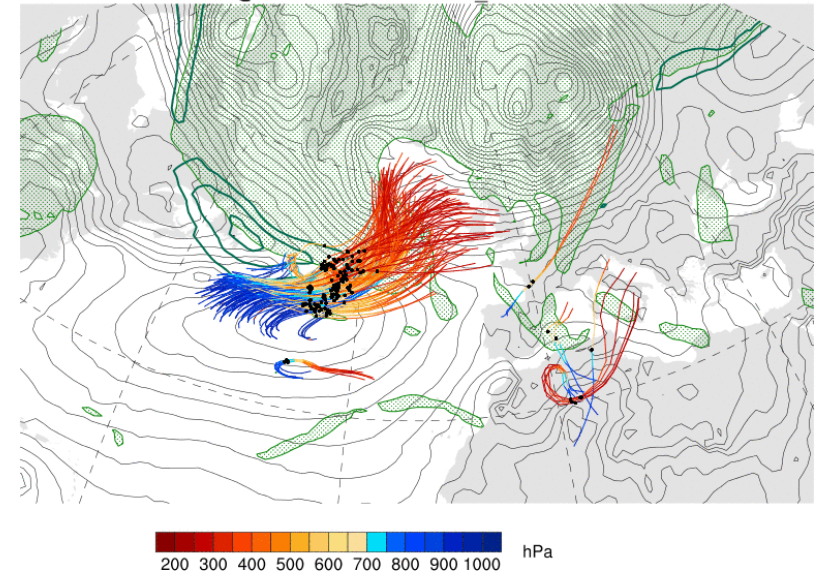


Forecast – Fri, 30 Sep 2016, 00 UTC

Z300, PV330, THE850, WCB

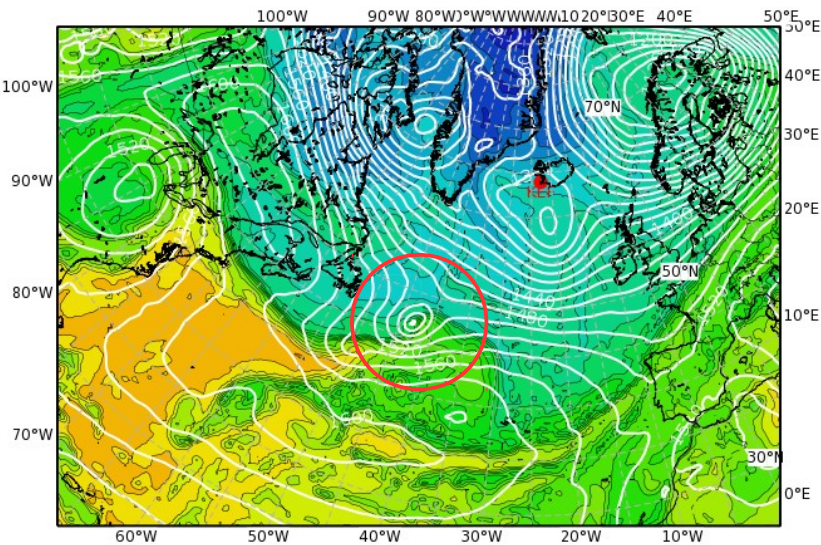
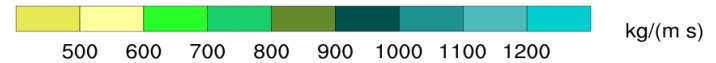
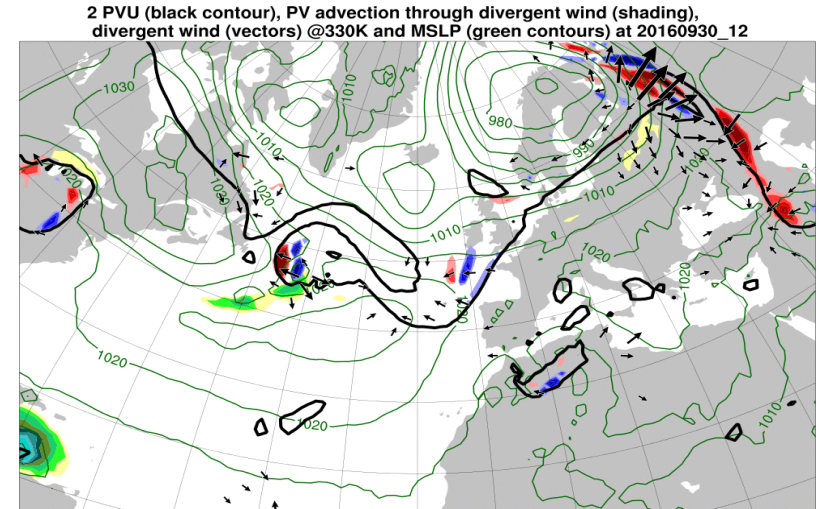
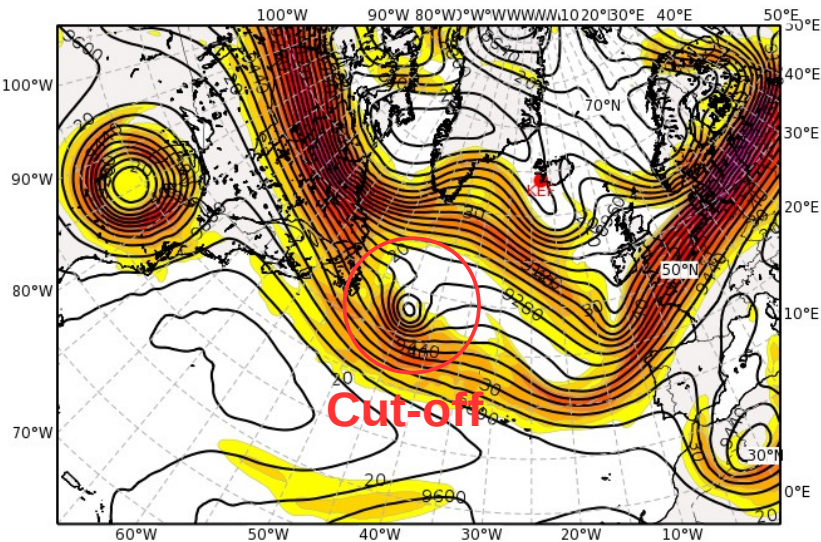


Trajectory start and SLP VT: 20160930_00
WCB outflow and PV@250hPa VT: 20161002_00

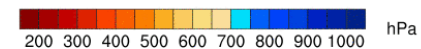
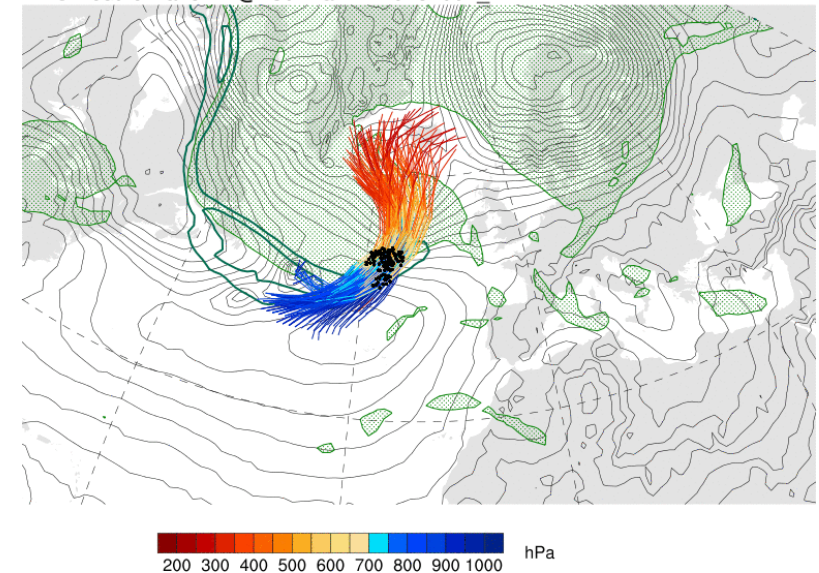


Forecast – Fri, 30 Sep 2016, 12 UTC

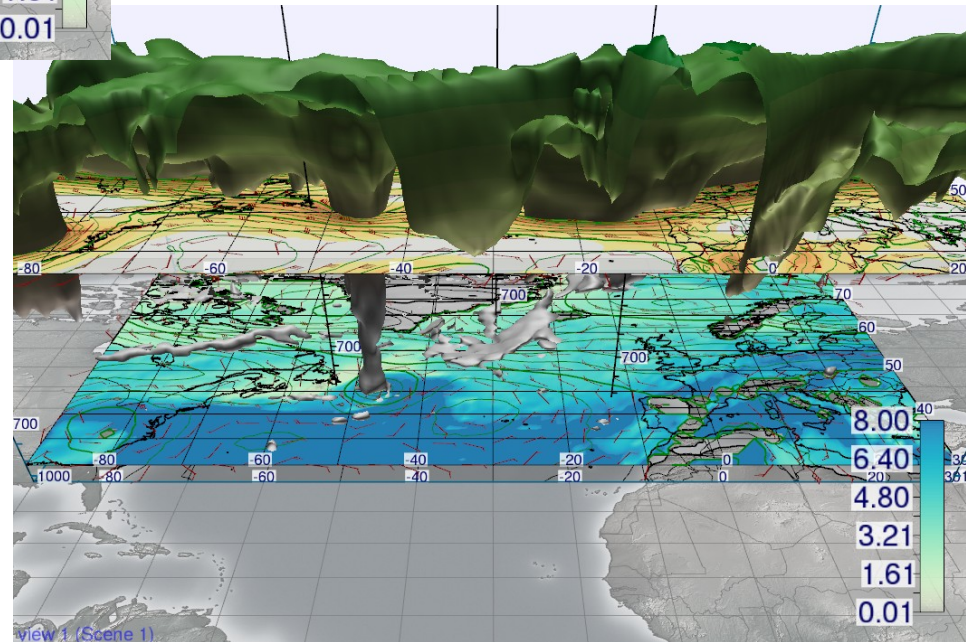
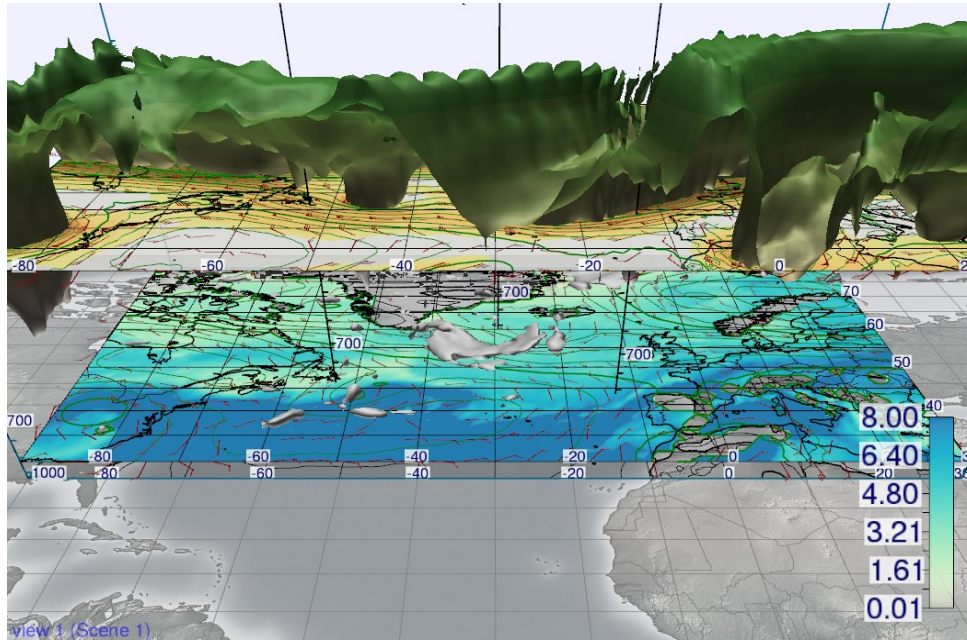
Z300, PV330, THE850, WCB



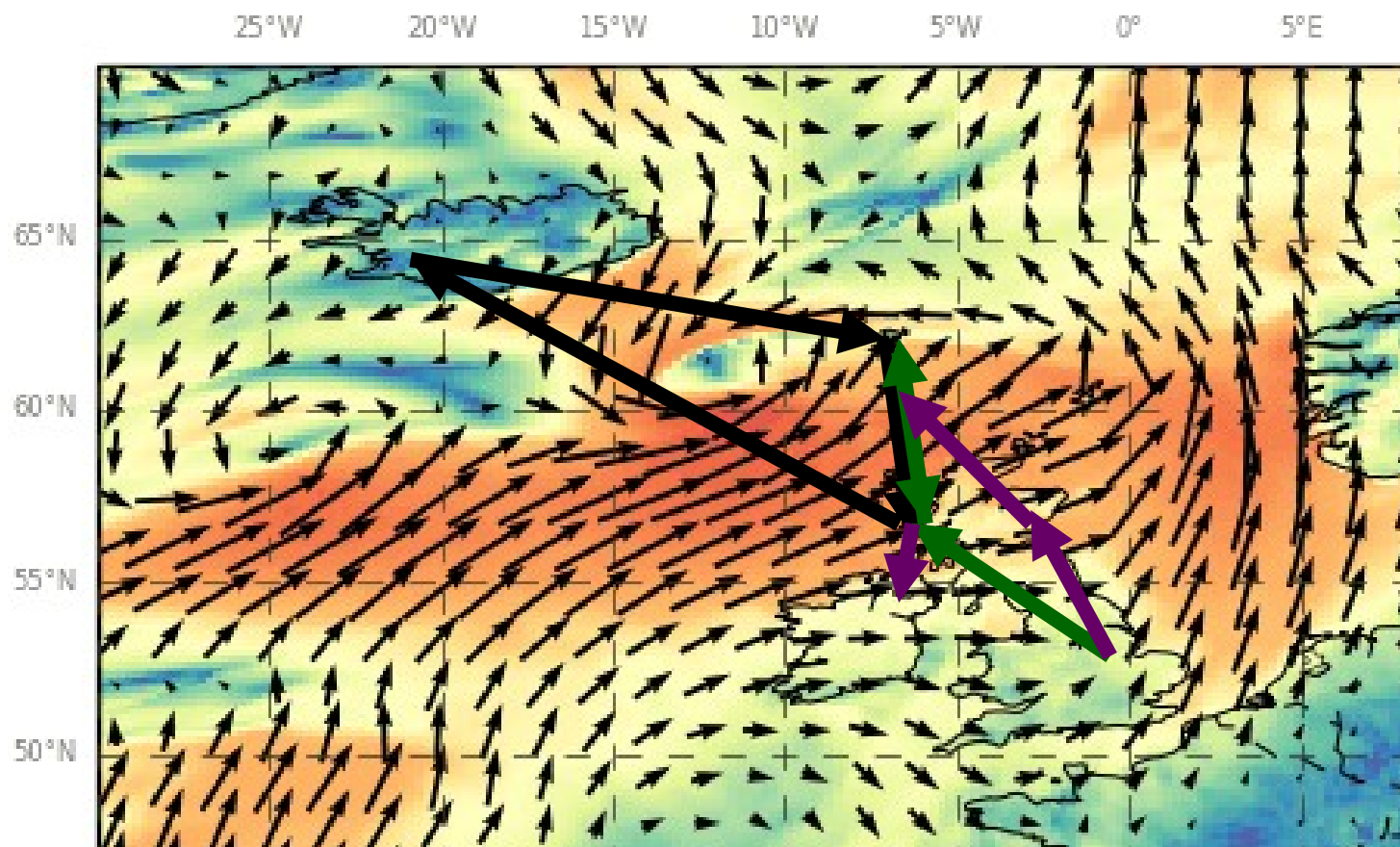
Trajectory start and SLP VT: 20160930_12
WCB outflow and PV@250hPa VT: 20161002_12



Two forecast scenarios for Friday



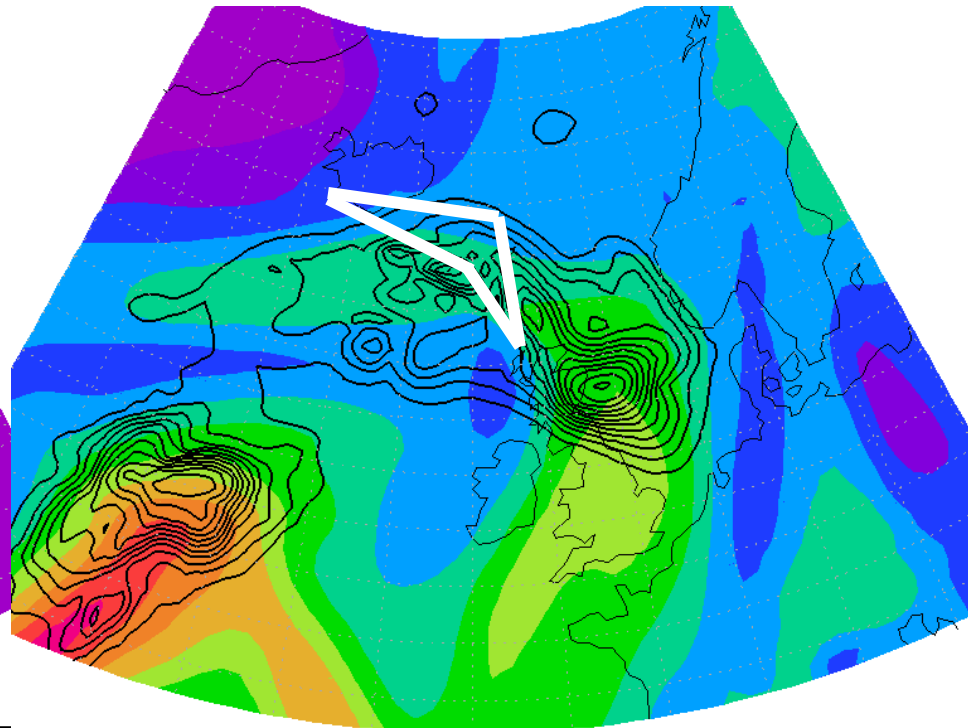
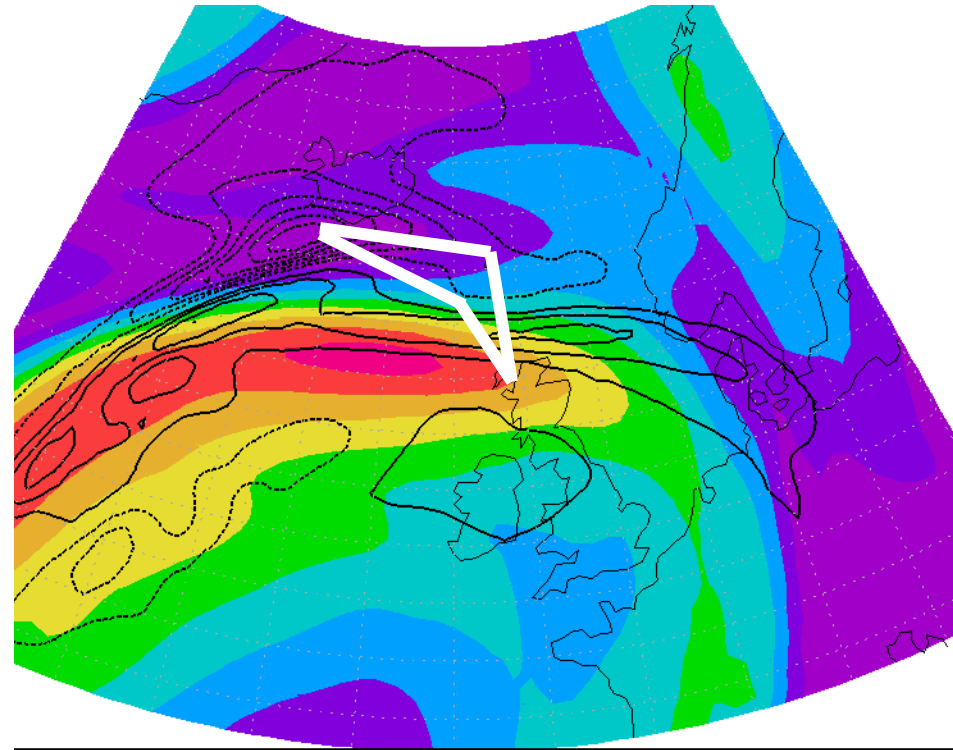
Falcon/UK FAAM BAE 146 flights on Tuesday



COAMPS Sensitivity (12h) Valid 12Z 27 Sep (Box over UK) Falcon Flight (Tue)

300-hPa U Sensitivity
300-hPa Wind Speed

Integrated Moisture Sensitivity
Integrated Water Vapor

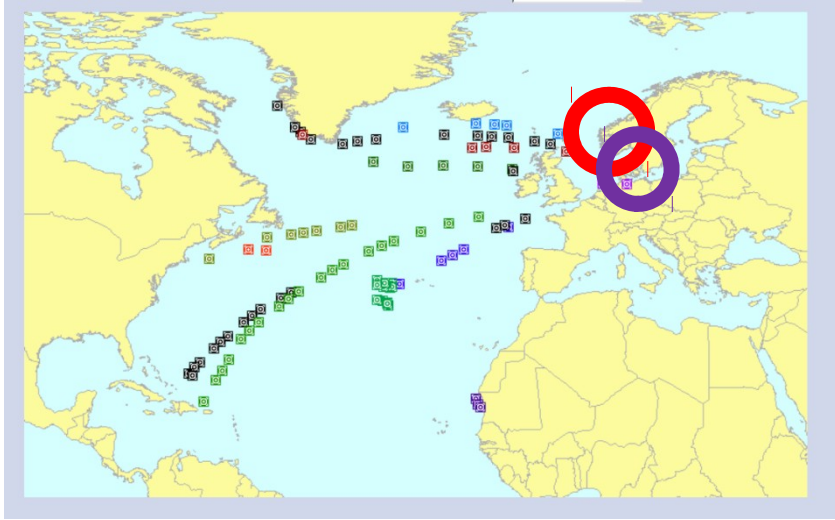


- 12-h Sensitivity focusing on winds over UK
- Wind maxima near and north of jet axis
- FAAM will traverse area of moisture sensitivity over Scotland

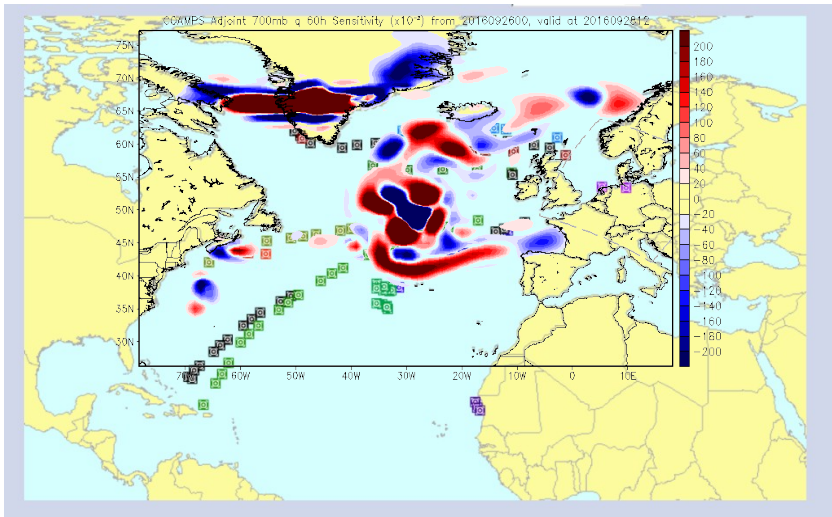
COAMPS Sensitivity Valid 12Z 28 SEP (Wed)

Suggest Sondes from Greenland and Azores

Ship Locations

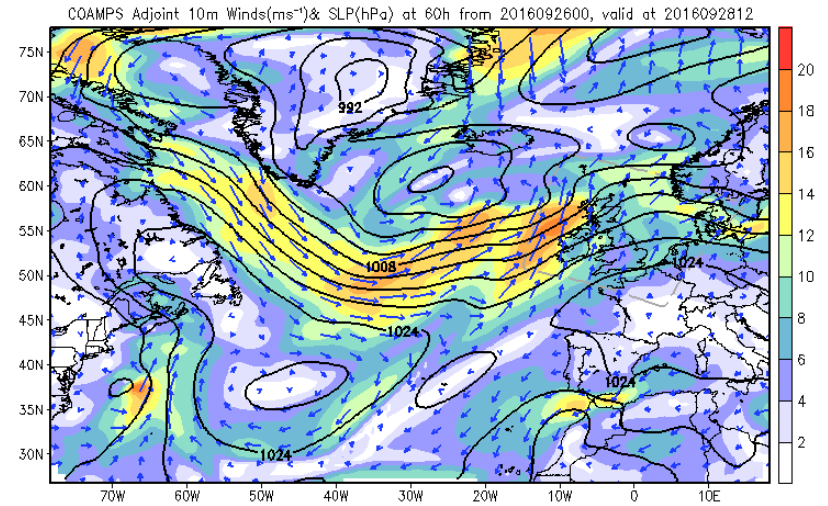


700-hPa 48-h Q Sen 12Z 28 Sep

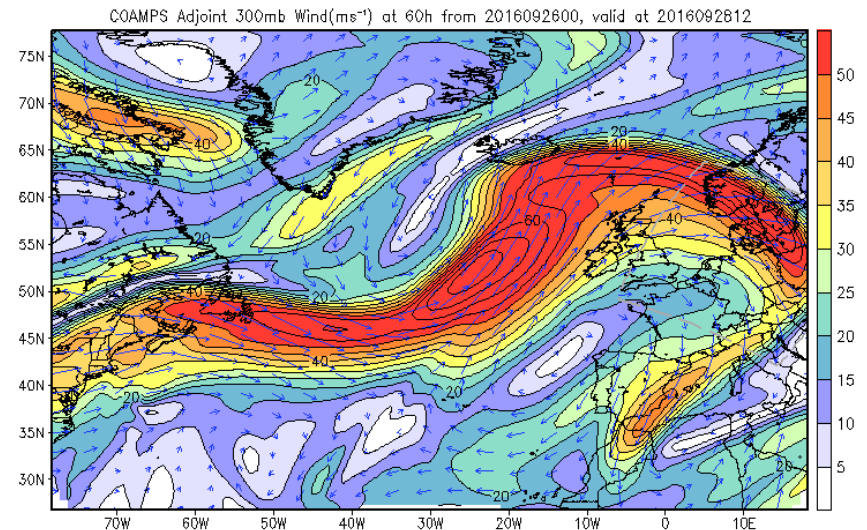


 Location of final-time 24-h Sensitivity

10-m Winds, SLP 12Z 28 SEP



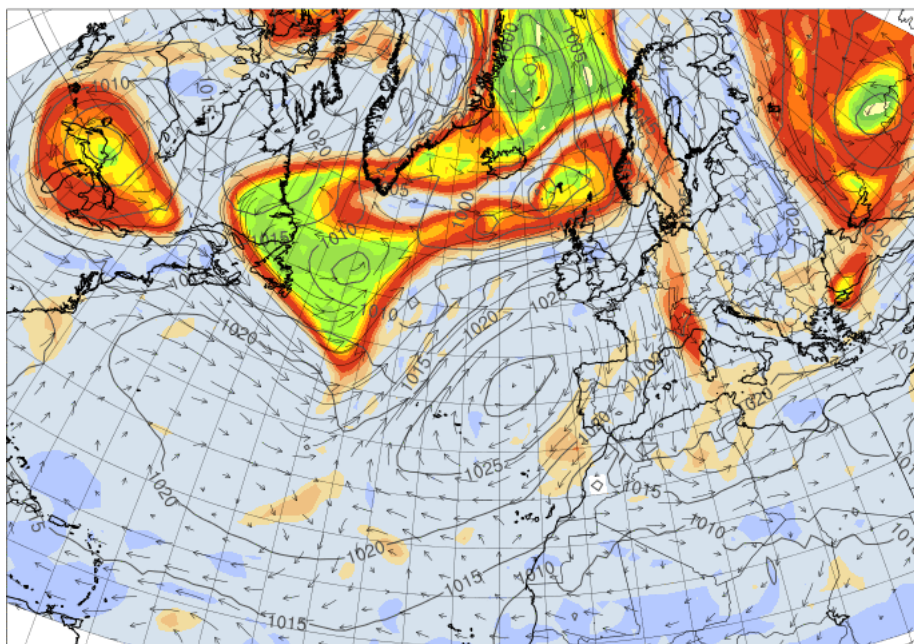
300-hPa Winds 12Z 28 Sep



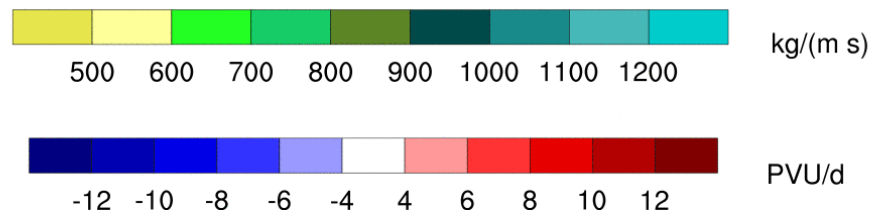
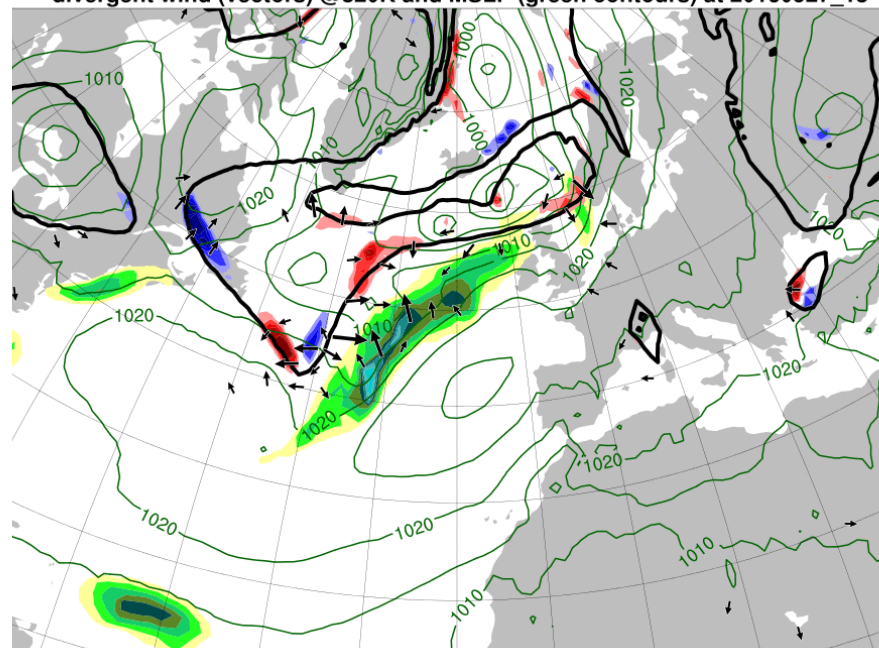
 Location of final-time 48-h Sensitivity

HALO flight on Tuesday

PV@320K at 20160927_15

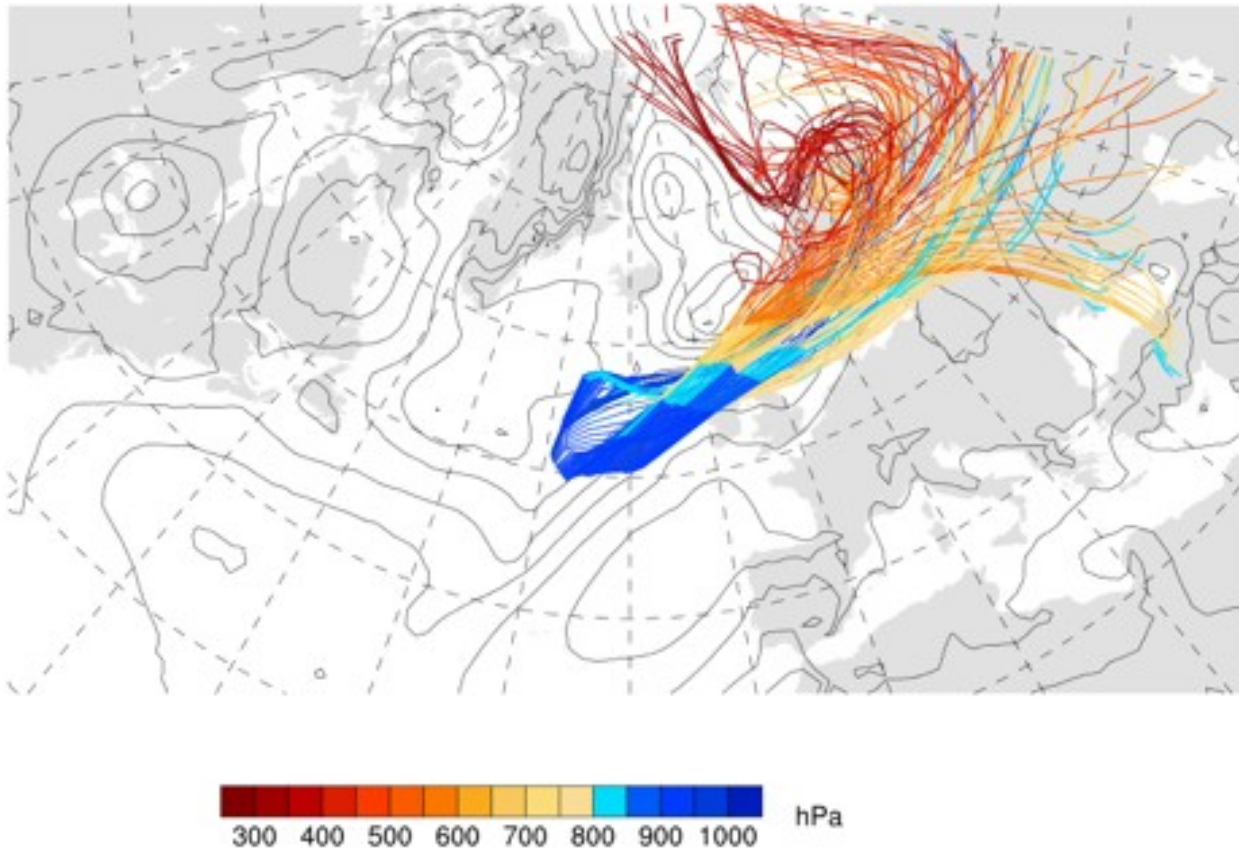


2 PVU (black contour), PV advection through divergent wind (shading), divergent wind (vectors) @320K and MSLP (green contours) at 20160927_15



Tuesday, 27 Sep 2016

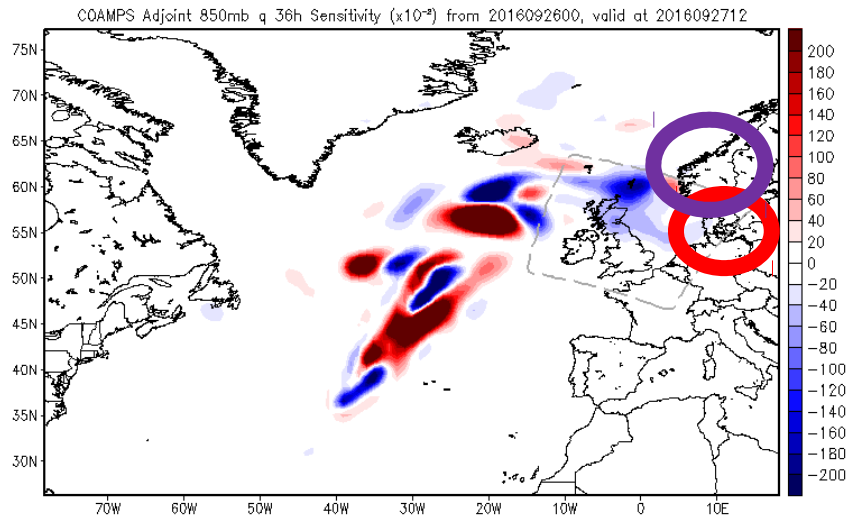
5-day forward trajectories



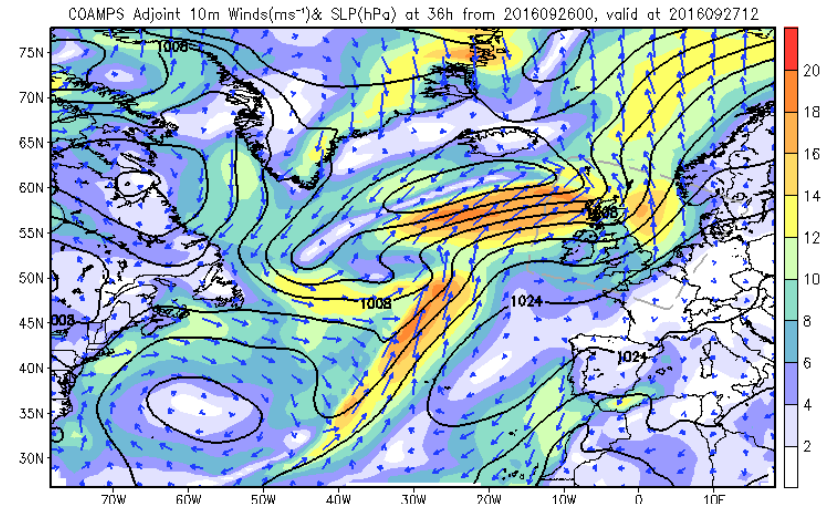
COAMPS Sensitivity Valid 12Z and 18Z 27 SEP (Tue)

Sensitivity highlights moisture plume in central Atlantic, jet south of Iceland

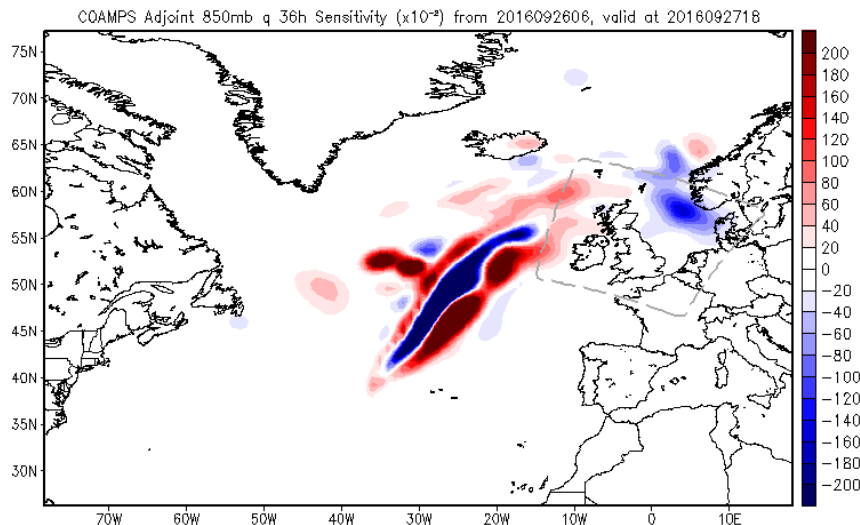
850-hPa 24-h Q Sen 12Z 27 Sep



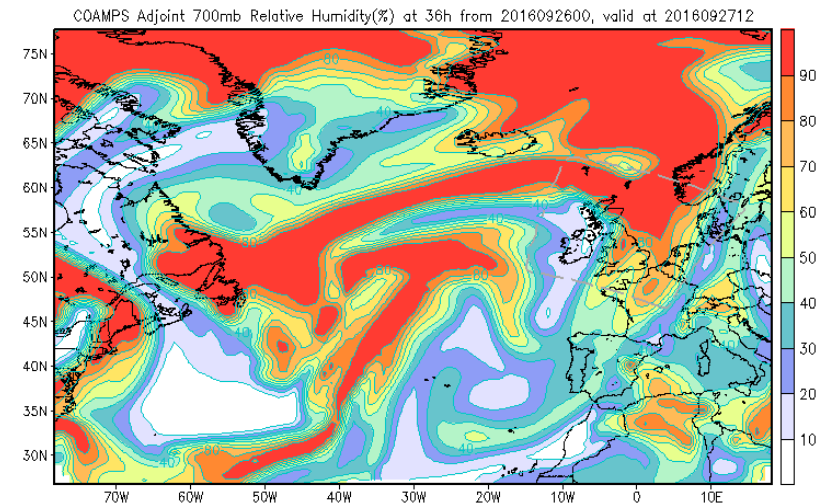
10-m Winds, SLP 12Z 27 SEP



850-hPa 24-h U Sen 18Z 27 Sep



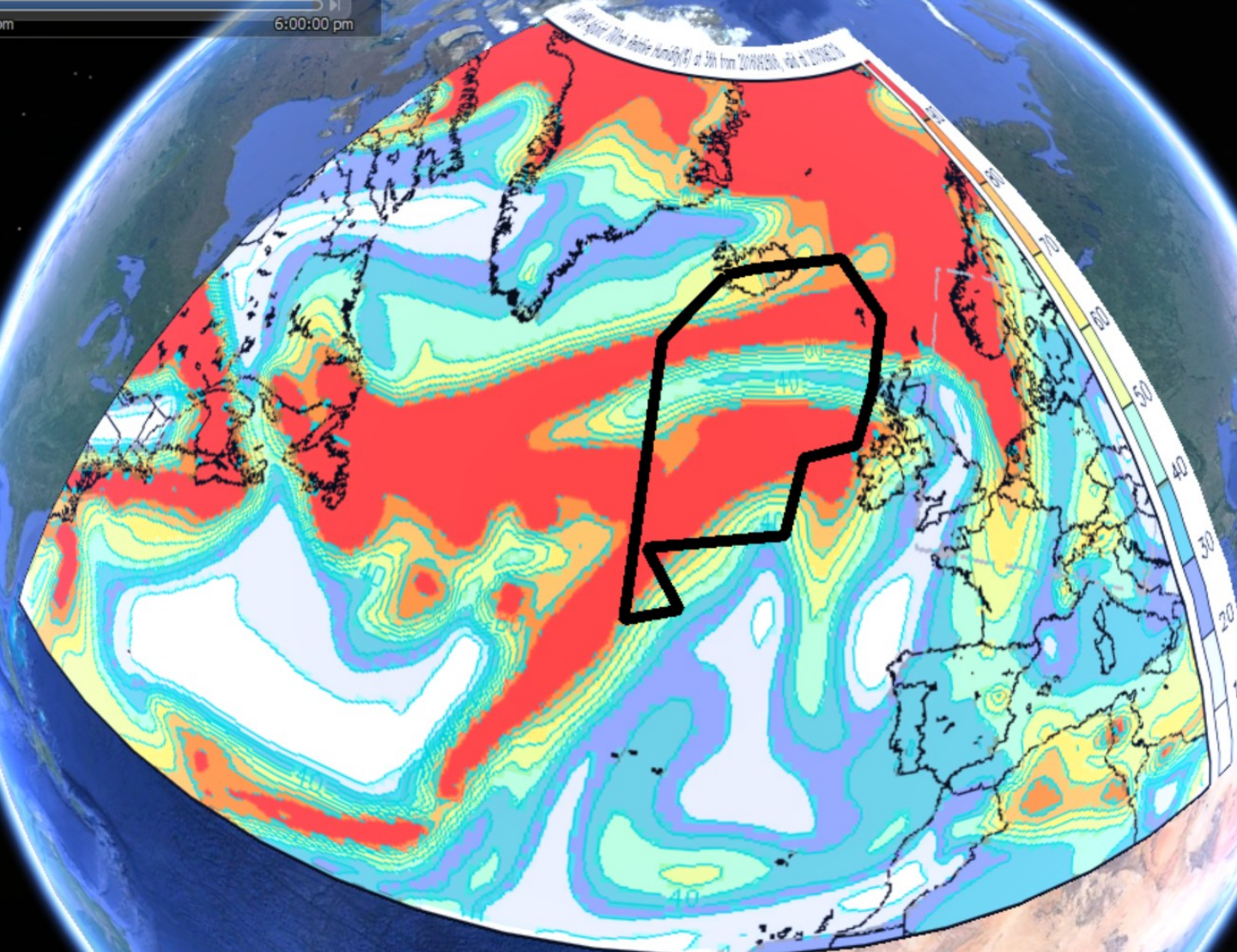
700-hPa RH 12Z 27 SEP



 Location of final-time 24-h Sensitivity

 Location of final-time 48-h Sensitivity

9/27/2016 6:00:00 pm
6:00:00 pm 6:00:00 pm



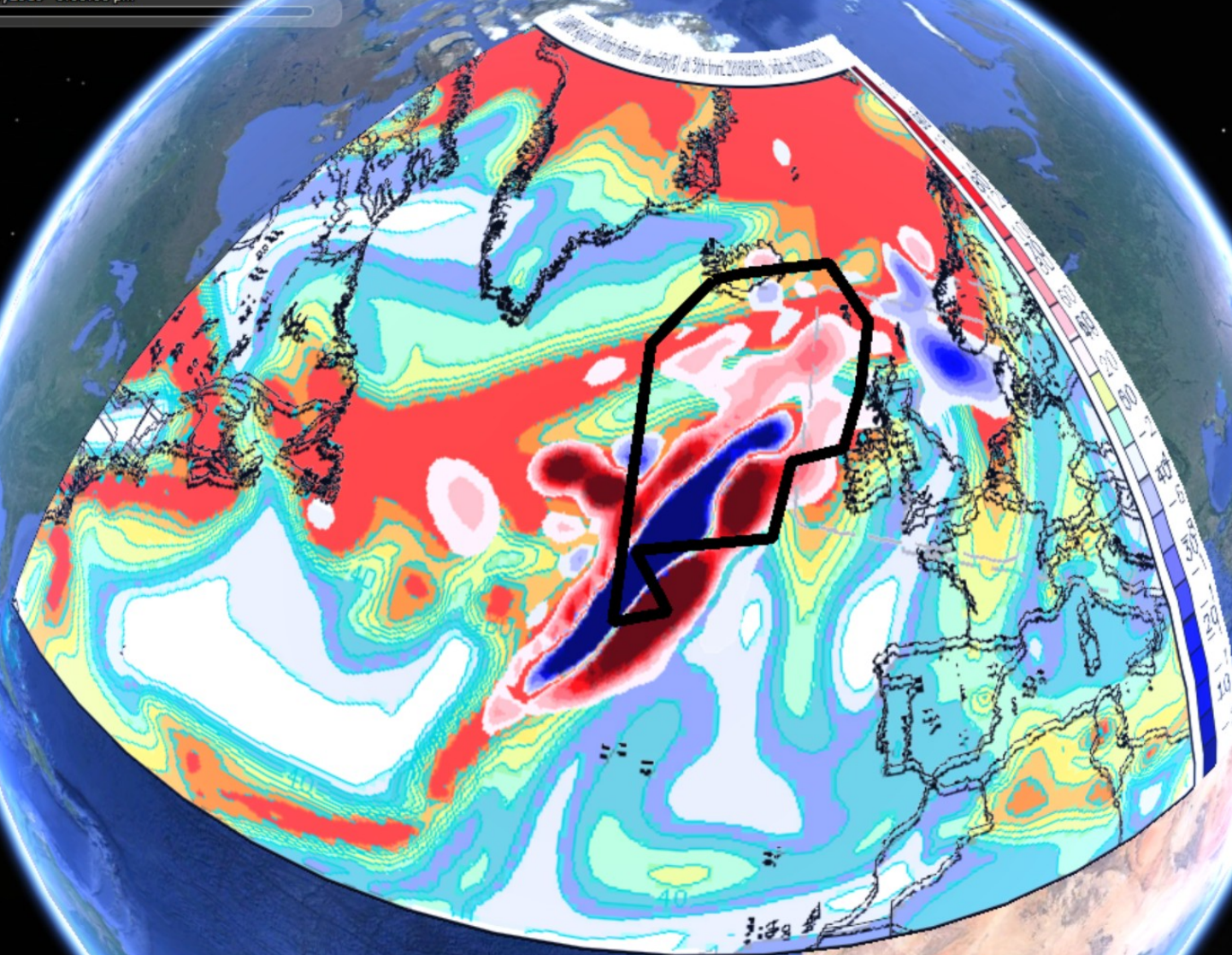
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Image Landsat
Image IBCAO
Image U.S. Geological Survey

Google earth

Tour Guide

eye alt 4637.12 mi

9/27/2016 6:00:00 pm



Data SIO, NOAA, U.S. Navy, NGA, GEBCO

Image Landsat

Image IBCAO

Image U.S. Geological Survey

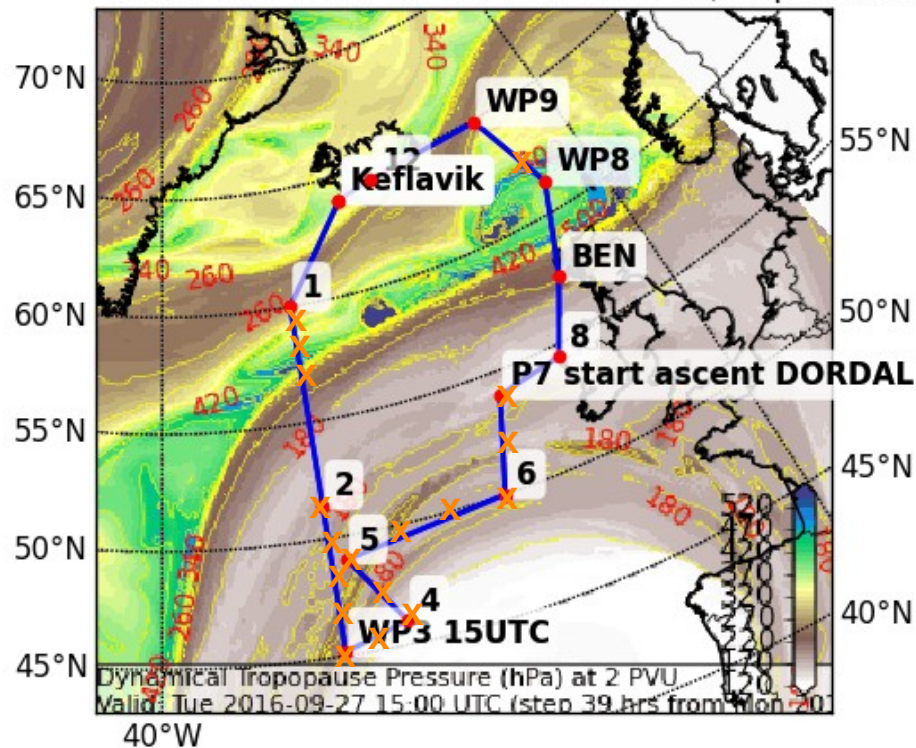
Google earth

Tour Guide

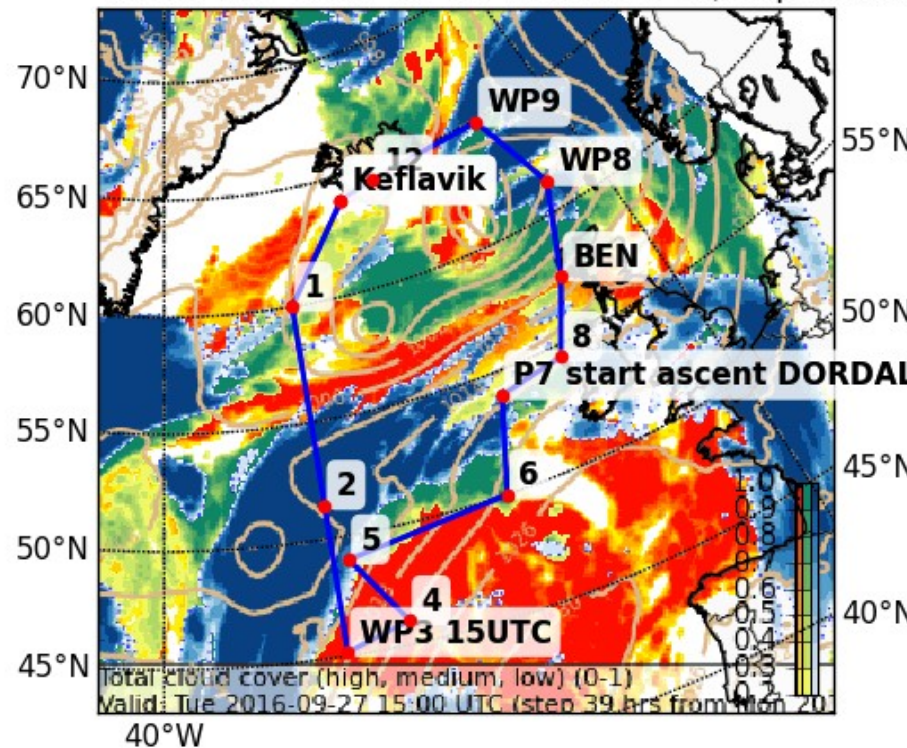
Imagery Date: 12/14/2015 lat 48.381107° lon -28.072217° elev -9801 ft eye alt 4637.12 mi

Tuesday, 27 Sep 2016 15 UTC

Dynamical Tropopause (Pressure (hPa)) at 200
Valid: Tue 2016-09-27 15:00 UTC (step 39 hrs)

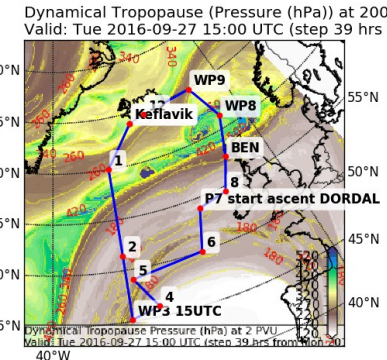
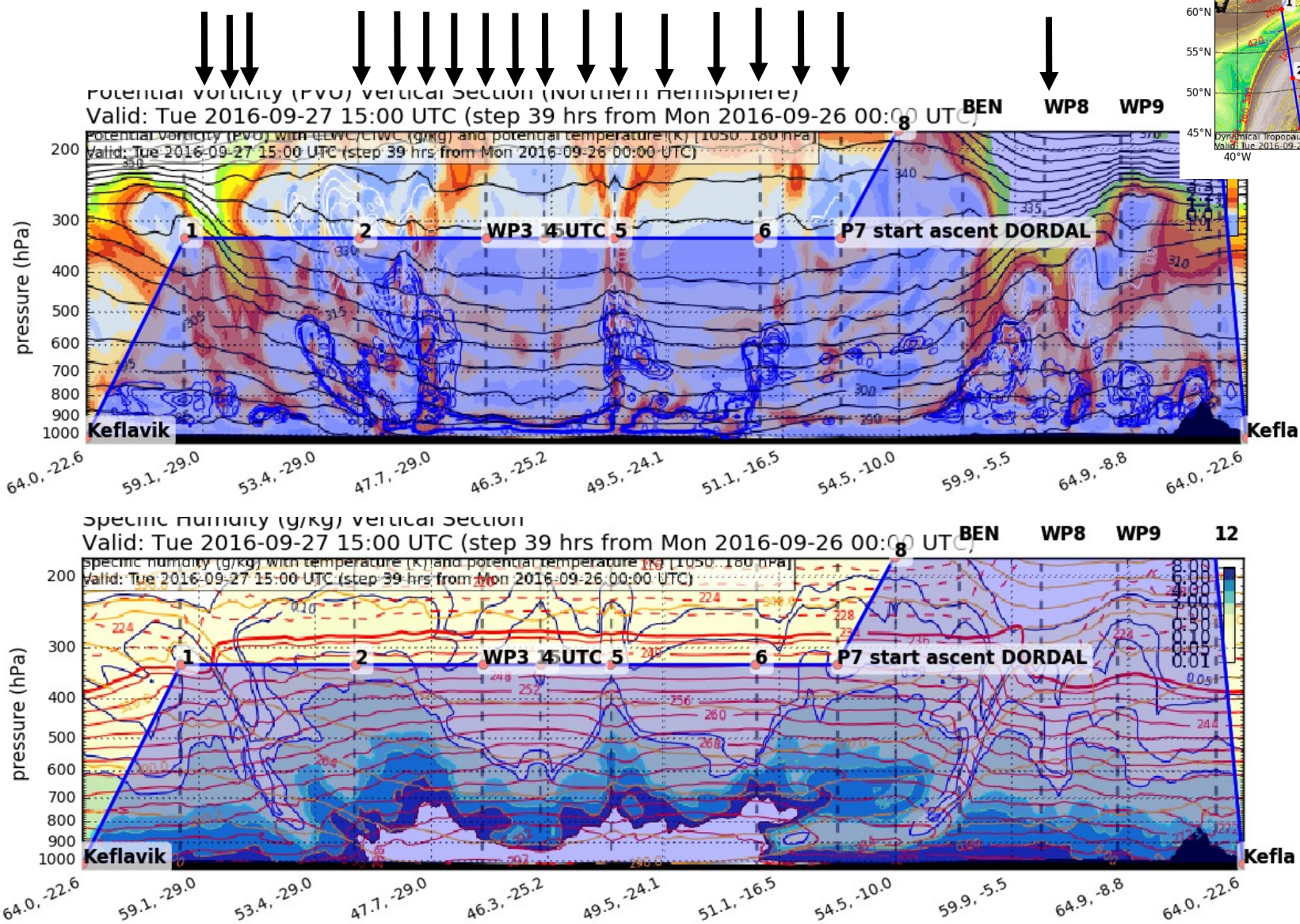


Cloud Cover (0-1) (Total Cloud Cover)
Valid: Tue 2016-09-27 15:00 UTC (step 39 hrs)



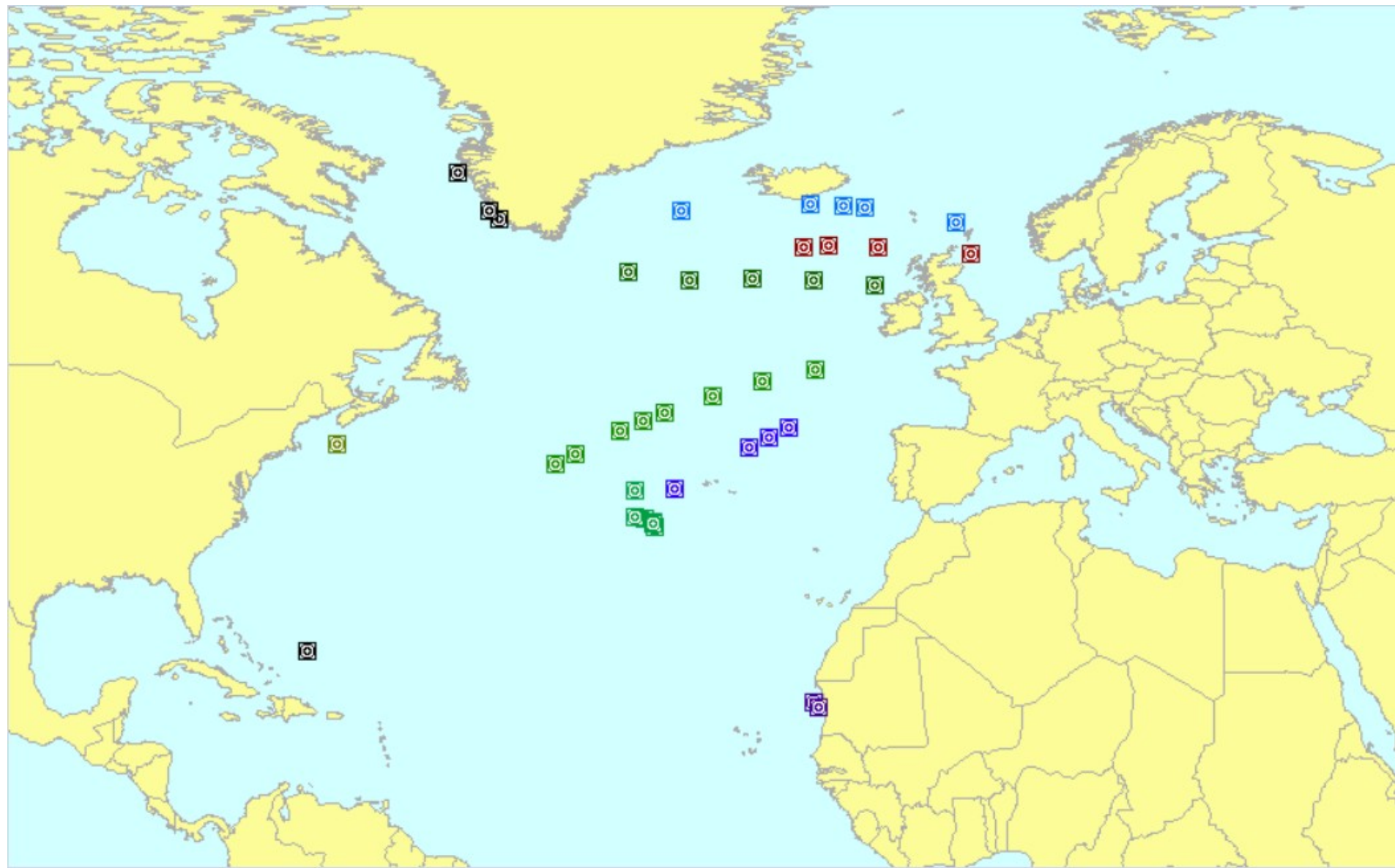
In total 3+14+1 dropsondes

Tuesday, 27 Sep 2016 15 UTC



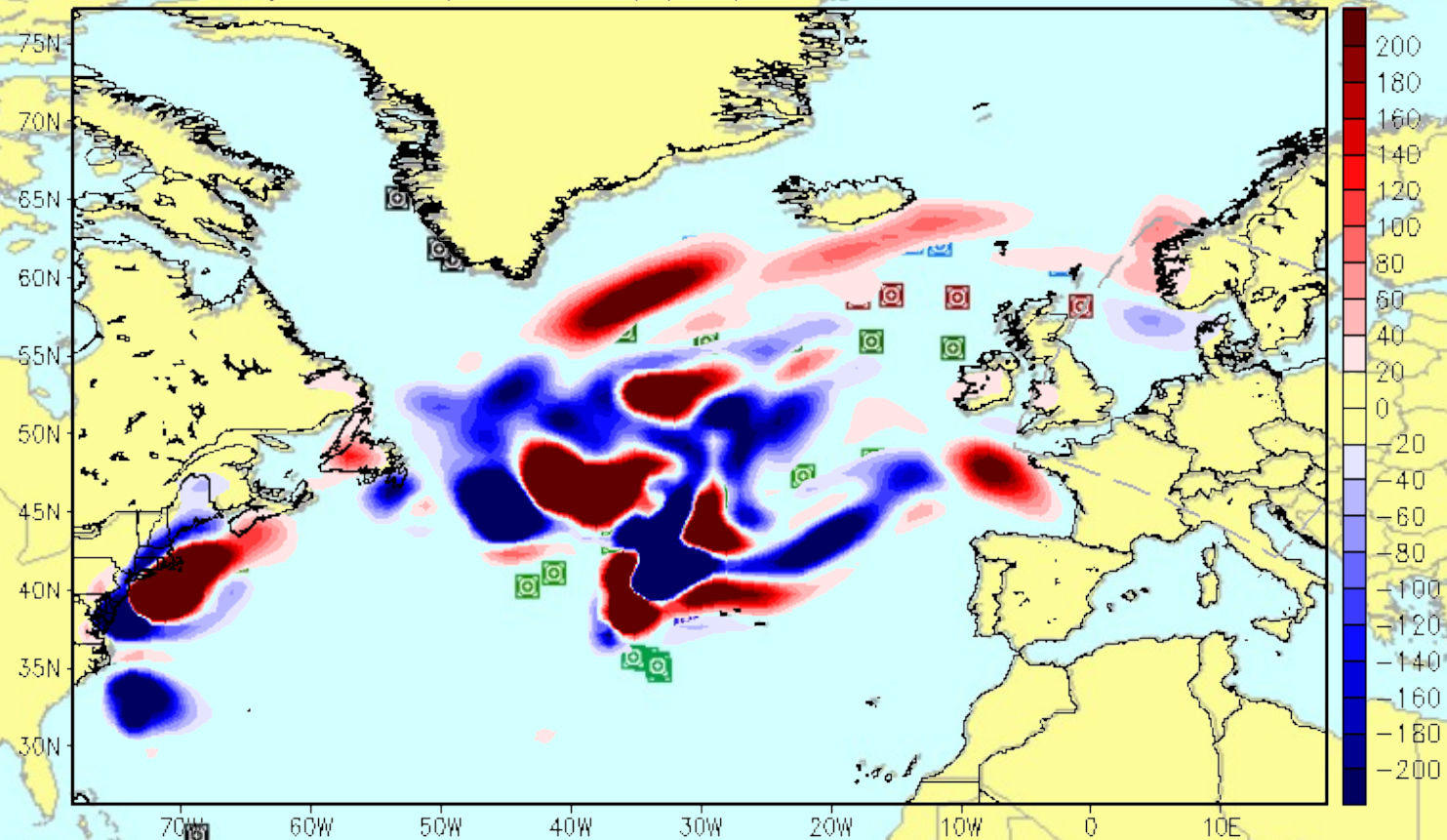
Additional radiosoundings over Europe

23-26 September Ship Radiosondes



23-26 September Ship & q Sensitivity (27/18Z)

COAMPS Adjoint 850mb q 36h Sensitivity ($\times 10^{-2}$) from 2016092606, valid at 2016092718



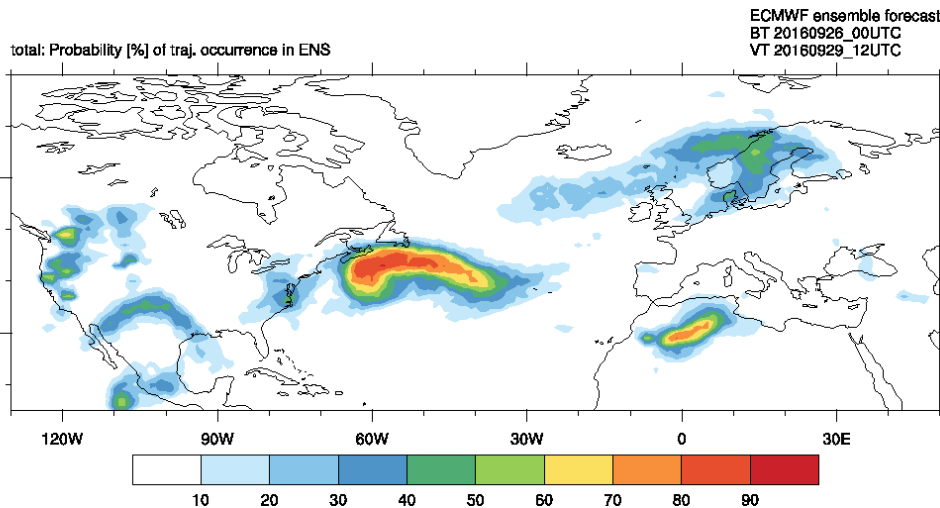
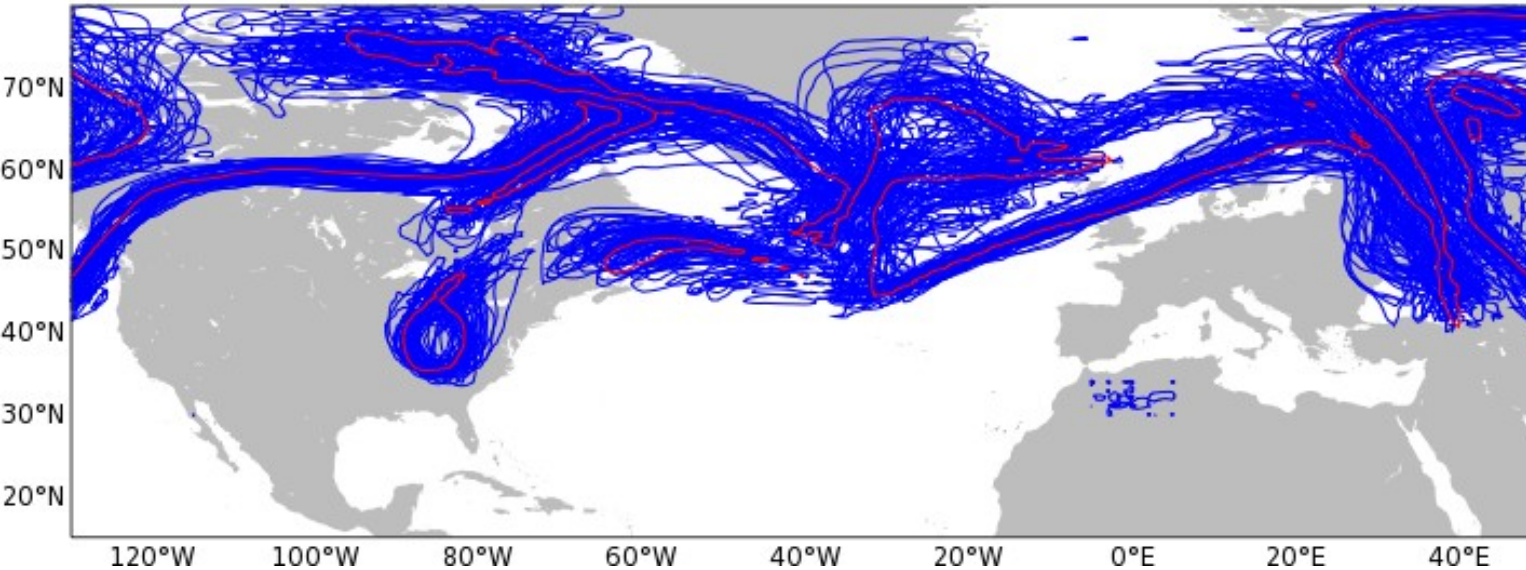
Outlook

Forecast for Thursday, 29 Sep 2016 12 UTC: 2PVU at 330K

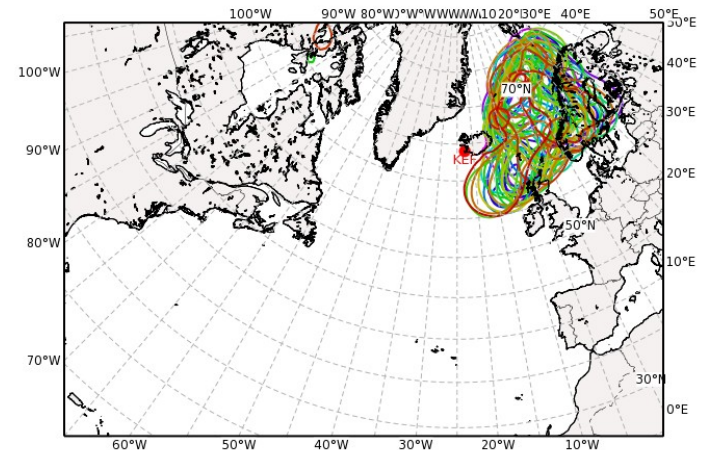
ECMWF ENSEMBLE FC

BT: 20160926 00UTC, VT: 20160929 12UTC

blue: perturbed, red: control



ECMWF ENS MSLP (990hPa-isoline)
Valid: Thu, 29 Sep 2016, 12 UTC (step 084 h from Mon, 26 Sep 2016, 00 UTC)

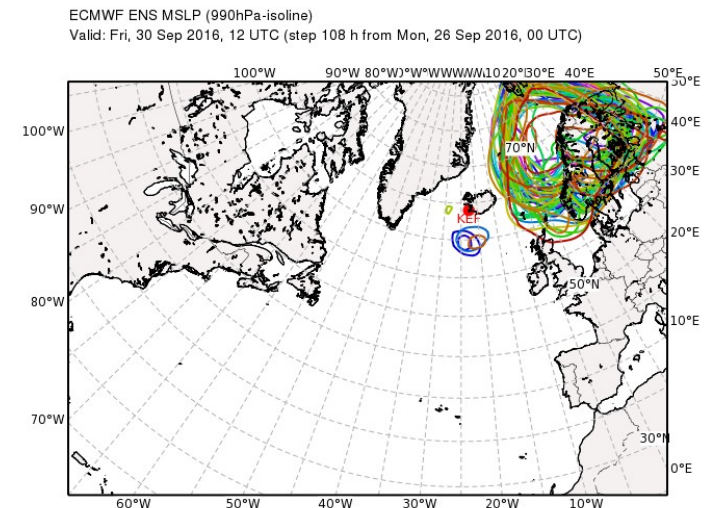
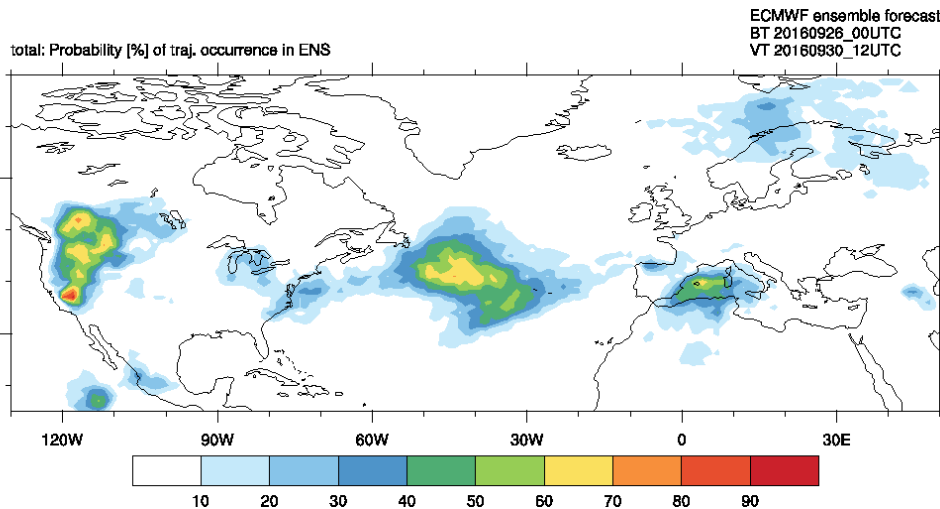
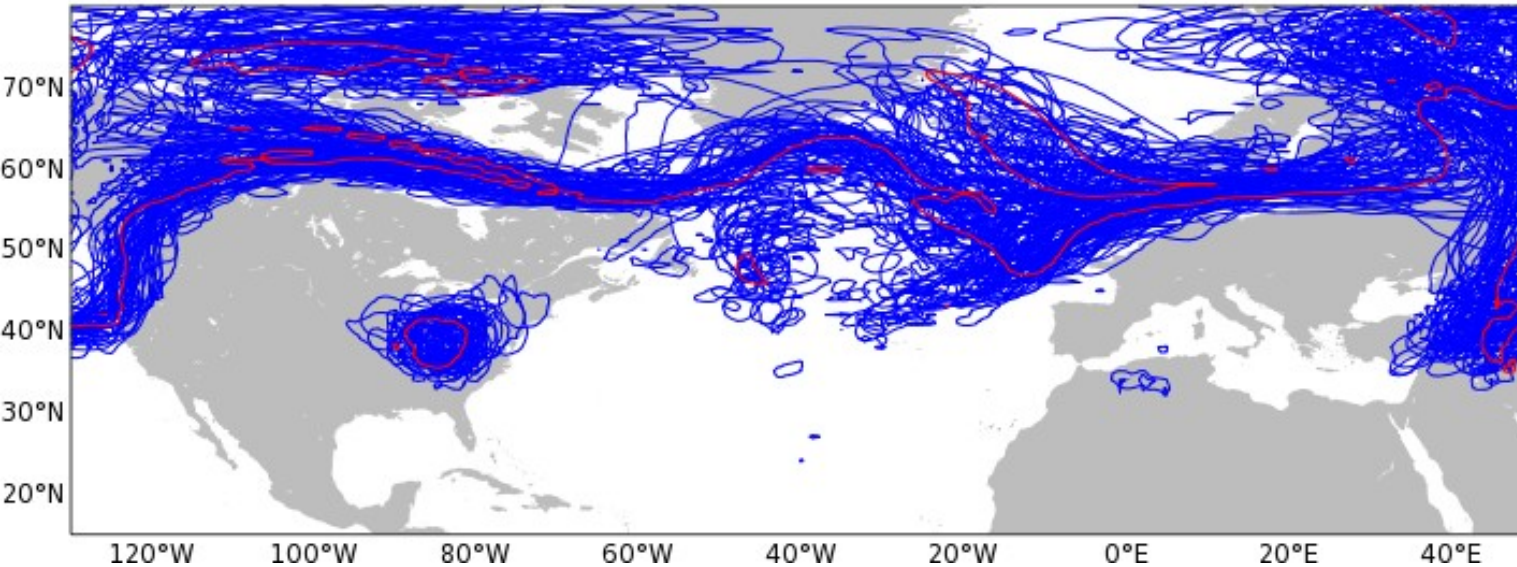


Forecast for Friday, 30 Sep 2016 12 UTC: 2PVU at 330K

ECMWF ENSEMBLE FC

BT: 20160926 00UTC, VT: 20160930 12UTC

blue: perturbed, red: control

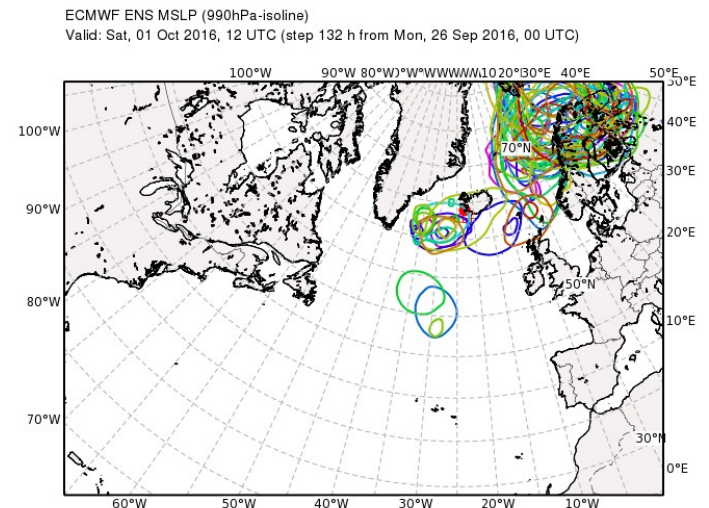
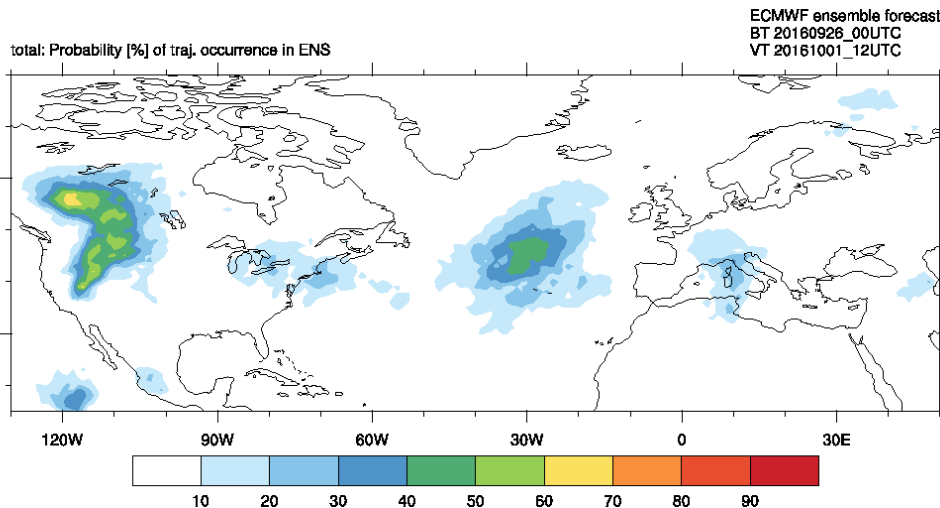
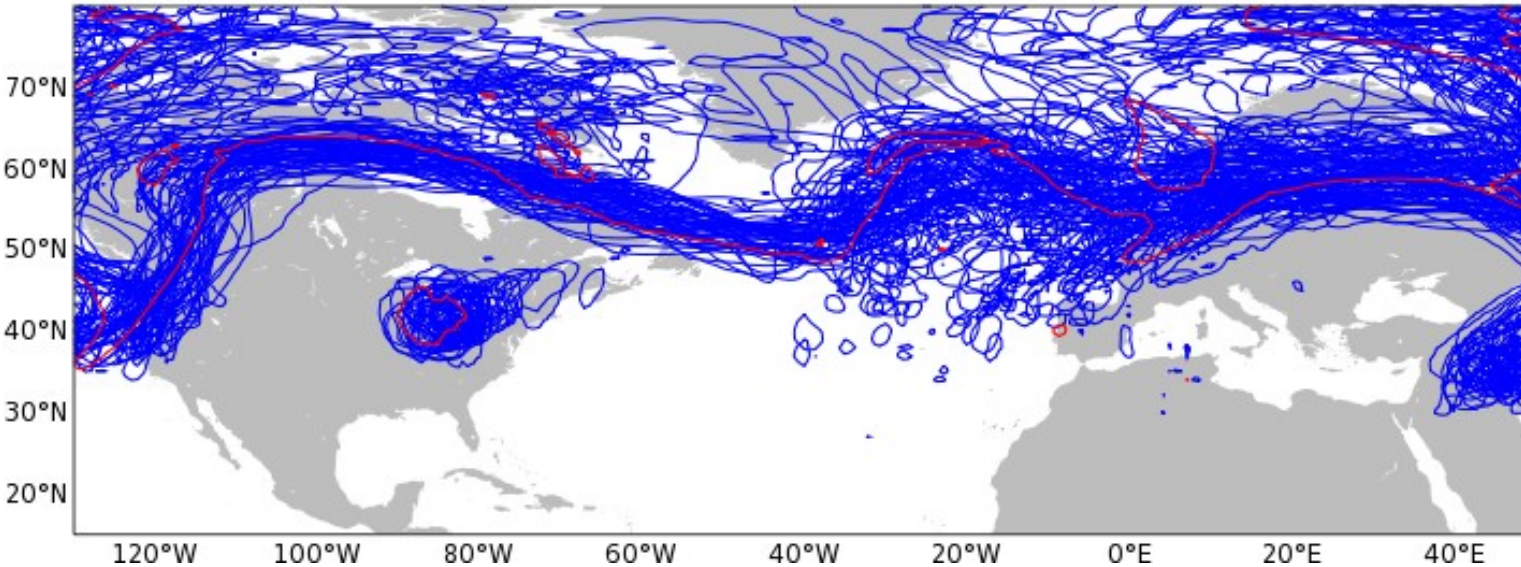


Forecast for Saturday, 1 Oct 2016 12 UTC: 2PVU at 330K

ECMWF ENSEMBLE FC

BT: 20160926 00UTC, VT: 20161001 12UTC

blue: perturbed, red: control

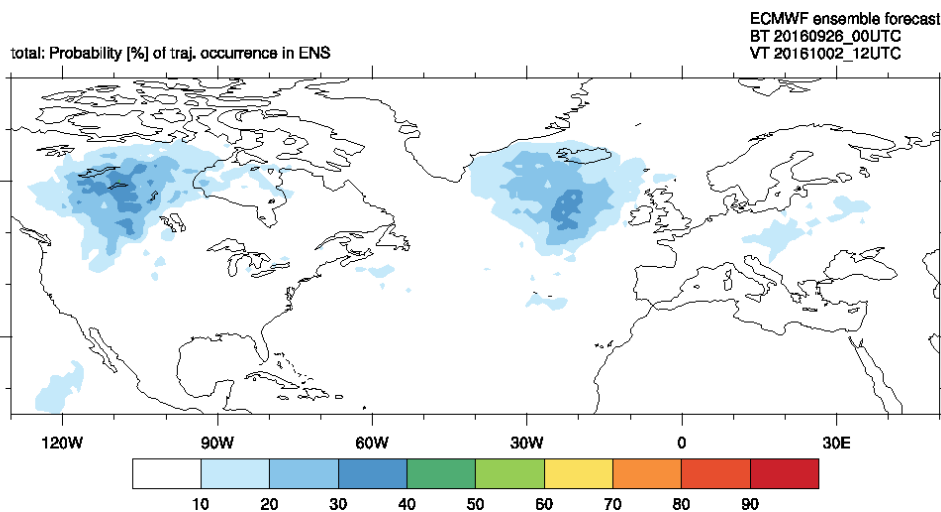
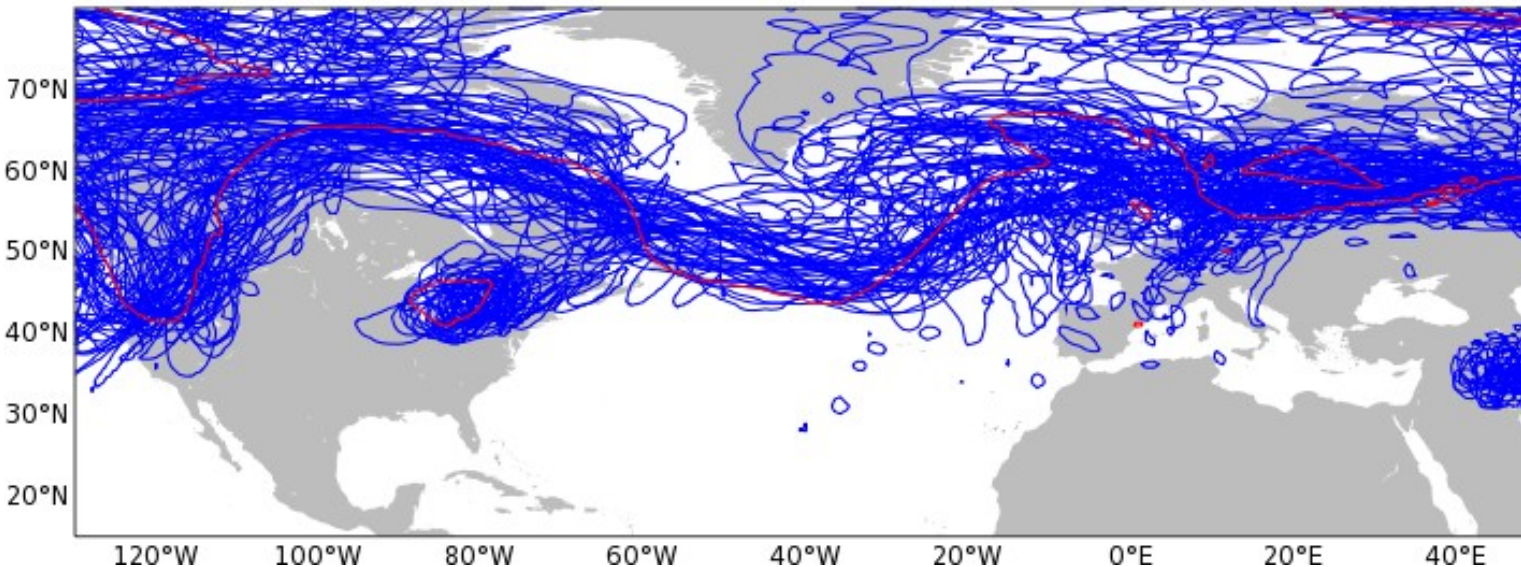


Forecast for Sunday, 2 Oct 2016 12 UTC: 2PVU at 330K

ECMWF ENSEMBLE FC

BT: 20160926 00UTC, VT: 20161002 12UTC

blue: perturbed, red: control



ECMWF ENS MSLP (990hPa-isoline)

Valid: Sun, 02 Oct 2016, 12 UTC (step 156 h from Mon, 26 Sep 2016, 00 UTC)

