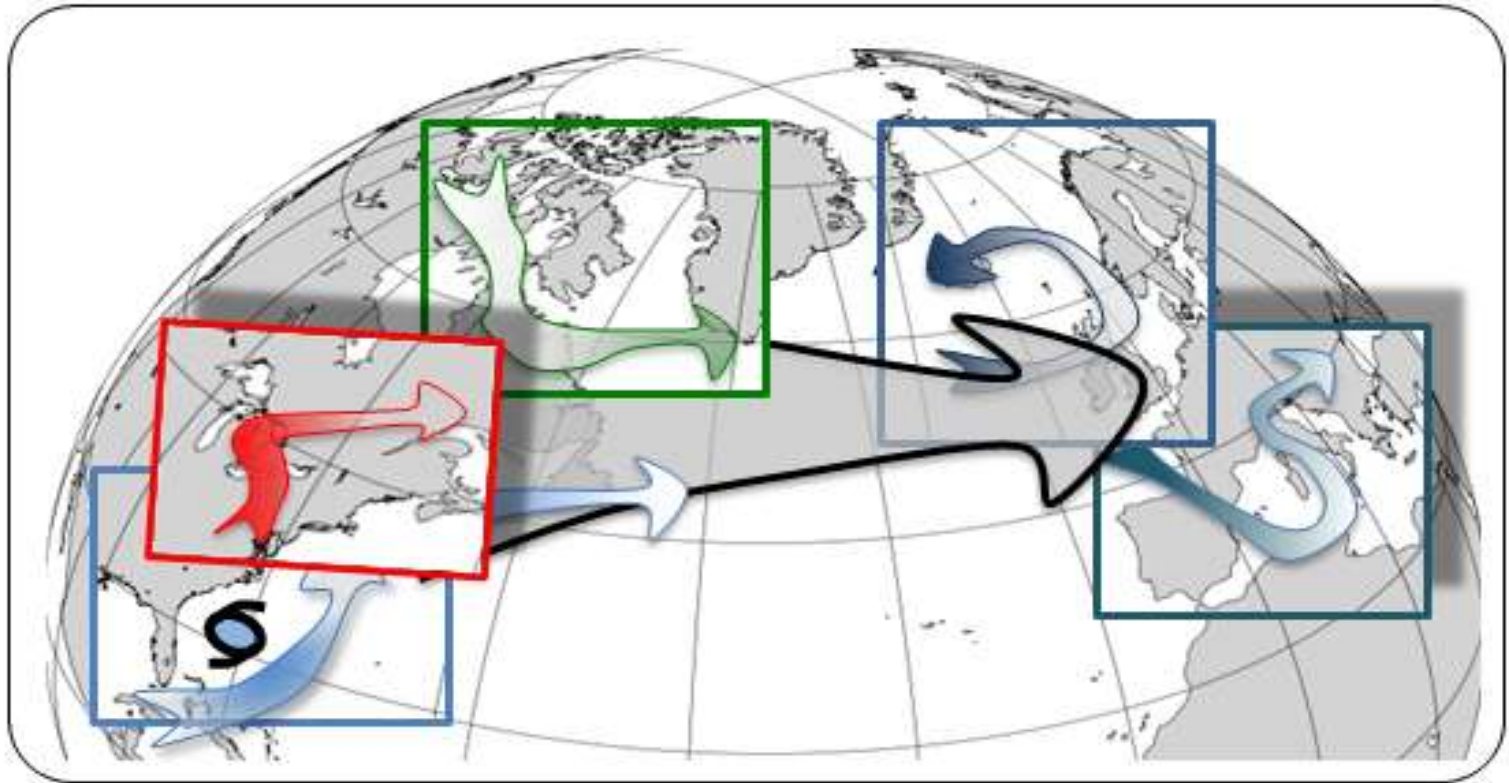


# NAWDEX – Flight Planning Meeting

18 September 2016, Keflavik 15 UTC



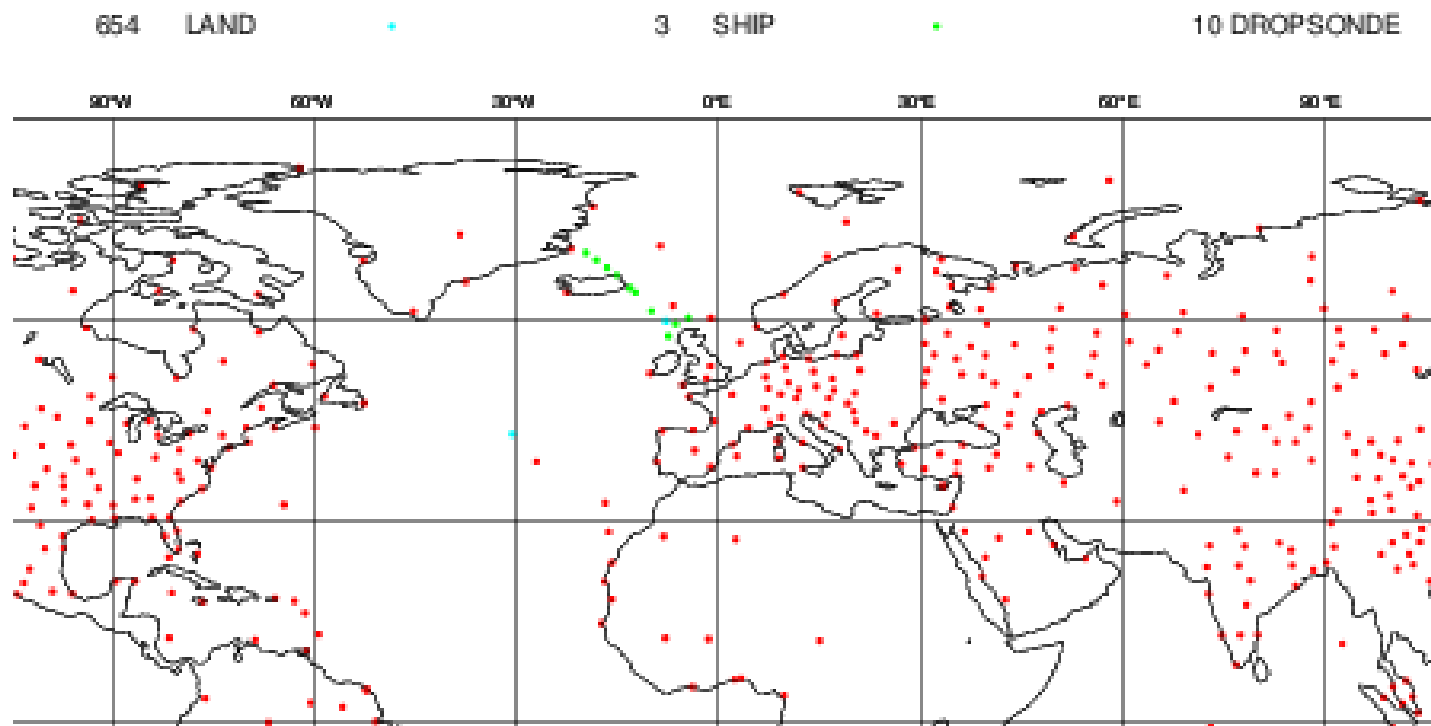
## Tasks and schedule

- Dropsondes yesterday
- Today's weather briefing
- Current situation
- Outlook Mo-Fr 19-23 Sep 2016
- **Potential 1. mission Wednesday 21 Sep, 18 UTC**
- **Potential 2. mission Friday 23 Sep, 18 UTC**
- Further outlook

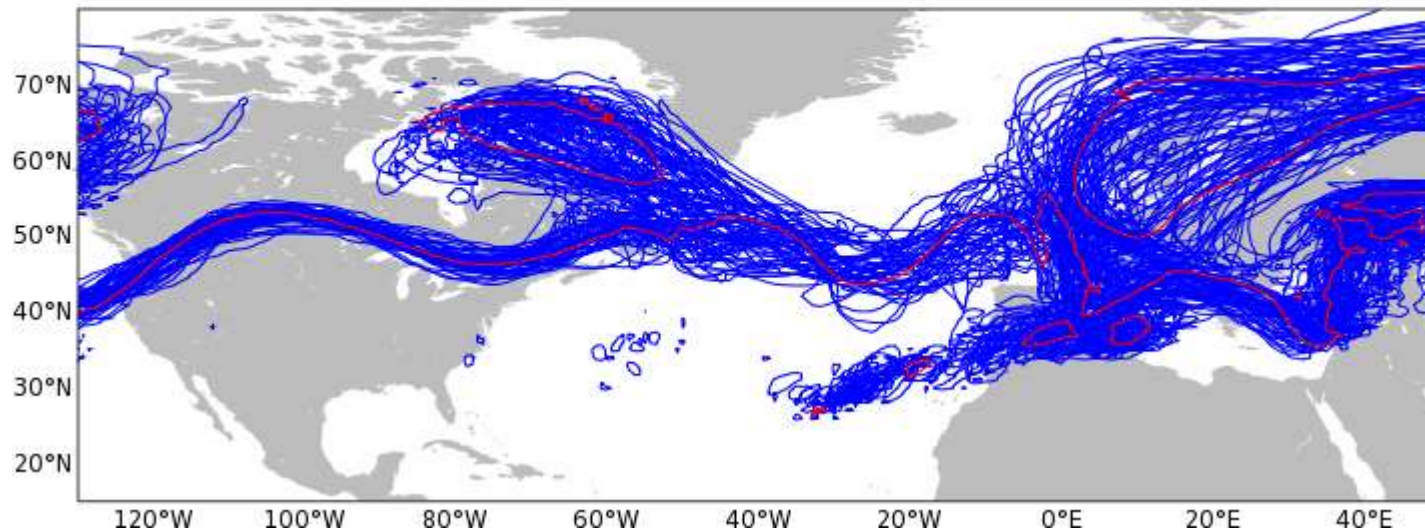
# ECMWF Data Coverage (All obs DA) - Temp

17/Sep/2016; 12 UTC

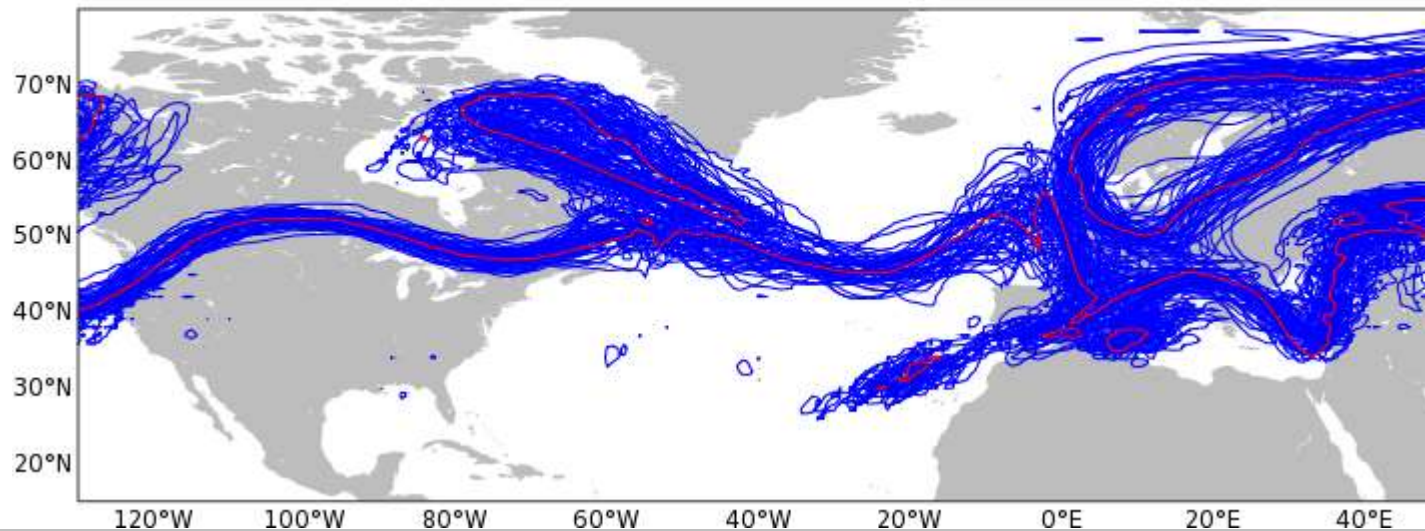
Total number of obs = 667



ECMWF ENSEMBLE FC  
BT: 20160917 00UTC, VT: 20160921 00UTC  
blue: perturbed, red: control



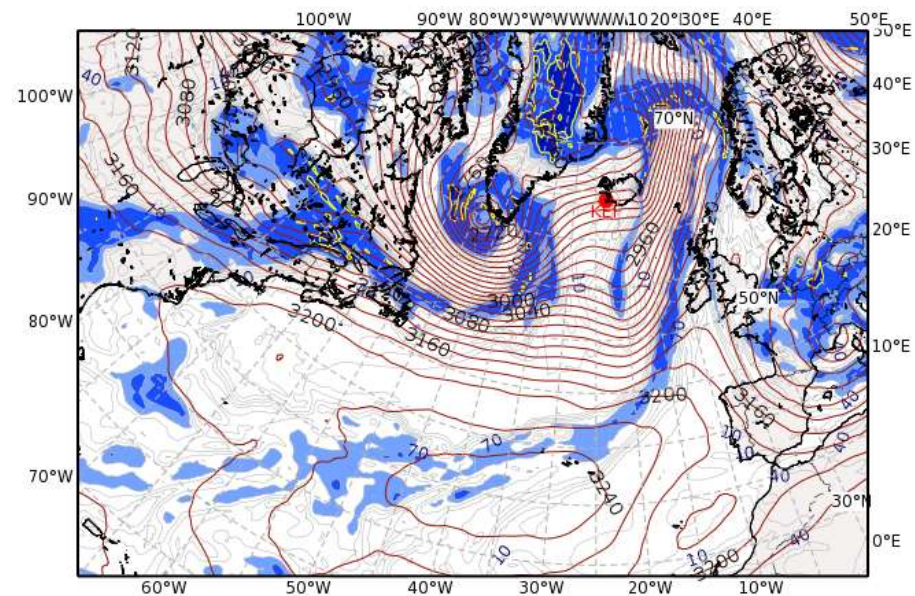
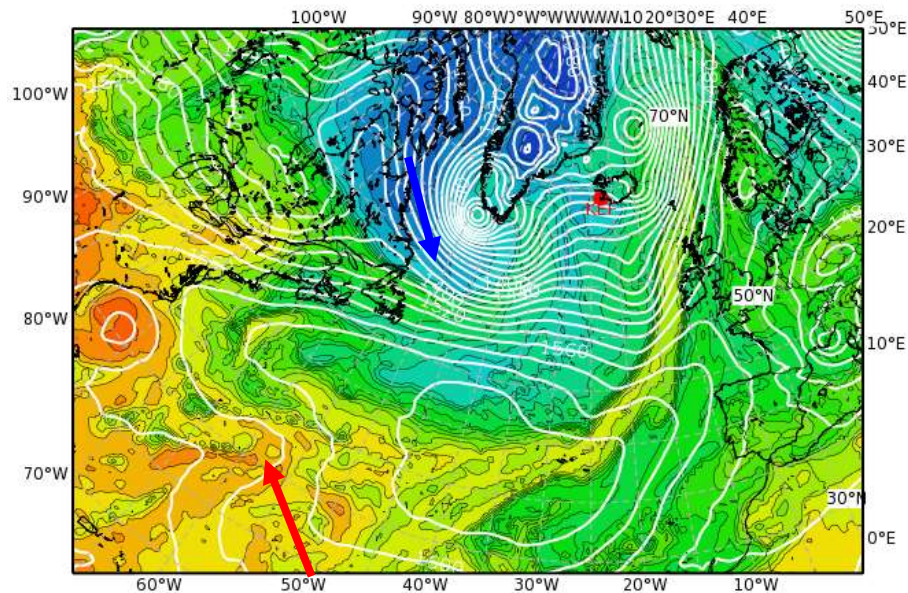
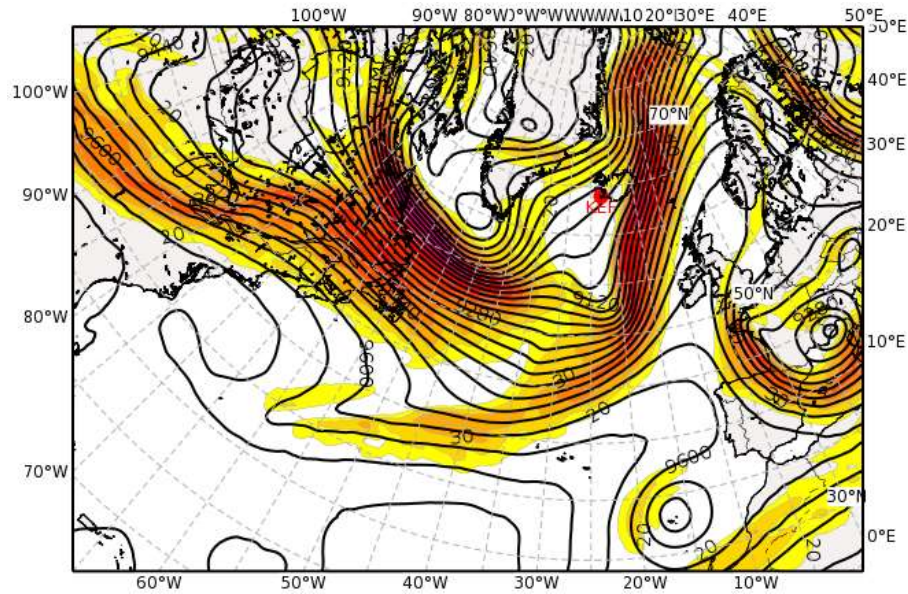
ECMWF ENSEMBLE FC  
BT: 20160917 12UTC, VT: 20160921 00UTC  
blue: perturbed, red: control





# Analysis – 18 Sep 2016, 00 UTC

Z300, SAT  
THE850, RH700



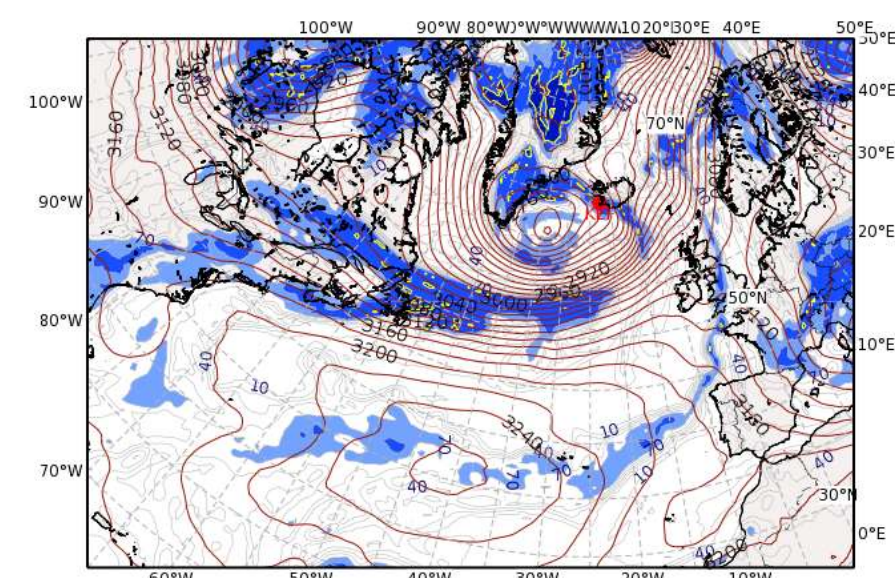
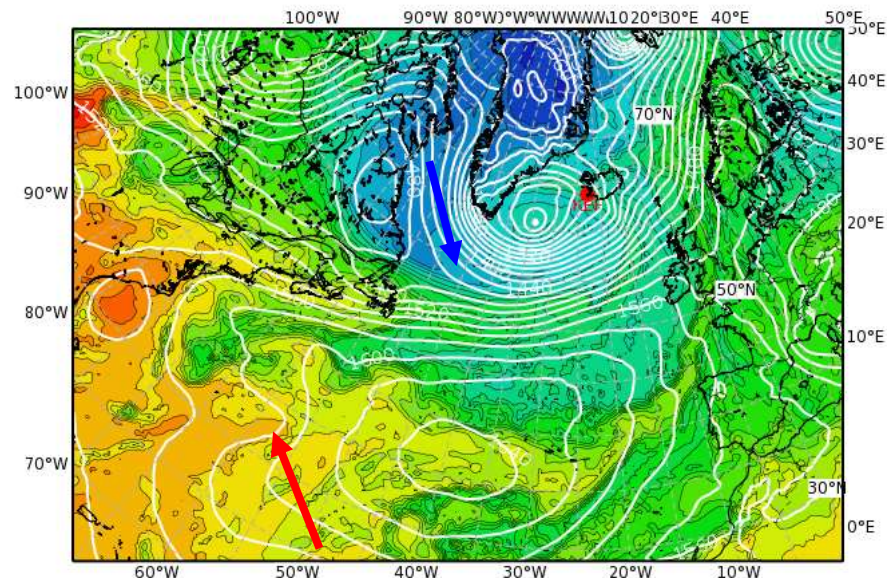
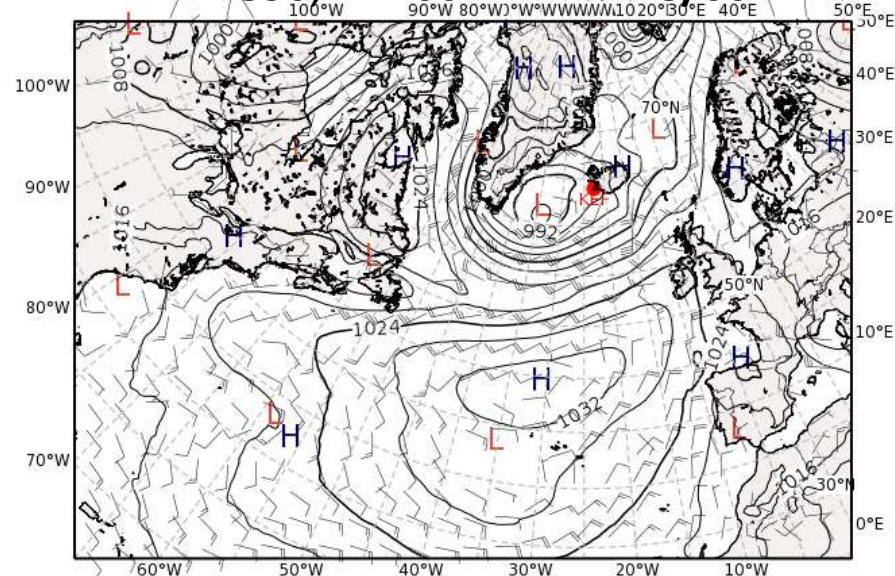
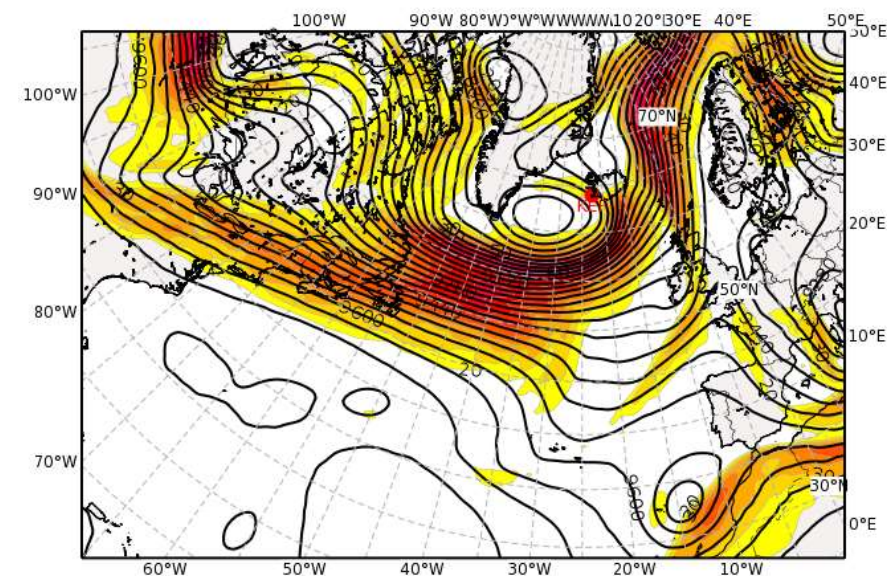


# Forecast for Mon, 19 Sep 2016 00 UTC

Z300, SLP

THE850, RH700

BT18/00Z



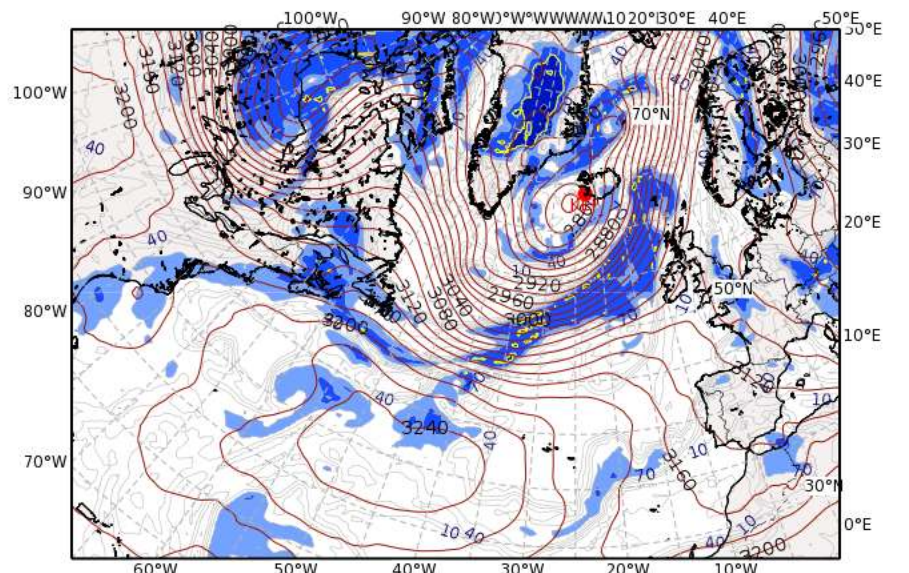
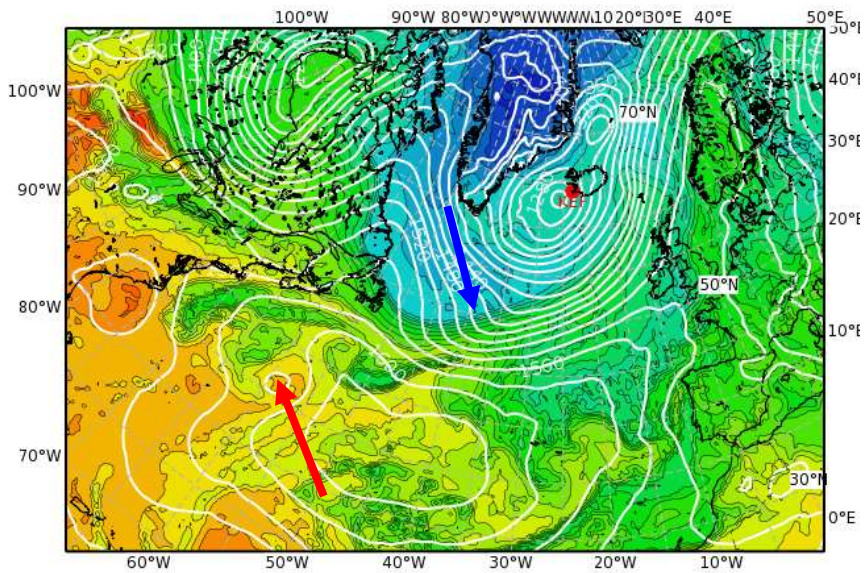
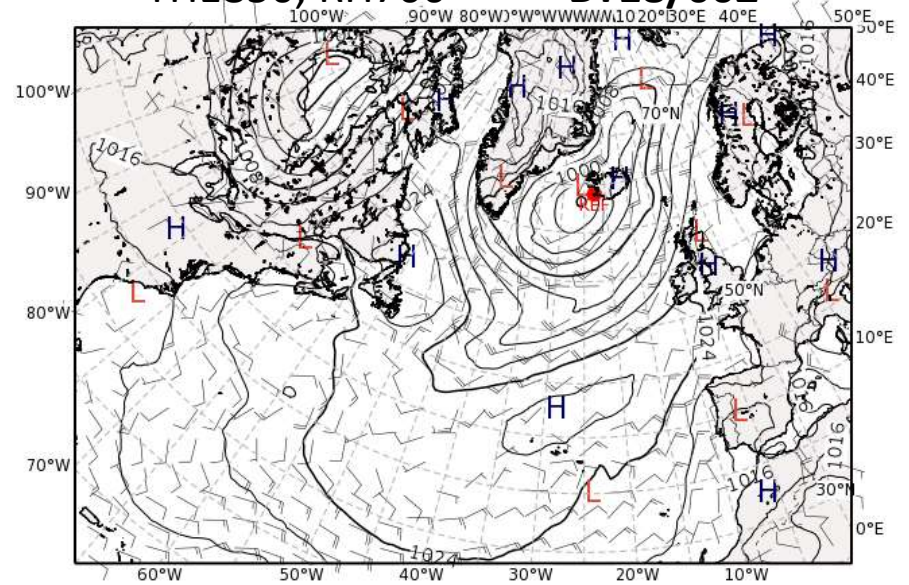
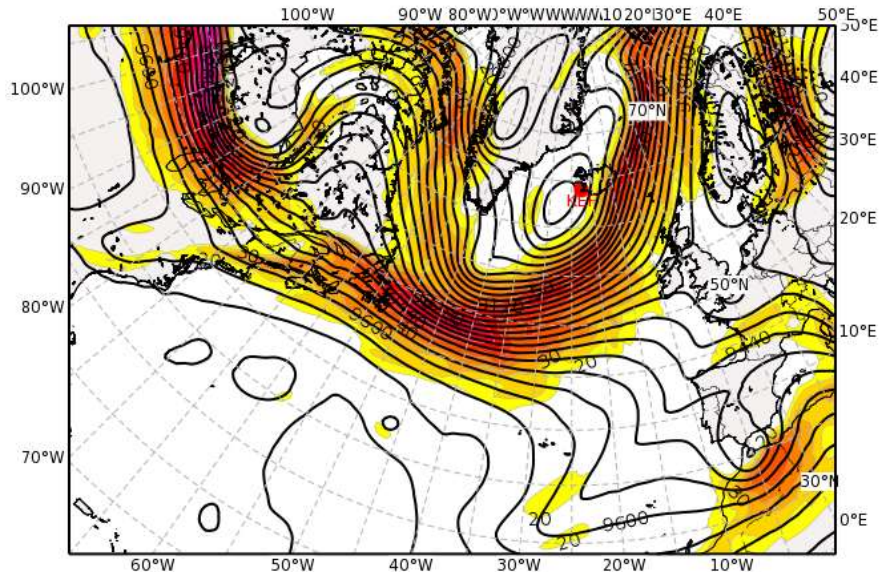


# Forecast for Tue, 20 Sep 2016 00 UTC

Z300, SLP

THE850, RH700

BT18/00Z



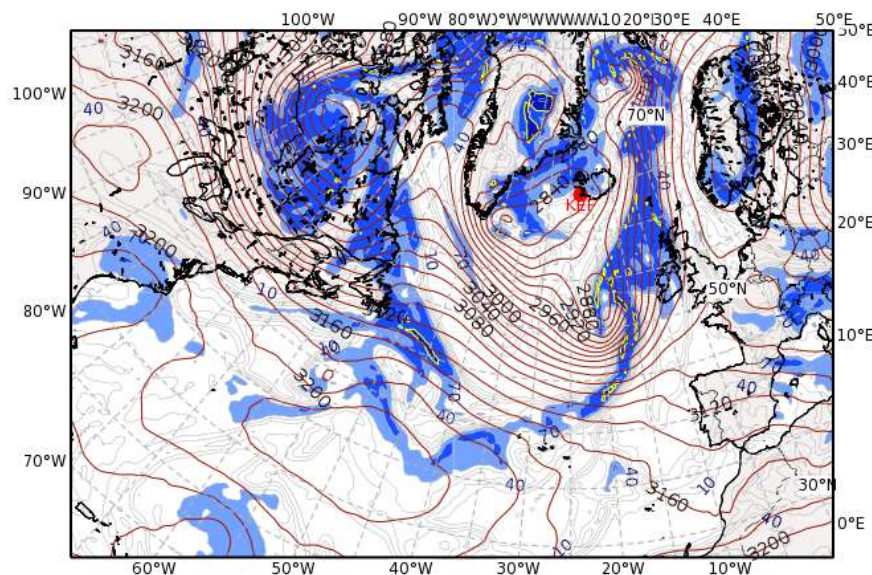
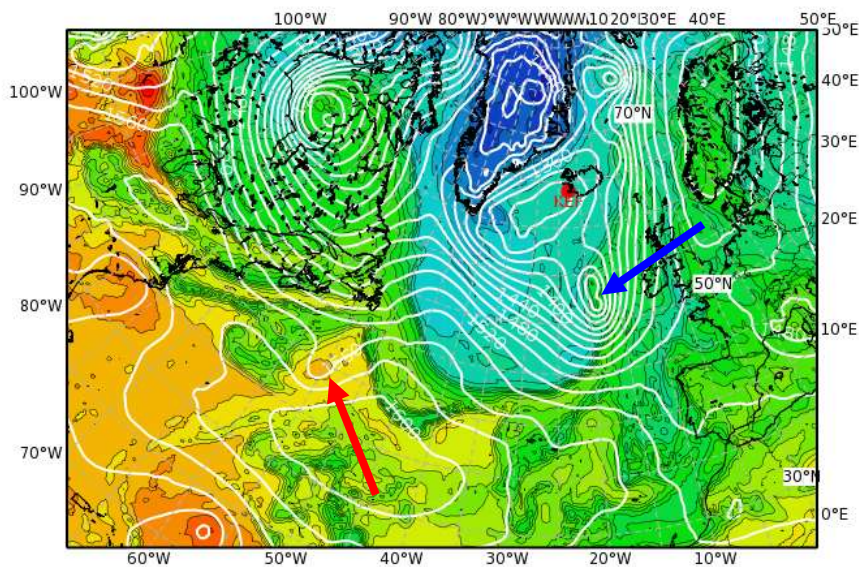
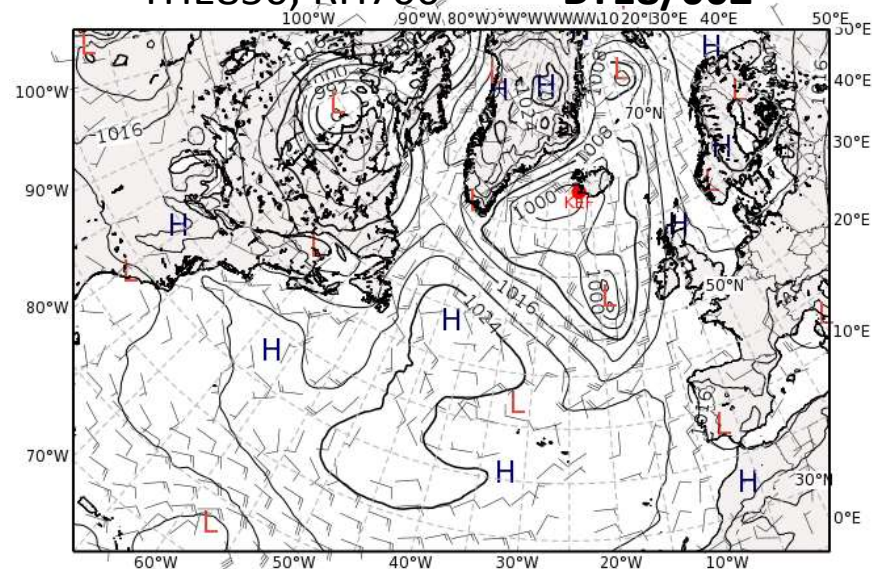
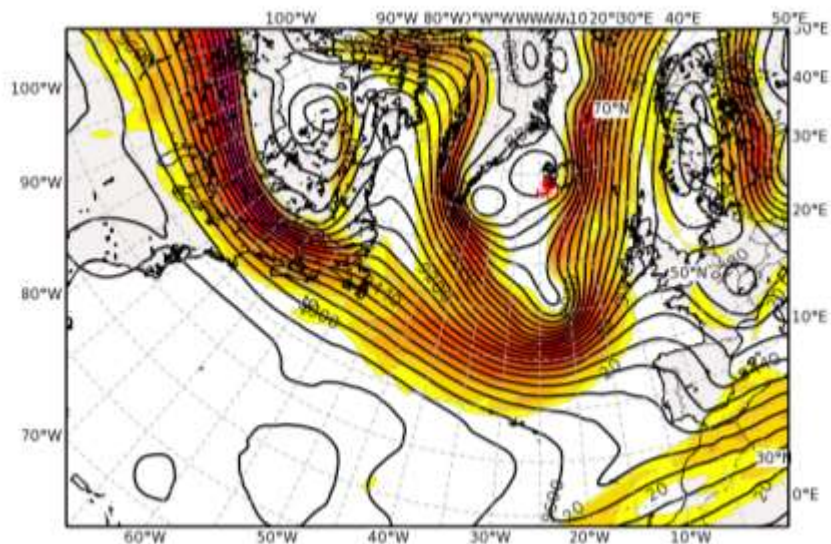


# Forecast for Wed, 21 Sep 2016 00 UTC

Z300, SLP

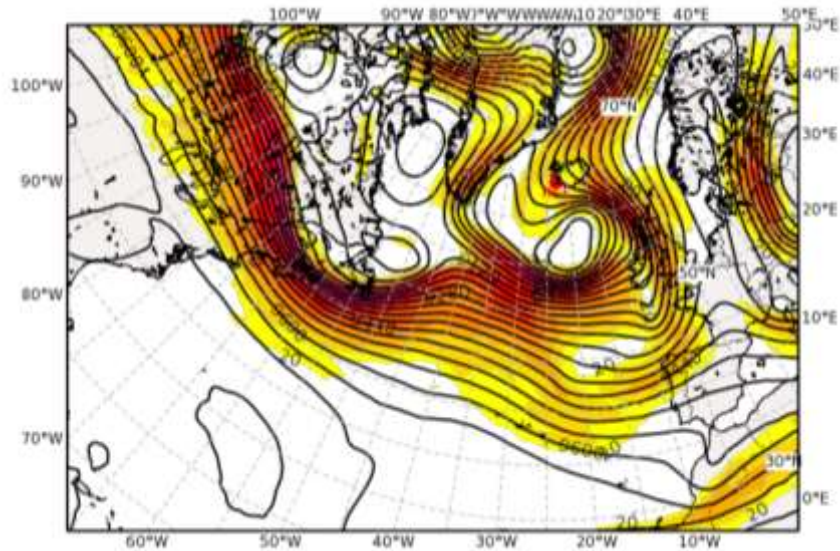
THE850, RH700

BT18/00Z





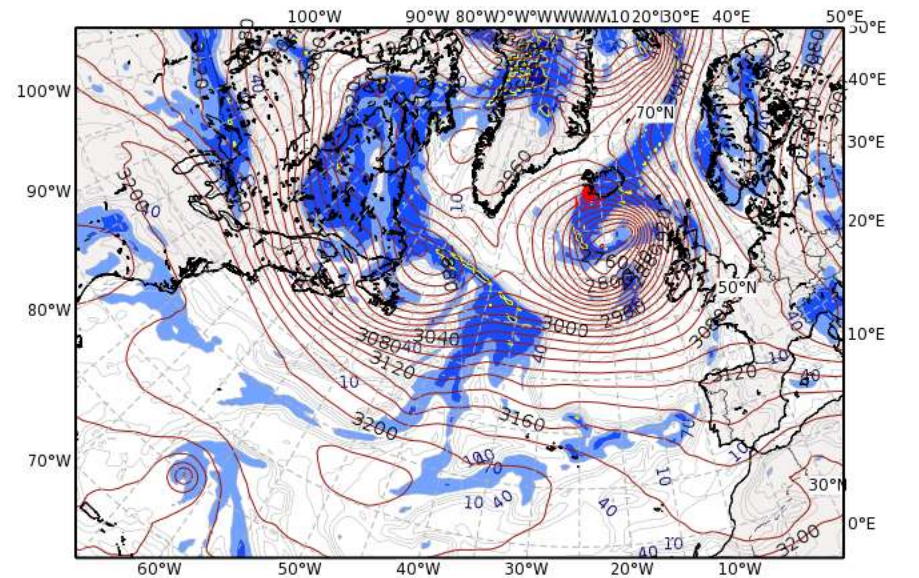
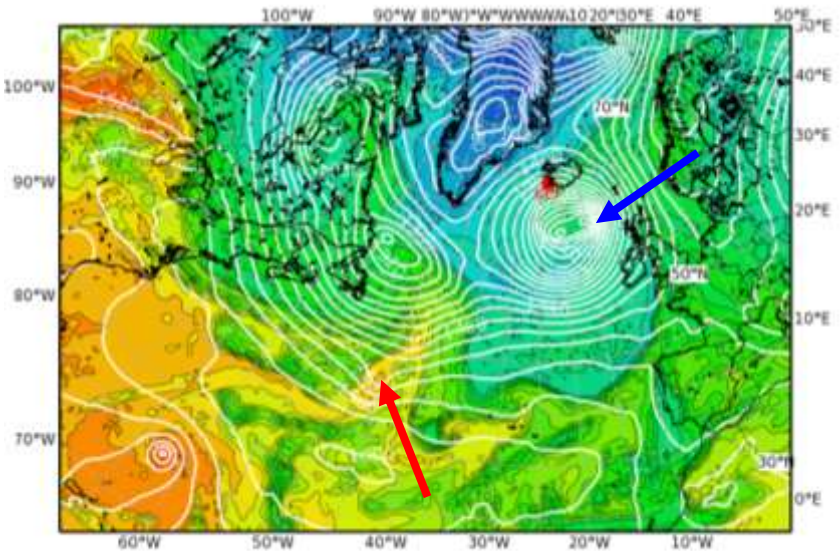
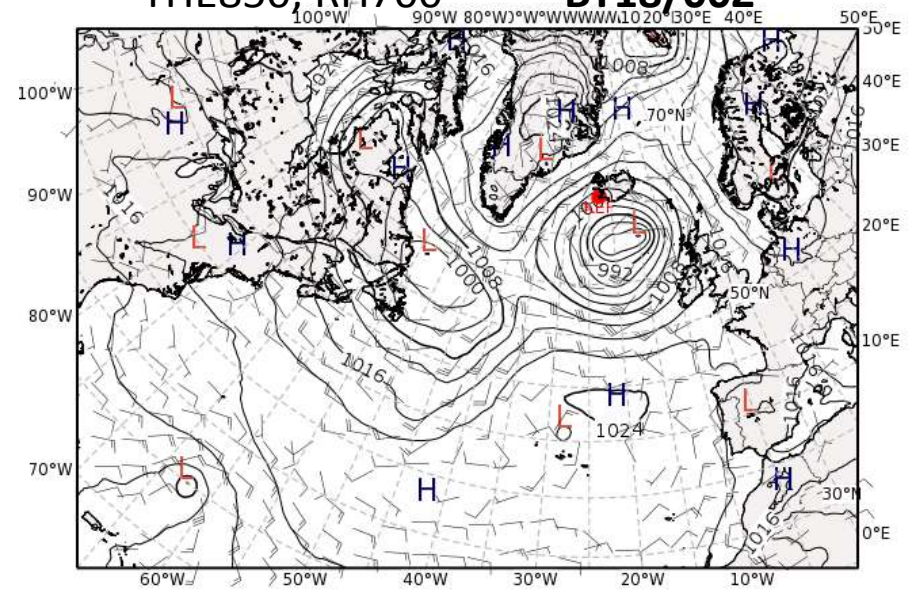
# Forecast for Thu, 22 Sep 2016 00 UTC



Z300, SLP

THE850, RH700

BT18/00Z



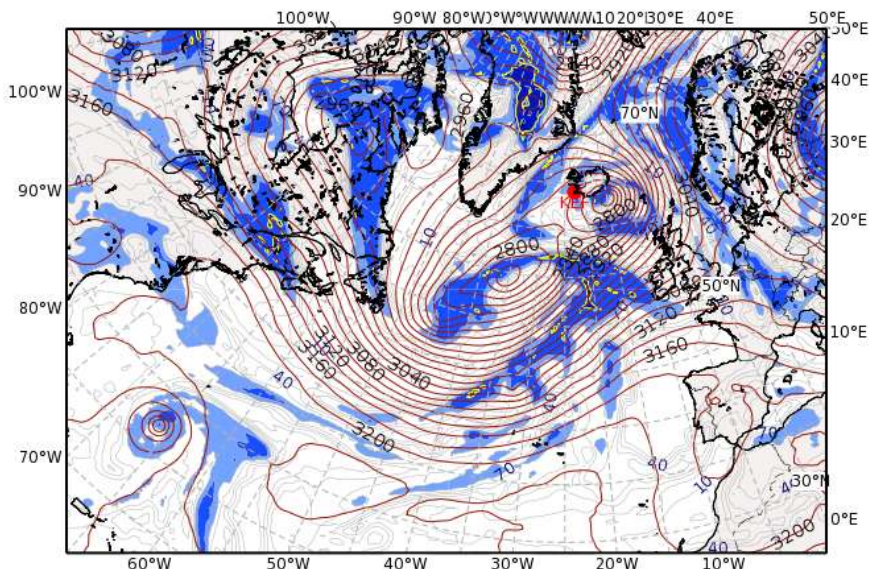
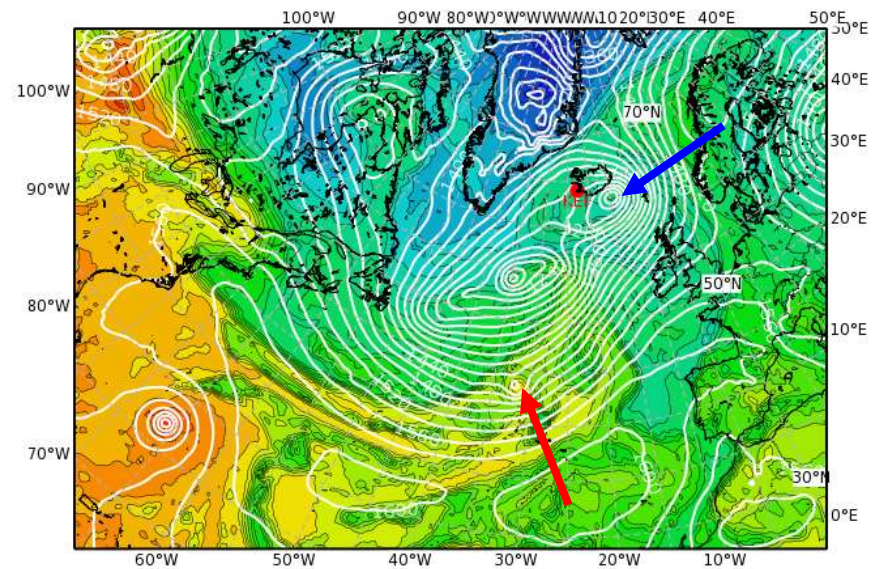
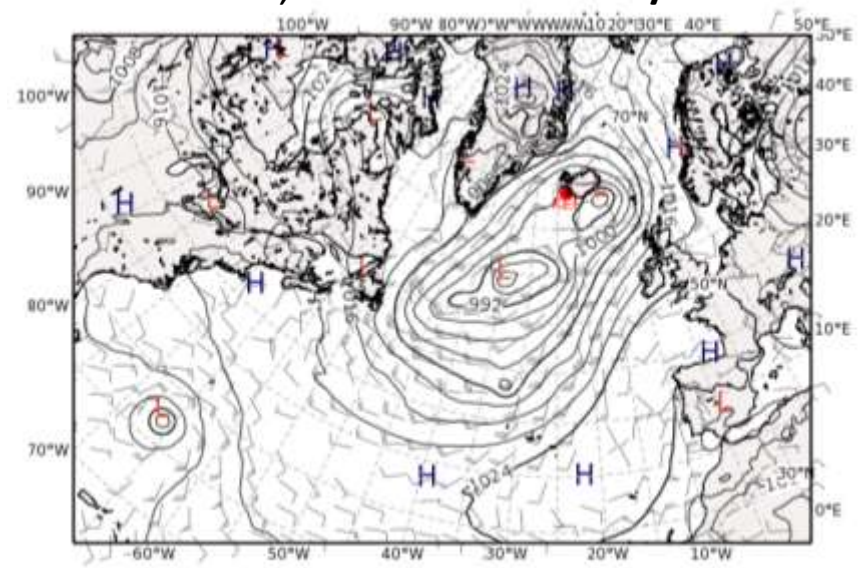
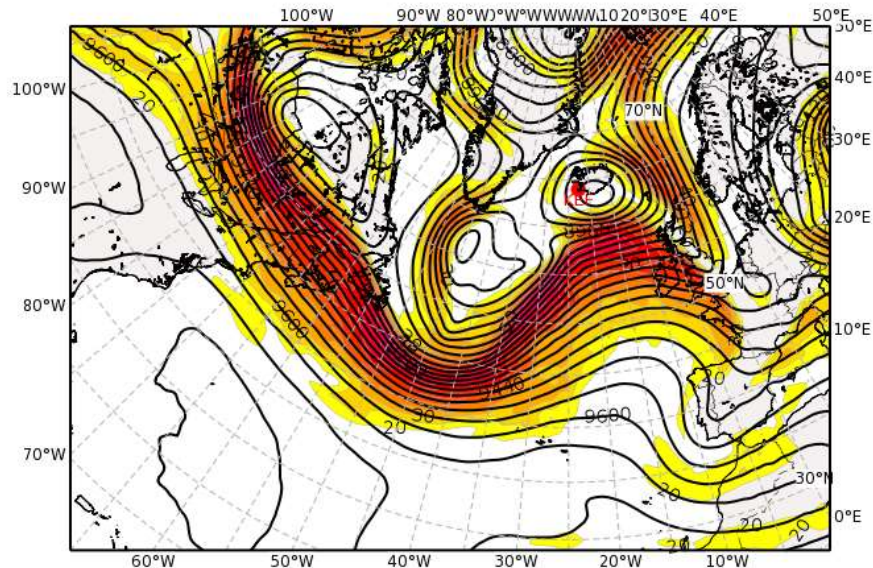


# Forecast for Fri, 23 Sep 2016 00 UTC

Z300, SLP

THE850, RH700

BT18/00Z



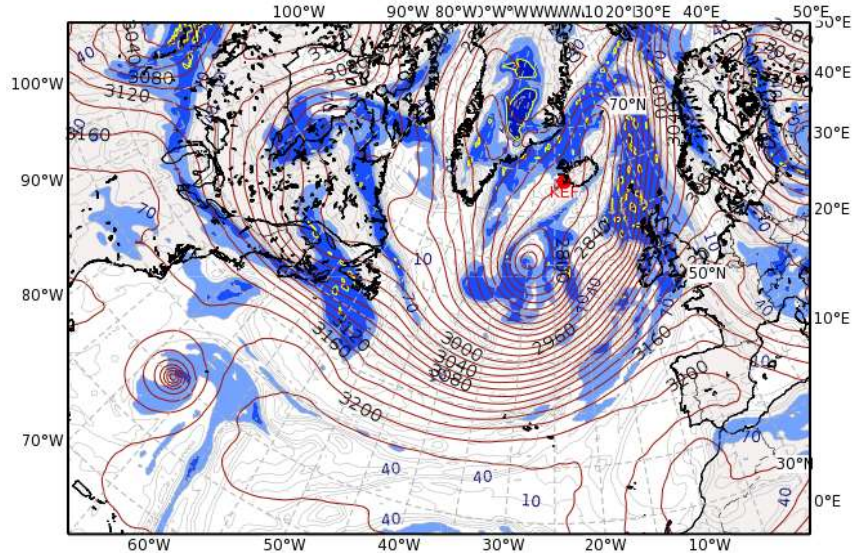
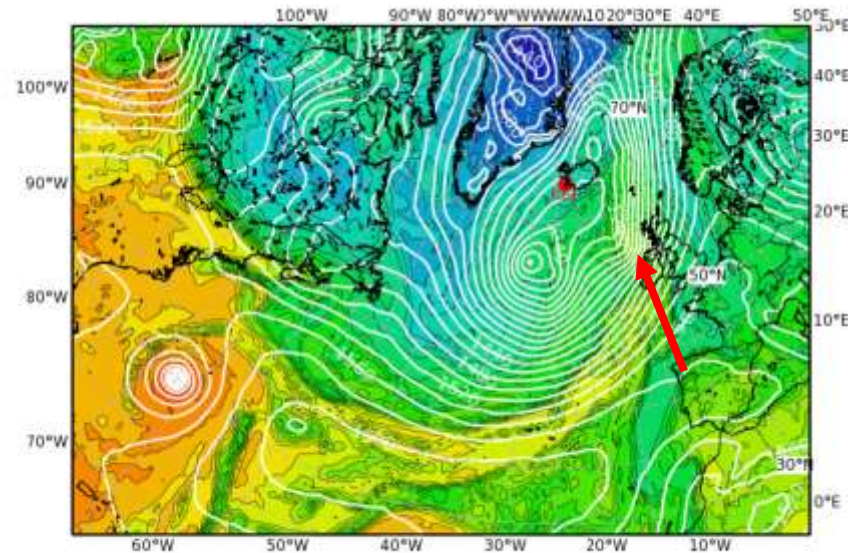
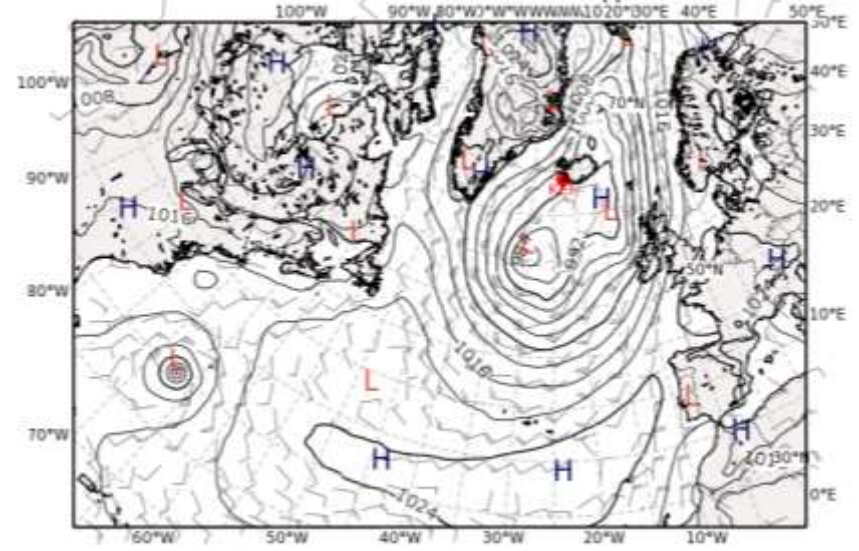
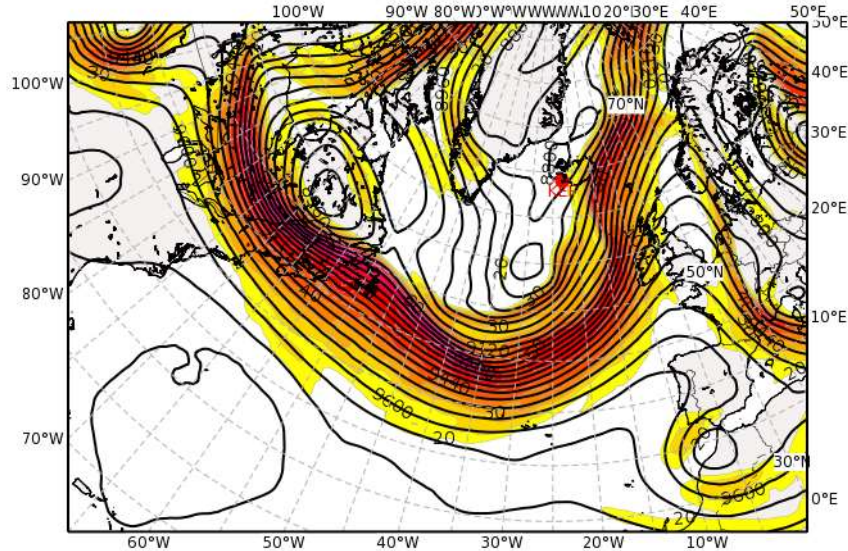


# Forecast for Sat, 24 Sep 2016 00 UTC

Z300, SLP

THE850, RH700

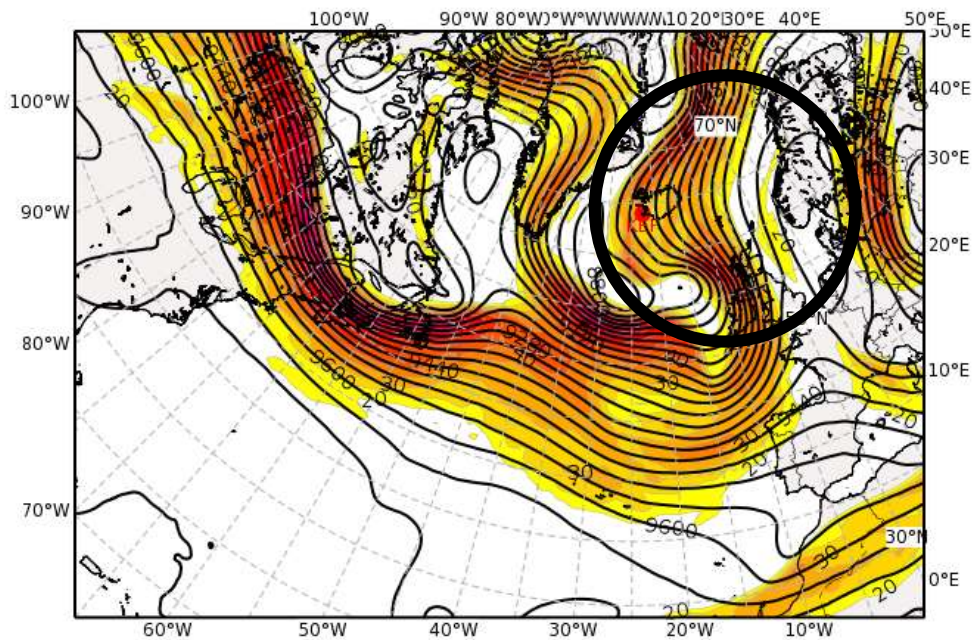
BT18/00Z



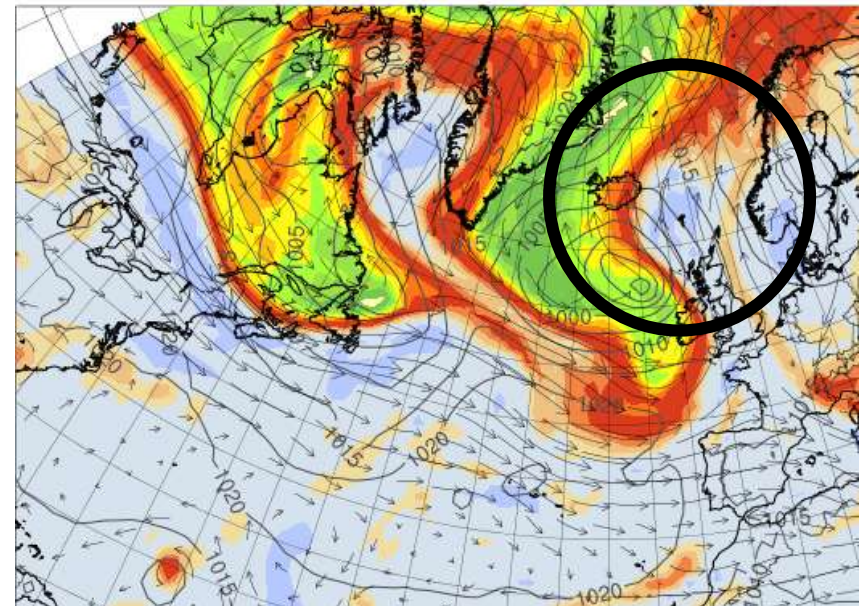


Geopotential Height (m) & Horizontal Wind (m/s) at 300 hPa

Valid: Wed, 21 Sep 2016, 18 UTC (step 090 h from Sun, 18 Sep 2016, 00 UTC)

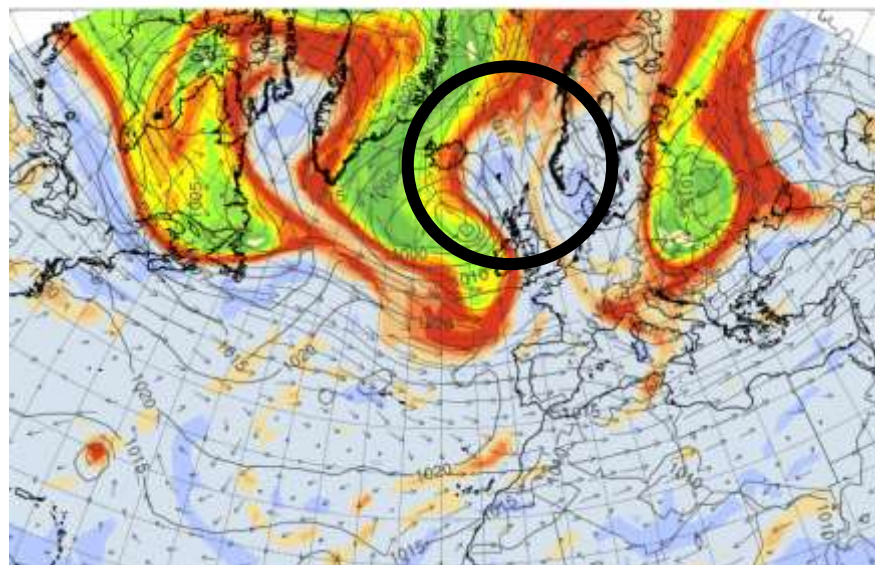


PV@325K at 20160921\_18

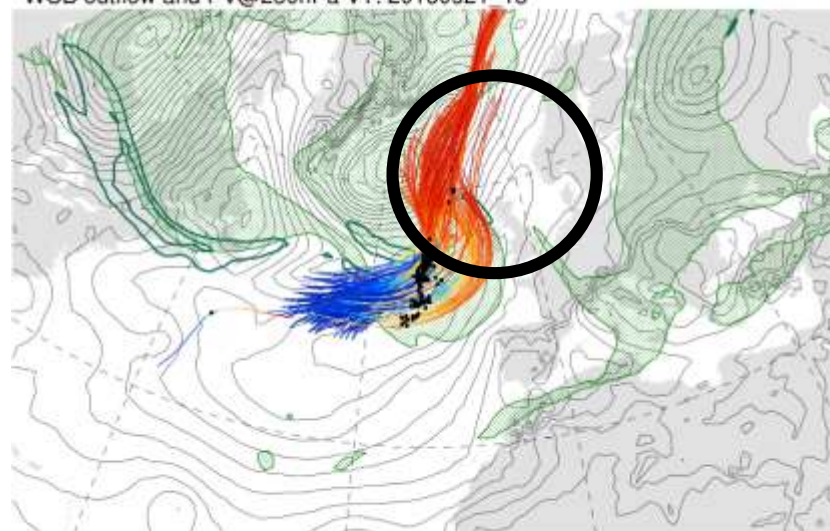




PV@325K at 20160921\_18



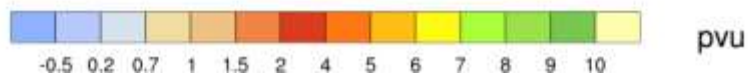
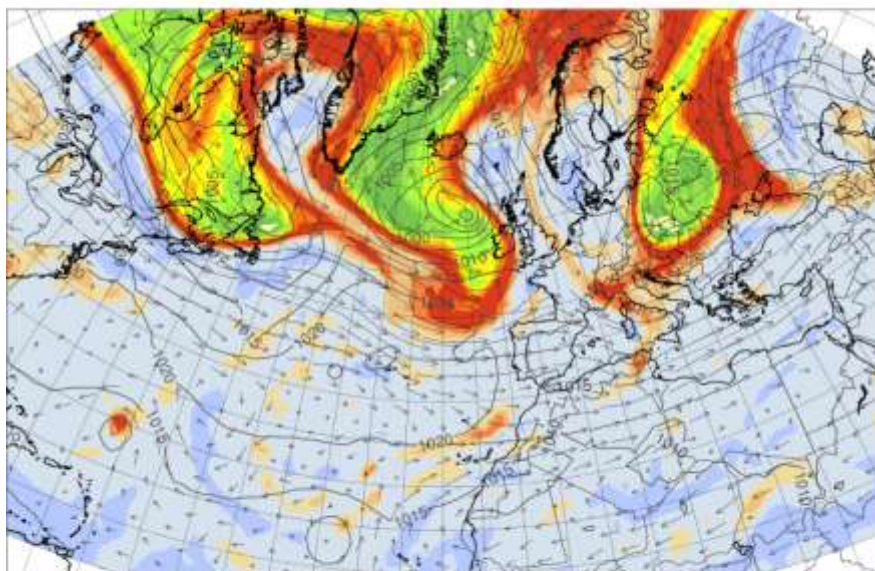
Trajectory start and SLP VT: 20160919\_18  
WCB outflow and PV@250hPa VT: 20160921\_18



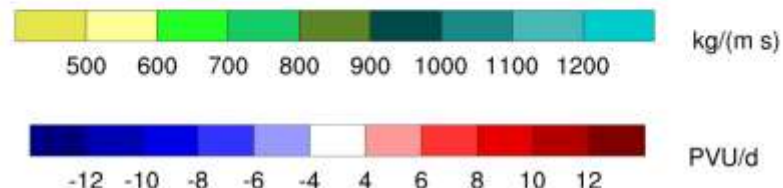
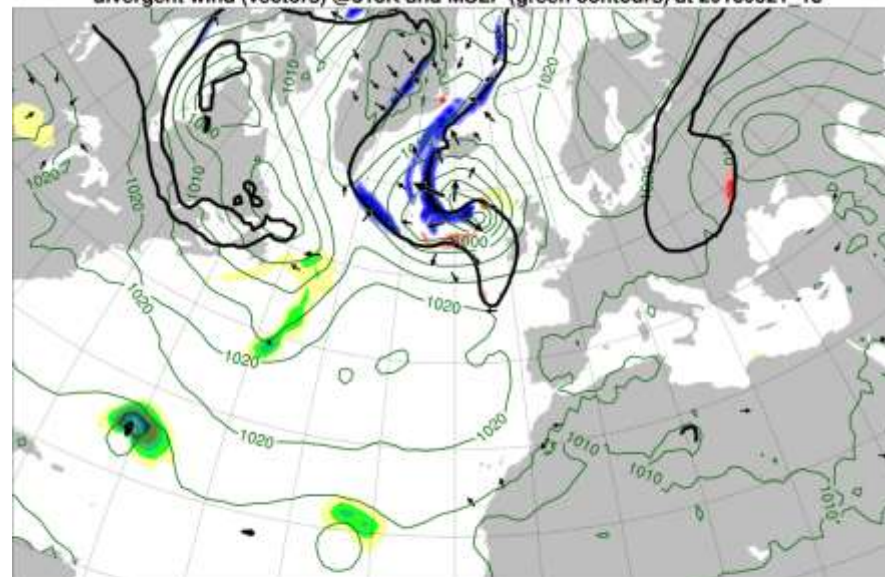
200 300 400 500 600 700 800 900 1000 hPa



PV@325K at 20160921\_18



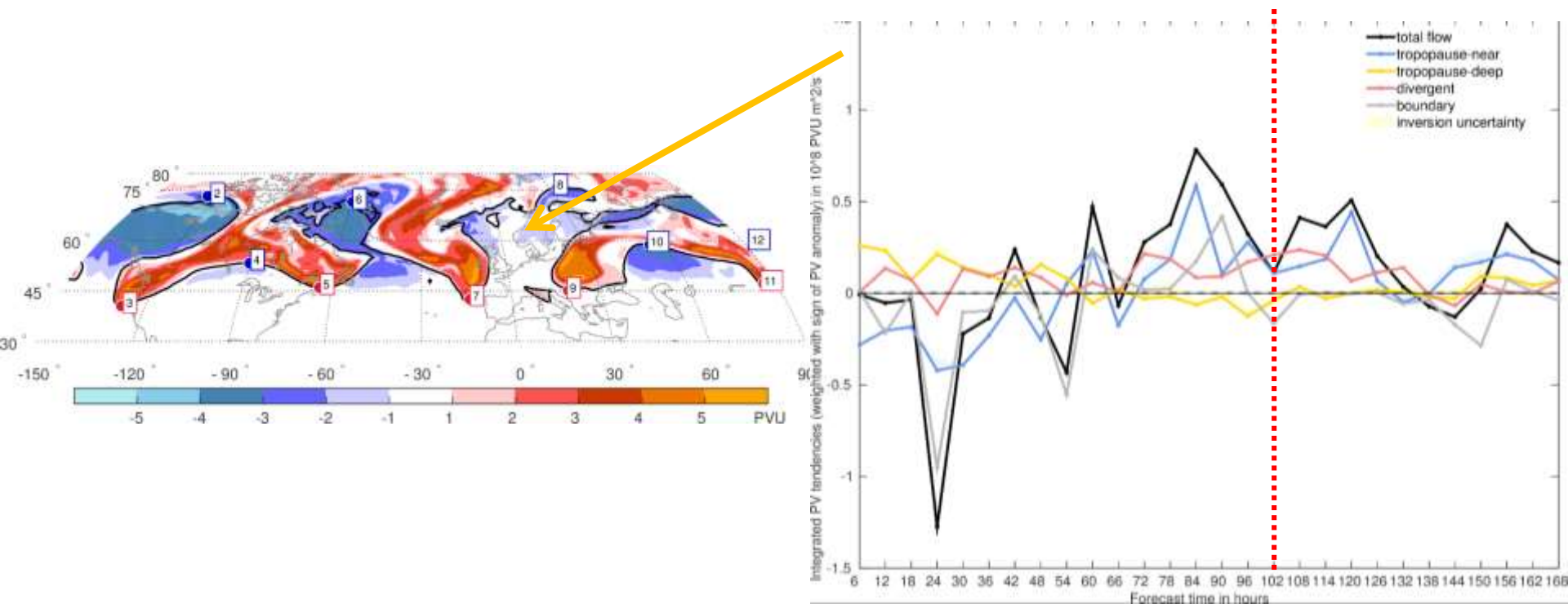
2 PVU (black contour), PV advection through divergent wind (shading),  
divergent wind (vectors) @315K and MSLP (green contours) at 20160921\_18





# Rossby wave diagnostics for Wed, 21 Sep 18UTC

Not for Mon 11 UTC meeting



BT17/12Z



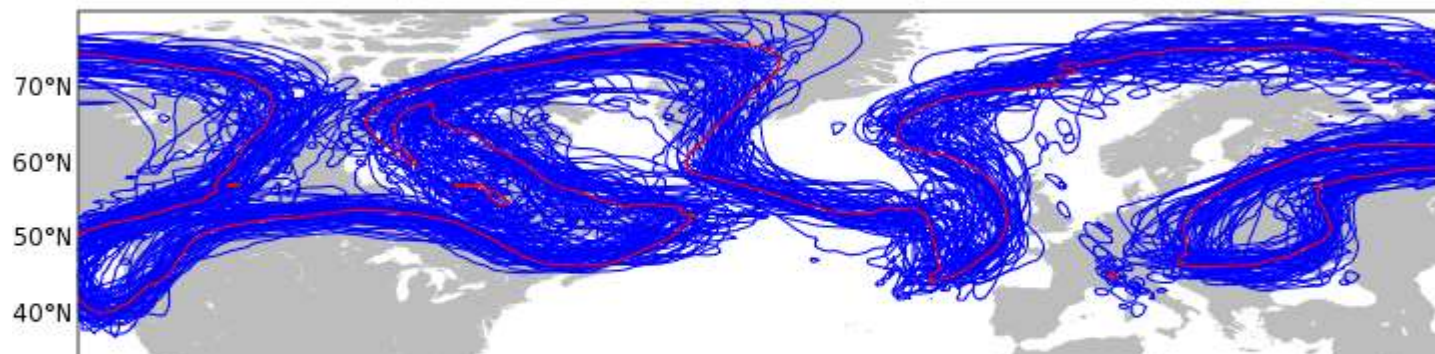
# Forecast for Wed, 21 Sep 2016 18 UTC

Not for Mon 11 UTC meeting  
BT18/00Z

ECMWF ENSEMBLE FC

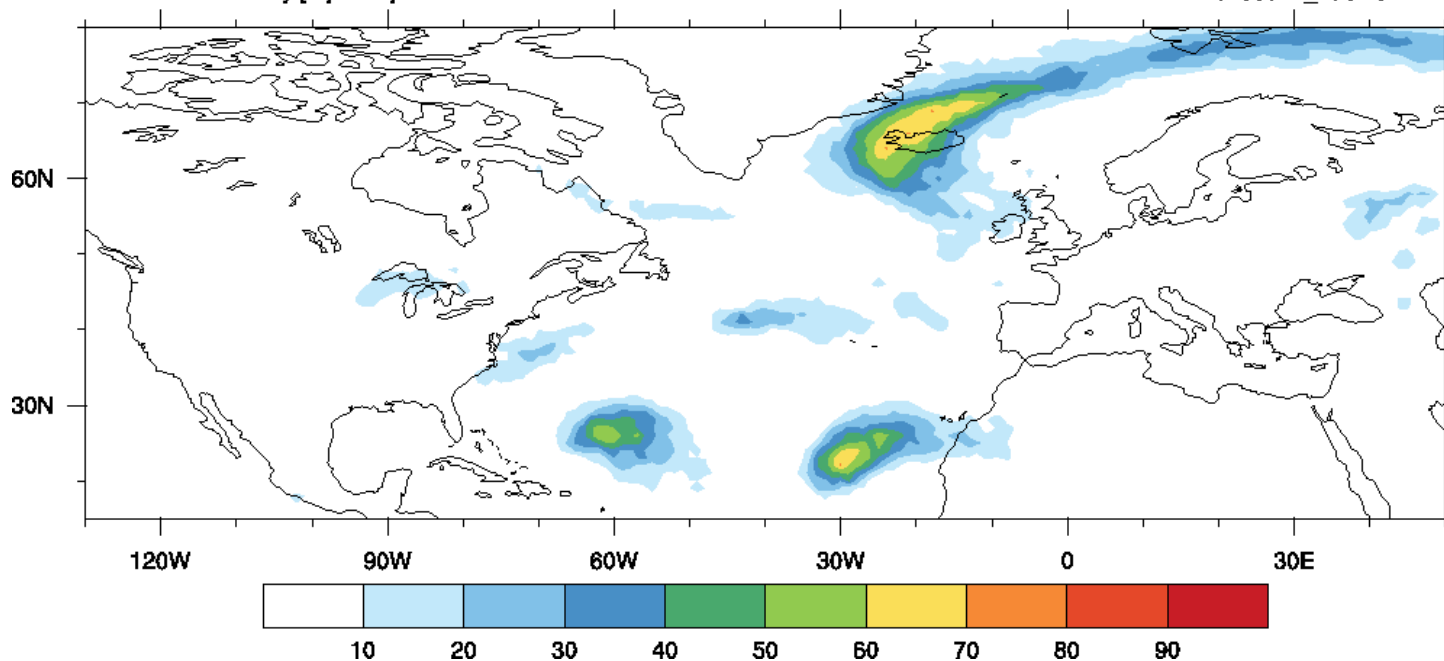
BT: 20160918 00UTC, VT: 20160921 18UTC

blue: perturbed, red: control



ECMWF ensemble forecast  
BT 20160918\_00UTC  
VT 20160921\_18UTC

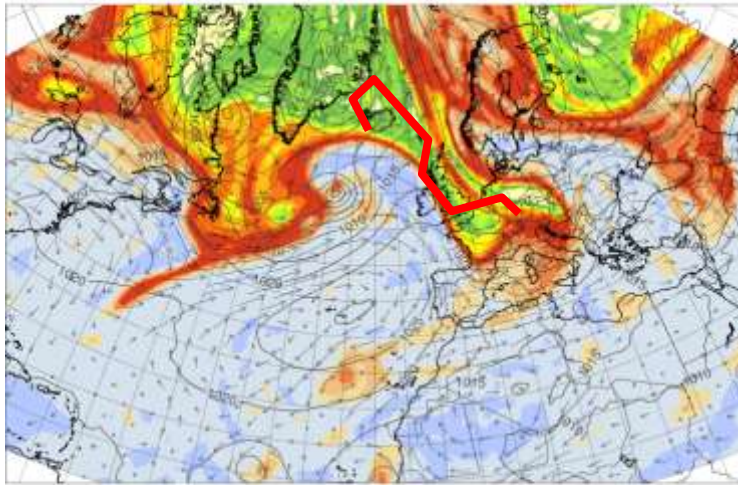
lt400hPa: Probability [%] of traj. occurrence in ENS



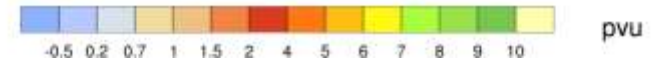
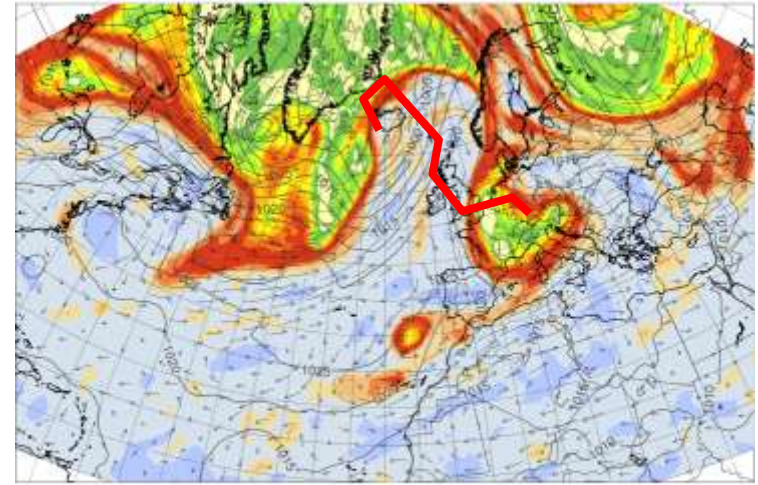


# The challenge of NAWDEX flight planning

PV@330K at 20160917\_12

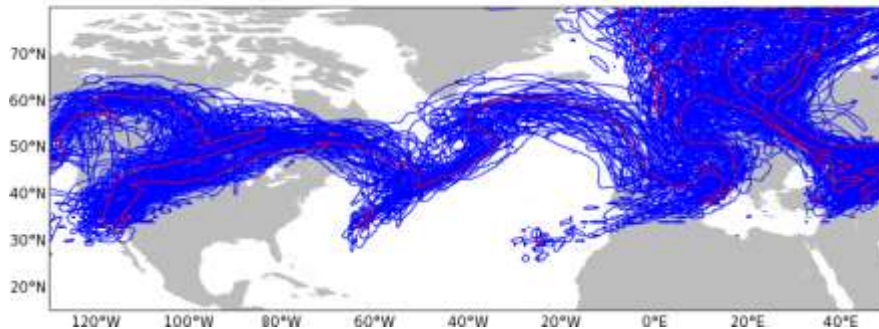


PV@330K at 20160917\_12



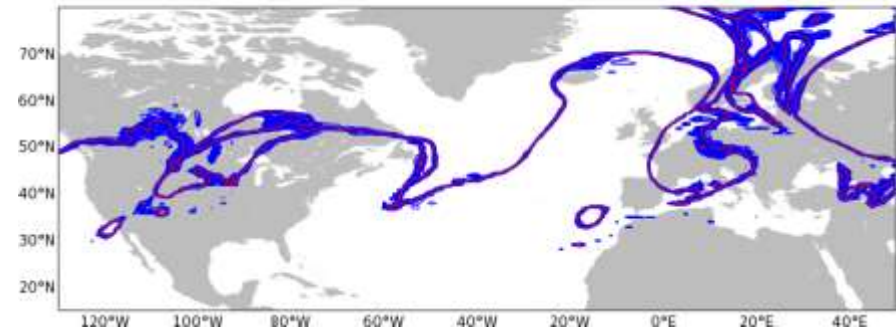
BT20160912\_12 +120h forecast (5day)

ECMWF ENSEMBLE FC  
BT: 20160912 12UTC, VT: 20160917 12UTC  
blue: perturbed, red: control



Verifying analysis

ECMWF ENSEMBLE FC  
BT: 20160912 12UTC, VT: 20160917 12UTC  
blue: perturbed, red: control

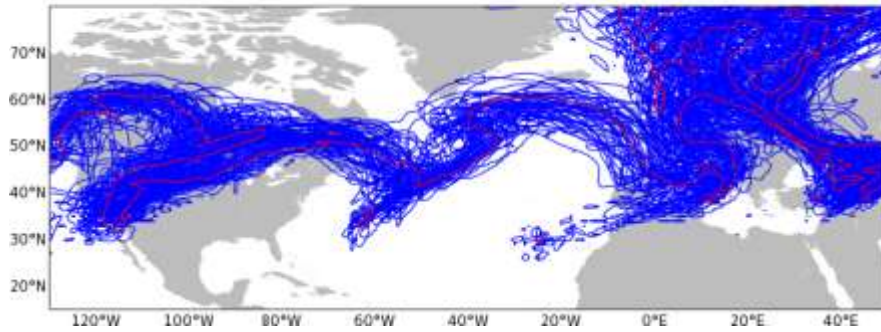




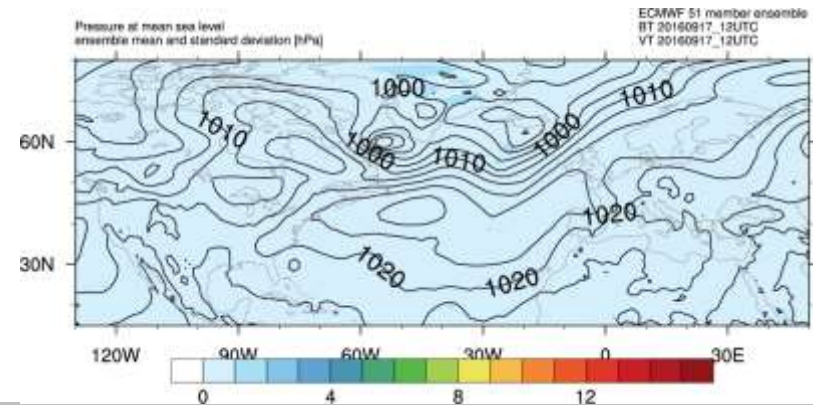
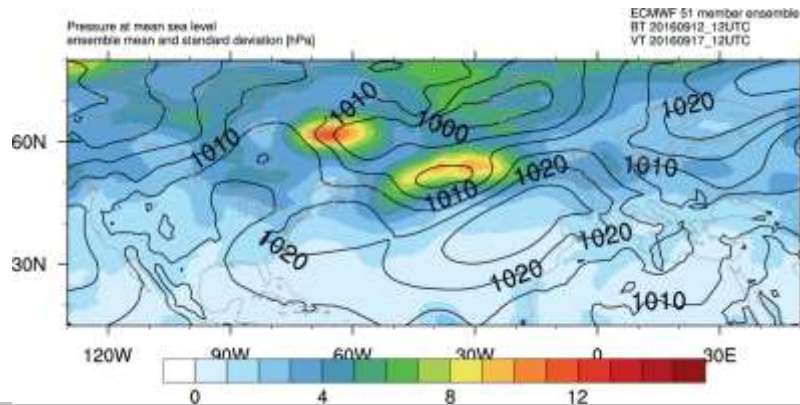
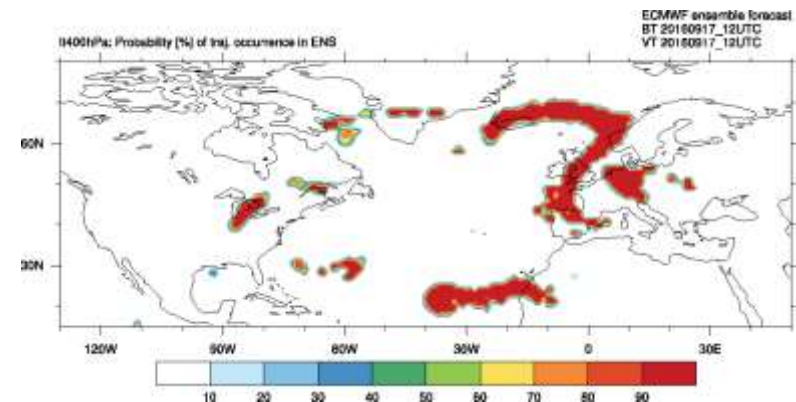
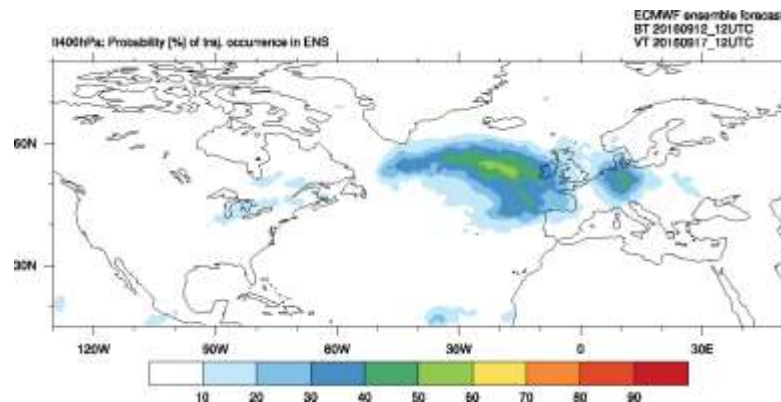
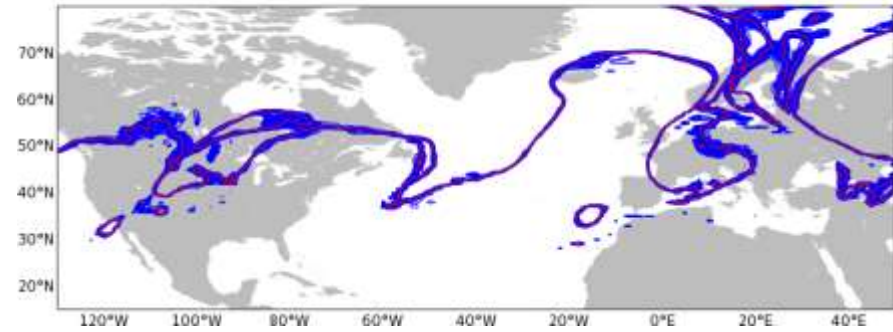
## BT20160912\_12 +120h forecast (5day)

## Verifying analysis

ECMWF ENSEMBLE FC  
BT: 20160912 12UTC, VT: 20160917 12UTC  
blue: perturbed, red: control

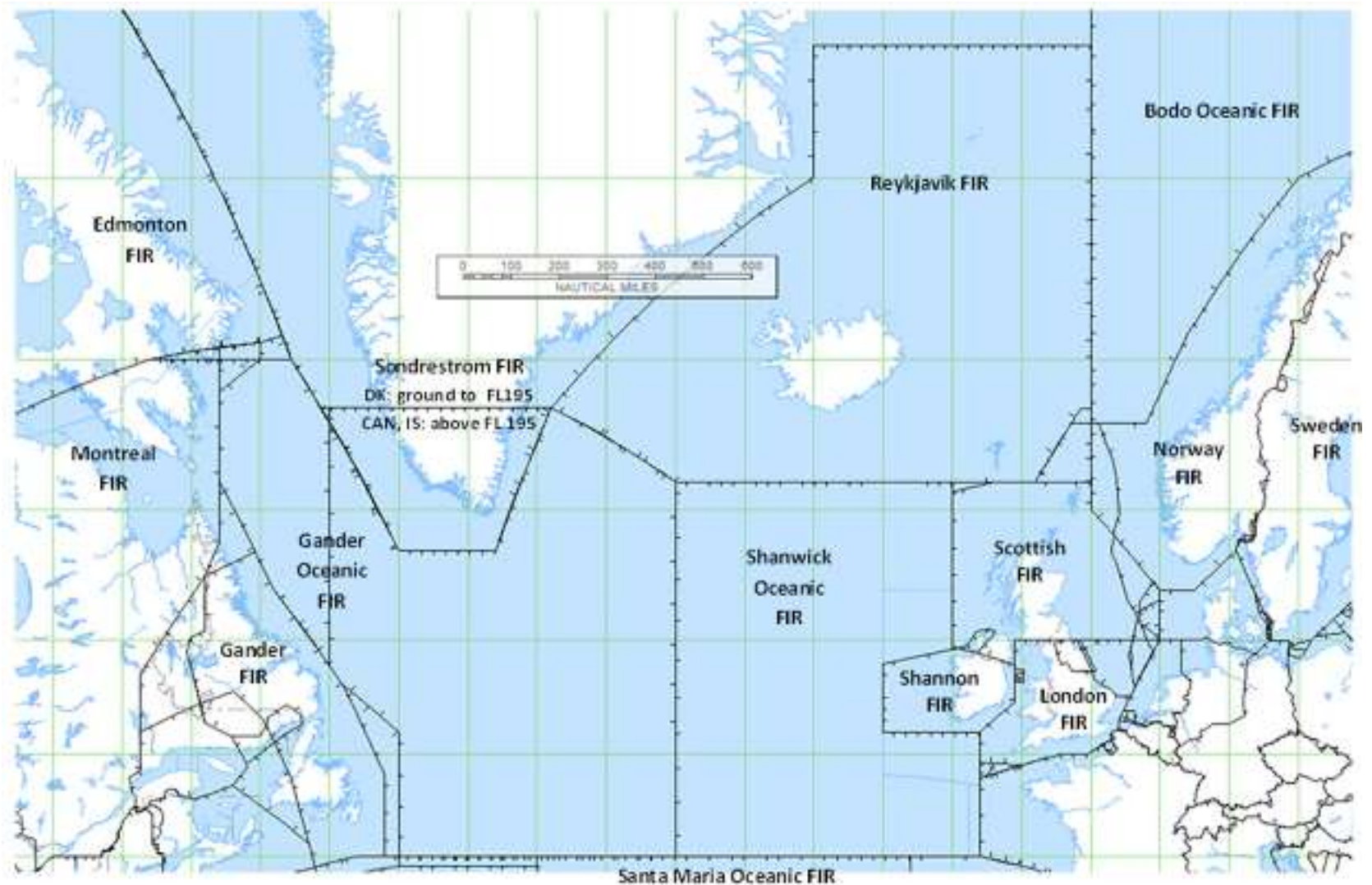


ECMWF ENSEMBLE FC  
BT: 20160917 12UTC, VT: 20160917 12UTC  
blue: perturbed, red: control





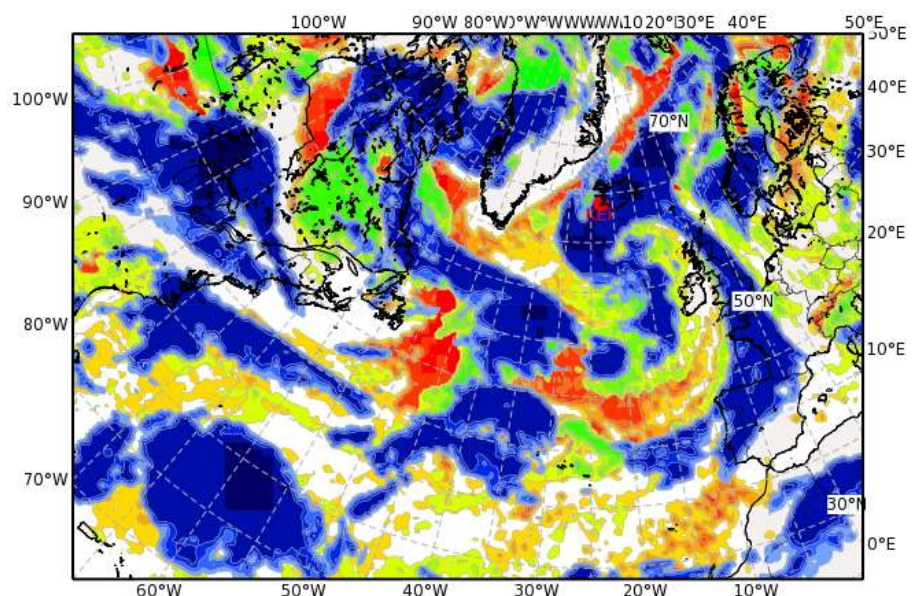
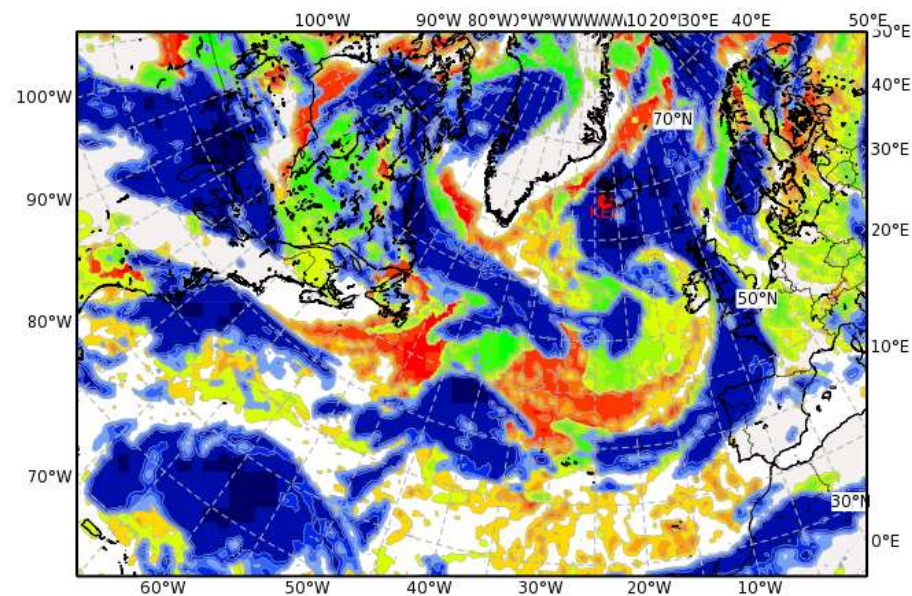
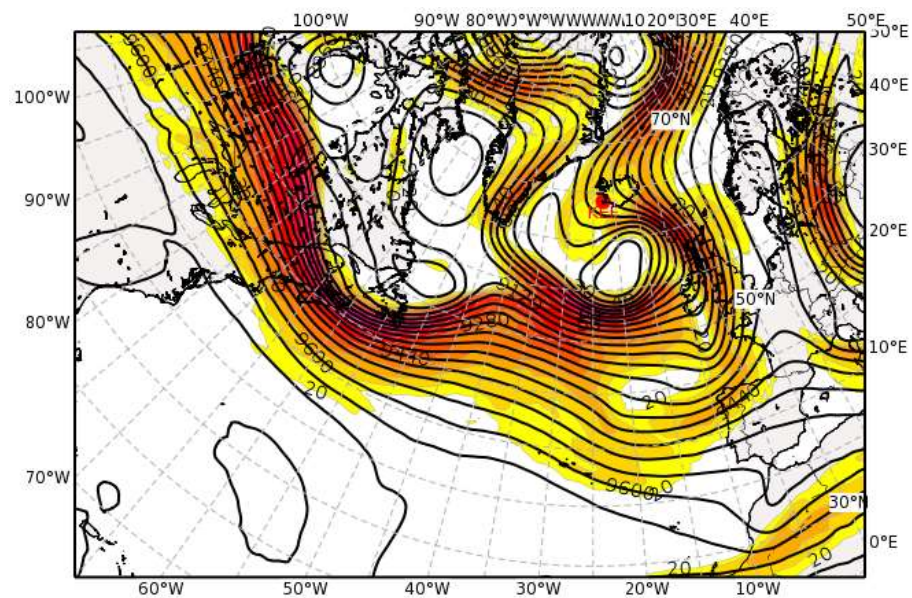
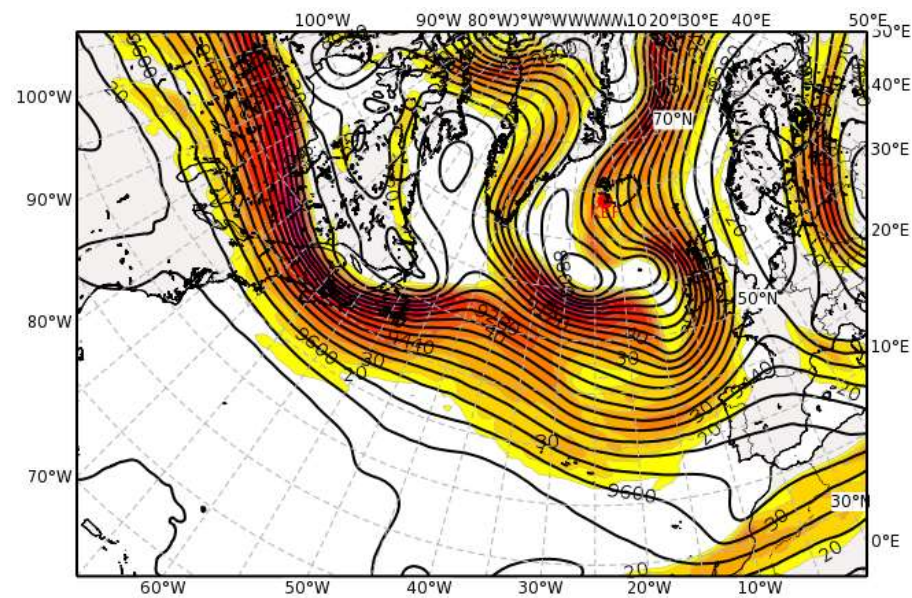
## Air spaces (potential flight route for Wednesday 21/12Z)





## Forecast – 21 Sep 2016, 18 - 00 UTC

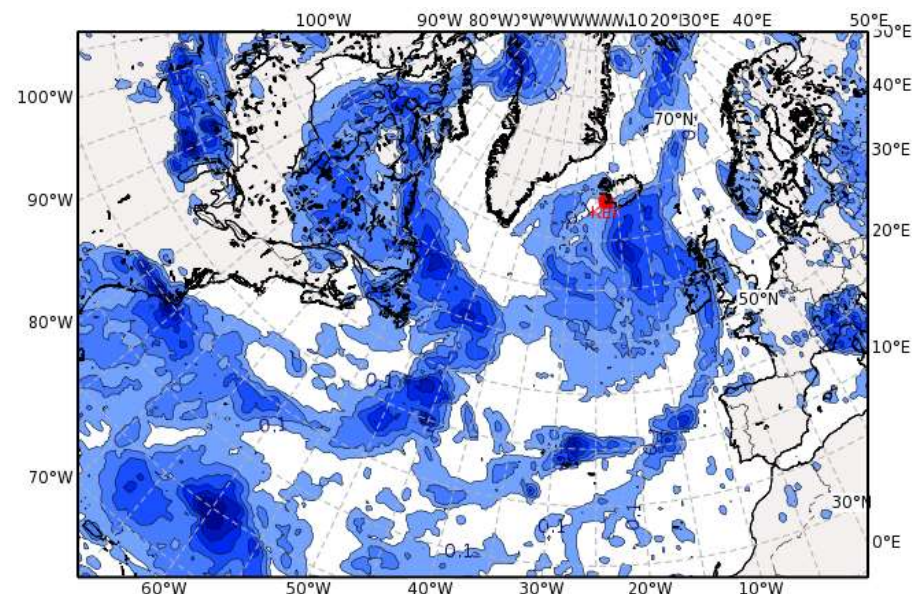
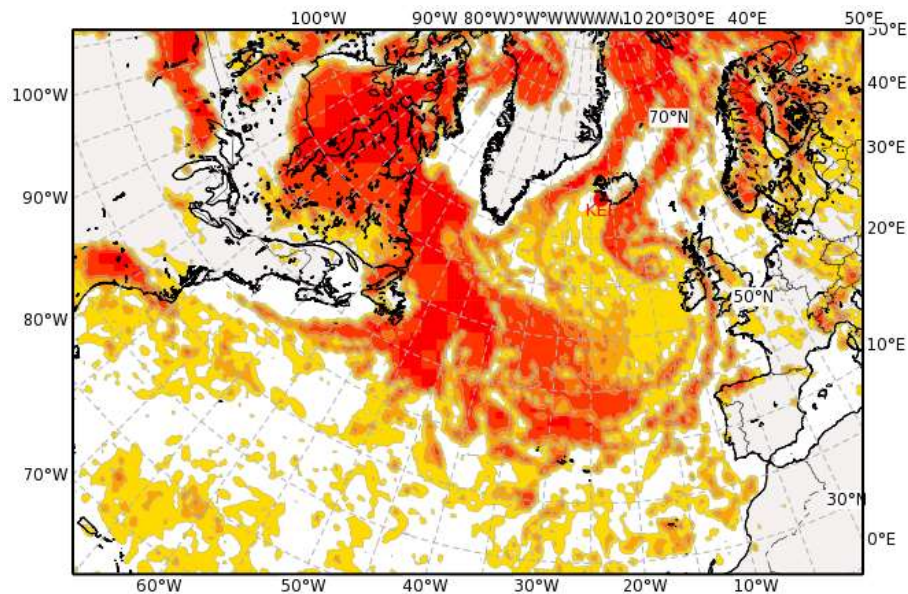
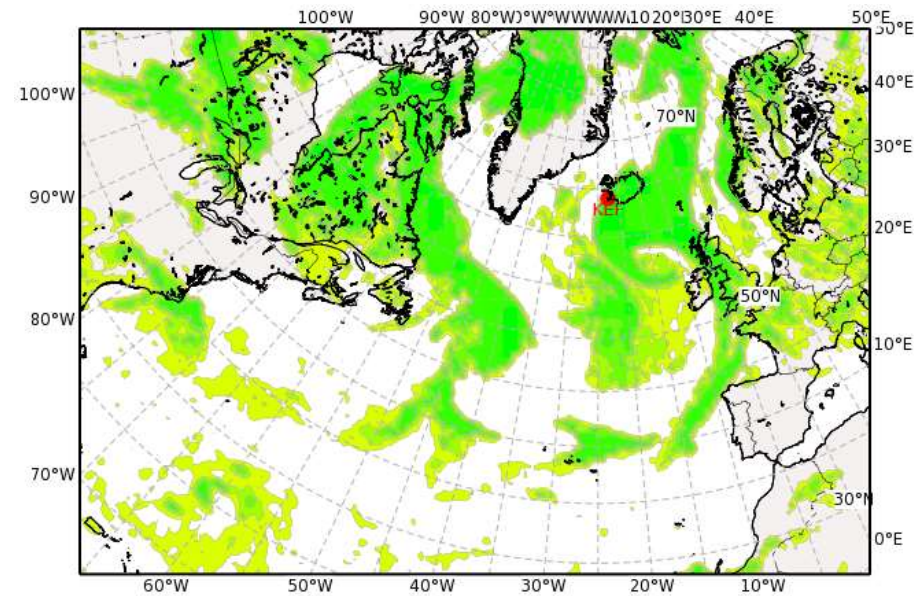
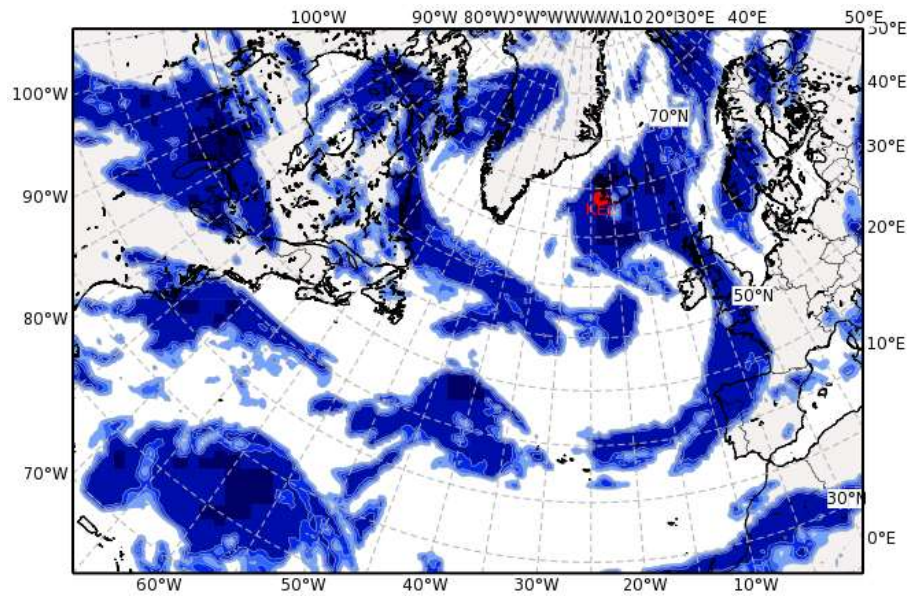
## Z300, Total cloud cover





## Forecast – 21 Sep 2016, 18 UTC

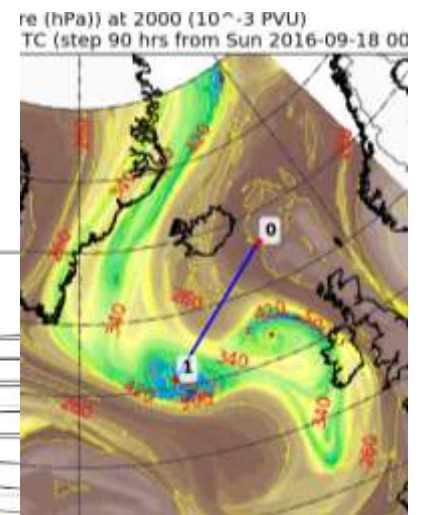
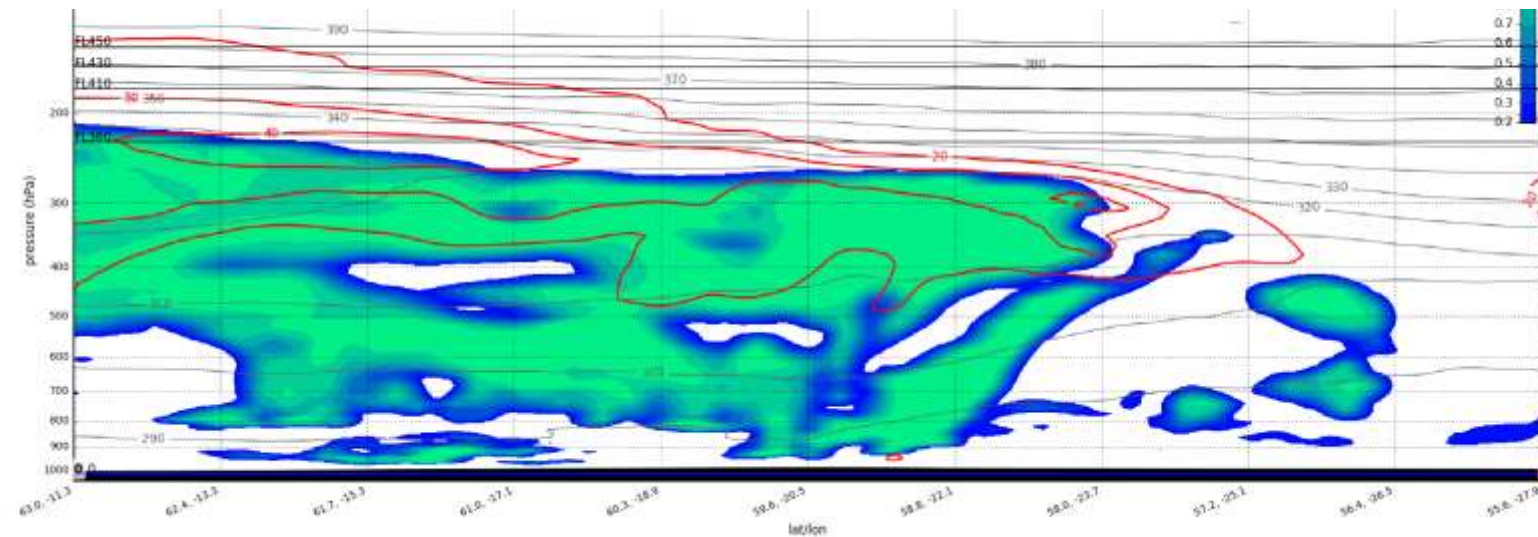
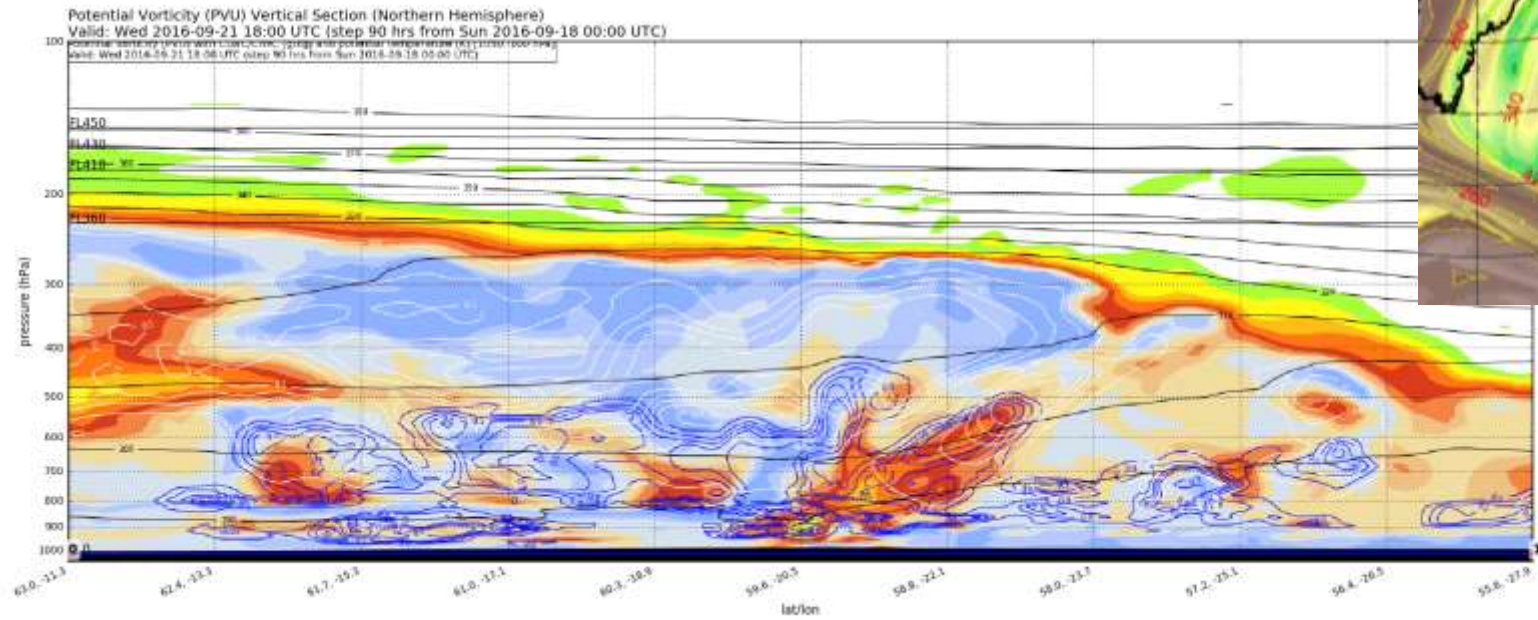
High, mid, low clouds, precip





# Cross sections

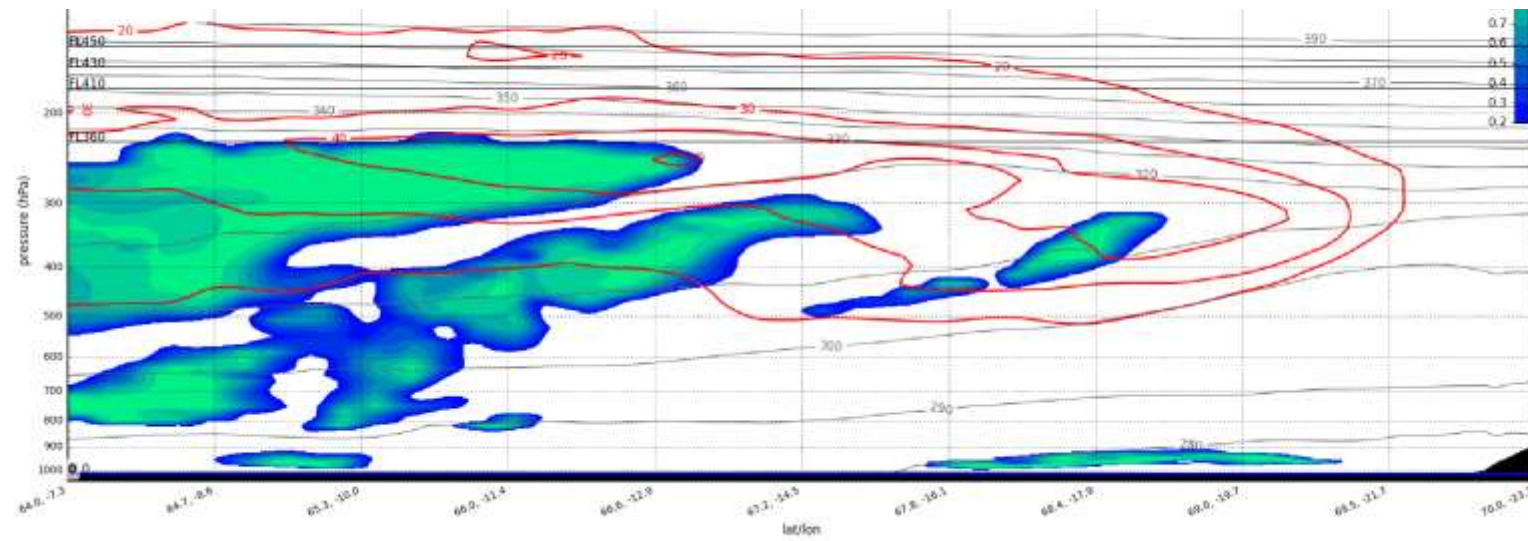
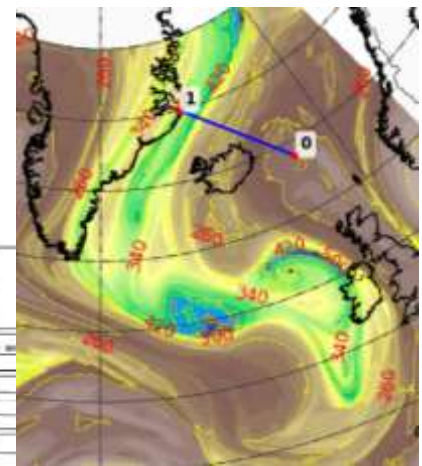
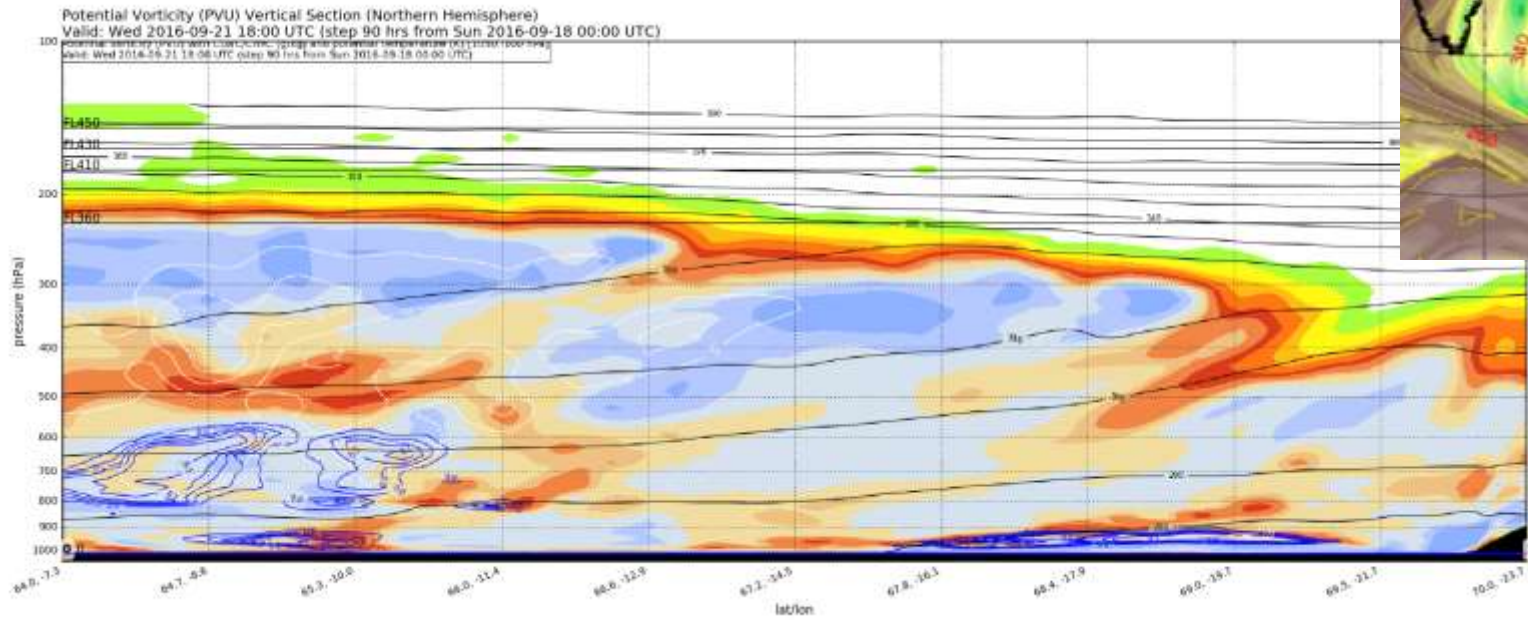
Mon 11 UTC meeting ???



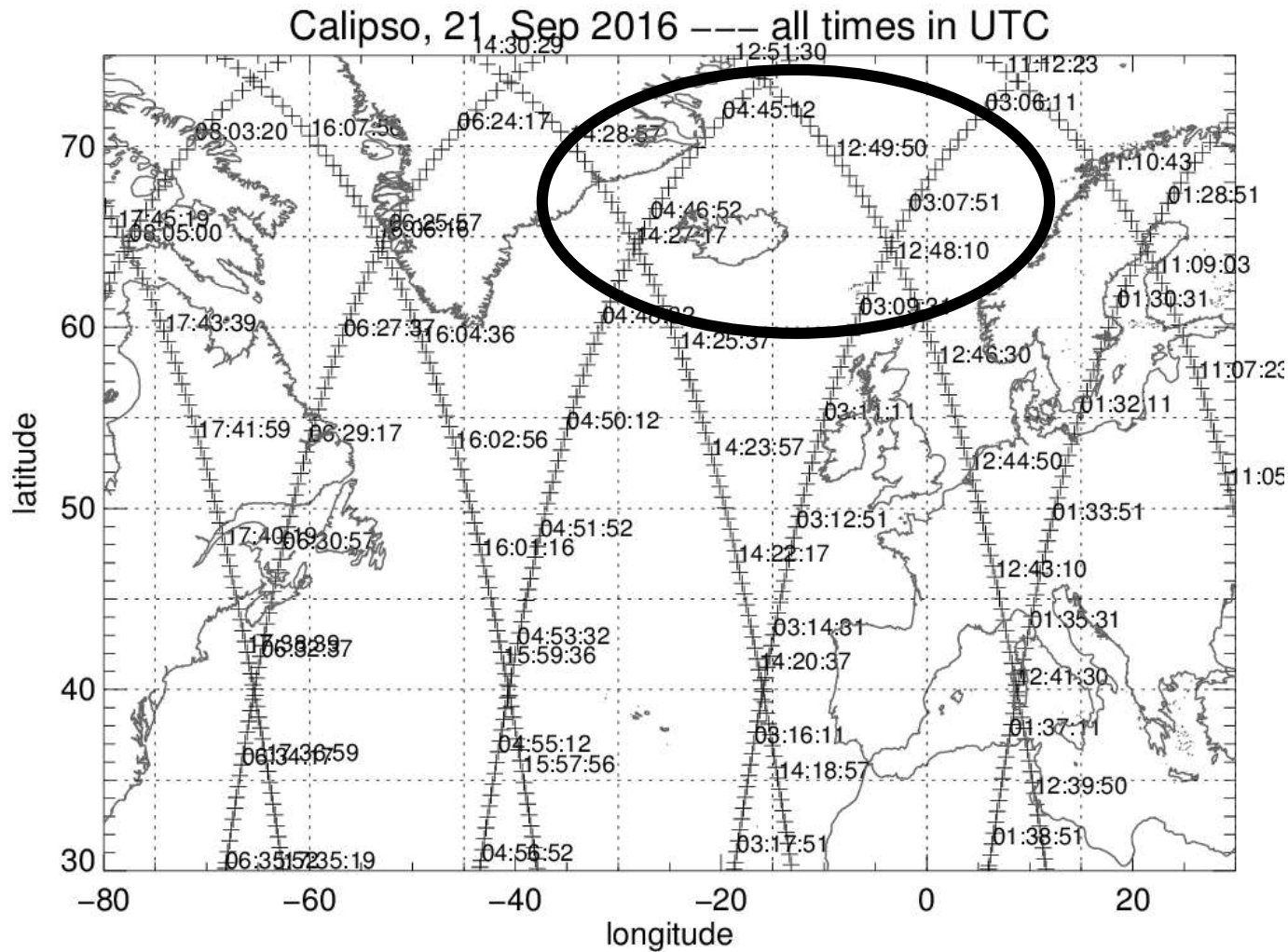


# Cross sections

Mon 11 UTC meeting ???



## A-Train overpass: not at right time and place

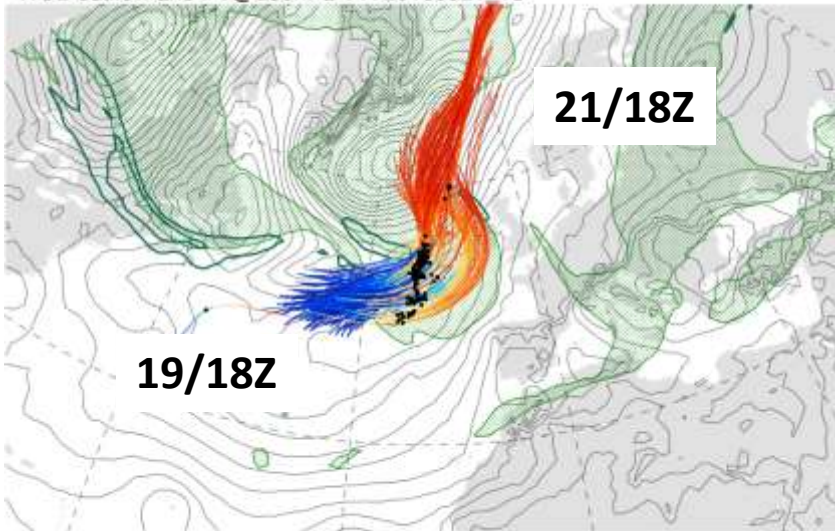


14.27 west  
of Iceland

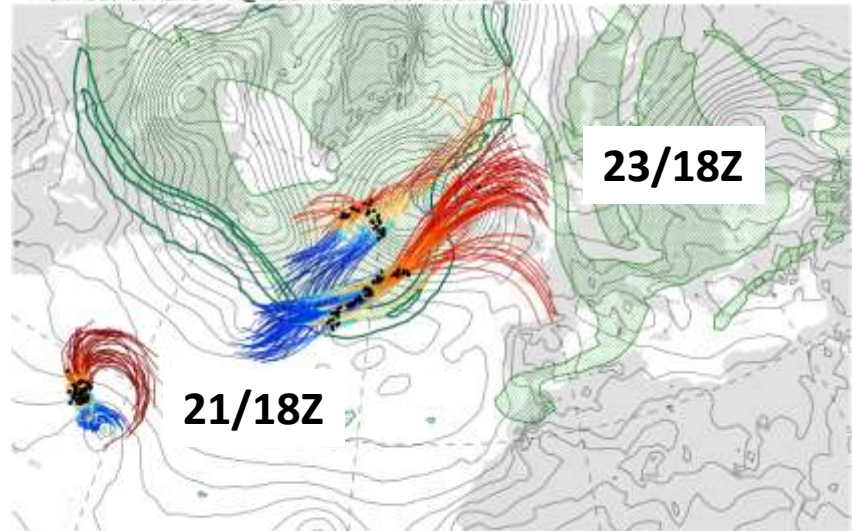


# Simultaneous WCB inflow mission? (based EC Hres 18/00Z) Mon 11 UTC meeting ???

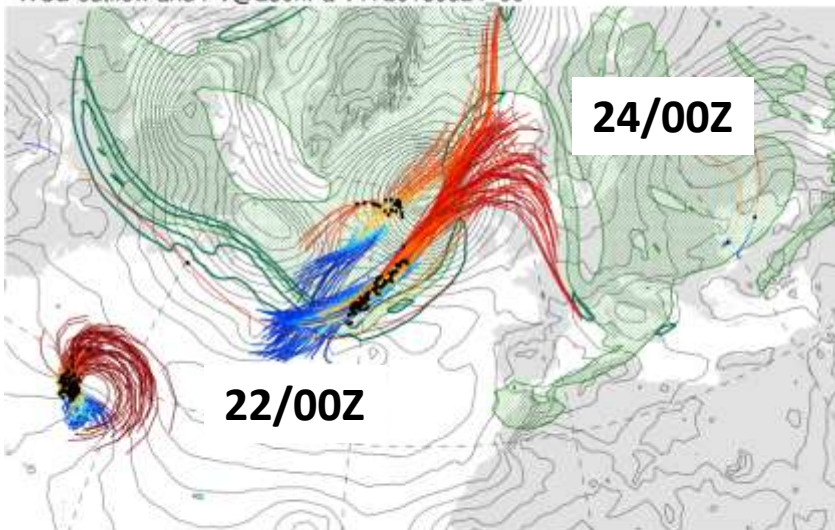
Trajectory start and SLP VT: 20160919\_18  
WCB outflow and PV@250hPa VT: 20160921\_18



Trajectory start and SLP VT: 20160921\_18  
WCB outflow and PV@250hPa VT: 20160923\_18

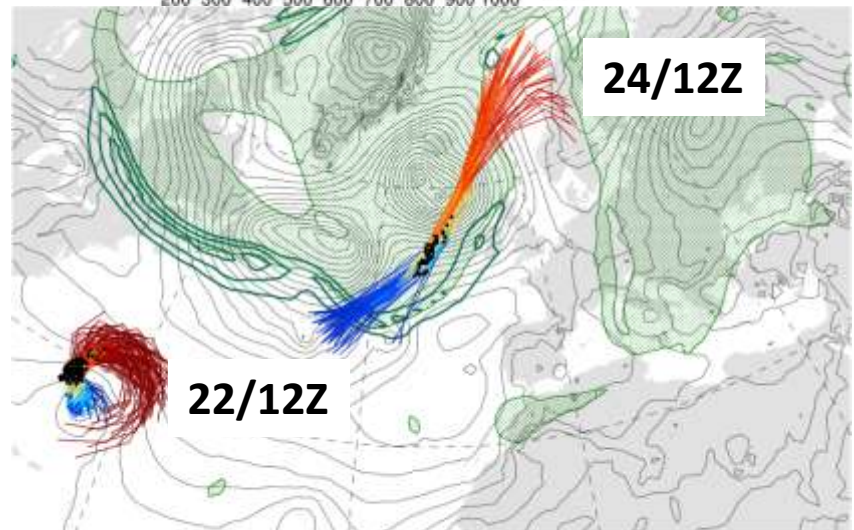


Trajectory start and SLP VT: 20160922\_00  
WCB outflow and PV@250hPa VT: 20160924\_00



200 300 400 500 600 700 800 900 1000 hPa

200 300 400 500 600 700 800 900 1000 hPa

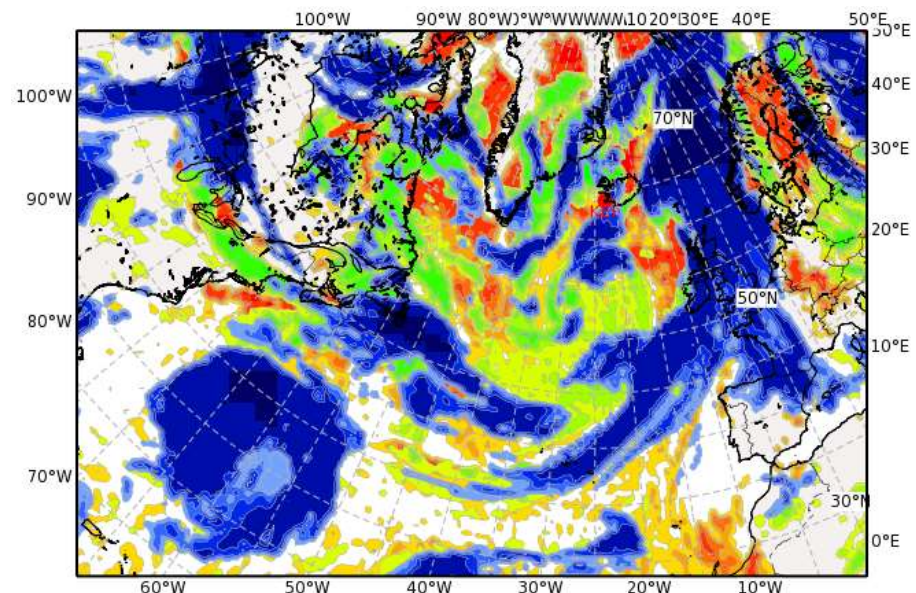
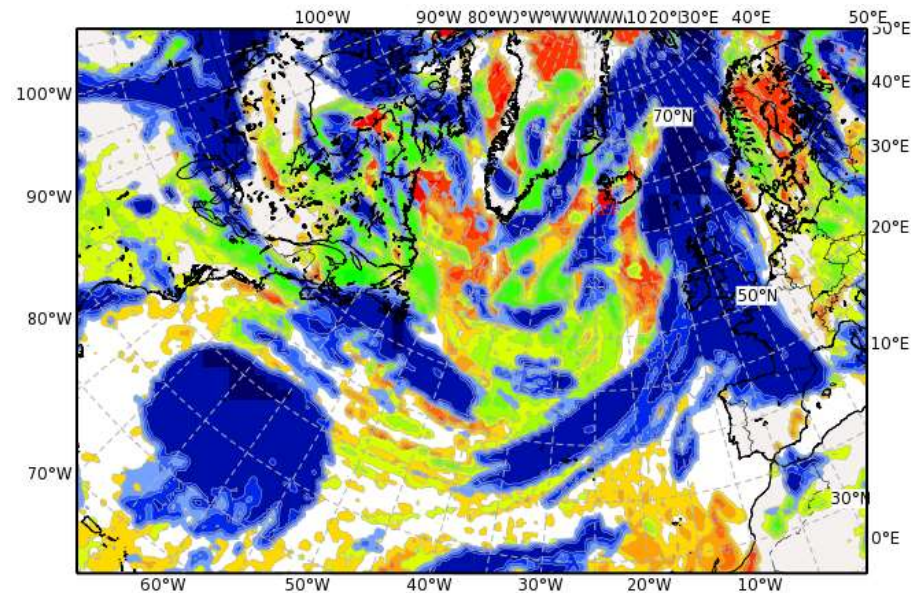
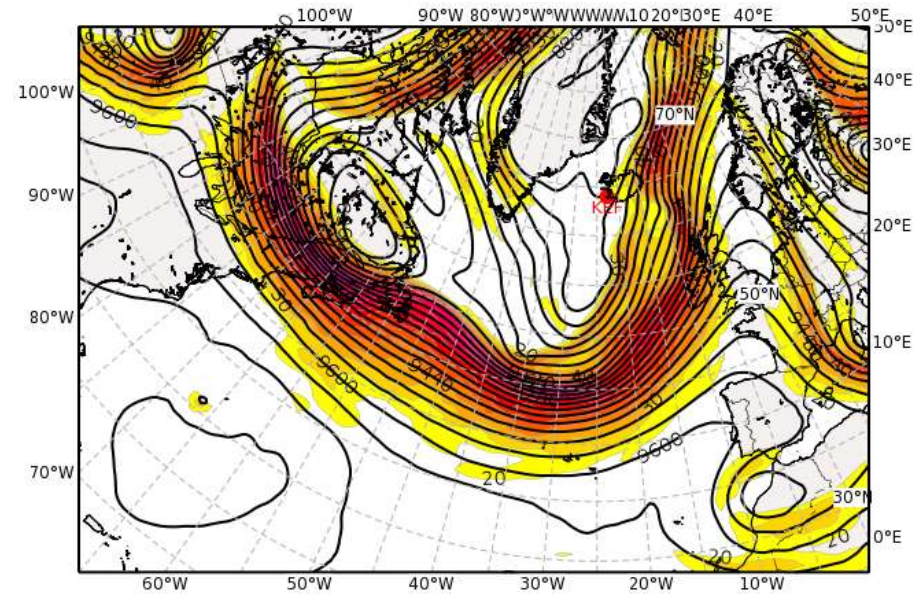
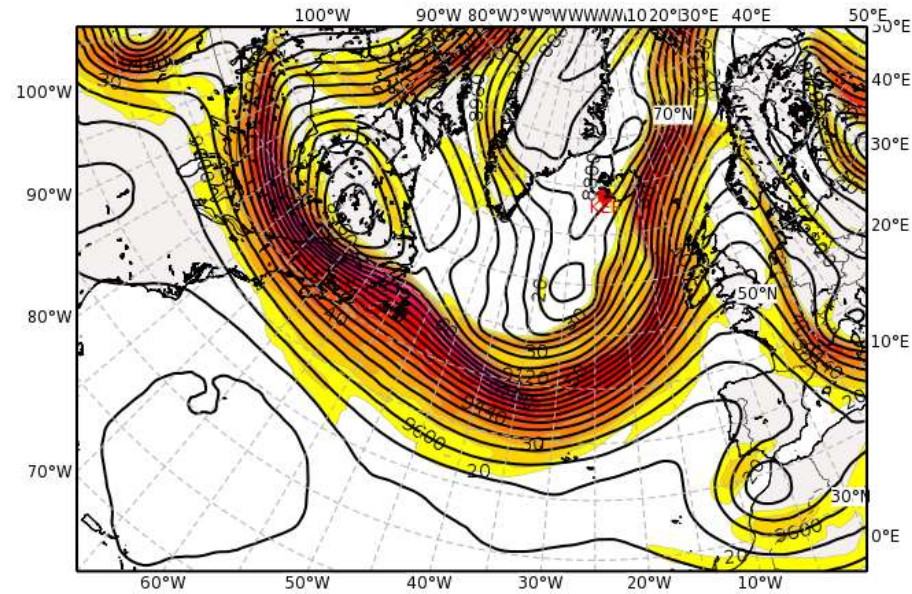


200 300 400 500 600 700 800 900 1000 hPa



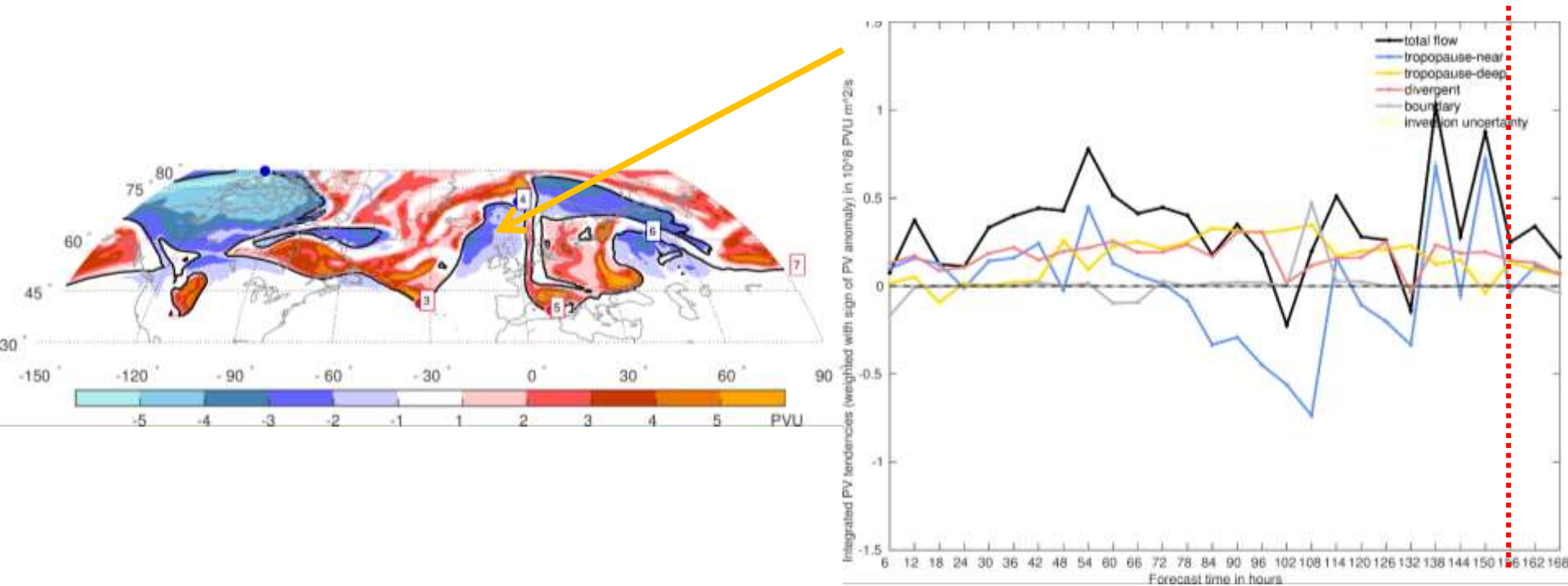
## Forecast – 24 Sep 2016, 00 - 06 UTC

## Z300, Total cloud cover





# Rossby wave diagnostics for Sat, 24 Sep 00UTC



**BT17/12Z**



# Forecast for Sat 24 Sep 2016 06 UTC

Not for Mon 11 UTC meeting  
BT18/00Z

ECMWF ENSEMBLE FC

BT: 20160918 00UTC, VT: 20160924 06UTC

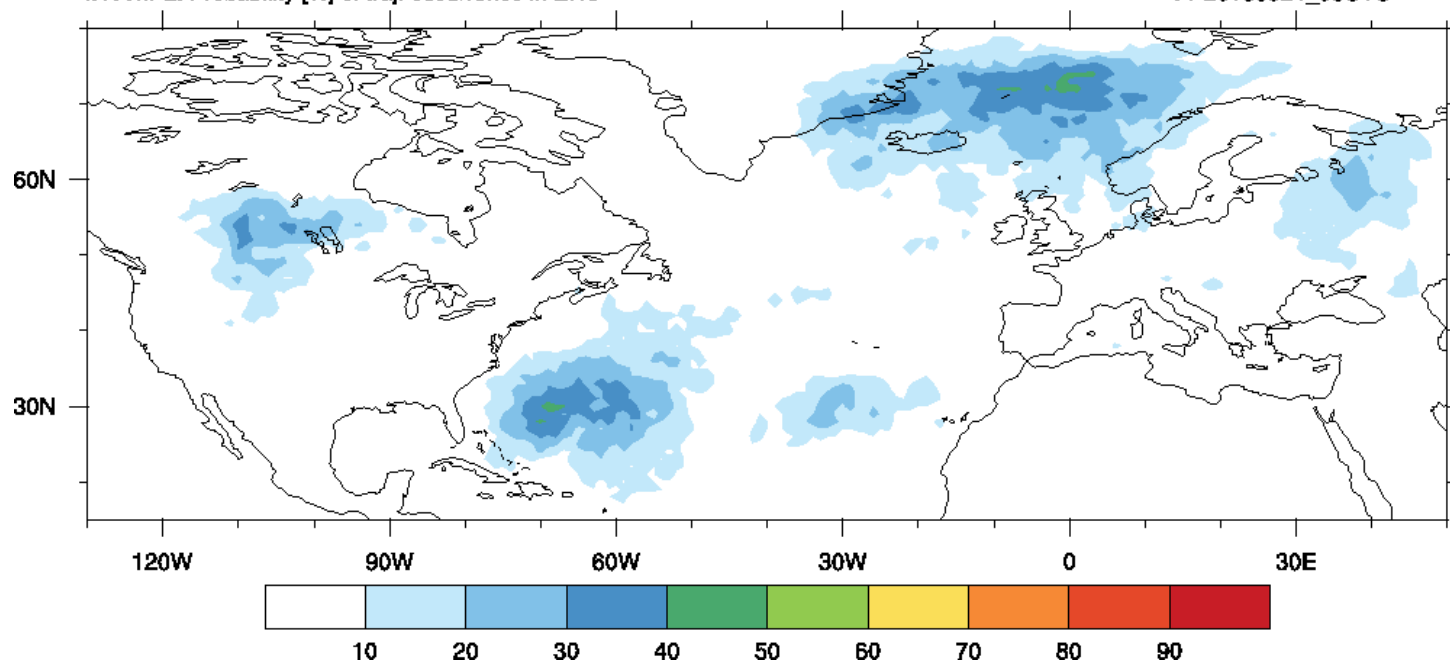
blue: perturbed, red: control

forecast for Sat, 24/06Z



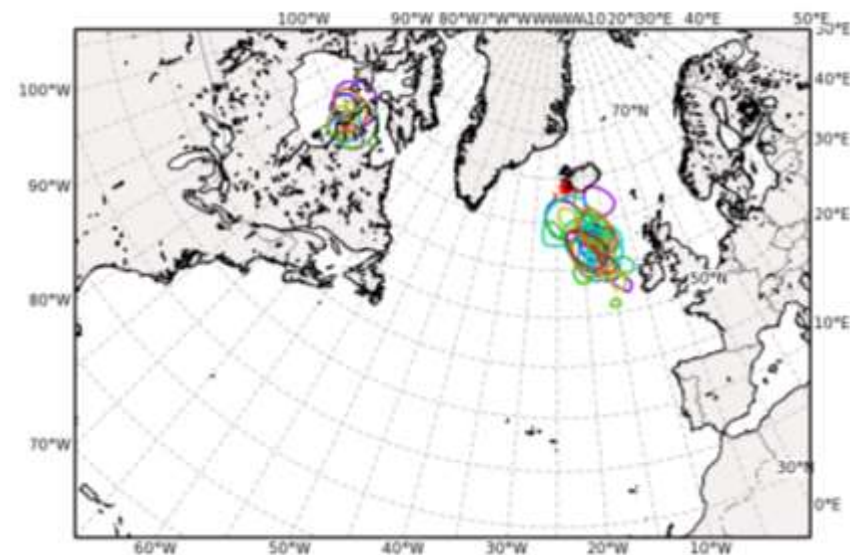
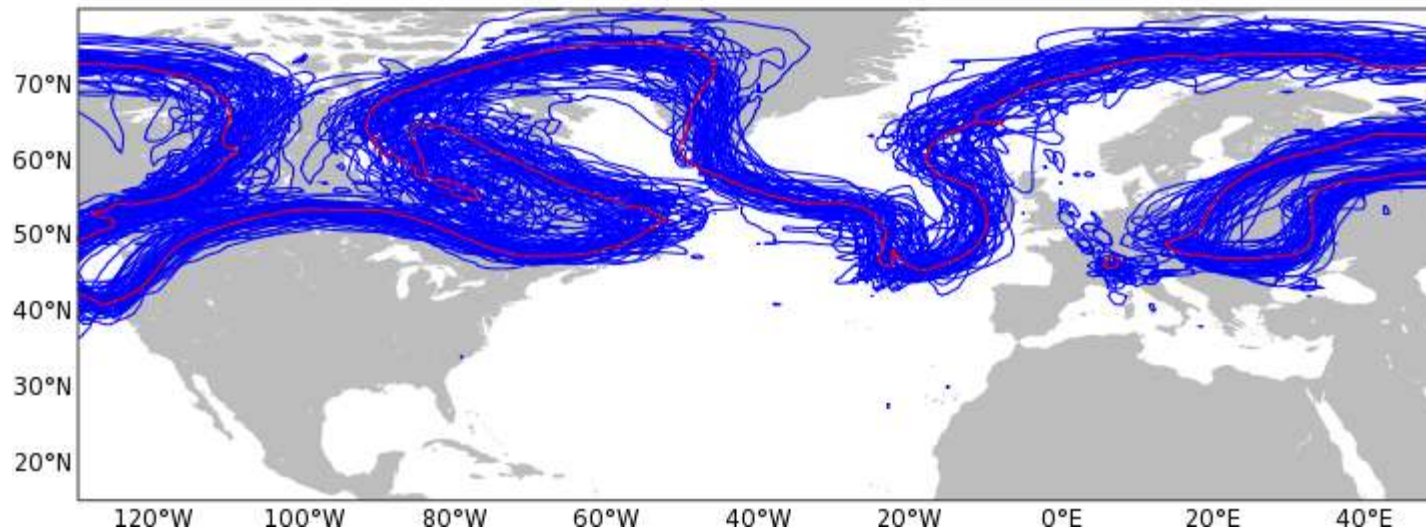
ECMWF ensemble forecast  
BT 20160918\_00UTC  
VT 20160924\_06UTC

lt400hPa: Probability [%] of traj. occurrence in ENS



# Outlook – 21 Sep – 25 Sep 2016, 12 UTC (2PVU@320 K, BT 18/00 UTC)

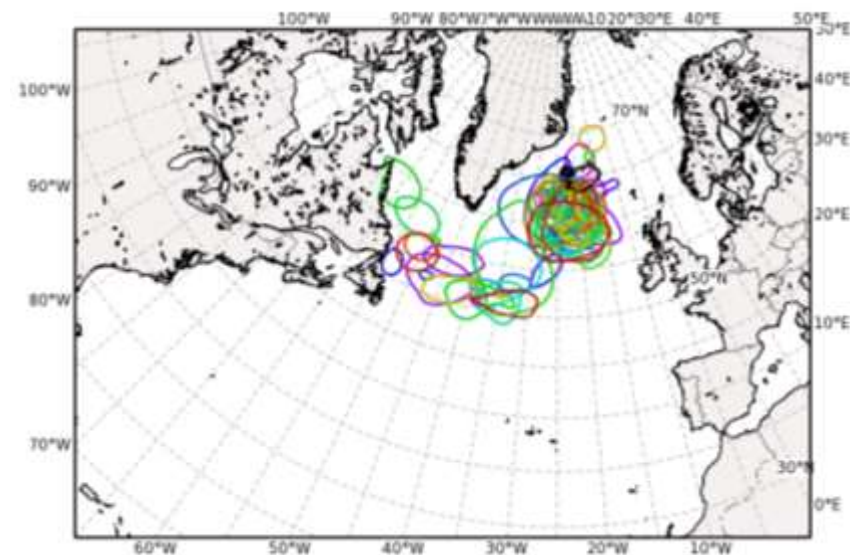
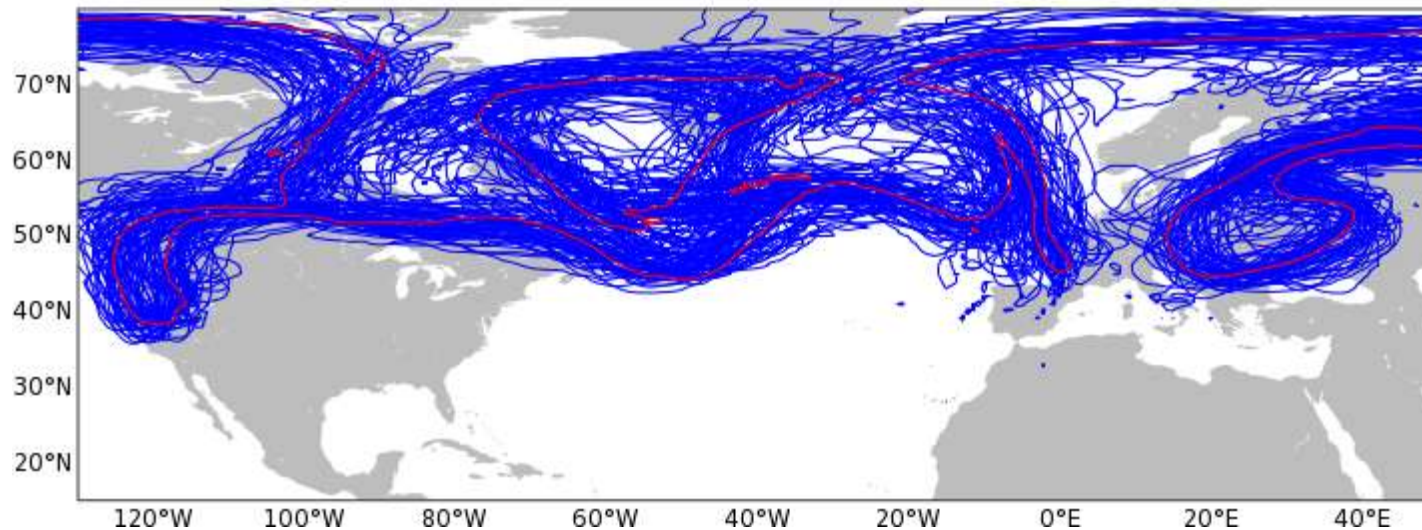
ECMWF ENSEMBLE FC  
BT: 20160918 00UTC, VT: 20160921 12UTC  
blue: perturbed, red: control





# Outlook – 21 Sep – 25 Sep 2016, 12 UTC (2PVU@320 K, BT 18/00 UTC)

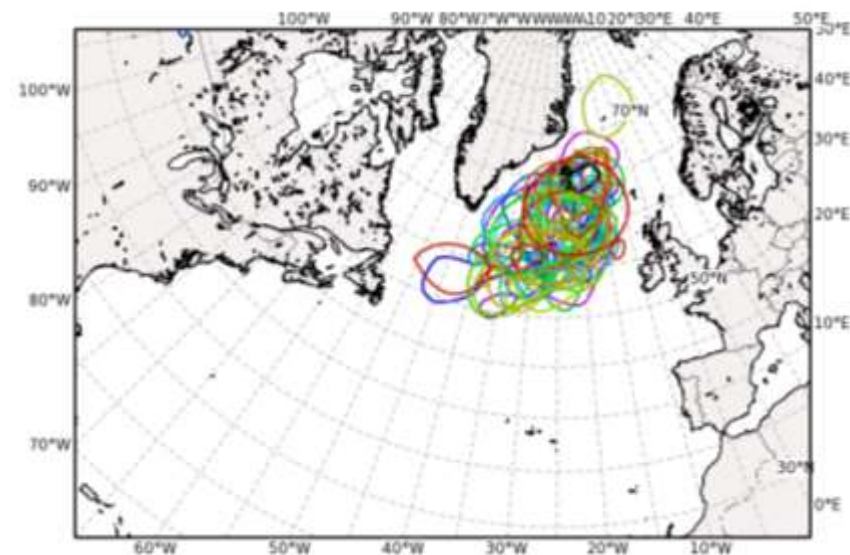
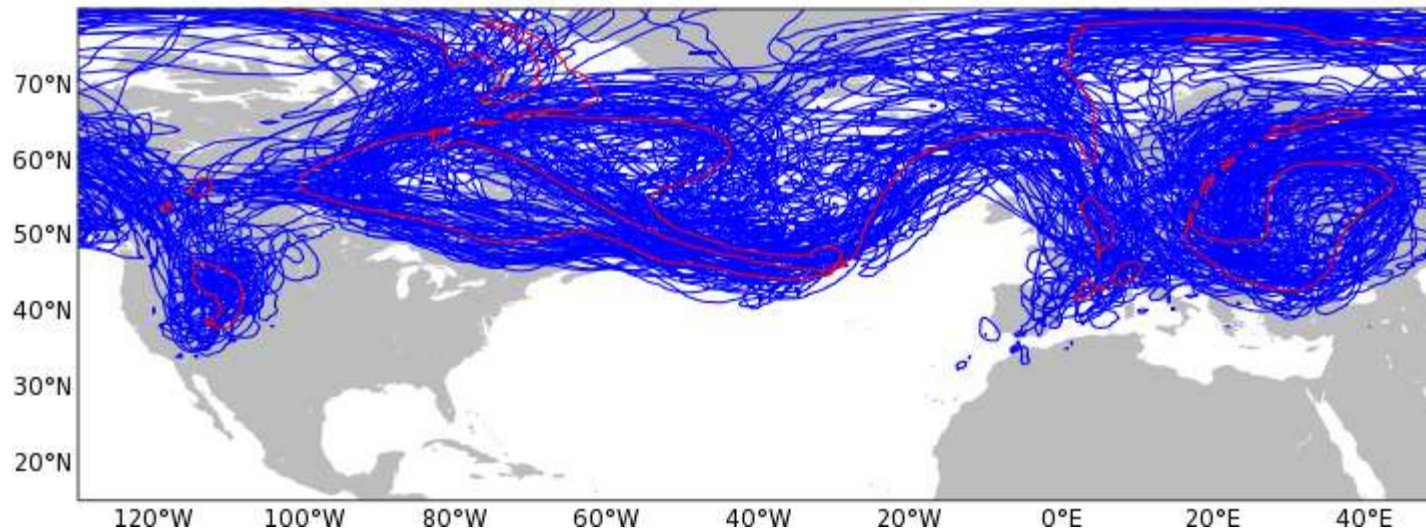
ECMWF ENSEMBLE FC  
BT: 20160918 00UTC, VT: 20160922 12UTC  
blue: perturbed, red: control





# Outlook – 21 Sep – 25 Sep 2016, 12 UTC (2PVU@320 K, BT 18/00 UTC)

ECMWF ENSEMBLE FC  
BT: 20160918 00UTC, VT: 20160923 12UTC  
blue: perturbed, red: control



# Outlook – 21 Sep – 25 Sep 2016, 12 UTC (2PVU@320 K, BT 18/00 UTC)

ECMWF ENSEMBLE FC

BT: 20160918 00UTC, VT: 20160924 12UTC

blue: perturbed, red: control

