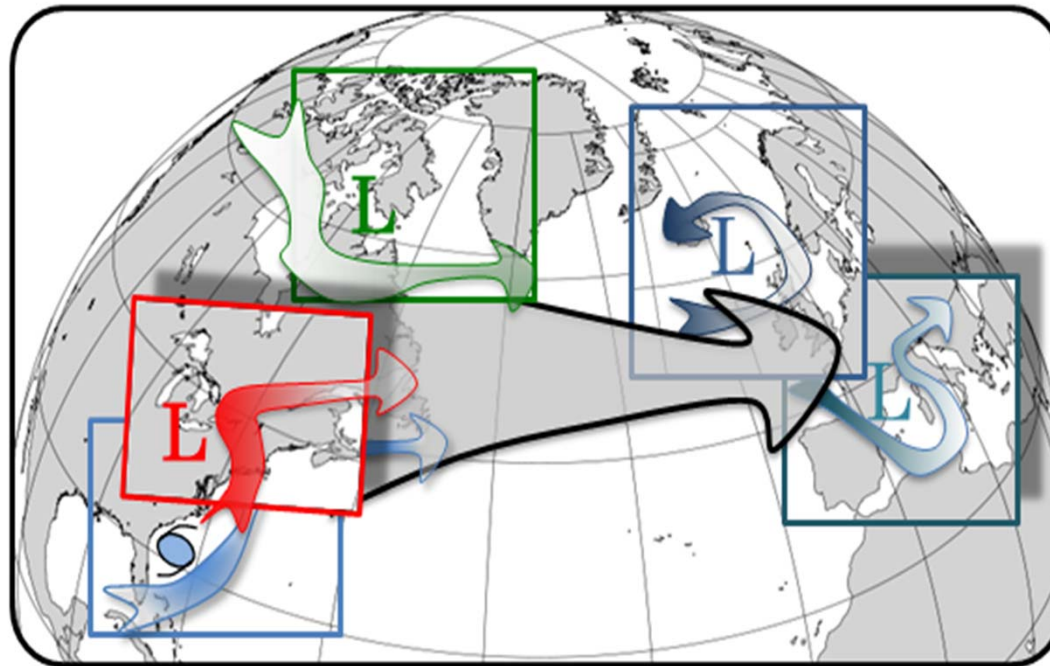


# Welcome to the **NAWDEX preparation workshop**

(1<sup>st</sup> Waves to Weather “Campaign Data - Cross Cutting Activity”)

DLR Oberpfaffenhofen  
4 to 6 April 2016



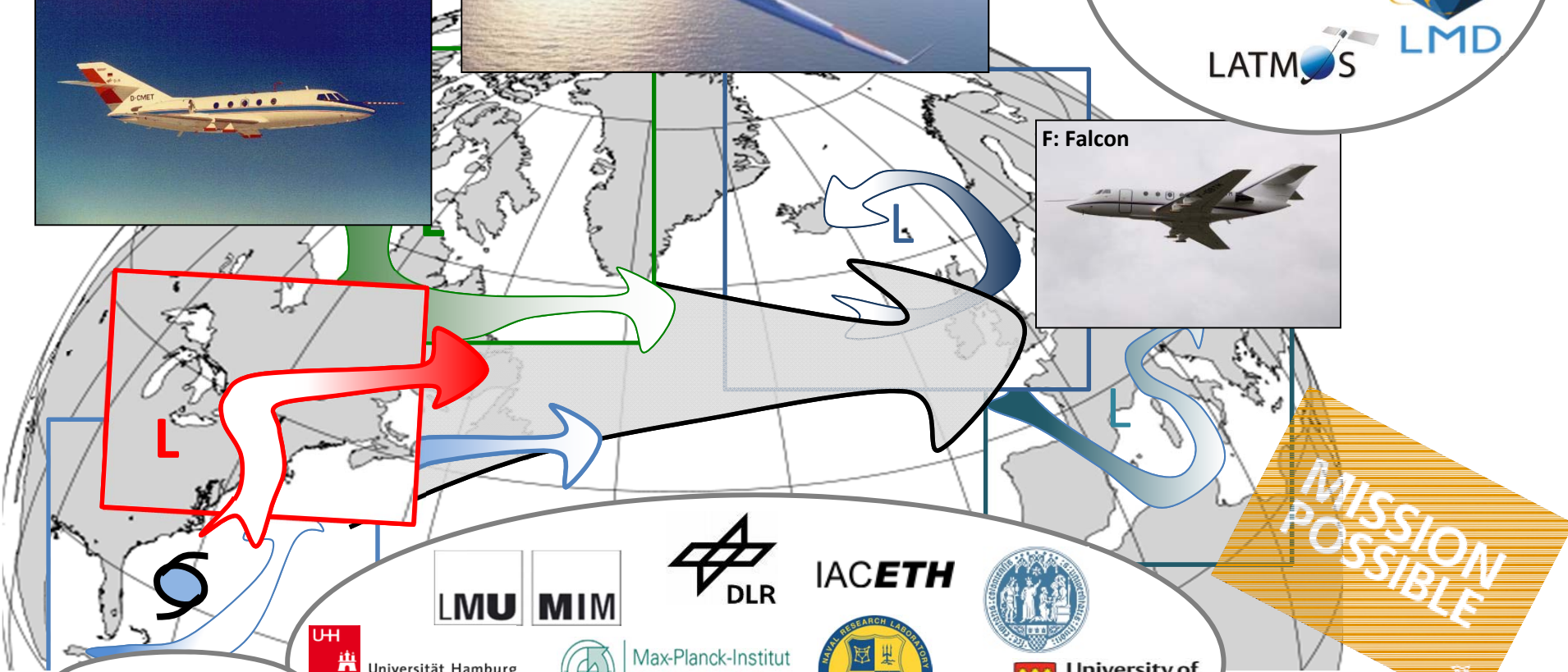
# Agenda

Tuesday 5 April

- |                       |  |
|-----------------------|--|
| <b>08:30 – 10:00:</b> | <b>Scientific Preparation Session – Part II:</b> Discussion about local organisation of the flight planning team, daily planning procedures, tasks, decision making  |
| <b>10:00 – 10:30:</b> | Coffee Break   |
| <b>10:30 – 12:00:</b> | <b>Campaign Implementation Session – Part I:</b><br>10:30 – 11:00: specMACS (T. Kölling, T. Zinner)<br>11:00 – 12:00: Discussion about instrument requirements and constraints   |
| <b>12:00 – 13:00:</b> | Lunch  |
| <b>13:00 – 15:30:</b> | <b>Campaign Implementation Session – Part II: Information by the DLR FX</b> <ul style="list-style-type: none"><li>• NAWDEX schedule</li><li>• NAWDEX logistics (Accommodation, Airport/Hangar, Internet, Freight, Rental Cars)</li><li>• Aircraft Operation over the North Atlantic<ul style="list-style-type: none"><li>• Permissions and typical proceedings</li><li>• Flight performance of HALO and Falcon</li><li>• Coordinated flights of both aircraft</li><li>• Options for a transfer from NARVAL/Barbados via Azores</li><li>• Presentation and discussion of preparatory cases</li></ul></li><li>• Flight planning procedures</li></ul> |
| <b>15:30 – 16:00:</b> | Coffee break   |
| <b>16:30 – 17:30:</b> | <b>Campaign Implementation Session – Part III:</b><br>16:00 – 17:00: Ground observations (UK, F, CAN, Iceland, Norway, mobile radiosondes)<br>17:00 – 17:30: Coordination with the French aircraft   |
| <b>18:30</b>          | <b>Workshop Dinner</b>   |



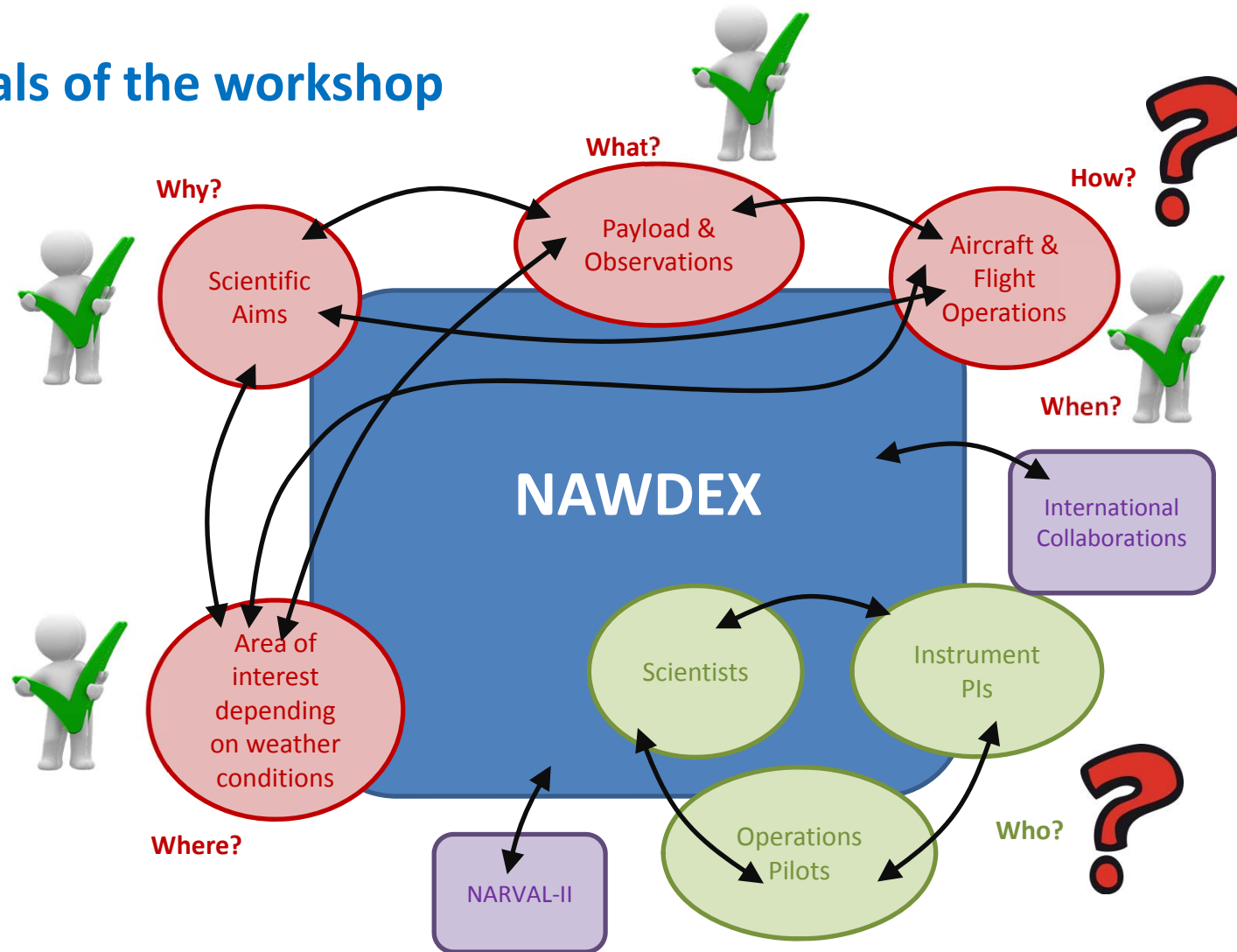
This Workshop:  
17 institutions, 56 participants



NARVAL II



# Goals of the workshop

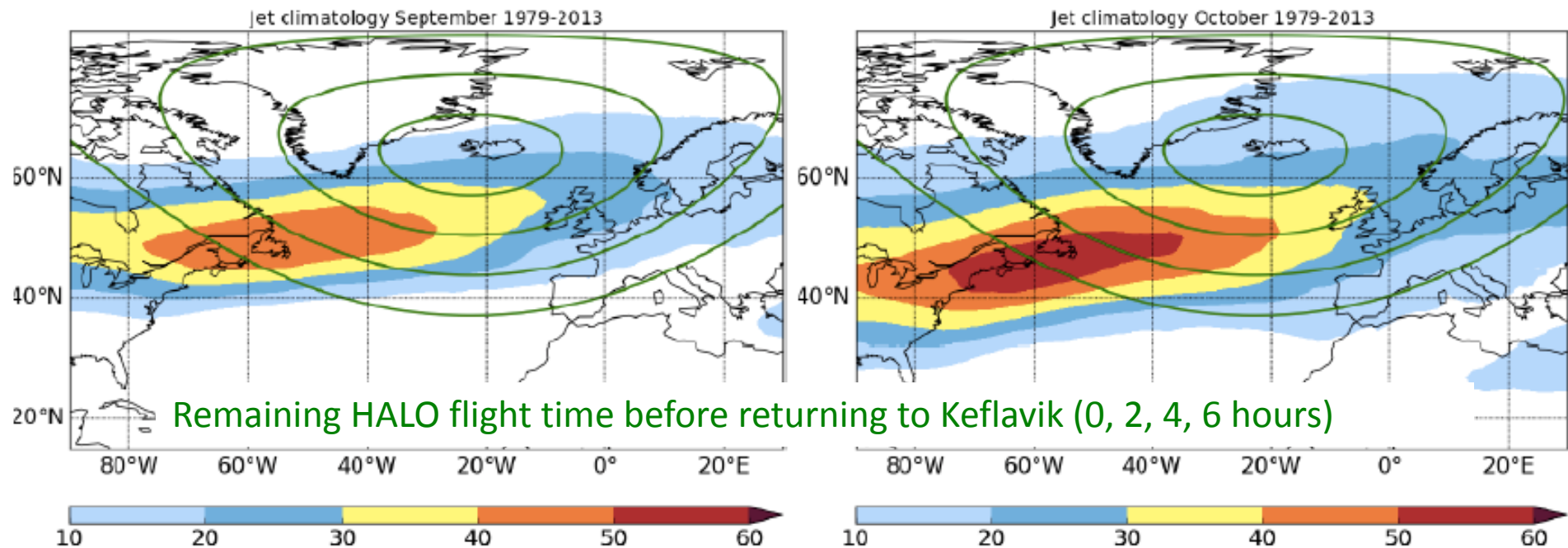


## Aims:

- 1) Refine flight strategies based on preparatory case studies
- 2) Discussion of NAWDEX procedures and the interfaces between different groups (instruments, flight facility & flight planning)
- 3) Information about local infrastructure

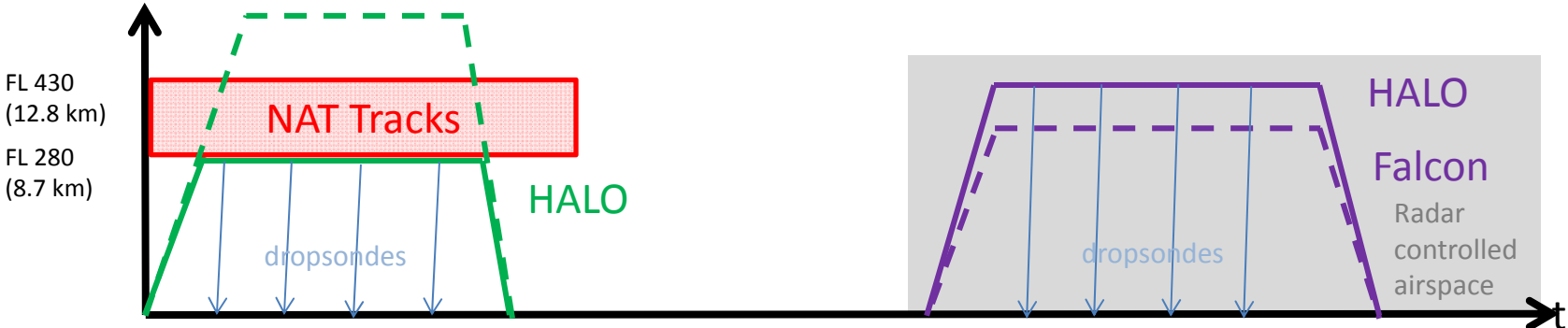
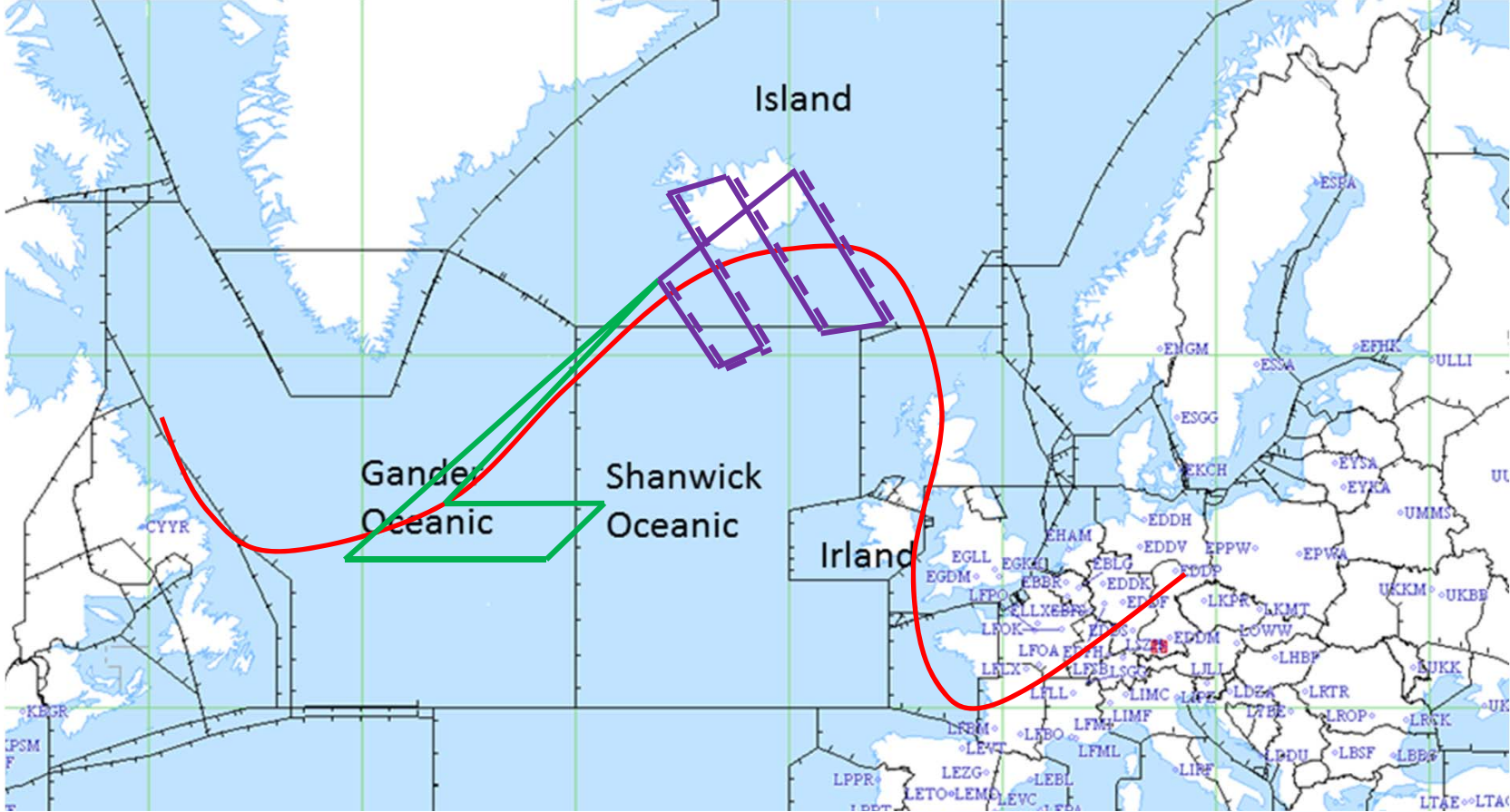
# Climatology

Frequency (in %) of **wind speed** > 30 m/s in Sep / Oct  
(wind speed vertically averaged between 100-400 hPa)

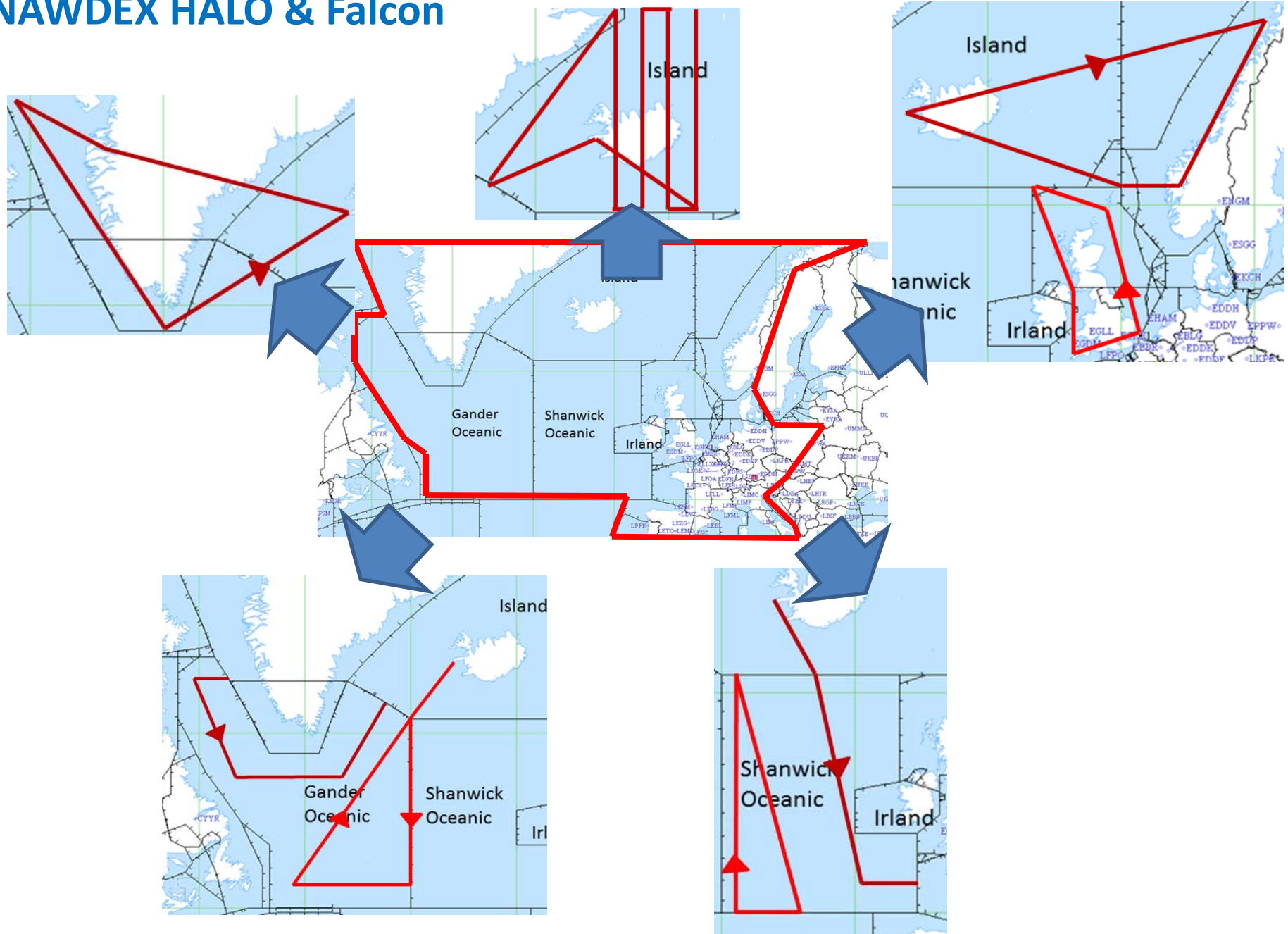




# Ideal setup

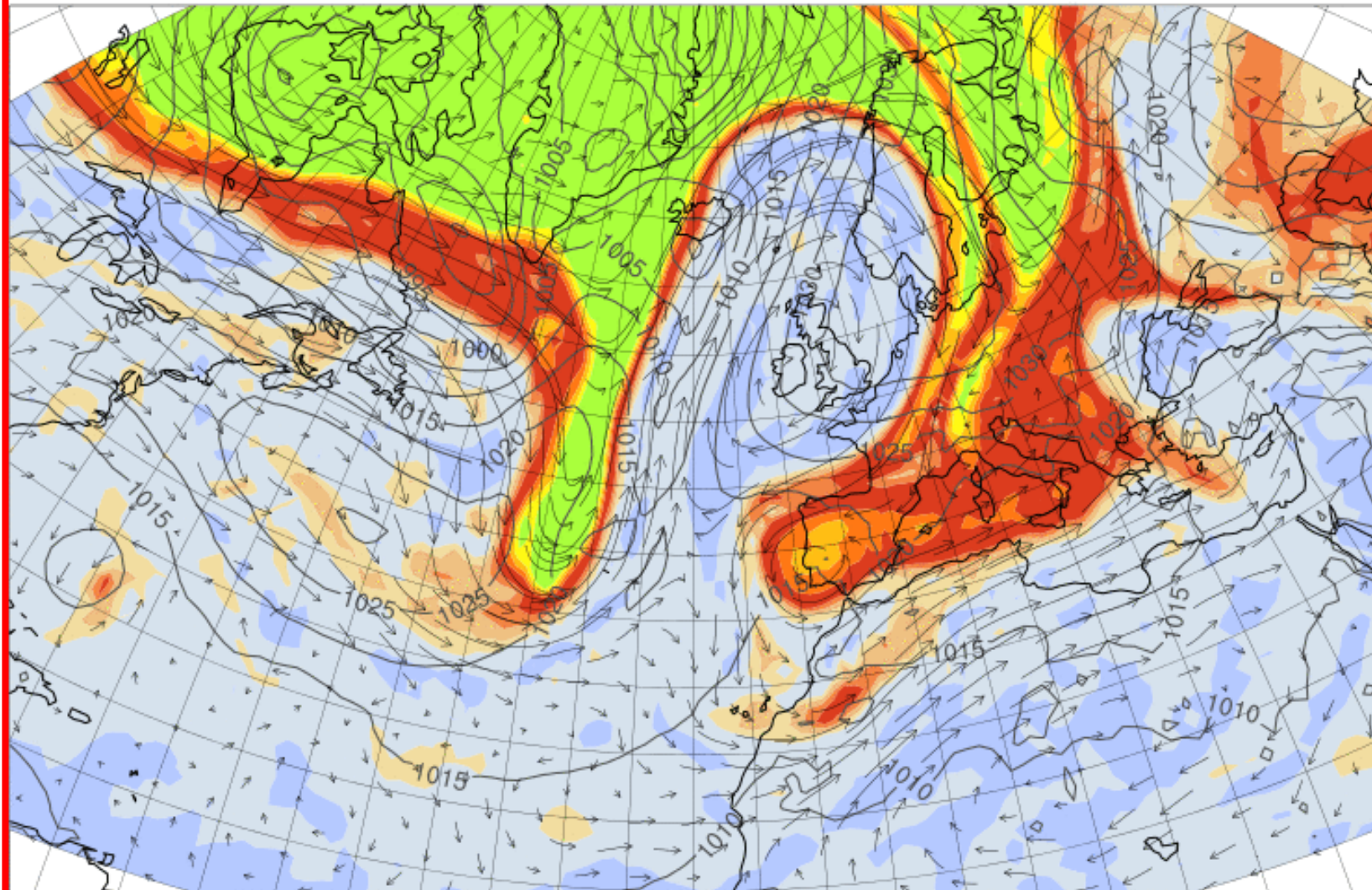


# NAWDEX HALO & Falcon





# PV@330K at 20150928\_18



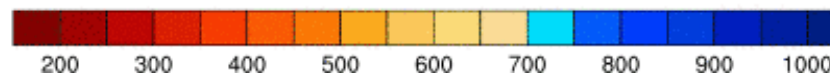
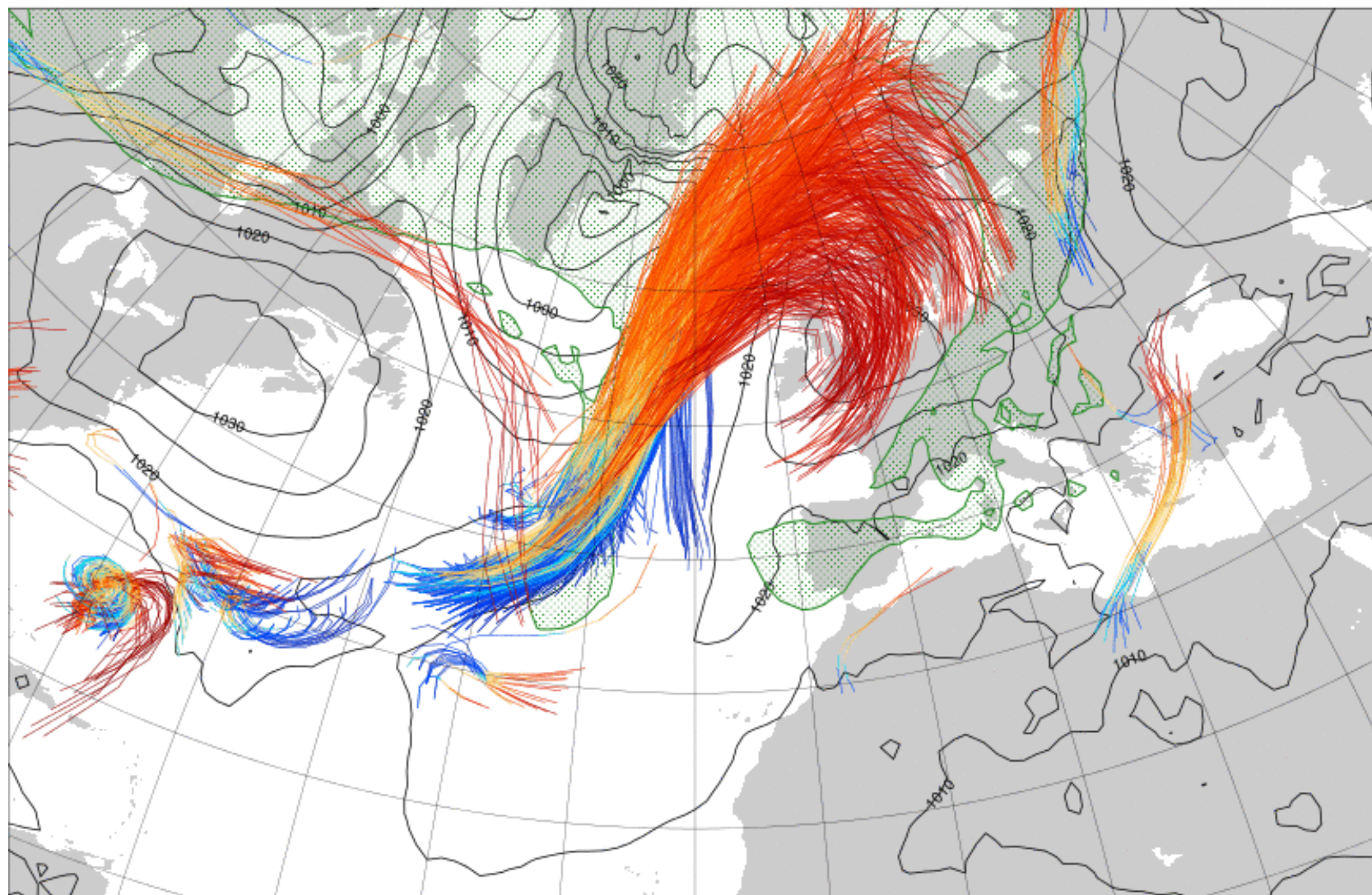
-0.2 0.2 0.7 1 1.5 2 4 5 6 7

pvu



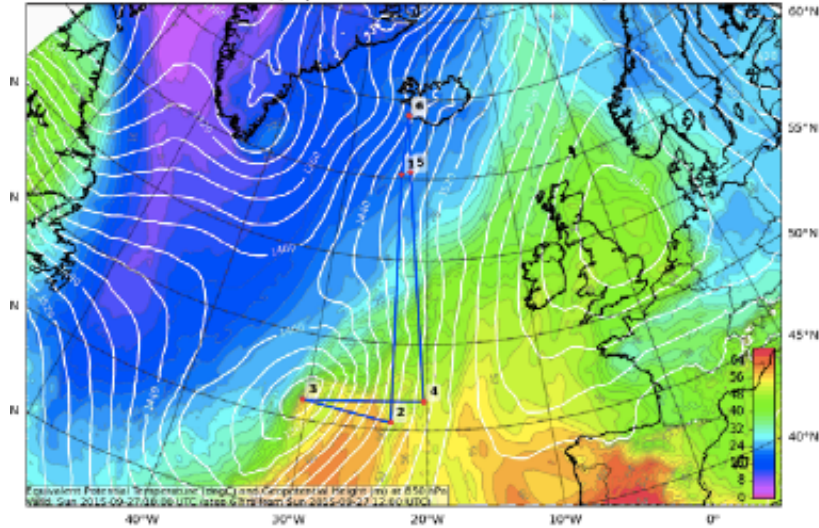
ECMWF analysis BT: 20150927\_00Z  
LAGRANTO start and PMSL VT: 20150927\_00Z  
IPV [2PVU] VT: 20150929\_00Z

pmsl [hPa] and every 1 trajectory wcb\_500



## Upstream flight with HALO

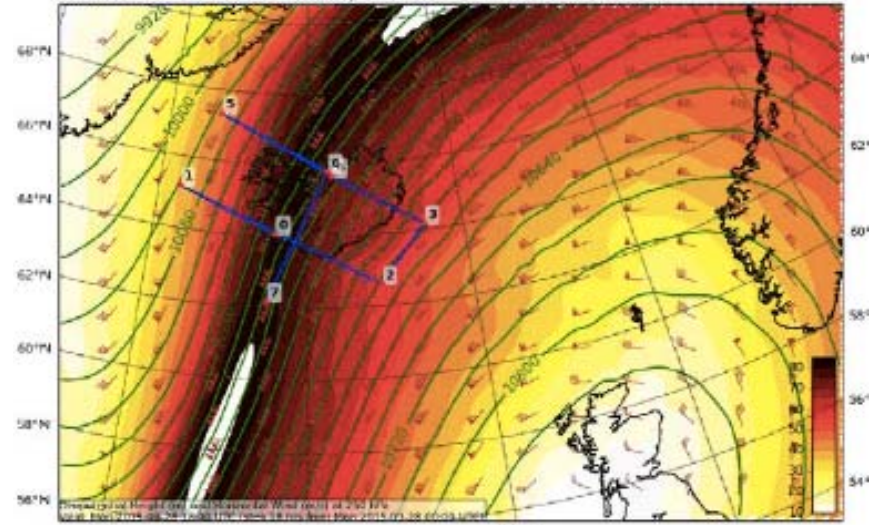
Equivalent Potential Temperature (degC) and Geopotential Height (m) at 850 (hPa)  
Valid: Sun 2015-09-27 18:00 UTC (step 6 hrs from Sun 2015-09-27 12:00 UTC)



- How much does flying in FL 280 reduce the range of HALO?
- What altitudes can we reach when?
- What is the max. altitude with the NARVAL configuration?
- How likely are height changes south of the NAT tracks?

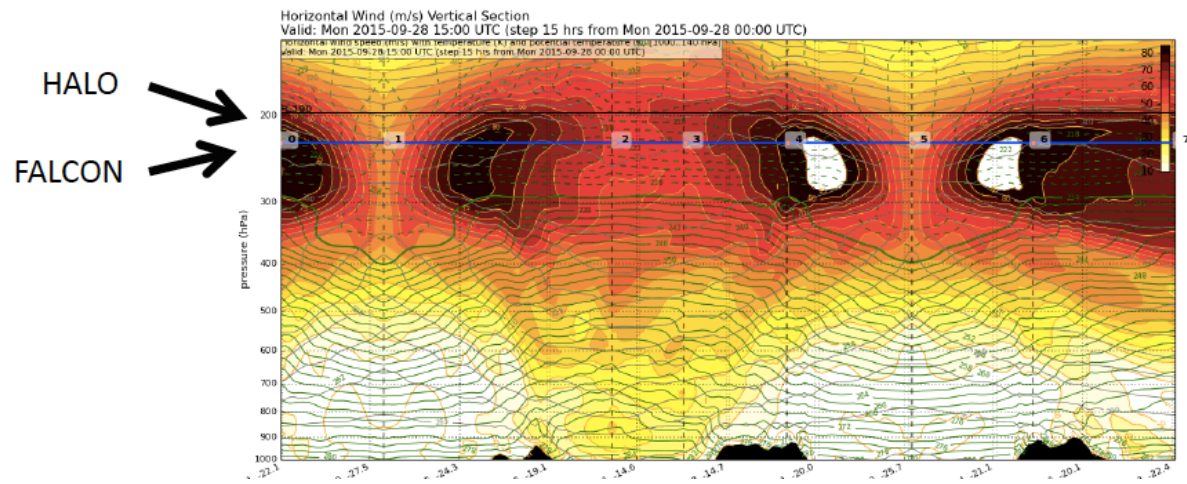
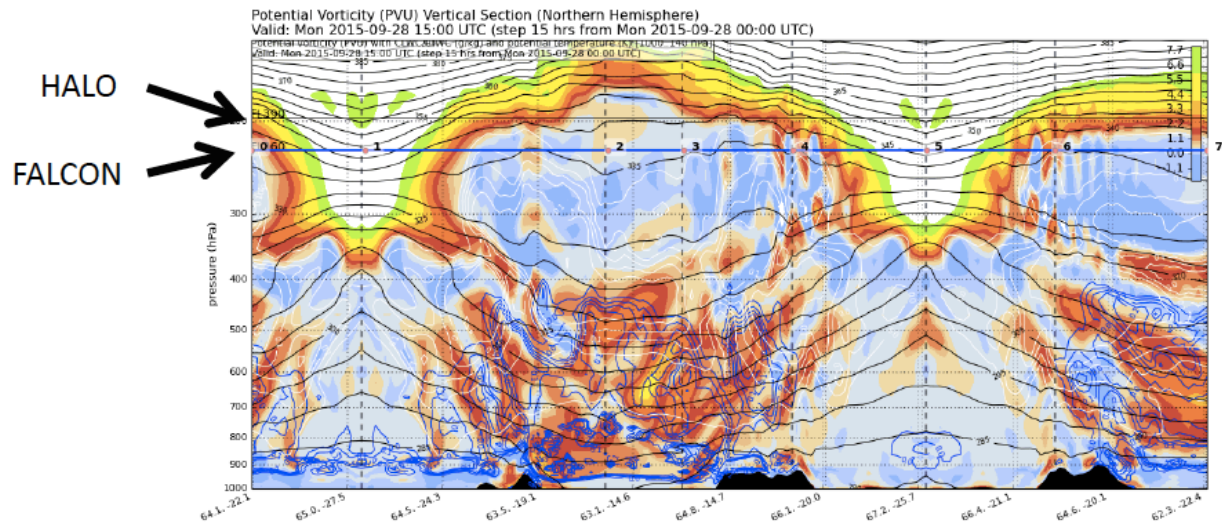
## Downstream coordinated flights of HALO & Falcon

Geopotential Height (m) and Horizontal Wind (m/s) (Wind Speed 10-85 m/s) at 250 (hPa)  
Valid: Mon 2015-09-28 18:00 UTC (step 18 hrs from Mon 2015-09-28 00:00 UTC)



- How can we operate both aircraft for a longer time in a coordinated way?
- How will the flightplanning be organized with two crews?



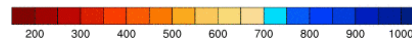
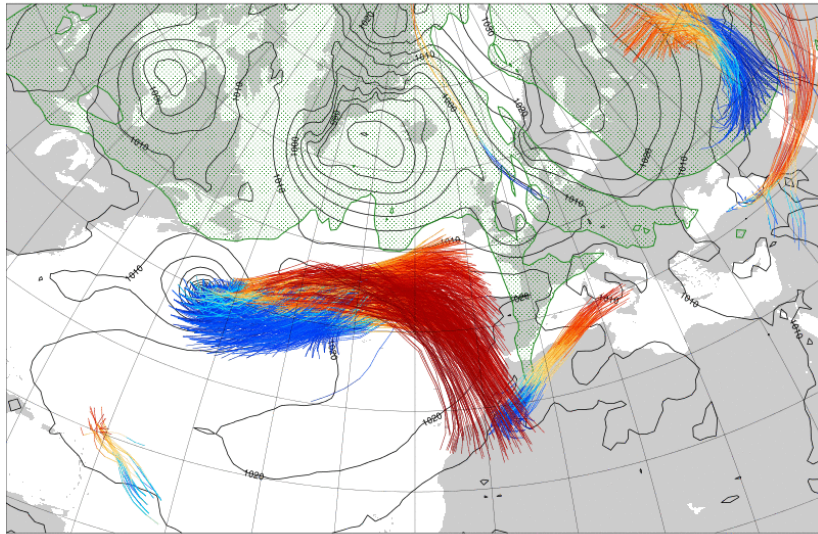


- Are there any restrictions when flying into clouds? Ice clouds/Mixed phase?



ECMWF analysis BT: 20151007\_00Z  
LAGRANTO start and PMSL VT: 20151007\_00Z  
IPV [2PVU] VT: 20151009\_00Z

pmsl [hPa] and every 1 trajectory wcb\_500

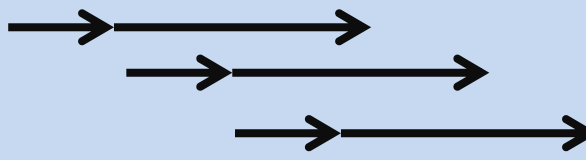


What are possibilities for HALO and Falcon to extend the range of the aircraft?

What are possible airports in Greenland, Canada, Norway, UK for stopovers?

Is it possible to fly via the Azores?

### Forecasting Group

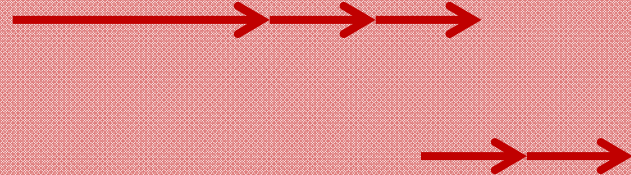


**Chief forecaster:**

- arranges a daily weather briefing
- collects information from forecasting group
- provides information to mission scientists
- daily weather summary

	D+ 1	D+ 2	D+ 3	D+ 4	D+ 5
A1	Green	Yellow	Red	Yellow	Yellow
A2	Green	Yellow	Red	Yellow	Yellow
A3	Yellow	Green	Red	Yellow	Yellow
A4	Yellow	Green	Red	Yellow	Yellow
A5	Red	Red	Red	Green	Yellow
A6	Red	Red	Red	Green	Yellow

### Missionscientists



**Mission Scientists (Aircraft, Ground Support)**

- Responsible from planning, flight, post-flight phase
- Flight planning with flight operation and pilots
- Mission summaries for documentation of the flights
- Organize Quicklook meeting with instrument operators

### Campaign steering group

- 3-4 persons
- Scientific Manager: central contact person knowing about all planning activity
- Chair the decision making process, leading daily the general meeting (to inform all participants)
- Provide information to third parties (webpage, emails)

—————→  
4 weeks

