

**NAWDEX 2016**  
**Weather summary**

**Date: 23. September 2016**  
**Author: H. Binder/J. Quinting**

**Synoptic Analysis: Friday 23 September 2016**

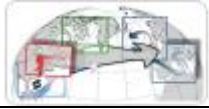
- A large-scale upper-level trough remains quasi-stationary over Greenland and Iceland. At low levels the mature cyclone “Ursula” is still located near Iceland.
- A new cyclone, “Vladiana”, which formed on Thursday 22 September near Newfoundland as a frontal wave, has rapidly intensified between Thursday and Friday, 22/23 September, while moving eastward along the baroclinic zone. At Friday noon the cyclone is located at about 25°W/57°N, and minimum SLP is less than 984 hPa. The cyclone is associated with a strong WCB, with the inflow and ascent region located west of Portugal and the UK, and the outflow centered south of Iceland.
- Today’s mission: HALO and Falcon first flew coordinated and captured the WCB outflow between Iceland and the UK, and then HALO captured the WCB ascent (one coordinated leg with FAAM aircraft) west of the UK.

**Forecast Outlook**

- On Saturday and Sunday 24–25 September, cyclone “Vladiana” becomes stationary near Iceland and replaces cyclone “Ursula”. The trailing cold front associated with “Vladiana” moves over Western Europe, leading to heavy precipitation over the UK and Northern Europe on Saturday 24 September, over the Pyrenees on Sunday 25 September, and over the Alps on Monday, 26 September.
- Near Newfoundland another cyclone forms (“downstream cyclone”), fed continuously by moist subtropical air masses, and subsequently moves eastward. In the subtropical North Atlantic tropical storm Karl intensifies, recurves and also starts to move northeastward. An extremely strong jet develops between the two systems, with 300-hPa winds potentially exceeding 90 m s<sup>-1</sup> on Monday.
- As during the previous days, the evolution of Karl and the downstream cyclone, and the large-scale flow they are embedded in, remains very uncertain, and every model run features a different scenario. In today’s ECMWF run with base time 23/00 UTC, Karl merges with the DS cyclone on Monday. The merging is associated with an LC2 type wave breaking. A downstream PV streamer (which is, however, less pronounced than in the BT21/00 UTC run) leads to heavy precipitation over the Alpine region. The DS cyclone moves toward Iceland/Norway on Tuesday, and a new cyclone develops over the subtropical North Atlantic which moves toward Iceland on Wednesday.

**Scientific discussion**

- The synoptic evolution is very uncertain, which renders a detailed flight planning difficult. Despite the uncertainties, Monday 26 September looks promising for a mission, and different scenarios for HALO and Falcon flights have been discussed in today’s meeting. Detailed flight plans will be discussed on Sunday 25 September.



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