

	<b>NAWDEX 2016</b> <b>Planning summary</b>	<b>Date: Sept. 23, 2016</b> <b>Author: H. Wernli, M. Bramberger</b>
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## NAWDEX 2016 - Planning summary

**IOP3 is ongoing today with flights of HALO, Falcon and FAAM. Planning is starting for IOP4, most likely with a southbound HALO flight on the afternoon of Monday 26 September.**

The schedule for today is a **weather discussion** at 16 UTC.

The main topic of the General Meeting was the outlook with different scenarios for Monday 26 September.

### **IOP3 on Fri 23 Sept**

- Both HALO and Falcon took off early this morning. The Falcon is already back and reported excellent conditions for the wind lidars. HALO is currently on its southernmost leg crossing the WCB and dropping sondes. The coordinated flight leg with FAAM north of Ireland is planned at 1215 UTC. The cyclone sampled today has now a name, its "Vladiana".

The responsible persons for this mission are

- Scientific Manager: Heini Wernli
- Chief Forecaster: Hanin Binder
- Instrument Manager: Manuel Gutleben
- Coordinator Ground-Based Observations: Ben Harvey
- Mission Scientists: Lotte Bierdel (HALO), Oliver Reitebuch (FALCON), Marlene Baumgart (Ground support)

### **Day Off on Saturday**

A 2<sup>nd</sup> day off was announced for Sat 24 September.

### **Weather outlook over the weekend**

- Sat: Vladiana replaces Ursula near Iceland, new cyclone forms over Newfoundland (we refer to this cyclone as the downstream or DS cyclone); TC Karl is in the Subtropics.
- Sun: Vladiana is still near Iceland, the DS cyclone moves south of Greenland, TC Karl is recurving and TC Lisa enters the game

### **HALO flight options on Mon 26 Sept**

As presented yesterday, several key weather systems are present in the different forecast scenarios for Monday:

- The DS cyclone developing towards the central North Atlantic; with a potentially strong WCB outflow towards Iceland
- TC Karl, which will recurve and is likely to propagate rapidly towards Europe. There are different scenarios of what TC Karl will do whilst moving into the extratropics: diabatic Rossby wave propagation towards Europe with and without intensification; merging with the DS cyclone – in all situations there is strong WCB outflow associated with TC Karl.
- TC Lisa to the SE of TC Karl.

George and Volkmar, and Hanin and Julian developed 3 possible flight scenarios for Monday afternoon, based on different meteorological scenarios. The 1<sup>st</sup> scenario focuses on crossing of the strong jet and flying into the center of the DS cyclones (with an intense PV tower), and the 2<sup>nd</sup> includes legs beneath the very high tropopause region south of the jet in the region with very strong horizontal water vapour transport. This region is cloud-free at mid-to-high levels and would allow for measurements in the moist boundary layer. The 3<sup>rd</sup> scenario is a variant of the 2<sup>nd</sup>. The scenarios are briefly discussed. The critical aspect of all 3 flight tracks is that they are mainly in the NAT region and that dropping sondes would be essential for this mission. Therefore a large NOTAM area would be required. The NOTAM issue will be discussed with Frank after the General Meeting.

The responsible persons for a potential HALO mission on Monday are

- Scientific Manager: Jim Doyle
- Chief Forecaster: Julian Quinting
- Instrument Manager: N.N:
- Coordinator Ground-Based Observations: Leo Saffin
- Mission Scientists: George Craig (HALO), Volkmar Wirth (Ground support)

**Falcon flight options on Mon/Tue 26/27 September**

We only briefly discussed options for Falcon flights early next week. One option would be to fly late on Monday south of Iceland (if the ridgebuilding associated with the DS cyclone will be strong), and the other option early on Tuesday to the east of Iceland if the WCB outflow rather heads towards Scandinavia. Both scenarios can be planned in detail on Sunday.

**Further points from the discussion:**

- The Global Hawk (SHOUT campaign) is able to drop sondes today in and around TC Karl, which might lead to reducing the uncertainty level of the forecasts.
- Information from John Methven: The FAAM aircraft plans a coordinated flight with HALO (HAMP instrument) in the 4<sup>th</sup> week of NAWDEX. At that time, the FAAM will still be in the UK. After NAWDEX, on 17 Oct, the FAAM will come to Iceland for research flights on volcanic emissions.
- The French Falcon will arrive on Wed 28 September.