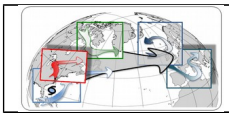	**NAWDEX 2016** **Weather summary**	**Date: 02/10/2016** **Author: J. Quinting**

Synoptic Analysis

An intense cyclone (core pressure of less than 965 hPa), the “Saturday cyclone”, is located over the central Atlantic and ahead of an upper-level trough. This trough starts breaking cyclonically during the day. Warm conveyor belt ascent in the warm sector of the cyclone and its associated outflow contribute to a downstream ridge building. In response to the ridge building, a PV streamer forms over Scandinavia and central Europe. This PV streamer breaks apart until the end of the day and a stratospheric cut-off forms over Germany and Benelux.

Forecast Day 1 (Monday, 03/10/2016)

The cyclonic wave breaking over the central North Atlantic and the downstream ridge building are expected to continue. The low pressure system associated with the breaking trough will be located south west of Iceland. A southerly flow on its eastern flank will bring strong winds and rain to the Keflavik area. Warm conveyor belt activity in the warm sector of the cyclone continues. These strongly ascending air masses are predicted to have their outflow two days later between Greenland and Scandinavia.

The cut-off that formed further downstream on the previous day will be located over central Europe. It is associated with warm conveyor belt ascent on its eastern flank. These rapidly ascending air masses are predicted to bring intense rainfall to central Europe during the course of the week.

Over the western North Atlantic, a dip in mean sea level pressure indicates the development of a new cyclone southeast of Newfoundland. In a strong upper-level westerly flow this diabatic Rossby wave starts to intensify. A massive warm conveyor belt leads to ridge building downstream that is expected to continue during the next day.

Forecast Day 2 (Tuesday, 04/10/2016)

According to the ECMWF IFS forecast of 02 October 0000 UTC, the diabatic Rossby wave will undergo a rapid intensification. An approaching upper-level trough provides forcing such that the cyclone will deepen from 1000 to 960 hPa in 24 hours. This rapid intensification is associated with the formation of a remarkable warm conveyor belt. Cross-isentropic transport of low-PV air within this rapidly ascending air masses contributes to a renewing of the high amplitude ridge over Scandinavia that was initially built by the warm conveyor belt associated with the “Saturday cyclone”.

Forecast Outlook

The diabatic Rossby wave itself will be located between Greenland and Iceland. Moisture transport and a strong pressure gradient will lead to heavy precpitation and strong winds around Iceland. Warm conveyor belt activity is expected to continue during the following days. Likewise, the ridge downstream of the diabatic Rossby wave will experience further amplification. Until 06 October, the northern edge of the ridge will reach about 80N.

A stratospheric cut-off system to the south of the ridge will likely bring considerably amounts of rain to central and eastern Europe.

Scientific Discussion

A Halo flight is scheduled for Tuesday 04/10. The objectives for this flight will be measuring the structure of the diabatic Rossby wave, the structure of its outflow, and the strong WCB ascent associated with the system. Tentative flight plans were presented for (coordinated) missions on 05/06 October. Plans for these flights have to be refined in the following days.