



Drone Weather Service for Drone Logistics

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Weather service for drone logistics was part of the project Aviapolis Liikennelabra. The aim of this project is to develop and test environmental friendly, safe and inexpensive solutions for transport and logistics.

In this Drone Logistics work package remotely piloted aircrafts, drones, were used to deliver packages from logistic center to delivery points from where customers could collect their orders. The objective of this trial was to deliver 100 packages between 18th and 20th March 2019. These flights were operated close to Helsinki-Vantaa Airport which is the largest airport in Finland. Finnish Meteorological Institute's (FMI) Aviation Weather Service produced detailed weather forecasts for these testing days to support performing the transport flights safely and effectively.

The drone weather service in this case was quite traditional: meteorologist produced a written forecast chart and also held a weather briefing in every morning for the operators attending the project. In addition the weather service included warning and consultation calls if needed. Weather forecast contained usual aviation weather parameters: information about wind, weather, visibility and cloud height. Also space weather effects on radio and satellite communications were forecast. Only special characteristic for this weather service was the surface pressure and its changes. Since the atmospheric pressure is as a measure for the height of the drone, rapid changes in pressure can lead to a situation where drone goes too close to the ground or higher than the reserved airspace for the operation allows. For this purpose 1000 hPa geopotential height in meters and its changing speed in meters/15 minutes were forecast.

Overall, the provided weather service helped to go through the parcel delivery test flights. The space weather information was seen very important. As the work was done traditionally and manually, it required a lot of human intervention. In future we see important to develop an automated weather service including real-time observations and disseminating the information directly to drone control centers.

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