



## **PNOWWA - Probabilistic Nowcasting of Winter Weather for Airports: Demonstration campaigns and airport stakeholder interactions.**

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Adverse winter weather affects airport handling, capacity and flight safety in different manner. In the framework of Single European Sky Air Traffic Management Research (SESAR) 2020 program, the PNOWWA project demonstrates very short-term (up to 3 hours nowcast) probabilistic winter weather forecasts based on an extrapolation of movement of weather radar echoes. Compared with deterministic forecasts, probabilistic forecasts offer the possibility to quantify the uncertainties, which lead to new aeronautical applications to support operational planning in surface management and air traffic management decision making, thereby increasing airport capacity, shortening delays and promoting safety.

European wide aviation related stakeholders survey, interviews and workshops highlight the nowcasting time range of few hours and the specific user needs as well as impact factors for different probability thresholds.

Northern airports in Finland and alpine airports in Austria are used as PNOWWA testbed during two demonstration phases. These two selected regions offer the possibility to analyze and improve the radar related forecasting of snowfall intensity considering mesoscale effects such as orography or lake effect snow. Likelihood of snow amount and type, occurrence of freezing rain, de-icing weather and visibility decreased by snow fall were presented and validated.

The presentation gives an overview of the PNOWWA project, applied methods and used data. The resulting aeronautical applications and the product layout are shown as well as information of user needs, feedback and the future roadmap for using probabilistic nowcasting of winter weather at airports.