



Prototype of multi-hazard early warning from EUNADICS-AV systems to trigger model forecasts of European airspace

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Aviation is one of the most critical infrastructures of the 21st century. In Europe, safe flight operations, air traffic management (ATM) and air traffic control (ATC) are the shared responsibilities of EUROCONTROL, national authorities, airlines and pilots. The common goal of all stakeholders is to warrant and maintain the safety of flight crews and passengers. However, there is still currently a significant gap in the availability of real-time monitoring/modelling of airborne hazards. The main objective of the Horizon 2020 project EUNADICS-AV (European Natural Airborne Disaster Information and Coordination System for Aviation; <http://www.eunadics.eu>) is to close this gap in data availability, enabling all stakeholders in the aviation system to obtain fast, coherent, and consistent information.

This study reports on WP5 of EUNADICS-AV, showing the development of a prototype multi-hazard monitoring and early warning system. For this task, improved near real-time retrievals from satellite and ground-based platforms (maximum delay of a few hours), are used in order to detect and send notification of volcanic ash and SO₂ plumes, sandstorms, dust clouds, aerosols produced from forest fires, and radioactive plumes. To facilitate the required information to trigger atmospheric transport and dispersion model forecasts/analyses aiming at demonstrating the added-value of integrating observed aerosols/radionuclide data for selected case crises affecting European air space. An example of the chain of actions, from retrievals to triggering and modelling is shown.