



Far-range Volcanic Ash Hazard from Somma-Vesuvius. Consequences for Civil Aviation over the Central Mediterranean Area

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The April-May 2010 Eyjafjallajökull eruption evidenced the impact of volcanic ash on aerial navigation, which occurs from proximal to far-range distances. Ash fallout disrupts airports and the presence of airborne ash at low atmospheric levels near airports affects visibility and safety of landing and take-off operations. On the other hand, low concentrations of ash at airplane cruise levels are sufficient to force re-routing of in-flight aircrafts. Volcanic fallout deposits from Somma-Vesuvius volcano have been recognized at large distances for several Holocene explosive eruptions. We elaborate hazard and isochrone maps for distal ash fallout from Somma-Vesuvius volcano and hazard maps for critical ash concentrations at relevant flight levels. Maps are computed by coupling a meteorological model with a fully numeric tephra dispersal model that can account for ash aggregation processes, relevant to the dispersion dynamics of fine ash. The simulations span continuously along a meteorological year that is statistically representative of the local meteorology during last decades. Seasonal influence is also analyzed. The eruptive scenario is based on the AD 472 eruption of Somma-Vesuvius, which is in the range of the maximum expected event at this volcano. Results allow us to quantify the impact that an event of this magnitude and intensity would have on the main airports and aerial corridors of the Central Mediterranean Area.