Evaluation of the Marco Polo Venice and the Antonio Canova Treviso airports impact: two hot spots areas

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Aircraft pollutant emissions have been of concern since the beginning of commercial aviation. The continuing growth in air traffic and the increasing public awareness have made environmental considerations one of the most critical aspects of commercial aviation (Kurniawan, 2011). This effect of airports close to urban areas is of growing concern and current emission regulations have focused on local air quality in the vicinity of airports (ICAO, 1993; ICAO, 2007a; ICAO, 2007b).

Ca' Foscari University in collaboration with SAVE S.p.A., Are Tre S.p.A. and Ente Zona Industriale (EZI) started in 2009 a research project in order to understand the role of the airports in two particular areas: Venice and Treviso. The two areas represent two important hot spots in the study of air pollution impact: i)the Venice Marco Polo airport, for the presence of the lagoon, a very delicate ecosystem and; ii) the Treviso airport for its closeness to urban sites. The project involved both measurements and modelling studies to characterize principal pollutants dispersion (SO_2, PM_{10}, O_3, NO, NO_X NO_2, CO, methane and non-methane hydrocarbons). A characterization of both Venice and Treviso aircraft emissions were made adopting the EMEP/CORINAIR methodology (EMEP, 2009). A 3D Lagrangian particle dispersion model, SPRAY, (Tinarelli et al., 1994) was applied to assess the impact of aircrafts in both the study sites. Predicted data were correlated to measurements and to the other emission sources of the areas. Results presents a low impact of both the airports respect to the close urban and natural areas.

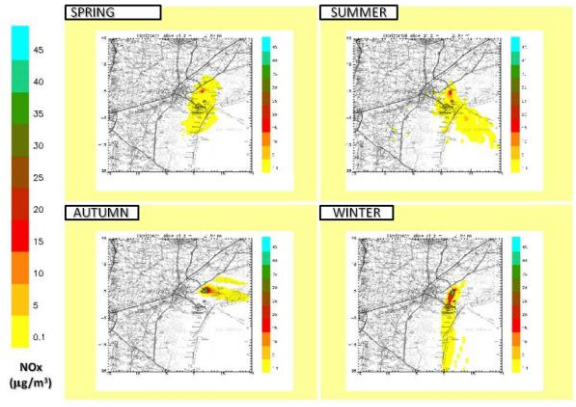

Figure 1. An example of aircraft dispersion in Venice Marco Polo airport during winter.

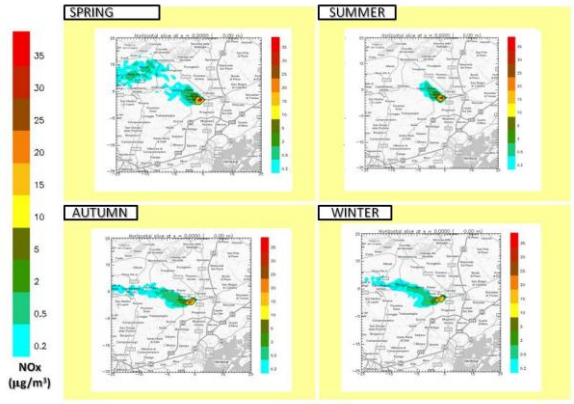

Figure 2. An example of aaircraft dispersion in Treviso airport during winter.

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