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Model evaluation of particulate matter concentrations due to a coal-fired power plant: intercomparison of Gaussian and Lagrangian approach.

Dispersion models are used for many purposes, but one of the most important is as indicators of ambient pollution levels for regulation and control purposes. For this reason, the accuracy of models and any differences in behavior between them represents a crucial problem. In particular the meteorological variables and the representation of the structure of atmospheric boundary layer can contribute to uncertainties and differences in air pollution predictions. In this study different transport models of different complexity, tested under the same conditions, were applied to reproduce the particulate matter dispersion and ground level concentrations produced by a coal-fired power plant, located near the coastline in South Italy. The studied area is characterized by the presence of frequent calm winds and a complex sea-land breeze systems that induced the formation of a thermal internal boundary layer: such geographical and meteorological features cannot be treated by a simple Gaussian approach. The possibility of using a more complex and sophisticated Lagrangian particle model was therefore considered. In this work the two approaches have been compared in a long and short term simulations. A comparison between modelled and measured concentrations has also been performed.

Working group IAS (WG1, WG2, WG3) o sessione speciale (SPR)

WG1

Tipo di presentazione (orale o poster)

Poster

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