Geophysical Research Abstracts, Vol. 7, 01553, 2005
SRef-ID: 1607-7962/gra/EGU05-A-01553

Identification and assessment of seasonal air pollution variability using Gaussian model in the urban area of Sfax (Tunisia) during 2004

A. Khlaifi (1) , S. Dahech (2), G. Beltrando (2), A. Ionescu (1), Y. Candau (1)

(1) CERTES, Université Paris 12 - Val-de-Marne IUT Créteil – Vitry 61, avenue du Général de Gaulle 94010 Créteil Cedex, France (2) Université Denis Diderot (Paris VII), UMR 8586 (PRODIG) du CNRS, (c.c. 7001) 2, place Jussieu 75251 Paris Cedex 05, France (khlaifi@univ-paris12.fr / Tel : + 33 01 45 17 18 29)

Air quality is influenced by the meteorological situation, some conditions being particularly favorable to the accumulation of strong pollutants concentrations. This study shows the effect of the most polluting factory during summer and winter anticyclonic situations. This factory is situated in the urban area of a very industrialized and populated coastal city, Sfax (approximately 600 000 hab, South-Eastern of Tunisia). The spatial distributions of SO_2 and NO_2 around the source (the factory) were estimated by a Gaussian model of diffusion. This model takes account of heterogeneities of the fields of wind and it can determine the temporal variability of pollutants concentration every 6 minutes. The model results are validated by comparison with measures recorded by a station of the National Agency of the Environment Protection, situated in the town at 4 km from the factory. These results show that this model can be used to predict pollution peaks to inform population and to spatialize the most vulnerable areas in the town. The most vulnerable zones are located in a radius of 2 km around the factory : Elhabib and Elbahri cities in north western, Elagarba in the west and Elbadrani in the south. The rates of the highest pollutants are recorded in these cities just before the sea-breeze onset (6-8h) and after the sea-breeze cessation (19 to 21h).