

Submitted Abstract

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Abstract

The Grenoble metropolitan area is located in a basin surrounded by the alpine massifs of Vercors, Chartreuse and Belledonne. This setting makes the Grenoble basin particularly subject to air pollution. The basin is found to present a characteristic local atmospheric circulation for a large-scale flow regime associated with wintertime anticyclonic blocking. A set of high-resolution numerical simulations of atmospheric dynamics in the basin for episodes representative of this regime is analysed to characterise the dispersion of tracers with emissions taken as those of fine particulate matter. Air pollution hot spots are identified and their locations are discussed in light of the underlying local atmospheric dynamics.