

## **A NEW TOOL FOR THE EVALUATION OF THE EFFECTIVENESS OF TRAFFIC REDUCTION MEASURES**

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Traffic reduction measures are one of the means widely used to reduce atmospheric pollution as required by the European legislation in case the limit values are exceeded. These measures, as well as any other emission reduction measure, act, at a variable extent, on the amount of pollutants injected into the atmosphere. The air concentration of a pollutant, however, depends not only on the emission rate (and, in case of secondary compounds on the physico-chemical transformations occurring in the atmosphere) but also on the mixing properties of the lower atmosphere, which determine the possible fast dilution or, conversely, the rapid accumulation of the emitted species in the boundary layer. The knowledge of this parameter is crucial for assessing the effectiveness of reduction measures, whose action can be easily masked by variations in the height of the mixed layer (has the concentration decreased as a consequence of the emission reduction or it has decreased as a consequence of the increased mixing of the atmosphere?). The performance of a recently developed tool, based on natural radioactivity measurements (Atmospheric Stability Index) will be discussed by reporting a number of pollution episodes in the area of Rome (both primary pollutants and PM<sub>10</sub>). This Index demonstrates to be able to characterise the mixing properties of the lower atmosphere and to uncouple the role of emissions and that of meteorology in the build up of pollution, and to be of great utility to check the effectiveness of traffic reduction measures.