

IMPACT OF TARANTO INDUSTRIAL AREA ON THE AIR QUALITY OF THE URBAN AREA

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Industrialization, urbanization and economic growth have resulted in a profound deterioration of air quality. The growing interest about particulate matter (PM) is due to its dangerous consequences on human health, in fact several epidemiological studies have shown the negative effects of PM on human health such as respiratory and cardiovascular disease, neurotoxic effects and cancer. In particular PM may be the carrier of acidic or toxic species, deeply into the lung and can cause oxidative stress and local pulmonary and systemic inflammatory responses. Heavy metals are important and well known pollutants that have been identified in several environmental matrices world-wide. They are potentially toxic, even at low exposure levels, and they're mainly emitted by anthropogenic sources. This pollutants locally emitted, undergo dilution with ambient air and various types of transformations during the transport process. The information about the vertical diffusive properties of the low layers of the atmosphere and the weather data could be a useful tool to identify the transport and dispersion of pollutants locally emitted. 'Fugitive emission' campaign was performed from 15th April to 6th May 2010 in three different sites around the iron and steel pole of Taranto (Apulia Region, South of Italy). The main interest on Taranto is due to the presence of several activities of high impact as very wide industrial area close to the town and the numerous maritime and military activities in the harbor area. The aim of the campaign was to triangulate in the neighbourhood of the examined site on the basis of the direction of the wind in order to determine the impact of the local emissive source on the surrounding areas and on the citizen human health. The preliminary analysis of collected data for all three sites, showed that when the wind direction allowed the transport from the plant to one of the considered receptor site, iron (Fe), manganese (Mn), Arsenic (As) and zinc (Zn) concentrations are greater than those observed in other two sites. Moreover, in these days the Mn concentration exceeded the EPA threshold limit (50 ng m⁻³) and Arsenic concentration exceeded the limit set by Directive 2004/107/CE (6 ng m⁻³).

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