

The Impact of Ship Traffic and Harbor Activities on the Atmospheric Pollution in Two Northern Adriatic Ports: Venice and Rijeka

Authors : Elena Barbaro, Elena Gregoris, Rossano Piazza, Boris Mifka, Tatjana Ivošević, Ivo Orlić, Ana Alebić-Juretić, Andrea Gambaro, Daniele Contini

Abstract : The aim of the POSEIDON project is to quantify the relative contribution of maritime traffic and harbor activities to atmospheric pollutants concentration in four port-cities of the Adriatic Sea. This study focuses on the harbors of Venice and Rijeka. In order to investigate the main pollution sources, emission inventories were used as input for receptor models: PMF (positive matrix factorization) and PCA (principal components analysis); moreover source identification was also conducted using PAHs diagnostic ratios. The ship traffic impact was quantified: i) on gaseous and particulate PAHs, collected using a new method which consisted in a double simultaneous sampling, in different wind sectors; ii) applying PMF to data of metals, PAHs and ions in PM₁₀; iii) using the vanadium concentration according to the Agrawal methodology.

Keywords : ship traffic, PMF, harbor, POSEIDON