



Model study of the ship emissions impact on the air quality in the Adriatic/Ionian area

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The increase of the ship traffic for touristic and commercial purposes is one of the EU Blue Growth targets. The Adriatic/Ionian is one of the sea-basin strategic areas for this target. The purpose of the study is the examination of the impact of the ship emissions on the gaseous and particulate pollutants concentrations in the Adriatic/Ionian area for which the current scientific knowledge is limited. The impact is simulated over a domain covering the Central and Eastern Mediterranean in 10 km resolution during a summer period (July) and a winter period (January) of the year 2012. The modeling system used consists of the photochemical model CAMx off line coupled with the meteorological model WRF. The zero-out modeling method is implemented involving CAMx simulations performed while including and omitting the ship emission data. The simulations are based on the European scale anthropogenic emission inventory of The Netherlands Organisation (TNO) for the reference year 2009. Natural emissions (NMVOCs from the vegetation, sea salt, wind-blown dust), estimated with the use of the Natural Emission Model (NEMO) developed by the Aristotle University of Thessaloniki, are accounted for in the photochemical model runs. The spatial distribution of the resulting differences in the gaseous and particulate pollutant concentration fields for both emission scenarios are presented and discussed, providing an estimation of the contribution of ship emissions on the determination of the air quality in the Adriatic/Ionian countries