

MODEL SIMULATIONS OF OZONE FORMATION OVER ISRAEL, THE WEST BANK AND JORDAN

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High ozone levels are frequently observed inland of the east Mediterranean shore during the summer period when the inland penetrating sea breeze transport pollutants from the populated shoreline inland. A numerical study which addresses the quantitative influence of different air pollution sources (stationary, mobile) on ozone formation is conducted. The study utilizes Regional Atmospheric Modeling System (RAMS) in conjunction with Comprehensive Air quality Model with extensions (CAMx). The combined model is applied to study the effects of various air pollution sources (industrial, biogenic and transportation) on ozone formation. A detailed emission inventory, which includes most important and influencing emission sources in Israel was performed. The simulations were carried out during several periods in summer of 1997 when airborne measurements of ozone concentration are available. We compared model with the measurements and found good agreement. We performed several numerical simulations, which include only part of the pollution sources in order to determine the individual and synergetic influence of the different sources. Results showed that the contribution of small industries to ozone formation is negligible while transportation and power plants are the major contributors. The impact of the Tel Aviv metropolitan area (as a major coastal transportation source) versus large power plants along the eastern Mediterranean coast on inland air pollution in general and ozone formation in particular, will be discussed.