



Anthropogenic VOCs in biologically inactive environments and their role in ozone production

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Anthropogenic volatile organic compounds (VOCs) sources are often give secondary importance in regions that are considered to be dominated by VOCs from the terrestrial biosphere. However, in regions that are biogenically inactive such as winter-time urban areas or cities near large bodies of water, the transport of anthropogenic VOCs can significantly impact ozone production. This study focuses on the temporal and spatial variability of ozone production within the Community Multiscale Air Quality Model (CMAQ) framework, a regulatory model commonly used for development of air quality policy. We compare ozone and its precursors from various CMAQ scenarios to surface, aircraft, and satellite observations, to determine the control mechanism for production of ozone in urban areas during winter and populated regions near large bodies of water. We will discuss the challenges of identifying ozone production regimes from orbital platforms and the need for sub-orbital observations. The goal of this work is to provide a better description of surface ozone photochemistry to improve air quality policy decisions.