**External seminar – 9 November 2015, 13:00 – 15:00 – D1.46 - ENVS, AU Roskilde**

# Use of CAMx Source Apportionment Modeling to Identify Contributions of Regional Transport and Wildfires to Ozone and Particulate Matter Concentrations

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## Abstract

The contribution of regional transport to elevated ozone and fine particulate matter ($PM_{2.5}$) concentrations has been well established across many regions in Asia, Europe and North America. However, control measures for reducing the contributions of regional transport are much more difficult to implement because the downwind areas with the high pollution levels frequently don't have jurisdiction over sources in the upwind areas.

In the United State of America (USA), the 1977 Clean Air Act Amendments (CAAA) included language "to establish an effective mechanism for prevention, control and abatement of interstate air pollution" whose goal was to reduce significant contributions of upwind state emissions to downstate ozone and $PM_{2.5}$ nonattainment, the so called "good neighbor" provision.

For the eastern USA, the U.S. Environmental Protection Agency (USEPA) implemented the Cross State Air Pollution Rule (CSAPR) that required emission control measures in upwind states that contribute significantly to nonattainment in a downwind state. USEPA used ozone and $PM_{2.5}$ source apportionment modeling tool within the Comprehensive Air-quality Model with extensions (CAMx) photochemical grid model (PGM) to determine which upwind states had a significant contribution to downwind ozone and $PM_{2.5}$ nonattainment and were therefore subject to regional controls.

Ramboll Environ has performed a similar transport analysis using the CAMx source apportionment capability for the western USA where the contributions to visibility impairment and acid deposition were also examined. Ramboll Environ has also used the CAMx source apportionment tool to analyze the contributions of wildfires, prescribed burns and agricultural burning to ozone and $PM_{2.5}$ concentrations.

This includes the use of the new Volatility Basis Set (VBS) secondary organic aerosol (SOA) module to treat semi-volatile organic compounds (SVOCs) and SOA formation from fires. This seminar will discuss the formulation and use of the CAMx ozone and PM source apportionment capability for a variety of applications, including regional source culpability assessments and analysis of the contributions of wildfires to ozone and $PM_{2.5}$ concentrations.