



Chemical data assimilation: tool for better air quality prediction and decision making

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Different from numerical weather prediction that is mainly an initial condition problem, the accuracy of air quality forecast relies on not only the initial state of a chemical model, but also the surface emissions of chemical constituents. The latter is to a large extent related to the human activities such as those from industrial, residential, and agricultural sectors and is subject to large uncertainties. In this talk, I will demonstrate both the usefulness and the limitations of data assimilation for chemical initial condition analysis and source emission estimation when using different data assimilation techniques and various combinations of different observations from satellite (e.g., aerosol optical depth) and ground observing networks (e.g., surface particulate matters and chemical gases). While it is demonstrated that data assimilation is overall very useful for improving the accuracy of chemical weather prediction, its limitations will also be shown, e.g., short-lasting impact and the lack of sufficient observations of chemical speciation to constrain the large number of model prognostic variables and emission parameters. A recent study on using data assimilation as a tool to separate the effects of weather condition change and emission control in recent trend of winter time air quality in China will also be presented before closing with future perspectives.

***Wednesday, 8 January 2020, 3:30pm**

***Please Note Special Day**

Refreshments 3:15pm

NCAR-Foothills Laboratory, 3450 Mitchell Lane, FL2-1022, Large Auditorium

This seminar will be webcast live at:
<http://ucarconnect.ucar.edu/live>

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