

## 4.145 The sensitivity analysis of airflow from local emission source using WRF and WRF-chem.

Early Career Scientist

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Abstract:

The Greenhouse gases Observing SATellite (GOSAT) was launched on January 23 2009 and GOSAT-2 plant to launch in this fall. GOSAT and GOSAT-2 carries the Fourier-Transform Spectrometer (FTS), which measure the global concentration of CO<sub>2</sub>, CH<sub>4</sub> and other trace gases using with 10-km footprint. The FTS instrument has an agile pointing system. It is useful to target the local emission source and estimate the emission amount such as power plant, ground transportation, etc. To take advantage of an agile pointing system, it is important to understand the wind condition around target site and the airflow from emission source. In this work, we make sensitivity analysis to characterize of local emission source using WRF (Weather Research and Forecasting) and WRF-chem (WRF model coupled with Chemistry). The model simulates the emission, transport, mixing, and chemical transformation of trace gases with the meteorology. We simulated some target local emission sites throughout the year.