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Uplift and long range transport of anthropogenic SO2

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Four years after its launch, the infrared sounder IASI has shown remarkable usefulness in tracking and quantifying volcanic sulphur dioxide (SO2). IASI was generally thought to be sensitive only to volcanic SO2 because of limited penetration to the boundary layer.

In this talk we discuss the conditions in which anthropogenic SO2 can build up in the boundary layer and rise to the middle and upper troposphere where it can be detected with IASI. We discuss several cases of uplift and subsequent transport of East Asian plumes to the US. We present a time series of this ongoing transcontinental pollution pattern and discuss its seasonal cycle. First lower bounds on the amount of exported SO2 are presented as well as comparisons with contemporary model estimates.