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## **Tropospheric ozone over Central Siberia: observations and balance**

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Direct observations of atmospheric tropospheric ozone are very important for comprehensive studies of atmospheric chemical processes in Northern Eurasia both on regional and continental scales. The lack of knowledge about ozone and its precursors limits the accuracy of both global and regional models currently used to simulate chemical and ecosystem changes in this highly important region. Therefore, measurements of surface ozone at the Zotino Tall Tower Observatory (ZOTTO) in Central Siberia (60N, 90E) conducted since early 2007 are of high interest. In this work results of both O<sub>3</sub> (as well as its precursors NO, NO<sub>2</sub>, and CO) direct observations and modeling of its balance by GEOS-Chem global chemical transport model are presented.

Multiyear analyses shows quite stable seasonal course with the pronounced spring peak (averagely about 40 ppb) caused by intense stratosphere-troposphere exchange and activation of meridional transport associated with the destruction of the circumpolar vortex. During severe biomass burning episodes such as during summer 2012 ozone concentration can increase nearly up to 80 ppbv. Numerical simulation of ground ozone and its precursors (CO, NO<sub>x</sub>) by global transport and chemical model GEOS-Chem with a fairly low resolution reproduces measured at ZOTTO concentrations pretty well, indicating the uniformity of the atmospheric photochemical systems in the boreal Eurasian zone. Ozone balance simulation shows lower chemical activity in Siberia compared to the European territory of Russia and Western Europe and evident seasonal course for chemical production/loss and total ozone burden.