Geophysical Research Abstracts
Vol. 14, EGU2012-1593, 2012
EGU General Assembly 2012

Background ozone in North China: trends, photochemical and transport impacts

X. Xu (1), W. Lin (1,2), and B. Ge (3)

(1) Chinese Academy of Meteorological Sciences, Key Laboratory for Atmospheric Chemistry, Beijing, China (xuxb@cams.cma.gov.cn, +86 10 62176414), (2) Meteorological Observation Centre, China Meteorological Administration, Beijing, China, (3) Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing, China

Tropospheric ozone is one of the key greenhouse gases and plays an important role in atmospheric chemistry. Being a strong oxidant, ozone in the surface layer has significant impacts on human and vegetation health. Long-term measurements of surface ozone are highly needed for climate change assessment and environmental policy-making. Such measurements are scarce, particularly from the background regions. Since 2004, surface ozone and some related reactive gases have been observed at Shangdianzi (SDZ), a Global Atmosphere Watch (GAW) station in North China. Located at the north edge of the Northern China Plain (NCP), the SDZ station is an ideal site for capturing polluted air masses from the NCP sector (southwest) and clean air masses from the background sector (northeast). This facilitates the investigation of impacts of regional transport on surface ozone. In this study, we present long-term measurements of surface ozone made at SDZ, discuss the trends of surface ozone levels in different seasons. Results about the observation-based ozone production efficiency (OPE) for the site will be presented, along with impacts from horizontal and vertical air transport.