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Transbounday ozone pollution from China to Japan; a case study

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These days, high concentrations of atmospheric ozone are often observed at the ground and/or in the lower troposphere over Japan, and transboundary ozone pollution from China would be one the possibility.

In this study we sampled highly concentrated ozone events observed at the ground and in the lower troposphere, and calculated backward trajectories hourly from the observation sites and compared the trajectories with the ozone map obtained by satellite measurement. The ozone lidar used here is the MRL (Meteorological Research Laboratory) ozone lidar [Nakazato et al.,Applied Optics, 2007], which has short wavelengths in UV and thus continuous day-and-night measurements are possible. We also utilized the surface ozone monitoring network organized by Ministry of Environment.

The ozone distribution maps at the lower troposphere were obtained by OMI ozone product provided by Liu et al.[ACP, 2010]. They retrieved ozone profiles from the ground up to about 60 km into 24 layers among which 3 layers are in the troposphere. The lowermost layer (24th layer) is corresponding to 0 ˜about 3 km.

From analysis mentioned above, we found some cases indicating clear evidence of transboundary pollution from China to Korea and Japan.

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