

Japan Geoscience Union Meeting 2011

(May 22-27 2011 at Makuhari, Chiba, Japan)

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AAS021-P11

Room:Convention Hall

Time:May 23 16:15-18:45

A case study of the transport of tropospheric nitrogen dioxide from China observed from space

Katsuyuki Noguchi^{1*}, Itsushi Uno², Toshimasa Ohara³, Andreas Richter⁴, John P. Burrows⁴

¹University of Bremen/Nara Women's Univ., ²Kyushu University, ³NIES, ⁴University of Bremen

We conducted a case study on the transport of tropospheric nitrogen dioxide (NO₂) from China to the East China Sea and Japan by using satellite measurements. In the event, high concentrations of NO₂ ($\sim 1 \times 10^{16} \text{ cm}^{-2}$) were found off the coast of Shanghai and Kyushu. A trajectory analysis suggests that the air parcels with the high concentration of NO₂ found around Kyushu passed over Shanghai about 24 hours before, indicating that the source of the observed NO₂ is from pollution in that area. The satellite observations will be also compared to results from a regional chemical transport model and data from the ground air-pollution monitoring network in Japan.

Keywords: air pollution, nitrogen dioxide, troposphere, satellite observation, transport