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Corresponding Author : Dr. Hajime Akimoto (akimoto@jamstec.go.jp)

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Title: (OA5) Trans-Eurasian Transport of Ozone - Why background ozone in Northeast Asia is higher than Europe?

Abstract: It has been revealed from observation that boundary layer ozone in remote sites in Northeast Asia is about 10 and 5 ppbv higher than over Europe in spring and autumn/winter, respectively. The global chemical-transport model study could successfully reproduce the results. A part of this difference is due to higher stratospheric influence associated with cyclogenesis over East Asia and descent around Siberian high, with the remainder reflecting outflow of ozone/precursors sources over Europe. Inter-continental long-range transport of air across the Eurasian continent has been studied by using the UCI/FRSGC CTM with both of GISS-II' and ECMWF data sets with 4 degree latitude x 5 degree longitude resolution. Model calculations shows that trans-European transport differs significantly from that over the Pacific and Atlantic Oceans due to weaker and less frequent frontal systems over the continent and over the European sources. Substantial amount of ozone and its precursors are transported to Northeast Asia from upwind sources over Europe and North America. European impacts of ozone are 0.5-3.5 ppbv at Mondy, Siberia and 0.3-2.5 ppbv over Japan in spring. Interestingly, the contribution of North American sources to Japan is very similar to that from European sources.

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Co-Authors

No.	Title	First Name	Family Name	Organization
1	Dr.	OLIVER	WILD	Frontier Research System for Global Change
2	Dr.	PAKPONNG	POCHANART	Frontier Research System for Global Change
3	Dr.	HAJIME	AKIMOTO	Frontier Research System for Global Change

