

Diagnosing the stratospheric proportion in tropospheric ozone using triple oxygen isotopes as tracers

Hao Xu et al.

Correspondence to: Hao Xu (xuhao1990kyokou@hotmail.co.jp)

· Table S1

· Figure S1

· Table S2

Table S1. The $\Delta^{17}\text{O}$ of O_3 in terminal positions defined by the power law ($\Delta^{17}\text{O}_{\text{term}}(\text{O}_3)$) and the linear ($\Delta^{17}\text{O}_{\text{term}}(\text{O}_3)^*$; $\Delta^{17}\text{O} = \delta^{17}\text{O} - 0.52 \times \delta^{18}\text{O}$) are reported for the ozone collections in Niigata and Nagoya. The standard deviations associated with the mean values are presented for the $\delta^{18}\text{O}$ and $\Delta^{17}\text{O}$.

Location & (collection period ^a)	<i>n</i>	$10^3 \delta^{18}\text{O}_{\text{term}}(\text{O}_3)$	$10^3 \Delta^{17}\text{O}_{\text{term}}(\text{O}_3)$	$10^3 \Delta^{17}\text{O}_{\text{term}}(\text{O}_3)^*$
Nagoya (D)	18	$+139.8 \pm 20.8$	$+38.2 \pm 1.5$	$+39.7 \pm 1.6$
Nagoya (N)	18	$+138.9 \pm 20.8$	$+36.8 \pm 1.2$	$+38.2 \pm 1.2$
Niigata	20	$+140.6 \pm 19.4$	$+37.0 \pm 1.6$	$+38.4 \pm 1.7$

^a D and N denote the collection periods of daytime (06:00 to 18:00) and nighttime (18:00 to 6:00), respectively.

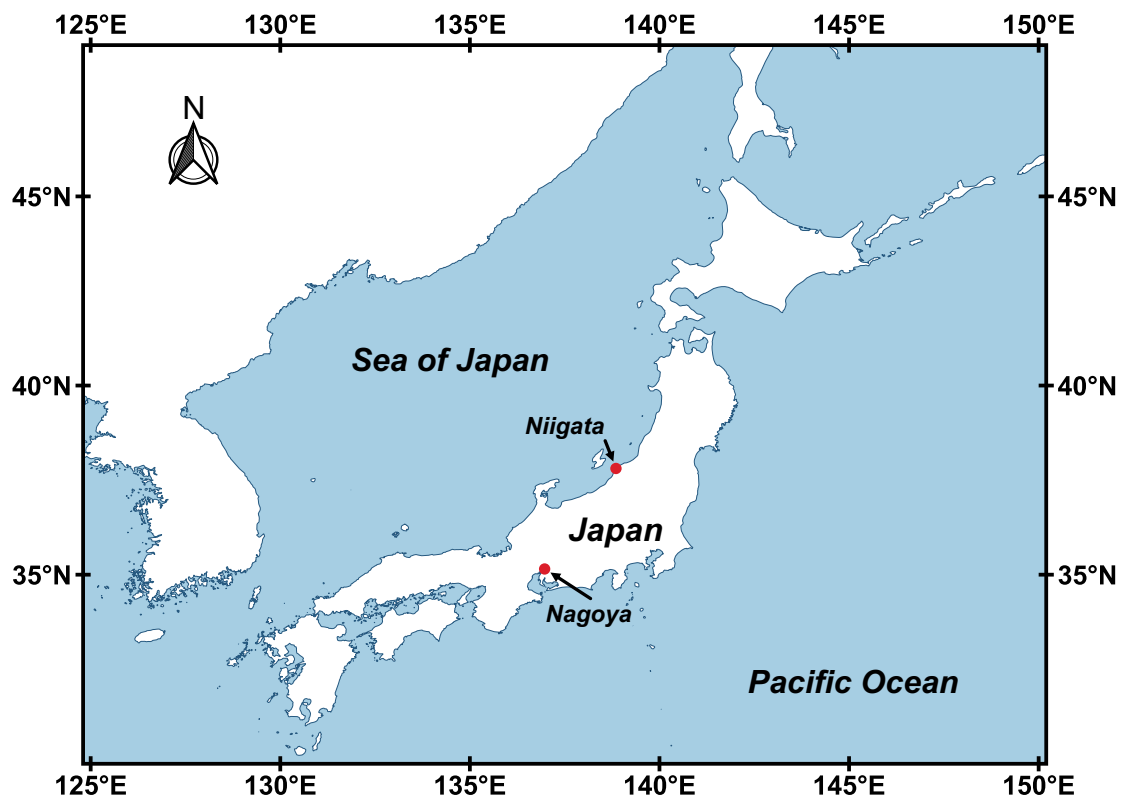


Figure S1. A map showing the location of study sites (Nagoya and Niigata) in Japan. The base layer of the map was obtained from <https://www.naturalearthdata.com/downloads/>.

Table S2. Activity concentrations of ^7Be obtained from Environmental Radioactivity and Radiation in Japan as well as two-month weighted average of $\Delta^{17}\text{O}_{\text{term}}(\text{O}_3)$ collected in Niigata and Nagoya.

Location	period	^7Be (mBq m $^{-3}$)	$10^3\Delta^{17}\text{O}_{\text{term}}(\text{O}_3)$
Nagoya	10 Oct–19 Dec 2017 ^a	4.8 ± 0.060	$+37.7 \pm 0.2$ ^a
	9 Jan–23 Mar 2018 ^a	3.2 ± 0.048	$+37.4 \pm 0.4$ ^a
	9 Apr–22 Jun 2018 ^a	4.1 ± 0.055	$+38.7 \pm 0.4$ ^a
	7 Jan–3 Mar 2019	4.8 ± 0.061	$+37.8 \pm 0.4$
	11 Apr–18 Jun 2019	4.4 ± 0.059	$+38.0 \pm 0.3$
	10 Jul–20 Sep 2019	1.7 ± 0.039	$+36.7 \pm 0.3$
	9 Oct–20 Dec 2019	4.6 ± 0.059	$+37.7 \pm 0.5$
	9 Jan–18 Mar 2020	2.7 ± 0.046	$+37.2 \pm 0.4$
	16 Apr–16 Jun 2020	3.8 ± 0.054	$+38.7 \pm 0.4$
Niigata	9 Apr–6 Jun 2018	3.5 ± 0.048	$+37.9 \pm 0.5$
	2 Jul–6 Sep 2018	2.3 ± 0.038	$+36.3 \pm 0.2$
	2 Oct–13 Dec 2018	3.2 ± 0.043	$+36.9 \pm 0.4$
	7 Jan–6 Mar 2019	4.6 ± 0.051	$+38.3 \pm 0.4$
	10 Apr–6 Jun 2019	3.4 ± 0.044	$+37.2 \pm 0.2$
	8 Jul–6 Sep 2019	2.0 ± 0.036	$+37.1 \pm 0.3$

^a Calculated using sampling periods and the O_3 data sets obtained in Xu et al. (2021) study