Supplement of

Measurement report: Seasonal variations of triple oxygen isotopes ($\Delta^{17}O$) of tropospheric ozone in Nagoya and Niigata, Japan

Hao Xu et al.

Correspondence to: Hao Xu (xu.hao@nies.go.jp)

· **Table S1**

· **Figure S1**

· **Figure S2**

· **Table S2**

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

Location & (collection period [a])	*n*	$10^3\ \delta^{18}O_{term}(O_3)$	$10^3\ \Delta^{17}O_{term}(O_3)$	$10^3\ \Delta^{17}O_{term}(O_3)$*
Nagoya (D)	18	+139.8 ± 20.8	+38.2 ± 1.5	+39.7 ± 1.6
Nagoya (N)	18	+138.9 ± 20.8	+36.8 ± 1.2	+38.2 ± 1.2
Niigata	20	+140.6 ± 19.4	+37.0 ± 1.6	+38.4 ± 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.

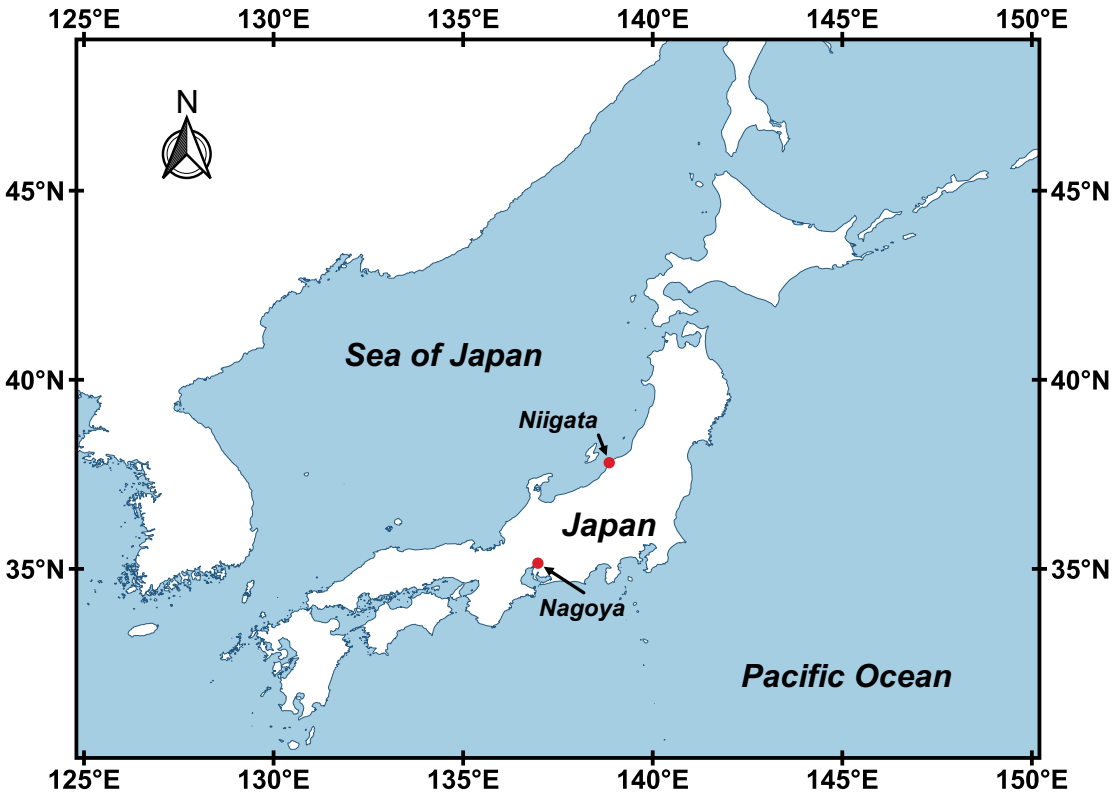

Figure S1. A map showing the location of study sites (Nagoya and Niigata) in Japan. The base layer of the map was obtained from https://www.naturalearthdata.com/downloads/.

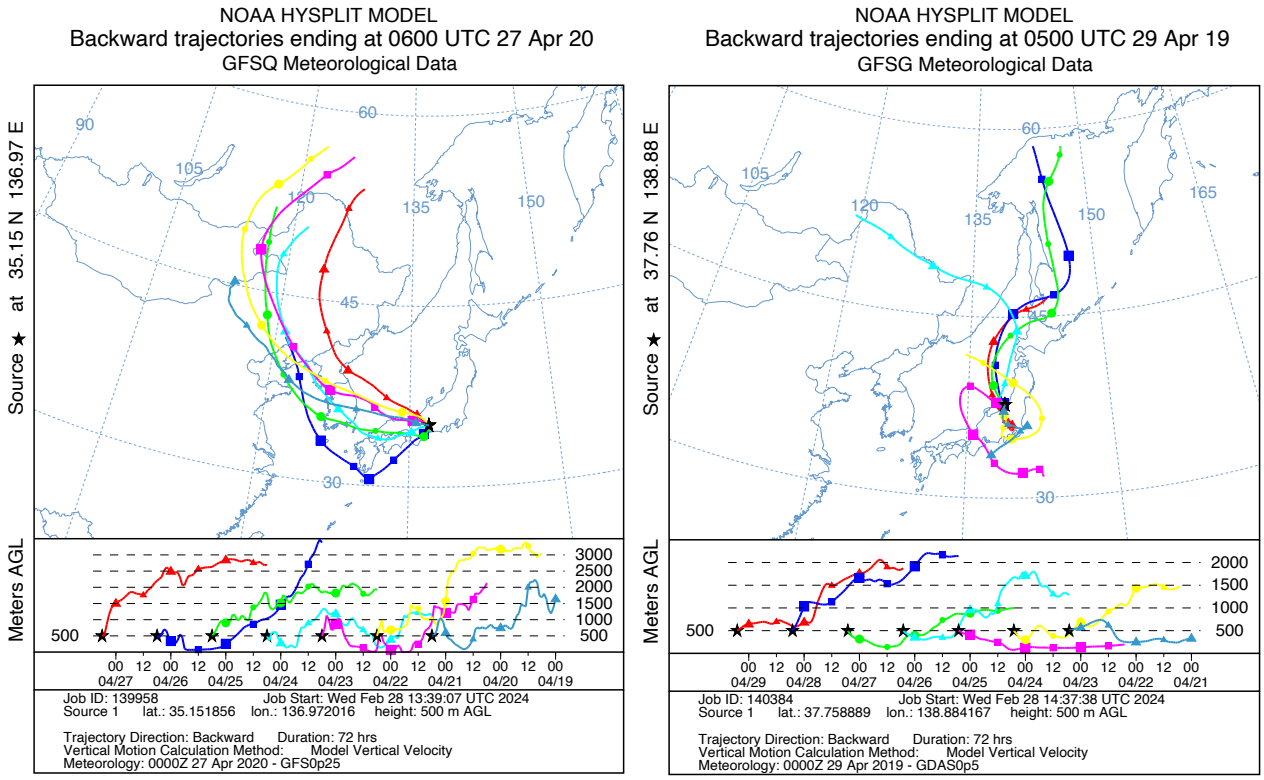

Figure S2. Backward trajectories of Nagoya and Niigata from NOAA's HYSPLIT model.

Table S2. Activity concentrations of ^{7}Be obtained from Environmental Radioactivity and Radiation in Japan as well as two-month weighted average of $\Delta^{17}O_{term}(O_3)$ collected in Niigata and Nagoya.

Location	period	^{7}Be (mBq m^{-3})	$10^{3}\Delta^{17}O_{term}(O_3)$
Nagoya	10 Oct–19 Dec 2017 [a]	4.8 ± 0.060	+37.7 ± 0.2 [a]
	9 Jan–23 Mar 2018 [a]	3.2 ± 0.048	+37.4 ± 0.4 [a]
	9 Apr–22 Jun 2018 [a]	4.1 ± 0.055	+38.7 ± 0.4 [a]
	7 Jan–3 Mar 2019	4.8 ± 0.061	+37.8 ± 0.4
	11 Apr–18 Jun 2019	4.4 ± 0.059	+38.0 ± 0.3
	10 Jul–20 Sep 2019	1.7 ± 0.039	+36.7 ± 0.3
	9 Oct–20 Dec 2019	4.6 ± 0.059	+37.7 ± 0.5
	9 Jan–18 Mar 2020	2.7 ± 0.046	+37.2 ± 0.4
	16 Apr–16 Jun 2020	3.8 ± 0.054	+38.7 ± 0.4
Niigata	9 Apr–6 Jun 2018	3.5 ± 0.048	+37.9 ± 0.5
	2 Jul–6 Sep 2018	2.3 ± 0.038	+36.3 ± 0.2
	2 Oct–13 Dec 2018	3.2 ± 0.043	+36.9 ± 0.4
	7 Jan–6 Mar 2019	4.6 ± 0.051	+38.3 ± 0.4
	10 Apr–6 Jun 2019	3.4 ± 0.044	+37.2 ± 0.2
	8 Jul–6 Sep 2019	2.0 ± 0.036	+37.1 ± 0.3

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