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Summertime ozone pollution in China affected by stratospheric quasi-biennial oscillation

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Table S1. Net rate of change in O_3 mass (Tg Season^{-1}) of various processes from surface to the PBL over central China (92.5–112.5°E, 26–38°N) during the selected three QBOW (1990, 1997, 2019) years and QBOE years (1994, 2012, 2018) and their differences (QBOW-QBOE).

	Net chemical production	Horizontal advection	Diffusion and dry deposition	Vertical convection
QBOW	7.42	-0.35	-6.42	0.43
QBOE	7.53	-0.35	-6.31	0.34
Difference	-0.09	0.00	-0.11	0.09

Table S2. The horizontal and vertical mass flux (Tg) of JJA O_3 concentration from the surface to 850 hPa over central China (92.5–112.5°E, 26–38°N) based on NO_CHN simulation. The values are averaged over the selected three QBOW years (1990, 1997, 2019) and QBOE years (1994, 2012, 2018) and their differences (QBOW-QBOE). Positive values indicate incoming fluxes and negative values indicate outgoing fluxes.

	QBOW	QBOE	Difference
	Horizontal mass flux		
East	0.44	1.15	-0.71
West	0.95	0.80	0.15
North	0.77	0.09	0.68
South	3.20	3.34	-0.14
	Vertical mass flux		
Top	-4.11	-4.49	0.38