



Supplement of

Ozone affected by a succession of four landfall typhoons in the Yangtze River Delta, China: major processes and health impacts

Chenchao Zhan et al.

Correspondence to: Min Xie (minxie@nju.edu.cn)

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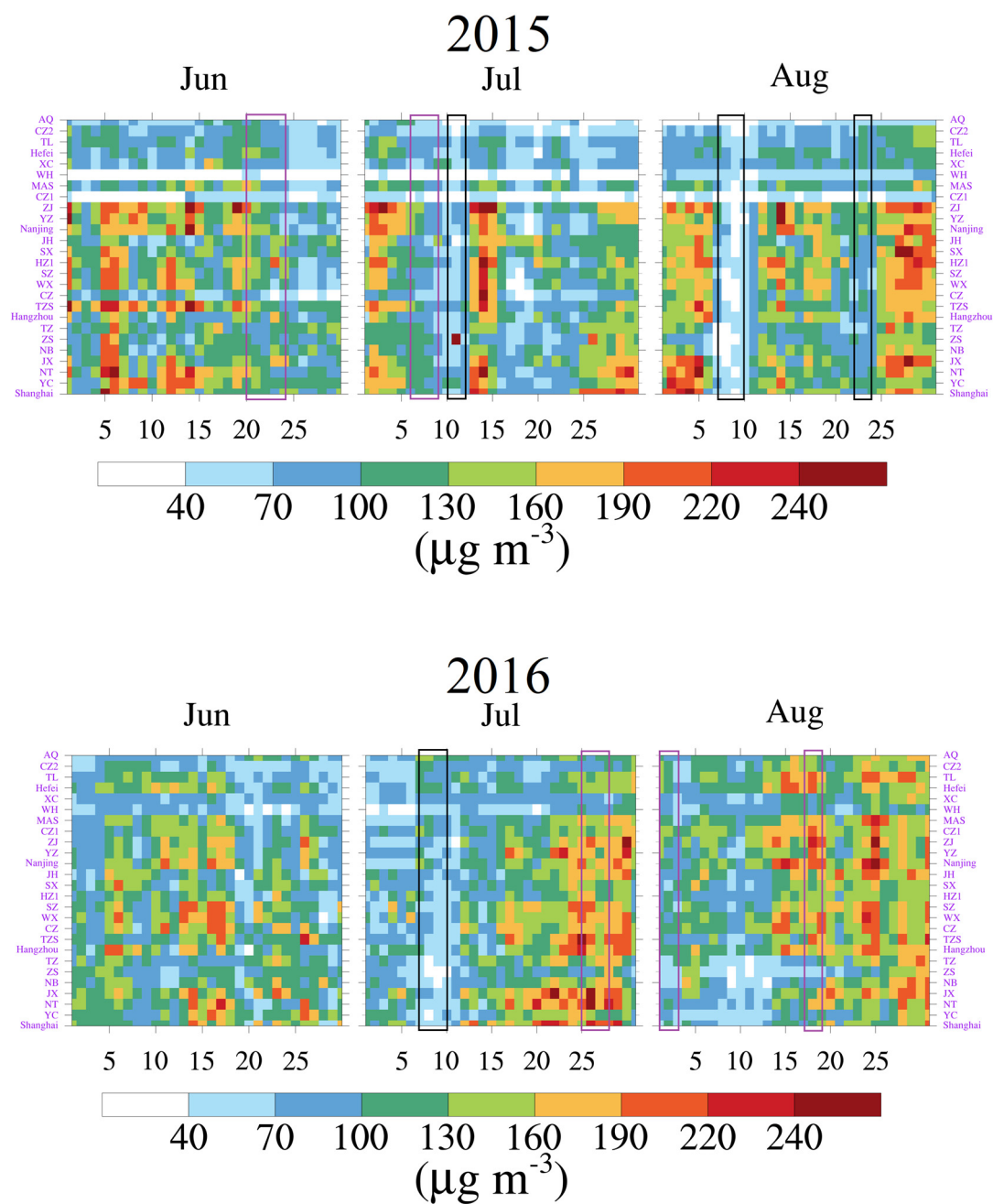
The typhoons that can reach the 24-h warning line are list in Table S1, and the corresponding moments are marked on the O₃ concentration map (Figure S1). As shown in Figure S1, similar phenomena can also occur in other years, not just in 2018. That is, O₃ pollution episodes tend to occur during the period from the end of typhoon and the arrival of the next typhoon, and O₃ pollution occurs earlier in cities near the coastline (Figure S1: July in 2015, July in 2016, July in 2017, July and August in 2018, and August in 2019).

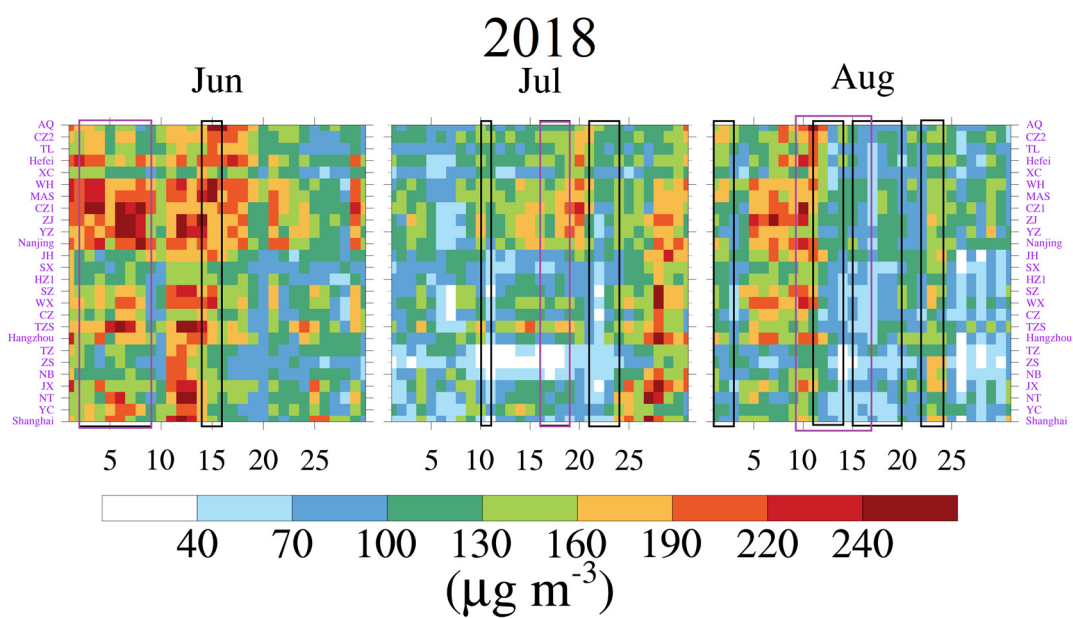
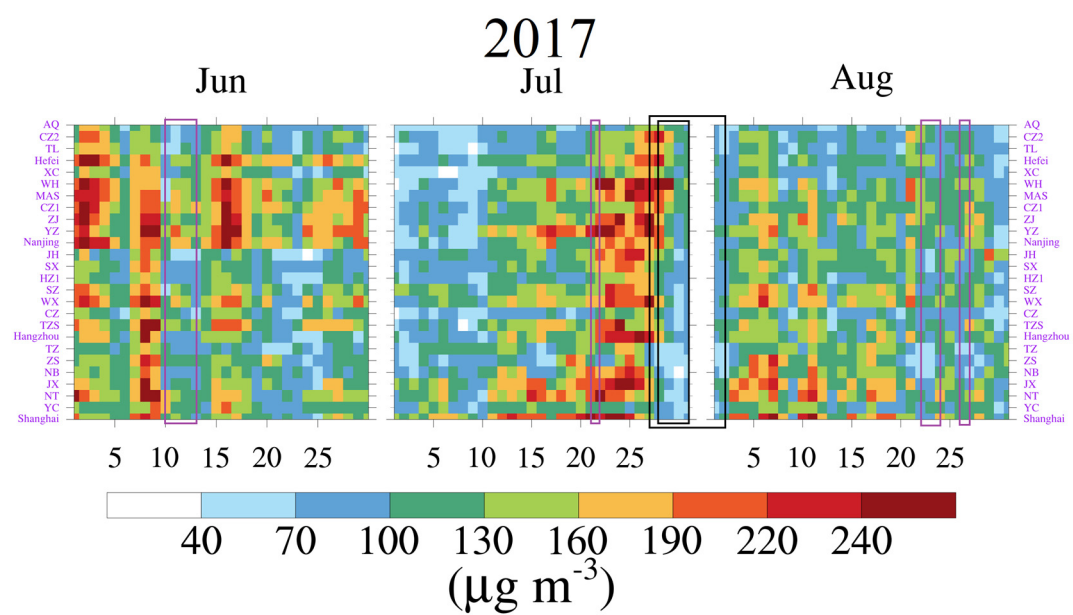
Table S1: Information on typhoons that can approach the 24-h warning line in the summer from 2015 to 2019.

| Year | Serial number | Name | Start date | End date | Whether typhoon landed? | Landfall position |
|------|---------------|----------|------------|-----------|-------------------------|-------------------|
| 2015 | 1508 | Kujira | 20 June | 24 June | Yes | Hainan |
| | 1509 | Chan-hom | 10 July | 12 July | No | |
| | 1510 | Linfa | 6 July | 9 July | Yes | Guangdong |
| | 1513 | Soudelor | 7 August | 10 August | Yes | Fujian |
| | 1515 | Goni | 22 August | 24 August | No | |
| 2016 | 1601 | Nepartak | 7 July | 10 July | Yes | Fujian |
| | 1603 | Mirinae | 25 July | 28 July | Yes | Hainan |
| | 1604 | Nida | 1 August | 3 August | Yes | Guangdong |
| | 1608 | Dianmu | 17 August | 19 August | Yes | Guangdong |
| 2017 | 1702 | Merbok | 10 June | 13 June | Yes | Hong Kong |
| | 1707 | Roke | 22 July | 23 July | Yes | Hong Kong |
| | 1709 | Nesat | 28 July | 31 July | Yes | Fujian |
| | 1710 | Haitang | 27 July | 2 August | Yes | Fujian |
| | 1713 | Hato | 22 August | 24 August | Yes | Guangdong |
| | 1714 | Pakhar | 26 August | 27 August | Yes | Guangdong |
| 2018 | 1804 | Ewiniar | 2 June | 9 June | Yes | Guangdong |
| | 1806 | Gaemi | 14 June | 16 June | No | |
| | 1808 | Maria | 10 July | 11 July | Yes | Fujian |
| | 1809 | Son-tinh | 16 July | 19 July | Yes | Hainan |
| | 1810 | Ampil | 21 July | 24 July | Yes | Shanghai |
| | 1812 | Jongdari | 1 August | 3 August | Yes | Shanghai |
| | 1814 | Yagi | 11 August | 14 August | Yes | Zhejiang |
| | 1816 | Bebinca | 9 August | 17 August | Yes | Hainan |
| | 1818 | Rumbia | 15 August | 20 August | Yes | Shanghai |
| | 1819 | Soulik | 22 August | 24 August | No | |
| 2019 | 1904 | Mun | 1 July | 4 July | Yes | Hainan |
| | 1905 | Danas | 17 July | 20 July | No | |
| | 1907 | Wipha | 30 July | 3 August | Yes | Hainan |

| | | | | | |
|------|--------|-----------|-----------|-----|----------|
| 1909 | Lekima | 7 August | 13 August | Yes | Zhejiang |
| 1911 | Bailu | 23 August | 25 August | Yes | Fujian |

Note. The start date is defined as the date of typhoon reaching the 24-h warning line, while the end date is the date of typhoon leaving the 24-h warning line. Dates of typhoon reaching/leaving 24-h warning line also represent the generation/death dates of typhoon as long as the typhoon is active within the 24-h warning line.





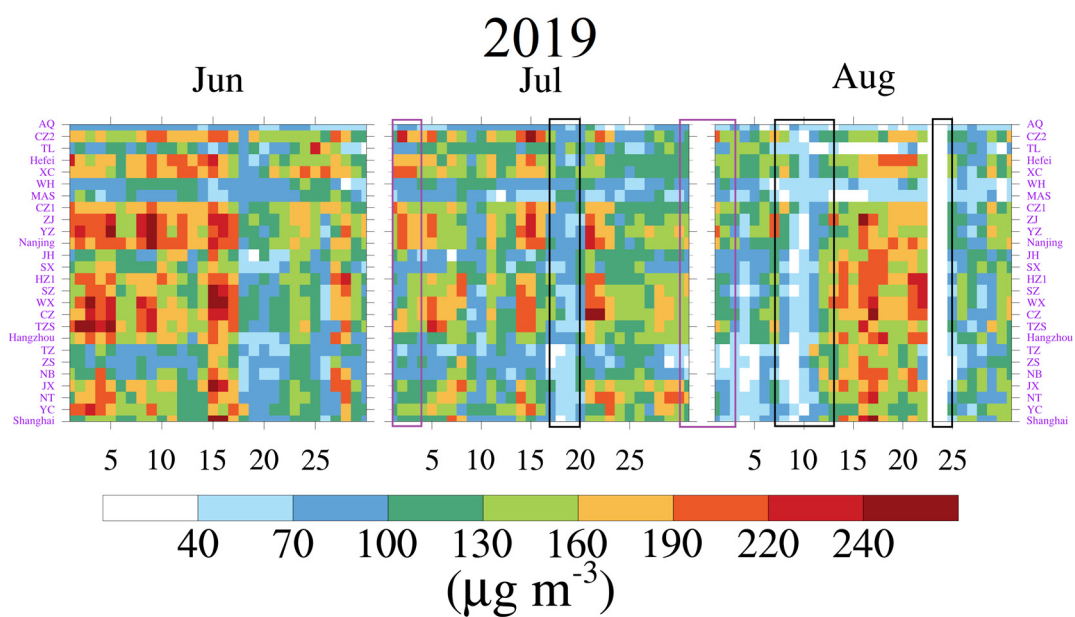


Figure S1. The MDA8 O₃ in 26 cities of the YRD in summer from 2015 to 2019. The open purple and blue boxes indicate that the affected region are mainly the Pearl River Delta and the Yangtze River Delta, respectively. The national ambient air quality standard for MDA8 O₃ is 160 $\mu\text{g m}^{-3}$ in China. These cities are sorted by longitude.