Supporting information for the *Atmos. Phys. Chem* manuscript:

Atmospheric Measurements at the Foot and the Summit of Mt. Tai - Part I: HONO Formation and Its Role in the Oxidizing Capacity of the Upper Boundary Layer

Chaoyang Xue[1, 2*], Can Ye[1, 9], Jörg Kleffmann[3], Chenglong Zhang[1, 4], Valéry Catoire[2], Fengxia Bao[5], Abdelwahid Mellouki[6, 7], Likun Xue[7], Jianmin Chen[8], Keding Lu[9], Yong Zhao[10], Hengde Liu[10], Zhaoxin Guo[10], Yujing Mu[1, 4*]

[1] Research Centre for Eco-Environmental Sciences, Chinese Academy of Sciences, Beijing 100085, China

[2] Laboratoire de Physique et Chimie de l'Environnement et de l'Espace (LPC2E), CNRS–Université Orléans–CNES, Cedex 2, Orléans 45071, France

[3] Physical and Theoretical Chemistry, University of Wuppertal, Gaußstrasse 20, Wuppertal 42119, Germany

[4] Centre for Excellence in Regional Atmospheric Environment, Institute of Urban Environment, Chinese Academy of Sciences, Xiamen 361021, China

[5] Multiphase Chemistry Department, Max Planck Institute for Chemistry, Mainz 55128, Germany

[6] Institut de Combustion Aérothermique, Réactivité et Environnement, Centre National de la Recherche Scientifique (ICARE-CNRS), Cedex 2, Orléans 45071, France

[7] Environmental Research Institute, Shandong University, Qingdao, Shandong 266237, China

[8] Shanghai Key Laboratory of Atmospheric Particle Pollution and Prevention, Department of Environmental Science and Engineering, Institute of Atmospheric Sciences, Fudan University, Shanghai 200438, China

[9] State Key Joint Laboratory of Environment Simulation and Pollution Control, College of Environmental Sciences and Engineering, Peking University, Beijing, 100871, China

[10] Taishan National Reference Climatological Station, Tai'an, Shandong, 271000, China

Correspondence to:

Chaoyang Xue (chaoyang.xue@cnrs-orleans.fr; 86chaoyang.xue@gmail.com)

Yujing Mu (yjmu@rcees.ac.cn)

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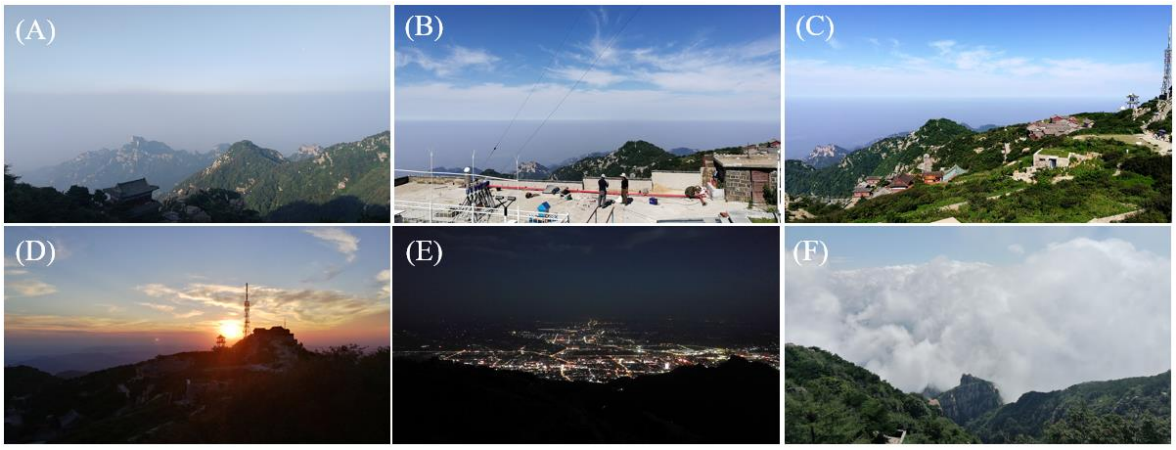

Figure S1: Photos taken around the summit station (Photo copyright: Chaoyang Xue). The polluted layer is visible in photos (A), (B), and (C). (D): The Jade Emperor Peak at sunset; (E): A overlooking view of Tai'an city (south of the summit station) at night. F: Clouds at the summit level (southeast of the summit station).

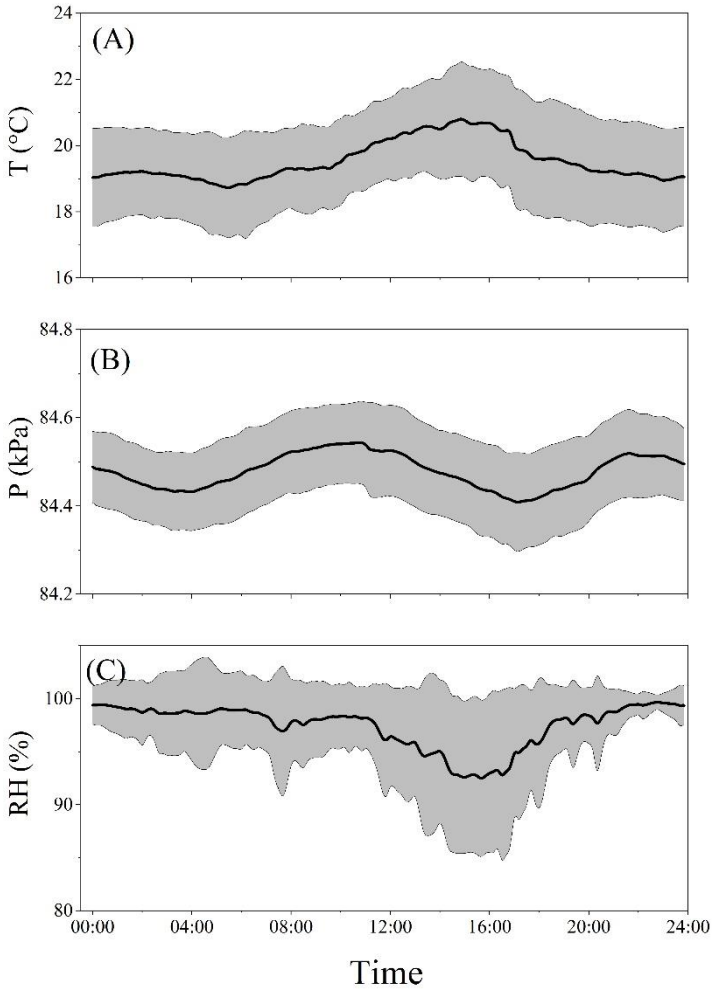

Figure S2: Diurnal profiles of (A): temperature (T), (B): pressure (P), and (C): the atmospheric relative humidity (RH) observed at the summit of Mt. Tai.

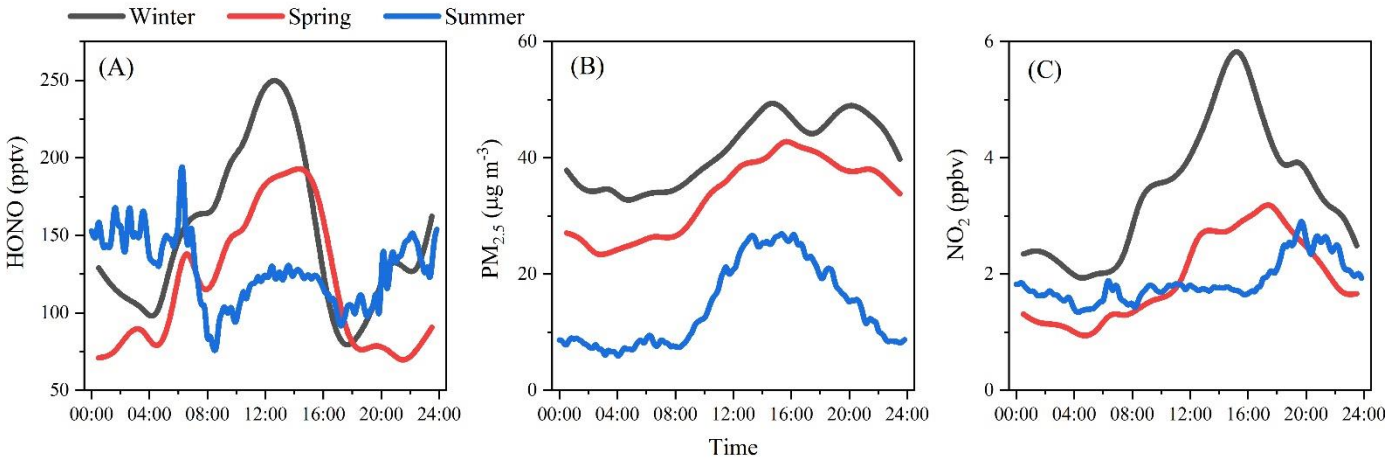

Figure S3: Diurnal variations of (A): HONO, (B): $PM_{2.5}$, and (C): NO_2 observed at the summit station in winter, spring, and summer.

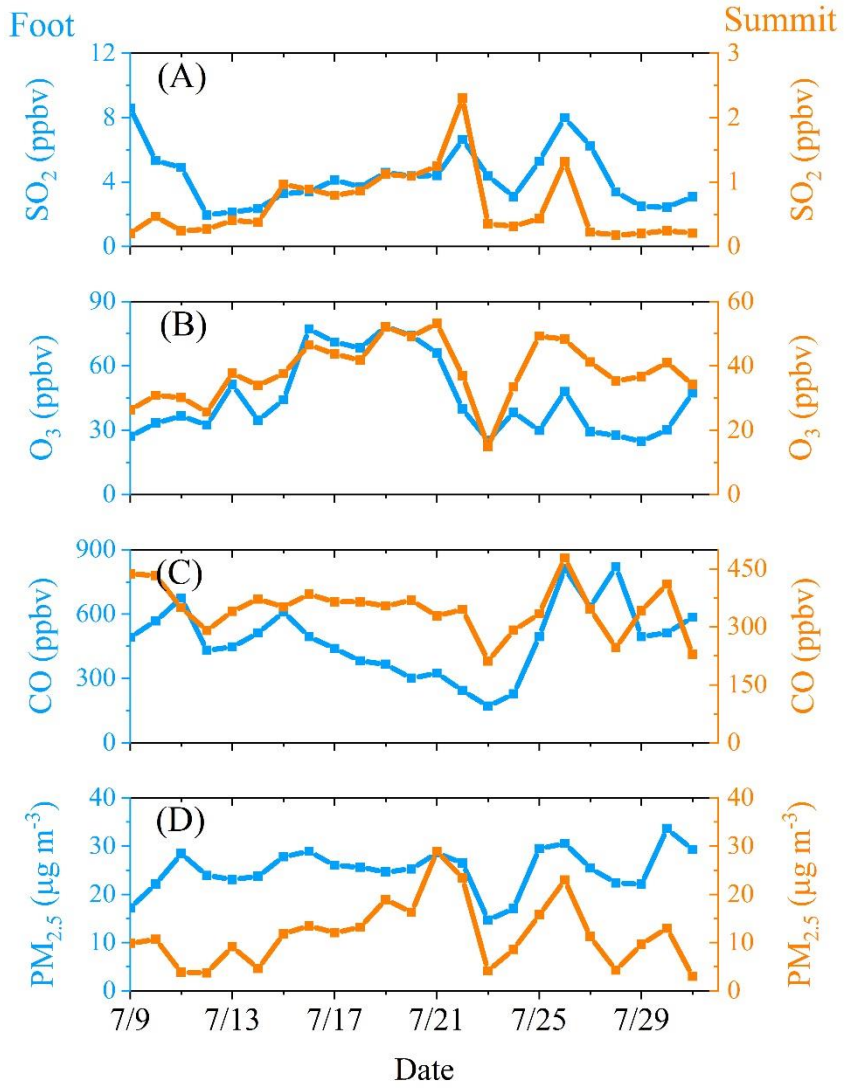

Figure S4: Comparison of night-time (18:00 – 5:00) average (A): SO_2, (B): O_3, (C): CO, and (D): $PM_{2.5}$ observed at the foot station (Left axis in blue) and summit station (Right axis in orange) during the same period from 9th to 31st July.

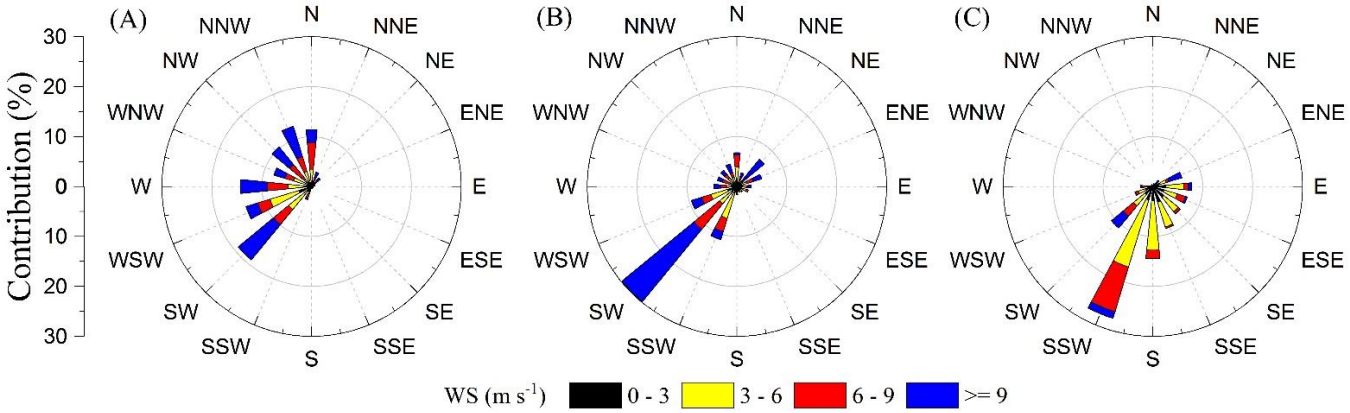

Figure S5: Windrose plots of the measurement in (A): winter, (B): spring, and (C): summer.

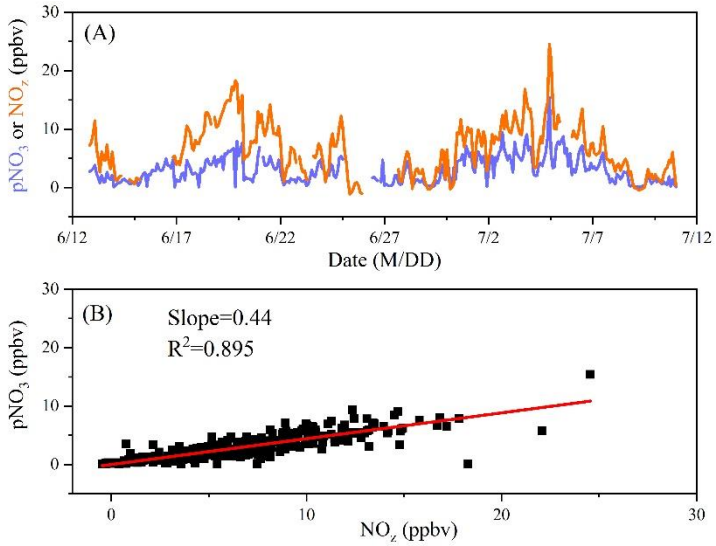

Figure S6: (A): The measured particulate nitrate, pNO_3 (with unit converted from μg m^{-3} to ppbv) by the filter method and the measured NO_z (ppbv), and (B): their correlations from 12th June to 12th July. Caused by variable molar masses, NO_z species can be only specified in mixing ratios (ppbv).