

Supplement of Atmos. Chem. Phys., 18, 15687–15703, 2018  
<https://doi.org/10.5194/acp-18-15687-2018-supplement>  
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Atmospheric  
Chemistry  
and Physics  
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*Supplement of*

## **Particle number size distribution and new particle formation under the influence of biomass burning at a high altitude background site at Mt. Yulong (3410 m), China**

**Dongjie Shang et al.**

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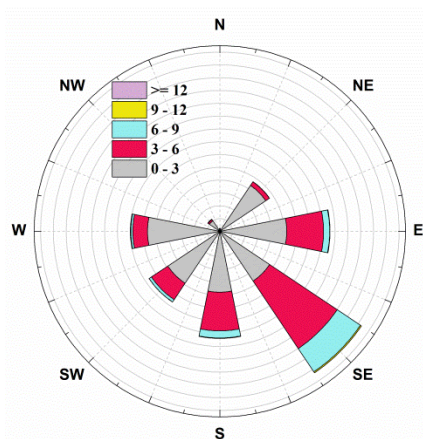
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1 Table S1. Parameters and Instruments used at Mt. Yulong site

Parameter	Instrument	Producer	Time resolution
RH, Temp, Wind	Meteorological station	Jinzhou Sunlight	1 min
JO <sup>1</sup> D	Filter Radiometer	METCON Inc.	30 s
O <sub>3</sub> , NO-NO <sub>2</sub> -NO <sub>x</sub> , SO <sub>2</sub> , CO, CO <sub>2</sub>	Trace gas analyzer	Thermo Inc.	1 min
VOCs	Online GC-MS	PKU	1 h
PM <sub>2.5</sub> , PM <sub>10</sub>	TEOM	Thermo Inc.	1min
PNSD	NSMPS+SMPS+APS	TSI Inc.	5min
Particle composition	HR-TOF-AMS	Aerodyne Inc.	4min

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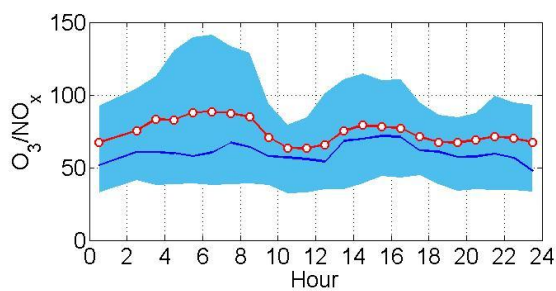


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5 **Figure S1. Wind rose plot at Mt. Yulong site during monitoring campaign.**

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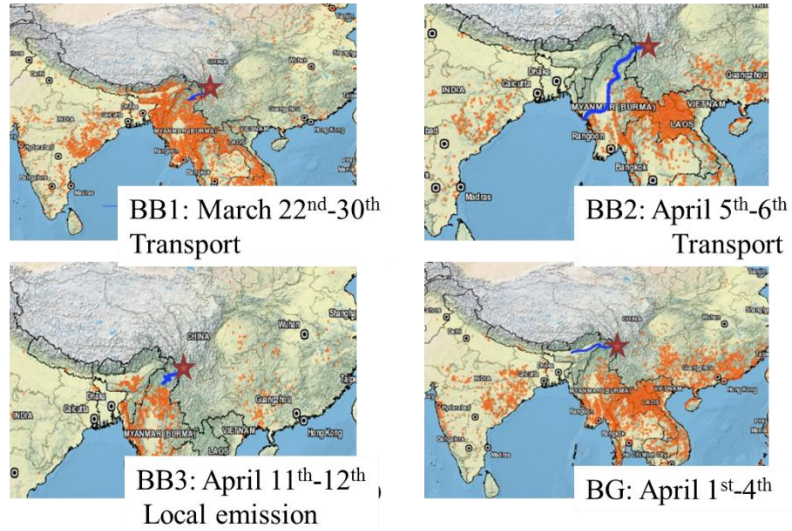
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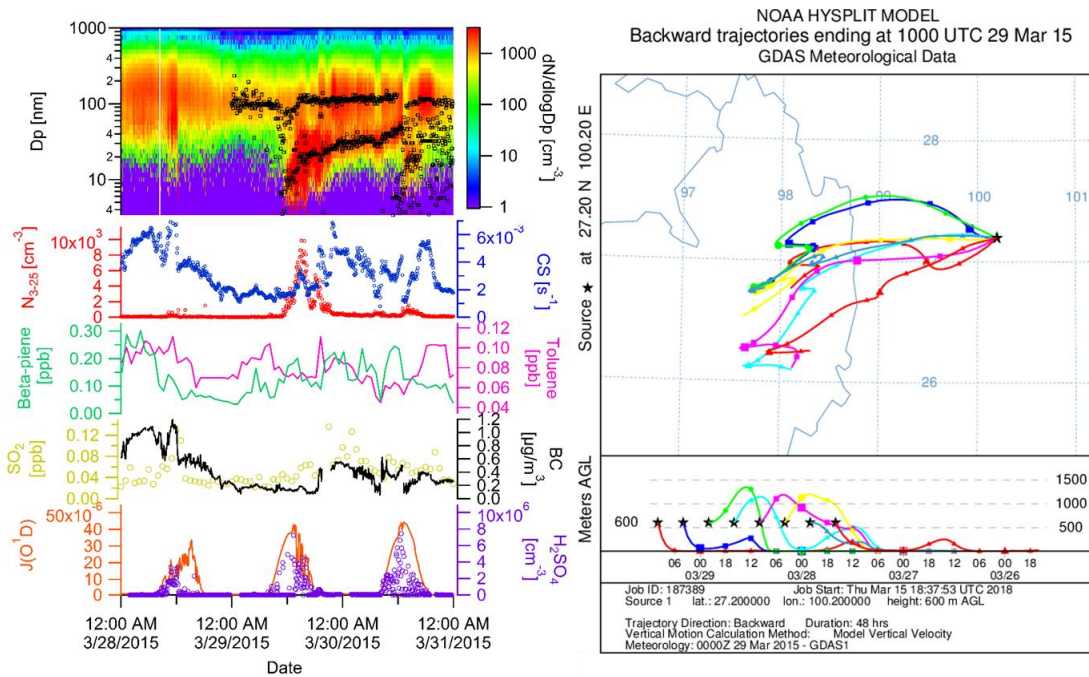
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9 **Figure S2. Diurnal variation of ozone/NO<sub>x</sub> at Mt. Yulong. Red lines with circles, blue lines**

10 mark the mean and median results, respectively. Light blue area marks the range between  
 11 25<sup>th</sup>, and 75<sup>th</sup> percentiles of the data.  
 12



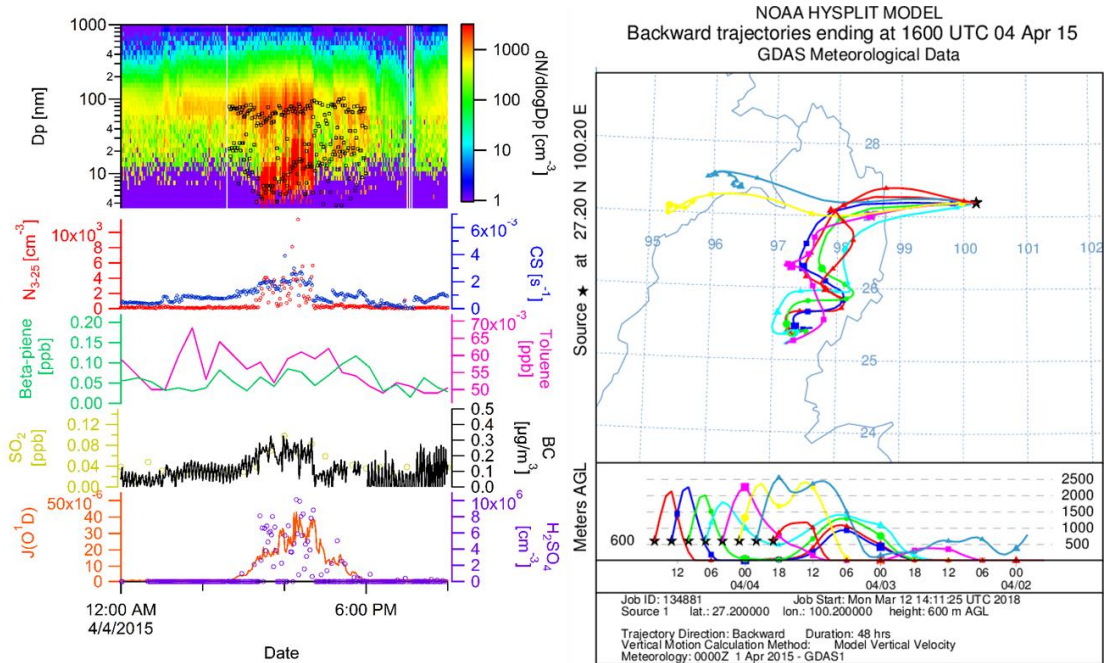
13  
 14 **Figure S3. Fire spot map from MODIS, 48h-backward trajectories (blue line) from WRF**  
 15 **model, during BB1, BB2, BB3 and BG period. Location of Mt. Yulong site is marked by the**  
 16 **red star. Figure from study of Zheng et al (Zheng et al., 2017).**  
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18  
 19 **Figure S4. (left panel) Time series of PNSD,  $N_{3-25}$ , CS,  $J(O^1D)$ ,  $SO_2$ , CS, Toluene,  $\beta$ -pinene,**  
 20 **sulfuric acid during 28 to 31 March. (right panel) 48h backward trajectories started from Mt.**

21 Yulong during 16:00, 28 March to 4:00, 30 March (local time). Black dots mark the mean  
 22 diameter of the fitted modes.

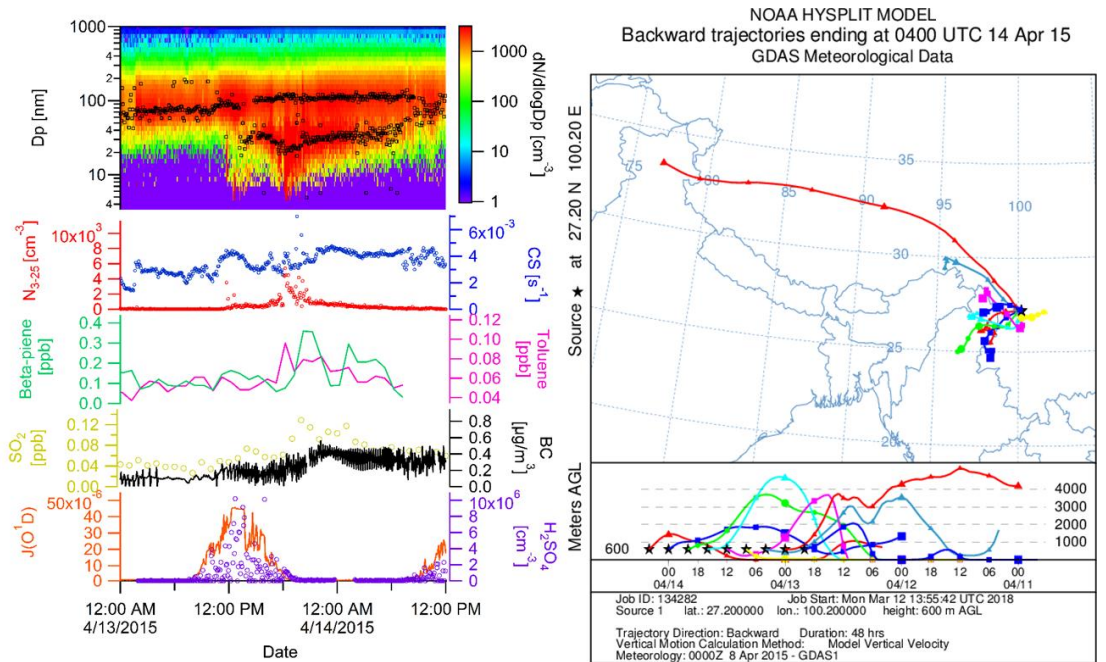
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25 Figure S5. (left panel) Time series of PNSD,  $N_{3-25}$ , CS,  $J(O^1D)$ ,  $SO_2$ , CS, Toluene,  $\beta$ -pinene,  
 26 sulfuric acid on 4 April. (right panel) 48h backward trajectories started from Mt. Yulong  
 27 during 8:00 to 14:00 4 April local time.

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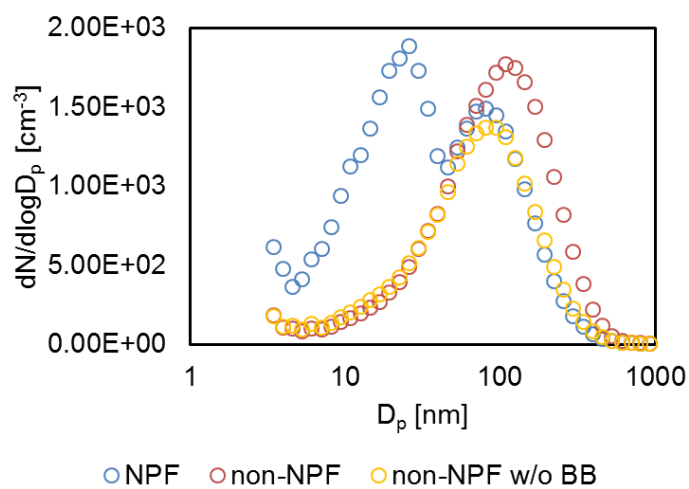


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30 Figure S6. (left panel) Time series of PNSD,  $N_{3-25}$ , CS,  $J(O^1D)$ ,  $SO_2$ , CS, Toluene,  $\beta$ -pinene,  
 31 sulfuric acid during 0:00, 13 April to 12:00, 14 April. (right panel) 48h backward trajectories

32 started from Mt. Yulong during 14:00 to 22:00 13 April local time.

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35 **Figure S7. PNSD during the NPF days (28-29 March, 4 and 13 April), the non-NPF event days,**  
36 **and the days showed no NPF events and Biomass burning influences.**

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40 Zheng, J., Hu, M., Du, Z., Shang, D., Gong, Z., Qin, Y., Fang, J., Gu, F., Li, M., Peng, J., Li, J., Zhang,  
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