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## **Environmentally dependent dust chemistry of a super Asian dust storm in March 2010: observation and simulation**

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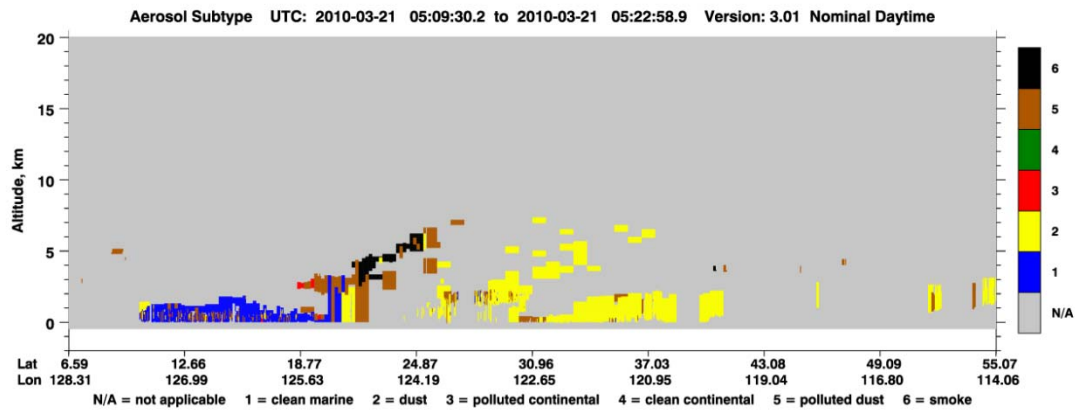
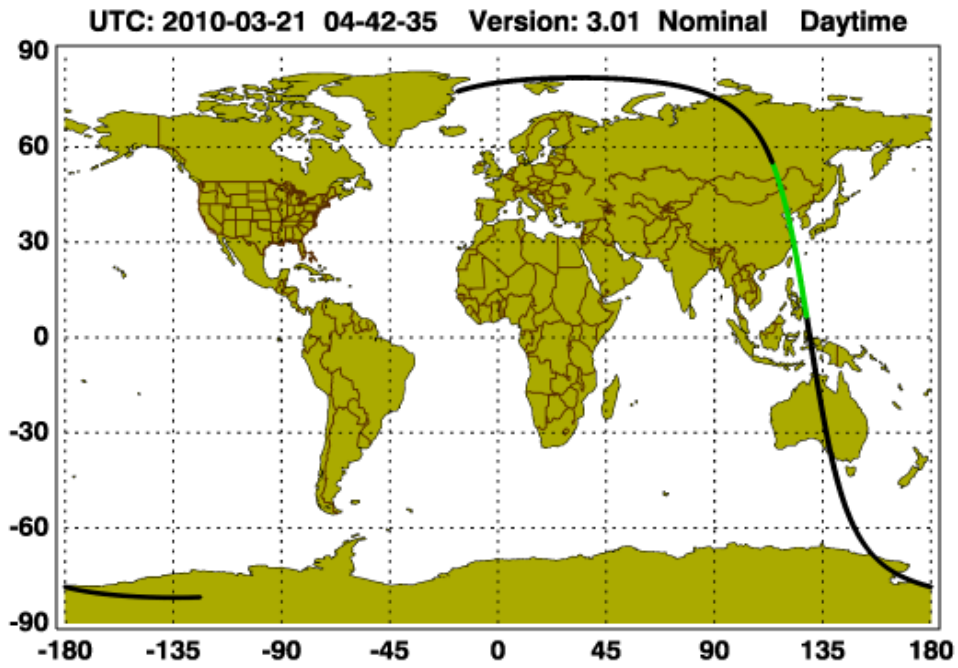


Fig. S1 CALIOP Lidar transects and the orbit tracks across the sampling region and adjacent areas on March 21, 2010.

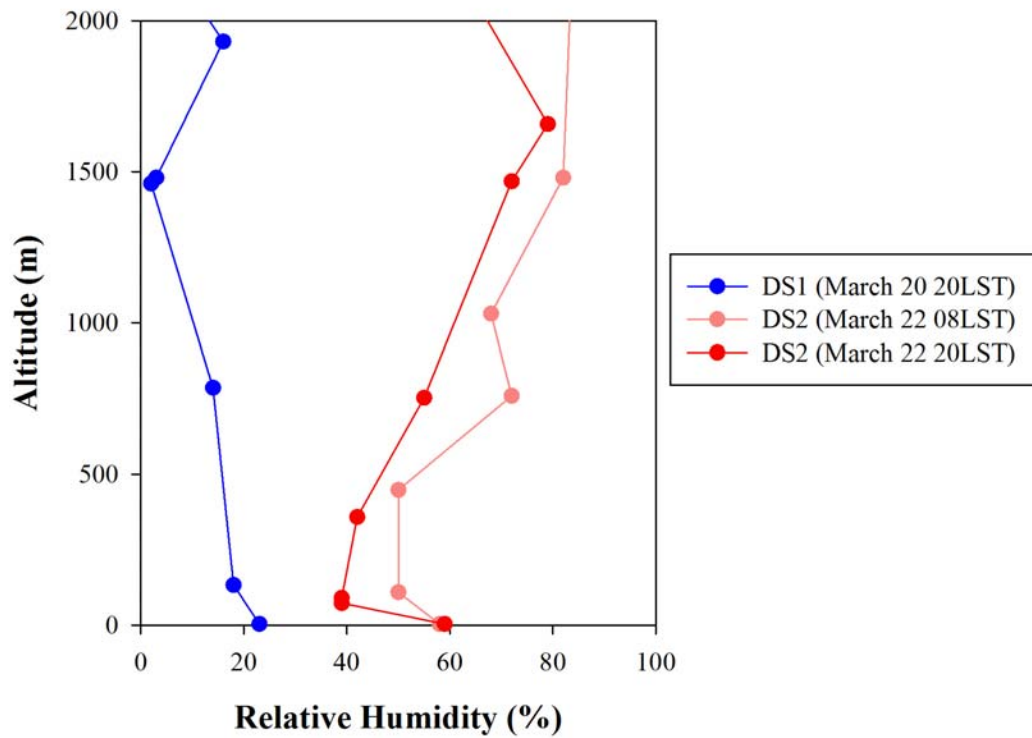


Fig. S2 Vertical profiles of relative humidity (RH) from sounding measurements at the Baoshan meteorology station in Shanghai

Table S1. The API grading limited value and the corresponding concentrations of air pollutants in China (Ministry of Environmental Protection of the People's Republic of China, Technical requirements for urban ambient air quality daily report and forecast, 2008, [http://www.zhb.gov.cn/gkml/hbb/bgth/200910/t20091022\\_174917.htm](http://www.zhb.gov.cn/gkml/hbb/bgth/200910/t20091022_174917.htm)).

API	Concentration ( $\mu\text{g}/\text{m}^3$ ) *				
	SO <sub>2</sub>	NO <sub>2</sub>	PM <sub>10</sub>	CO	O <sub>3</sub>
50	50	80	50	5000	120
100	150	120	150	10000	200
200	800	280	350	60000	400
300	1600	565	420	90000	800
400	2100	750	500	120000	1000
500	2620	940	600	150000	1200

\*24h average concentrations for SO<sub>2</sub>, NO<sub>2</sub>, PM<sub>10</sub>, and CO and 8h average concentrations for O<sub>3</sub>