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*Supplement of*

## **Seasonal characteristics, formation mechanisms and source origins of PM<sub>2.5</sub> in two megacities in Sichuan Basin, China**

**Huanbo Wang et al.**

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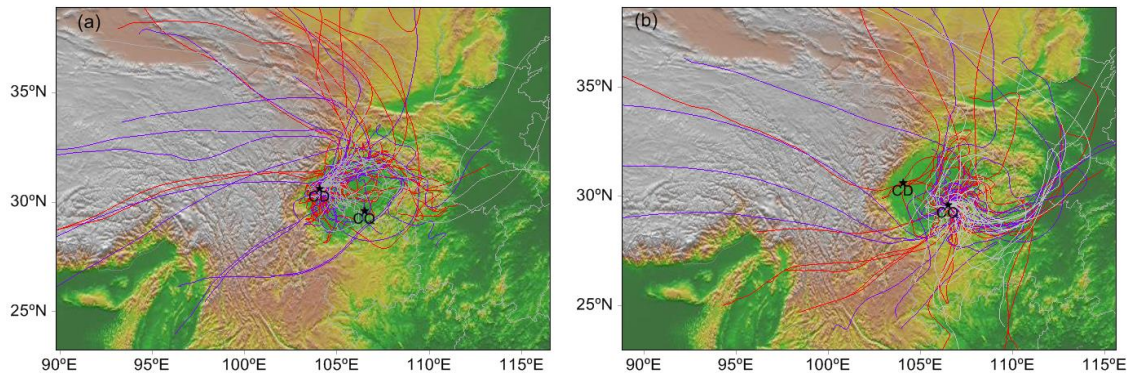


Figure S1. 72-h air mass back trajectories (18:00 local time) in autumn (gray line), winter (purple line) and spring (red line) at CD (a) and CQ (b).

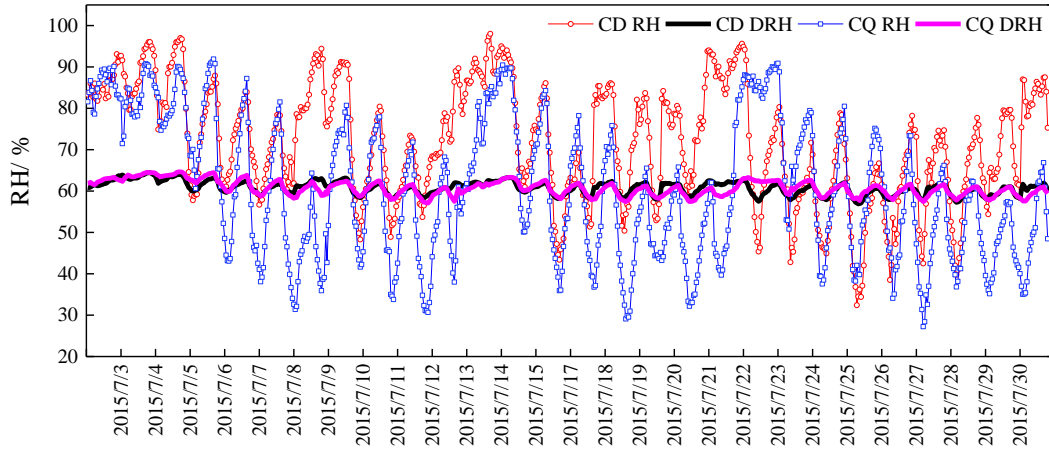


Figure S2. Variations of ambient RH and DRH in summer at CD and CQ.

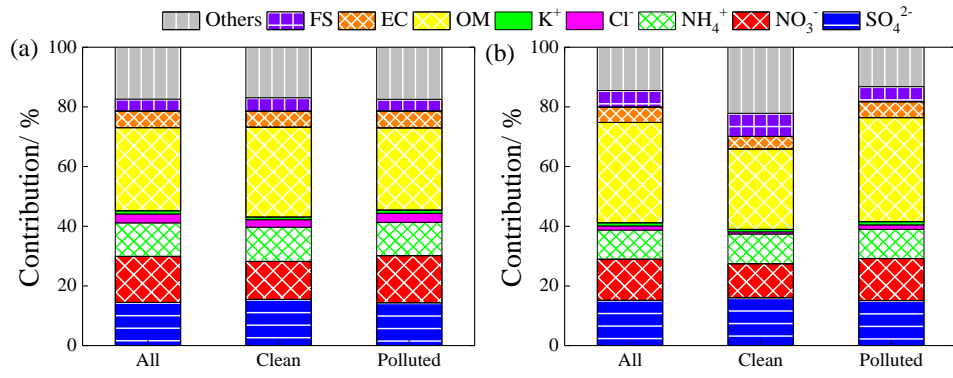


Figure S3. Contributions of major chemical components to PM<sub>2.5</sub> under different PM<sub>2.5</sub> levels in winter at CD (a) and CQ (b).

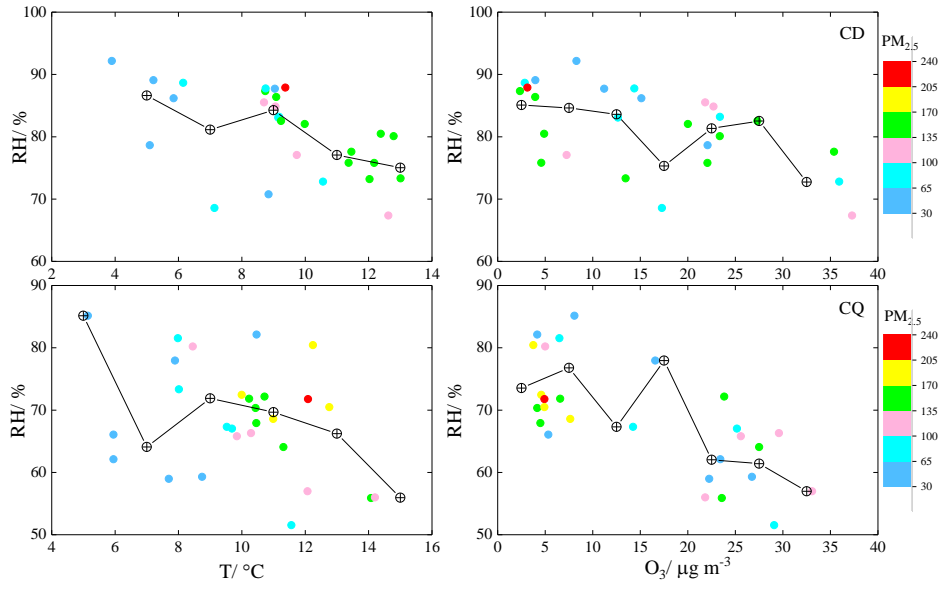


Figure S4. Variations of RH with temperature and O<sub>3</sub> concentrations at CD (upper row) and CQ (lower row).

Table S1 Pearson's correlation analysis for daily concentrations of major components in PM<sub>2.5</sub> between CD and CQ, significant correlation (p<0.01) are bold faced.

	SO <sub>4</sub> <sup>2-</sup>	NO <sub>3</sub> <sup>-</sup>	NH <sub>4</sub> <sup>+</sup>	Cl <sup>-</sup>	K <sup>+</sup>	OC	EC	FS
Autumn	<b>0.78</b>	<b>0.72</b>	<b>0.75</b>	0.10	<b>0.76</b>	<b>0.87</b>	<b>0.79</b>	0.08
Winter	<b>0.63</b>	0.49	<b>0.60</b>	<b>0.51</b>	<b>0.77</b>	<b>0.83</b>	<b>0.80</b>	<b>0.64</b>
Spring	<b>0.76</b>	0.39	<b>0.59</b>	0.09	<b>0.68</b>	<b>0.78</b>	<b>0.74</b>	0.29
Summer	0.49	-0.13	0.40	0.37	0.36	0.43	0.23	-0.02
Annual	<b>0.72</b>	<b>0.71</b>	<b>0.76</b>	<b>0.67</b>	<b>0.79</b>	<b>0.80</b>	<b>0.72</b>	0.31

Table S2 Meteorological parameters and PM<sub>2.5</sub> during clean periods (CP) and pollution periods (PP).

		T (°C)	RH (%)	WS (m s <sup>-1</sup> )	PBLH <sub>max</sub> <sup>a</sup> (m)	PBLH <sub>min</sub> <sup>b</sup> (m)	PM <sub>2.5</sub> (µg m <sup>-3</sup> )
<b>CD</b>							
Autumn	PP1*	20.7	81.9	0.2	1032.1	49.9	130.1
	PP2	16.0	77.1	0.4	1092.2	80.3	98.7
	PP3	12.8	88.7	0.2	421.3	93.6	80.8
	CP	14.9	82.3	0.5	852.8	109.5	41.0
Winter	PP4*	10.5	80.2	0.3	837.8	43.9	137.4
	CP	6.4	81.9	0.6	936.9	145.5	50.0
Spring	PP5	19.6	76.8	0.5	945.0	150.0	91.4
	PP6*	25.8	62.2	0.5	1414.3	23.1	93.1
	CP	20.0	70.9	0.7	1295.6	111.0	40.6
<b>CQ</b>							
Autumn	PP1*	21.1	70.9	0.6	966.1	71.4	97.6
	CP	15.1	77.0	0.8	796.0	129.1	49.1
Winter	PP2*	11.0	68.0	0.6	905.4	47.3	143.5
	CP	7.7	70.2	1.1	977.4	178.1	55.0
Spring	PP3	20.3	35.1	0.7	1958.0	23.0	78.1
	PP4	25.5	50.2	0.8	1425.0	23.0	92.9
	PP5*	26.4	49.9	0.8	1981.3	143.5	99.2
	CP	19.2	63.0	1.1	1188.4	170.1	49.7

\* means long-lasting pollution episodes. <sup>a</sup> and <sup>b</sup> mean the PBLH was obtained at 14:00 and 2:00 local time, respectively.