Impact of water uptake and mixing state on submicron particles deposition in the human respiratory tract (HRT): Based on explicit hygroscopicity measurements at HRT-like conditions

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[Supporting Information]

Table S1 Regional and total deposition doses in children group

Child	Dose without hygroscopicity [10^8/day]			Dose considering hygroscopicity [10^8/day]			Impact of hygroscopicity on dose		
	hydrophobic	hygroscopic	sum	hydrophobic	hygroscopic	sum	hydrophobic	hygroscopic	sum
Head	0.54	5.39	5.95	0.54	5.46	6.01	0.34%	-1.29%	-0.94%
TB	3.22	28.99	32.26	3.05	21.41	24.46	5.18%	26.16%	24.16%
P	6.97	63.02	70.07	6.63	45.03	51.66	4.89%	28.54%	26.27%
Total	10.73	97.40	108.28	10.22	71.90	82.13	4.75%	26.18%	24.14%

Table S2 Regional and total deposition doses in adults group

Adult	Dose without hygroscopicity [10^8/day]			Dose considering hygroscopicity [10^8/day]			Impact of hygroscopicity on dose		
	hydrophobic	hygroscopic	sum	hydrophobic	hygroscopic	sum	hydrophobic	hygroscopic	sum
Head	1.66	15.92	17.61	1.66	15.87	17.53	0.10%	0.33%	0.48%
TB	8.35	74.28	82.73	7.88	53.24	61.13	5.57%	28.32%	26.11%
P	12.81	114.90	127.84	12.16	82.57	94.72	5.09%	28.14%	25.90%
Total	22.82	205.10	228.18	21.70	151.68	173.38	4.90%	26.05%	24.02%

Table S3 Regional and total deposition doses in the elderly group

Elderly	Dose without hygroscopicity [10^8/day]			Dose considering hygroscopicity [10^8/day]			Impact of hygroscopicity on dose		
	hydrophobic	hygroscopic	sum	hydrophobic	hygroscopic	sum	hydrophobic	hygroscopic	sum
Head	1.61	15.49	17.13	1.60	15.52	17.12	0.31%	-0.15%	0.07%
TB	8.26	73.58	81.94	7.79	52.89	60.68	5.59%	28.12%	25.94%
P	13.24	118.79	132.16	12.55	85.28	97.83	5.18%	28.21%	25.97%
Total	23.11	207.86	231.24	21.94	153.69	175.63	4.99%	26.06%	24.04%

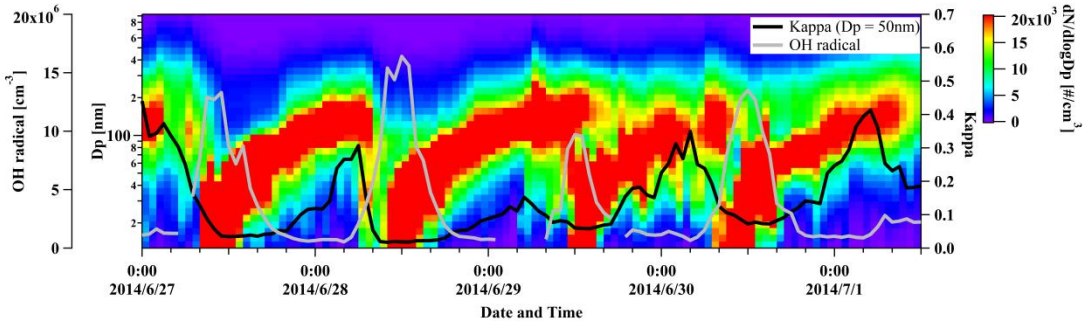

Figure S1. The particle number size distribution of typical new particle formation events from June 27 to July 2, 2014. The black line represents the corresponding hygroscopicity parameter (κ). The gray line represents the concentrations of OH radical.

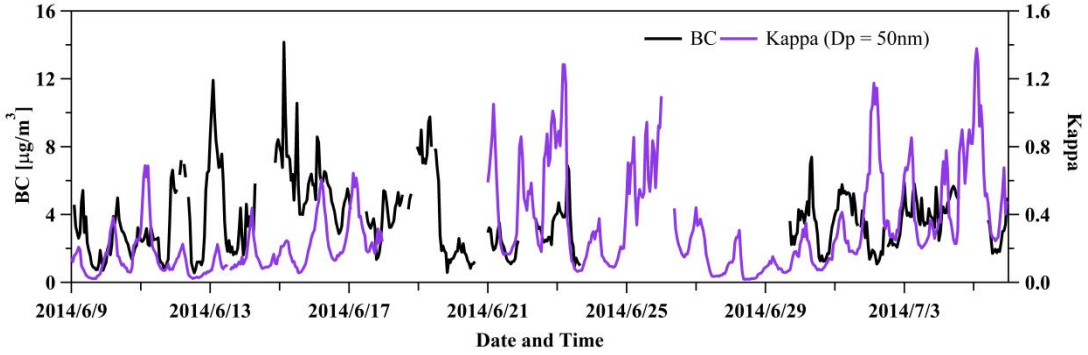

Figure S2. The time series of the BC mass concentration and the κ of particles with diameters of 50 nm. The black and purple line represent BC and κ, respectively.