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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Large-scale ion generation for precipitation of atmospheric aerosols" *by* Shaoxiang Ma et al.

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The high voltage experiment is indeed dangerous. In order to ensure the experiment safety, the hydrogen balloon carrying the ion counter (Air Ion Counter) is used to measure the vertical (5 m – 50 m) and horizontal (20 m – 50 m) ion density in the downwind. The volume of hydrogen balloon is about 5 mˆ3. 4 people collaborate to control the movement of the hydrogen balloon. The horizontal distance of 20 m is the minimum distance from the wire electrode according to the manual for high voltage operation.

Although the indoor experiment has the lower applied voltage and shorter wire electrode, the ion density measurement at the same wind speed as the outdoor (generated by electric fan) provides data base to setup the ion transportation model. The higher

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Discussion paper

applied voltage of the outdoor experiment can generate more intense corona discharge and much more discharge points on the wire electrode. By improving the ion density at the source point and considering the combination of corona discharge points, the ion transportation model can also apply to the outdoor experiment.

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