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Atmospheric Measurement Techniques Discussions

Interactive comment on "Fast time-resolved aerosol collector: proof of concept" *by* X.-Y. Yu et al.

Anonymous Referee #1

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The manuscript describes, as the title implies, the working principles and initial tests of a more advanced, extended version of a previously designed aerosol particle collector. A subject well suited for AMT. In general the manuscript is well written and easy to follow, with an interesting topic, citing relevant work.

Since it is an initial paper on the re-newer equipment, the conclusions are not very wide reaching, but there is hope for a more extended report/manuscript on the continued development and test of the device based on this manuscript. The methods chapter describes the development and requirements of the device from TRAC to Fast-TRAC. On page 2520, I'm not sure I understand how laminar flow is maintained. I'm not even sure in what direction the flow should be laminar. Through the grid, or over it? On page 2521 I find the description of diffraction limit of the particle image a bit vague. What is

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actually meant by “about diffraction limited”?

In outdoor measurements under urban Sub Sahara African conditions we have measured particles in the size range 300 to 450 nm. Occasionally we found more than 10ˆ7 particles/second. Comparing these numbers to the ones that the Fast-TRAC can manage, I doubt the device can be used to measure in industrial pollution plumes as suggested by the authors. I think care must be taken not to overload the device.

Finally I think the manuscript describes a promising future development for single particle measurements.

A few technical corrections.

Page 2518, line 9 it’s a bit much of that.

P 2523, l 11. Should the reference really be to Fig 5?

P 2527, l 12. “part.” Repeated.

Interactive comment on Atmos. Meas. Tech. Discuss., 3, 2515, 2010.