

***Interactive comment on “Characterisation of sub-micron particle number concentrations and formation events in the western Bushveld Igneous Complex, South Africa” by A. Hirsikko et al.***

**Anonymous Referee #3**

Received and published: 13 March 2012

The manuscript describes long-term measurements of nucleation events in the western Bushveld Igneous Complex, South Africa. Aerosol and ion size distributions were measured using a DMPS and an Air Ion Spectrometer (AIS) and supported with measurements of the main gaseous pollutants (O<sub>3</sub>, SO<sub>2</sub>, NO<sub>x</sub>, CO), black carbon and basic meteorological parameters. The manuscript presents a very robust data set, despite some flow deviations that happened in the AIS during the measurements. The findings are interesting not only because there is practically no data from that part of the world, but also because the frequency of nucleation events observed there was ex-

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ceptionally high. The manuscript should be published after a minor revision. I agree with the other Reviewers that the main, though relatively minor, shortcoming of the manuscript is the lack of supporting information for some of the statements made in the manuscript. It would be very informative to see at least an example of a nucleation event, which demonstrates a relatively small contribution of sub-3nm ions to the overall particle concentration during the event (p.1910, line 3 and following). Preferably, a quantitative value of ion contribution should be given. Likewise, the mentioned correlations between particle count in different size ranges with the measured gases, BC, CS, etc. (p.1907 last paragraph) should be supported either with a Table or graphs.

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Interactive comment on Atmos. Chem. Phys. Discuss., 12, 1895, 2012.

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