

## ***Interactive comment on “Observation of new particle formation in subtropical urban environment” by H. C. Cheung et al.***

**Anonymous Referee #3**

Received and published: 24 November 2010

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The aim of this study was to characterise the new particle formation events in Brisbane, Australia, measuring the concentration of particles and their size distribution. I believe that there is a good amount of interesting information that in general would merit publication. However, I agree with the comments of the other reviewers that significant revision is necessary, on the following points raised i. find a consistent way of using meteorological data, ii. include info on gaseous pollutants if available, iii. keep balance in the interpretation of the results between influence by emissions and processes. I will avoid repeating the same comments, so I will just add some scientific and technical issues.

Page 22627, line 19: use of UFP without first defining the acronym. The definition is C10212

given next.

Page 22628, line 21: The temperature is used as an indicator of solar radiation. However, solar radiation data were measured at Brisbane Airport. So the authors, either they use the solar radiation data at the airport or the temperature data instead, they have to thoroughly explain the limitations of such an approach.

Page 22629, line 4,5: What is the range of these values? Perhaps a statistical quantity referring to the variability of the average concentrations (e.g. standard deviation) should be mentioned as well.

Page 22631, line 5-7: Could that peak in Aitken mode at low temperatures come from central heating?

Page 22631, lines 9-19: No information is given on the attribution of air mass origins to a certain direction and/or source. Does that come only from the wind direction measurements at the other site (Kangaroo, 1 km east QUT)? Is this direction representative of the whole area? because in areas of dense building blocks as I suppose the central business district is, the wind direction might be misleading. In that case, wouldn't it be a better way to use back trajectories analysis and perform a more sophisticated cluster analysis and/or source apportionment technique?

Page 22631, lines 20-25: Fig. 7 is not referred anywhere, probably referring to these lines.

Page 22633, line 17: In Fig. 9 the information is misleading. The authors should refer to an “event to non-event ratio”, which is indicative of the frequency of occurrence of these events taking into account the available measuring dates.

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Interactive comment on Atmos. Chem. Phys. Discuss., 10, 22623, 2010.