

***Interactive comment on “Aerosols-cloud  
microphysics-thermodynamics-turbulence:  
evaluating supersaturation in a marine  
stratocumulus cloud” by F. Ditas et al.***

**Anonymous Referee #2**

Received and published: 5 January 2012

I agree with Referee #1: It is a very well written paper with a very high scientific content. The authors present in a very concise way three different methods to estimate the supersaturation fluctuations in a turbulent marine stratocumulus. The authors tackle this problem with a combination of field observations and a simple numerical cloud parcel model in an adequate way.

First of all, my compliments: I didn't find any serious major points to be improved. The paper is really good. Still there are a few points that should be changed/added to improve the manuscript:

1) I miss a word about the impact of radiation and/or season on your findings. If there

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is no effect to be expected, please also state this.

2) On p. 29786: You write: "Figure 7 illustrates the resulting activated fraction  $0(S_{crit})$  (black squares), which exhibits a similar error function like behaviour as  $(D_p)$  in Fig. 6." This is quite possible but this is not obvious by simply comparing Figs. 6 and 7. Please provide also the second error function so that I can judge myself.

3) The "50 % activation diameter": why did you choose that and what is the physical meaning of that? It is not the most common parameter in cloud physics.

4) I fully support Referee #1 with regard to all the other minor points. Åã

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Interactive comment on Atmos. Chem. Phys. Discuss., 11, 29777, 2011.