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***Interactive comment on “Evaluation of Arctic  
cloud products from the EUMETSAT Climate  
Monitoring Satellite Application Facility based on  
CALIPSO-CALIOP observations” by  
K.-G. Karlsson and A. Dybbroe***

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We agree with the reviewer that the discussion of the CFC results is currently not properly balanced. It is giving too much attention to PPS-MODIS differences which is not the main subject of the paper. Another aspect (not brought up by the reviewer) is that the MODIS cloud mask is here treated as a pure binary dataset and that we have not taken into account the full information available in the more complete MODIS cloud product. A third aspect could be that despite of the rather large dataset being studied, we have not enough evidence available to make general statements on the quality of

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MODIS cloud mask (e.g. only one winter month studied). Thus, a more thorough and dedicated study of MODIS, PPS and CALIPSO data would have been required for this. Consequently, we will withdraw some statements here and try to be more balanced in the remaining statements discussing the quality of MODIS cloud mask information.

Concerning the actual PPS results being discussed, we are sure that the message about in particular the missed clouds by PPS in December 2007 is clearly visible to everyone. This fact has also been stated several times in the text. It is very clear that with only three useful infrared channels of the AVHRR instrument and with very unfavourable thermal conditions in the polar winter (i.e., Earth surfaces generally colder than clouds) the cloud screening task is extremely difficult. The unfortunate statements about the quality of MODIS products reflect more the feeling of being a bit surprised that MODIS products were not very superior over ice-covered ocean surfaces considering a much better set of useful channels and associated high-quality radiances. This superior quality can only be seen over land portions (the reviewer is correct here). Thus, if the reviewer did not find the statement “it is clear that the MODIS cloud masking is still not working optimally” motivated I hope that he/she can at least accept that we indicate that there still seems to be some potential for improvement of the MODIS cloud mask product over ocean surfaces. We think that such a statement could be useful in the light of the ongoing reprocessing of MODIS data for the new Collection 6 dataset or for its successor.

Finally, we thank the Reviewer for the detailed advice on technical corrections. This is very much appreciated.

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Interactive comment on Atmos. Chem. Phys. Discuss., 9, 16755, 2009.

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