

Interactive comment on “Impact of Saharan dust on North Atlantic marine stratocumulus clouds: Importance of the semi-direct effect” by Anahita Amiri-Farahani et al.

W. Wang (Referee)

wangwc@ouc.edu.cn

Received and published: 25 November 2016

Page 2 line 24, Sc have a small effect on outgoing longwave radiation. Give some references.

Page 7, line 20 to 23. You estimate dust-cloud radiative effect by using the data where both dust and MSc exist. However, since dust and cloud possibly distribute at different height, dust may have little or ignore effect on clouds (such as your results in Fig. 10). Wang et al. (2010) define dusty clouds (the height difference between dust and cloud less than 50 m) to study dust effects on clouds. The height differences between dust and MSc should also be given here.

[Printer-friendly version](#)

[Discussion paper](#)



The dust-cloud radiative effect could be either positive or negative by method 1 during Winter, Spring and Fall, but the RF is negative during Summer from the results in Table 2. Since the sign of RF is affected by the height of dust (Huang et al., 2014), the vertical profile of dust in spring and autumn should also be given and discussed.

Fig. 10. The author conclude SDE is the dominant effect. However, the results in Fig.10 which also represents the semi-direct effect of dust is not really obvious. The authors should give the significance degree for Fig 10.

References: (1) Huang, J., T. Wang, W. Wang, Z. Li, and H. Yan. Climate effects of dust aerosols over East Asian arid and semiarid regions, *Journal of Geophysical Research: Atmospheres*, 119, 11398–11416, doi:10.1002/2014JD021796, 2014. (2) Wang, W., J. Huang, P. Minnis, Y. Hu, J. Li, Z. Huang, J. Ayers, and T. Wang, Dusty cloud properties and radiative forcing over dust source and downwind regions derived from A-Train data during the Pacific Dust Experiment, *Journal of Geophysical Research*, 115 (2010), D00H35, doi:10.1029/2010JD014109.

Interactive comment on *Atmos. Chem. Phys. Discuss.*, doi:10.5194/acp-2016-933, 2016.

Printer-friendly version

Discussion paper

