

We would like to thank Dr. Schumann for his comments on our manuscript.

Our estimate of the radiative forcing for contrail cirrus falls in the lower end compared with previous studies. We have added a plot showing the simulated optical depth for contrail cirrus. The most pronounced simulated contrail optical depth is confined over the Eastern US and Central Europe, while the perturbation optical depth associated with contrail cirrus presented by Burkhardt and Kärcher 2011 was more wide spread with largest perturbations in the tropics. This explains why our estimate in contrail radiative forcing is lower than several previous studies.

In the revised manuscript, the diurnal cycle of the radiative forcing for linear contrails is presented by local time instead of UTC, which delivers a much cleaner message.

We have also attached the figure of the diurnal cycle over the North Atlantic region for your reference.

Our estimate of the radiative forcing for linear contrails is low because we assumed that all linear contrails vanished after 30 minutes. Due to this assumption, the contrail optical depth is also in the lower end based on a recent observation study by Bedka et al. 2013. We have included such discussion in the manuscript.

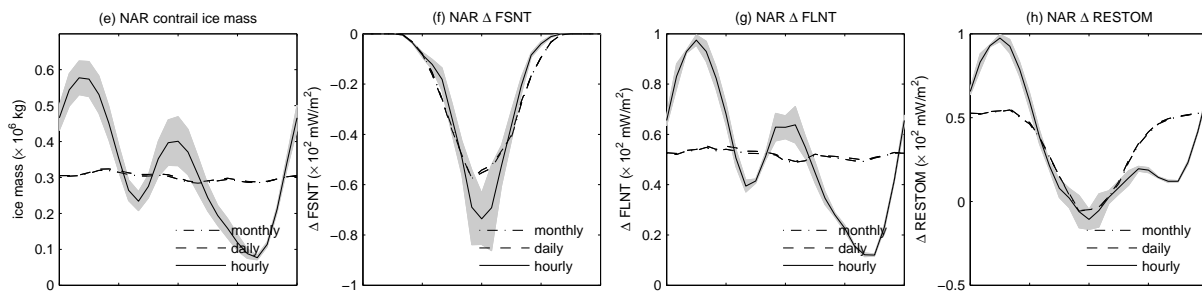


Figure 1. Diurnal cycle of linear contrails simulated by CAM5-SD over the North Atlantic region.

References

Bedka, S. T., P. Minnis, D. P. Duda, T. L. Chee and R. Palikonda, 2013: Properties of linear contrails in the Northern Hemisphere derived from 2006 Aqua MODIS observations. *Geophys. Res. Lett.*, **40**, 772-777, doi:10.1029/2012GL054363.

Burkhardt, U. and B. Kärcher, 2011: Global radiative forcing from contrail cirrus. *Nature*, **1**, doi:10.1038/NCLIMATE1068.