

We would like to first thank the anonymous reviewer for the suggestions to improve our manuscript. We address the reviewer's comments below. The original comments are in **bold font** and our responses are in *italic font*.

This study uses irradiance observations from the 2008 EUCAARI-LONGREX aircraft campaign to examine the aerosol radiative forcing over Europe. Using a radiative transfer model (Edwards and Slingo) combined with observations and assumptions, the authors estimate diurnally averaged RF. The authors do a thorough and careful job of laying out the assumptions made in their closure study. Further they determine the uncertainty associated with their various modeling assumptions on the final estimation of RF. The most interesting finding of this study is that the spectral resolution of their radiative transfer model has a part (17-21%) impact on their uncertainty in radiative forcing, suggesting that more simplified RF models used by climate models may have resolution-imposed errors that are quite significant. This study is well written and clear; I find it acceptable for publication in ACP. Minor issues are listed below.

Page 1 Line 12: “in a case of” > “for a case of”

As suggested by the reviewer, this sentence has been changed:

“For one specially designed “radiative closure” flight, simulated irradiances have been compared to radiation measurements for a case of aged European aerosol in order to explore the validity of model assumptions and the degree of “radiative closure” that can be attained given the spatial and temporal variability of the observations and their measurement uncertainties.”

Page 1 Line 14: “for the spatial and temporal variability and measurement uncertainties” > “given the spatial and temporal variability of the observations and their measurement uncertainties”

As suggested by the reviewer, this sentence has been changed:

“For one specially designed “radiative closure” flight, simulated irradiances have been compared to radiation measurements for a case of aged European aerosol in order to explore the validity of model assumptions and the degree of “radiative closure” that can be attained given the spatial and temporal variability of the observations and their measurement uncertainties.”

All pages: Need spacing between paragraphs; may be an issue with ACPD. Hard to read this way.

We have used in our manuscript the styles suggested by ACPD in their new templates.

Page 6 Line 18 (and thereafter): “re-analysis” > “reanalysis”

As suggested by the reviewer, the word “re-analysis” has been changed to “reanalysis” throughout the manuscript.