

Interactive comment on “Radiative budget and cloud radiative effect over the Atlantic from ship based observations” by J. Kalisch and A. Macke

Anonymous Referee #1

Received and published: 12 March 2012

General comments: In this paper ship borne radiation measurements are analyzed which respect to cloud radiative effects over the Atlantic. The paper is clearly written and the main ideas and outputs are comprehensible. The results are not new and not surprising but valuable because only few comparable studies over ocean have been made in the past. The paper should be published after minor changes. Page 2012, line 17: “. . .the solar contribution is large for cirrus clouds and small for stratus clouds”. And what about cirrus stratus? Do you mean: . . .the solar contribution is large for high level clouds and small for medium and low level clouds?

Page 2016, line 11: The equation is not homogeny with respect to the dimensions. Please rewrite.

Page 2018, line 3: What do you mean by surface air temperature? Which height?

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Page 2018, line 23: To my understanding man made synoptic observations are a good source (may be even a better source as a full sky imager) to analyze cloud effects since they are not limit to day time values and frequently available.

Page 2020, line 7+: Using the water temperature 5 m below the surface to estimate LWU is questionable. Data from the water surface could be obtained much better using radiation thermometer. At least a error estimation should be added.

Page 2020, line 25+: Two sentences starting with “Furthermore”. Please change.

Page 2022, line 6: A diurnal as well as a meridional LW CRE dependency should be expected. Please explain why these dependencies do not show up. Is it a matter of averaging?

Page 2022, line 16: Please avoid an inconsistent expression like “clear sky CRE”.

Page 2023, line 21: A linear regression should be used. The data show no indication to use a quadratic regression. (A lower explained variance is no argument.)

Page 2024, formula 9: Please explain why this function was used.

Page 2025, line 14: Please delete “. . . and radio sounding profiles”

References: Please cite the relevant “Expedition programs” and used datasets, see: (<http://www.pangaea.de/PHP/CruiseReports.php?b=Polarstern>)

Interactive comment on Atmos. Meas. Tech. Discuss., 5, 2011, 2012.