

Interactive comment on “In-situ sounding of radiation flux profiles through the Arctic lower troposphere” by Ralf Becker et al.

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Thanks for your comments. The approach to quantify the tilting chosen in this work refers to the Euler angles of the sensor, measured at the pyranometer pair body. Discrepancies between expected and measured sun zenith angle are causing a loss or a yield of the direct component of the total solar incoming radiation. The magnitude of the correction is to be taken from measured (and then fitted) near surface data of solar downward radiation as a function of sun zenith angle. It is assumed that the rate of change is invariant with height, at least at levels below 3000 m above sea level. An example of two closely located sites is given. I understand your point that these assumption would need further experimental or theoretical - by radiative transfer modelling - proof. Our conclusion here is to take this aspect out for further discussion on

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tilting correction elsewhere and revise the manuscript according to your suggestion by integrating a well-documented approach for misalignment correction, discussed e.g. in Bannehr and Schwiesow, 1993 and Wendisch et.al. 2001. Of course that would imply a recalculation of part of the presented data. All issues in the list of comments will be regarded in a revised version, too.

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