

Interactive comment on “The Global Energy Balance Archive (GEBA) version 2017: A database for worldwide measured surface energy fluxes” by Martin Wild et al.

J. Michalsky (Referee)

joseph.michalsky@noaa.gov

Received and published: 30 May 2017

This paper provides an update to the status of the GEBA (Global Energy Balance Archive) database that contains surface measurements of energy components in uniform units of watts per meter-squared. It addresses what is in the archive and how to access those data. The only substantive point that I have problems with is their focus on the notion that aerosols can explain the decadal brightening and dimming in surface shortwave (solar) radiation. The aerosol record was poor until careful measurements began in the 1990s so I do not understand how quantitative statements can be made before this period. Further, a very careful study of brightening in North America by Augustine and Dutton (2013; JGR-Atmos doi:10.1029/2012JD018551) finds that ac-

C1

curately measured aerosol optical depth changes cannot explain the brightening by the direct effect and invoking indirect effects would be highly uncertain and speculative. I would like to see them soften the notion that aerosols can explain this decadal behavior.

Specific points:

Lines 23-26, page 4: The diffuse and infrared uncertainties are 'best possible', not typical. Field measurements will have generally have greater uncertainty.

Line 20, page 5: The sentence that begins here is needs to be rewritten.

Line 20, page 6: 'occurs' could be replaced with 'partitions'

Figure 2 caption: Is the red line a 4th order polynomial fit?

Figure 8 caption: I assume that this is global shortwave, but I do not find it stated in the caption.

Interactive comment on Earth Syst. Sci. Data Discuss., doi:10.5194/essd-2017-28, 2017.

C2