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Geoscientific
Model Development
Discussions

Interactive comment on "Simulation of land surface temperatures: comparison of two climate models and satellite retrievals" *by* J. M. Edwards

Anonymous Referee #2

Received and published: 27 May 2009

Interactive comment on "Simulation of land surface temperatures: comparison of two climate models and satellite retrievals" by J. M. Edwards

Anonymous Referee #2 Received and published: 25 May 2009

General comments This paper presents comparisons of land surface temperatures (LST) from two climate models with retrieval from satellite observations. The differences of the maximum and minimum LST, and diurnal temperature range from both sources are discussed. Using satellite data to evaluate climate models is interesting and the manuscript is well organized. I recommend that the paper be published with minor revisions.

Specific comments

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Interactive Discussion

Discussion Paper

(1) It is not clear if the comparison between models and satellite data used the same period of time? This needs to be clarified.

(2) The explanation for Fig. 6 on page 318 should compare the clear sky (all-sky) maximum and/or minimum with the air temperature under same clear sky (all-sky) conditions. Then compare the differences in maximum and/or minimum between clear sky and all-sky conditions.

(3) The authors indicate that the maps of the differences (not shown) indicate that over large areas of the south-eastern United States the clear-sky maximum land surface temperature in July is very slightly lower than the all-sky maximum air temperature. They thought the reason for this is not understood for the present. As a matter of fact, it may be due to the radiative forcing effect of atmospheric water vapor (Sun et al., 2006).

(4) It should be clearer to put a formula for the calculation of "overall" flux as shown in Fig. 8, Fig. 10, and Fig. 12.

References: Sun, D. L., M. Kafatos, R. Pinker, and D. Easterling, 2006: Seasonal variations in diurnal temperature range from satellite and surface observations. I-EEE Transactions On Geoscience and Remote Sensing, 44 (10), 2779-2785.

Minor comments: (1) The scales for Fig. 6 at right column were incomplete. Instead of top left, top right, etc., it should be better to use (a), (b), (c), and (d).

(2) The scales for horizontal axis in Fig. 8, Fig. 10, and Fig. 12 should be adjusted.

(3) The legends in Fig. 8, Fig. 10, and Fig 12 were mixed with the lines, and should be separated.

Interactive comment on Geosci. Model Dev. Discuss., 2, 309, 2009.