Hydrol. Earth Syst. Sci. Discuss., 10, C3025–C3026, 2013
www.hydrol-earth-syst-sci-discuss.net/10/C3025/2013/

Hydrology and Earth System Sciences
Discussions

Interactive comment on "Spatial patterns in timing of the diurnal temperature cycle" *by* T. R. H. Holmes et al.

R. de Jeu (Referee)

r.a.m.de.jeu@vu.nl

Received and published: 5 July 2013

General: With great interest I read this paper that clearly demonstrates the differences in timing in different LST datasets. The paper is well written and gives us new insights in the differences between Ka band LST and Geostationary LST products which is very important information for studies on land atmosphere interactions. It is therefore a valuable contribution for HESS and I accept this manuscript for publication after minor revisions.

Details

Page 6022 line 4, I guess you mean In situ here

Full Screen / Esc
Printer-friendly Version
Interactive Discussion
Discussion Paper

Page 6024 Here a simulation of the impact of wet and dry soils is demonstrated in table 2. This is obviously clear but it might even be worthwhile to illustrate this with a small graph (LST on y-axis, time on x axis and one simulation with a dry and one with a wet surface).

Page 6025 I thought it was 38 N -38 S for TRMM (see http://catalog.data.gov/dataset/trmm-microwave-imager-tmi-level-1-raw-and-calibrated-radiance-products-trmm-product-1a11) Page 6026 line 21: I suggest to give a bit more explanation here. These steps are not completely clear.

Page 6031 figure 3: This is a very interesting and important Figure in this paper, but does need more explanation. I would suggest to add a latitude graph where you give the average (+ std) available amount of observation per latitude. This will probably give more insight in the shape of the graph (and the behavior of the std). In addition, would it be possible to calculate this value when you first start with one satellite system and then simply add more. I understand that you need a minimum amount of observations, but for the reader it would be highly interested to see if you could get an accurate estimate for the timing with for example only TRMM data and if you really need all these other satellites to increase your accuracy in timing.

Page 6035 figure 7c. In this graph you see several negative differences in Tka-Tnwp.For example in the northern latitudes, but also in some other parts of the world (e.g South East Australia). In this section you mention that the negative differences are related to frozen soils and low amplitudes, but were frozen soils not masked here? And couldn't it be explained by other processes (e.g. diurnal changes in emissivity in these northern regions due to changes in soil moisture in these wet regions). A time series for these few regions would probably give a lot of additional information for these regions and would probably explain the main direction. I suggest to give a bit more explanation on these "negative difference" sites.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 10, 6019, 2013.