

Interactive comment on “Mapping daily evapotranspiration at field to global scales using geostationary and polar orbiting satellite imagery” by M. C. Anderson et al.

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The paper by Anderson et al (2010) presents an overview of efforts towards implementing the ALEXI/DisALEXI approach at global scales. The authors illustrate this progress with examples over the USA, large scale retrievals produced over Europe and parts of Africa, and smaller scale disaggregation focusing on Spain and Italy.

Although there is little in the way of new science in the results presented in this contribution, the papers purpose is perhaps designed to display the capacity of the ALEXI approach to move beyond previous US centric studies to more global scale application

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- an important step in better estimating satellite based retrieval of evapotranspiration (ET) in different environments and a potentially valuable addition to global efforts to do this. Implementing the approach with geostationary sensors such as MSG, as undertaken here, represents excellent progress towards this task.

Some intercomparison or assessment of the retrievals as undertaken over Africa or selected regions of Europe would have been useful, and given the paper a significant scientific impact for global scale estimation. Whilst it is certainly true that the ALEXI/DisALEXI approach has been well documented elsewhere, some additional evaluation in these new environments - especially with the application to a new satellite sensor - would have been informative. This is particularly true for the higher resolution studies in Spain and Italy, where one would expect some in-situ validation data to have been collected and available. Alternatively a comparison with modeled output or other data, such as that undertaken in the US with the drought indices (published previously??) would have broadened the scope of the research - particularly if it had focused on the European heat wave of 2003, enabling comparison with many associated publications. Evaluation against remotely sensed soil moisture or precipitation anomalies may also have illustrated some qualitative agreement?

Presumably there will be companion papers that develop this research and the current paper is perhaps an introduction to the global scale effort currently underway and the planned future work discussed. If this is the case, I consider that the manuscript will be of interest to many readers of HESS - particularly since the application illustrates efforts being undertaken over Europe and northern Africa. Perhaps it is worth considering a title change to better reflect the intermediate step that this paper presents - although this is not critical.

Minor comments:

A very well written and presented paper. Some very minor corrections.

5969, Line 25. remove comma after "...US, Europe, Africa and..." 5960, Line 13. re-

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move "global" 5961, Line 14. "...any of THE satellite based..."

If required, a reference to the GEWEX LandFLUX activities can be ascribed to:

Jimenez C, Prigent C, Mueller B, Seneviratne SI, McCabe MF, Wood EF, Rossow WB, Balsamo G, Betts AK, Dirmeyer PA, Fisher JB, Jung M, Kanamitsu M, Reichle RH, Reichstein M, Rodell M, Sheffield J, Tu K, Wang K (2010) "Global inter-comparison of 12 land surface heat flux estimates" Journal of Geophysical Research (in press)

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 7, 5957, 2010.

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