

## ***Interactive comment on “A Bayesian approach to estimate sensible and latent heat over vegetation” by C. van der Tol et al.***

### **Anonymous Referee #2**

Received and published: 15 April 2009

#### General comments

This paper uses Bayesian approach over a vegetation to derive land surface energy budget quantities (sensible and latent heat flux). For each comparison time, the remote sensing derived quantities are compared to point surface in situ observations of the energy fluxes. The paper then claims that the level of agreement between the two methods is adequate to support the notion that the ASTER data can be used to derive these quantities in this region. The paper is lacking in depth and detail as to the methodology used and depends on numerous references with little explanation as to the applicability of the reference. There is no background given by which to judge as to whether the level of agreement is adequate for advancing the state of knowledge. It is suggested that more background material and information on specific methodology be

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provided.

Despite some of the above drawbacks, this paper does demonstrate that reasonable results were obtained for a limited number of cases thereby giving additional credibility to a methodology and capability of the research team. That capability and methodology could be made even more credible if more information is given against which these results could be evaluated.

For Bayesian approach over a vegetation to get the information of sensible and latent heat flux is a valuable work for land surface energy budget and therefore the subject of the paper is worth to be published.

#### Specific comments

The title: “A Bayesian approach to estimate sensible and latent heat over vegetation” change to “A Bayesian approach to estimate sensible and latent heat fluxes over the vegetation area”

Page 2338, line 11: First paragraph - It is shown that the Bayesian approach yields more accurate estimates of sensible and latent heat flux than traditional methods. Why more accurate estimates?

Page 2338, line 15: “the Earth’s surface energy balance” is “the land surface energy balance”

Page 2339, line 1: Only SU? Please add some references.

Page 2339, line 14: the sentence “Aerodynamic and surface resistances are particularly difficult to estimate” have to change following:” It is difficult to estimate the aerodynamic and surface resistances. . . . .” Pay attention to the English expression.

Page 2340, line 2: Your mentioned improve estimates of sensible and latent heat. But from the fig. 3, 4 and 5, I do not find the good results. How to say improve?

Page 2340, line 17: Where do you get the energy balance equation? Add the reference.

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Page 2340, line 18: Delete the “received by the surface”

Page 2352: The results part. This part need the refined statement. It looks too long to express your main points.

Figures: Unified coordinate system. For example in fig 3, x and y, you have to use same scale. If  $x=300$ , then  $y=300$ . Please mark them.

The overall quality of the English is not quite good enough. Please have it looked over by a native speaker.

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Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 6, 2337, 2009.

**HESD**

6, C316–C318, 2009

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