Reviewer's report: hess-2016-198

This manuscript describes the application of a multi-product (GOES, MODIS and Landsat) data fusion approach for estimating evapotranspiration (ET) at high spatial and temporal resolution in a heterogeneous landscape. ET is resolved with sufficient spatial resolution to determine differences in fields or plantations with different vegetation types or histories, and the model is validated against eddy covariance observations. A new approach for gap-filling Landsat scenes contaminated by clouds or the scan-line corrector failure is described.

In general, the manuscript is well written and clear, will be of interest to the HESS readership and represents a valuable contribution. Some comments regarding the manuscript are provided below to help with improving clarity.

Specific comments

Methods

The section on the parameterization of aerodynamic resistances, to which the expressions for the soil and leaf boundary resistances could also be added. When referring to Fig 1 (and in the fig caption) the reader can be referred to the supplementary information for the expressions for the resistance terms.

I appreciate that the experimental site and datasets are included in a single section, however, it might improve clarity and flow if the section concerning ALEXI/DisALEXI model inputs (3.3) were moved to be closer to the description of the models (e.g., immediately after section 2.1). There are important details in section 3.3 [e.g., parameterization of f(ϕ)] that would be better situated nearer the description of the models.

Was the storage flux estimated from profile measurements and used when computing net ecosystem water vapor exchange at the eddy covariance sites?

Results/Discussion

Were there any cases where the flux towers were obscured by clouds in Landsat scenes? If so, how, did the Landsat gap-filling perform under such circumstances?

What is the latency of the "finished" ET product (Landsat-like resolution)? How feasible would it be for using this for water management planning throughout the growing season?