

## ***Interactive comment on “Temporal variations of evapotranspiration: reconstruction using instantaneous satellite measurements in the thermal infra red domain” by E. Delogu et al.***

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The methods, results and following discussion need to be presented in a better structured way to increase the comprehension by the reader.

The structure of the paper will be improved in order to enhance its readability.

The subcaptions used in the paper do not always cover the contents in a proper way and are sometimes popularly formulated (e.g. section 3.2.3 "About the time of over-pass"). Most importantly, a separate discussion section should discuss the reasons why and under which circumstances the authors reject the "self preservation" assumption.

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tion that is often used in literature.

The approach is based on the work by Hoedjes et al. (2008) who showed that EF self-preservation appears to be valid under dry conditions but no longer under wet conditions. Since the EF method shows better results than the SF method, the paper focuses on improving the EF method by taking into account the actual shape of EF during the day.

Furthermore, it should be discussed what the effect of uncertainties in LE and AE estimations is on the interpolation/extrapolation, because in this study these errors are ignored.

In order to focus on the interpolation/extrapolation algorithm errors only, we do not take into account errors in instantaneous AE and LE estimates. However, we agree that up to now instantaneous evapotranspiration retrieval errors are certainly the prime source of seasonal evapotranspiration estimate errors. Errors in instantaneous AE and ETP are fairly important as well, and the error in AE will be presented alongside those on ETP. The overall uncertainty issue will be discussed in the discussion section.

Section 2.4 discusses the determination of stress periods. Stress periods are defined as follows "stress starts when a large deviation between the potential evapotranspiration and the measured actual evapotranspiration rate is observed ...". What is considered as a large deviation?

Due to land-air interactions, a decrease in measured evapotranspiration is often concomitant with a rise in potential evapotranspiration: a lower evapotranspiration means a dryer and a hotter surrounding climate. Stress is therefore often clearly visible in real vs potential evapotranspiration rate time series. Of course, there is some kind of subjectivity associated with the choice of the starting date of the stress, but here we focus on extensive stress events (more than 4 days long).

Is this depended on the type of vegetation? In Section 3.1.4 it is discussed that Fig.

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4 shows the deterioration of the Nash-Sutcliffe efficiency when satellite overpass time deviates from noon. Fig. 4, however, also shows that for Sorghum the efficiency increases after 13h. This should be explained.

We did not find any clear evidence to explain why 2 of 5 curves continue to peak after noon. This might be due to a different stomatal regime.

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