We would like to acknowledge the work done by the handling editor and the two anonymous referees. We have followed the referees' recommendations, making the necessary changes in the manuscript. Answers to the referees' comments are given below, where the original reviewer's comments are highlighted in quotation marks in order to proceed with a point-by-point response of how we have addressed each concern as requested by the editor. Only comments requiring an answer are hereafter addressed. Please also find attached the revised version, where the title has been changed following both referee's suggestions.

Referee #1

"4. Are the scientific methods and assumptions valid and clearly outlined?
No, they are not. Further description of applied model is necessary. For example, the article does not describe details of the nature of the information: "source of information: it has been achieved from remote sensing data processing"(1). In this case, it has not been specified what data from the remote sensors was used. "
Our main topic was the derivation of spatial fields of ET from the Hargreaves equation/model. These results can be used, among others, as inputs to any distributed hydrological model. This was the point of our original comment in the first sentence of the abstract, which has been removed in the revised version of the manuscript, since it has led to confusion about the paper's goal. From this point of view, the required description of the model/equations is detailed in subsections 2.2, but following the referee's suggestion, further descriptions are included for a better comprehension. Thus, more information regarding nature of information is provided in subsection 2.1. (remote sensing data, sensors at weather stations, etc.) as proposed by the referee. Also, a distinction is made within subsections 2.2.1 and 2.2.2. between the application of the equations at point scale and in a distributed manner in terms of input data. Finally, a new figure (Fig. 2) summarizing the spatial calculations following next comment 6, has been added.

"6. Is the description of experiments and calculations sufficiently complete and precise to allow their reproduction by fellow scientists (traceability of results)?
No, it is not. It is necessary to include the basic equations applied (Section 2.2.4 is incomplete). More details are required."
The equations applied are previously explained in subsections 2.2.1 and 2.2.2. However, in order to clarify the methodology in the spatial computation, a new figure (Fig. 2) has been added in subsection 2.2.4 and thus, the following figures had to be renumbered in their captions as well as within the document.

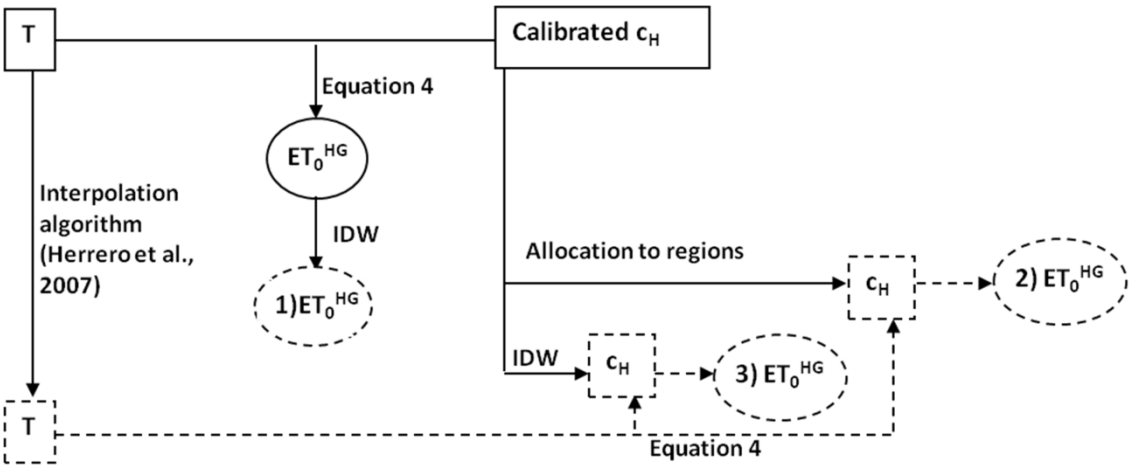

Figure 2. Methodologies for the spatial interpolation of Hargreaves ET_0: 1) C-I type and 2) and 3) I-C types. Dashed lines represent distributed values and solid lines values at point scale (weather station).

"7. Do the authors give proper credit to related work and clearly indicate their own new/original contribution?
No, they do not. The authors do not provide a significant scientific contribution. "
To highlight the new contribution of this work we have included the following new paragraph at the end of section 1: "Special attention has been paid to the spatial dependence of the intra-annual variability of the calibrated values as they are influenced by the location of the weather station in the watershed".

"8. Does the title clearly reflect the contents of the paper?
No, it does not. The article discusses the incorporation of the Hargraves' method.It is a poor analysis of hydrological models."
We appreciate this suggestion, and, following the referee's suggestion, we propose to change the title to a new one:
"Generating reference evapotranspiration surfaces from the Hargreaves equation at watershed scale"

"10. Is the overall presentation well structured and clear?
Yes it is. It is well structured, though the methodological section is insufficient."
We hope to have improved this aspect once all the recommendations have been incorporated into the revised version.

"11. Is the language fluent and precise?
No, it is not. Please check English accuracy."
We appreciate this suggestion and a second professional revision has been made all through paper.

"13. Should any parts of the paper (text, formulae, figures, tables) be clarified, reduced, combined, or eliminated?
Although the overall organization of the paper was understandable and appropriate, I believe the following changes should be born in mind:

Rewrite Capture Figure 1. Fig. 1: Study site location, and weather stations number and DEM the Guadalfeo river watershed. Check the other Figures and Tables to rewrite them, as well."

We appreciate this suggestion and we have rewritten every figure and table caption as follows:

Figures:

Figure 1. Study site location, and weather stations 601, 602, 603, 701, 702, 703, 802 and DEM of the Guadalfeo river watershed.

Figure 3. ET_0^{ASCE} *vs.* ET_0^{FAO} at the four selected weather stations with hourly data (601, 602, 603 and 802) for the evaluation period (20th/11/2004-31st/08/2008).

Figure 4. Daily ET_0 (ET_0^{FAO}) *vs.* Daily ET_0 by Hargreaves (ET_0^{HG}) with a constant coefficient (0.0023) and adjusted c_H at each station (601, 602, 603, 701, 702, 703, 802) for the evaluation period (20th/11/2004-31st/08/2008).

Figure 5. Daily ET_0 (ET_0^{FAO}) *vs.* Daily ET_0 by Hargreaves (ET_0^{HG}) with a constant coefficient (0.0023) and adjusted wet/dry season c_H at each station (601, 602, 603, 701, 702, 703, 802) for the validation period (1st/09/2008-2nd/07/2010).

Figure 6. Regions of influence and ASCE-PM ET_o estimates at the Guadalfeo river watershed for the a) wet season (1st/09-31st/05) and b) the dry season (1st/06-31st/08).

Figure 7. Differences between ET_o obtained by ASCE-PM and Hargreaves with adjusted coefficient interpolated by IDW at the Guadalfeo river watershed.

Figure 8. Modified regions of influence and Hargreaves and differences between ET_o obtained by ASCE-PM and Hargreaves with adjusted coefficient allocated to modified regions of influence at the Guadalfeo river watershed.

Tables:

Table 2. Mean error (*ME* (mm day^{-1})), mean absolute error (*MAE* (mm day^{-1})) and root mean squared error (*RMSE* (mm day^{-1})), ratio between mean estimations (*R*), slope (*m*) and goodness of the linear fit (R^2) between ET_0^{FAO} (independent variable) and ET_0^{ASCE} (dependent variable) at stations with available hourly datasets (601, 602, 603 and 802).

Table 3. Mean error (*ME* (mm day^{-1})) and root mean squared error (*RMSE* (mm day^{-1})) with both the constant 0.0023 coefficient and the global adjusted c_H, and mean values for the evaluation period (20/11/2004-31/08/2008) of temperature (*T*), wind speed (*v*) and relative humidity (HR) at stations 601, 602, 603, 701, 702, 703 and 802.

Table 4. Adjusted c_H values for each hydrological year (September 1st to August 31st) at stations 601, 602, 603, 701, 702, 703 and 802.

Table 5. Mean error (*ME* (mm day^{-1})) and root mean squared error (*RMSE* (mm day^{-1})) with the c_H adjusted by wet/dry season for the evaluation period (20th/11/2004-31st/08/2008) at stations 601, 602, 603, 701, 702, 703 and 802.

Table 6. Mean error (*ME* (mm day^{-1})) and root mean squared error (*RMSE* (mm day^{-1})) for the validation period (1st/09/2008-2nd/07/2010) with the constant 0.0023 coefficient and the c_H adjusted by wet/dry season at stations 601, 602, 603, 701, 702, 703 and 802.

Table 7. Mean (μ (mm day^{-1})) and standard deviation (σ (mm day^{-1})) of the difference between ASCE-PM ET_0 estimates at the Guadalfeo river watershed and

different alternatives per hydrological year: a) IDW to Hargreaves estimates at each station with adjusted c_H, (C-I method type) b) distributed computation of Hargreaves equation with adjusted c_H allocated to regions of influence c) distributed computation of Hargreaves equation with adjusted c_H allocated to modified regions of influence d) distributed computation of Hargreaves equation with IDW to adjusted c_H.

"Specific comment
Page 4817, paragraph 15: Define CH, Hargreves coefficient (CH) "
The following sentence has been rewritten as follows: " In this context, the application of the Hargreaves equation requires an analysis of the spatial distribution of its parameter (c_H, known as Hargreaves coefficient)".

"Page 4819, before paragraph 5 (1): Include further and more detailed description and method applied. "
Following comment 4, more description regarding source of information has been included in the revised version.

"Paragraph 5: Specify what the numbers, for example the number 802, mean when naming stations: (802 Station in Figure 1), idem in the following example (701 Station…)"
Numbers express the coding used by the regional administration in the different networks as their names are rather local. Thus, RIA network numbers their stations from 601 onwards, RAIF from 701 and the stations set up within the framework of this project use 801, even though there was only one weather station available (802) from this network for the evaluation period of this study. We decided to keep this numbering in order to simplify figures and tables, and so Fig. 1 shows their location within the watershed and Table 3 shows certain mean characteristics that may give some idea of the conditions in the surroundings of the stations (Altitude, temperature, wind speed, etc.). However, for a better understanding, the following sentence has been added in the revised manuscript in subsection 2.1: "Fig. 1 shows the spatial distribution of weather stations in the Guadalfeo river watershed, where the stations are named after the numbering code used by each network." .

Referee #2

A well written paper on a subject that should be of interest to a variety of applied and basic science researchers. The temporal time scales comparisons should especially be of interest to readers. A few minor changes are suggested:
"1. Included "Hargreaves ET" or "Comparision of ASCE-PM and Hargreaves ET estimates" in the title. "
We appreciate this suggestion and as has been specified in the response to referee 1, the title has been changed as follows: "Generating reference evapotranspiration surfaces from the Hargreaves equation at watershed scale"

"2. More detail about the processing of remotely sensed data should be incorporated in the methods."

After revision to comment 4 of referee 1, we have included in the revised version the following paragraph where reference to the processing of remotely sensed data is provided: "Remote sensing data available from Landsat-5 and Landsat-7 satellites during the study period were used for the computation of the albedo of the surface and interpolated for the whole time lapse on a daily basis (Aguilar et al., 2010)".

"3. The English is quite good but there are a few places where technical editing could improved the readability."
Once again, we appreciate this suggestion and a second professional revision has been made throughout the paper.

"4. I would like to see a bit more information concerning the hydrological stations, especially the surround terrain and vegetation. What do the station numbers represent? "
We acknowledge this suggestion and thus, a detailed description of the different networks of weather stations, their purposes, available sensors and location of the weather stations has been included (see the revised version). As for the station numbers, they express the coding used by the regional administration in the different networks as their names are rather local. So, with the inclusion of the sentence after revision to the last comment of referee 1, we hope to have clarified the numbering codes.