

***Interactive comment on “Spatial uncertainty
assessment in modelling reference
evapotranspiration at regional scale” by
G. Buttafuoco et al.***

Anonymous Referee #2

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Comments to manuscript HESS “Spatial uncertainty assessment in modelling reference evapotranspiration at regional scale” GENERAL COMMENTS The manuscript proposes an innovative methodology aimed to assess spatial uncertainty of a monthly reference evapotranspiration model, resulting from the uncertainties in the input attributes at regional scale. The proposed methodology has been applied to the case study of the Calabria Region. The uncertainties of the input variables considered by the authors are caused by measurement errors in the data and by the incomplete knowledge of the spatial variations and heterogeneities at a spatial scale smaller than the sampling scale. The authors propose to completely characterize the accuracy of

C2163

spatial data including the spatial correlation of the attributes used for estimation, thorough the application of the joint multivariate stochastic simulation. The topic of the manuscript is relevant and perfectly matches the scopes of HESS. I recommend the publication of the manuscript after minor revision. The next section reports a list of specific comments that should be addressed. SPECIFIC COMMENTS In paragraph 2 al the authors introduce a linear function relating $m(x)$, the expected value of the random variable $Z(x)$, to the elevation, assumed as the smoothly varying secondary (external) variable; the authors should better explain the nature of the coefficients $a_0(x)$ and $a_1(x)$, in particular the dependence from the location x and the calibration procedure. TECHNICAL CORRECTIONS - In equation (4) at page 4575 the symbol “L” should be substituted by “l” - At section 15 of page 4575 “ $Z_s(xc)$ ” should be “ $Z_s(x_i)$ ” - At section 10 of page 4576 If N is not equal to n , the symbol N should be introduced.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 7, 4567, 2010.