



Threshold of acceptability in the study of parametric uncertainty

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All model calibrations are subject to parametric uncertainty. The GLUE procedure concurs to estimate such type of uncertainty. According to such methodology, simulated discharges that catch up a likelihood greater than zero are considered behavioural and concur to esteem the uncertainty bands. The present paper aims to study the acceptability threshold influence on the uncertainty of the response of a daily conceptual linear-nonlinear rainfall-runoff model. The study introduces two cases of study. The first one follows a theoretical approach, it uses historical rainfalls and temperatures series, imposing an hydrological model, to obtain a synthetic streamflow series. The parametric uncertainty analysis has been lead varying the acceptability threshold. The achieved result shows that as the threshold value grows the thickness of the uncertainty bands decrease. In the second case of study simulations have been conducted using historical continuous daily series of rainfall, temperature and discharge, recorded for 9 years on the river basin of Oreto (Palermo, Italy). The achieved results are similar to the ones obtained with the theoretical approach. In both cases it has been tried to quantitatively tie the threshold value to the band thickness.