UNIVERSITÀ DELLA CALABRIA

DIPARTIMENTO DI
INGEGNERIA PER L'AMBIENTE
E IL TERRITORIO
E INGEGNERIA CHIMICA
DIATIC

Dear Editor,

I'm writing concerning the proofreading of the paper "Impact of high-resolution sea surface temperature representation on the forecast of small Mediterranean catchments' hydrological responses to heavy precipitation", by Senatore et al.

After several rounds of corrections carried out with the highly professional Copernicus typesetting service, I have realized, in the very last proofread, that one sign in an equation was written wrongly. Specifically, Eq. (2) describing the Equitable Threat Score (ETS) is wrongly written as follows:

$$ETS = \frac{hits - hits_r}{hits + misses + false\ alarms + hits_r}$$

While it should be written as follows:

$$ETS = \frac{hits - hits_r}{hits + misses + false\ alarms - hits_r}$$

such as it is reported in several other articles using this score and, mainly, in the main reference we have cited in the article (Wilks, 2006), at page 267 (please find below, for your convenience, a screenshot of that page, where $a = hits$, $a_{ref} = hits_r$, $b = false\ alarms$ and $c = missed$).

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A skill score in the form of Equation 7.4 can be constructed using the threat score (Equation 7.8) as the basic accuracy measure, using TS for random (Equation 7.14) forecasts as the reference. In particular, $TS_{ref} = a_{ref}/(a+b+c)$, where Equation 7.14a implies $a_{ref} = (a+b)(a+c)/n$. Since $TS_{perf} = 1$, the resulting skill score is

$$GSS = \frac{a/(a+b+c) - a_{ref}/(a+b+c)}{1 - a_{ref}/(a+b+c)} = \frac{a - a_{ref}}{a - a_{ref} + b + c}. \qquad (7.18)$$
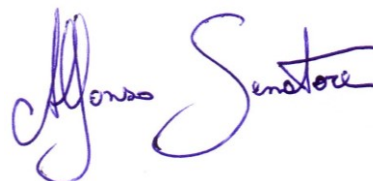
This skill score, called the Gilbert Skill Score (GSS) originated with Gilbert (1884), who referred to it as the ratio of success. It is also commonly called the Equitable Threat Score (ETS). Because the sample size n is required to compute a_{ref}, the GSS depends on the number of correct no forecasts, unlike the TS.

It is worth it to point out that this is 'simply' a typo, which does not affect in any way the results and the conclusions of the article. However, in my opinion (and, I'm sure, also in yours), it is

important to perform this correction, even if maybe it is a bit late, for the sake of providing the readers with the most accurate information possible.

Best regards

On behalf of the authors
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