



Interactive comment on “Technical Note: The Normal Quantile Transformation and its application in a flood forecasting system” by K. Bogner et al.

E. Todini (Referee)

ezio.todini@unibo.it

Received and published: 6 December 2011

The authors, present a technical note on the problem of how one can estimate the probability in the tail of a distribution when using the Normal Quantile Transform. The problem is rather well known and, although several approaches have been proposed and used (see for instance the recent Coccia and Todini, 2011) it still deserves more attention and deeper insight. The paper is well written, but, although it discusses a couple of alternatives, I am not sure that it can really meet the scope of clarifying the actual points.

First of all I would suggest to the authors to eliminate the R terminology and the R examples since I cannot find a reason for its inclusion since it does not add information while it reduces readability. The second point is that lines 3 to 10 in page 9279 do not clarify what the authors do to estimate predictive uncertainty. What is the role of the “minimization of the error between the recent past observed and simulated discharge values”. Is this minimization done prior to enter into the HUP processor and the NQT transformation? Or is it applied after the HUP processor? In the first case, the minimization should be run over all the past observations in order to make the HUP consistent with future values, while in the latter case the minimization would modify in the predictive uncertainty properties estimated using the HUP. The third point (lines 4-9 page 9280) is that the recent work of Krzysztofowicz is definitely oriented to the fitting of probability distributions to overcome the tails problems. In any case the authors should recognize that all the available uncertainty processors (HUP, BMA, QR and MCP) imply stationarity in time, otherwise they could not be used. The fourth point is that the figures are unclear and moreover it is not clearly explained how the authors can claim that the uncertainty band is (or is not) too wide. I would also expect that the author show if the predicted uncertainty probability density matches the residuals (observed – expected value of prediction conditional to the model). On this point see for instance figures 19 and 20 of Coccia and Todini, 2011. Few additional minor issues are: Quoting the NQT means to refer to its inventor, who is not Krzysztofowicz, who correctly quoted Van der Waerden. The correct references are: Van der Waerden (1952, 1953a, 1953b). Line 26-27 Page 9276. The reference Todini, 2008 is wrong sing MCP does not make use of HUP. This reference should be shifted at the end of the second line in page 9277 after Seo et al. (2006).

References.

Coccia, G. and Todini, E., 2011. Recent developments in predictive uncertainty assessment based on the model conditional processor approach, *Hydrol. Earth Syst. Sci.*, 15, 3253–3274, 2011.

Van der Waerden, B. L.: Order tests for two-sample problem and their power I, Indagat. Math., 14, 453–458, 1952.

Van der Waerden, B. L.: Order tests for two-sample problem and their power II, Indagat. Math., 15, 303–310, 1953a.

Van der Waerden, B. L.: Order tests for two-sample problem and their power III, Indagat. Math., 15, 311–316, 1953b.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 8, 9275, 2011.

HESSD

8, C5166–C5168, 2011

Interactive
Comment

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper

