

Interactive comment on “The application of new distribution in determining extreme hydrologic events such as floods” by Łukasz Gruss et al.

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Received and published: 20 August 2020

The article: "The application of new distribution in determining extreme hydrologic events such as floods" analyses a new 4-parameter distribution, which is the Dual Gamma Generalized Extreme Value Distribution (GGEV) and several 3-parameter distributions (Pearson type III, Log-Normal, Weibull and Generalized Extreme Value). An interesting selection of rivers located in Poland and the Czech Republic deserves a special mention. Additionally, in these countries, there are no clear guidelines on which methods (in Flood Frequency Analysis) and which probability distributions should be used. The introduction of the article shows how many publications have been written about stochastic models, but new models are still being created. The four-parameter distribution was developed by Nascimento, Bourguignony, and Leao (2016). A novelty

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in this article is the analysis of the GGEV model using a long series of observations such as water flows. The creators of the GGEV model tested it only with water levels and precipitation values. Another advantage of the work is the analysis of 3-parameter distributions because there is little information about them. The authors used the often encountered tests, such as the Kolmogorov-Smirnov test and the Chisquare test, and used the Mean Absolute Relative Error test. The latter finally decided which model was best fitted. Their work shows that the best fit according to the Mean Absolute Relative Error test was obtained with the new four-parameter distribution - GGEV. The article, if published, will be used by both scientists and practitioners. I recommend this article for publication.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., <https://doi.org/10.5194/hess-2020-173>, 2020.

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