Choice of a regional flood frequency distribution in the United Kingdom

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L-moment diagrams are popular tools in hydrology to ascertain a regional frequency model. A new bivariate
extension of the well-known Hosking & Wallis goodness of fit (GOF) measure will be presented, with emphasis
on the graphical interpretation of the test. New developments will be presented showing how the new GOF measure
can be applied with a four parameter kappa distribution. Based on analysis of 564 pooling groups from the United
Kingdom, results are presented demonstrating that a three-parameter version of the kappa distribution with a fixed
value of the fourth parameter can provide a better description of the regional annual maximum flood data than both
the Generalized Logistic (GLO) and the Generalized Extreme Value (GEV) distributions.