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# An improved Fuzzy Kappa statistic that accounts for spatial autocorrelation

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Abstra

The Fuzz al raster maps. Th edit to cells based on ries are found at d Kappa statistic o the expe nes absence of spati l autocorr become less likel ial autocorr n the true expected appear to have co more, the Fuzzy Kappa may be biased, as it systematically attributes lower agreement to maps

with stronger spatial autocorrelation. This paper proposes an improved Fuzzy Kappa statistic that is based on the same local agreement and has the same attractive properties as the original Fuzzy Kappa. The novelty is that the new statistic accounts for spatial autocorrelation, such that the expected Fuzzy Kappa for maps that are not cross-correlated is equal to zero. The improved statistic is applied on two cases to demonstrate its properties.

Keywords: Fuzzy Kappa | Map comparison | Accuracy | Validation

## Acknowledgements

This paper addresses the most frequently asked question of Map Comparison Kit users: ‘Why do I get negative Fuzzy Kappa values for maps that appear quite similar?’ I would like to thank the users for sending their feedback and enabling RIKS to improve on the methods and software. The elaborate and detailed feedback of three anonymous reviewers has been very helpful and is greatly appreciated.

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