

National Institute for Space Research (INPE)
São José dos Campos-SP-Brazil
e-mail: rolf.simoes@inpe.br

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The R Journal

Dear Catherine Hurley,
Editor-in-Chief

We are pleased to submit our manuscript entitled “The segmetric Package: Metrics for Assessing Segmentation Accuracy for Geospatial Data” for your consideration. Our manuscript describes “segmetric”, a free open source software package for for analyzing and evaluating geospatial segmentation of satellite images.

Image segmentation accuracy assessment is often overlooked as an important component of image segmentation analysis. Costa et al. (2018)¹ state that about 31% of reviewed papers do not report how the segmentation accuracy is estimated and that 25% of papers only use visual inspection to assess segmentation accuracy. Besides, those papers that assess segmentation accuracy provide their own code, which is both prone to errors and hard to compare to similar papers.

The “segmetric” package unifies code and knowledge spread across scientific papers and it also allows users to implement or create new metrics, providing more possibilities to evaluate the segmentation accuracy. As far as we know, “segmetric” is the first available package in R language that provides several supervised metrics that help users evaluate the quality of segmentation based on reference polygons, and allows to spatially visualize the results.

Our manuscript presents an application in agriculture. Data referring to the size and number of fields — which often come from segmentation algorithms — provide fundamental information for estimating productivity and other socioeconomic variables related to food security and the environment. In this application, we used the “segmetric” package to evaluate the accuracy and tune the parameters used by a segmentation algorithm.

We believe that this package may be of interest to the readership of this Journal. Our manuscript is original and was not submitted to any other journal.

We hope that our manuscript may find its way into your prestigious journal.

Sincerely yours,

Rolf Simoes
on behalf of all co-authors

¹H. Costa, G. M. Foody, and D. S. Boyd. Supervised methods of image segmentation accuracy assessment in land cover mapping. *Remote Sensing of Environment*, 205:338–351, 2018. ISSN 0034-4257. doi:10.1016/j.rse.2017.11.024