

## Landsat 8 bi-temporal dataset

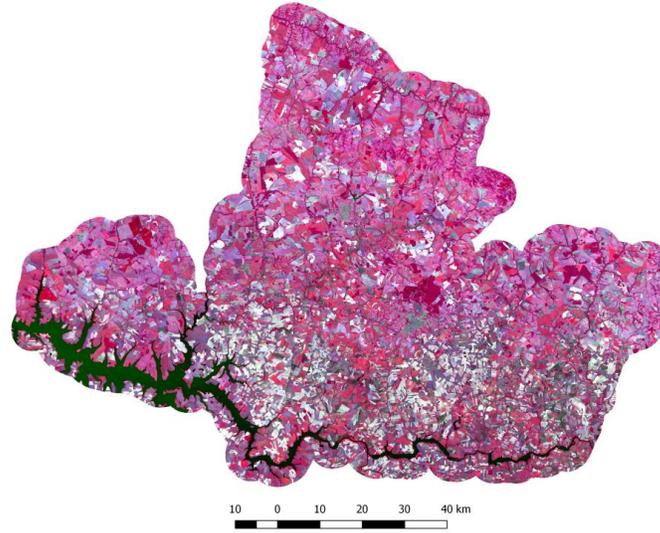
Spatial resolution 30 m; Land cover: Agriculture / Urban (Figure S1);

57 Segmentations using Multiresolution Segmentation (eCognition) on 6 bands (both: 4, 5, 6)

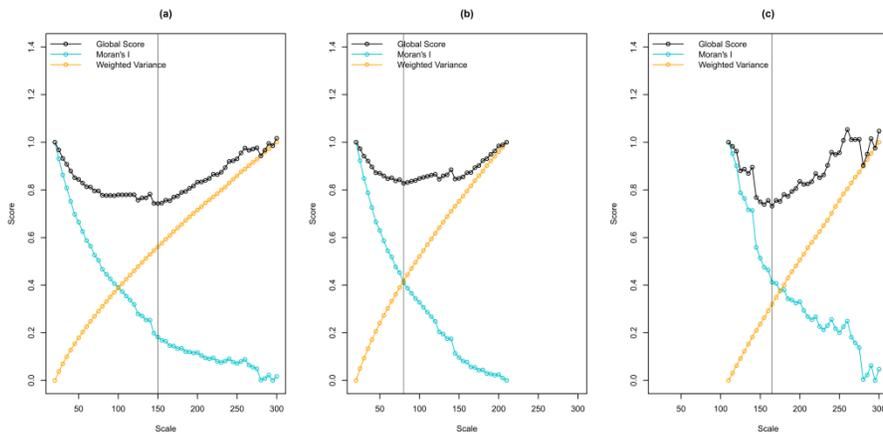
Scale 20 – 300 (increment of 5); Shape 0.1 / Compactness 0.5

In Figure S2 the “optimal” segmentation changes with the subset of segmentations used for evaluation.

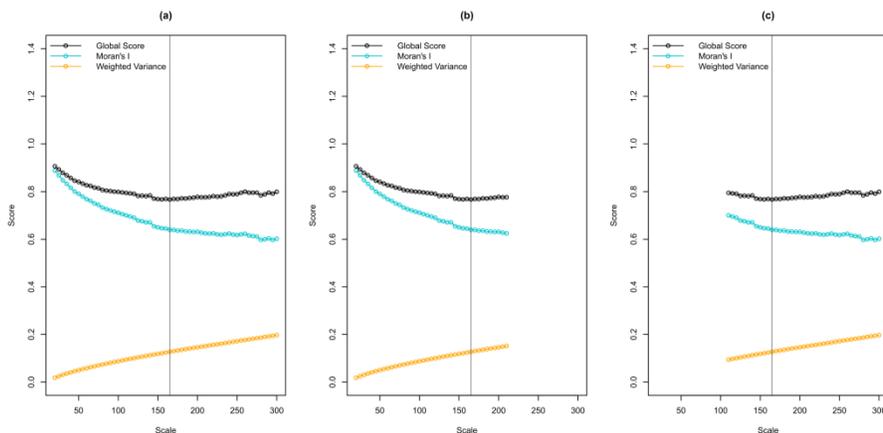
Figure S3 exhibits a stable optimum due to the proposed alternative normalization.



**Figure S1.** False color composite (bands 5,6,4) of the Landsat-8 scene



**Figure S2.** Results for original Global Score, Moran's Index and Weighted Variance based on the NIR band of the Landsat-8 data set (a) GS calculated for all 57 segmentations; (b) GS calculated on the subset of Scale lower than 210, (c) GS calculated on the subset of Scale larger than 110



**Figure S3.** Results for proposed Global Score, Moran's Index and Weighted Variance based on the NIR band of the Landsat-8 data set (a) GS calculated for all 57 segmentations; (b) GS calculated on the subset of Scale lower than 210, (c) GS calculated on the subset of Scale larger than 110

## Sentinel-2 dataset

Spatial resolution 10 m; Land cover: Agriculture / Mixed Forest / Urban (Figure S4);  
100 Segmentations using Multiresolution Segmentation (eCognition) on 4 bands (2, 3, 4, 8)  
Scale 10 – 1000 (increment of 10); Shape 0.1 / Compactness 0.5

In Figure S5 the “optimal” segmentation changes with the subset of segmentations used for evaluation.  
Figure S6 exhibits a stable optimum due to the proposed alternative normalization.

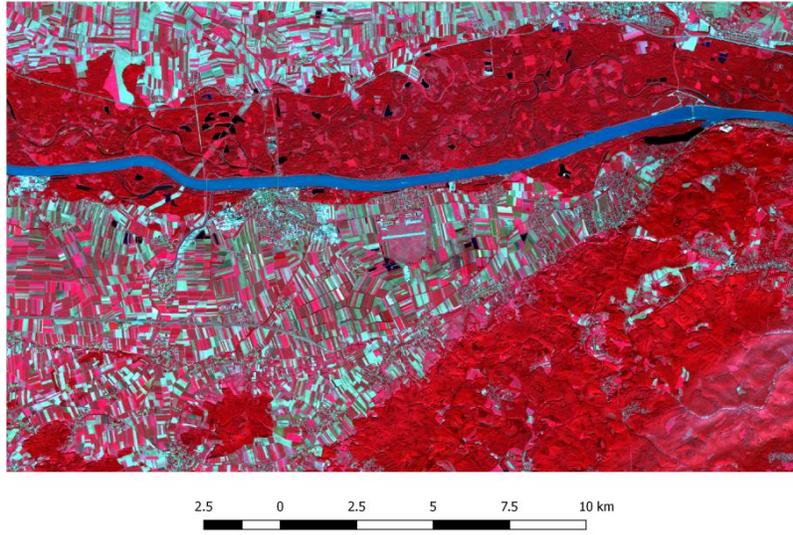


Figure S4. False color composite (bands 8,4,3) of the Sentinel-2 scene

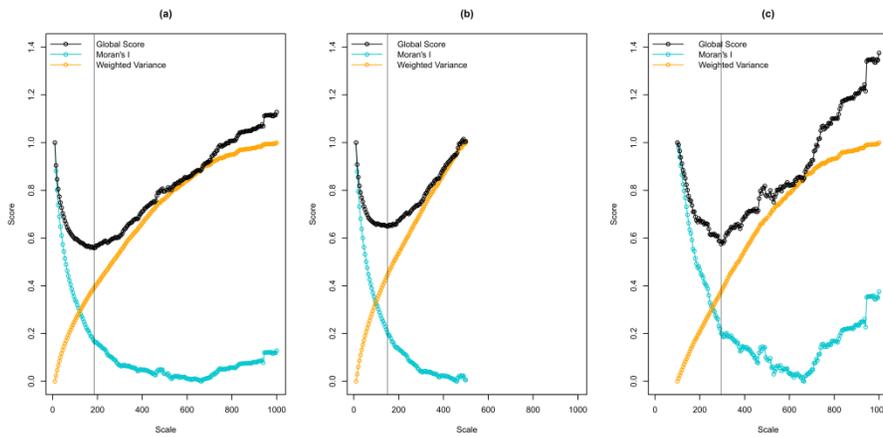


Figure S5. Results for original Global Score, Moran's Index and Weighted Variance based on the NIR band of the Sentinel-2 data set (a) GS calculated for all 100 segmentations; (b) GS calculated on the subset of *Scale* lower than 500; (c) GS calculated on the subset of *Scale* larger than 100

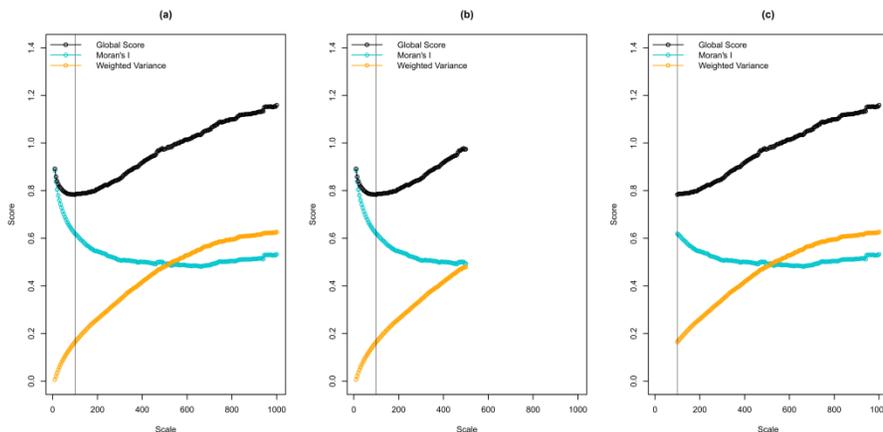


Figure S6. Results for proposed Global Score, Moran's Index and Weighted Variance based on the NIR band of the Sentinel-2 data set (a) GS calculated for all 100 segmentations; (b) GS calculated on the subset of *Scale* lower than 500; (c) GS calculated on the subset of *Scale* larger than 100

## WorldView-2 dataset

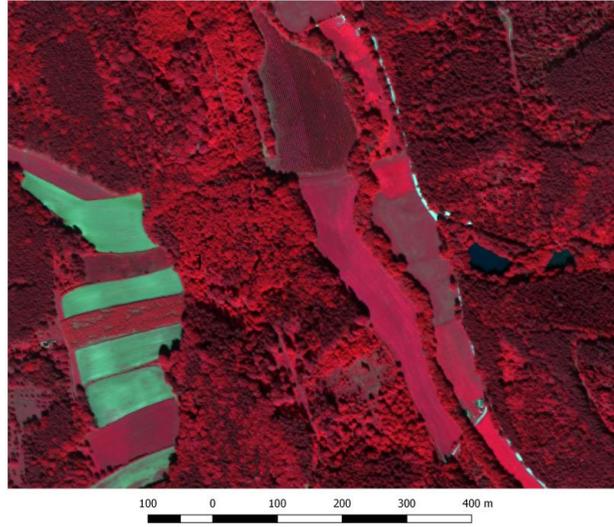
Spatial resolution 2 m; Land cover: Mixed Forest (Figure S7);

100 Segmentations using Multiresolution Segmentation (eCognition) on 8 bands

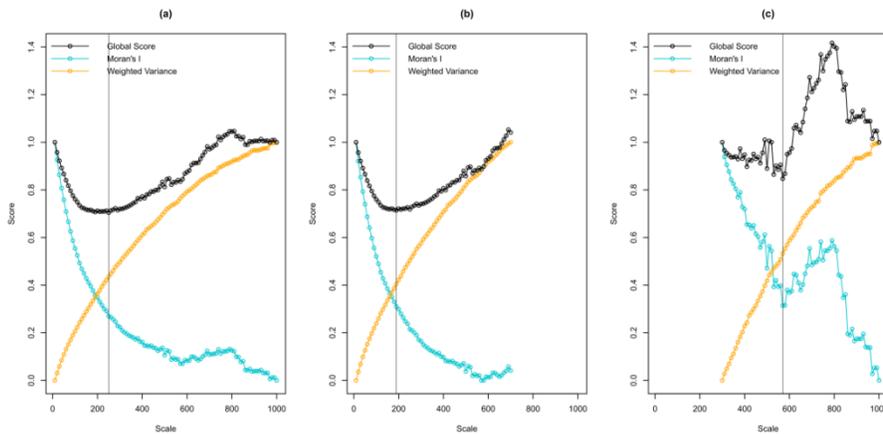
Scale 10 – 1000 (increment of 10); Shape 0.1 / Compactness 0.5

In Figure S8 the “optimal” segmentation changes with the subset of segmentations used for evaluation.

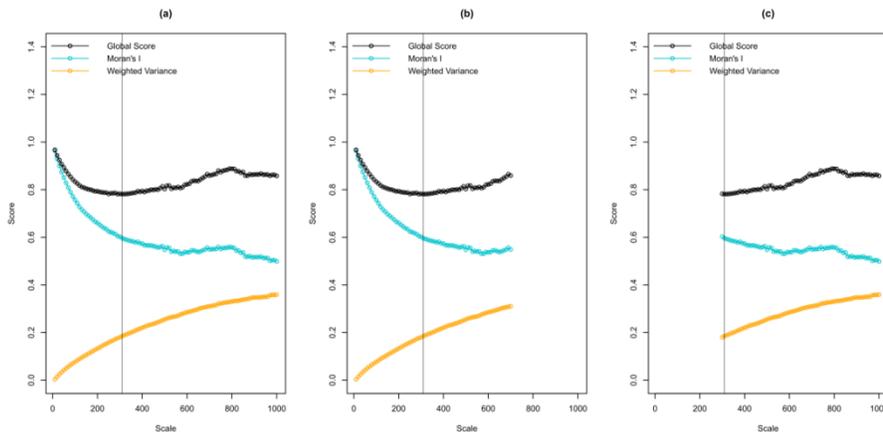
Figure S9 exhibits a stable optimum due to the proposed alternative normalization.



**Figure S7.** False color composite (bands 7,5,3) of the WorldView-2 scene



**Figure S8.** Results for the original Global Score, Moran's Index and Weighted Variance based on the NIR band of the WorldView-2 data set (a) GS calculated for all 100 segmentations; (b) GS calculated on the subset of *Scale* lower than 700; (c) GS calculated on the subset of *Scale* larger than 300



**Figure S9.** Results for the proposed Global Score, Moran's Index and Weighted Variance based on the NIR band of the WorldView-2 data set (a) GS calculated for all 100 segmentations; (b) GS calculated on the subset of *Scale* lower than 700; (c) GS calculated on the subset of *Scale* larger than 300