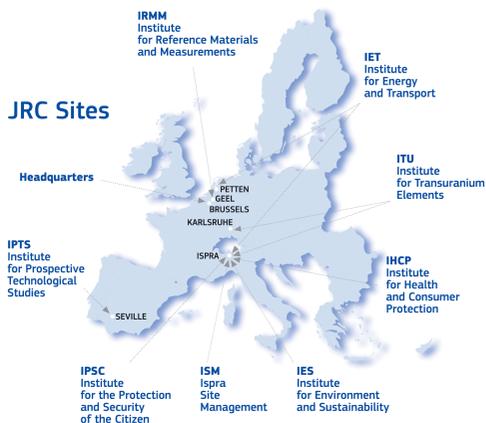


Joint Research Centre

The European Commission's
in-house scientific service



As the Commission's in-house science service, the Joint Research Centre's mission is to provide EU policies with independent, evidence-based scientific and technical support throughout the whole policy cycle.

Working in close cooperation with policy Directorates-General, the JRC addresses key societal challenges while stimulating innovation through developing new methods, tools and standards, and sharing its know-how with the Member States, the scientific community and international partners.

Serving society
Stimulating innovation
Supporting legislation

European Commission
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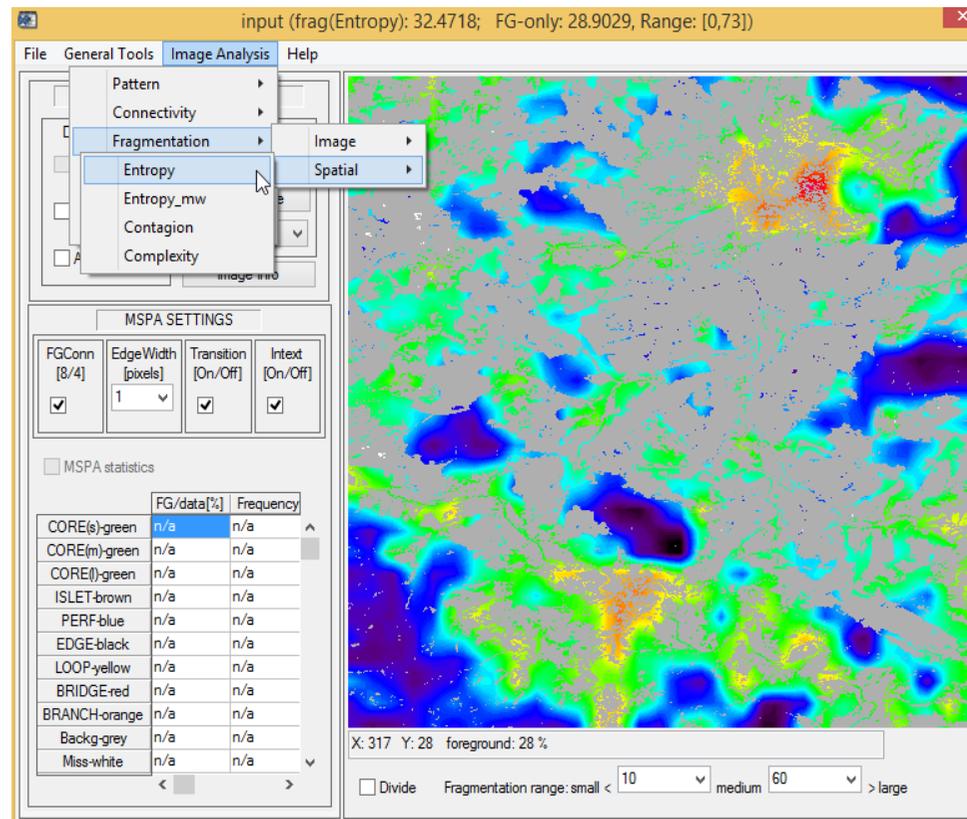
Tel.: +39 0332-785002
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E-mail: peter.vogt@jrc.ec.europa.eu

<https://ec.europa.eu/jrc>

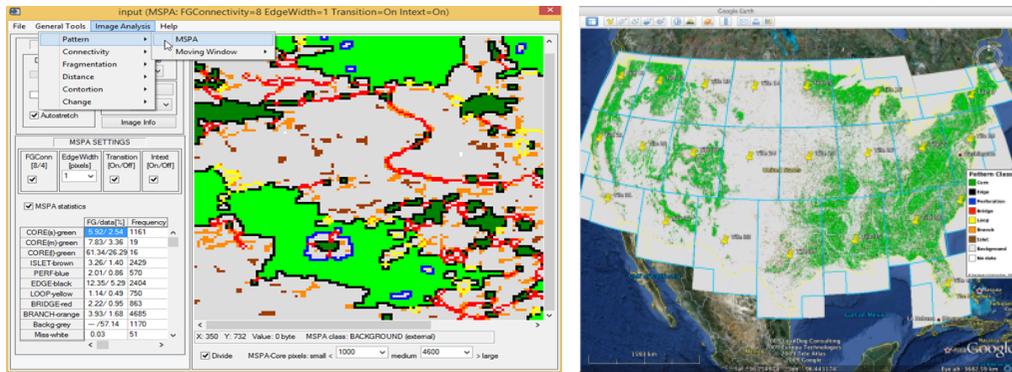
GuidosToolbox

Image analysis of fragmentation, connectivity, pattern, distance, ...

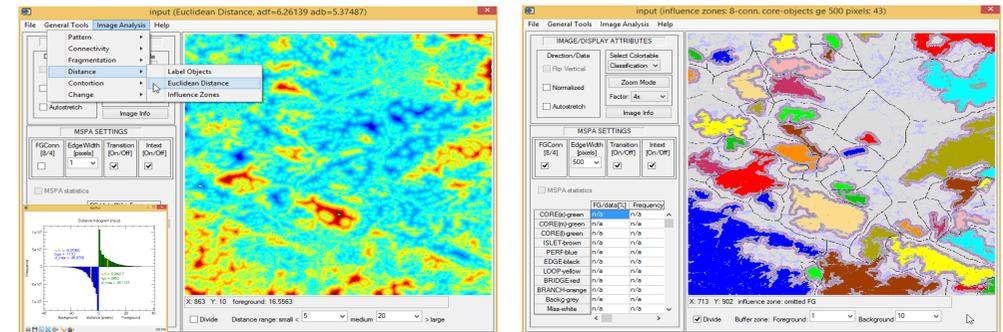


The free software **GuidosToolbox (GTB: Graphical User Interface for the Description of image Objects and their Shapes)** contains a wide variety of generic raster image processing routines. All tools are based on geometric principles and can thus be applied to any kind of raster data, for individual analysis as well as batch-processing.

Morphological Spatial Pattern Analysis (MSPA) describes the topology of image objects and automatically detects connecting pathways as well as perforations:

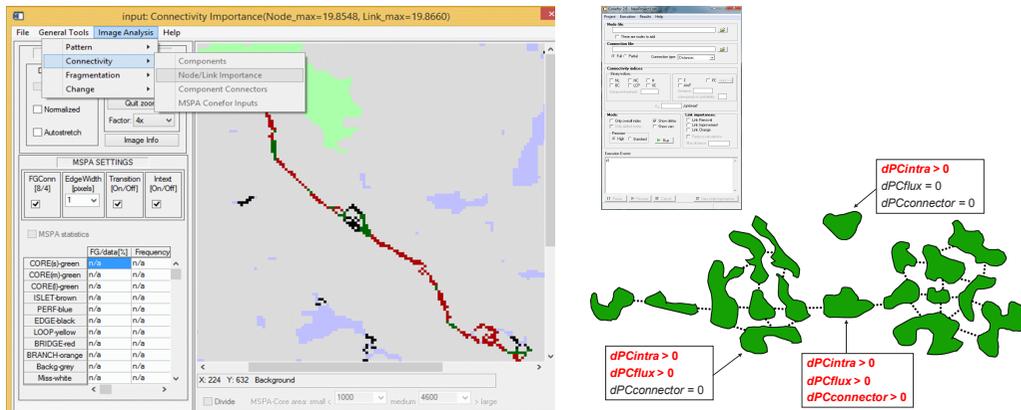


Distance analysis is another focal point in GTB. Morphological distance maps detect compact objects and the distance histogram summarizes their spatial configuration. Further options are object labelling and a watershed segmentation to delineate influence zones and optional outreach areas for all image components.



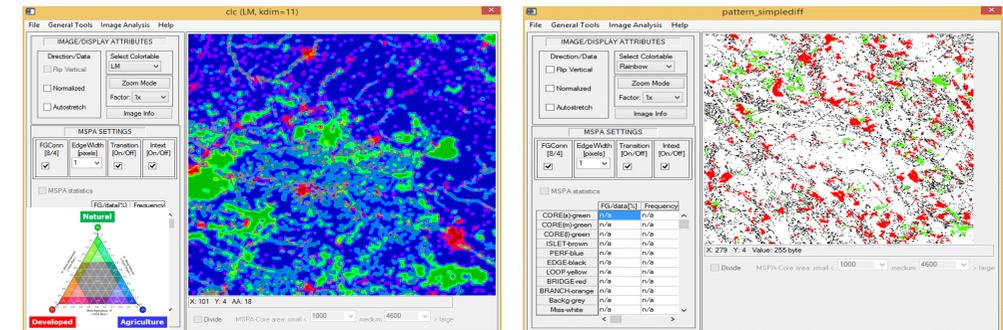
The **Landscape Mosaic** shows the relative contribution and impact of three dominant land cover classes in a user-defined neighborhood. A customized morphological post-classification change analysis was designed to neglect spurious changes and detect the essential gain and loss areas only.

MSPA-detected nodes and links can be transferred into a network setup for further connectivity analysis within GTB, or the included graph theory software *Conefor*, for example to rank and measure the importance for each node and link.



The front cover of this leaflet shows an example of fragmentation analysis using the holistic concept of spatial entropy resulting in a normalized and spatially explicit indicator. GTB provides additional routines addressing several fragmentation aspects.

A variety of additional methodologies can be used to analyze contagion, composition, configuration, isolation, and contortion, or the irregularity of the image objects.



Further generic image processing routines allow for recoding, edge detection, noise removal, convolution, equalization, thresholding, and exporting data as GoogleEarth image overlays. The software collection is complemented by GDAL command line tools and the powerful OpenEV raster/vector data viewer.

GuidosToolbox is available for free for Mac OSX, Linux, and MS-Windows. Individual workshops can be arranged to provide detailed introduction on the features and the use of the software, including hands-on training with sample data. The workshop material can also be installed into GTB. More information on the software and the workshops can be found at: <http://forest.jrc.ec.europa.eu/download/software/guidos>

