

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

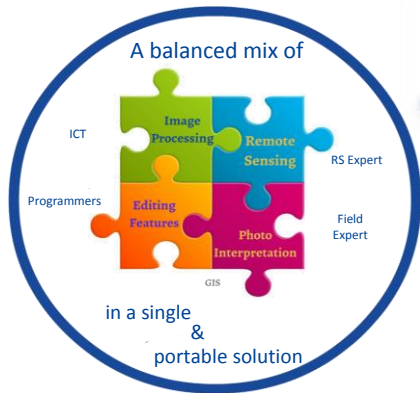
European Commission
Joint Research Centre (JRC)
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IMPACT TOOLBOX

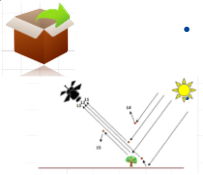
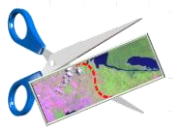
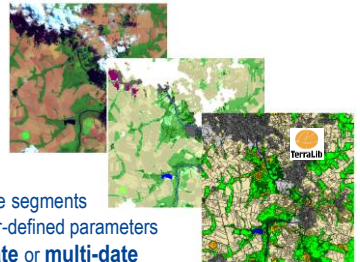
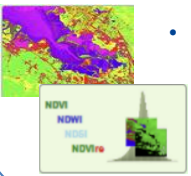
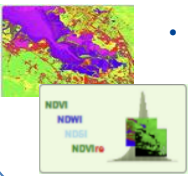
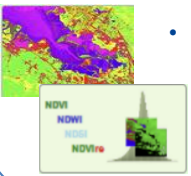
- ✓ Portable GIS
- ✓ Free & Open Source
- ✓ Online / Offline
- ✓ Easy to Use

OSGeo4W Server Client

Runs on Windows Xp/7/8/10

IMPACT Toolbox offers a combination of remote sensing, photo interpretation and processing technologies in a portable and stand-alone GIS environment, allowing non specialist users to easily accomplish all necessary pre-processing steps while giving a fast and user-friendly environment for visual editing and map validation. No installation or virtual machines are required.

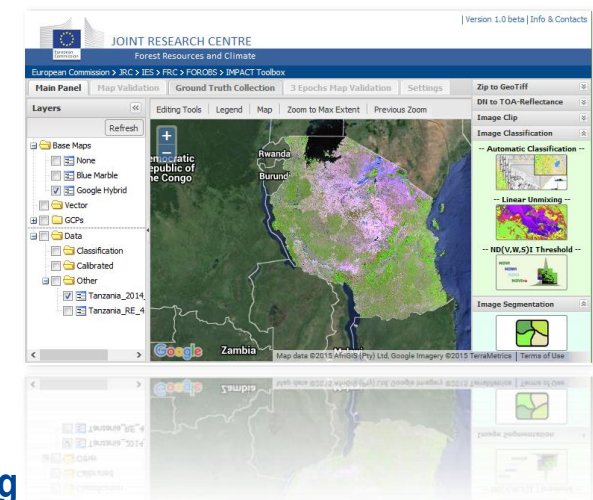
Batch Processing Modules

- 
 Zipped Landsat TM/ETM+/OLI archives (.tar.gz or .tar.bz) are extracted and the R, G, B, NIR, SWIR1, SWIR2 bands are **layer stacked** and saved as GeoTIFF files. Conversion from **raw digital number (DN)** to **Top-of-Atmosphere reflectance (TOA)** data from different sensors (Landsat or RapidEye) to minimizing spectral differences caused by acquisition time, sun elevation, and sun-earth distance.
- 
Image clipping is a crucial step to reduce processing time and data volume. The user can clip any GeoTIFF using predefined vector layer(s) or by drawing one or more features on the map
- 
Fully automatic pixel-based classification module based on pre-defined rules aiming to convert the spectral data into discrete thematic classes. The algorithm further retrieves the sun azimuth from the metadata to apply 3D models and morphological filters for better **cloud and shadow masking**.
- 
Image Segmentation is the process of partitioning an image into multiple segments on the base of spectral, geometrical or textural properties together with user-defined parameters describing size, shape and similarity versus adjacent segments. **Single-date** or **multi-date** segmentation can be **automatically labelled** according to the class majority from pixel based classification results.
- 
Linear Spectral Unmixing (LSU) module decomposes pixels in endmember fractions (soil, vegetation, water), thus reducing image dimensionality while preserving most information required for further mapping activities.
- 
Index builder module calculates a normalized index such as **ND(V,W,S)** and splits it into a predefined number of clusters.

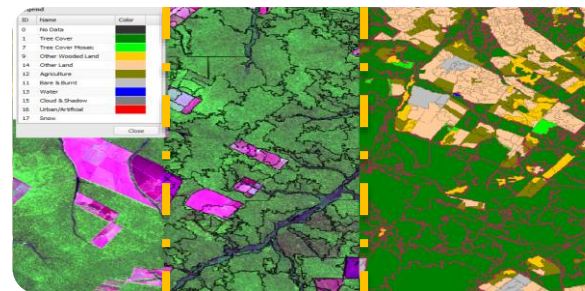
Further Processing Tools (image mosaicking; change detection; SPOT/Sentinel-2 support)

Quick Data Visualization

- Raster and vector visualization
- Adjustable bands and stretch
- Fast rendering with tiling approach
- Data auto-load and refresh
- Processing buttons for easy access



Map Visualization & Editing



- Easy and efficient editing environment
- Selection and recoding by :
 - class or cluster
 - single or multi polygon
- 1 click edit
- Class masking / showing
- Customizable legend
- On the fly .dbf file editing

Ground Truth Collection

Collection of ground truth data at local, national or global scale is now faster with a built-it feature editor supporting either systematic samples collection or wall-to-wall feature labeling.

- Built-it degradation menu with identification of location, causes and intensity
- Customizable legend

ID	Name	Cause1	Comment
1	63	Rubino	Shifting Cultivat

Individual workshops can be arranged to provide detailed introduction on all the features and the use of the software, including hands-on training with sample data. For more information on the software and workshops under: <http://forobs.jrc.ec.europa.eu/products/software>