Use of OSS in the Lifewatch biodiversity research project

Julien Radoux,
C. Rousseau, C. Lamarche, T. De Maet, P. Defourny
Earth and Life Institute, Université catholique de Louvain
J. Delangre, W. Coos, M. Dufrêne
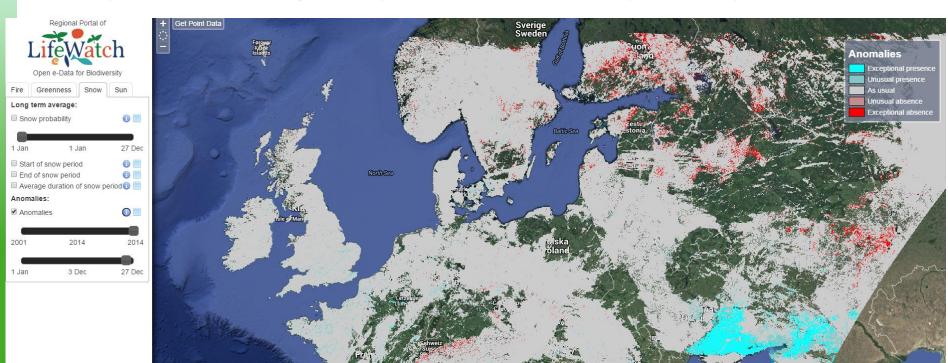Gembloux Agro-bio Tech (Université de Liège)

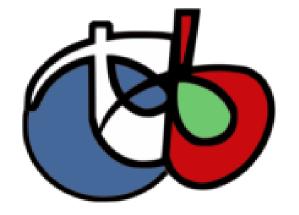# Providing geospatial data for Lifewatch

- Lifewatch is an European Research Infrastructure Consortium

- Data distribution supports biodiversity research (portal using MapServer and OpenLayer)
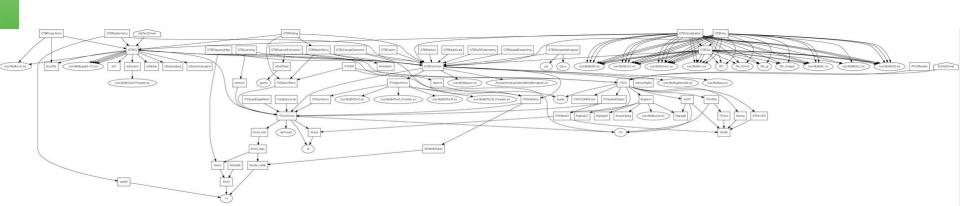
OTB for RS image processing

- Orfeo Toolbox is a C++ Library

- Many tools also available in Apps or from GUI

- Launched by CNES in the frame ORFEO program

Why we use OTB ?

- Built on ITK and gdal
  - Recently upgraded to ITK V4
- Among the first to propose large data handling
  - Multithreading
  - Streaming
- Many recent algorithms have been implemented
- Use of generic programming
- Multi-platform

What we do with OTB ?

- Time series processing
  - Time series analysis for MODIS, SPOT/VGT, MERIS and PROBA-V archives

- Supervised classification
  - Orthophotos of the walloon region

- Spatial analysis tools
  - Efficient map algebra based on muParser
  - « home made » tabulate area and zonal statistics

- Contribute with our own filters
  - Bayesian data fusion for pansharpening

What we don't do with OTB ?

- Image segmentation
  - Sorry, but the best software is not open source
  - Or is it ?

- Accessing large stripes of images
  - E.g. topographic shadow, pixel area computation
  - GDAL has better memory handling for that

- Automated image registration
  - But we'd love to

Other projects using OTB at UCL

- SEN2AGRI (toolbox development, with CESBIO and CS)

- ESA Land Cover CCI (OTB part of classif workflow and conditions processing)