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Lumos

Unlocking STEREO's algorithms with QGIS plugins

Ann Crabbé, Ben Somers

What will I be talking about?

What is LUMOS?

“Unlocking STEREO’s algorithms with QGIS plugins”

+ which algorithms are we talking about?

How did we get here?

Round table & pre-study

QGIS defence

Where will we go from here?

Lumos workflow

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Lumos?

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Unlocking STEREO's algorithms with QGIS plugins

- Valorisation of image processing algorithms
  - QGIS plugins
  - STEREO portal
  - Uniform tutorials & examples/exercises

- Users at different levels
  - Thematic users → user friendly GUI and standard settings
  - Expert users → advanced options
  - Developers → well documented code

OPEN SOURCE & REUSABILITY

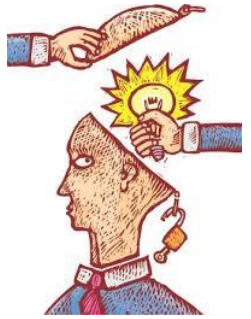
Image processing algorithms

Hyperspectral tools	Contributor	Content
Hyperforest – Local Max Filter	Frieke Van Coillie, UGent	Define tree densities based on local maxima
Hyperforest – pktools	Pieter Kempeneers, JRC	General support for data processing
VIPER 2	Dar Roberts, UCSB and Ben Somers, KU Leuven	Advanced spectral mixture analysis (spectral libraries, endmember selection and MESMA)

Time series tools	Contributor	Content
HISEA - DINEOF	Aida Alvera, ULG	Fill missing data in time series (ocean RS)
FOMO	UCL/KU Leuven/HU Berlin	Pre-processing chain for dense time series analyses

Synthetic Aperture Radar	Contributor	Content
InSAR	Dominique Derauw, ULG	Geo-projection of radar images

Intellectual Property Rights



- **Right of use** from LUMOS towards the algorithm owners
  - Owned by BELSPO? Publically accessible, so no threshold for non-commercial reuse
  - Owned by 3rd parties? Ask written consent
  - *We will only use software/data that is freely available*
- **Right of use** from 3rd party users towards the owners + liability
  - Login + agreement with the ‘Terms of Use’ before download is possible
  - Terms of Use contain:
    - The ownership and contact info
    - Users allowed + usage that is intended + usage that is allowed
    - Liability waiver
    - …

How did we get there?

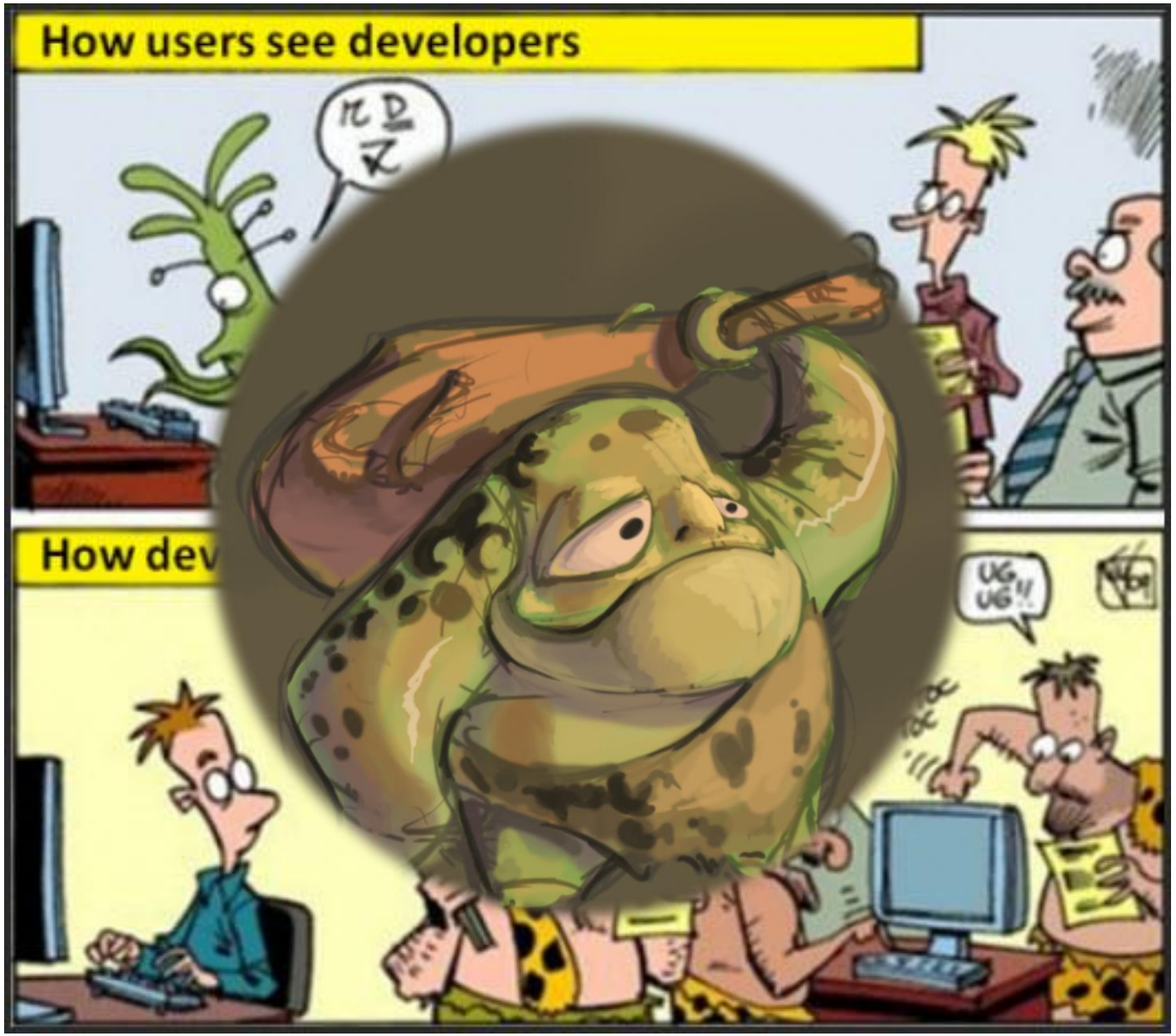
Round table: Jun ‘15

Discussion in June 2015

- Reasearchers, app developers, teachers, end users, project managers
- QGIS
- Uniform tools & uniform documentation (tutorials/examples/…)
- Sharing platform: BELSPO website

Further investigation: Nov ‘15 – Mar ‘16

- Keep it simple: steep learning curves are a deal breaker
- Scientist are no programmers, think about the *user*
- Other *switchers*: ORFEO, EnMap
- App-centered development (like QGIS plugin) and not software-centered (like stand alone toolbox)


How users see developers
How dev
UG UG!!

QGIS

- Free and Open Source
- Mature software
- Support of a wide user/developer community
- Integrated (OSGeo) with GDAL/OGR library, PostGIS database, GRASS, …

Python

- The base language for QGIS plugin writing
- Modern language
- Platform independent
- Some benefits for developers: interpreted, high level, garbage collection, integration/interfaces

Where to go from here?

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Lumos workflow

Task 1: Study content and code

Task 2: Python and PyQGIS development

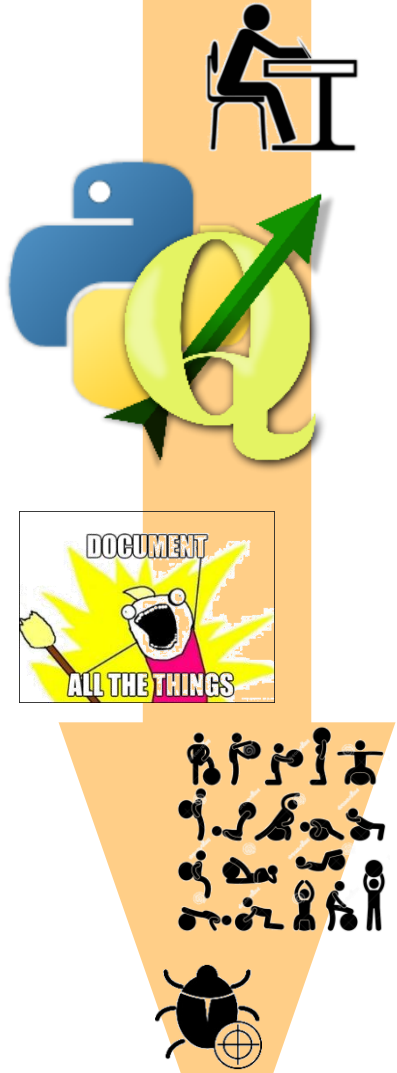
- Core task
- Translated to/re-written in or plugged into Python
- Each tool should serve users at 3 levels
  - Thematic user: User friendly GUI – standard settings
  - Expert user: User friendly GUI – expert options
  - Developer: Well documented code to tweak

Task 3: Documenting code

Task 4: User manual (thematic and expert users)

Task 5:Test data & exercises

Task 6: Debugging



+ Protocol for future STEREO algorithms?

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Questions?

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