

OTB User Days 2017 – Internship presentation – CNES DSO/SI/2A

OPEN EARTH ENGINE: INTEGRATION OF OTB IN AN INTERACTIVE PLATFORM FOR LARGE SCALE REMOTE SENSING AND VISUALIZATION

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- Millions of stored data with the multiplication of earth observation missions ;
- Growing calculation capabilities with High Performance Computing ;
- Willingness to process as closely as possible to the data

EXISTING :

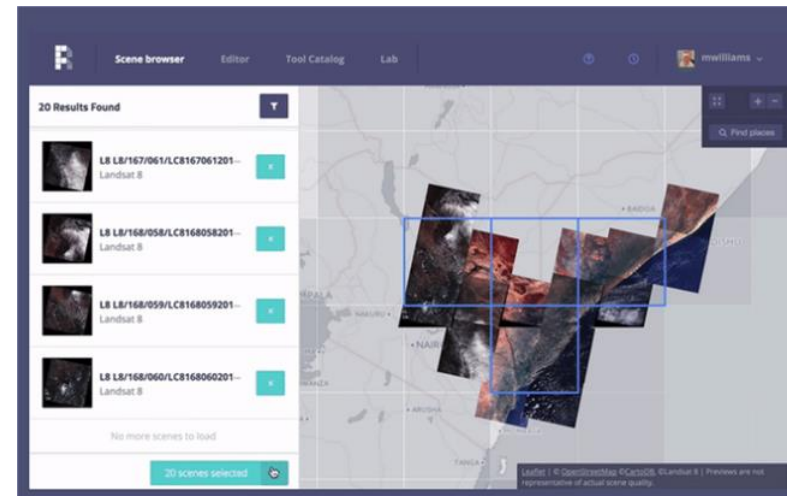


Google Earth Engine

- Provide processes on 40 years bank of satellite images
- Web integrated development environment
- Access to the google servers for the processes
- Service offered by a private company
- Perenniality of data ?

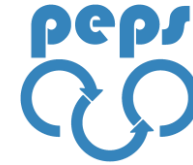


(Azavea, client : NASA,
US departement of Energy)



● Ressources :

- Multiple satellite archive sites: Peps, Theia, Kalideos
- OTB, GDAL, & more for remote processing and visualisation
- HPC structure : HAL



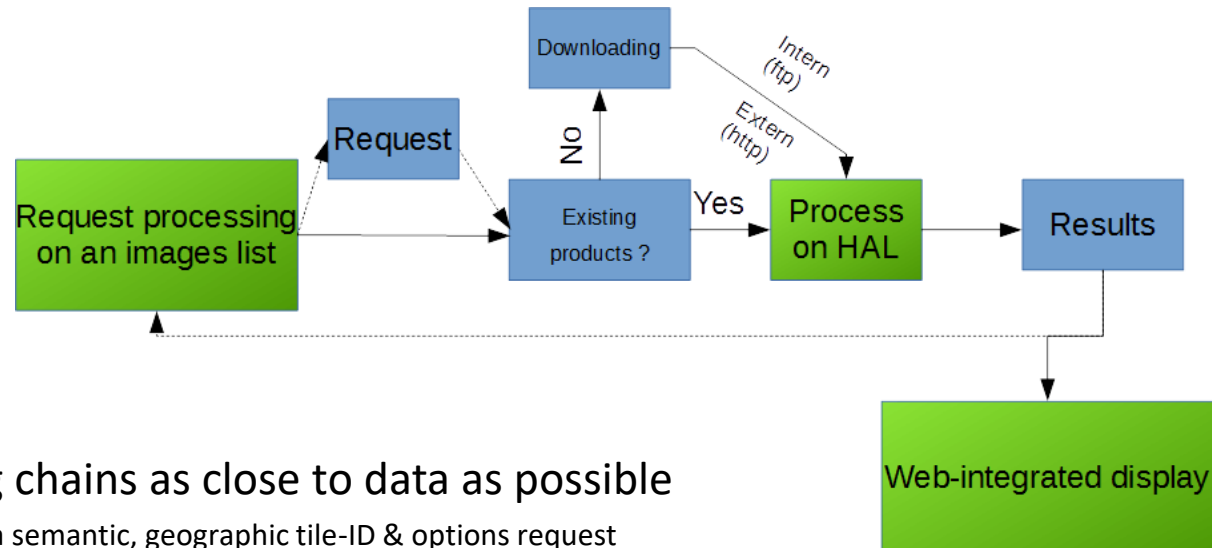
● Existing :

- Set of bash & python scripts related to peps for downloading and processing
- Demonstrator that uses Datacube technology

➔ Limits :

- Can not manage streaming / threading
- Calculations in several stages: data download and ingestion in the datacube and processing
- Datacube-OTB python interface junction does not seem trivial

Operating principle :



● Integrating processing chains as close to data as possible

- Processing performed on a semantic, geographic tile-ID & options request
- Transparent downloading of missing products
- Possibility of chain processing without manipulating the data, in & out images

● Connecting with the HPC structure, HAL :

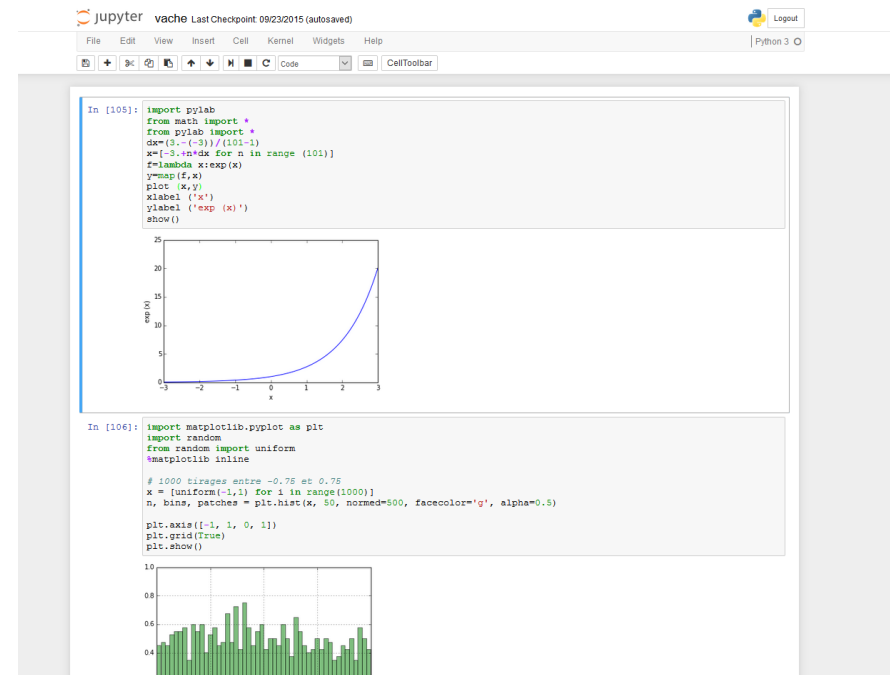
- Threading : Parallelization of calculations for processing in record time

● Graphical interface for viewing results

- Adapted (but not dependant) to Jupyter notebook project
- HTML rendering for an interactive visual on earth map

- Using the Python OTB interface, (mainly) on **jupyter notebook**
- Applications defined in python functions which take one entry & one exit product

➔ Presented in the Jupyter Notebook demonstration



Thank you for your attention