Semantic search applied to Earth Observation products
How to search for Earth Observation imagery that contains coastal cultivated areas?
What we got

This is **urban**

This is **water**

This is **forest**

Orthorectified image

Characterized image

What we need
How to do this?
Semantic content extraction from image is a complex and time consuming task
A different and simpler approach is to use the metadata footprint against exogenous data to perform image characterization.
SLACKER
SimpLe Automated Characterization of EaRth observation products
SLACKER uses Global Land Cover 2000 classification to perform automatic characterization of Earth Observation products
Global Land Cover 2000

World land cover
TIFF file ~ 650 Mo
1 km resolution
1 color = 1 thematic class
22 classes
SLACkER

1. Get footprint bounding box
2. Get corresponding GLC2000 area
3. Process characterization
4. Store results within database

Ingestion

Search

Metadata

Identifier
Description
Copyright
Acquisition date
Acquisition angles
Thumbnail

+ Footprint
Tag table images within database glc2000
>> Add classification columns
>> Processing 10
Crop GLC2000 raster : 24137 6169 156 119
Polygonize extracted raster
Process footprint against Global Land Cover
Store classification

=> 40.89% of Deserts (10 + 14 + 19)
=> 31.89% of Herbaceous (9 + 11 + 12 + 13)
=> 14.71% of Water (20)
=> 9.27% of Cultivated (15 + 16 + 17 + 18)
=> 3.2% of Forests (1 + 2 + 3 + 4 + 5 + 6)

( 28.65 % of 14 : Sparse Herbaceous or sparse Shrub Cover )
( 6.1 % of 18 : Mosaic: Cropland / Shrub or Grass Cover )
( 12.24 % of 19 : Bare Areas )
( 31.88 % of 12 : Shrub Cover, closed-open, deciduous )
( 2.5 % of 3 : Tree Cover, broadleaved, deciduous, open )
( 14.71 % of 20 : Water Bodies (natural & artificial) )
( 0.13 % of 15 : Regularly flooded Shrub and/or Herbaceous Cover )
( 2.81 % of 16 : Cultivated and managed areas )
( 0.69 % of 4 : Tree Cover, needle-leaved, evergreen )
( 0.21 % of 17 : Mosaic: Cropland / Tree Cover / Other natural vegetation )
What's next
Provide classification service through **WPS**
Additionnaly, provide a "true" WPS classification service based on the **OTB** suite service

Segmentation+classification processing with OTB*