High-Res Landsat-8 satellite images for human density prediction

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- Population census is expensive using conventional methods
  - 180 millions euros in France (officials,1999)
- How High-resolution satellites images could explain human density ?
- How to transform HR satellite images to explain human density ?

- Total earth covering defined by path,row grid pattern and achieved every 16 days

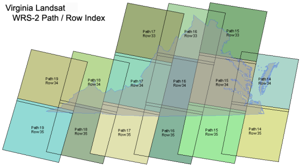


FIGURE : Landsat-8 grid covering (path,row) for Virginia (*USA*)

- Landsat-8 images are georeferenced which means each pixel has (x,y) meter coordinates in a certain Projection Coordinates System (*ex : UTM, Lambert IV, Lambert 93, Web Mercator,...*)

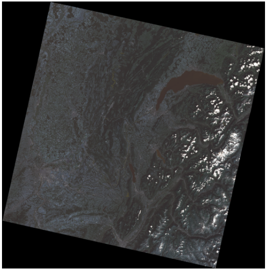
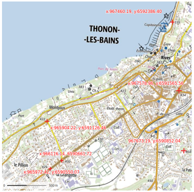


FIGURE : Landsat-8 Eastern-France image path=196,row=028 georeferenced to *UTM* system (image containing city Thonon-les-Bains)

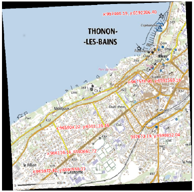
coordinates

- upper-left (,)
- upper-right (,)
- bottom-right (,)
- bottom-left (,)
- center (,)

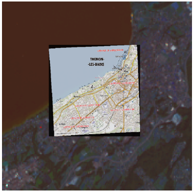
- Landast-8 georeferencing can be checked comparing with another georeferenced source like *IGN* using a *SIG* (open source *QGIS*).



IGN image georeferenced in *Lambert* 93 system

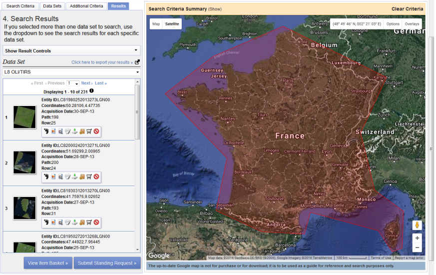


Then IGN image is tranformed to be georeferenced in *UTM* system



Superposition of IGN and Landsat-8 images both georeferenced in *UTM* system

- Query images from *U.S geological Survey* website
  - cloud covering 20%
  - day acquisition
  - between May, 2013 and September, 2013



4. Search Results

If you selected more than one data set to search, use the dropdown to see the search results for each specific data set.

Displaying 1 - 10 of 231

1
Entity ID:LC81980252013273LGN00
Coordinates:50.28106,4.47735
Acquisition Date:30-SEP-13
Path:198
Row:25

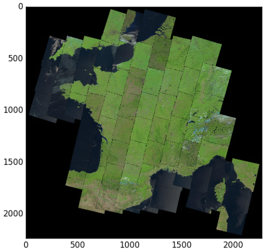
2
Entity ID:LC82000242013271LGN00
Coordinates:51.69299,2.00965
Acquisition Date:28-SEP-13
Path:200
Row:24

3
Entity ID:LC81930312013270LGN00
Coordinates:41.75976,9.02652
Acquisition Date:27-SEP-13
Path:193
Row:31

Entity ID:LC81950272013268LGN00
Coordinates:47.44922,7.96445
Acquisition Date:25-SEP-13

The up-to-date Google map is not for purchase or for download; it is to be used as a guide for reference and search purposes only.

Polygon selection on *USGS* website



Resulted images georeferenced in *UTM* system