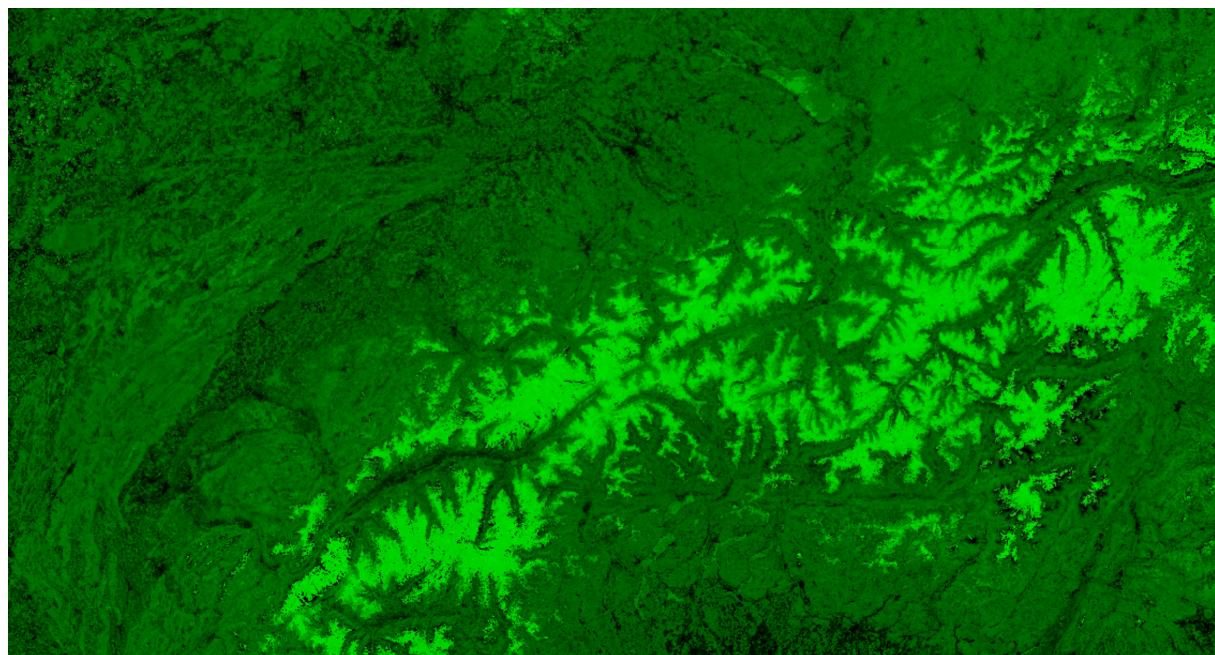
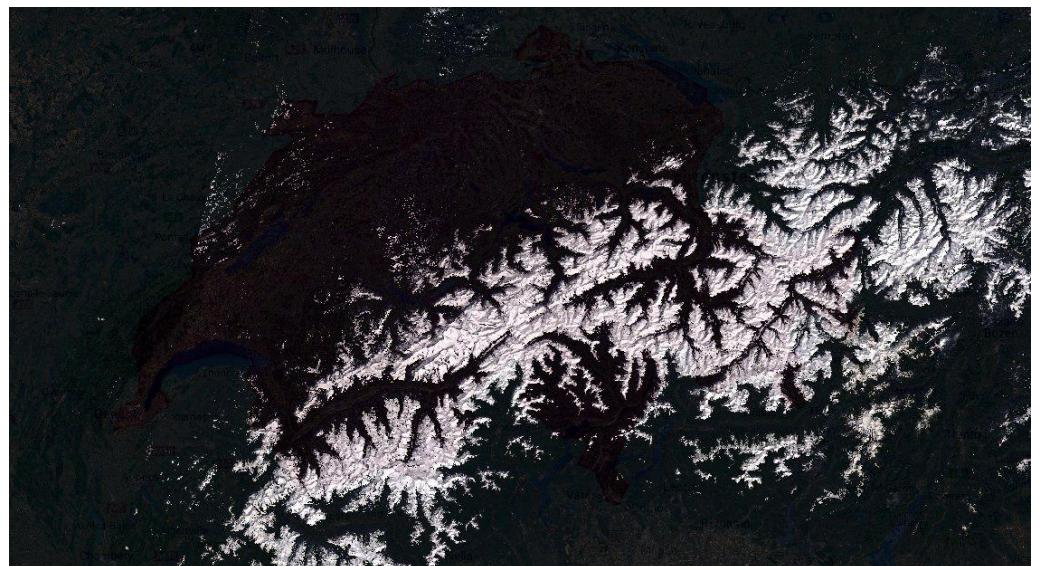
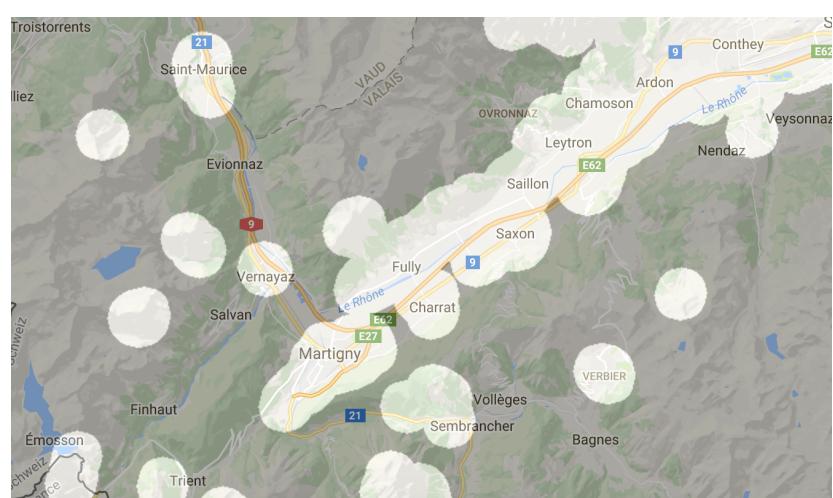


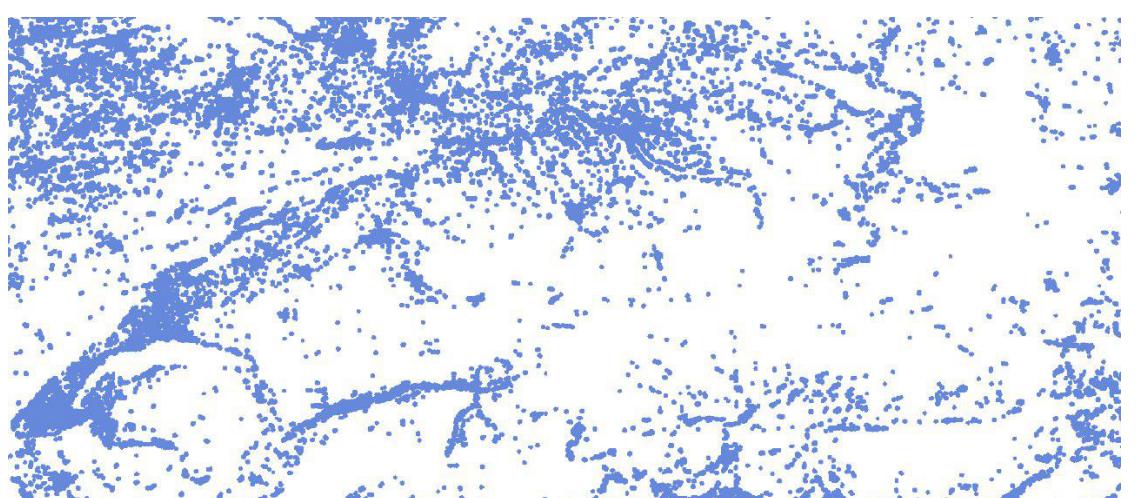
Urban area detection based on Landsat-8 satellite :



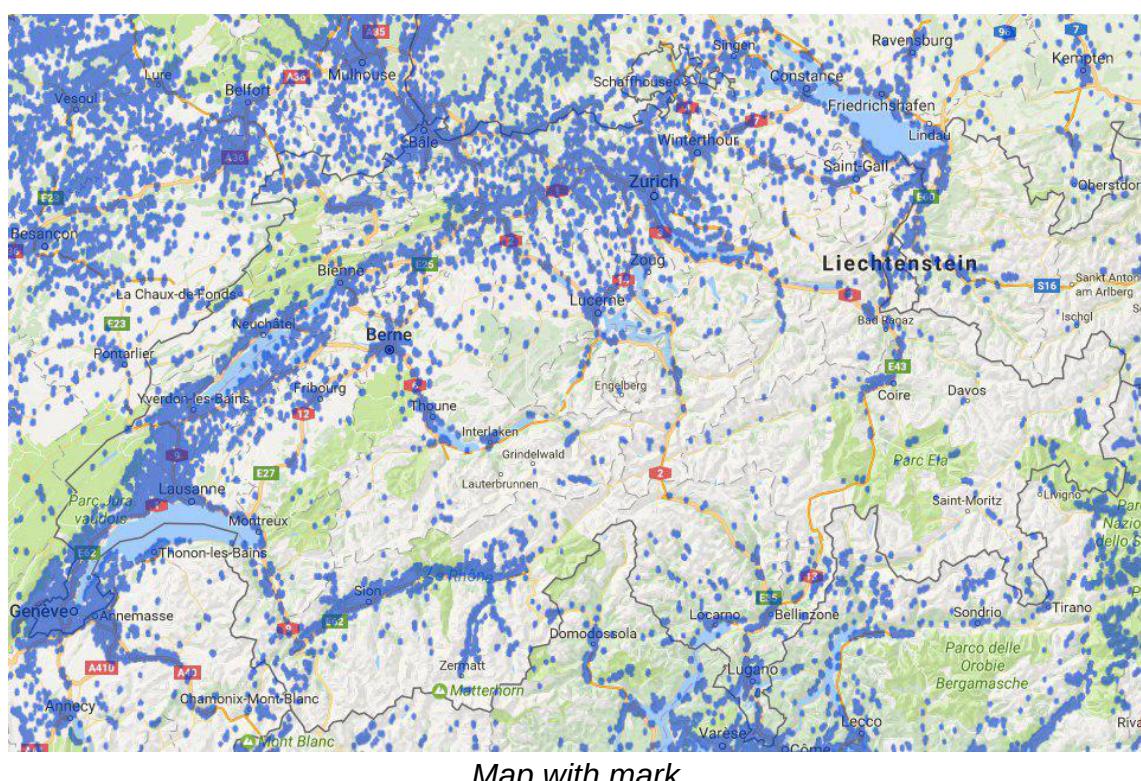
NDBI image (black pixels are urban zone)



Zoom on urban mask



Urban mask



Map with mark

We use Landsat-8 satellite images NIR and SWIR bands to compute NDBI (Nomalized Difference Built-up Index) :

$$\text{NDBI} = \text{NIR} - \text{SWIR} / (\text{NIR} + \text{SWIR})$$

To focus on tweets that are located in non-urban areas, we therefore apply the urban-mask on all tweets, and discard the non-urban tweets.

Urban areas represents about 76% of the overall area, but only 9.5% of the tweets (~1.2 Millions of tweets).