

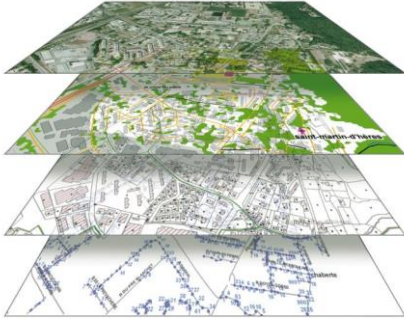
Research and innovations at IGN-France around 3D data collection and its applications

Nicolas Paparoditis, Director of Research and Education, IGN

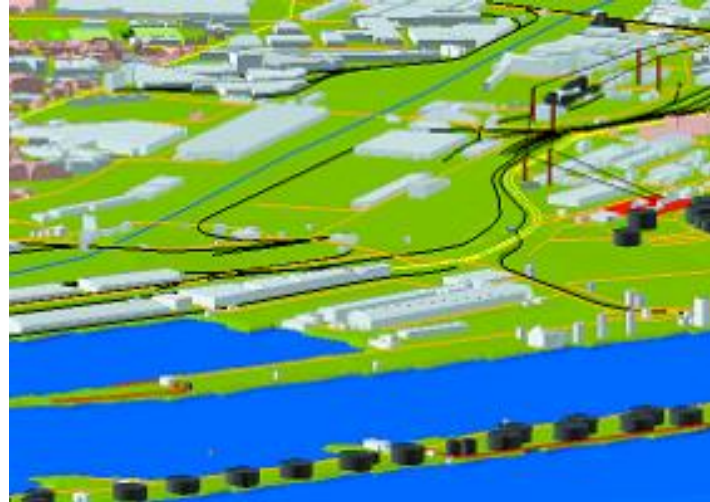
EUROGI meeting, Paris – December 7th, 2017



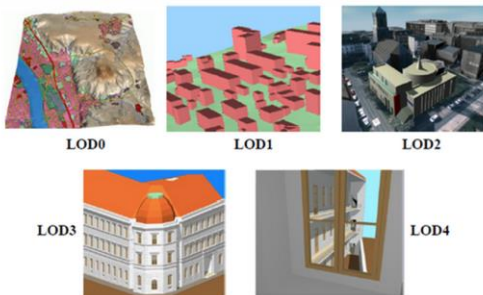
Our 3D large scale repository (RGE)



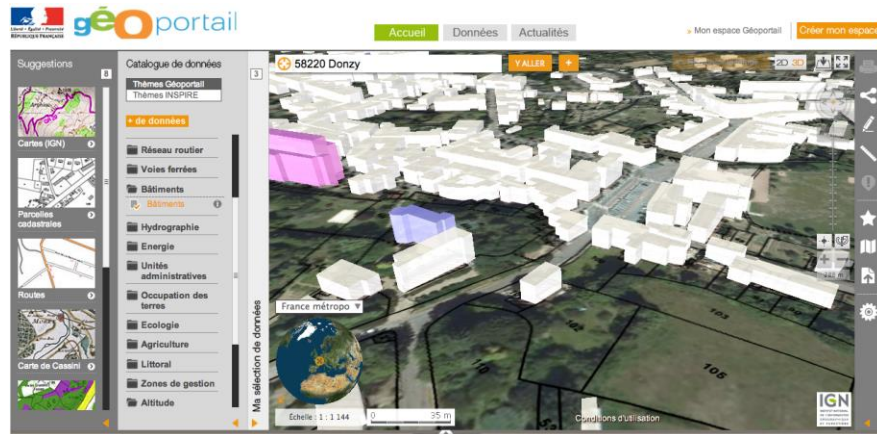
**RGE - 25 years of
stereoplotting**



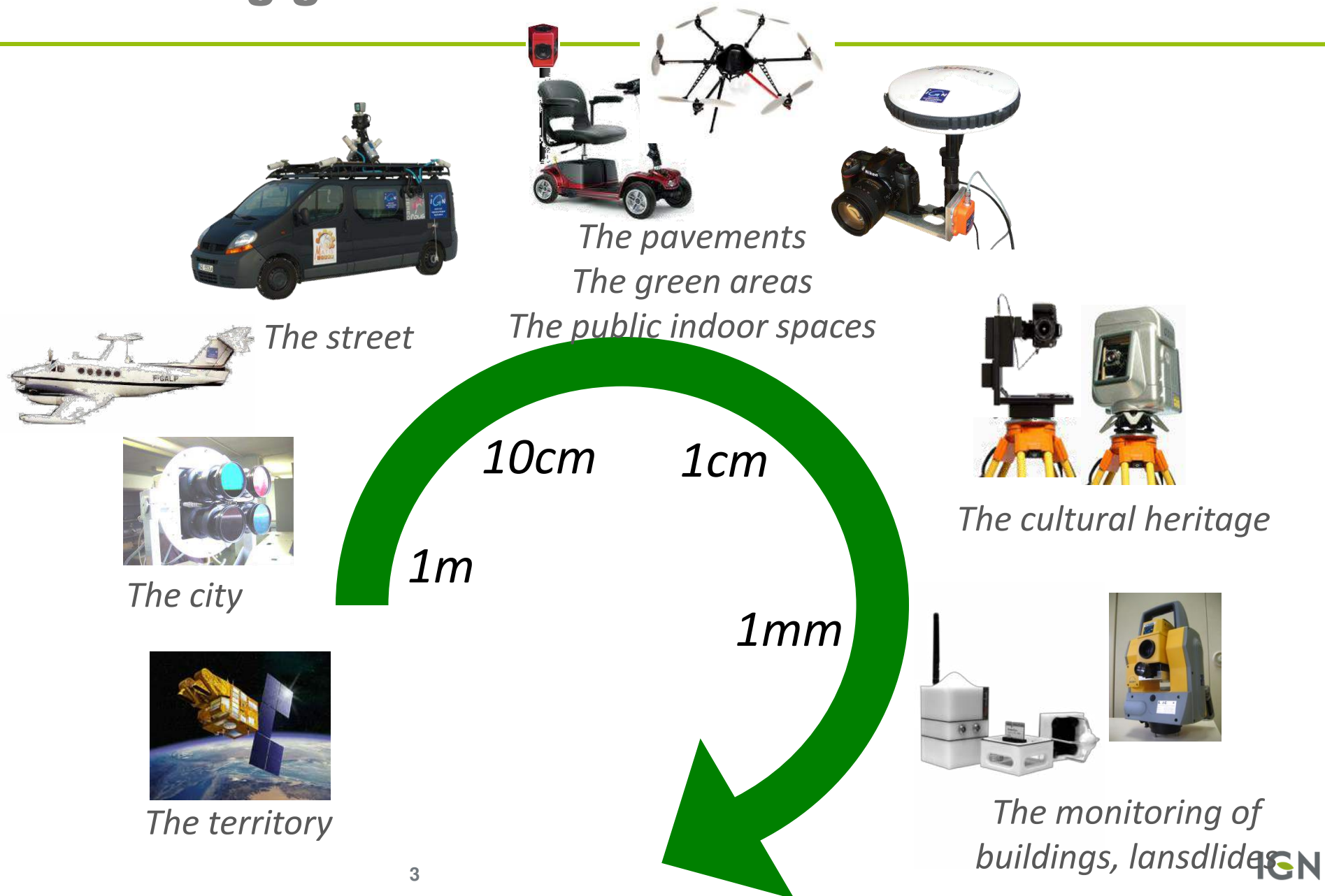
**LOD 1 City model generated automatically
from the repository**



source: IGG Uni Bonn



Sensing global territories



Satellite-based imaging systems



Decametric SENTINEL2B

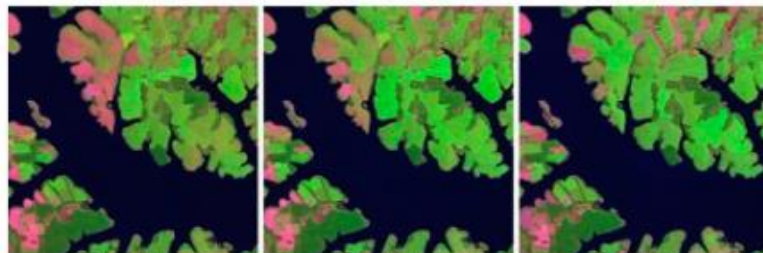
	Swath Width	Spatial Resolution	Nr. of Bands (VIS - NIR - SWIR)	Revisit Time
Sentinel-2	290 km	10 m - 20 m - 60 m	13	5-days
RapidEye	77 km (13A Tile: 25 km)	5 m	5	5-days
SPOT-4	60 km	20 m	4	5-days
Landsat-8	185 km	30 m	8	16-days



10 March 2013

25 March 2013

30 March 2013



9 April 2013

19 April 2013

9 May 2013

Landcover automatic processing in progress
Quality of product need to be assessed

Operationnal for orthoimagery

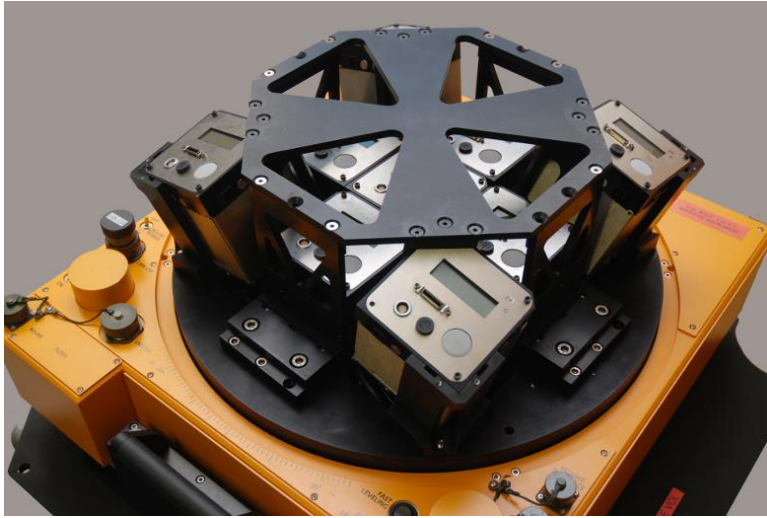


Metric and sub-metric SPOT6-SPOT7-Pléiades

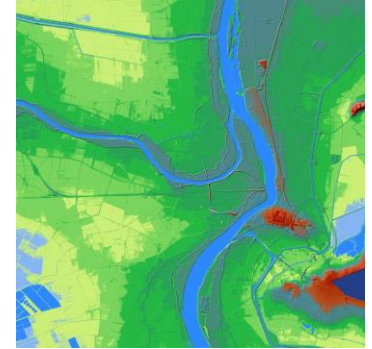


An annual orthoimage at 1.5 m enriched with Pléiades imagery on dense urban areas

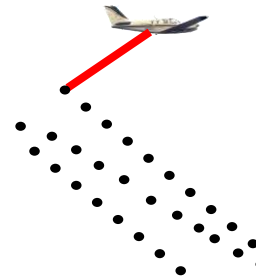
Aerial-based 3D imaging systems



IGN's CAMV2



Linear Lidar

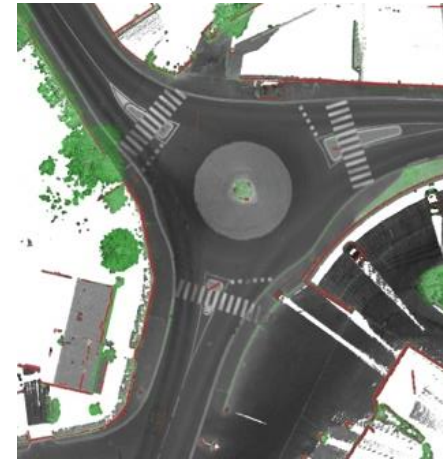
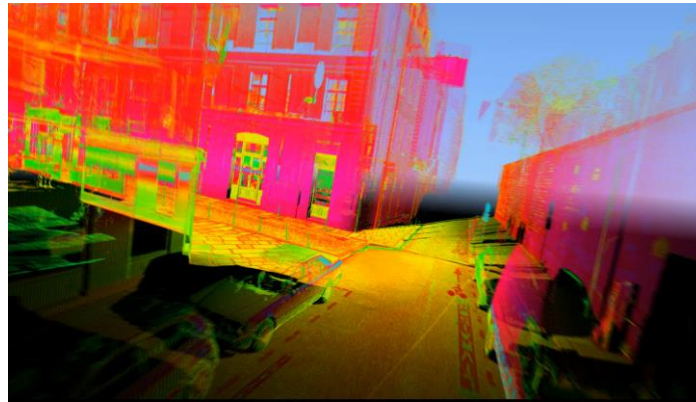


Geiger Lidar

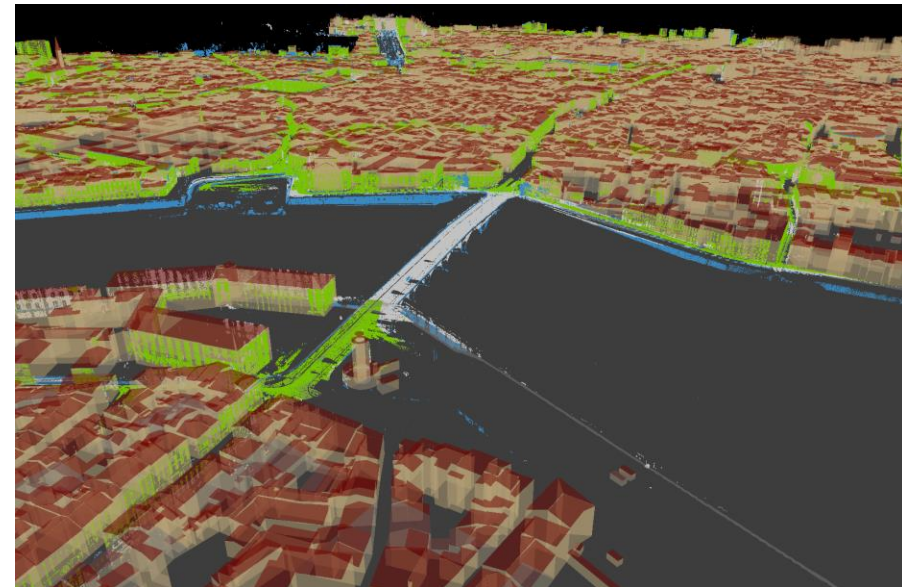
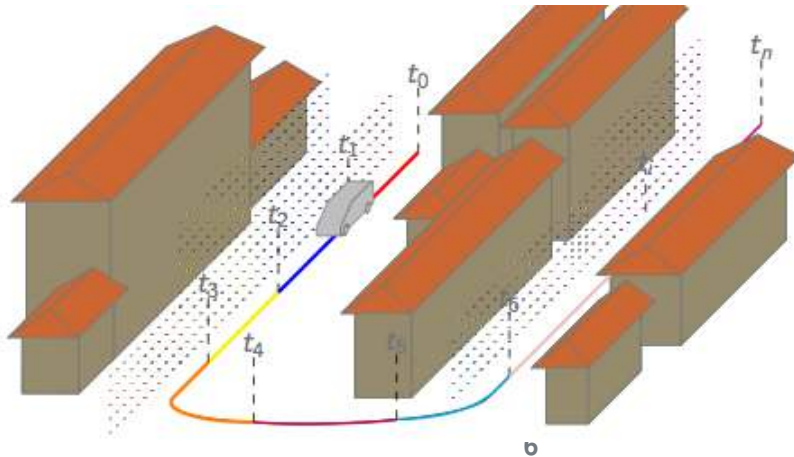


IGN

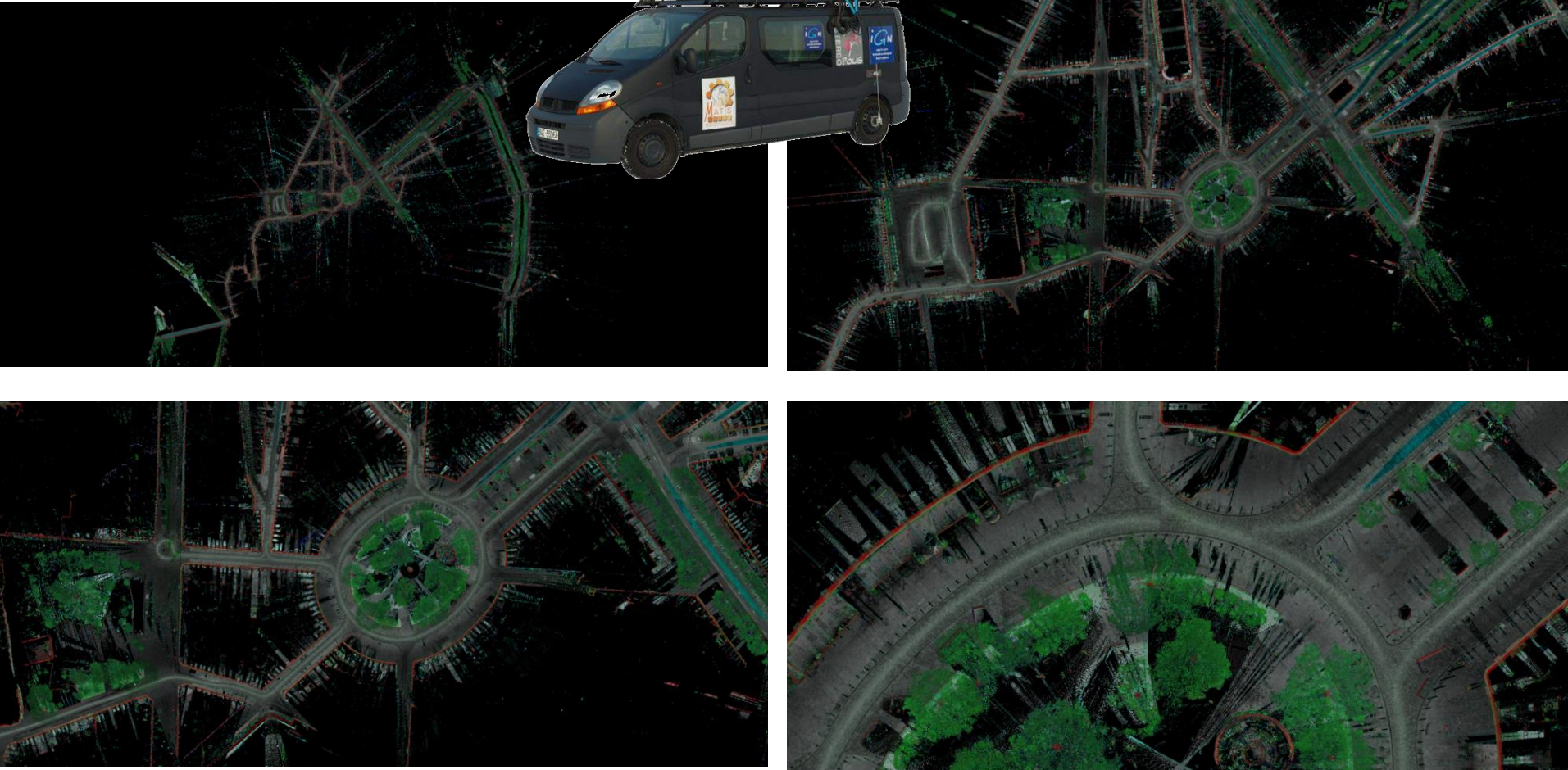
Ground-based mobile mapping systems



STEREOPOLIS 3

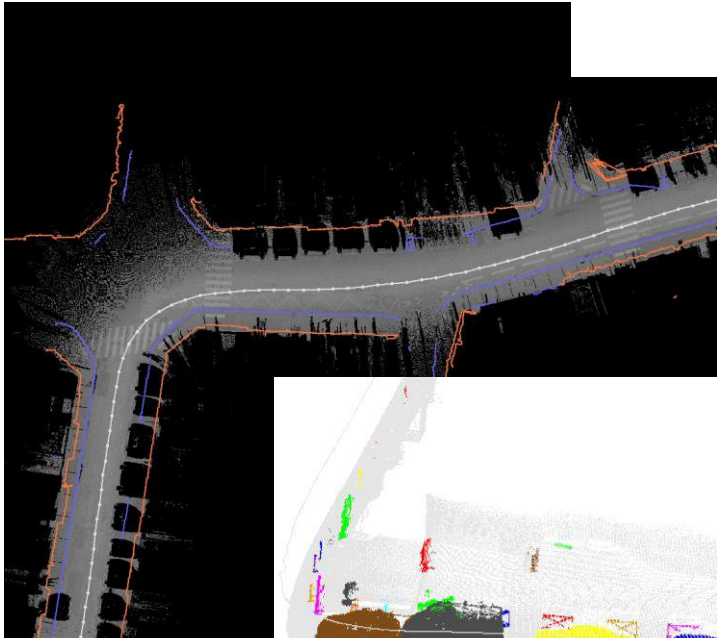
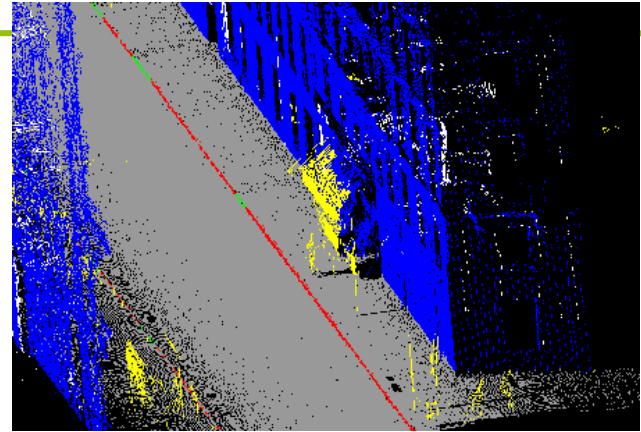
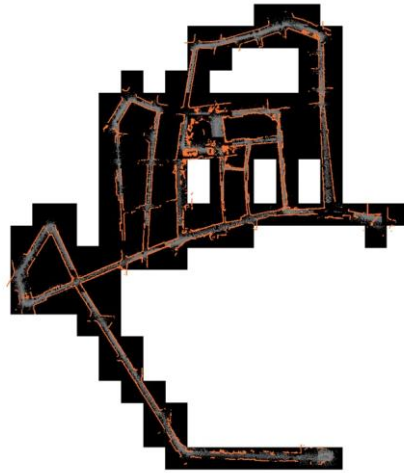


Generating high quality orthoimagery from mobile mapping data on a cloud infrastructure



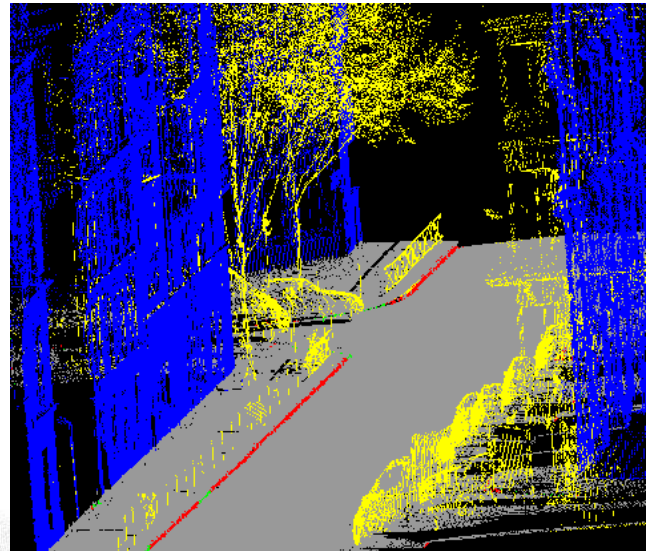
Object extraction from mobile mapping data

TerraMobilita



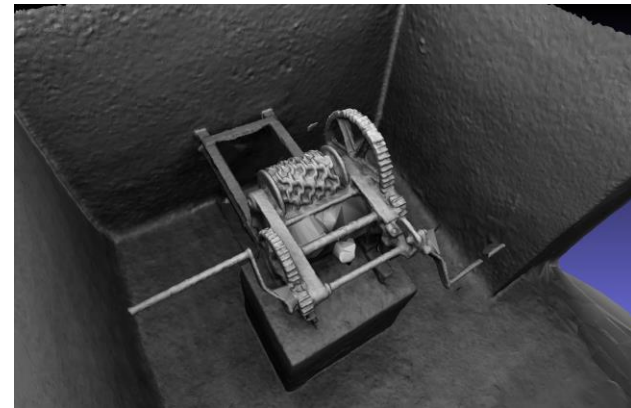
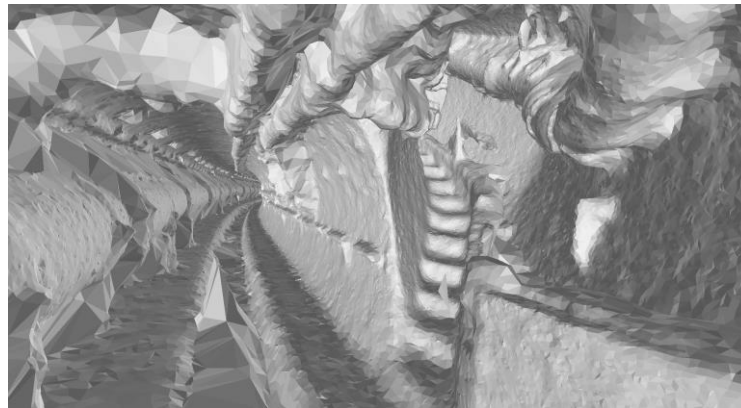
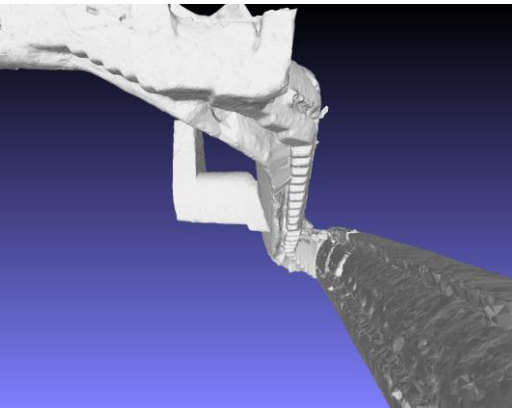
IGN
INSTITUT NATIONAL
DE L'INFORMATION
GÉOGRAPHIQUE
ET FORESTIÈRE


MINES
ParisTech

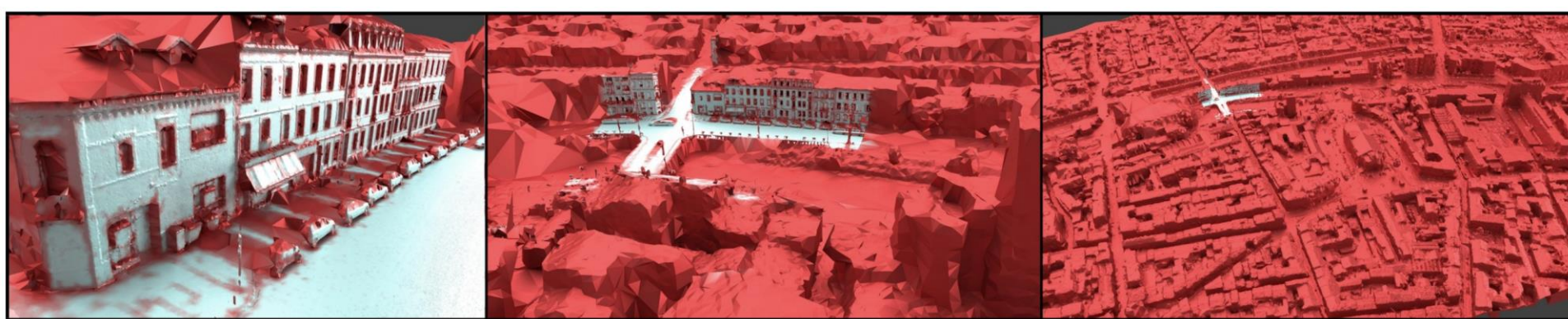
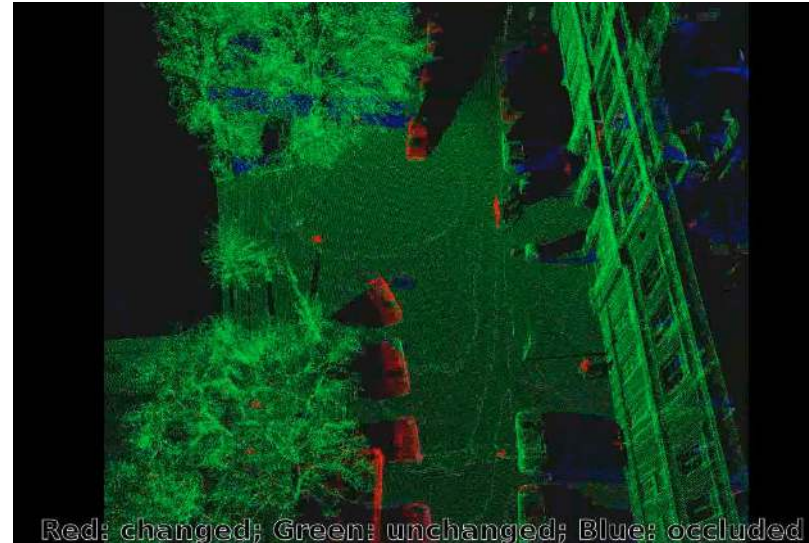
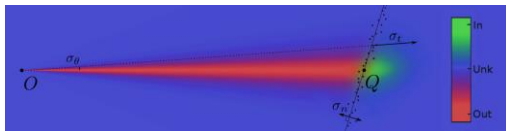
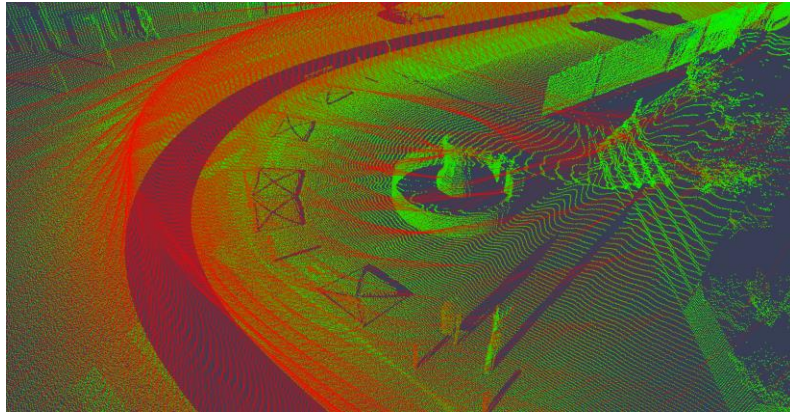


Street and pavement accessibility diagnosis, detection of permanent and non permanent obstacles, generation of occupation maps of public space, etc. IGN

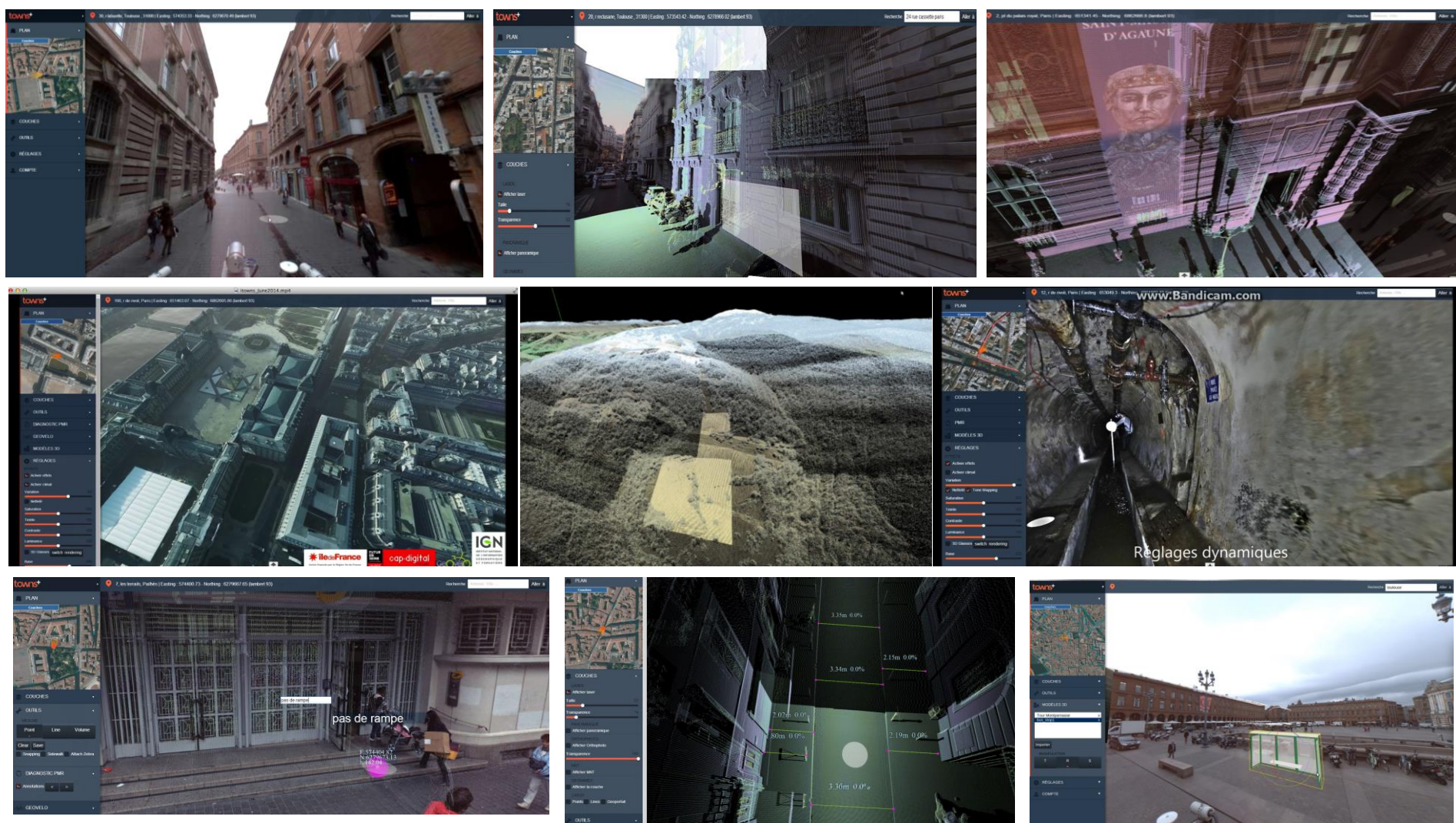
Underground or indoor mapping systems



Change detection and 3D multi-source data fusion services



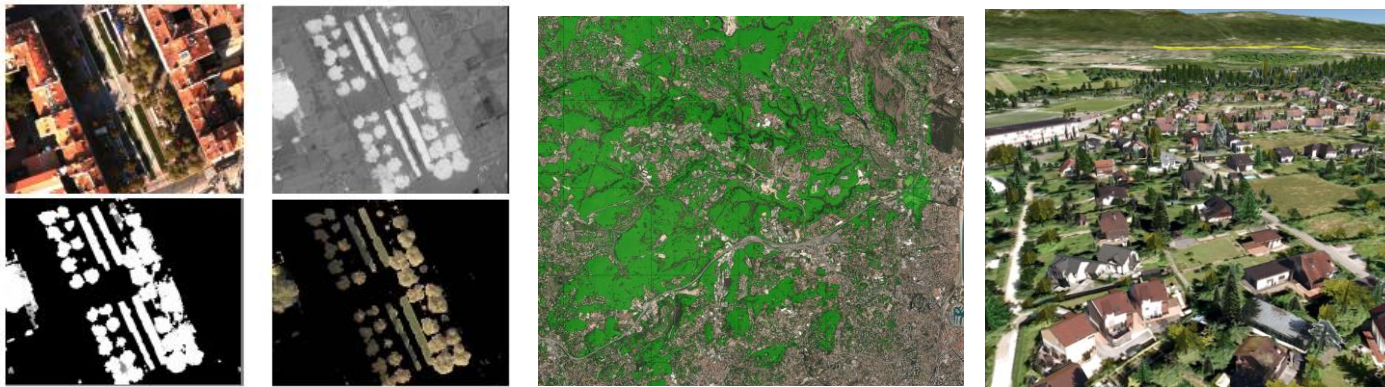
Application exemple 1: Geo-Platform as a Service



Application exemple 2 : 3D city model generation



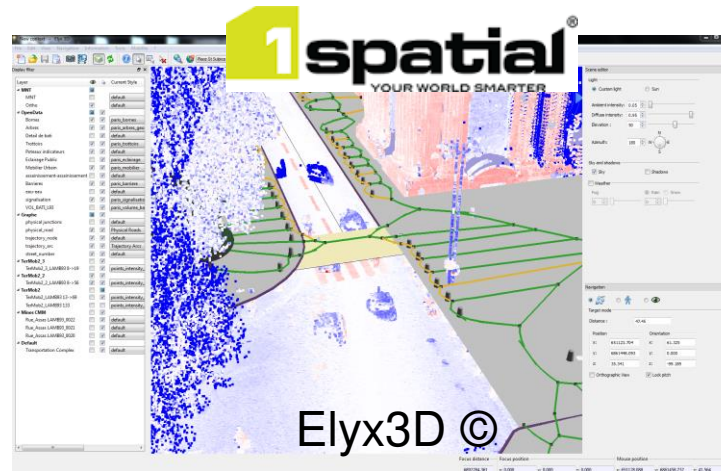
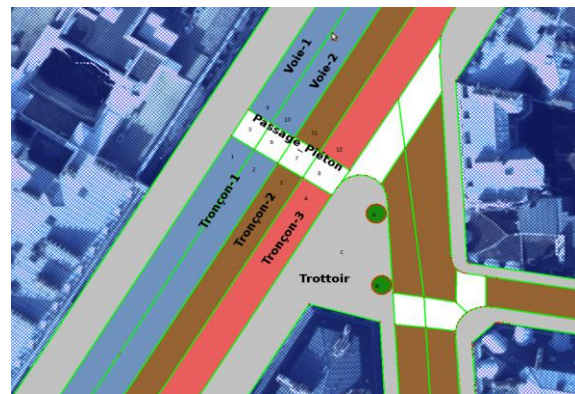
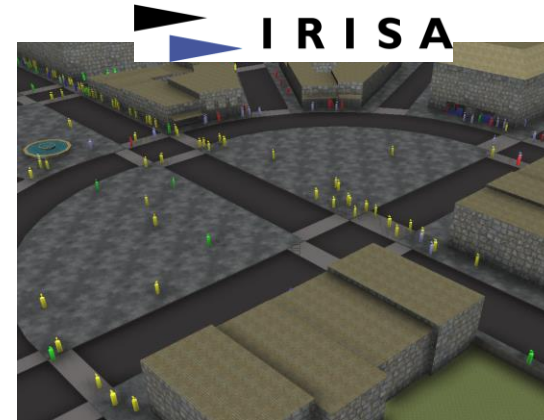
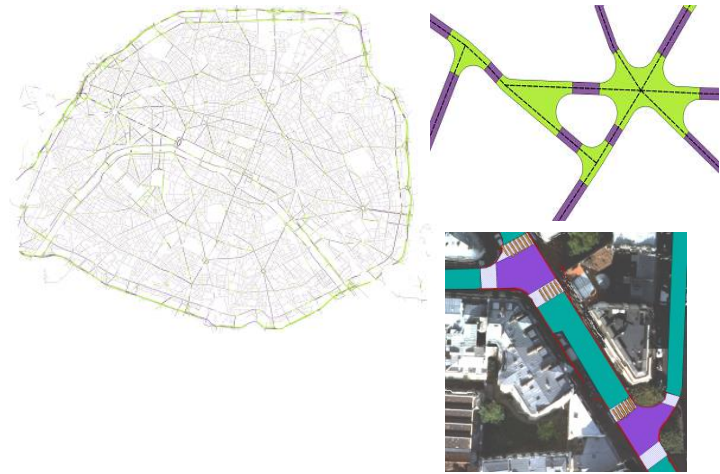
Applications to urban planning, positioning of solar panels, solar cadaster, etc.



Applications to forest inventory, to green cadasters, urban microclimatology simulations, etc.



Application exemple 3 : 3D City models for mobilities



Applications to traffic simulation, accessibility diagnosis, path generation for disabled, itinerary calculation, autonomous navigation

Application exemple 4 : 3D city models and 3D landmark data basis for localisation and navigation

- Autonomous navigation of electric vehicles using maps of the environment for localisation and perception



Project CityVIP

