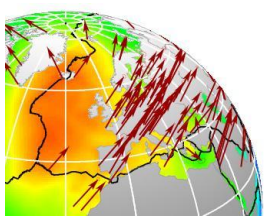
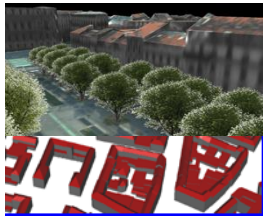
IGN
INSTITUT NATIONAL
DE L'INFORMATION
GÉOGRAPHIQUE
ET FORESTIÈRE






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

Nicolas Paparoditis, Director of Research and Education, IGN

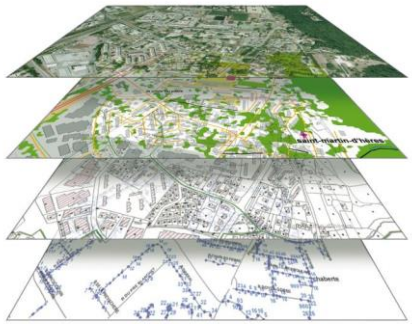
EUROGI meeting, Paris – December 7th, 2017

LOEMI

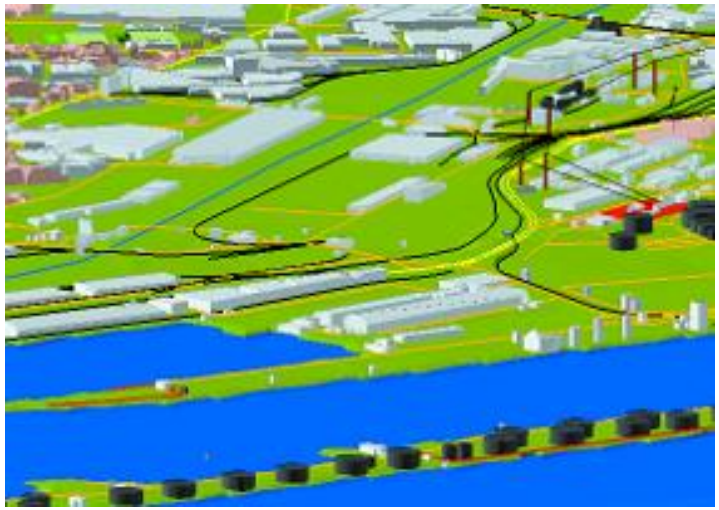
MATIS
METHODES D'ANALYSE ET DE TRAITEMENT

COGIT

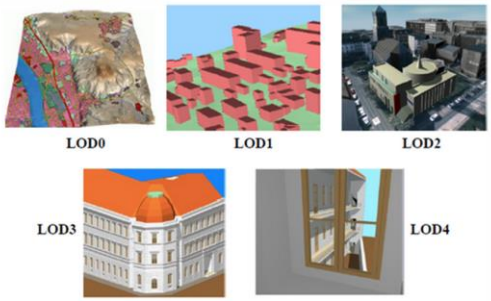
Our 3D large scale repository (RGE)



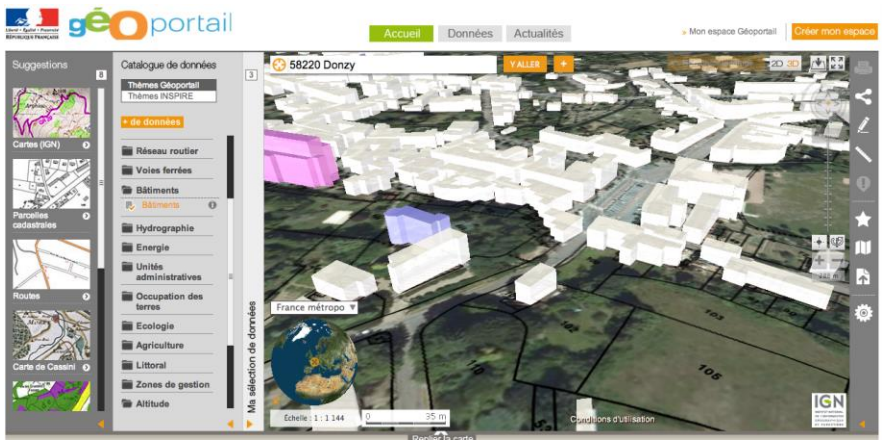
RGE - 25 years of stereopolotting



LOD 1 City model generated automatically from the repository



source: IGG Uni Bonn



Geoportail : IGN's Inspire compliant digital globe

Sensing global territories

The street

The pavements
The green areas
The public indoor spaces

The city

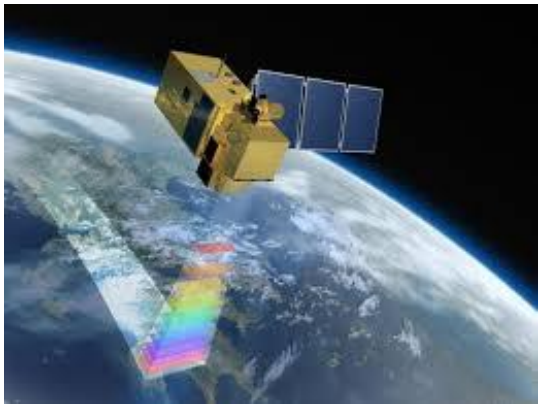
10cm
1cm
1m
1mm

The cultural heritage

The territory

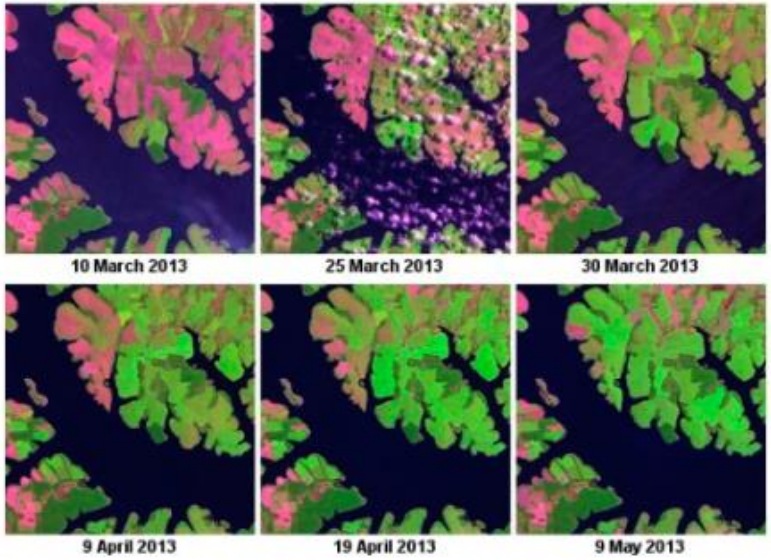
The monitoring of buildings, lansdlides

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 (L3A 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*



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

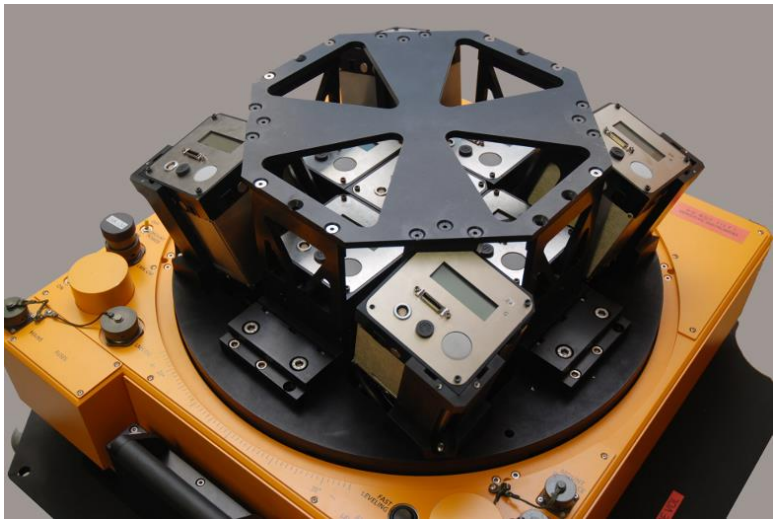
Operationnal for orthoimagery

Metric and sub-metric SPOT6-SPOT7-Pléïades

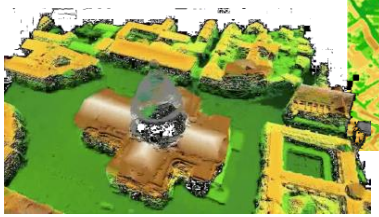
An annual orthoimage at 1.5 m enriched with Pléïades imagery on dense urban areas

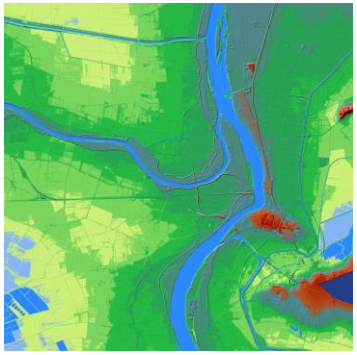
IGN

Aerial-based 3D imaging systems

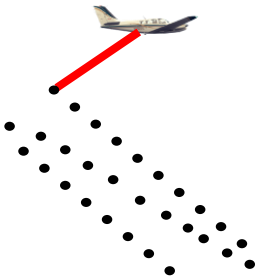


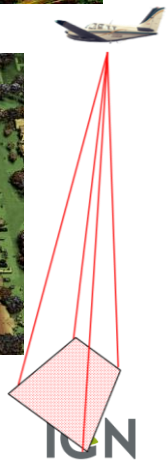
IGN's CAMV2





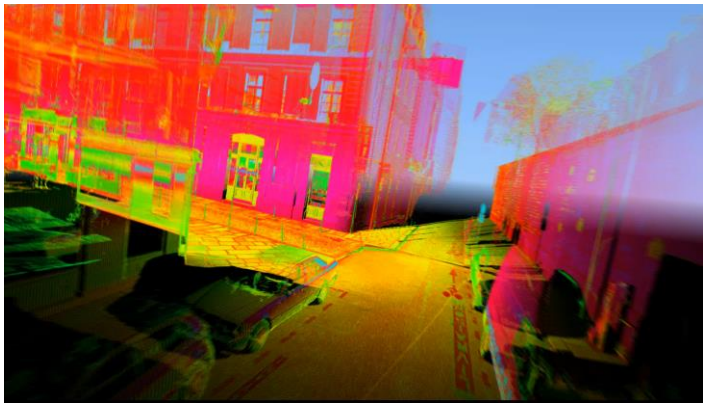
Linear Lidar



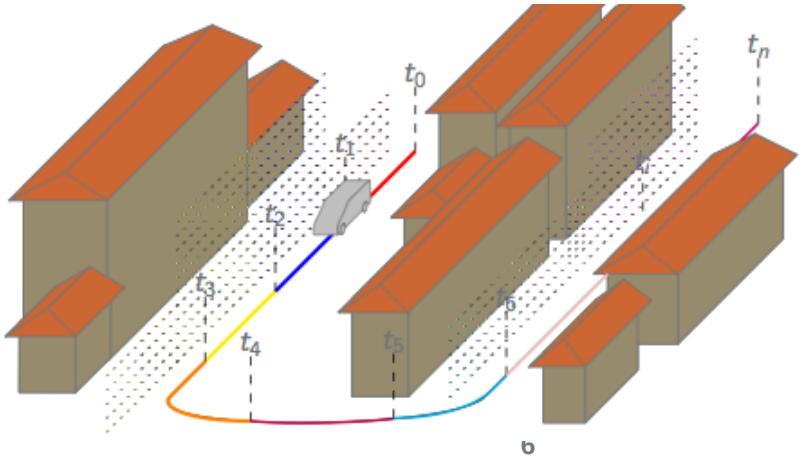


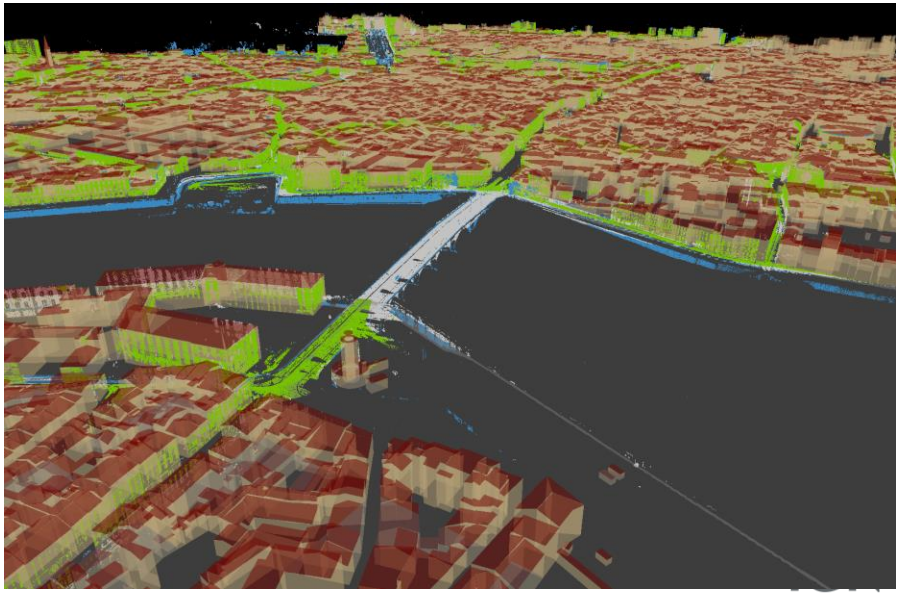
Geiger Lidar

Ground-based mobile mapping systems

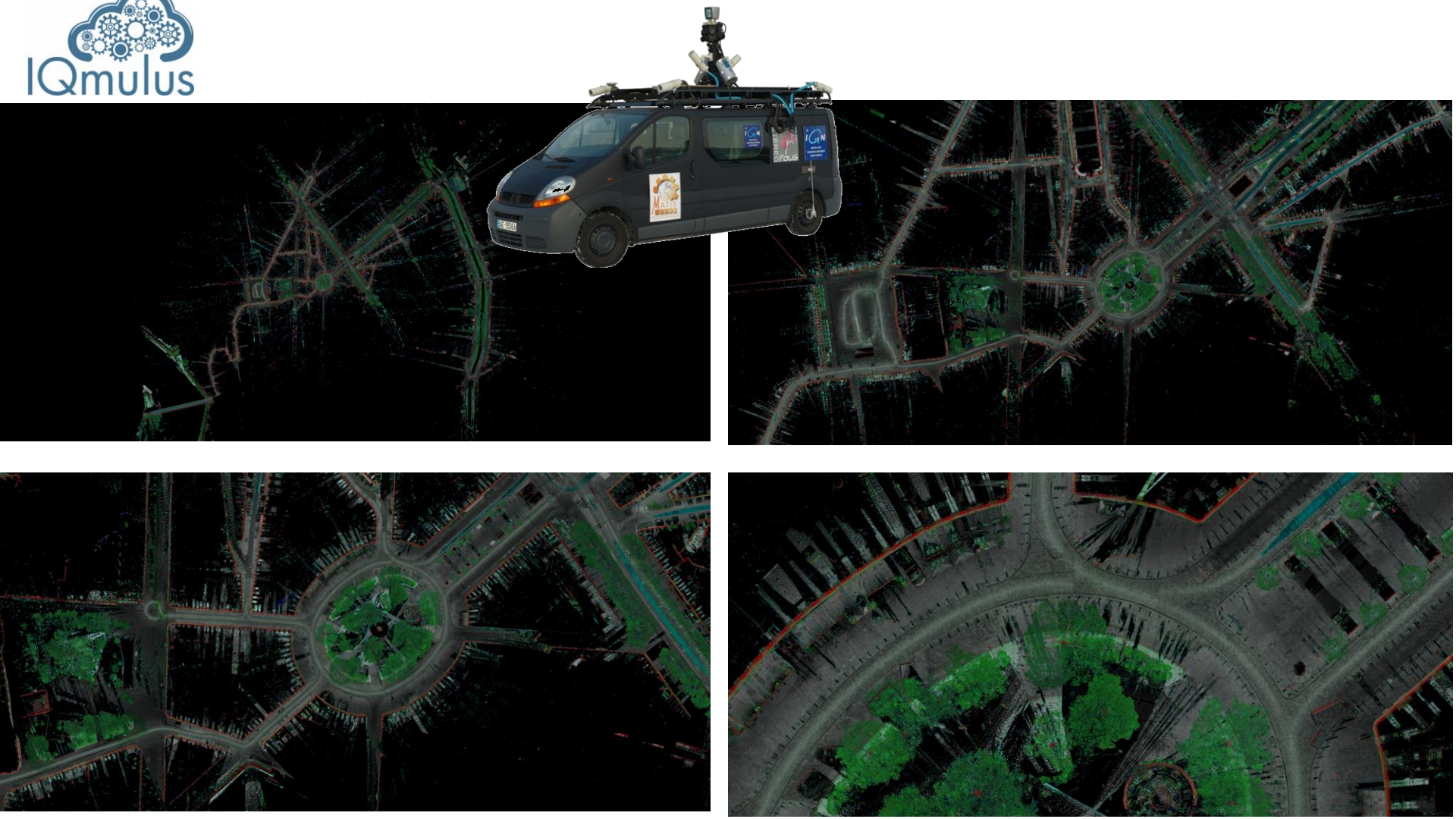


STEREOPOLIS 3



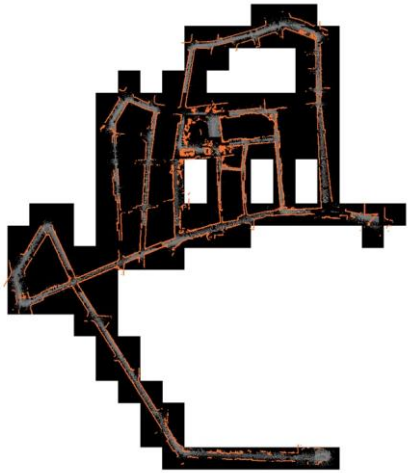


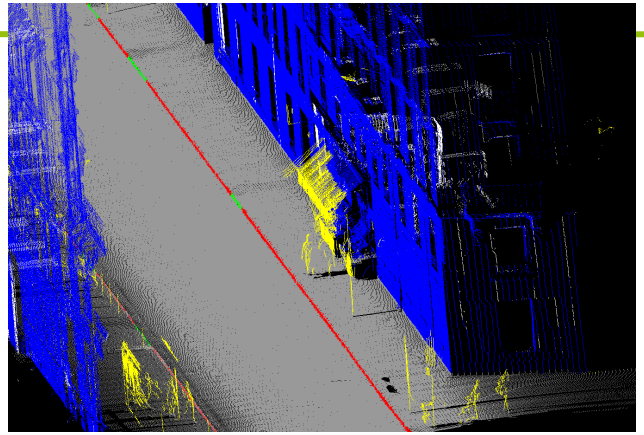
Generating high quality orthoimagery from mobile mapping data on a cloud infrastructure

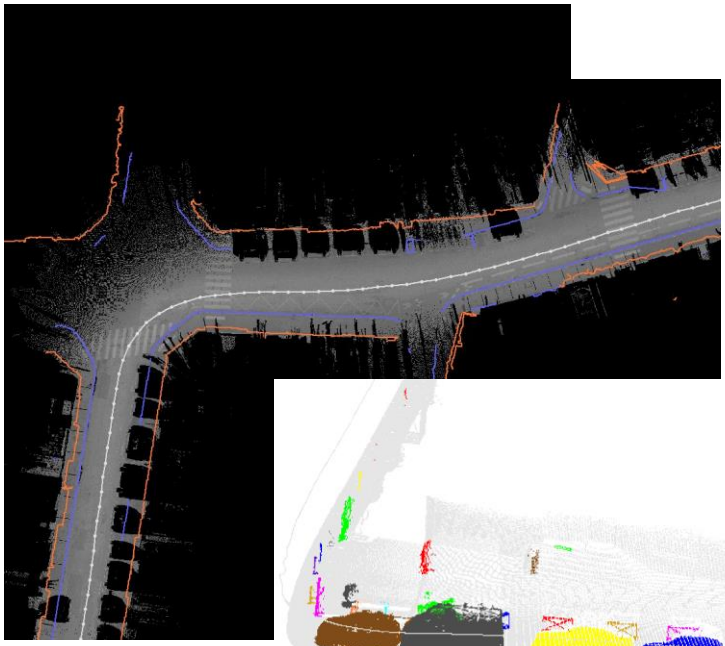


Object extraction from mobile mapping data

TerraMobilita

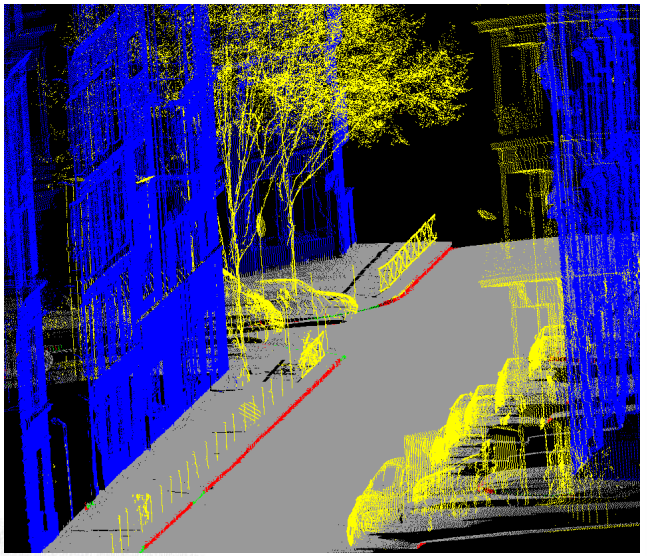






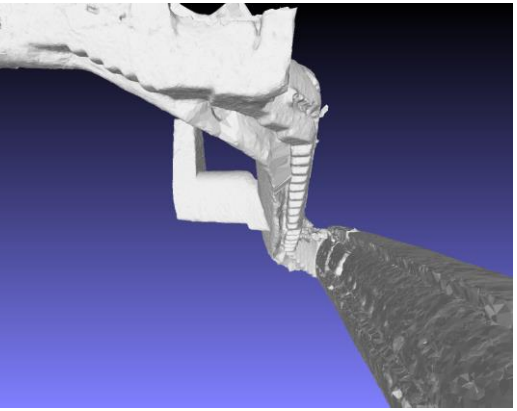
IGN
INSTITUT NATIONAL
DE L'INFORMATION
GÉOGRAPHIQUE
ET FORESTIÈRE

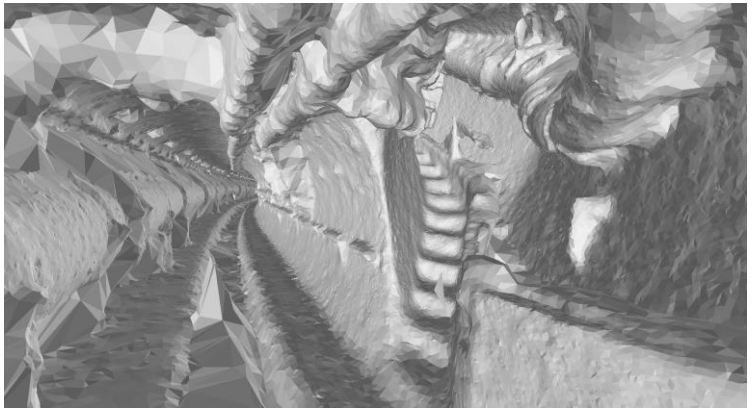
MINES
ParisTech

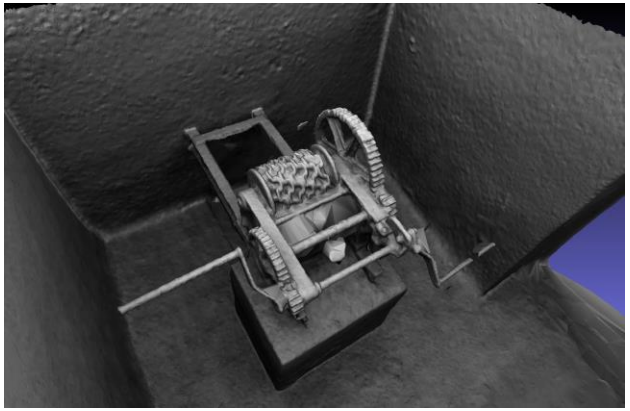


Street and pavement accessibility diagnosis, detection of permanent and non permanent obstacles, generation of occupation maps of public space, etc.

Underground or indoor mapping systems

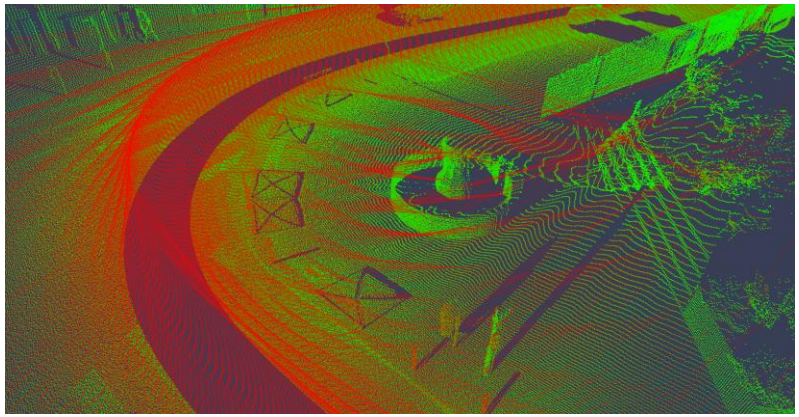


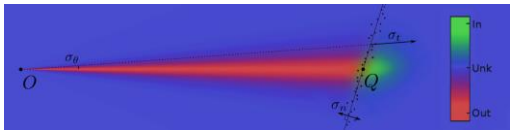


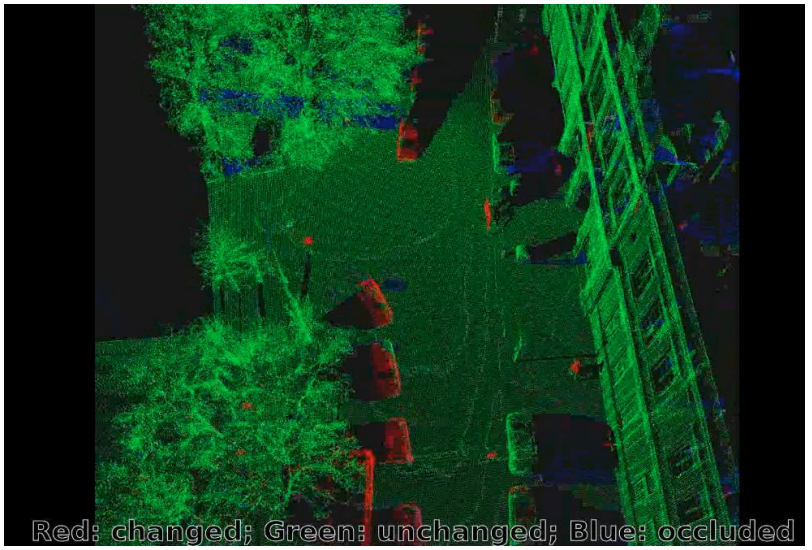


IGN

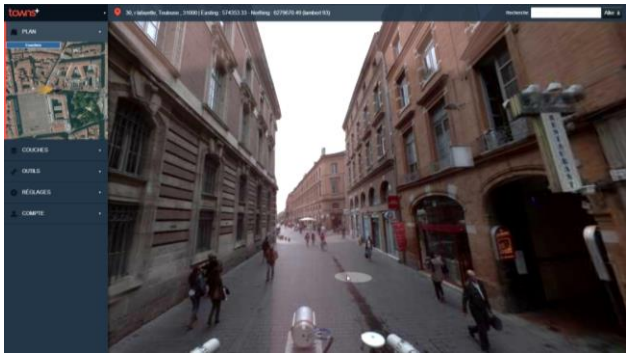
Change detection and 3D multi-source data fusion services

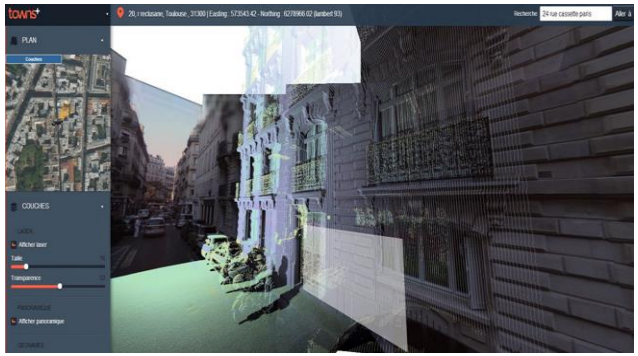


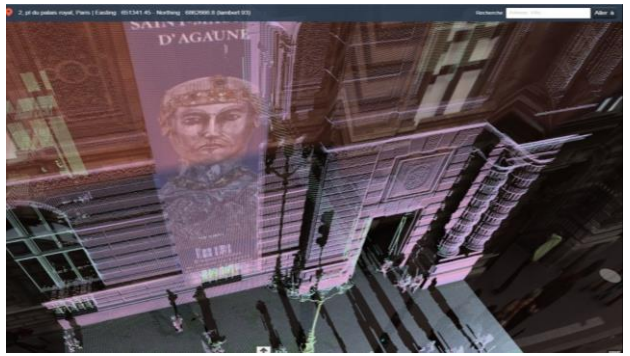


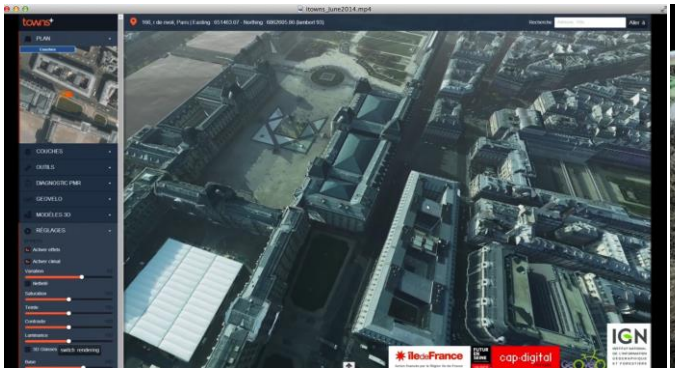


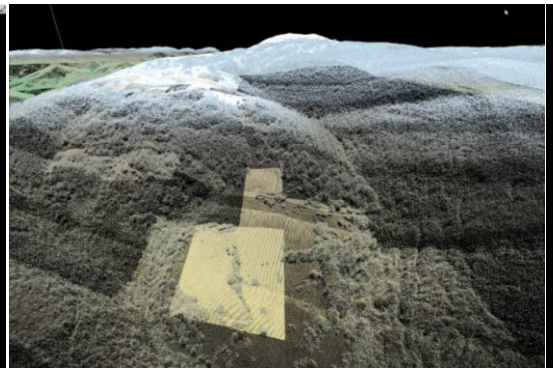
Application exemple 1: Geo-Platform as a Service

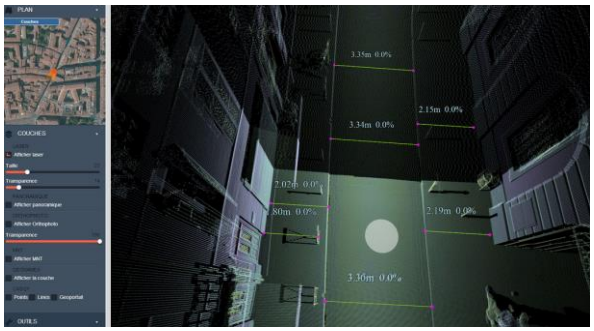








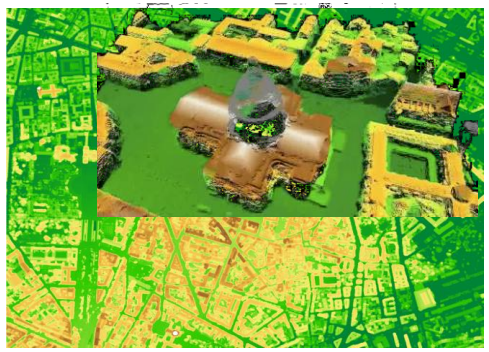
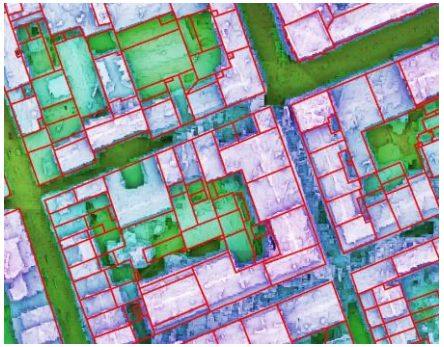


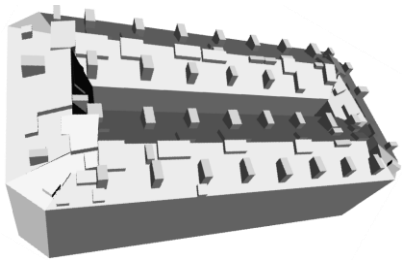


iTowns is an open-source project

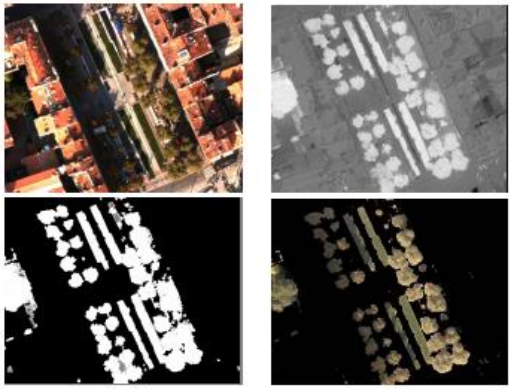
IGN

Application exemple 2 : 3D city model generation

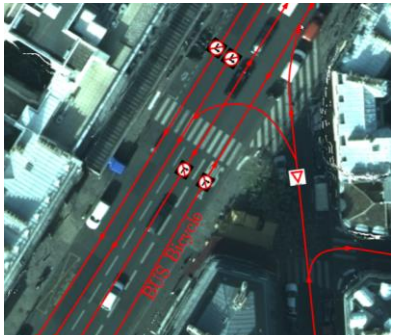
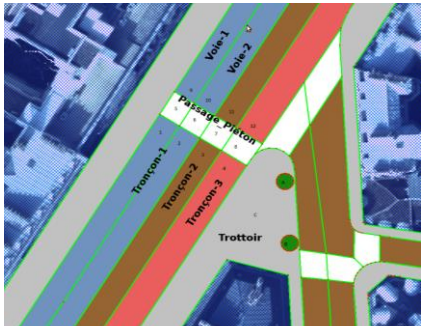



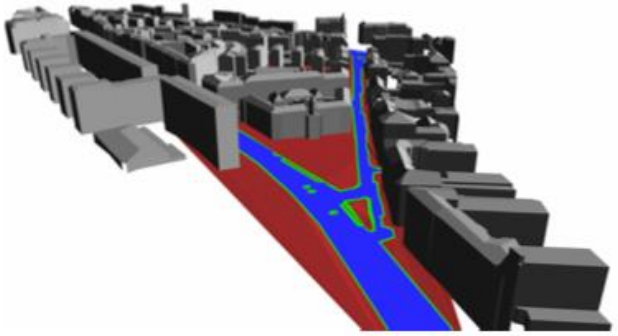


Applications to urban planning, positionning of solar panels, solar cadaster, etc.



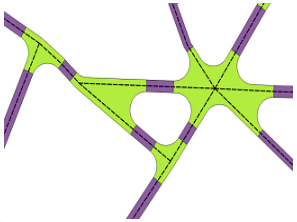
Applications to forest inventory, to green cadasters, urban microclimatology simulations, etc.

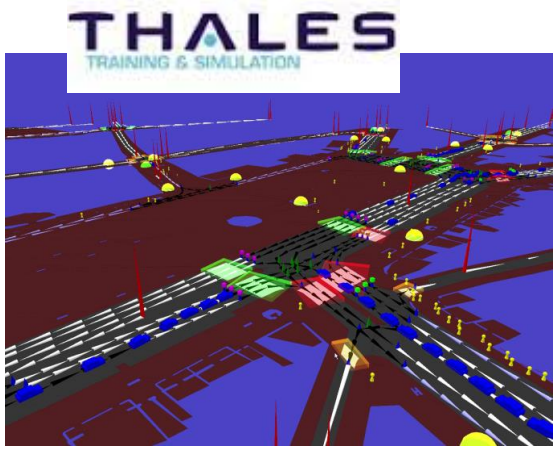



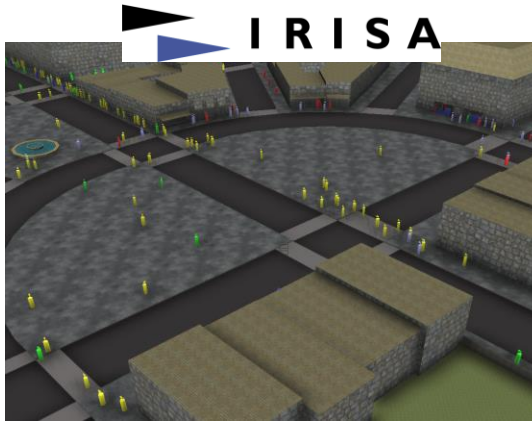


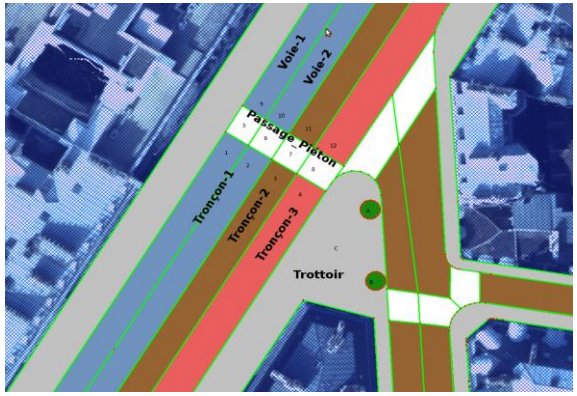
IGN

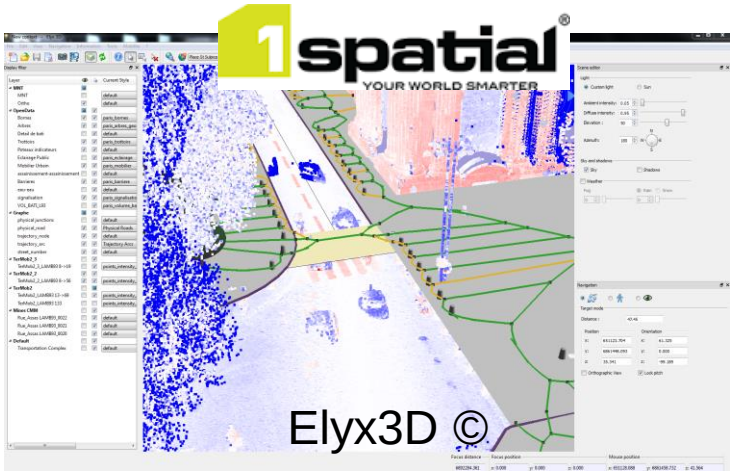
Application exemple 3 : 3D City models for mobilities

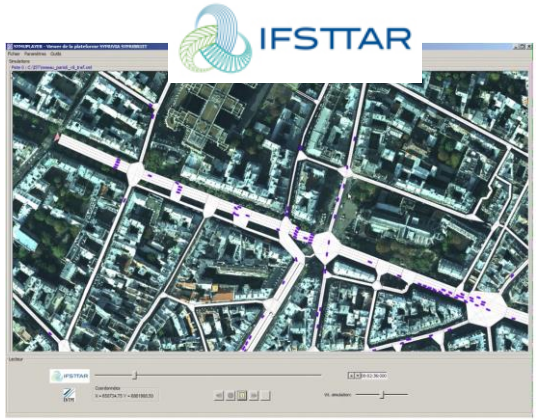












Applications to traffic simulation, accessibility diagnosis, path generation for disabled, itinerary calculation, autonomous navigation

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

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

Project CityVIP