



Lizmap Web Client



Create web map applications from **your** QGIS desktop

Etienne Trimaille

 [@etrimaille](https://twitter.com/etrimaille)



3Liz

- French company
- **Open Source** forever, check our GitHub
<https://github.com/3liz/>
- Core contributors in QGIS, server side mainly
- PyQGIS development, Lizmap server hosting, trainings about PyQGIS, PostGIS...

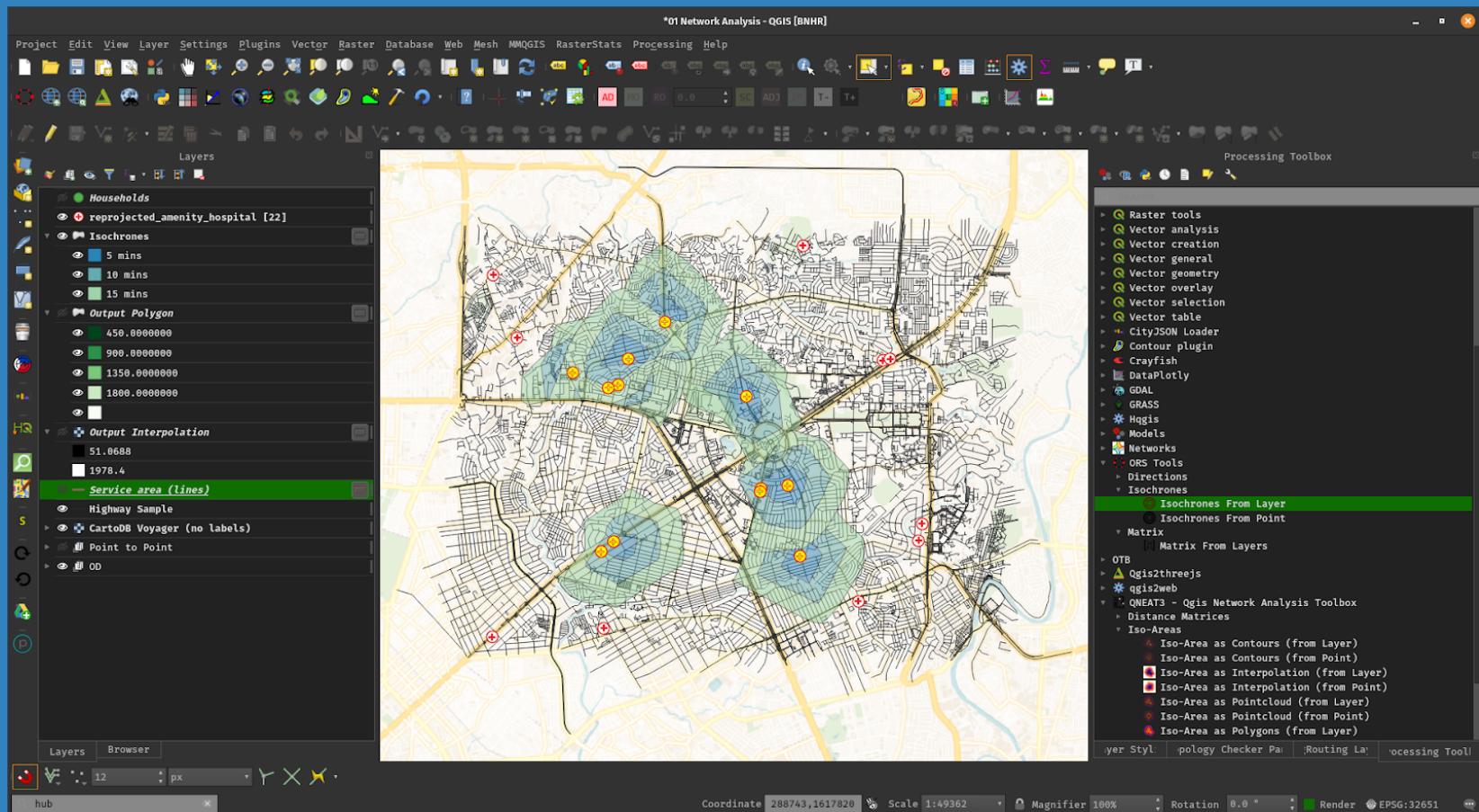


QGIS Desktop

We might spend a lot of time configuring our project in QGIS Desktop 

- Setting up layers and relations
- Layer symbology
- Build form to make it easy to add data
- PDF print layout
- ...

QGIS Desktop



Need to share your work ?

- We already use and love QGIS as our main GIS tool
- We **are used to it !**
- Then we need to publish a full-featured application to the web ?
- We **do not** want to spend **again** time to set up and configure web maps in complex admin panels, re-styling layers, forms etc

One thing to know

- QGIS is **not only** a desktop application
- But a GIS server as well 
- OGC certification since 2018 : WMS, WFS, WMTS...
- **Recent test report:**
http://test.qgis.org/ogc_cite/ogcapif/latest/report.html



On top of QGIS Server

- Lizmap Web Client
- Prepare on QGIS desktop, deploy on Lizmap
- Github
Open source : Mozilla Public Licence

Web administration panel is mainly for authentication and authorization management (users and groups)

All other configurations are done within QGIS desktop

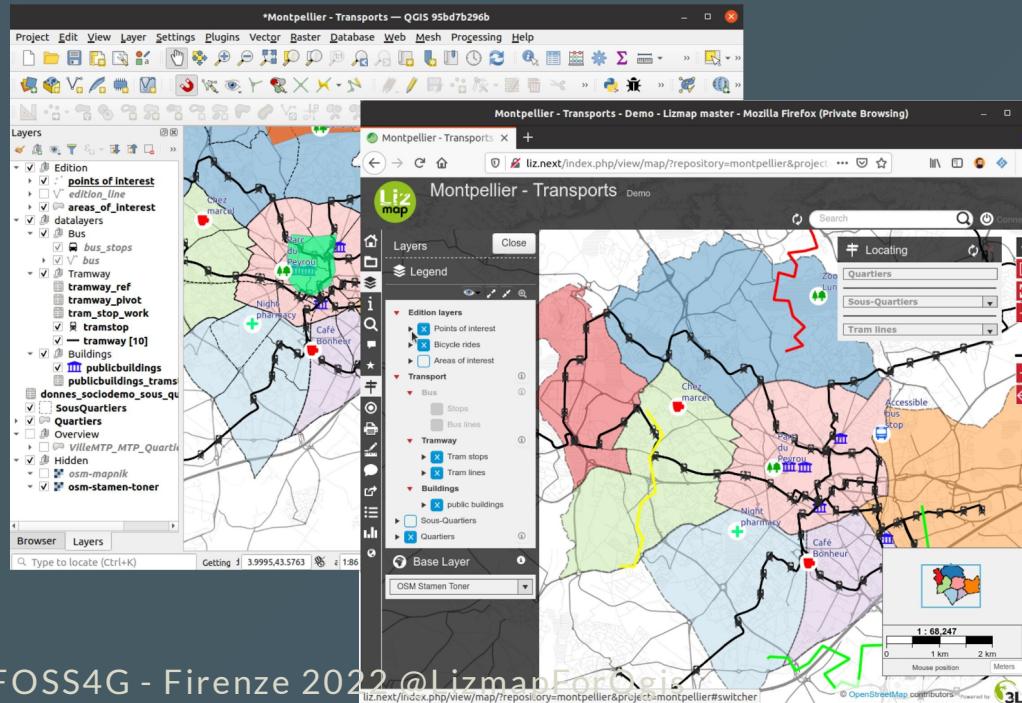


History

- Created as a simple QGIS project **web** viewer
- based on QGIS server and its OGC capabilities : WMS, WFS, WPS...
- has evolved to a **full-featured** web GIS application generator by integrating many QGIS great native features : symbology, relations, printing, forms

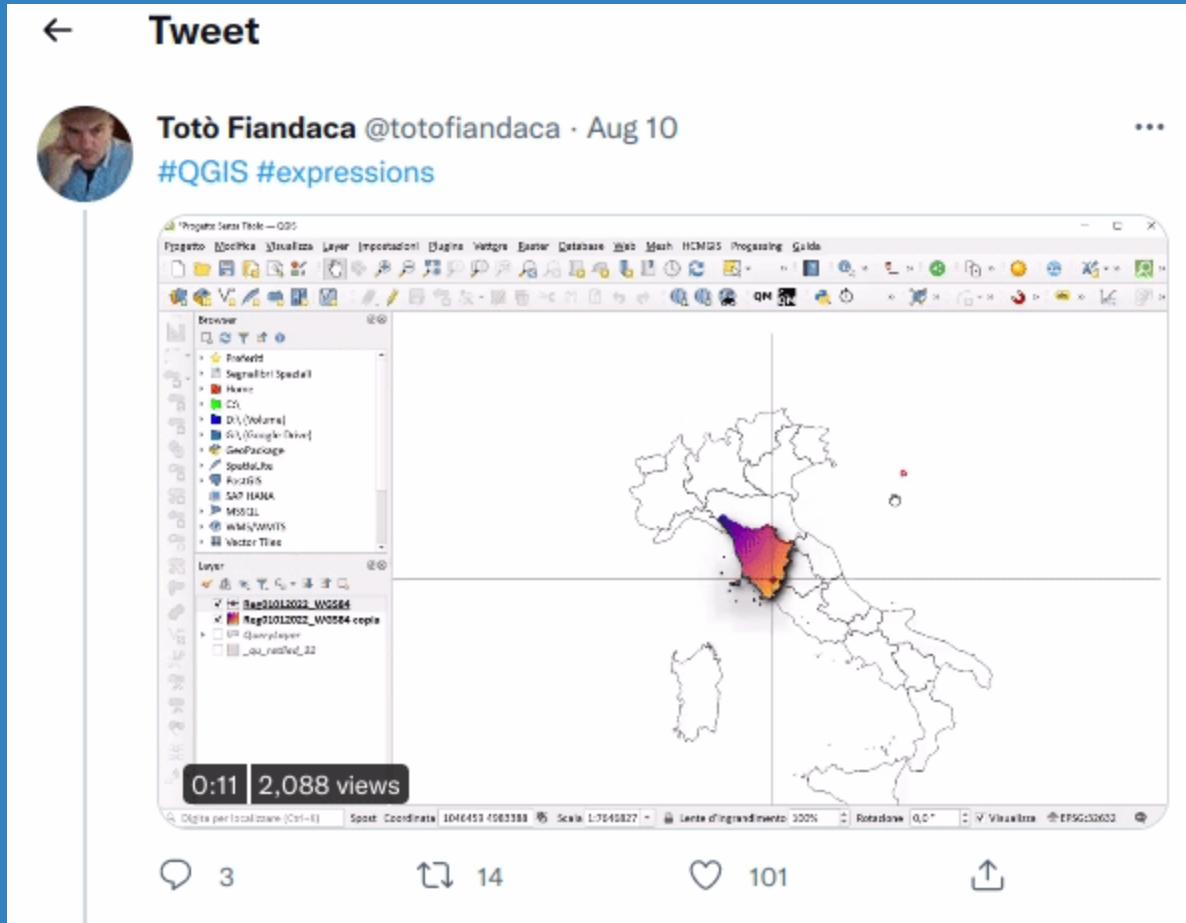
How to

- Create a project with some layers
- Use the Lizmap plugin to configure some options specific for the web (extent, scales, tools available)
- And upload on the Lizmap server
- You've got a web map based on the QGIS project



The power of QGIS Server

A few days **before** the FOSS4G, in my Twitter timeline 🤔





The power of QGIS Server

Oh, wait ... I like opensource, just sharing tips 😊

Totò Fiandaca @totofiadaca · Aug 10
#QGIS #expressions

0:07 2,090 views

ozca_24 @jefry_ozca · Aug 11
How do I do it?

Replying to @jefry_ozca
I share a project with all the expressions used. W
#QGIS --

mega.nz
10.2 KB file on MEGA





The power of QGIS Server

It seems I had nothing to do to make it work on the web 😊

Available on <https://demo.lizmap.com/>, download it !

Lizmap Projects - Lizmap

T Search

Some projects showing some specific features of Lizmap.

Some modules also exists, to add some specific features in Lizmap :

- MapBuilder
- PgMetadata
- AltiProfil
- PgRouting
- WPS
- French use cases : [Cadastre](#), [Adresse](#) and [OpenADS](#)

WebGIS

Map of Local Urban Plan in Lézignan

Load the map

View metadata

Évolution du COVID-19 en France

Load the map

View metadata

Points of interest in the Lake Geneva watershed

Load the map

View metadata

Risks of flooding in Montpellier

Load the map

View metadata

Features

Dessiner

Draw tools

Université de Montpellier Campus Saint-Priest

Topographic map

Purple shaded area

FOSS4G - Firenze 2022 @Lizmap ForQGIS

The power of QGIS Server

- The original author **didn't plan** to publish it on the web at the beginning
- **But**, thanks to QGIS Server, same code base as QGIS Desktop, 99% of the job to publish it and share this project 🚀



Use cases of Lizmap

Some examples to demonstrate
the main features





Map Catalog in Meylan

French city in the Alps
Publish thematic maps for citizens
Eye-candy, with simplicity
<https://geo.myelan.fr>





Equipements



Aires de jeux

[Voir la carte](#) [Description](#)



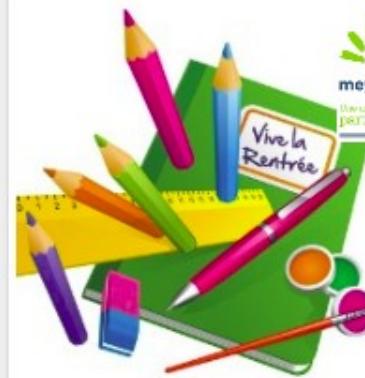
Culture

[Voir la carte](#) [Description](#)



Petite enfance

[Voir la carte](#) [Description](#)



Scolaire et Périscolaire

[Voir la carte](#) [Description](#)



Sports

[Voir la carte](#) [Description](#)



Tous équipements

[Voir la carte](#) [Description](#)



Popup

Fermer

Aire de jeux ouverte au public

ouvert au public



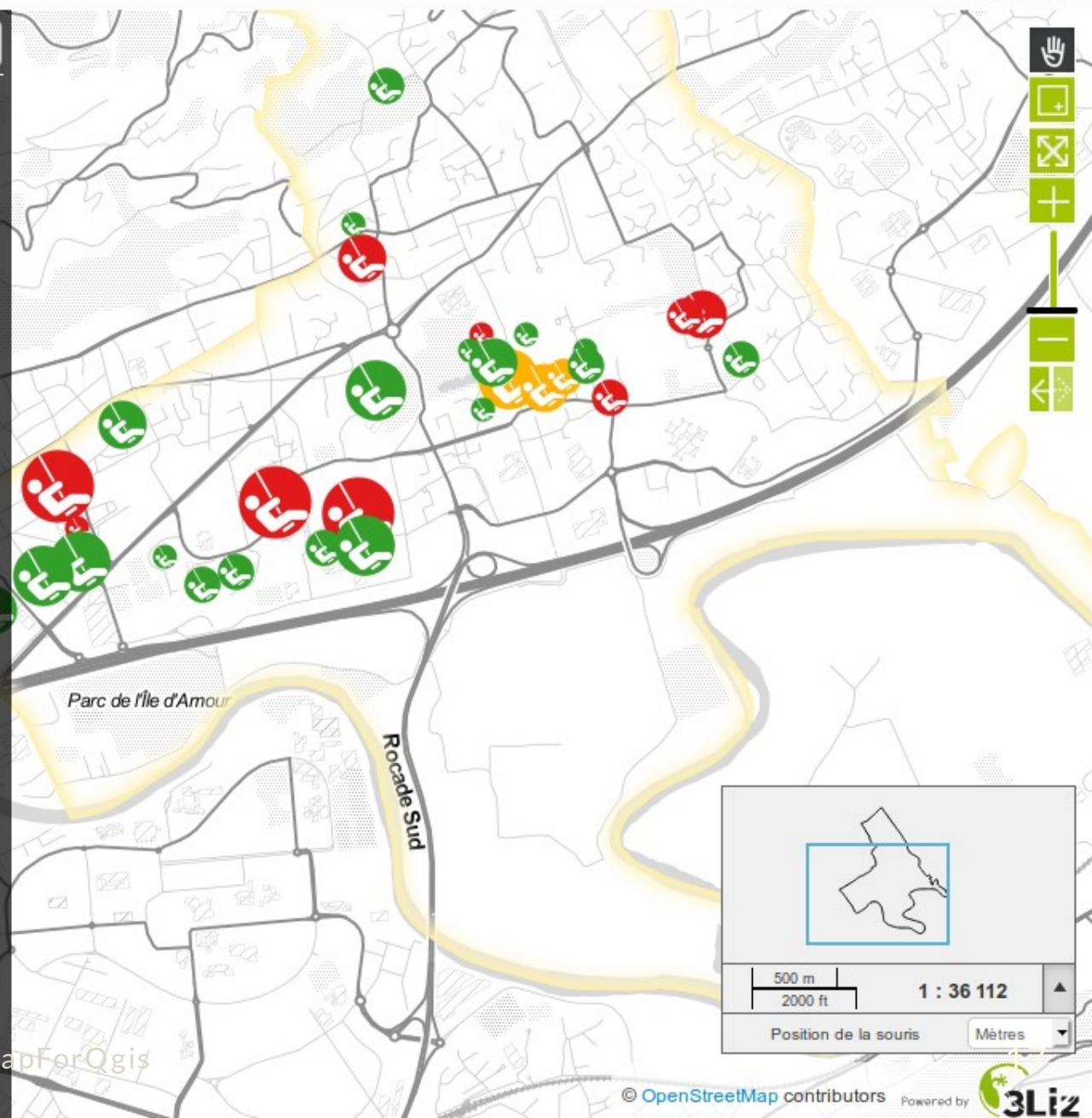
Nombre de jeux : 3

Tranche d'âge autorisée : enfants entre 3-12 ans

Lieu : Parc des Saules

Quartier : Aiguinards

Informations complémentaires : Aires de jeux pour enfants. La plupart des aires de jeux sont ouvertes au public. Toutefois, certaines aires de jeux sont fermées au public (école, crèche...). D'autres, sont ouvertes en dehors du temps scolaire (semi-ouverte). Source : Ville de Meylan



FOSS4G - Firenze 2022 @LizmapForQgis

Parc Paul Mistral

Parc Paul Mistral

© OpenStreetMap contributors

Powered by



CSS, theme in Calvados and Gard

- Custom CSS themes
- Publish thematic maps for citizens
- Promote landscapes and monuments
- <https://atlas.calvados.fr> and <https://sig.gard.fr>

Économie & Démographie



Public

Zones d'activités

Cartographie des zones d'activités économiques

[Voir la carte](#) [Description](#)



Public

Démographie

Démographie des communes et des intercommunalités entre 2008 et 2016

[Voir la carte](#) [Description](#)

Culture, Sport & Tourisme



Portrait

Culture

Equipements culturels

[Voir la carte](#) [Description](#)

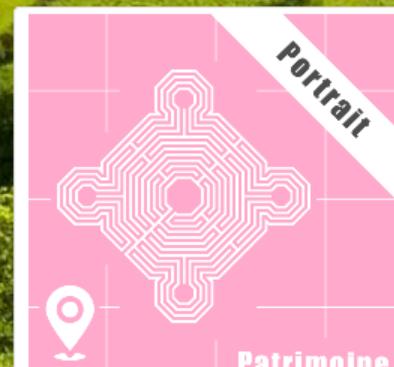


Portrait

Tourisme

Tourisme du Calvados

[Voir la carte](#) [Description](#)

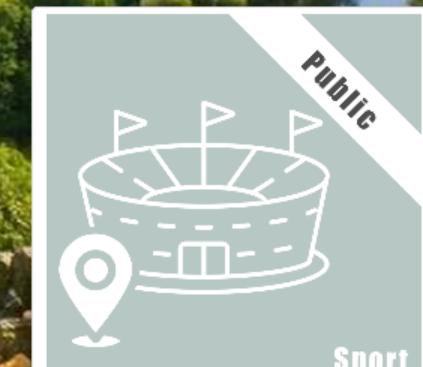


Portrait

Patrimoine

Patrimoine historique

[Voir la carte](#) [Description](#)



Public

Sport

Equipements sportifs

[Voir la carte](#) [Description](#)

Rechercher

Bienvenue sur le portail cartographique du Département du Gard !

Vous pouvez y consulter des cartes dynamiques en cliquant sur une des imagettes situées ci-dessous.

Données de référence

**GARD
3.0**
Département
SIG 3.0

Données ouvertes

[Voir la carte](#) [Description](#)



Données administratives

[Voir la carte](#) [Description](#)



Données métiers

[Voir la carte](#) [Description](#)

Solidarités

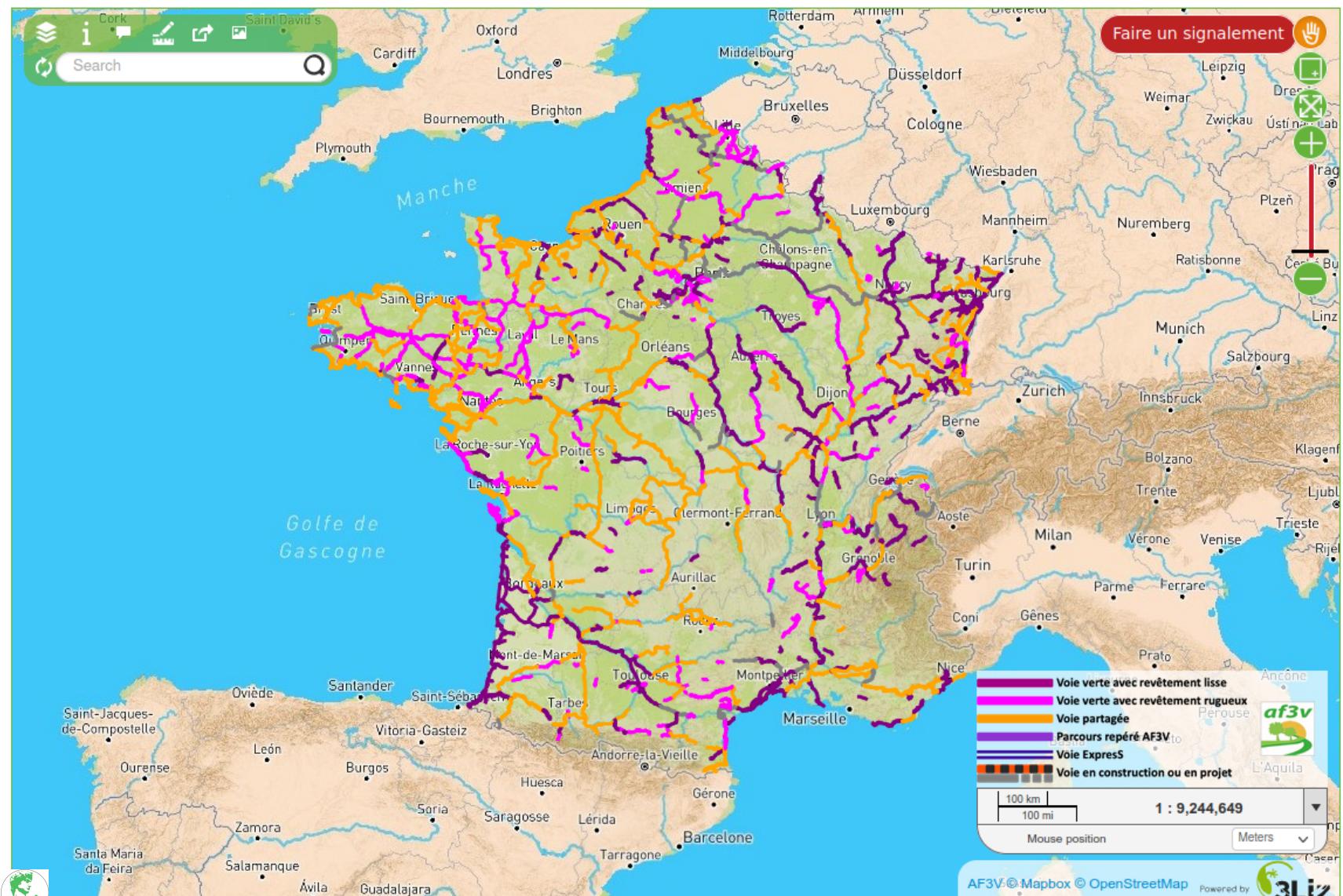


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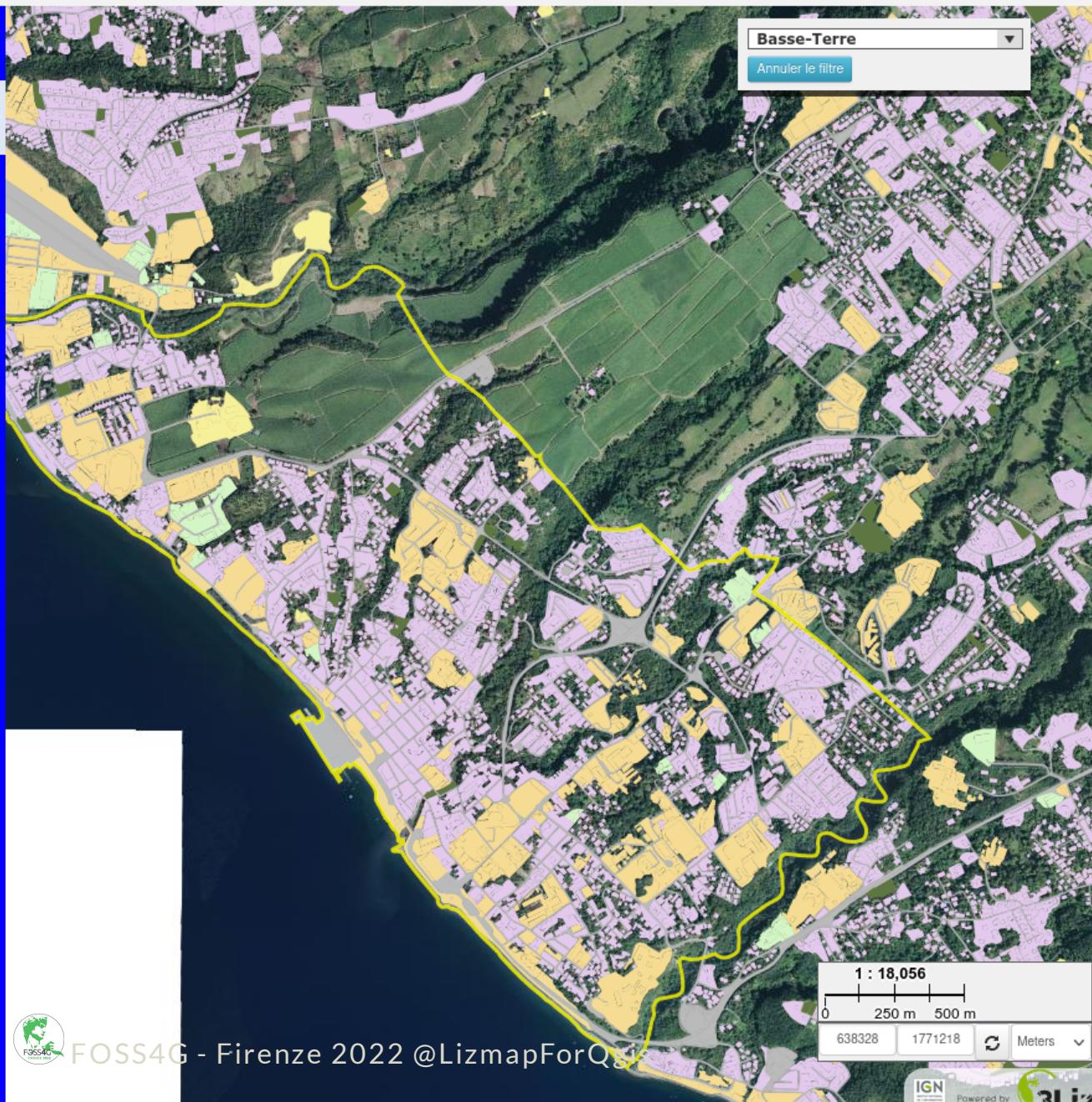
Embed in another website - AF3V

- Possible to embed Lizmap in another website
- AF3V : French association about bicycle routes
- <https://Af3v.org>

[Accueil](#) > [Les Voies Vertes](#) > [Carte du schéma national des véloroutes et voies vertes](#)

Dataviz with land use in Guadeloupe

- Guadeloupe island in the Caribbean
- Valorisation of Land Use data
- Evolution of Land use data
- https://cartophyl.lizmap.com/demo/index.php/view/map/?repository=cartophyl&project=indic_GP#



03-Artificialisation par destination

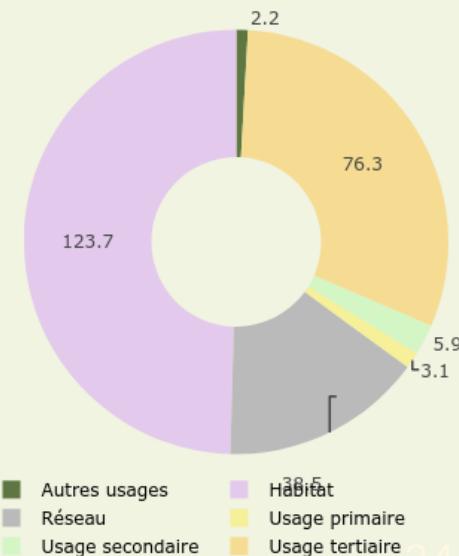
Démographie 2017

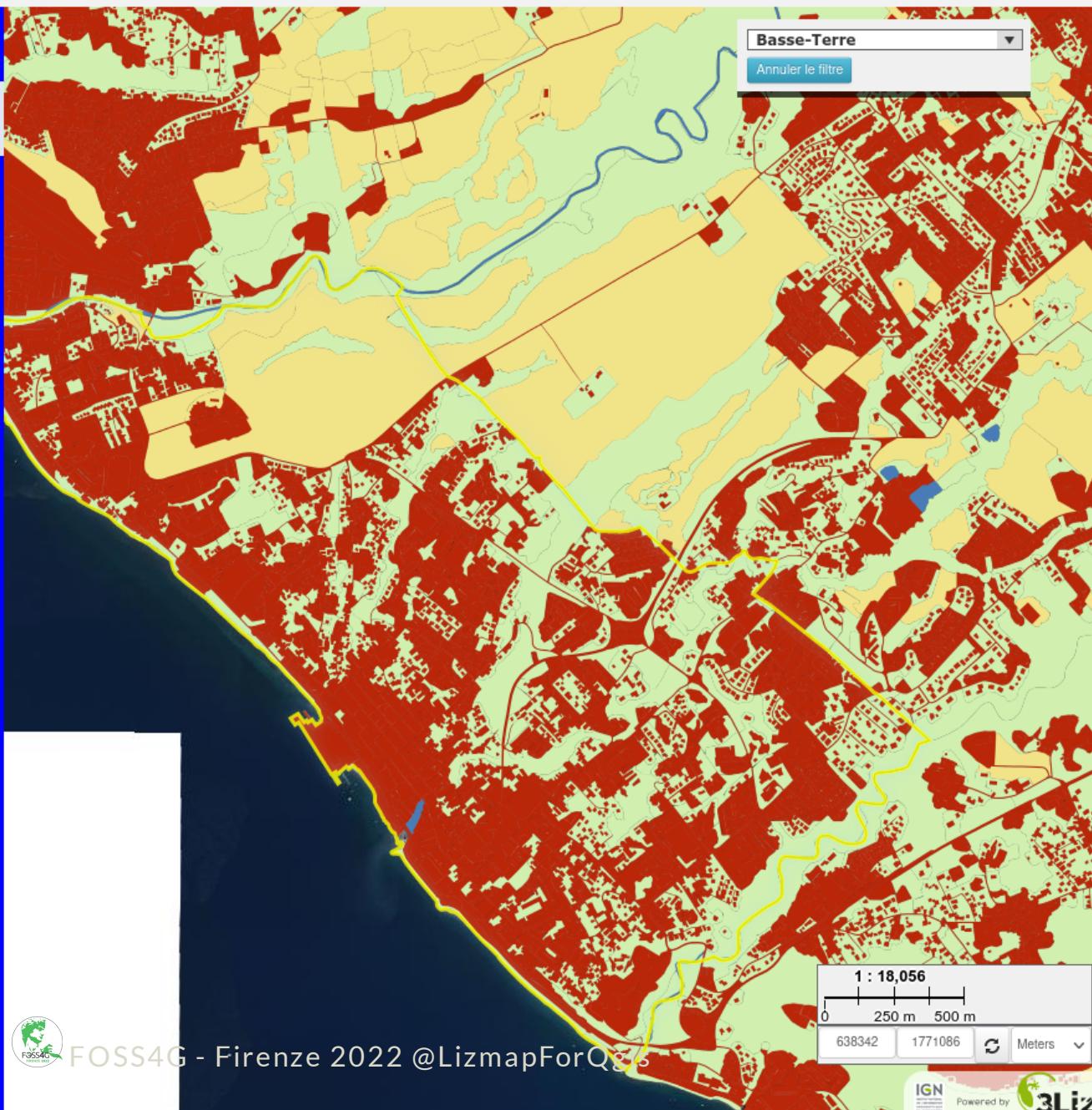
Population : 390,254 habitants
Superficie totale : 1,628.4 km²
Densité : 14,506 habitants au km²

Usage des sols artificialisés en 2017

Surfaces artificialisées en fonction des usages auxquelles elles sont destinées en 2017.

L'analyse de la destination permet de déterminer quel usage des sols génère la part la plus importante d'artificialisation sur un territoire.





01-Les grandes composantes du territoire

Démographie 2017

Population : 390,254 habitants
Superficie totale : 1,628.4 km²
Densité : 14,506 habitants au km²

Les grandes composantes du territoire en 2017

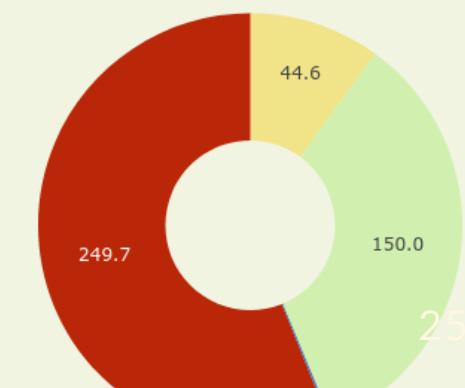
Indicateurs proposant 4 grands types d'occupation du sol sur le territoire de la Guadeloupe en 2017.

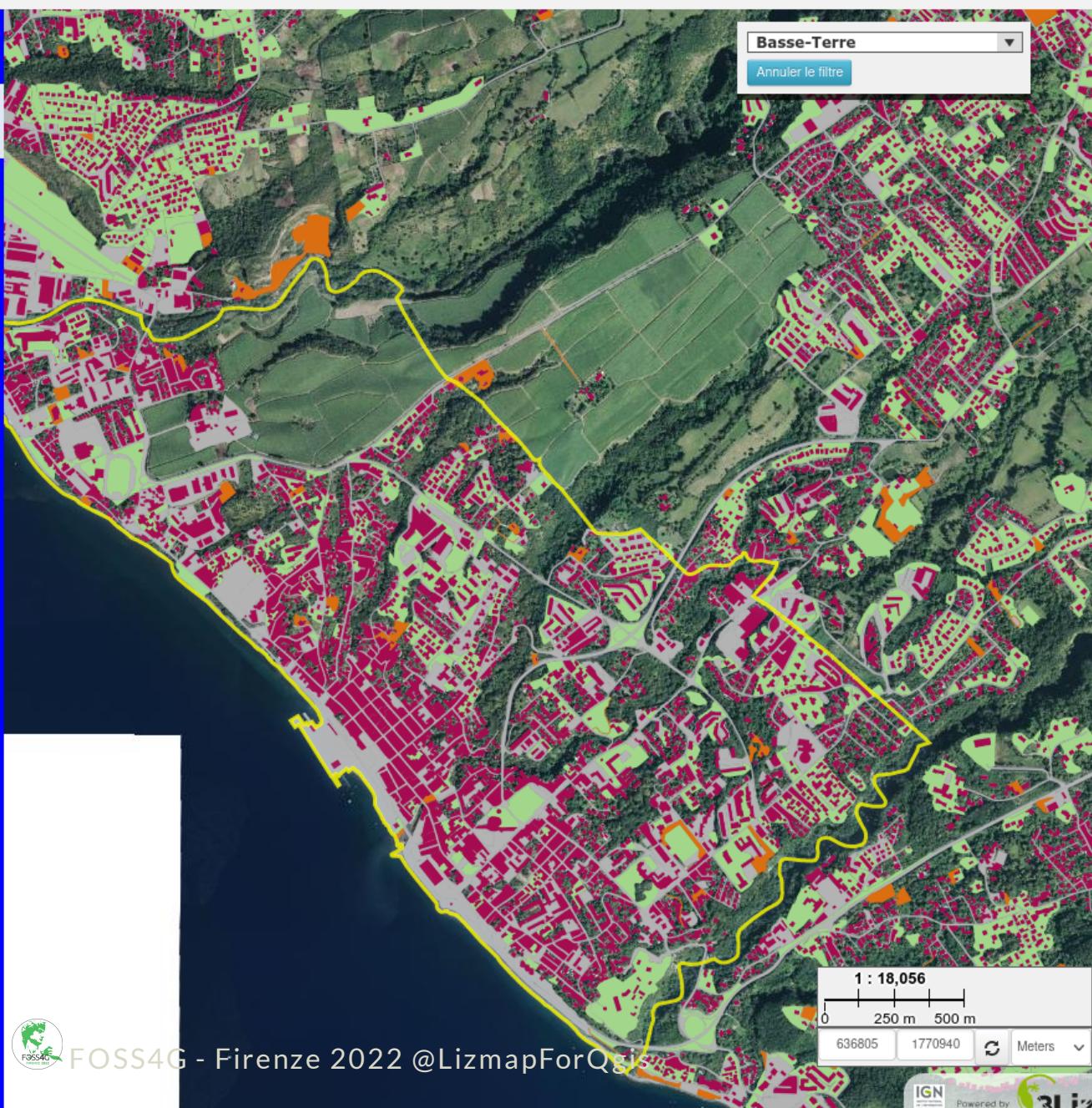
- 1) Les espaces artificialisés (*)
- 2) Les espaces agricoles (**)
- 3) Les naturels et forestiers (**)
- 4) les espaces en eau(***)

(*) : nomenclature établie par le décret n° 2022-763 du 29 avril 2022

(**) : excluant toutes composantes d'artificialisation ou surface en eau incluse dans le milieu.

(***) : ne prend pas en compte que les surfaces d'eau incluses dans la limite terrestre.





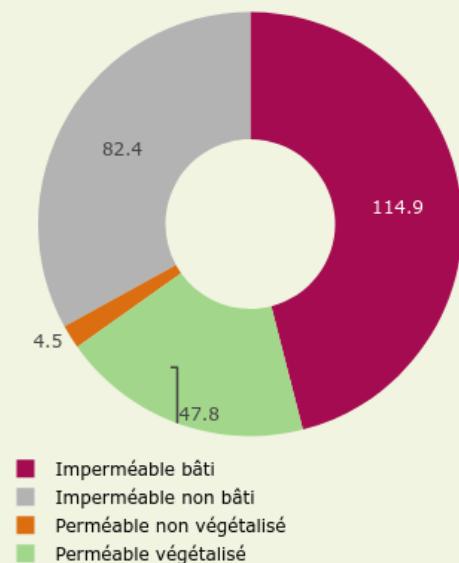
04-Couverture des sols artificialisés

Démographie 2017

Population : 390,254 habitants
Superficie totale : 1,628.4 km²
Densité : 14,506 habitants au km²

Nature des sols artificialisés

Identification de la nature des sols artificialisés à partir du niveau 2 de la nomenclature de l'OCS, à savoir s'il s'agit de sols perméables végétalisés ou non végétalisés ou de sols imperméables bâti ou non bâti.



Identify feature

- ADUGA, Urban planning agency
- Highlight key figures of **local business parks**
- Use core **QGIS HTML Maptip** to use **QGIS expressions**



Popup

Pôle économique

Espace industriel nord

Foncier :

488 ha de surface brute dont 434 ha à vocation économique dont :

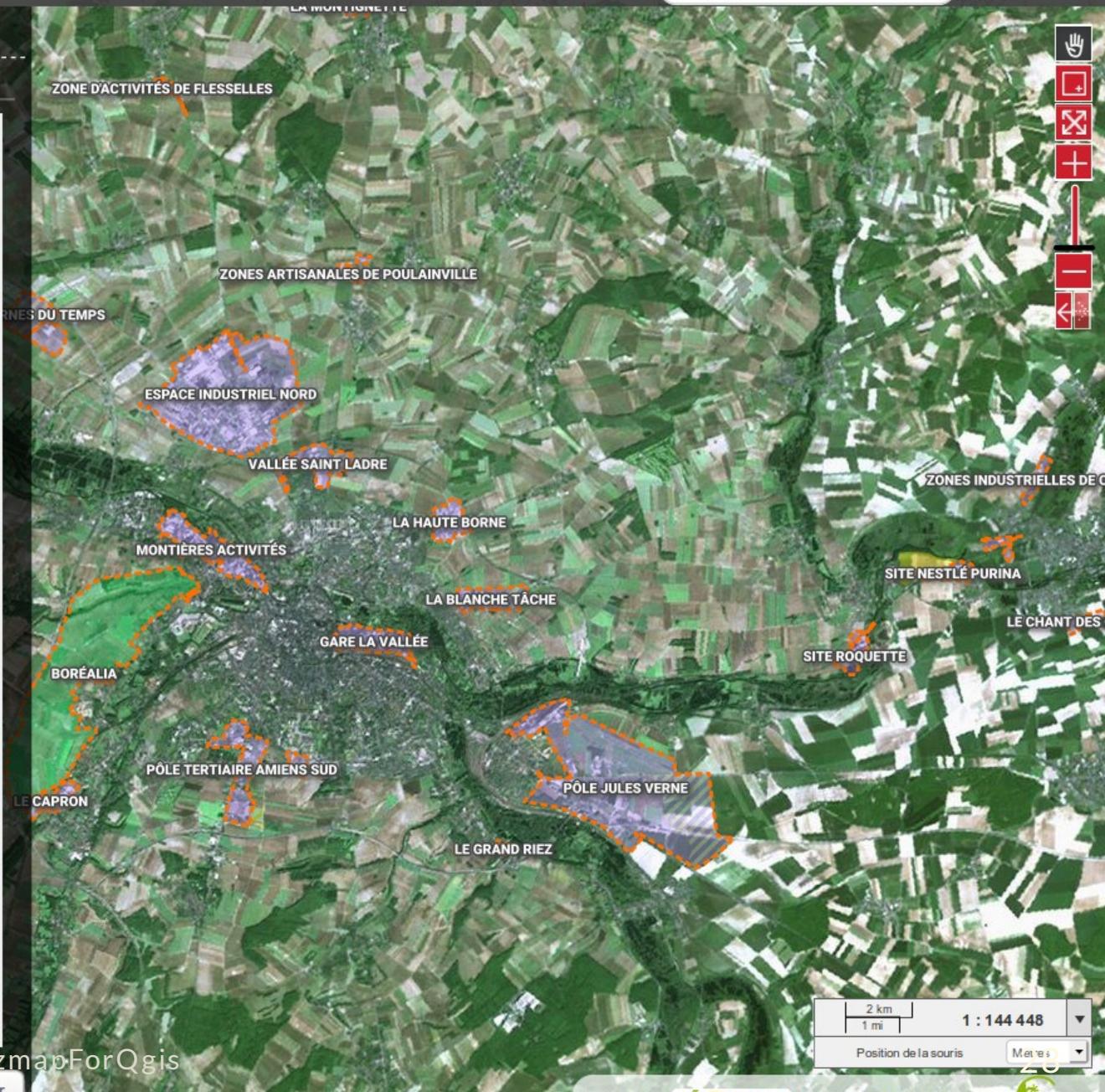


[Surface disponible](#) [Surface occupée](#) [Surface en projet](#)

Economie :

350 établissements recensés pour 10661 emplois estimés :

	Industrie	4856
	Commerce de détail et restauration	172
	BTP	884
	Transport, logistique et commerce de gros	2101
	Tertiaire supérieur	518
	Fonctions supports	577
	Services collectifs	1310
	Services de proximité	150
	Agriculture	0
	Culture, loisirs, tourisme	4





Layer editing

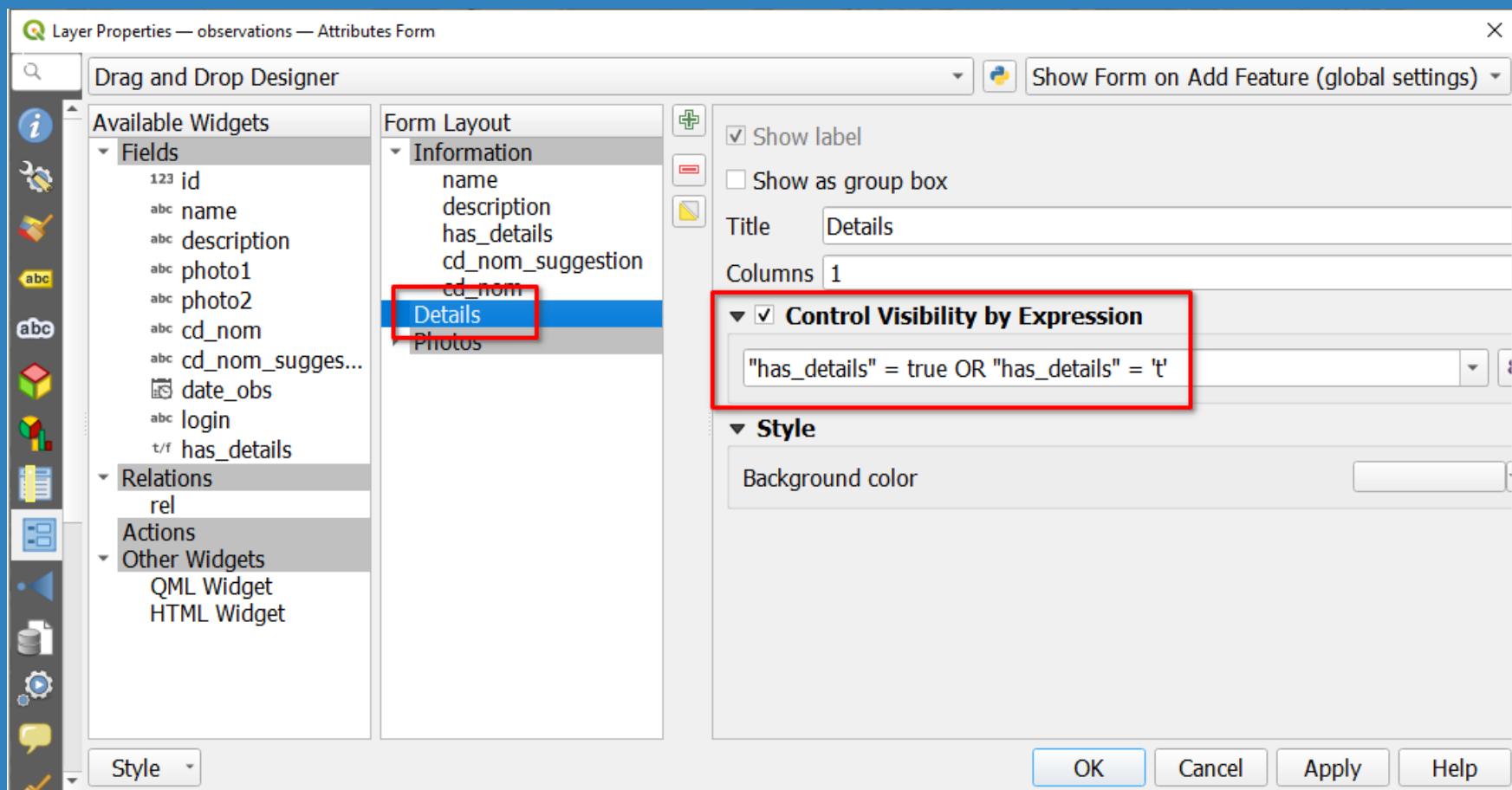
Setting up forms in QGIS can be **very** powerful ! 😎

thanks to many features such as Drag&Drop designer, container, visibility by expression, constraints, widgets...



Layer editing

Support of Drag&Drop designer form, with **tabs** to organize the form **and** the "control visibility by expression"





Layer editing

Édition

Formulaire Digitalisation

observations

Information Photos

Your name*: Nicolas

Description

Add details?

Scientific name (suggestion)

Scientific name

Après enregistrement*

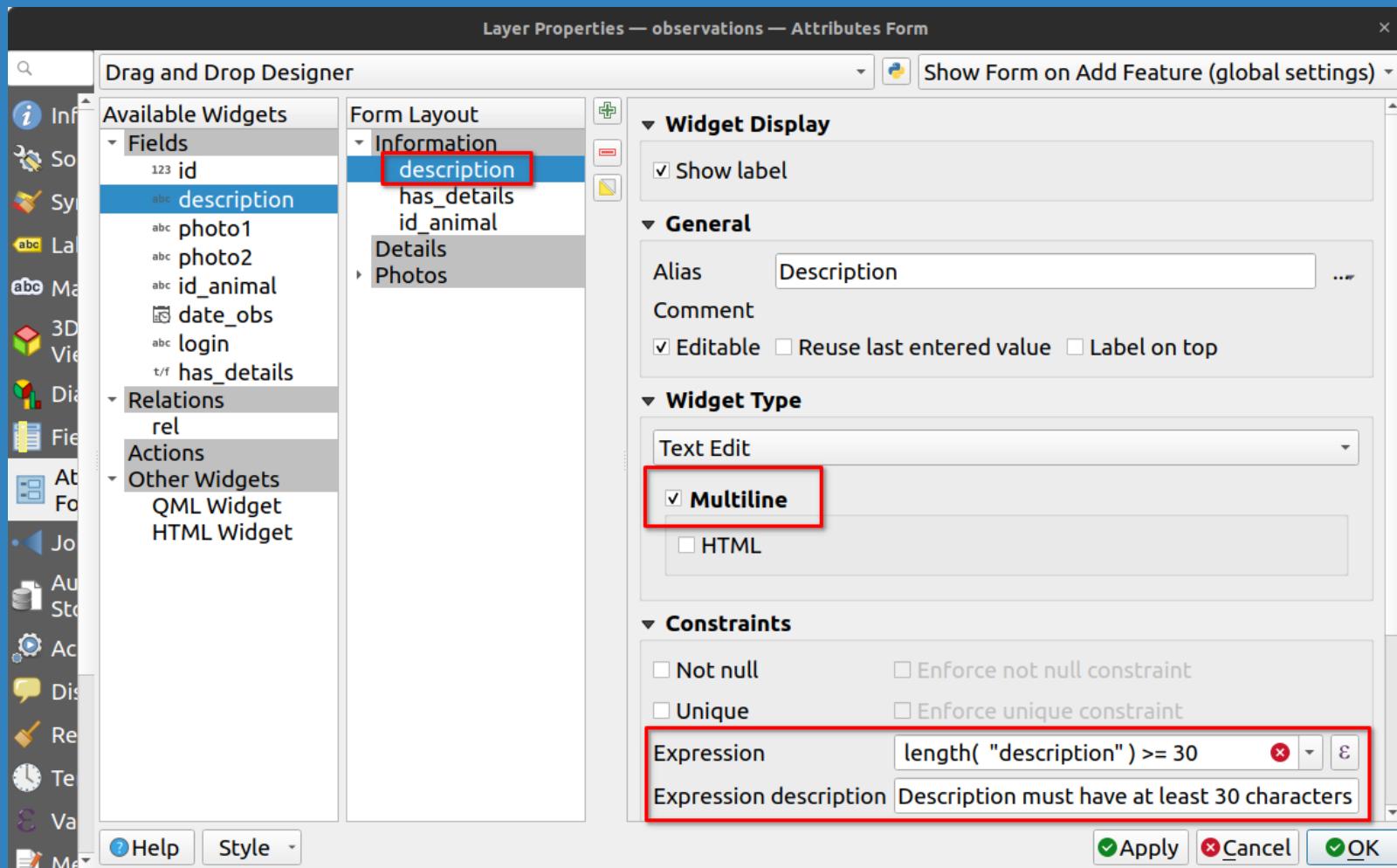
Fermer le formulaire

Réinitialiser Annuler Enregistrer

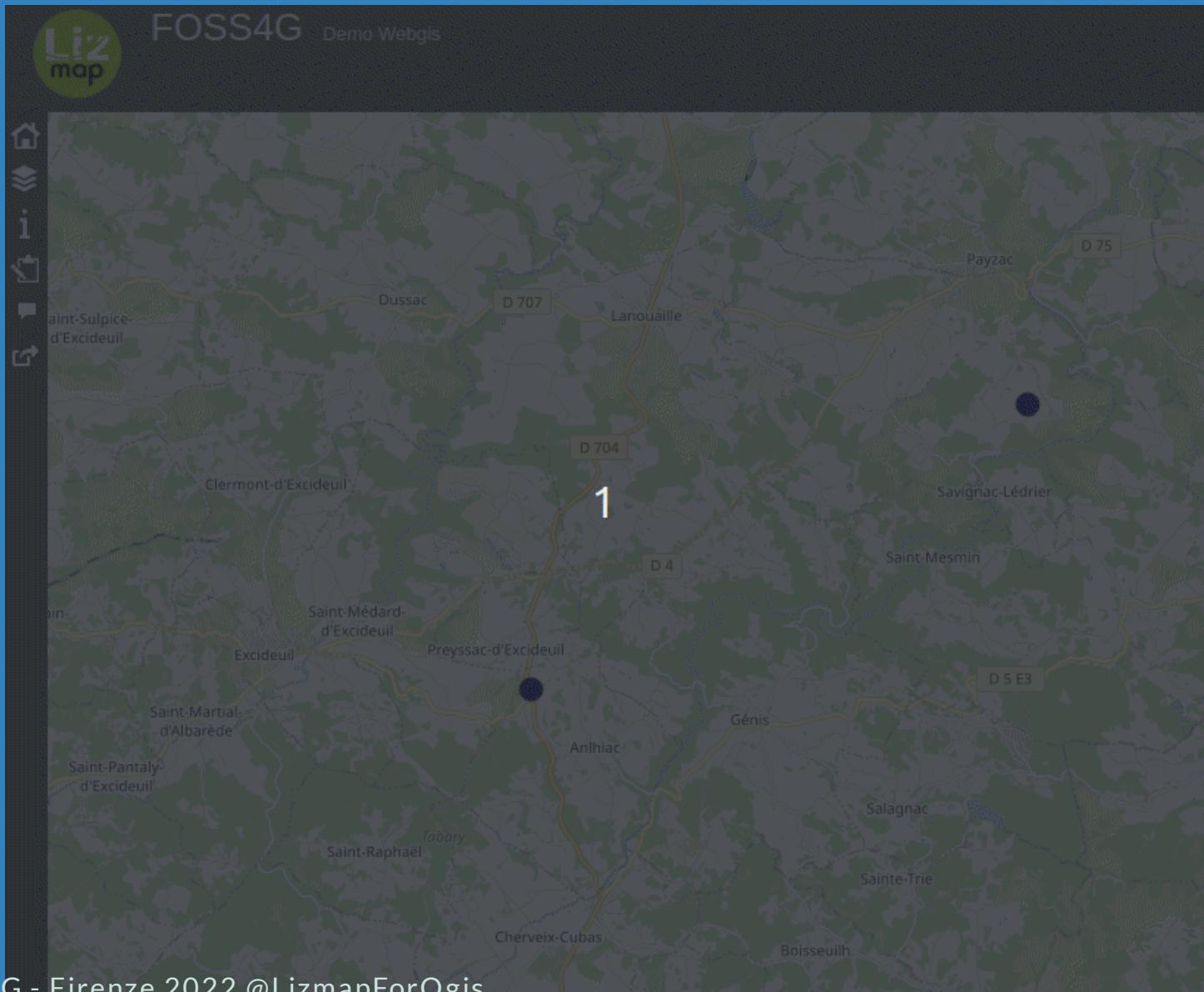


Layer editing

Constraints with expression



Layer editing



Layer editing - Extra capabilities

- **Geolocation**, GPS accuracy control
- **Snapping** with existing features
- Geometry toolbar
 - Reverse line geometry etc



Form filtering in Narbonne

- Find local products and markets
- Using form filtering : checkbox or dropdown menu
- https://lizmap.legrandnarbonne.com/index.php/view/map/?repository=public&project=circuit_court





Cocher les cases pour chercher des points de vente.

128 résultats

Désactiver le filtre

Type de point de vente

- Aire de vente (8)
- Caveau (44)
- Magasin de produits locaux (13)
- Marché (4)
- Paniers et colis (13)
- Vente à la ferme (38)
- Autre commerce de produits locaux (1)

Type de produits

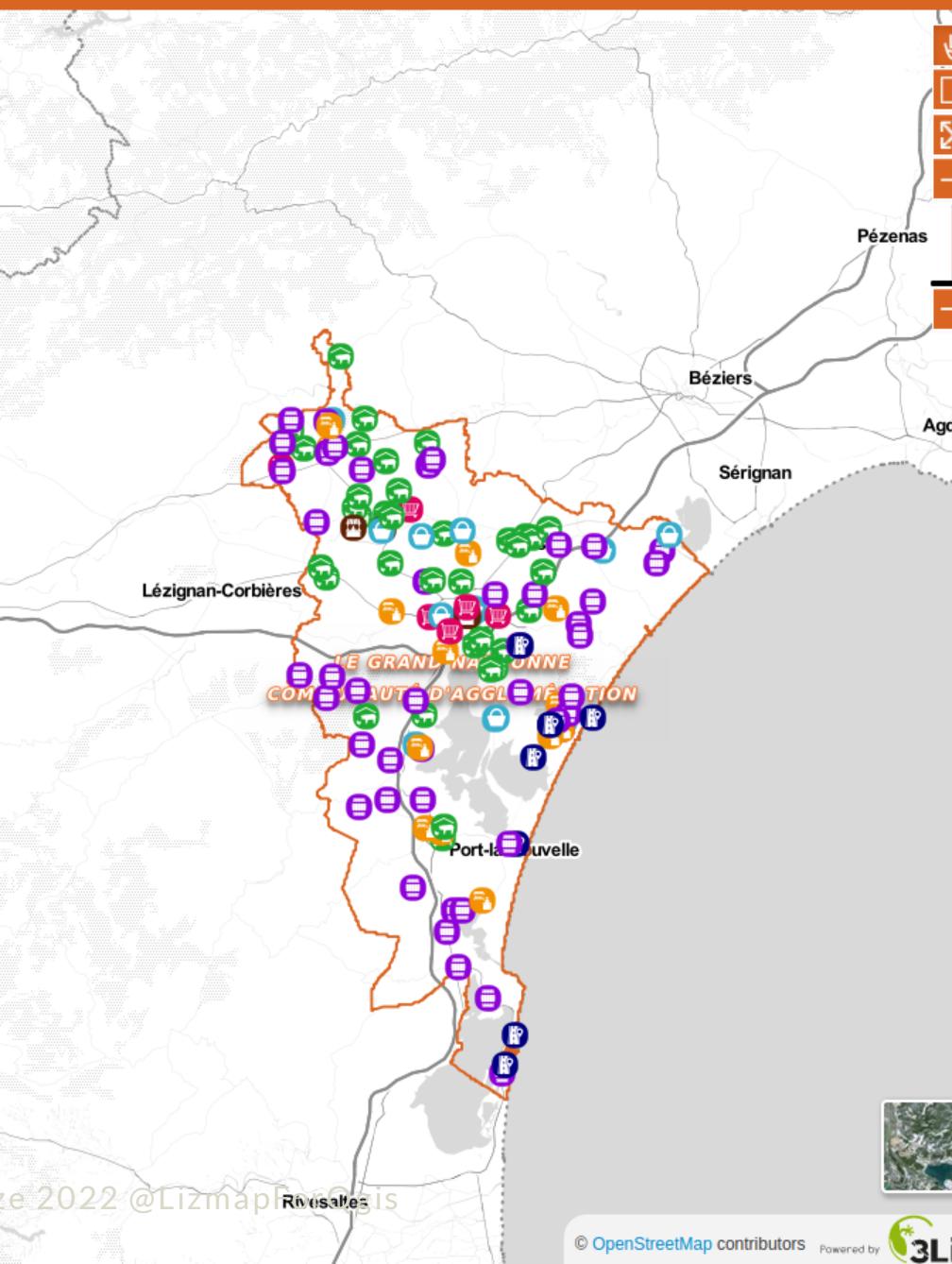
- Boissons alcoolisées (72)
- Cosmétiques et huiles essentielles (1)
- Fromages et produits laitiers (21)
- Fruits, légumes et champignons (1)
- Horticulture (8)
- Huiles et condiments (49)
- Jus et boissons non alcoolisées (3)
- Miel, confitures et autres produits (1)
- Pain, biscuits et céréales (27)
- Plats cuisinés et produits apéritifs (1)
- Produits de la mer ou d'eau douce (1)
- Viandes, volailles et oeufs (33)
- Autres (6)

Marques, mentions et labels

- Accueil Paysan (1)
- Agriculture Biologique (22)
- Agriculture Biologique en partie (1)
- Bienvenue à la Ferme (19)
- Club Table & Vin de l'Aude (20)
- HVE (1)
- Marque Valeurs Parc Naturel Régional (1)
- Pays Cathare (53)
- Qualité Sud de France (41)
- Qualité Tourisme (2)
- Vignobles et Découvertes (29)



FOSS4G - Firenze 2022 @Lizmap Grand Narbonne



Asinerie du Rivage - Coursan

Vente à la ferme - Point de vente sur l'exploitation de produits cosmétiques au lait d'ânesse et de miel. En conversion bio.



[Fiche détaillée](#)

GAEC Le Perié - Mailhac

Vente à la ferme - Point de vente en direct de légumes et fruits frais et de saison. Vente également de produits transformés (confitures et conserves)



[Fiche détaillée](#)

Top Fruits - Argeliers

Vente à la ferme - Cueillette à la ferme de fruits et légumes frais, directement dans les champs et les vergers. A cueillir: pêches, nectarines, abricots, cerises, fraises, prunes, tomates, raisins de table, aubergines, oignons doux, courgettes, concombres.



[Fiche détaillée](#)

Les Roumanisses - Mailhac

Vente à la ferme - Vente directe d'huiles essentielles et de produits cosmétiques de l'exploitation. Vente également d'autres produits de producteurs de la région.



[Fiche détaillée](#)



Extent Lizmap core with some additional modules



AltiProfil

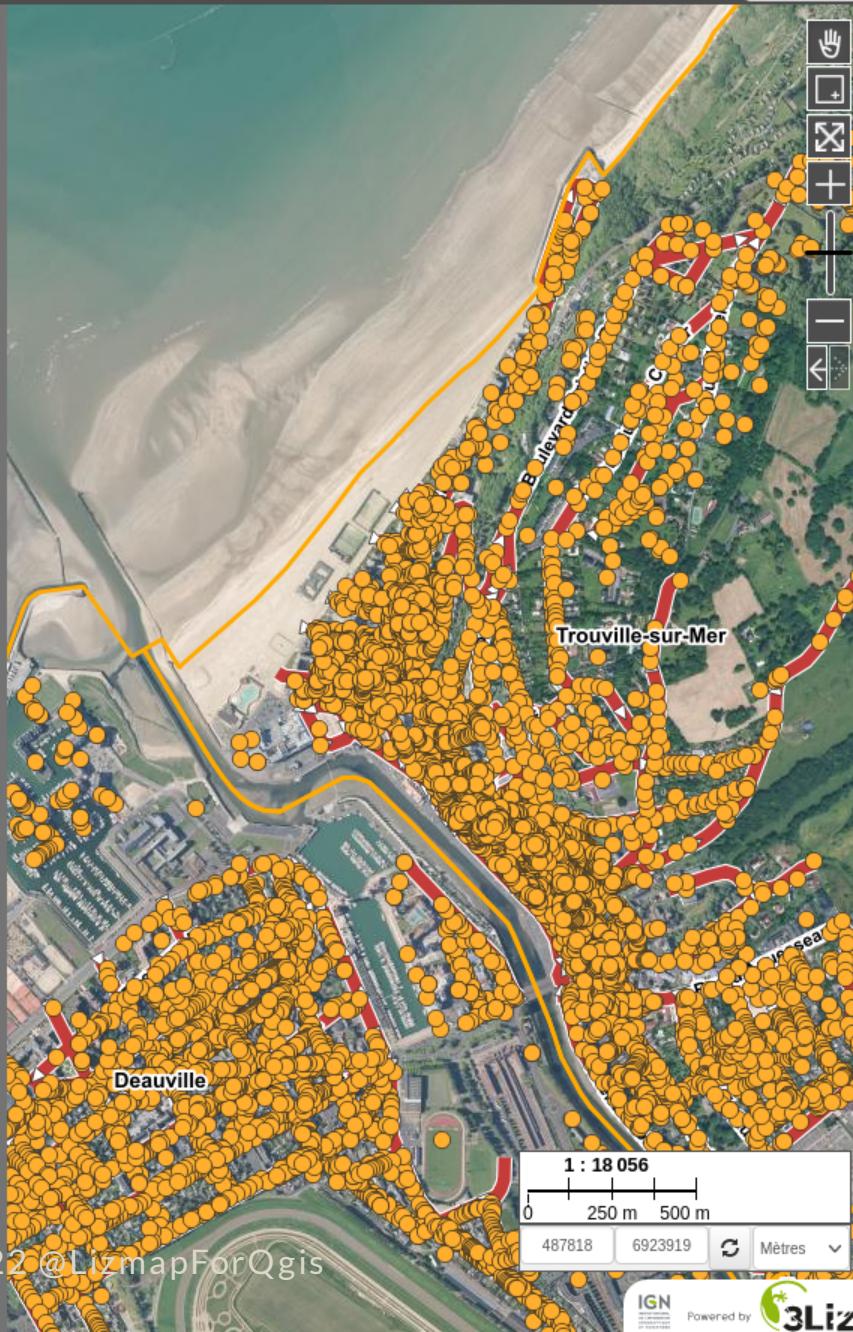
- Developed by a Lizmap user in the Indian Ocean
- <https://github.com/arno974/lizmap-altiProfil>



French address

- Funded by **Calvados**, French province
- Support for municipalities
- Helper to manage addresses
- Auto generation of address number
- Export to the French standard (BAL) for the national DB
- Specific GIS application

-  **Couches** Fermer
- ▼ Base Adresse du Calvados**
 - ▶ Points Adresses
 - ▶ Étiquettes points adresses
 - ▶ Voies
 - Lieux-dits
 - ▶ BAL publiées hors accompagnement
 - Référentiel Voies IGN
- ▼ Cadastre**
 - ▶ Sections
 - Parcelles
 - Bâtiments
- ▼ Limites Administratives**
 - ▼ Communes
- 
- ▶ Communes historiques
- ▼ Suivi du projet adressage**
 - Accompagnement
 - ▶ Infos Communes
-  **Fond de carte** i
- IGN Photos



Popup

Points Adresses

Commune

Création du point	Validation	Utilisateur
Erreur		

Numéro
1

Position
Entrée

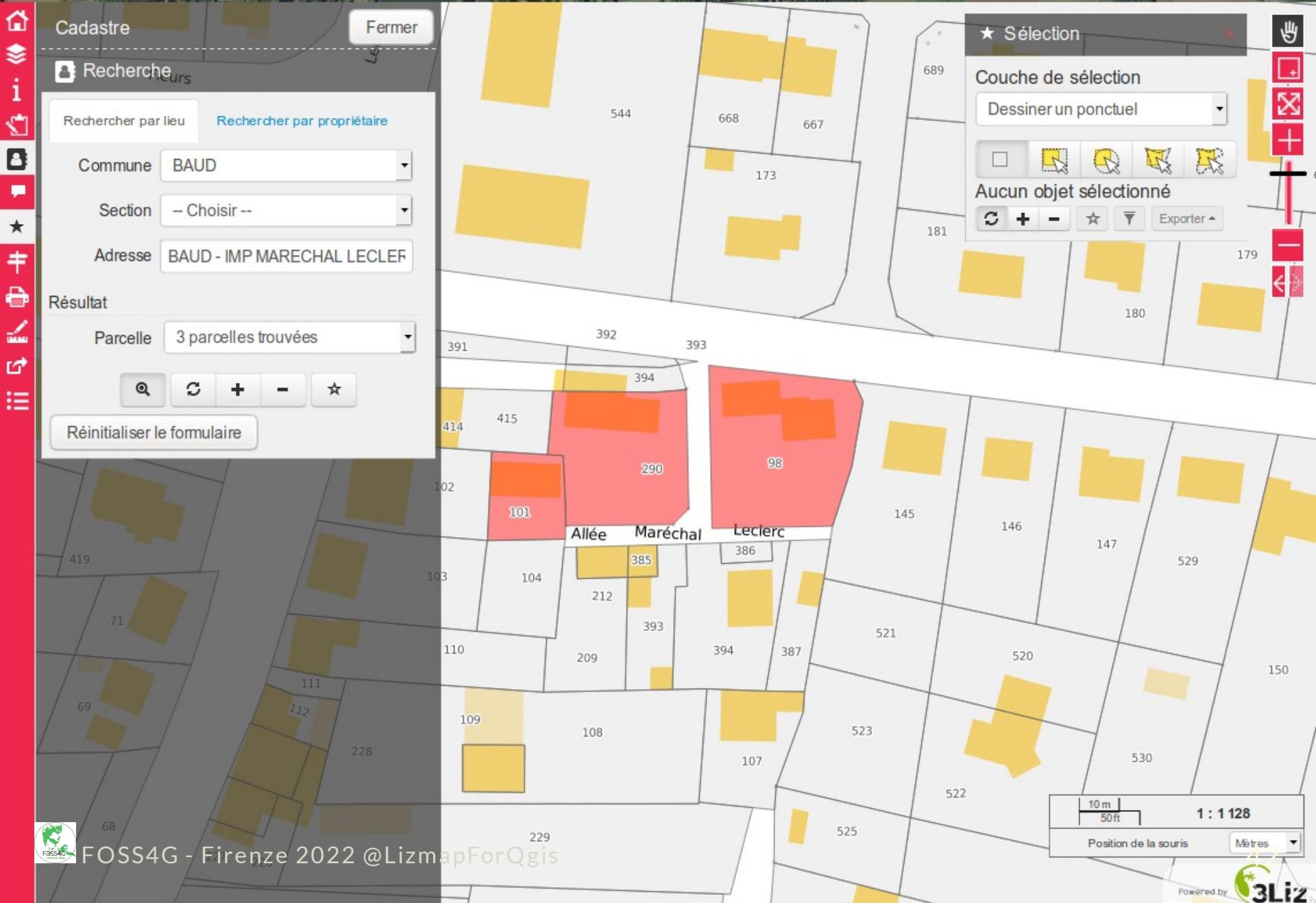
Adresse complète
1 Rue Mirabeau

Code Postal
14800

La plaque est à acheter ?
false

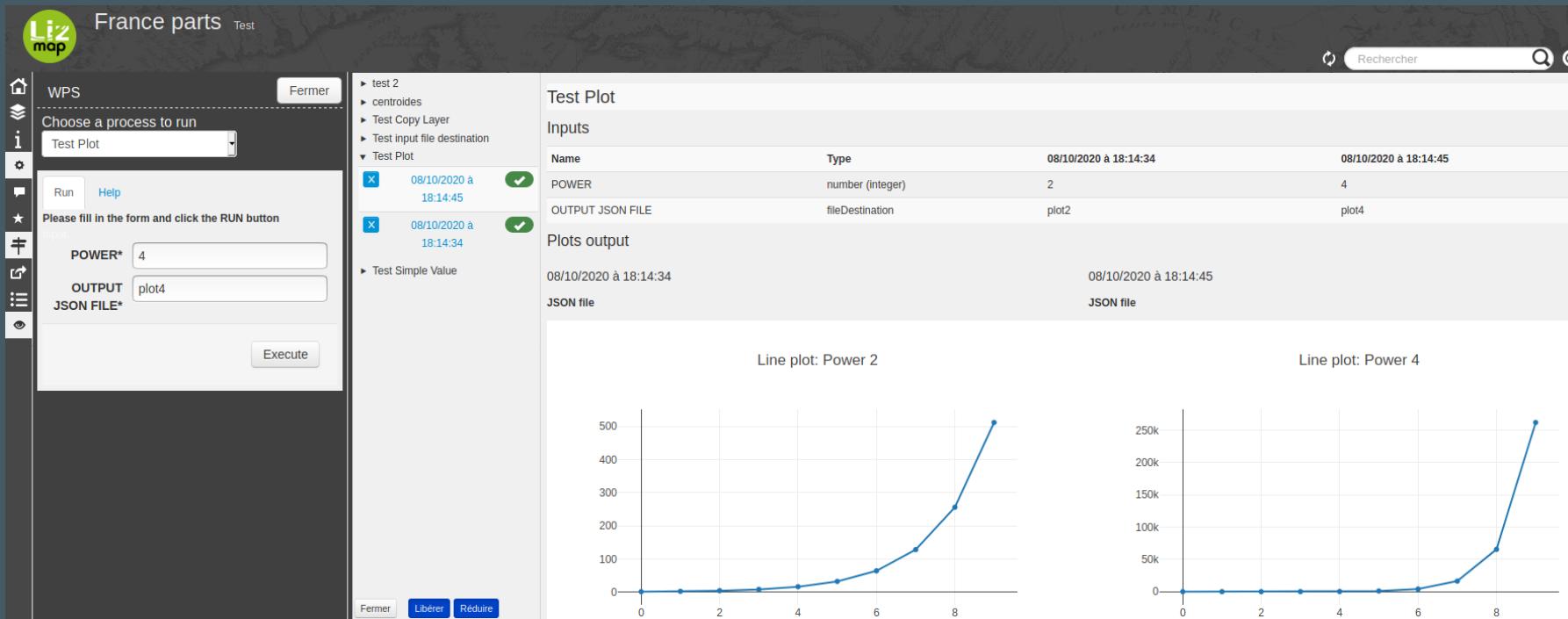
Cadastre - Business application

- Funded by a group of cities
- Search parcels by location or owner
- Dedicated Cadastre Lizmap modules with a **QGIS Server Python plugin**
- Lizmap native **access control** to protect these sensitive data



Web Processing Service

- To expose QGIS Processing (the toolbox and modeler) on the web



The screenshot shows the Lizmap Web Processing Service (WPS) interface. On the left, there's a sidebar with various icons. The main area has a title "France parts Test". A "WPS" panel on the left lists processes: "test 2", "centrodes", "Test Copy Layer", "Test input file destination", and "Test Plot". "Test Plot" is expanded, showing two runs: "08/10/2020 à 18:14:45" and "08/10/2020 à 18:14:34", both with a green checkmark. Below this is a "Test Simple Value" section. A "Inputs" table shows parameters: "POWER" (number (integer), value 2), "OUTPUT JSON FILE" (fileDestination, value "plot2"), and "JSON FILE*" (JSON file, value "plot4"). The "Plots output" section contains two line plots. The first plot, titled "Line plot: Power 2", shows a curve starting at (0,0) and rising sharply after x=6, reaching approximately 500 at x=8. The second plot, titled "Line plot: Power 4", shows a similar curve but with higher values, reaching approximately 250k at x=8.

Name	Type	08/10/2020 à 18:14:34	08/10/2020 à 18:14:45
POWER	number (integer)	2	4
OUTPUT JSON FILE	fileDestination	plot2	plot4
JSON FILE*	JSON file		



Extent Lizmap with some additional JavaScript

<https://github.com/3liz/lizmap-javascript-scripts>





Lizmap JavaScript scripts

You can use those JavaScript scripts to enhance Lizmap Web Client. Documentation is [here](#).

You might have a `README.md` inside the directory with more information and a demo.

Some of the JavaScript codes presented are self-sufficient while others are examples to help you create the functionality you want.

If you are developing a new feature, do not hesitate to let us know so that we can integrate it.

Examples of available Javascript code:

- Data:
 - [Edit GPX](#). Import/Export GPX
 - [IGN web services](#)
 - [WMTS direct access](#)
- Misc:
 - [Add keyboard shortcuts](#)
 - [Google Street View](#)
 - [Translation](#) To provide a Lizmap project in many languages
 - [Refresh some layers periodically](#)
- Tools:
 - [Attribute table column filter](#)
 - [Dynamic form field visibility](#)
 - [Multiple atlas](#), deprecated since LWC 3.4
 - [Point buffer on map](#) Display a buffer on the map
 - [Simple filter](#)
 - [Smart filter](#)
 - [Snapping while editing](#), deprecated since LWC 3.4
 - [Zoom to feature at startup and show popup](#)
- UI:
 - [Add documentation](#) with buttons and a dock
 - [Add hamburger menu](#) for a better UX on a small screen
 - [Background selector](#), like on Google Maps
 - [Group collapse](#)



Packages

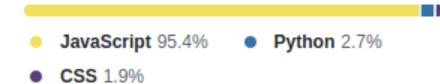
No packages published

[Publish your first package](#)

Contributors 9

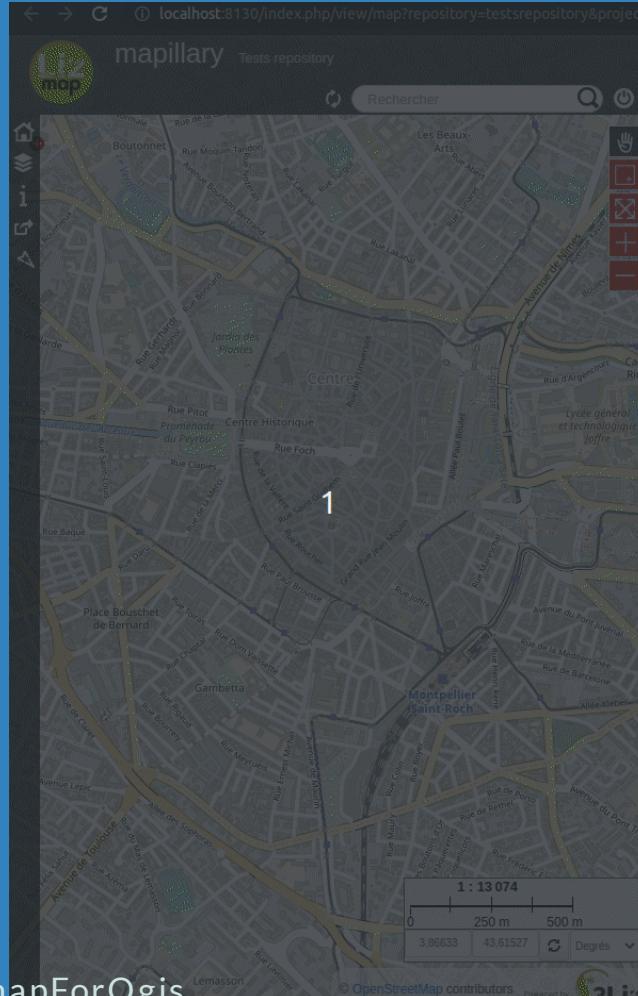


Languages



Like a Mapillary viewer

This idea and Javascript code was initiated by a Lizmap user in Italy, and then we also add to develop it

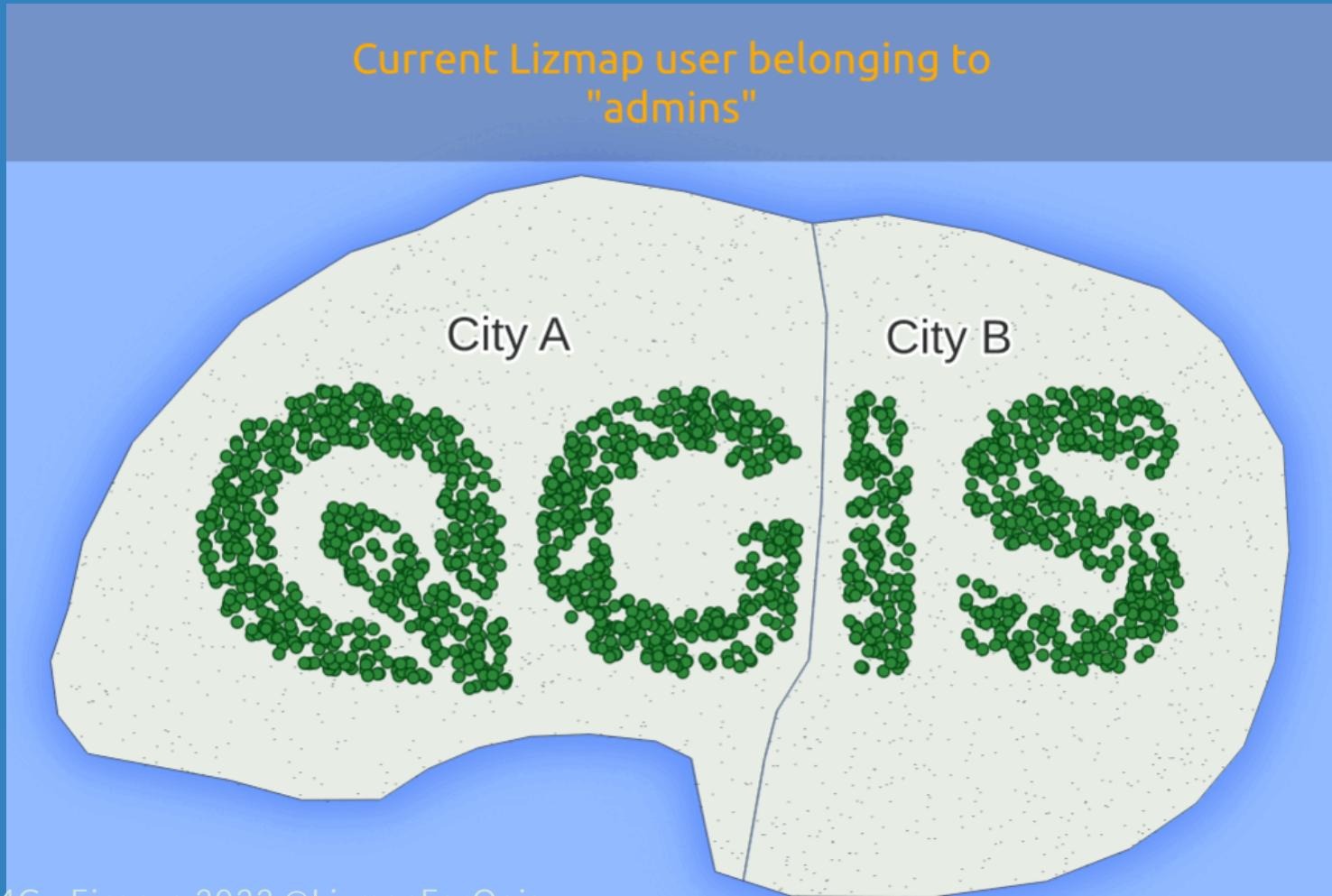


Access control

- Possible to have users and groups
- Different level of filtering and check access control :
 - Make group of projects visible or not on the landing page
 - Make projects visible or not
 - Make layers visible or not
 - Make editing available or not for a layer
 - Within the same layer, make features visible or not (either by attribute or by spatial intersection)

Access control

- Spatial filtering, like a **mask layer**



A growing community

- Different kind of users
 - Private companies
 - Public organizations
 - Research centers
- Main contribution from the **Open Source** community in
 - **translations**
 - the **Javascript** library
 - helping each other on the **Lizmap mailing list**
 - and gis.stackexchange.com
 - and writing some **documentation**

Translations

- <https://www.transifex.com/3liz-1/lizmap-locales/dashboard/>
- 25 languages on Transifex
 - 18 languages with **at least** 70% translated





Translations

August 22nd 2022

Language	Translation ratio (%)
Czech 🇨🇿	100.0
French 🇫🇷	100.0
Portuguese 🇵🇹	99.79
Japanese 🇯🇵	99.7
Russian 🇷🇺	99.55
Ukrainian (Ukraine) 🇺🇦	99.55
Italian 🇮🇹	98.91
Polish (Poland) 🇵🇱	98.43
Romanian 🇷🇴	97.4
German 🇩🇪	92.73
Galician	88.98
Slovak 🇸🇰	88.68
Swedish (Sweden) 🇸🇪	81.96
Portuguese (Brazil) 🇧🇷	81.14
Spanish 🇪🇸	79.14



Freely usable and used worldwide

- Groundwater mapping **Western cape, South Africa**
<https://www.groundwaterinfo.africa>
- **Indian ocean** environment survey <http://homisland.seas-oi.org/>
- **Switzerland** <https://www.wandelderzeit.ch/>
- Faunalia (**Italia**) <https://lizmap.faunalia.eu/>
- Consorzio Toscana Nord (**Italy**) <http://geoportale.cbtoscananord.it>
- **World** Live QField users map:
<http://demo.qfield.org/websig/lizmap/www/>
- Município de Arraiolos (**Portugal**) <http://pdm-revisao.municipioarraiolos.pt/>
- SAERI (**South Atlantic**):
https://data.saeri.org/saeri_webgis/lizmap/www/
- IRSTEA Earth Observation: <https://mdl4eo-cartes.irstea.fr>
- Bonelli eagle 2017-2019
<http://lizmap.aigledebonelli.fr/websig/lizmap/www/>



Couches

Fermer

Légende

Steeple Jason
Fauna

- Striated caracara potential breeders
- Seabirds - Annual count of breeding pairs

- Gentoo penguins
- Southern rockhopper penguins
- Black-browed albatross
- Southern giant petrels

Island wide count of breeding pairs

- Black-browed albatross 2010
- Southern rockhopper penguins 2010
- Gentoo penguins 2010
- Southern giant petrels

Marine mammals breeding pairs count

- South America Fur Seal
- Southern Elephant Seal
- Southern Sea Lion

Flora

- Tussac islands (percentage of tussac coverage)

Population 2016

- Inhabited places

tourism
Cruise ships

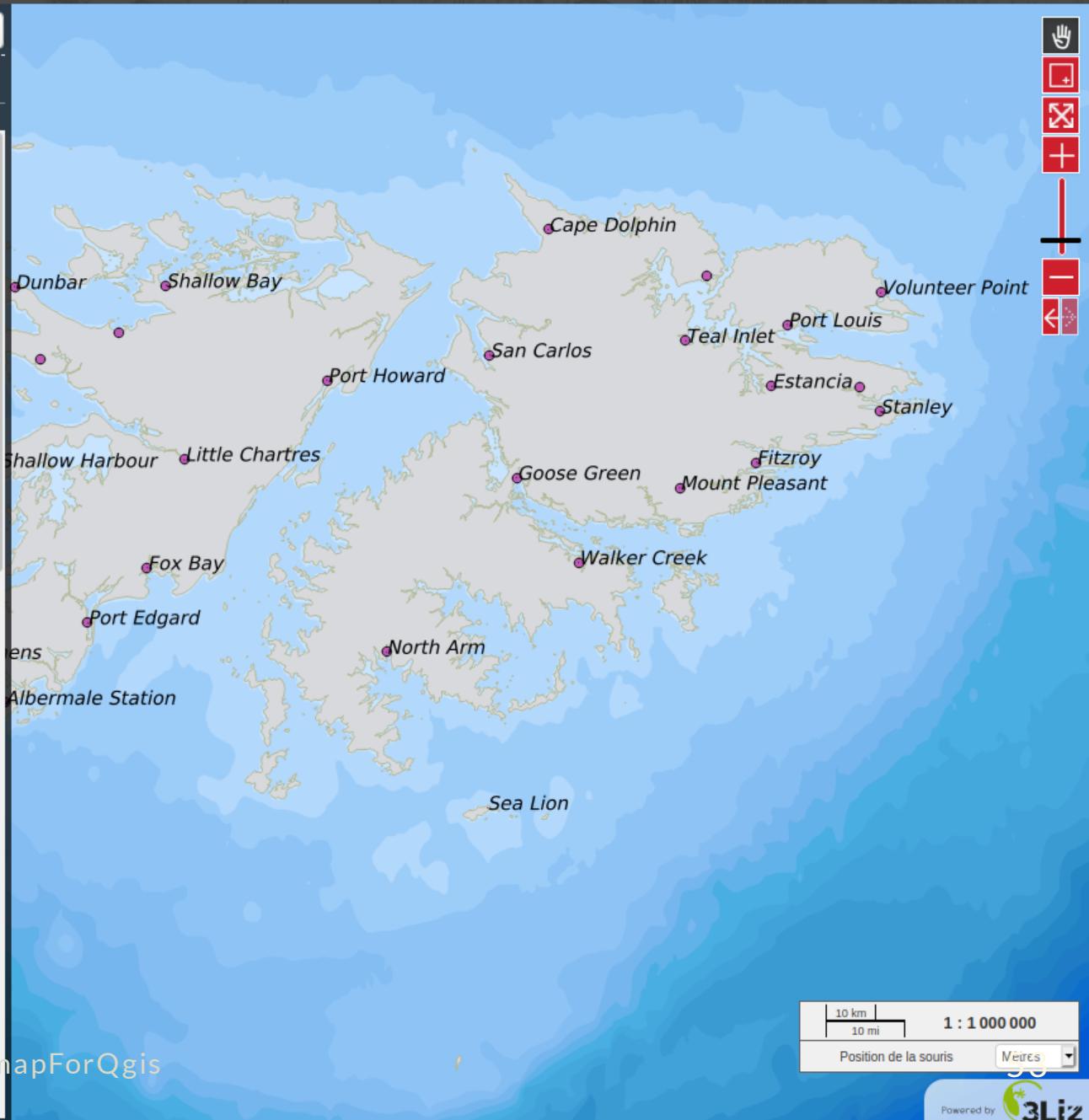
- Cruise ships total passengers from 2012 to 2017
- Cruise ships total passengers in 2016/2017 season

FIGAS total flights and total passengers

- Total FIGAS passengers flying to camp
- Total FIGAS flights to camp destinations

FIGAS total flights per passenger category

- figas_total_flights_per_camp_residents
- figas_total_flights_per_tourists
- figas_total_flights_per_temporary_residents
- figas_total_flights_per_stanley_residents





Roadmap



Roadmap

- Next version **3.6** is in **beta**
- Version **3.6.0-beta2** released **last month**
- Current target, release the final version 3.6.0 in the coming **weeks**
- Development on **3.7** has already **started** 

Changelog 3.6

- Improving **again** of **QGIS relations**
- Use **display values** instead of **raw values** when using a "Value map", "Value relation", "Relation Reference" widget in some tools
- **New administration panel** for GIS administrator showing metrics on each QGIS project 
- New **legend option** to display it automatically on startup
- ...
- The changelog is still "raw", wait for the final changelog
<https://github.com/3liz/lizmap-web-client/blob/master/CHANGELOG-3.6.md#360-beta1---2022-07-27>

Version 3.7 has started

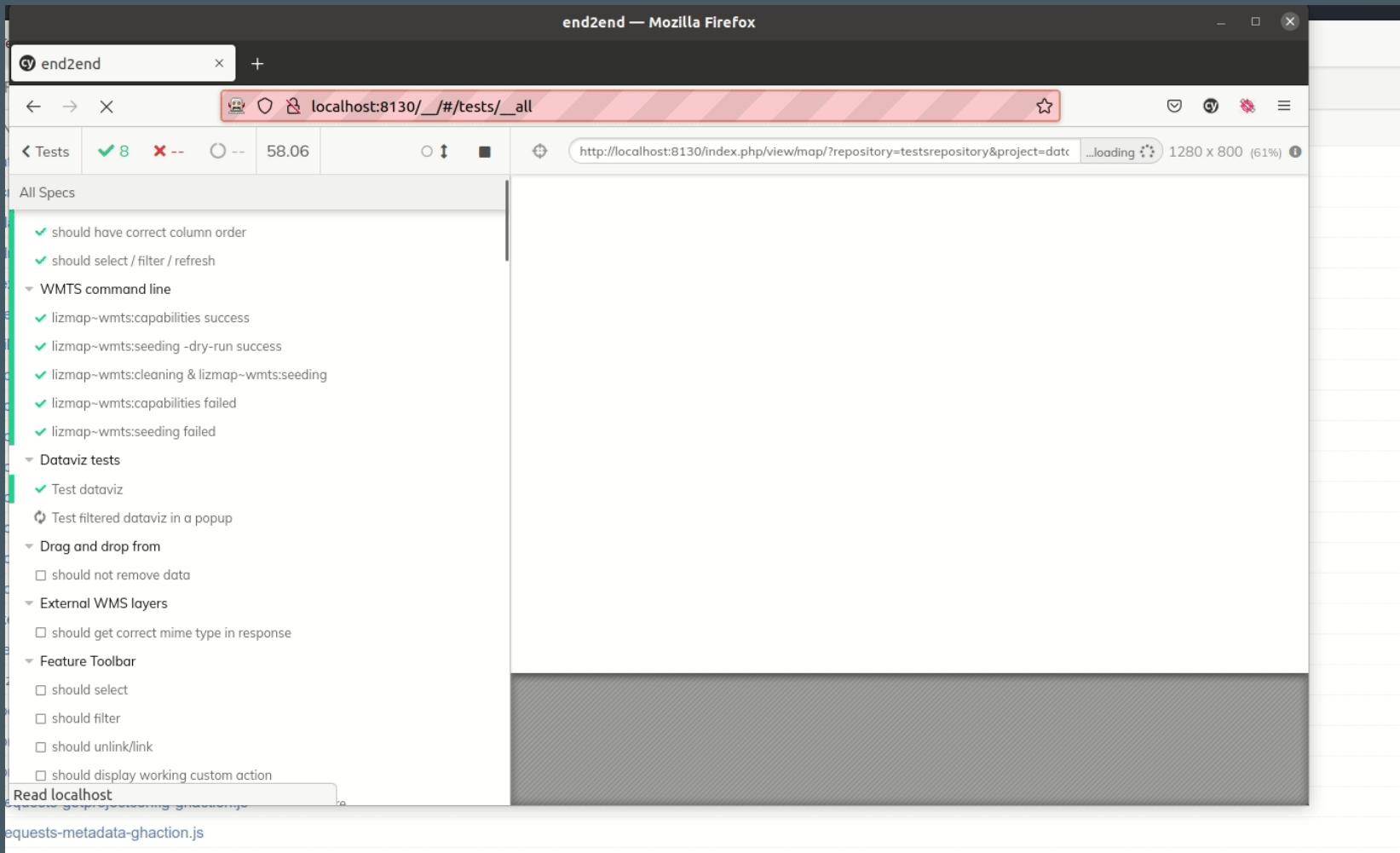
- Form filter
- Dataviz improvements
- Layer tree improvements
- Use more and more the QGIS Server Lizmap plugin

Ongoing efforts

under the hood

- Refactoring
- Migrating some map components to OpenLayers 7
- Unit tests
- End2End tests

End2end



The screenshot shows a Mozilla Firefox window titled "end2end — Mozilla Firefox". The address bar displays "localhost:8130/_/#/tests/_all". The main content area is a test runner interface with the following details:

- Tests: 8 successful (green checkmark), 0 failed (red X), 0 pending (grey circle).
- Time: 58.06 seconds.
- Progress: 58.06 / 58.06.
- Status: ...loading.
- Resolution: 1280 x 800 (61%).

The left sidebar lists "All Specs" with the following test cases:

- should have correct column order
- should select / filter / refresh
- WMTS command line
 - lizmap~wmts:capabilities success
 - lizmap~wmts:seeding -dry-run success
 - lizmap~wmts:cleaning & lizmap~wmts:seeding
 - lizmap~wmts:capabilities failed
 - lizmap~wmts:seeding failed
- Dataviz tests
 - Test dataviz
 - Test filtered dataviz in a popup
- Drag and drop from
 - should not remove data
- External WMS layers
 - should get correct mime type in response
- Feature Toolbar
 - should select
 - should filter
 - should unlink/link
 - should display working custom action

At the bottom of the sidebar, there is a "Read localhost" button and a link to "requests-metadata-ghaction.js".



Questions

@etrimaille

@LizmapForQgis

@3LIZ news

