



Lizmap Web Client



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

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 [@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...

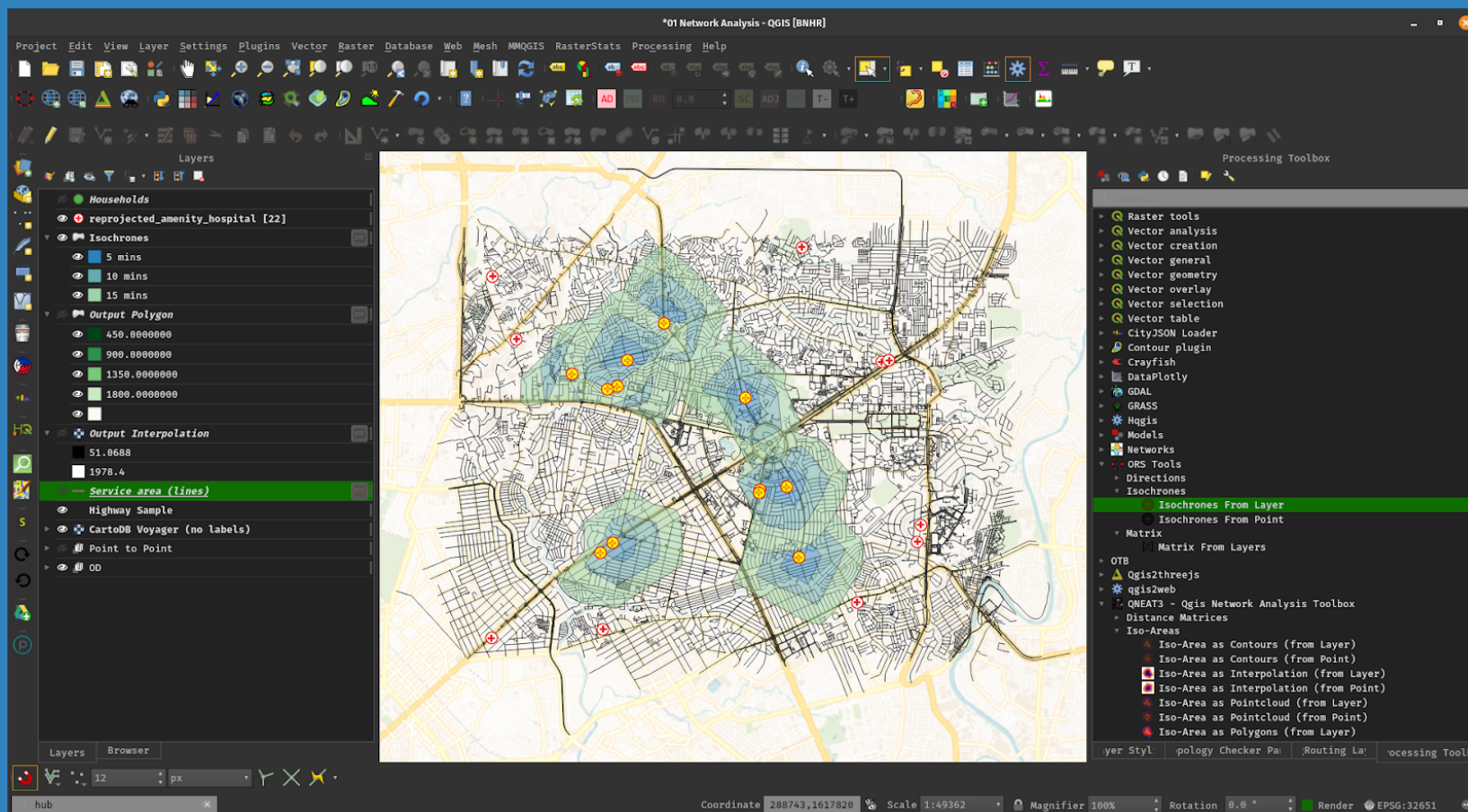


QGIS Desktop

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**

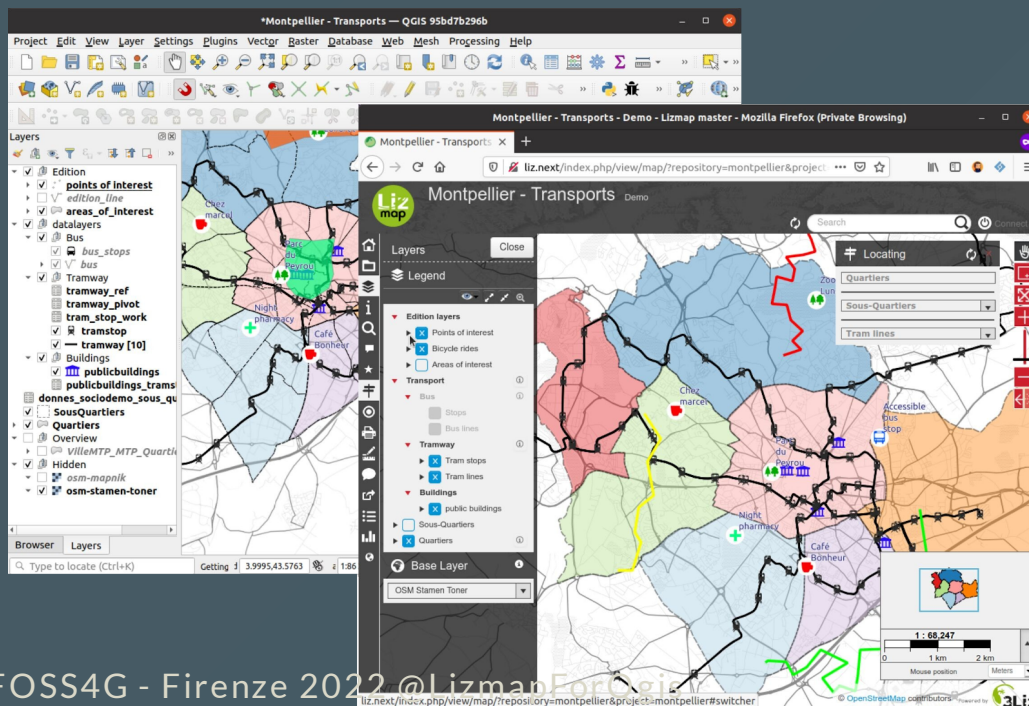


History

- 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

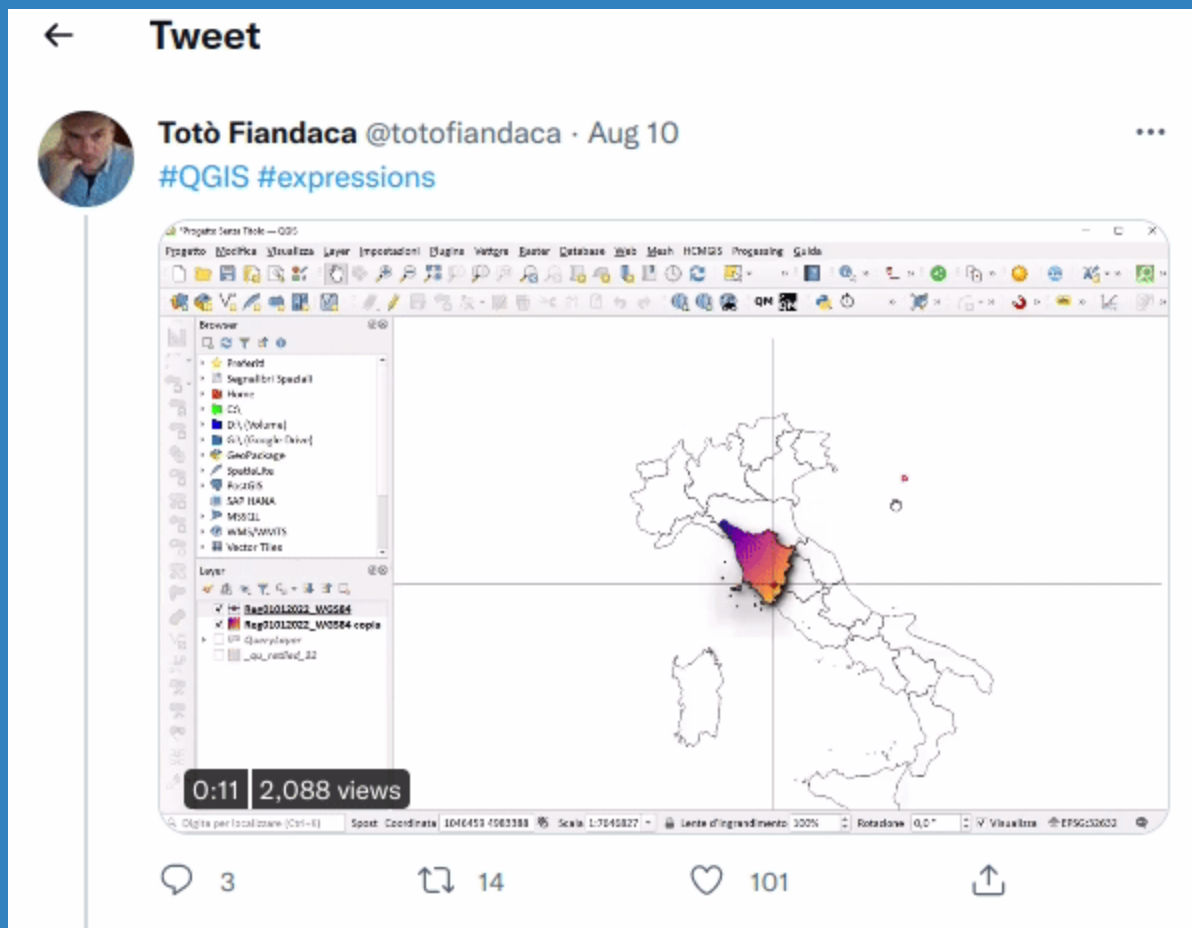
How to

- 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



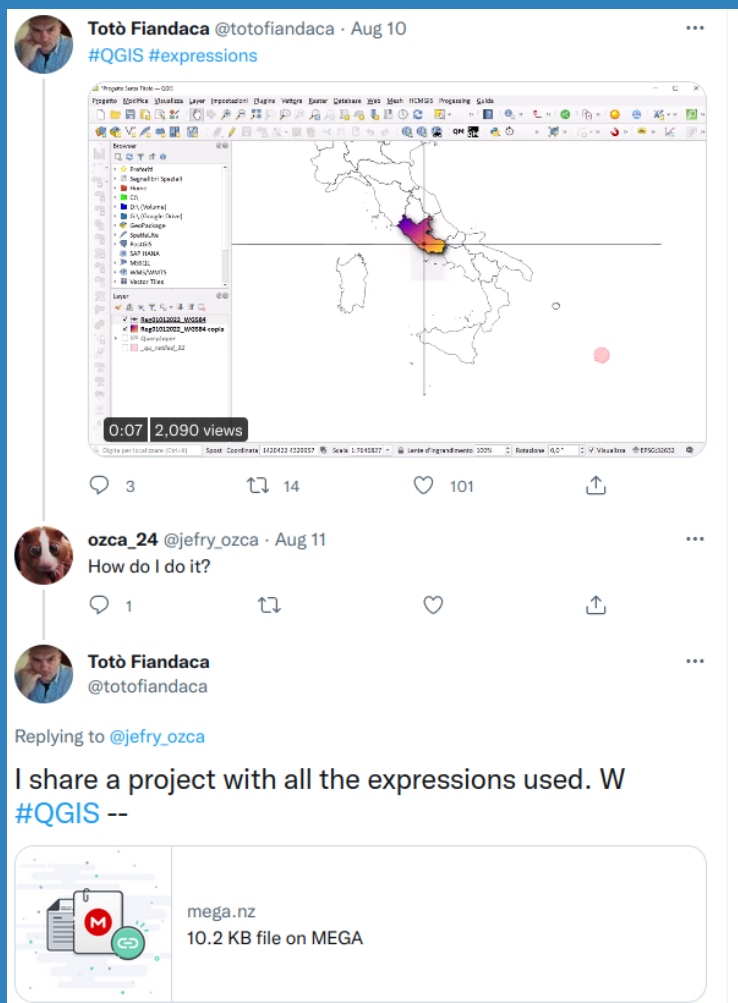
The power of QGIS Server

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



The power of QGIS Server

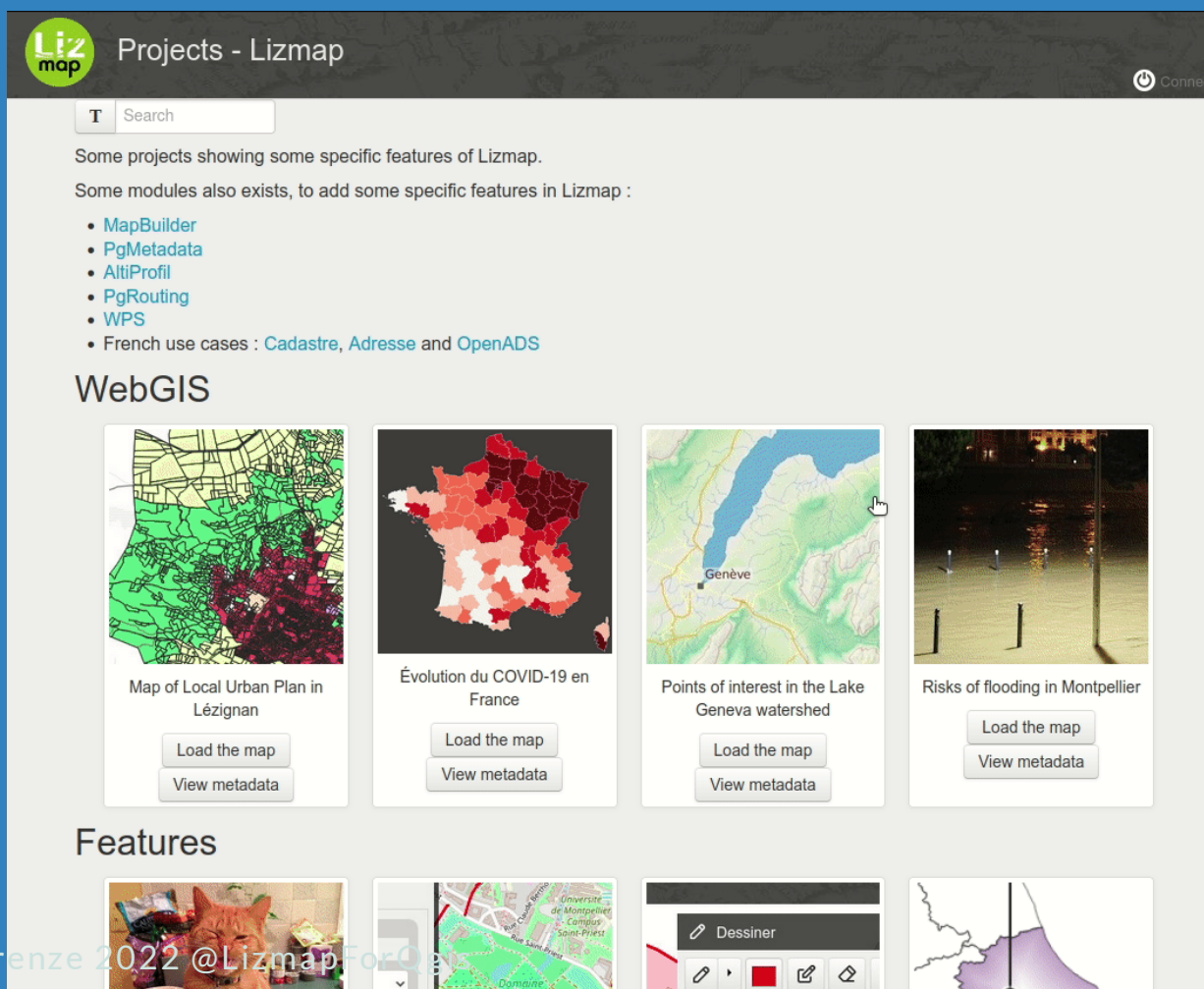
Oh, wait ... I like opensource, just sharing tips 🙌



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 !



The screenshot shows the Lizmap web interface. At the top, there's a header with the Lizmap logo and the text "Projects - Lizmap". Below the header, there's a search bar and a "Connect" button. The main content area lists some projects and modules. Under "Some projects showing some specific features of Lizmap.", there's a list of modules: MapBuilder, PgMetadata, AltProfil, PgRouting, WPS, and French use cases: Cadastre, Adresse, and OpenADS. Below this, there's a section titled "WebGIS" with four map thumbnails. Each thumbnail has a title and two buttons: "Load the map" and "View metadata". The thumbnails are: "Map of Local Urban Plan in Lézignan", "Évolution du COVID-19 en France", "Points of interest in the Lake Geneva watershed", and "Risks of flooding in Montpellier". Below the "WebGIS" section, there's a section titled "Features" with four small images showing various map features and tools.

- 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.meylan.fr>

Equipements



Aires de jeux

Voir la carte

Description



Culture

Voir la carte

Description



Petite enfance

Voir la carte

Description



Scolaire et Péri-scolaire

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



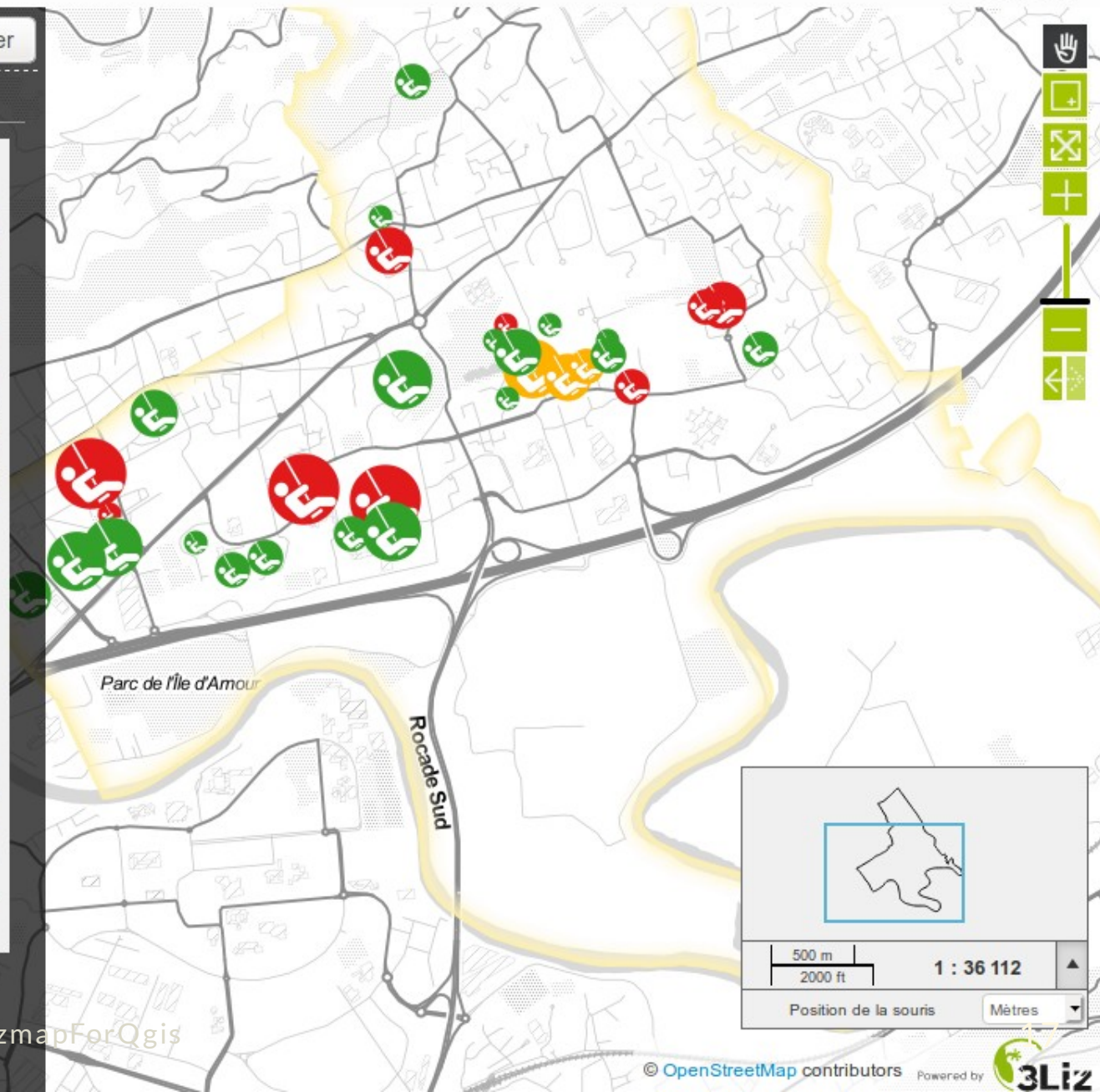
Nombre de Jeux : 3

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

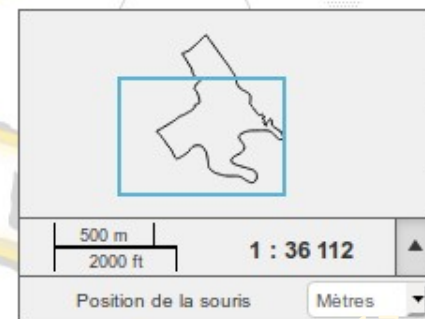
Lieu : Parc des Saules

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



Connexion



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 DEPARTEMENT DU GARD !

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

Données de référence



Données ouvertes

Voir la carte

Description



Données administratives

Voir la carte

Description

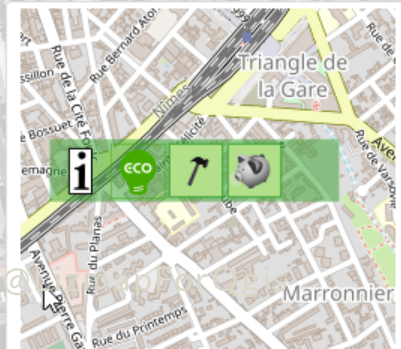


Données métiers

Voir la carte

Description

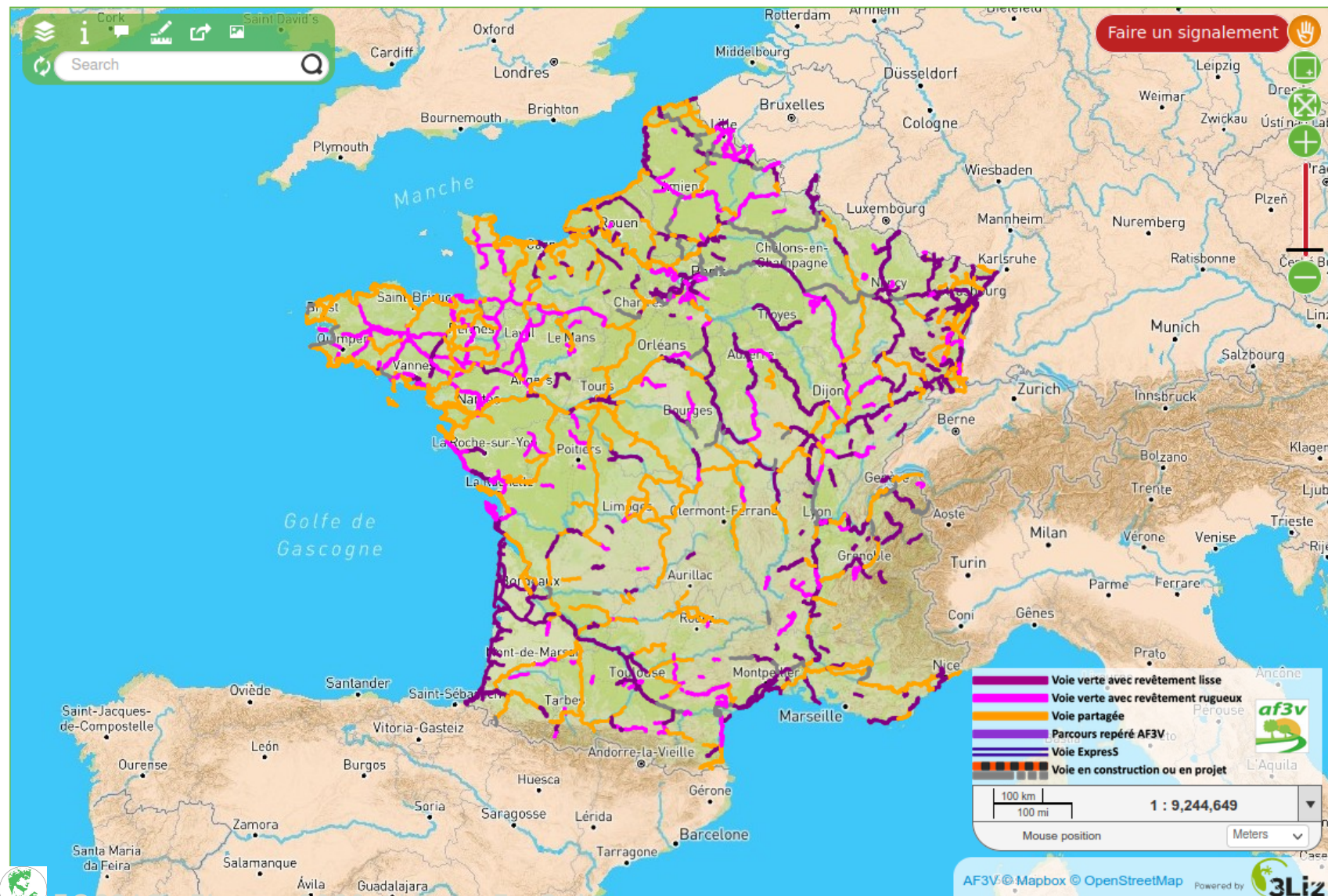
Solidarités



Embed in another website - AF3V

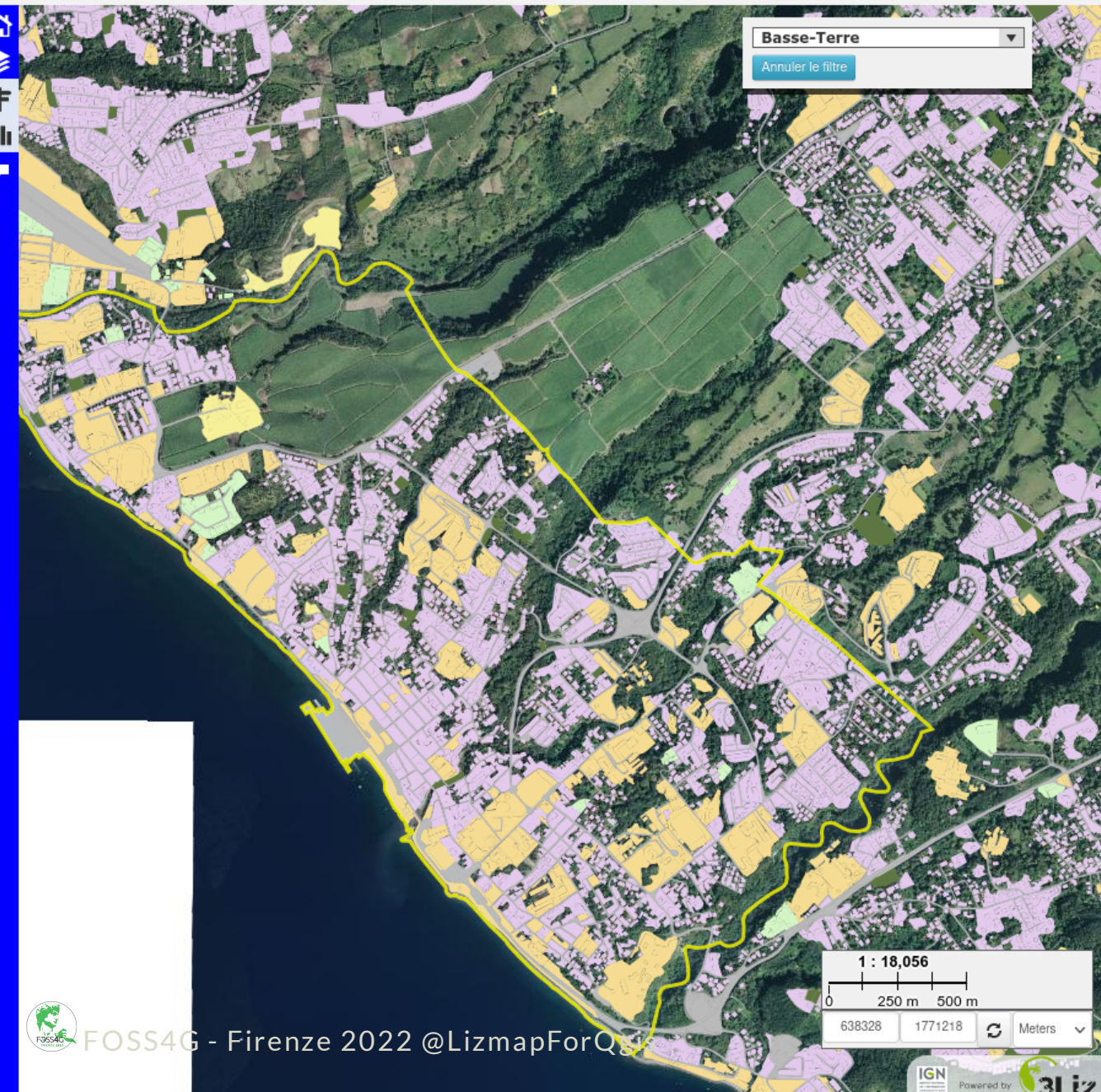
- Possible to embed Lizmap in another website
- AF3V : French association about bicycle routes
- <https://Af3v.org>

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

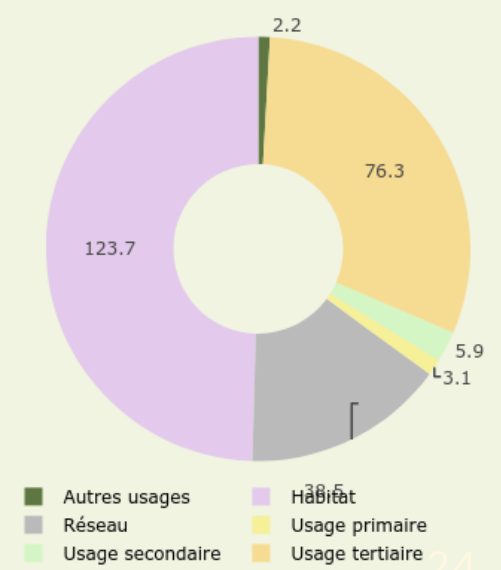
Démographie 2017

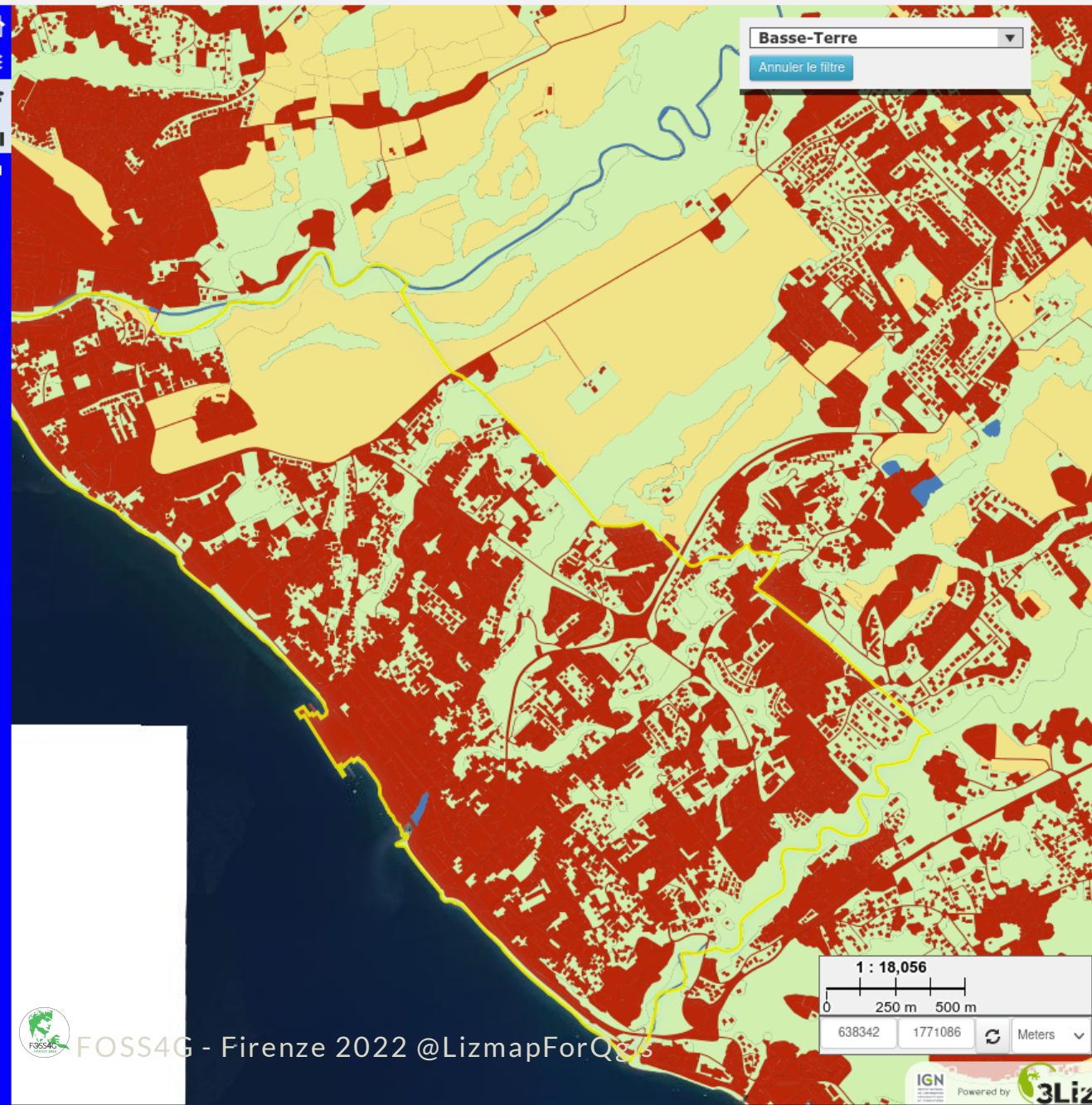
Population : 390,254 habitants
 Superficie totale : 1,628.4 km²
 Densité : 14,506 habitants au km²

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

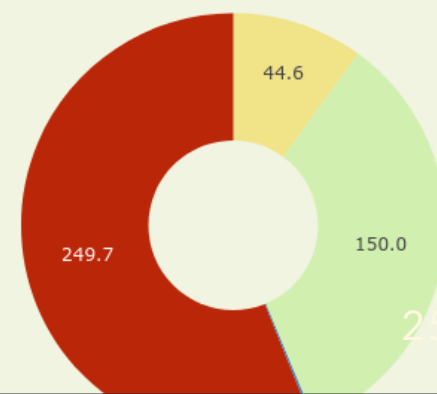
Indicateurs proposant 4 grands types d'occupation du sol sur le territoire de la Guadeloupe en 2017.

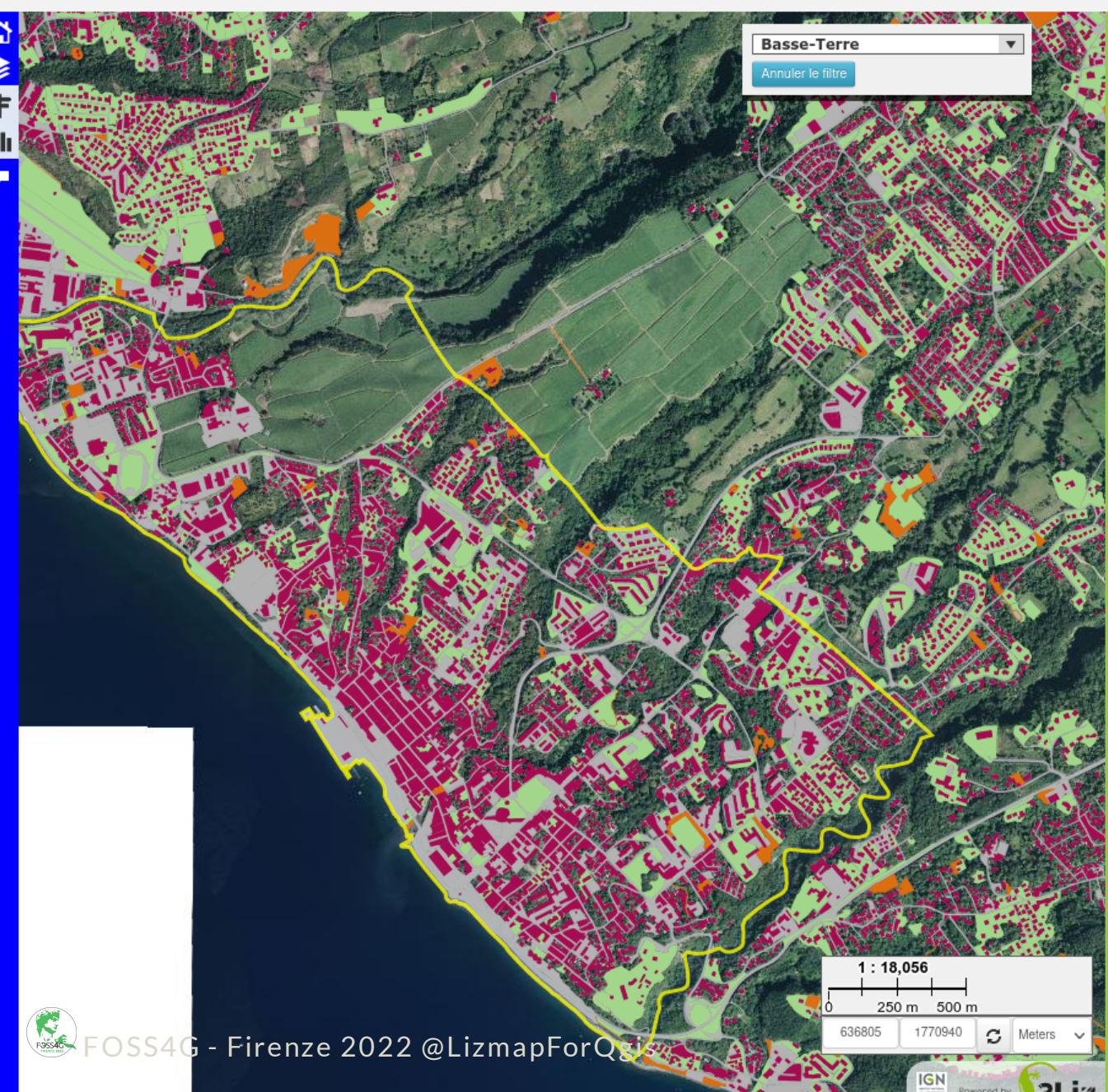
- 1) Les espaces artificialisés (*)
- 2) Les espaces agricoles (**)
- 3) Les naturels et forestiers (**)
- 4) les espaces en eau(***)

(*) : 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.





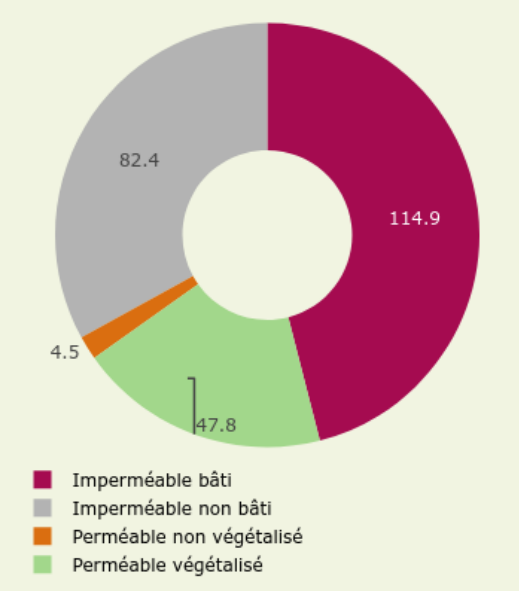
04-Couverture des sols artificialisés

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 bâtis ou non bâtis.



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 :

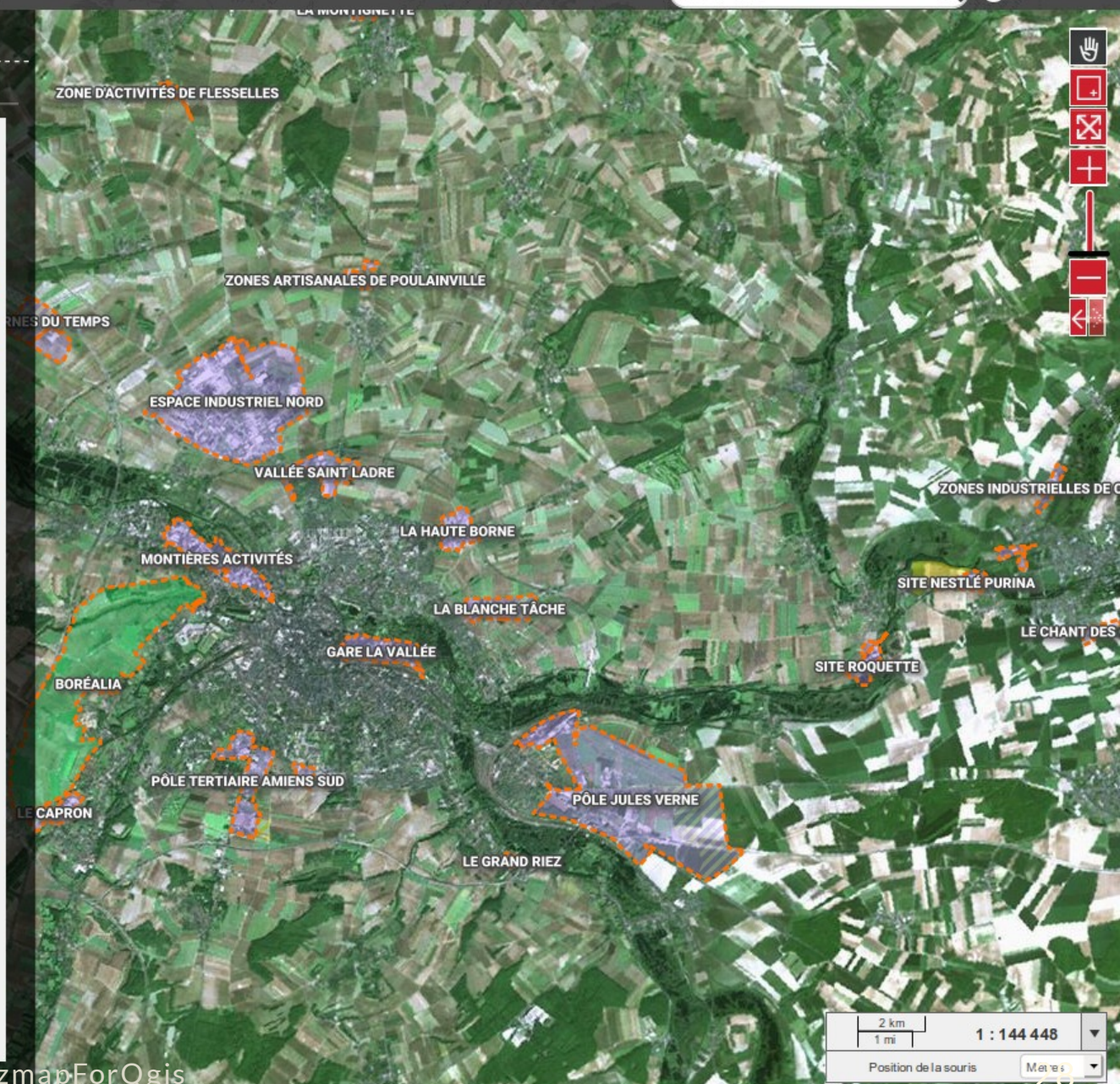
37 397 ha

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



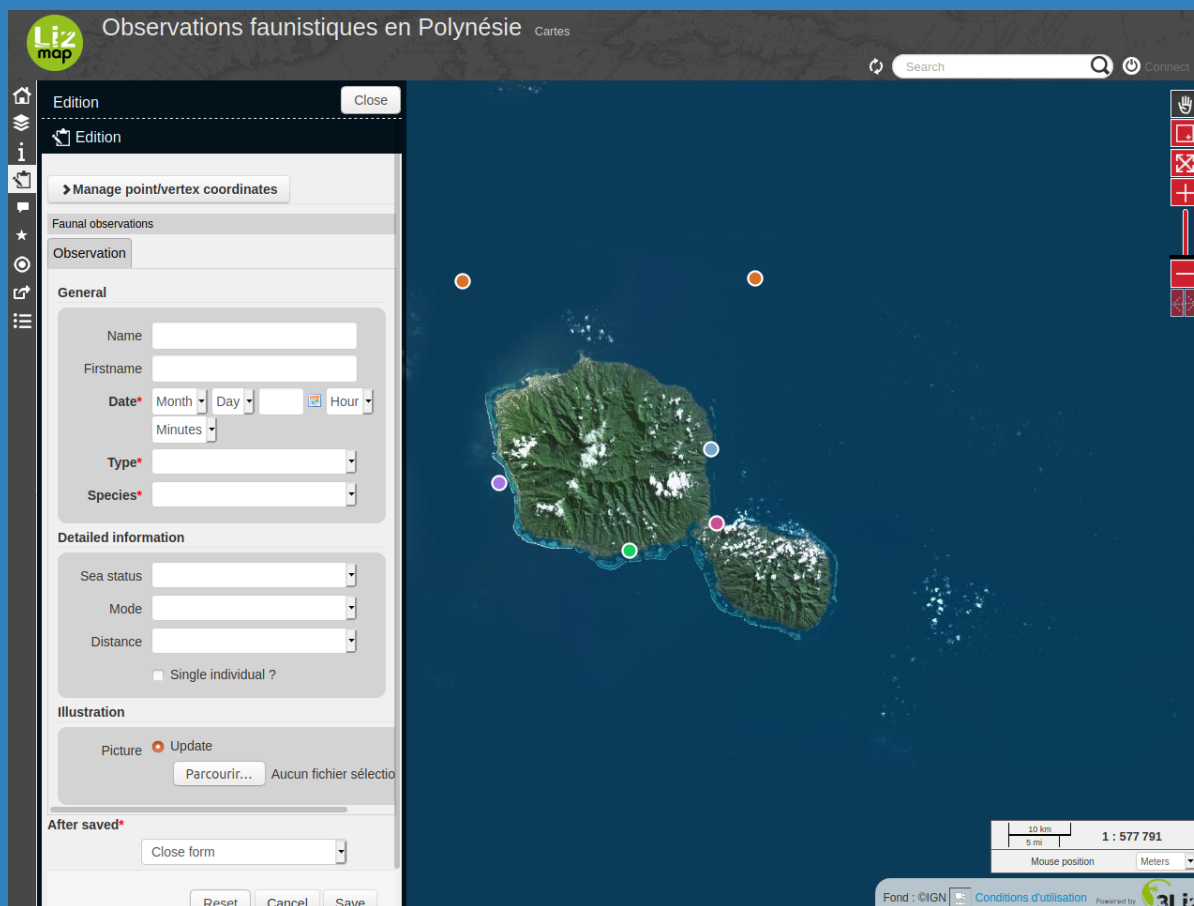
Layer editing

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

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

Layer editing

Different kind of **native** editing widgets from QGIS **desktop** :
date picker, dropdown, text input, checkox...



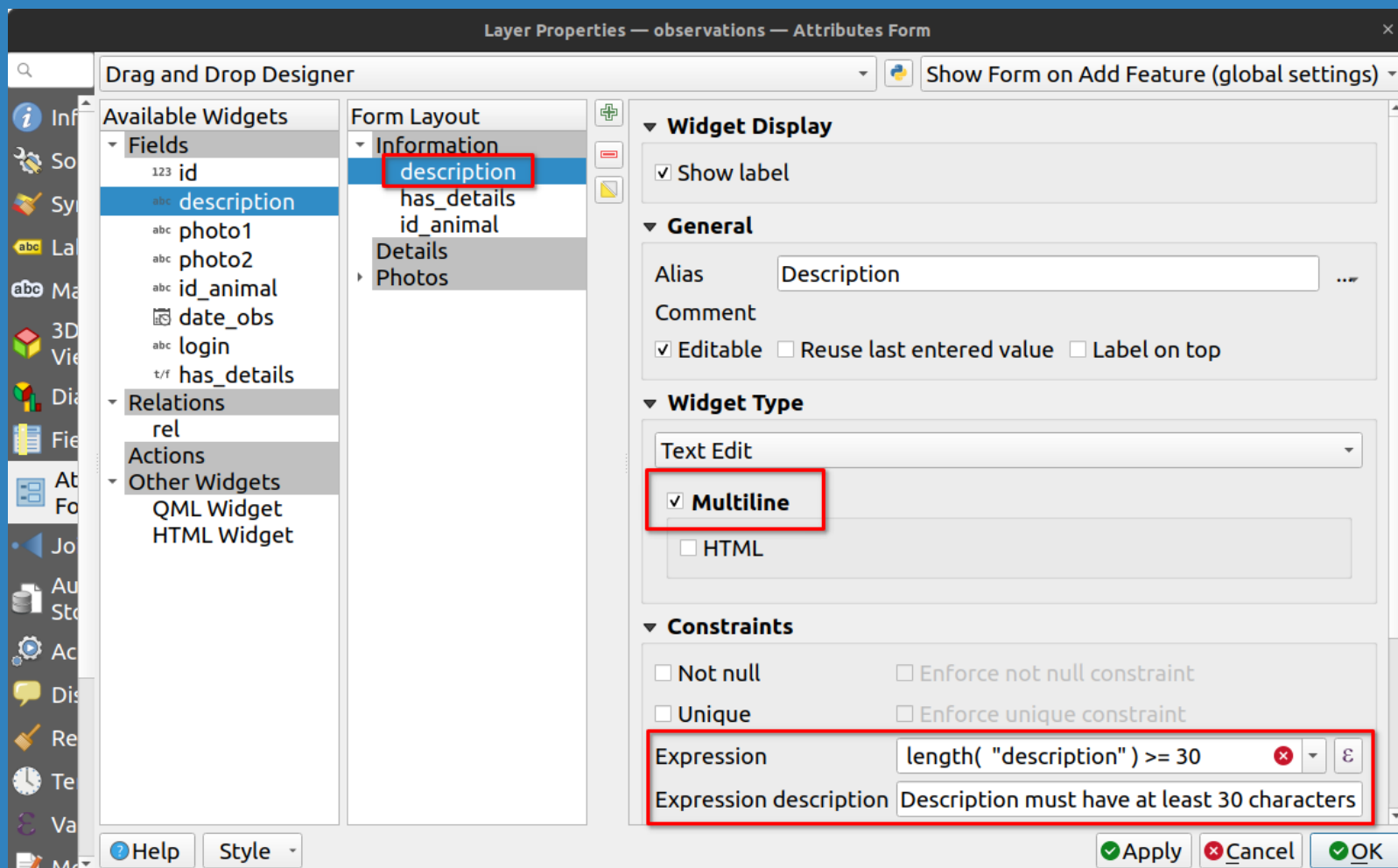
The screenshot shows the Lizmap web interface for "Observations faunistiques en Polynésie". The left sidebar contains a form for editing a layer. The form is titled "Edition" and has a "Close" button. It includes a "Manage point/vertex coordinates" link. The form is divided into several sections:

- Faunal observations**: Contains an "Observation" tab.
- General**: Includes fields for "Name", "Firstname", "Date" (with Month, Day, Hour, and Minutes dropdowns), "Type", and "Species".
- Detailed information**: Includes fields for "Sea status", "Mode", "Distance", and a checkbox for "Single individual ?".
- Illustration**: Includes a "Picture" field with an "Update" button and a "Parcourir..." button. Below it, it says "Aucun fichier sélectionné".
- After saved**: Includes a "Close form" button.

The main map area shows a satellite view of a coastal region with several colored points (orange, purple, green, pink) indicating observation locations. The bottom right corner of the map shows a scale bar (1:577 791) and a "Mouse position" field.

Layer editing

Constraints with a QGIS expression



Layer Properties — observations — Attributes Form

Drag and Drop Designer

Show Form on Add Feature (global settings)

Available Widgets

- Fields
 - 123 id
 - abc description
 - abc photo1
 - abc photo2
 - abc id_animal
 - date_obs
 - login
 - t/f has_details
- Relations
 - rel
- Actions
- Other Widgets
 - QML Widget
 - HTML Widget

Form Layout

- Information
 - description
 - has_details
 - id_animal
- Details
- Photos

Widget Display

- ☒ Show label

General

Alias: Description

Comment:

- ☒ Editable
- ☐ Reuse last entered value
- ☐ Label on top

Widget Type

Text Edit

- ☒ Multiline
- ☐ HTML

Constraints

- ☐ Not null
- ☐ Enforce not null constraint
- ☐ Unique
- ☐ Enforce unique constraint

Expression: `length( "description" ) >= 30`

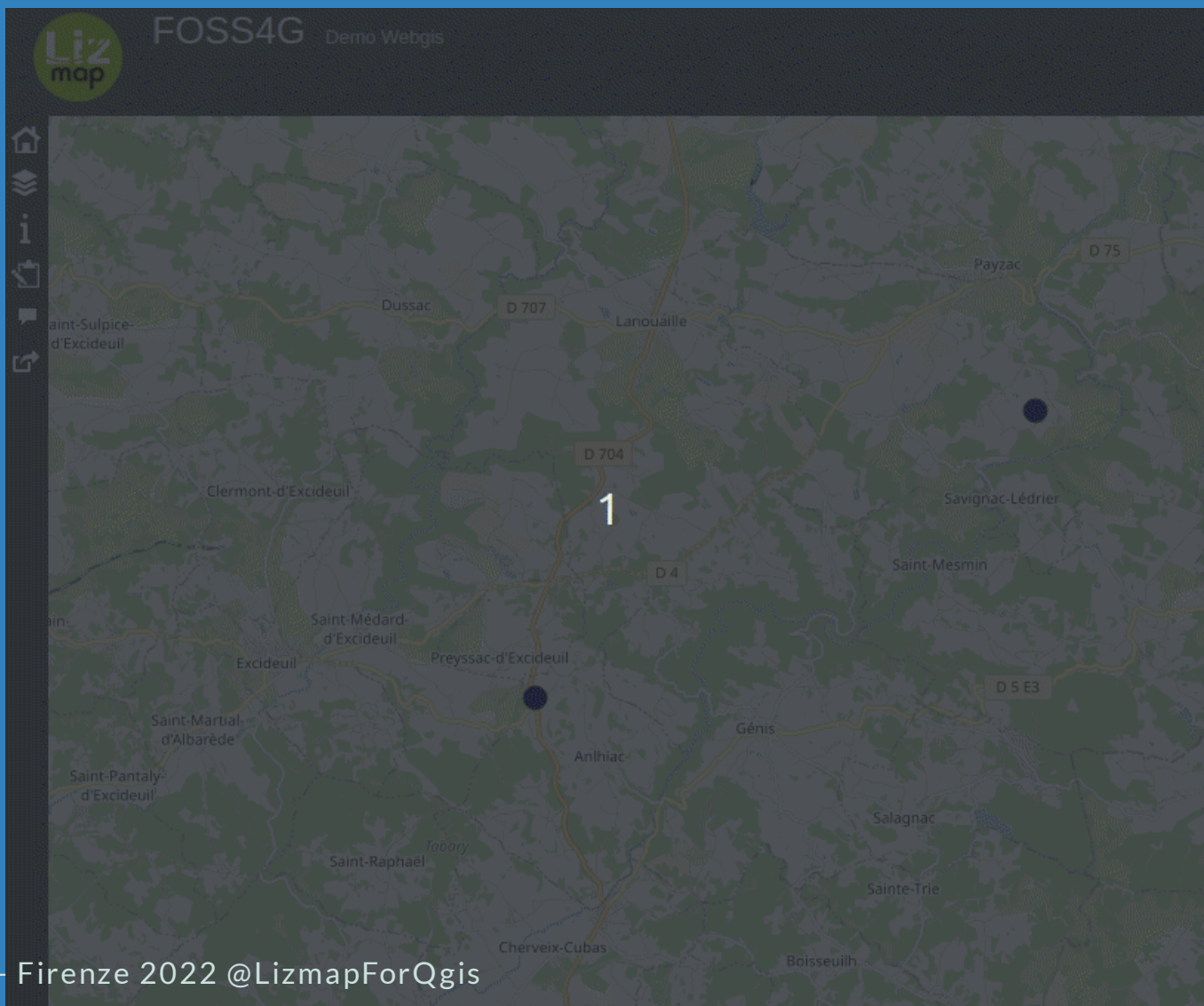
Expression description: Description must have at least 30 characters

Help Style

Apply Cancel OK

Layer editing

Constraints with a **QGIS** expression



Layer editing - Extra capabilities

- **Geolocation**, GPS accuracy control for **field** mapping
- **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

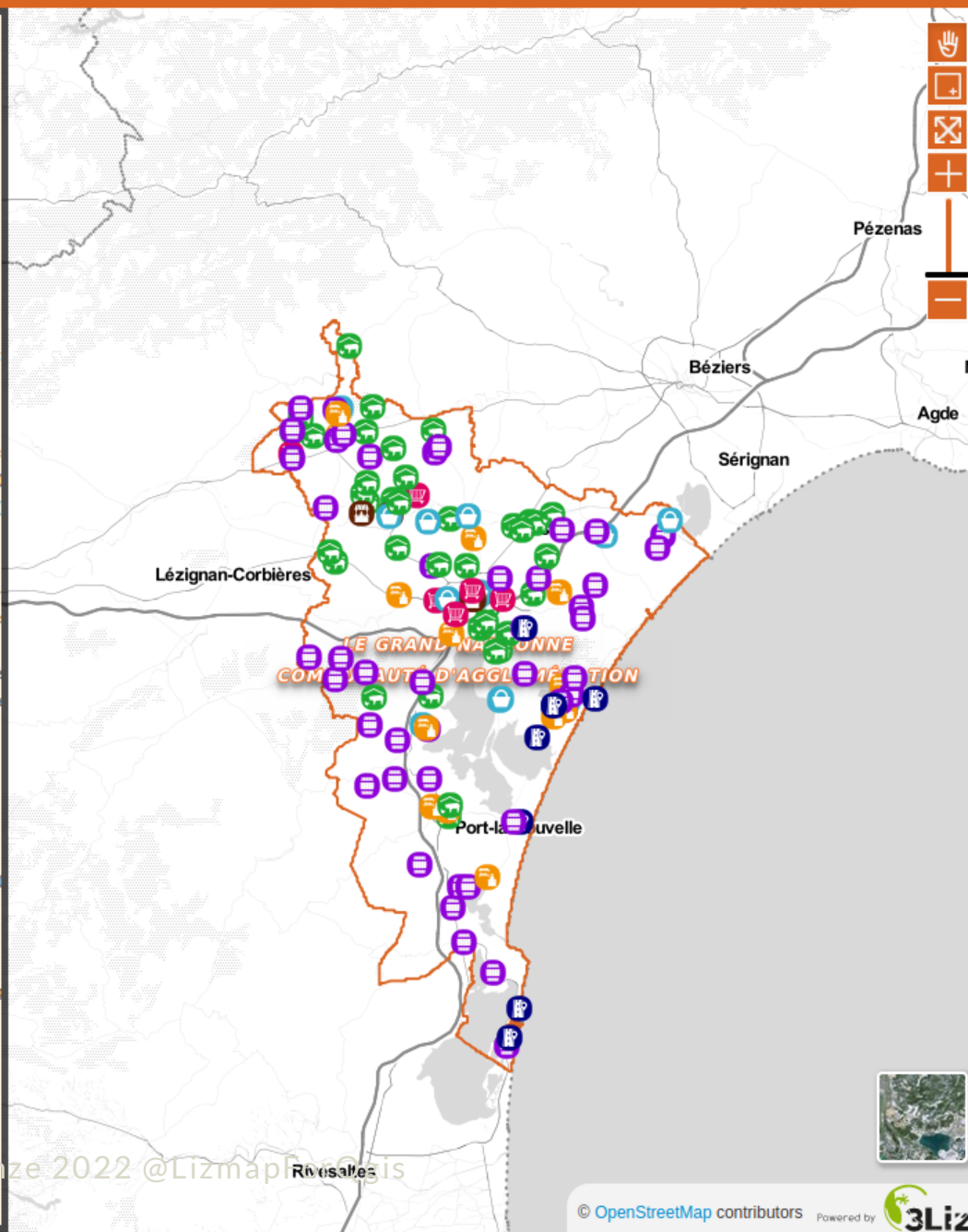
- ☐ Aire de vente (8)
- ☐ Caveau (44)
- ☐ Magasin de produits locaux (13)
- ☐ Marché (4)
- ☐ Paniers et colis (13)
- ☐ Vente à la ferme (38)
- ☐ Autre commerce de produits locaux

Type de produits

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

Marques, mentions et labels

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



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 (Arnaud Vandecasteele)
- <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



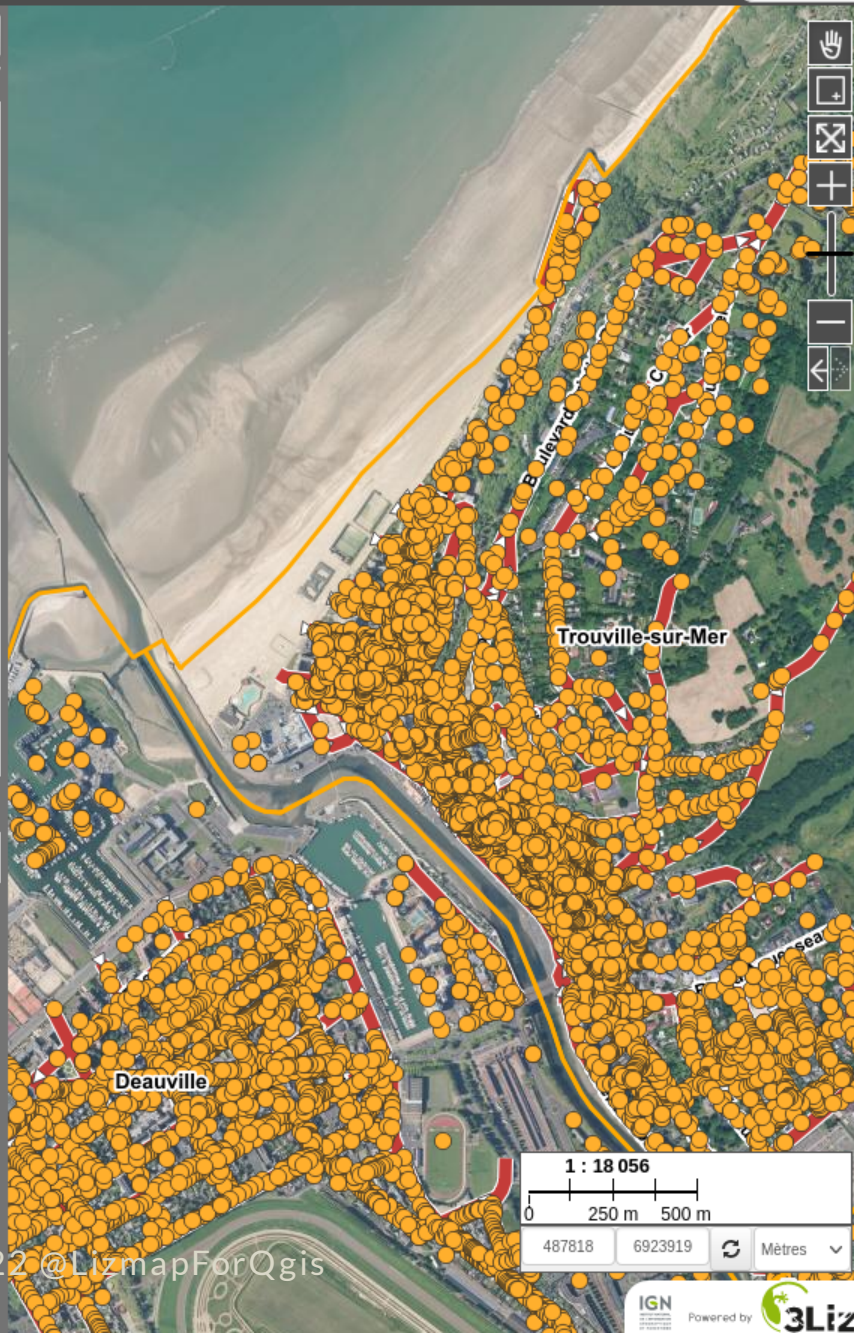
- ☒ Communes historiques

Suivi du projet adressage

- ☐ Accompagnement
- ☐ Infos Communes

Fond de carte

IGN Photos



Popup

Fermer

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

Cadastre

Fermer

Recherche

Rechercher par lieu

Rechercher par propriétaire

Commune BAUD

Section -- Choisir --

Adresse BAUD - IMP MARECHAL LECLEF

Résultat

Parcelle 3 parcelles trouvées



Réinitialiser le formulaire

★ Sélection

Couche de sélection

Dessiner un ponctuel



Aucun objet sélectionné



Exporter

10 m
50 ft

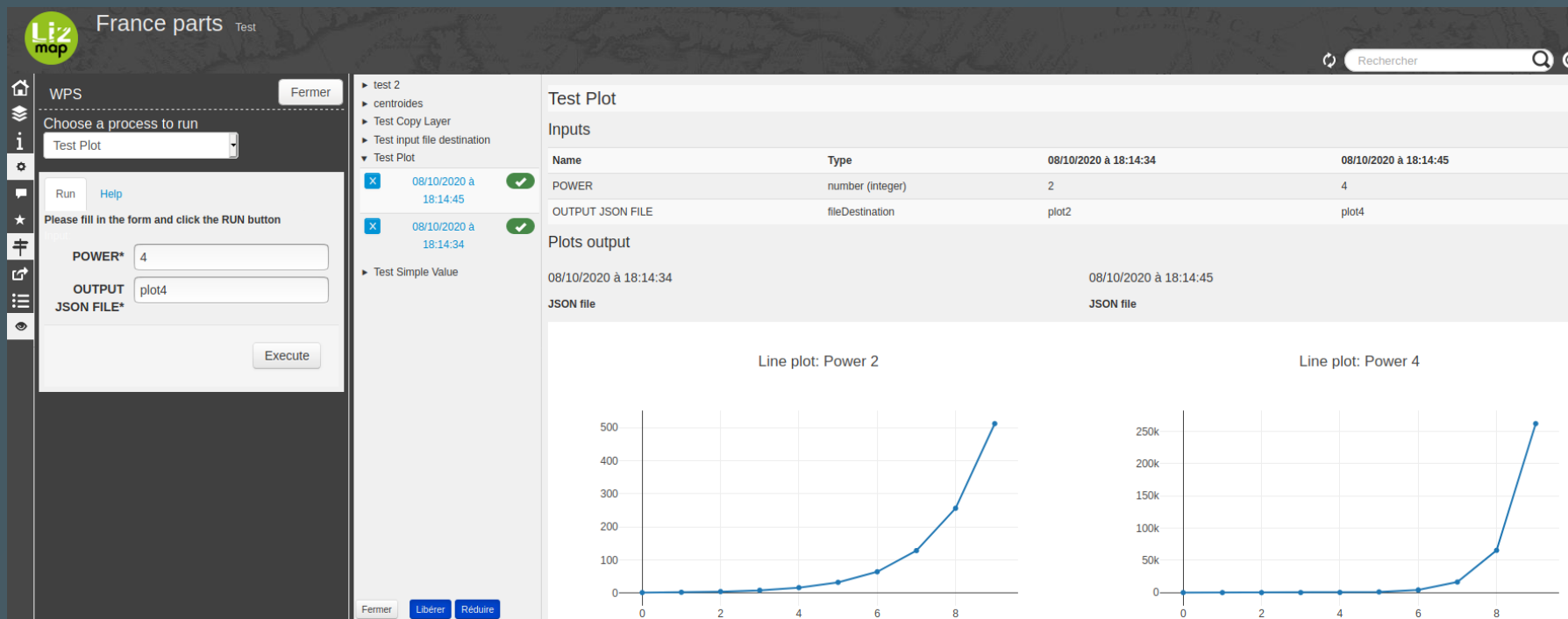
1 : 1 128

Position de la souris

Mètres

Web Processing Service

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



The screenshot displays the Lizmap web interface for a 'Test Plot' process. The interface is divided into several panels:

- Left Panel (WPS):** Shows the 'Test Plot' process selected. It includes input fields for 'POWER*' (set to 4) and 'OUTPUT JSON FILE*' (set to 'plot4'). An 'Execute' button is visible at the bottom.
- Top Panel:** Displays the 'Test Plot' title and a search bar labeled 'Rechercher'.
- Inputs Table:**

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
- Plots output:** Shows two line plots side-by-side.
 - Line plot: Power 2:** The y-axis ranges from 0 to 500. The x-axis ranges from 0 to 8. The plot shows a curve that starts at (0,0) and rises to approximately (8, 500).
 - Line plot: Power 4:** The y-axis ranges from 0 to 250k. The x-axis ranges from 0 to 8. The plot shows a curve that starts at (0,0) and rises to approximately (8, 250k).

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:

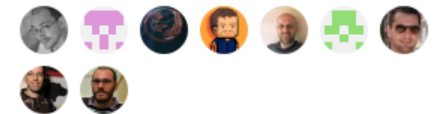
- Data:
 - [Edit GPX](#). Import/Export GPX
 - [IGN web services](#)
 - [WMTS direct access](#)
- Misc:
 - [Add keyboard shortcuts](#)
 - [Google Street View](#)
 - [Translation](#) To provide a Lizmap project in many languages
 - [Refresh some layers periodically](#)
- Tools:
 - [Attribute table column 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](#)



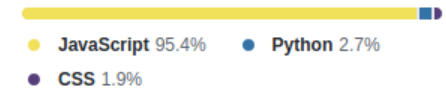
Packages

No packages published
[Publish your first package](#)

Contributors 9

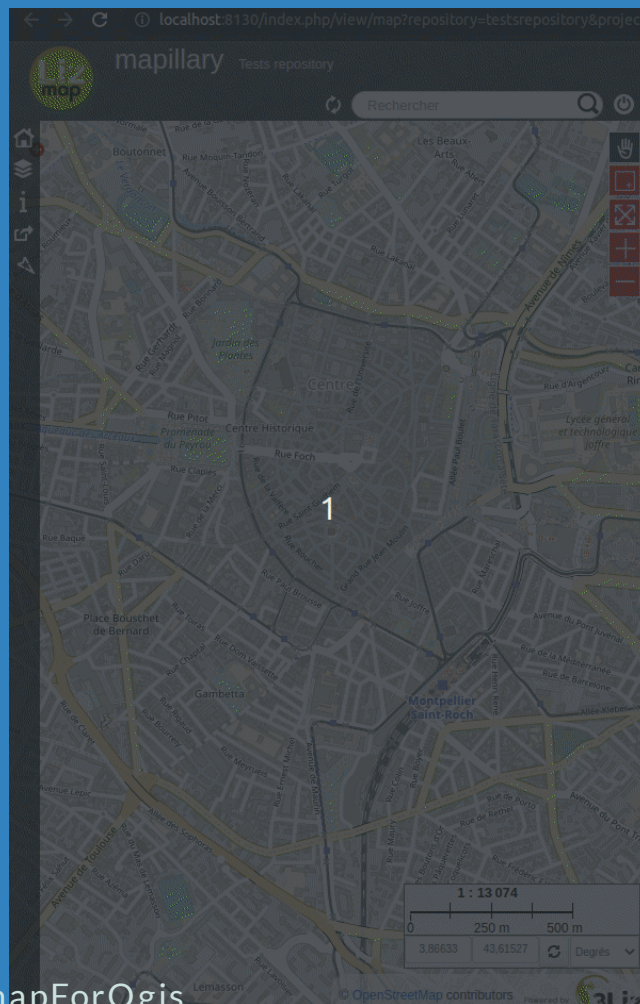


Languages



Add a Mapillary viewer

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

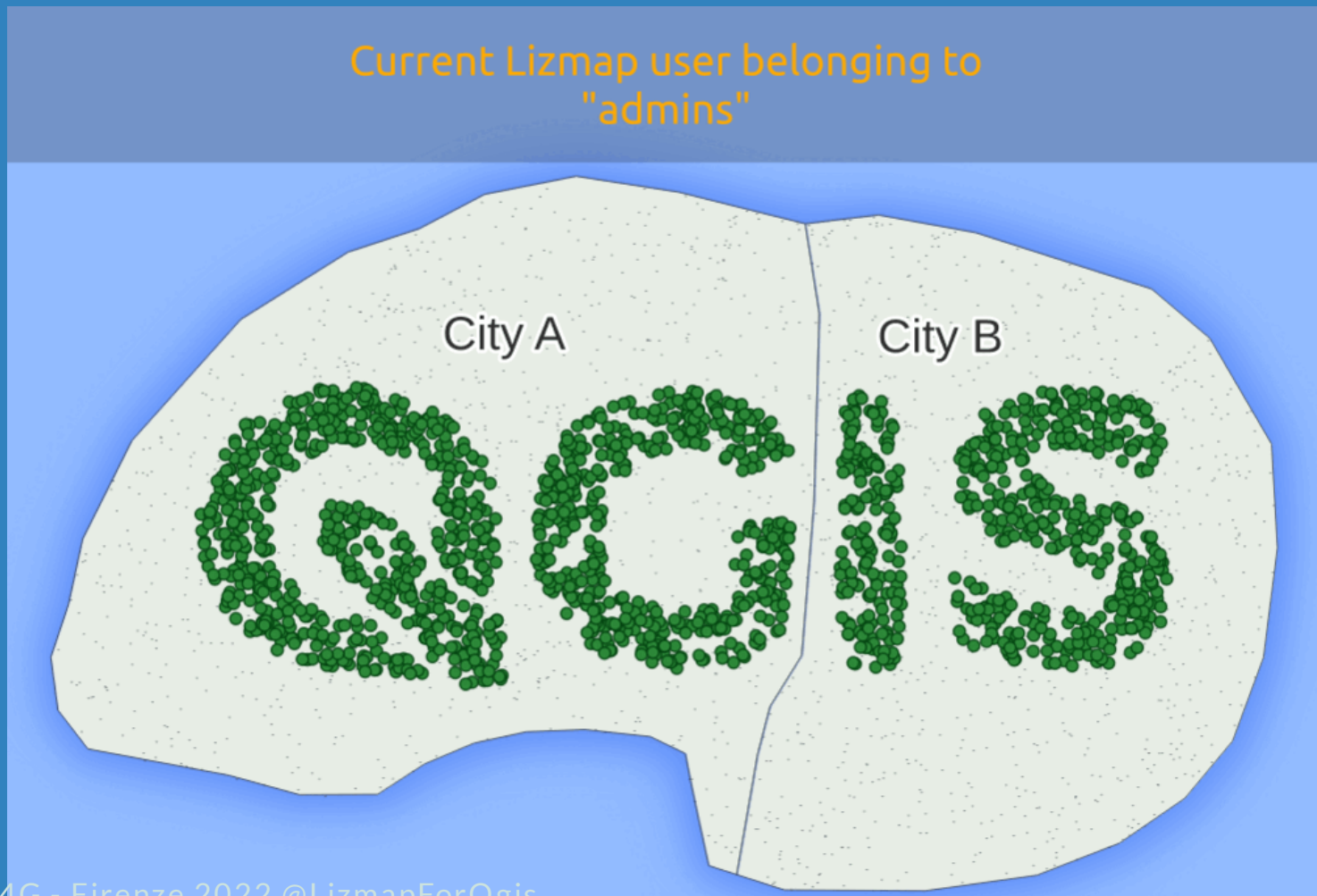


Access control

- 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-locale/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

▼ 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

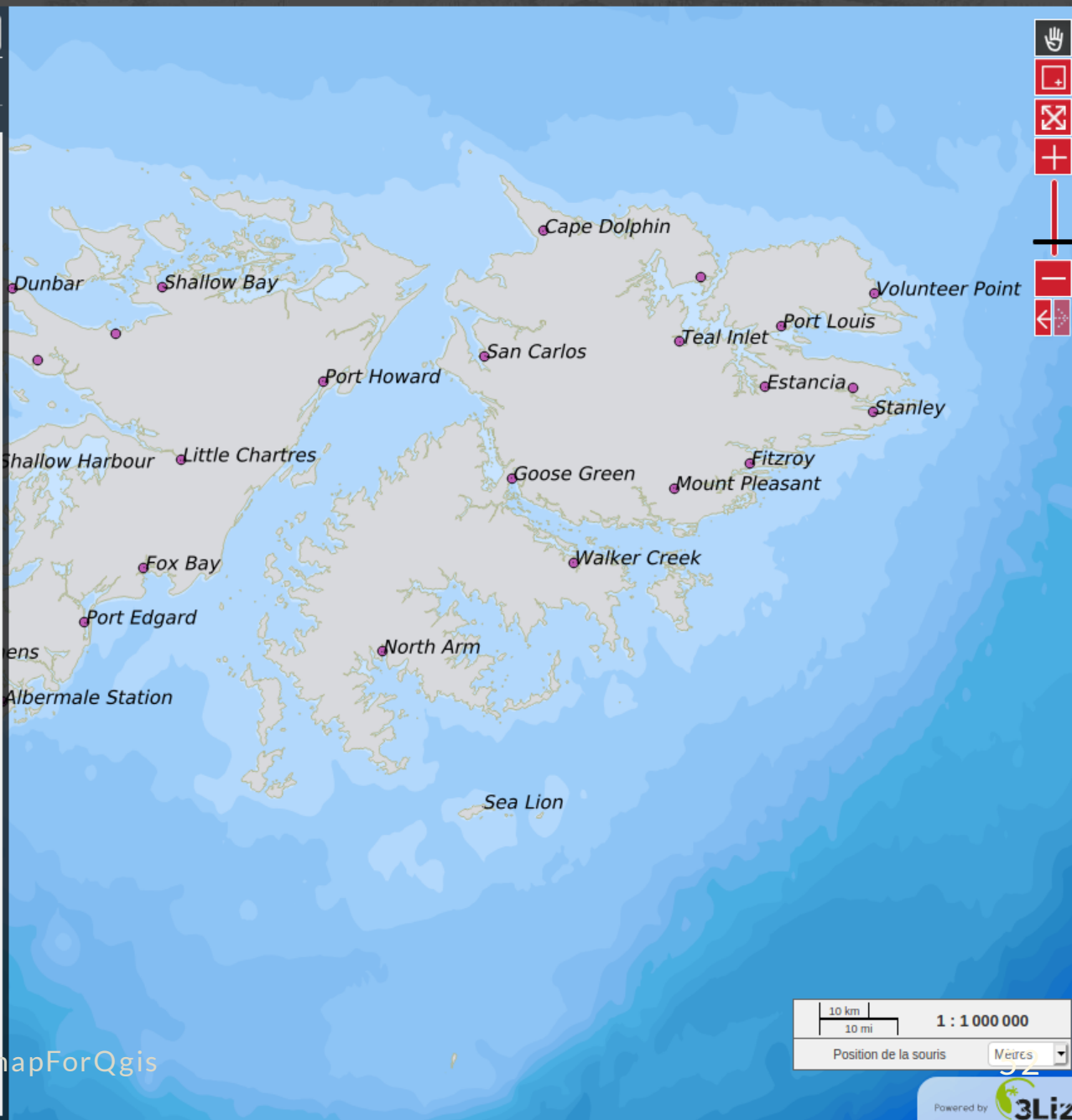
▼ ☐ FIGAS total flights per passenger category

☐ figas_total_flights_per_camp_residents

☐ figas_total_flights_per_tourists

☐ figas_total_flights_per_temporary_residents

☐ figas_total_flights_per_stanley_residents



10 km 10 mi 1 : 1 000 000
Position de la souris Mètres

Powered by 3Liz

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

- Further improving 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

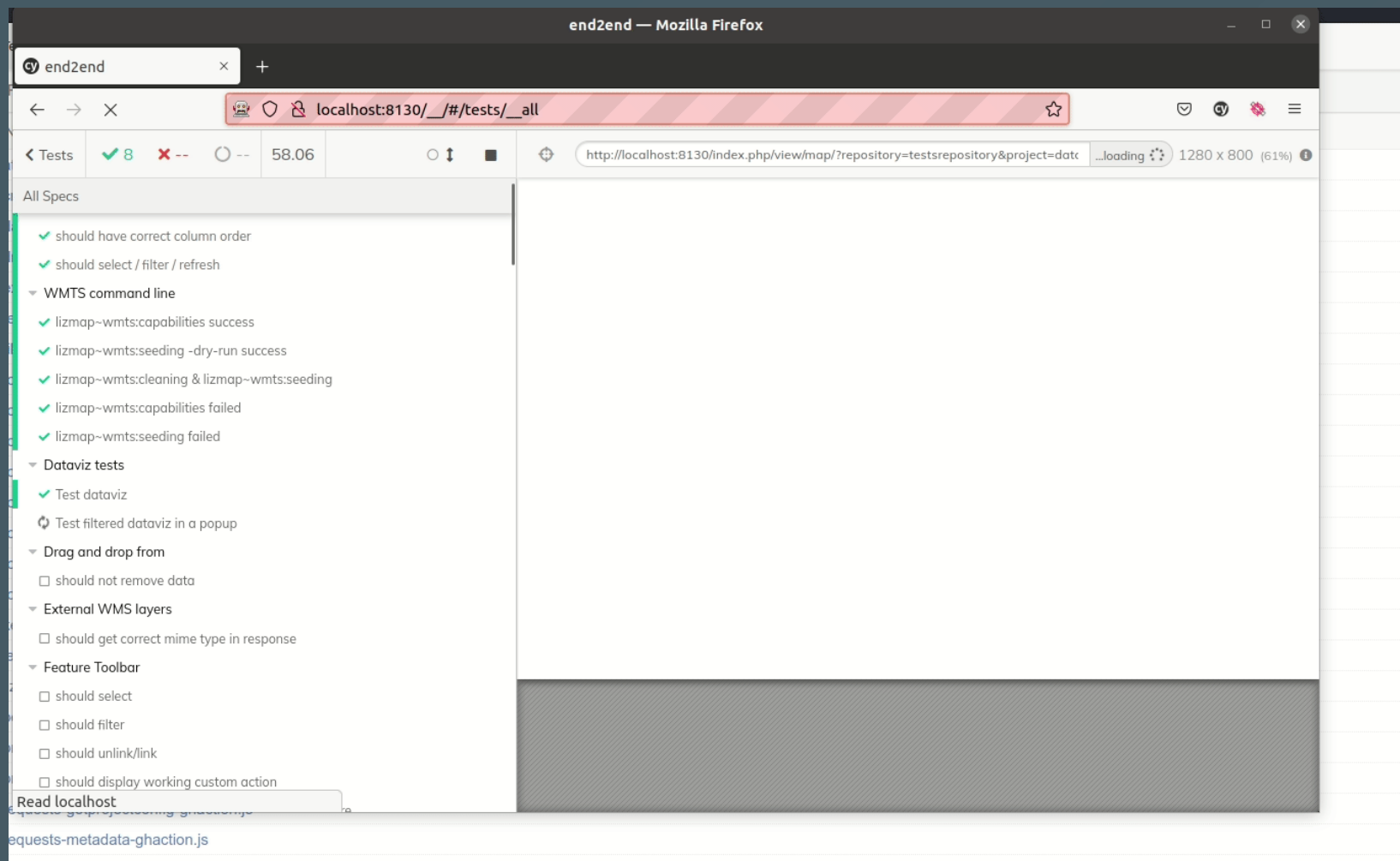
- Form filter
- Dataviz improvements
- Layer tree improvements
- Use more and more the QGIS Server Lizmap plugin
- ...

Ongoing efforts

under the hood

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

End2end



Questions

@etrimaille

@LizmapForQgis

@3LIZ news

