



MESA REDONDA CARTOGRAFÍA OFICIAL VS NO OFICIAL

FOMENTANDO LA COOPERACIÓN



X Jornadas Ibéricas de
Infraestructura de Datos Espaciales
23 al 25 de Octubre de 2019



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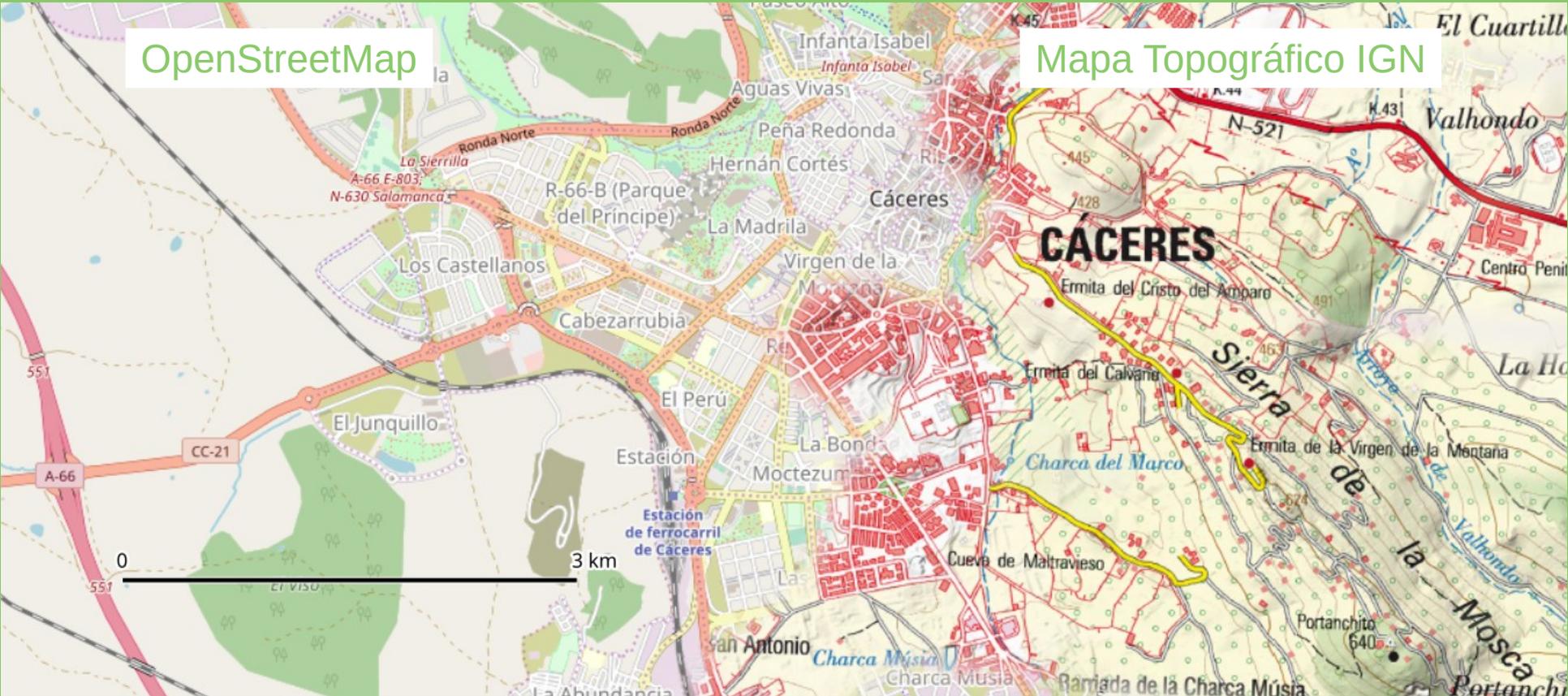
INSTITUTO
PIRENAICO
DE ECOLOGÍA
IPE CSIC



Departamento de
Geografía y
Ordenación del Territorio
Universidad Zaragoza

OpenStreetMap

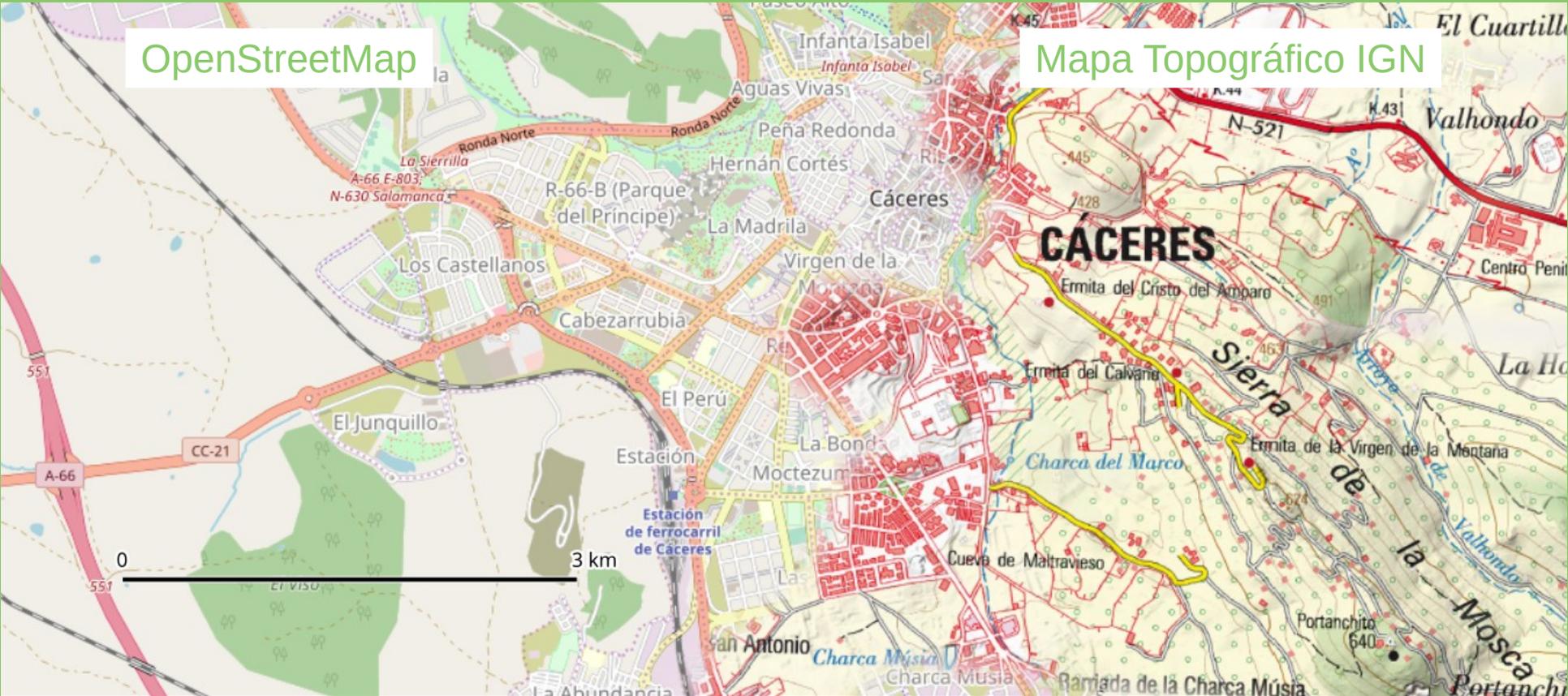
Mapa Topográfico IGN



¿CARTOGRAFÍA OFICIAL VS. CARTOGRAFÍA NO OFICIAL?

OpenStreetMap

Mapa Topográfico IGN



CARTOGRAFÍA OFICIAL ~~VS~~ Y CARTOGRAFÍA ~~NO OFICIAL~~ COLABORATIVA

INFORMACIÓN GEOGRÁFICA

VOLUNTARIA

NUEVO PARADIGMA

TECNOLÓGICO, DEL CONOCIMIENTO Y LA

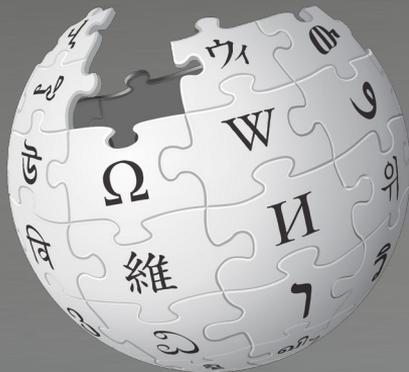
CIENCIA



NUEVO PARADIGMA TECNOLÓGICO



Web 2.0 + popularización GNSS (GPS) + FOSS + OpenData
Información geográfica voluntaria



WIKIPEDIA
The Free Encyclopedia



OPEN DATA

¿QUÉ PODEMOS MAPEAR?

¡TODOS!

el límite está en nuestra imaginación

¿QUIÉN PUEDE MAPEAR?

TODAS las personas podemos hacerlo
cuantas más, mejor (y más divertido)

Map reading

The battle for territory in digital cartography

Not all roads lead to Google Maps

NOTICIA

www.economist.com/...



Dave Simonds

INFORMACIÓN GEOGRÁFICA COLABORATIVA



iniciativas colaborativas vs. proyectos centralizados
información abierta vs. información cerrada
fines sociales o alternativos vs. fines lucrativos

CREEMOS NUESTRO PROPIO MAPA

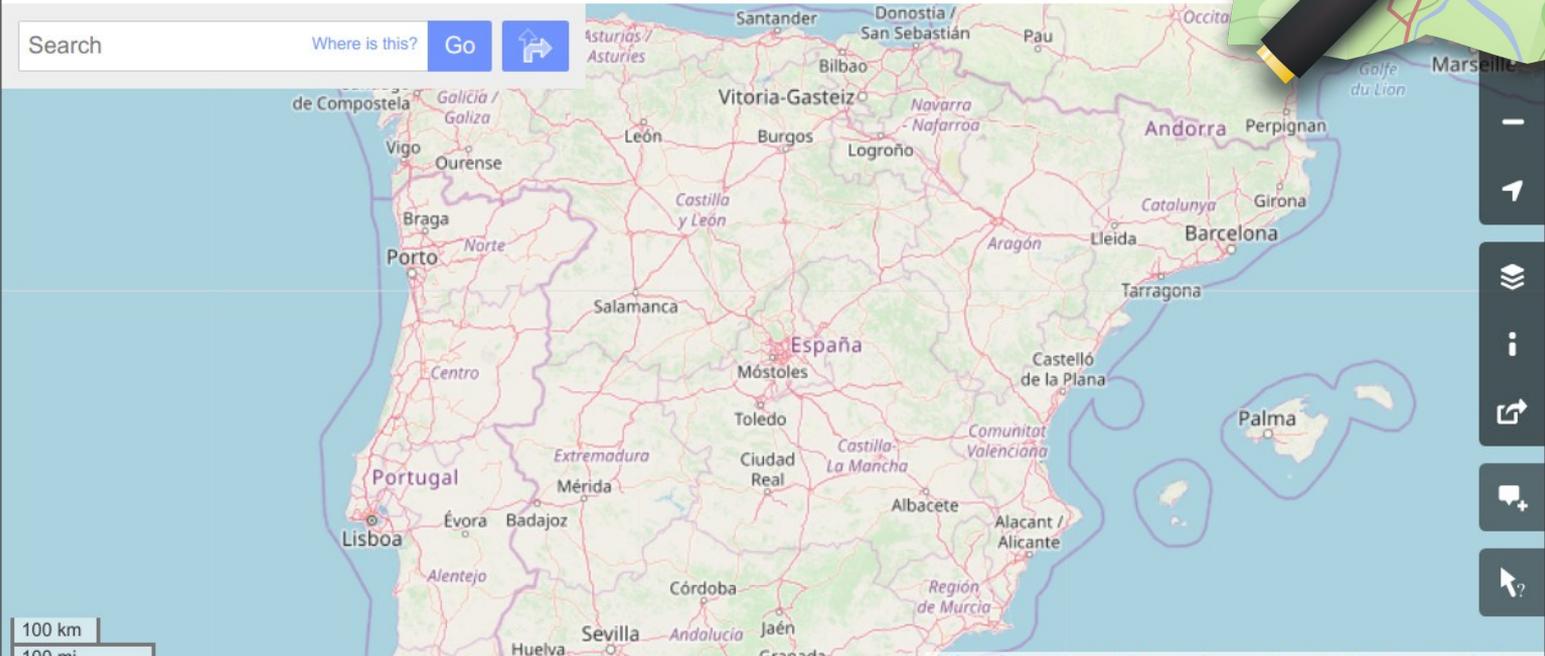
OPENSTREETMAP LA WIKIPEDIA DE LOS MAPAS



← → ↻ openstreetmap.org/#map=6/40.480/-3.854

 **OpenStreetMap** Edit History Export More

Search Where is this? Go 



The map displays a detailed view of Spain and its surrounding regions, including Portugal, Andorra, and parts of France and Italy. Major cities like Madrid (España), Barcelona, and Lisbon (Lisboa) are labeled. The map uses a color-coded system to represent different regions and administrative boundaries. A scale bar in the bottom left corner shows 100 km and 100 mi. The bottom right corner contains a vertical toolbar with navigation icons and a copyright notice: © OpenStreetMap contributors Make a Donation. Website and API terms

OPENSTREETMAP LA WIKIPEDIA DE LOS MAPAS



← → ↻ openstreetmap.org/#map=14/39.4734/-6.3752

OpenStreetMap Edit History Export More

Search Where is this? Go

Map labels include: N-630, La Sierrilla, Ronda Norte, A-66 E-803, N-630 Salamanca, Los Castellanos, Cabezarrubia, El Junquillo, CC-21, 500 m, 2000 ft, Estación, Moctezuma, La Bondad, Reyes Huertas, Virgen de la Montaña, Caceres, Ribera del Marco, Peña Redonda, Infanta Isabel, Aguas Vivas, San Blas, San Jorge, Vegas del Mocho, Campus Universitario, El Cuartillo, Residencial Universidad, Ronda Este, Este.

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¿QUÉ ES OPENSTREETMAP?

- comunidad de entusiastas del software y los datos libres
- proyecto para crear **la mejor base de datos geográfica mundial**
- ¿Un mapa en la red? --> ¡No, muchos mapas!
- **NO solo mapas:** ecosistema de productos y servicios



OPENSTREETMAP LA WIKIPEDIA DE LOS MAPAS



~5.7 millones de usuarios registrados
(~ 145 editando ayer en España)

~ 5.540 millones de nodos totales
(30.000 - 40.000 creados cada día en España)*
cientos de miles de nodos SOLO en Girona

OSM ES la mayor y más precisa base de
datos espacial libre del mundo

datos bajos licencia Open Database License (ODbL)



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theguardian

Winner of the Pulitzer prize

home › tech

games

UK

world

sport

football

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culture

economy

all

Mapping technologies

Why the world needs OpenStreetMap

As more private companies offer us maps, we need an open-source, editable solution - a cartographical Wikipedia





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theguardian
Winner of the Pulitzer prize

relevancia de OpenStreetMap

- alternativa a servicios de mapas online
- uso en áreas de ayuda humanitaria
- cartografía de información geográfica alternativa (discapacidad)
- incorporación “open data” espacial
 - catastro, usos del suelo, carreteras...

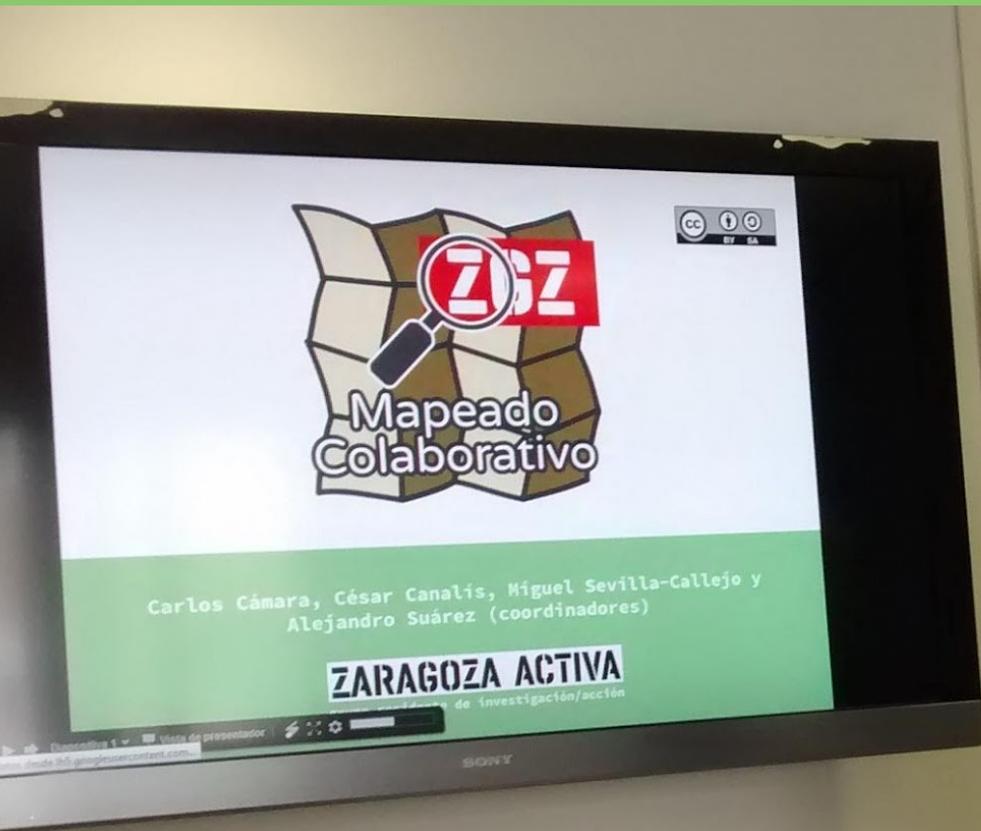


DE LO MEJOR DE OPENSTREETMAP:
SU COMUNIDAD

Y TÚ TAMBIÉN PUEDES SER PARTE DE ELLA



WORKSHOPS & MEETINGS



TRABAJO EN EL TERRENO >> MAPPING PARTIES



UNIDAD MÓVIL
21:35



Barrio Las Fuentes, Zaragoza

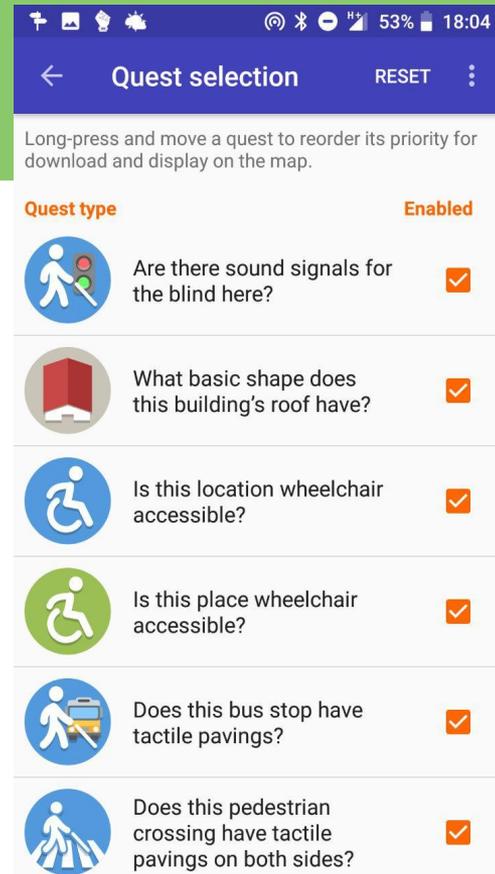
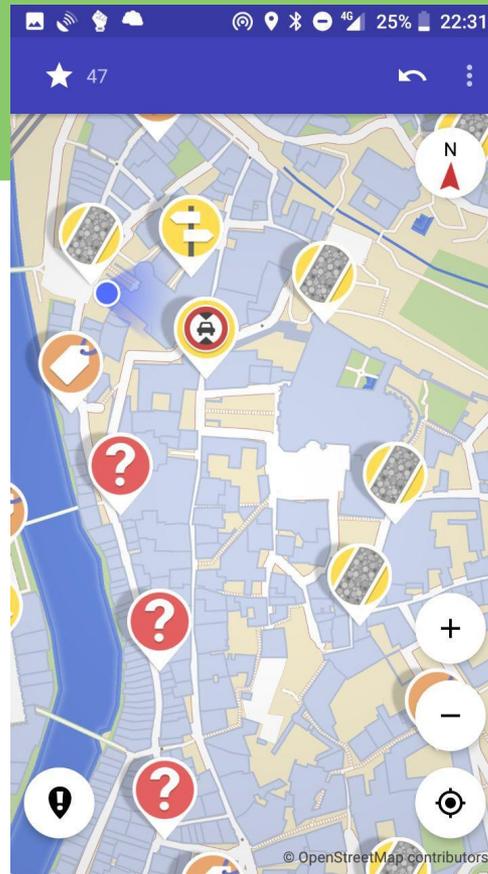
Image: Aragón TV

TRABAJO EN EL TERRENO >> MAPPING PARTIES



STREETCOMPLETE

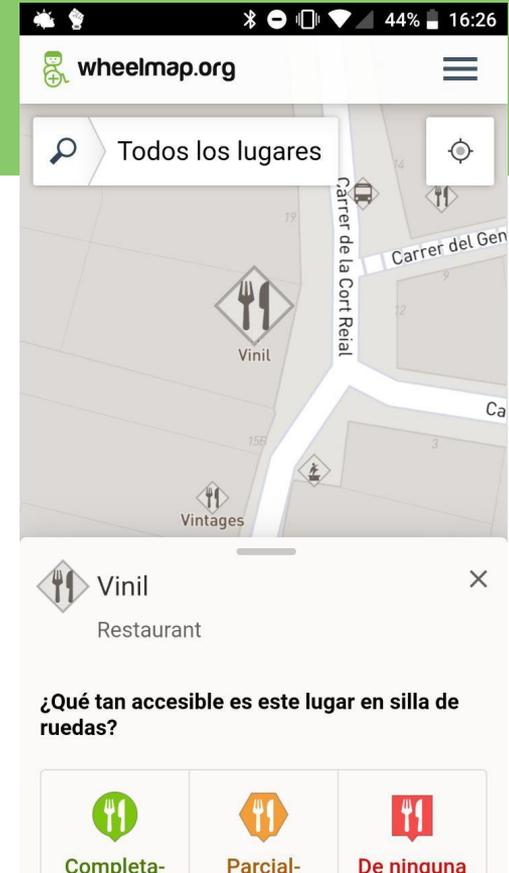
- Completar etiquetado
- **Elementos en OSM**
- Edición sobre el terreno
- Sección accesibilidad



<https://github.com/westnordost/StreetComplete>

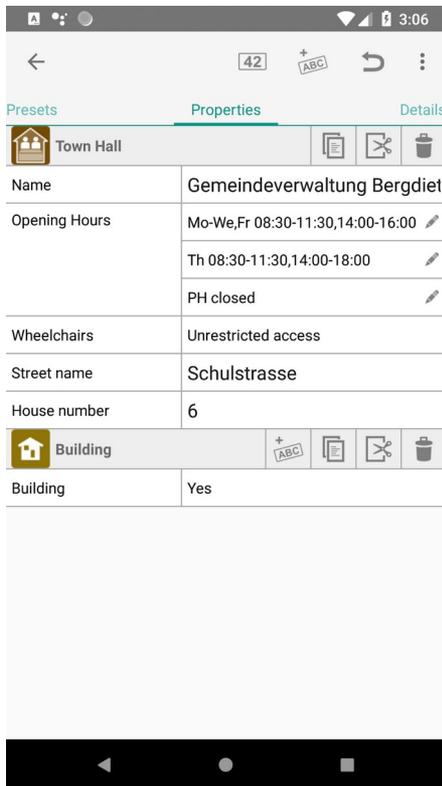
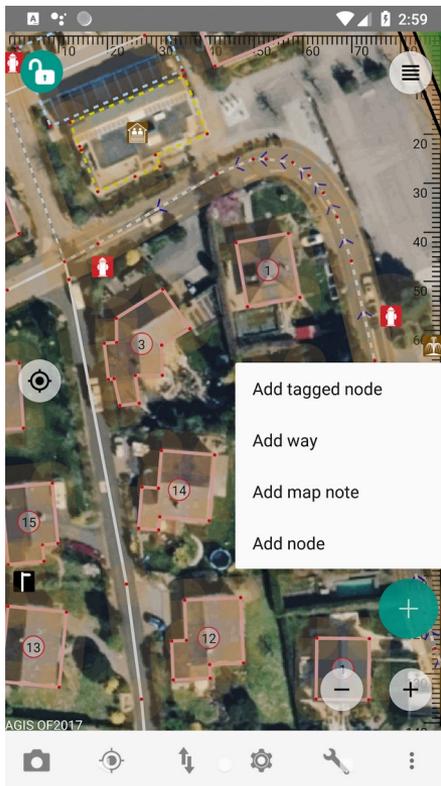
WHEELMAP

- Orientado a la accesibilidad en silla de ruedas
- Permite incluir acceso sobre comercios y establecimientos diversos.



<https://wheelmap.org>

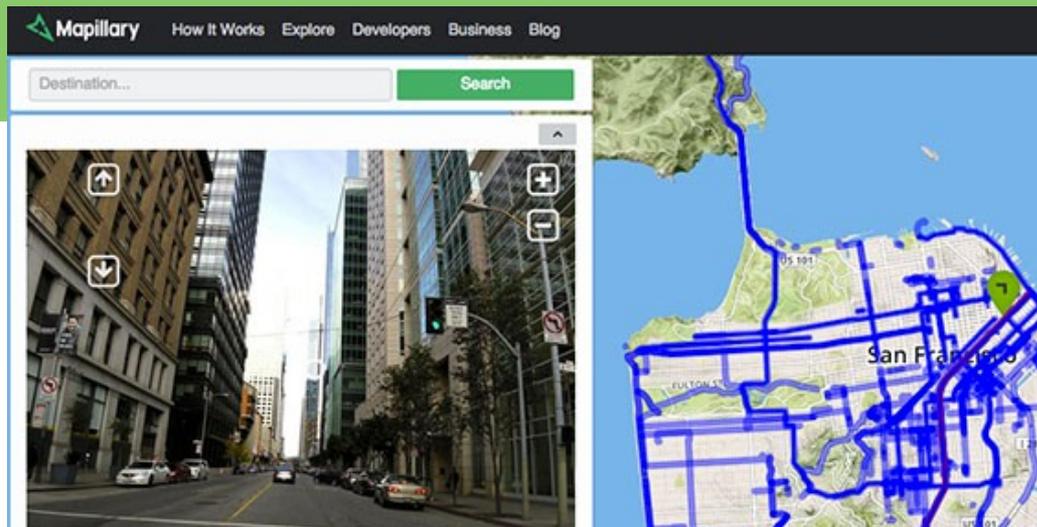
EDICIÓ EN EL MÓVIL: VESPUCCI & OSMAND



MAPILLARY

- **Fotomapeado** a nivel de calle
- Fotos CC-BY-SA
- Conexión con **OpenStreetMap**
- Reconocimiento de objetos

www.mapillary.com/capture



EDITANDO Y SUBIENDO LOS DATOS



Pedestrian crossing
highway = crossing

Traffic signals
crossing = traffic_signals

Lowered kerb
kerb = lowered

Wheelchair
accessibility
wheelchair = yes

Tactile paving
tactile_paving = yes

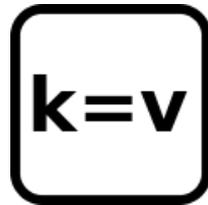
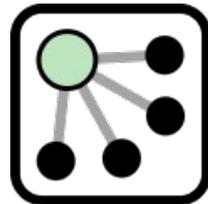
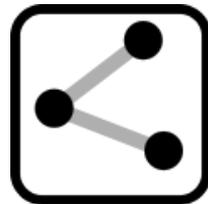
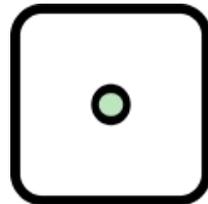
Bicycle path
bicycle = yes

Pedestrian crossing type
crossing_ref = pelican



LOS DATOS EN OSM

elementos y etiquetas



MODELO DE DATOS TOPOLÓGICO

>> Componentes de la Información Geográfica en OSM

componente espacial
tipologías básicas

- nodos / nodes
- líneas / ways



componente temático
etiquetas y valores

- shop=bakery
- name=Panadería Alonso



relaciones y conjuntos



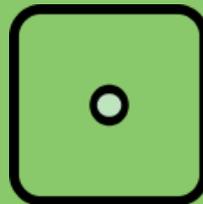
¿dónde?

¿qué forma?

¿qué es?

¿cómo se relaciona?

PUNTOS --> NODES



- atributos importantes:
identificador, latitud y
longitud, usuario que creó
el nodo y versión
- contenido: etiquetas

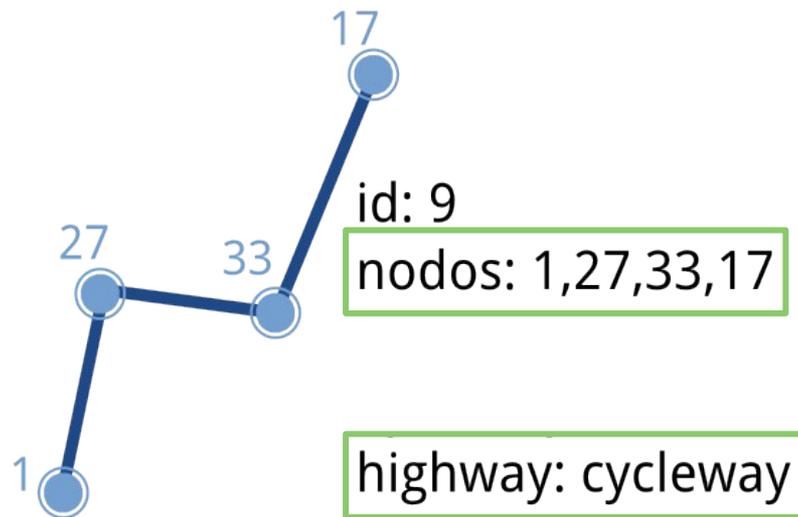
id: 10965569
latitud: 39,4677055
longitud: -0,4248958
version: 1

amenity: bicycle_rental
name: Aparcamiento
Bici Pública Horta Sud

VÍAS --> WAYS



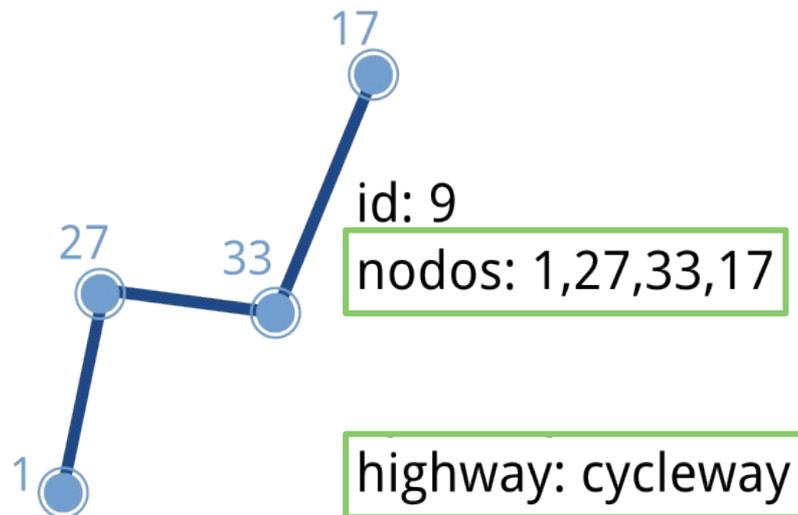
- nodos ordenados (pueden estar cerrados)
- atributos: identificador, usuario, versión
- contenido: lista de nodos y etiquetas



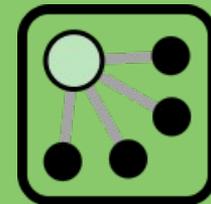
VÍAS --> WAYS



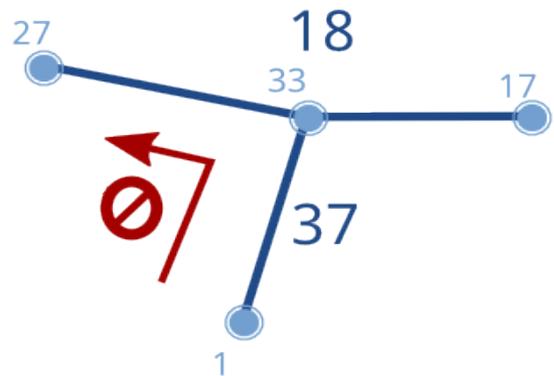
- nodos ordenados (pueden estar cerrados)
- atributos: identificador, usuario, versión
- contenido: lista de nodos y etiquetas



RELACIONES --> RELATIONS



- atributos: id, visible, usuario y timestamp
- contenido:
 - miembros: id, tipo y rol en la relación
 - etiquetas



miembros:

id: 37, tipo: vía, rol "desde"
id: 18, tipo: vía, rol "hacia"
id: 33, tipo: nodo, rol "por"

etiquetas:

tipo: restricción
tipo: no girar izquierda

ETIQUETAS --> CLAVE = VALOR

k=v

- imprimen significado o tipología a los elementos (nodos, vías y relaciones)
- cada etiqueta es un **par clave - valor**
- Ejemplo:
[clave/key] = [valor/value]
highway = *living_street*
wheelchair = *limited*
name = *carrer dels Ciutadans*



Main page

Discussion

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[Other languages](#) · [Translate](#)

- Main Page
- The map
- Map Features
- Contributors
- Help
- Blogs
- Shop
- Donations
- Recent changes

Tools

- What links here
- Related changes
- Special pages
- Printable version
- Permanent link
- Page information
- Cite this page

Welcome to OpenStreetMap, the project that creates and distributes *free* geographic data for the world. We started it because most maps you think of as free actually have legal or technical restrictions on their use, holding back people from using them in creative, productive, or unexpected ways.



[More about OpenStreetMap](#) | [How to contribute](#) | [Where to get help](#)

Use OpenStreetMap



[Using OpenStreetMap](#)

Contribute free map data



[Beginners' Guide](#)

- Browse the [map feature](#)

Software Development



[Develop and use the Platform](#)

- Use OpenStreetMap for your



Map Features - OpenStreetMap Wiki - Mozilla Firefox

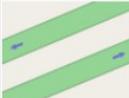
Map Features - OpenSt... x

wiki.openstreetmap.org/wiki/Map_Features

This table is a wiki template with a default description in English. [Editable here.](#)

Highway

This is used to describe roads and footpaths. For an introduction on its usage see the page titled [Highways](#). See the page titled [Restrictions](#) for an introduction on access limitations by vehicles type purpose, etc.

Key	Value	Element	Comment	
Roads				
These are the principal tags for the road network. They range from the				
highway	motorway		A restricted access major divided highway, normally with 2 or more running lanes plus emergency hard shoulder. Equivalent to the Freeway, Autobahn, etc..	 
highway	trunk		The most important roads in a country's system that aren't motorways. (Need not necessarily be a divided highway.)	 
highway	primary		The next most important roads in a country's system. (Often link larger towns.)	 
highway	secondary		The next most important roads in a country's system. (Often link small towns and villages.)	 
highway	tertiary		The next most important roads in a country's system.	 

WIKI MAP FEATURES

http://wiki.osm.org/Map_Features

ETIQUETAS FRECUENTES

 **highway** v · d · e



Description
The highway tag is the primary tag used for any kind of street or way.

Group: *Highway*

Used on these elements



Documented values: 323

Useful combination

- `abutters=*`
- `access=*`
- `maxheight=*`
- `maxspeed=*`
- `maxweight=*`
- `oneway=*`
- `width=*`

Implies

- `access=yes`

Status: Approved

taginfo [More...]

- ▣ 5 863 546
- 🗺 82 587 207
- 🗺 15 062

Tools for this tag

- [taginfo](#), [fr](#), [uk](#), [ie](#), [us](#)
- [overpass-turbo](#)

 **building** v · d · e



Description
To mark the outline of a building.

Group: *Man made*

Used on these elements



Documented values: 123

Useful combination

- `addr=*`
- `name=*`
- `height=*`
- `building:levels=*`
- `entrance=*`
- `shop=*`
- `amenity=*`
- `office=*`
- `craft=*`
- `building:architecture=*`

Implies

`area=yes`

Status: Approved

taginfo [More...]

- ▣ 772 241
- 🗺 141 640 354
- 🗺 183 751

Tools for this tag

- [taginfo](#), [fr](#), [uk](#), [ie](#), [us](#)
- [overpass-turbo](#)

 **amenity** v · d · e



Description
For describing useful and important facilities for visitors and residents.

Group: *Amenity*

Used on these elements



Documented values: 712

Status: Unspecified

taginfo [More...]

- ▣ 4 865 406
- 🗺 2 942 377
- 🗺 35 051

Tools for this tag

- [taginfo](#), [fr](#), [uk](#), [ie](#), [us](#)
- [overpass-turbo](#)

 **natural** v · d · e



Description
Used to describes natural physical land features, including ones that have been modified by humans.

Group: *Natural*

Used on these elements



Documented values: 197

Status: Approved

taginfo [More...]

- ▣ 5 461 980
- 🗺 11 658 352
- 🗺 504 708

Tools for this tag

- [taginfo](#), [fr](#), [uk](#), [ie](#), [us](#)
- [overpass-turbo](#)

MÁS ETIQUETAS

Editar elemento



Via de servicio

i

[Acercar a esto](#)

▼ Todos los campos

Nombre

Plaça d'Espanya

+

Nombre multilingüe

català

Plaça d'Espanya

Tipo

parking aisle, driveway, alley...

Sentido único

 Sí[Cambiar dirección >](#)

Limite de velocidad

50

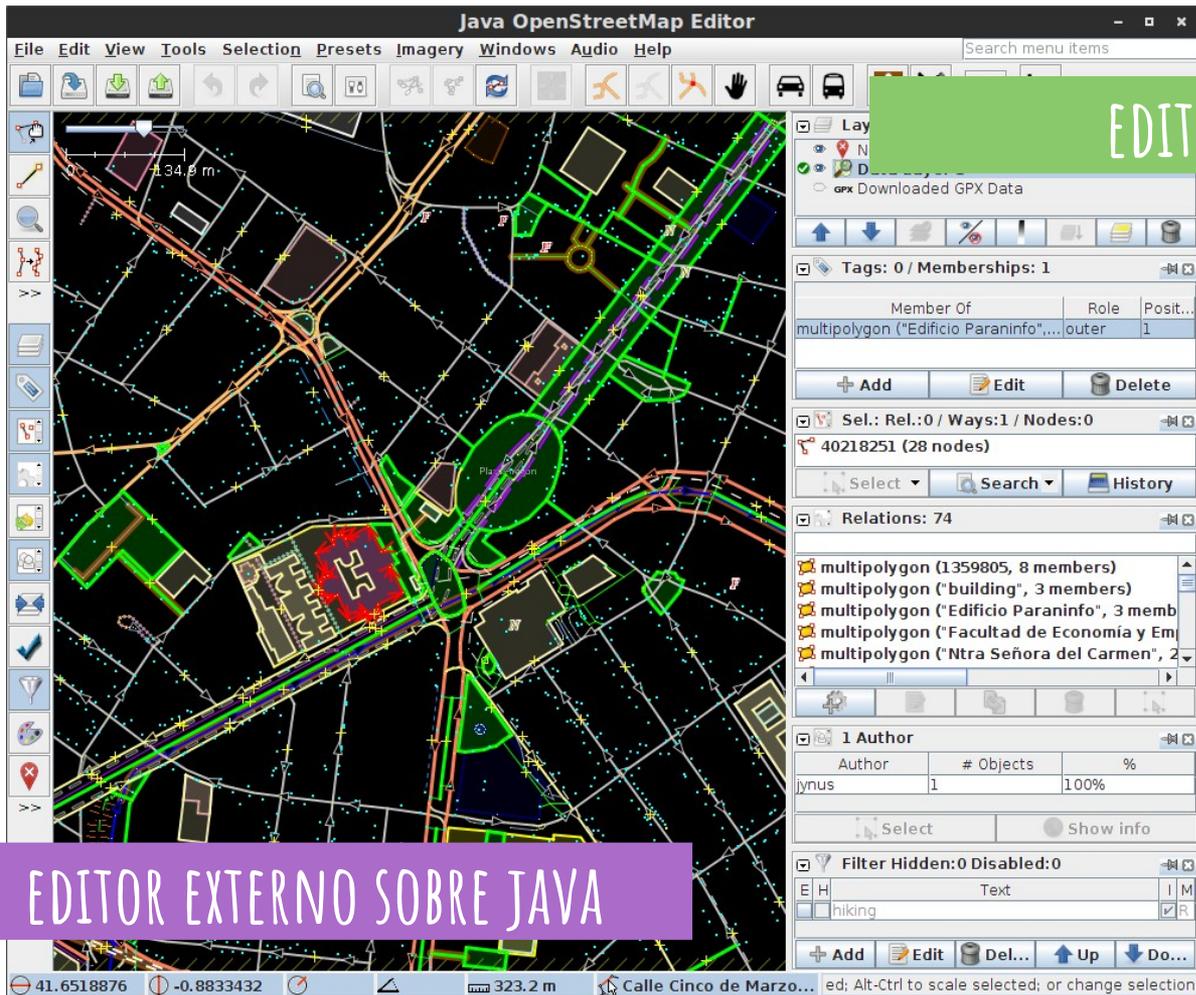
km/h

Superficie

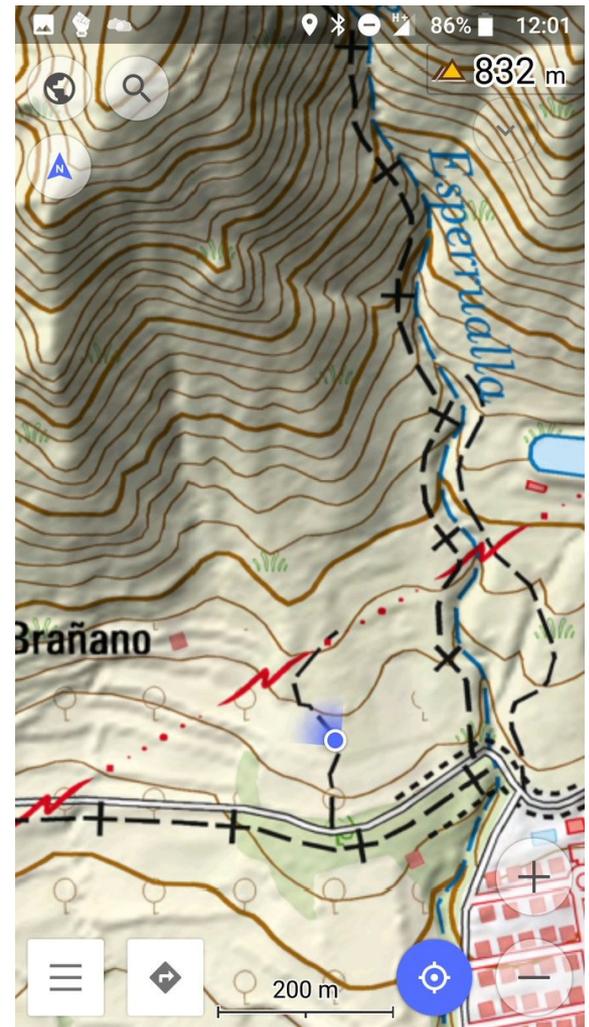
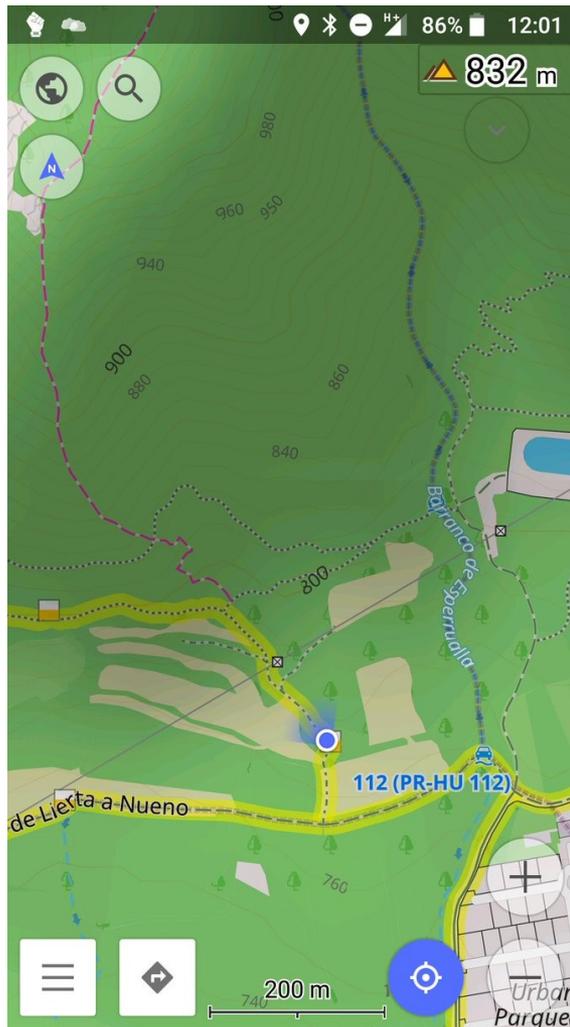
asphalt, unpaved, paved...

[Ver en openstreetmap.org](#)

INTEGRADO EN LA MISMA WEB



CALIDAD DE LOS DATOS EN OPENSTREETMAP



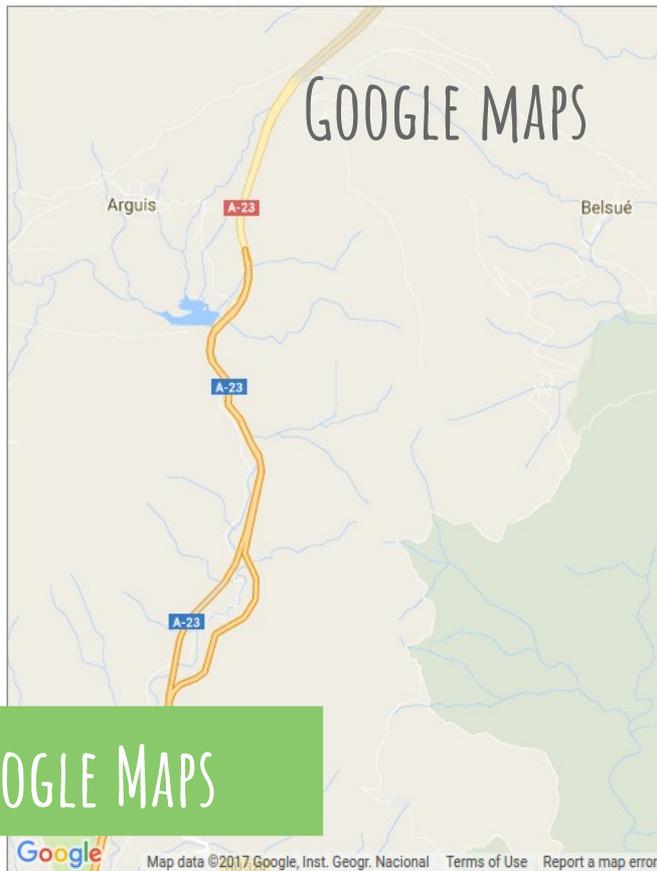
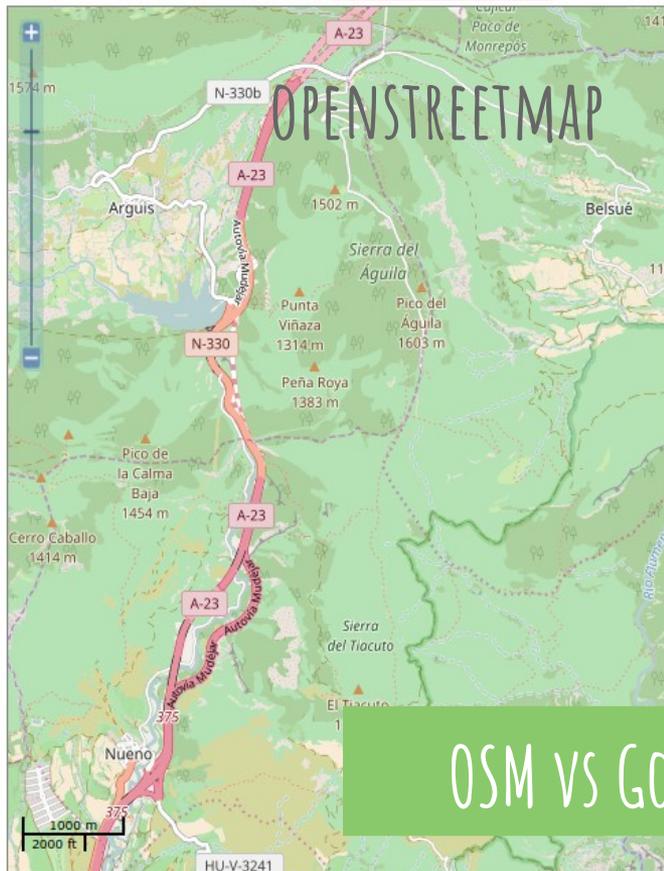
 **M. Sevilla-Callejo**
@msevilla00 Follow

Sales al campo y vas a un lugar dónde la calidad de los datos de [@openstreetmap](#) supera a la cartografía oficial del [@IGNSpain](#) gracias a las detalladas ediciones de [@dgerveno](#). Capturas de [@osmandapp](#) cc [@openstreetmapes](#) [@MapColabora](#) [@Huescaturismo](#)



Choose map type: OSM Carto

Choose map type: Google Map



OSM VS GOOGLE MAPS

RECUERDA:

NO COPIES DE OTROS MAPAS

(SALVO SI TIENES AUTORIZACIÓN EXPRESA)





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<http://osm.org/copyright>

LICENCIA ODBL E IMPORTACIONES



- Open Database License
 - “Creative Commons BY-SA”
para bases de datos
- NO podemos importar CC BY 4.0
- Necesarios acuerdos uso en OpenStreetMap

A screenshot of a web browser showing the Open Data Commons Open Database License (ODbL) page. The browser's address bar shows the URL "opendatacommons.org/licenses/odbl/index.html". The page title is "Open Data Commons Open Database License (ODbL)". Below the title, there are three bullet points: "Attribution and Share-Alike for Data/Databases", "Human-readable summary", and "Full legal text of current version (v1.0)". On the right side, there is a "MORE INFORMATION" section with a list of links: "Introduction to Open Data", "Open Definition for Data", "Quick guide to making data open", and "Open Data Handbook".

← → ↻ 🔒 opendatacommons.org/licenses/odbl/index.html 🔍 ☆ 👤 ⋮

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- [Open Definition for Data](#)
- [Quick guide to making data open](#)
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Import

(Redirected from [Imports](#))

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Imports and automated edits should only be carried out by those with experience and understanding of the way the OpenStreetMap community creates maps, and only with careful **planning** and **consultation** with the local community.

See [Import/Guidelines](#) and [Automated Edits code of conduct](#) for more information.

Imports/automated edits which do not follow these guidelines might be reverted!

Importing is the process of uploading external data to OSM.

Bulk imports are undertaken as a supplement to data collected by individual volunteers, and their data and ability to work in an area *always* has priority. Many free [potential datasources](#) have been updated into OSM in the past, like [AND Data](#) in the Netherlands, [TIGER](#) in the United States, [Canvec](#) in Canada, and [MassGIS](#) in the US state of [Massachusetts](#).

Unlike [editing](#) the map or [uploading GPX traces](#), importing combines an existing dataset with the OSM dataset, and thus typically includes a complex merging process.

More information

[Import Guidelines](#)

The ground rules. [Read this before planning and executing an import.](#)

- [Main Page](#)
- [The map](#)
- [Map Features](#)
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Spanish Cadastre/Buildings Import/Results

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[Proposal](#)

[Data Conversion](#)

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[Validation](#)

[Guide](#)

This is the list of municipalities in which the [Buildings Import](#) has been developed and its status.

Postcode ↕	Municipality ↕	Project ↕	Start date ↕	Completion date ↕	Status ↕
04086	Sorbas	#72 - Catastro de Sorbas	2018-10-09		Started
07032	Maó	#68 - Catastro de Menorca	2018-06-18		Started
07052	Sant Lluís	#50 - Catastro de Menorca	2018-03-11	2018-06-14	Validated
07064	Es Castell	#50 - Catastro de Menorca	2018-03-11	2018-08-30	Validated
08124	Montcada i Reixac	#74 - Catastro de Montcada i Reixac	2018-10-24		Started

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Quality assurance

Quality assurance - Other languages

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See also: [Accuracy](#), [Completeness](#)

Quality Assurance tools help lead to better quality of OSM data. Often, the tools achieve this by providing a list of bugs in the data, which mappers can then go and fix using [editing](#) tools. The bugs are either automatically detected based on rules and data analysis, or the tools provide a means of manually reporting them, or some combination of the two. There are many different ideas for how to do this, and what kind of bugs to focus on, hence many different tools.

OpenStreetMap is often more up-to-date and of a higher quality than other commercial maps when dealing with [New and Changed Ways](#).

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X Jornadas Ibéricas de
Infraestructura de Datos Espaciales
23 al 25 de Octubre de 2019



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