

Spanish addresses in cadastral data, present and future

INSPIRE themes implementation in NMCAs
May 6, 2021





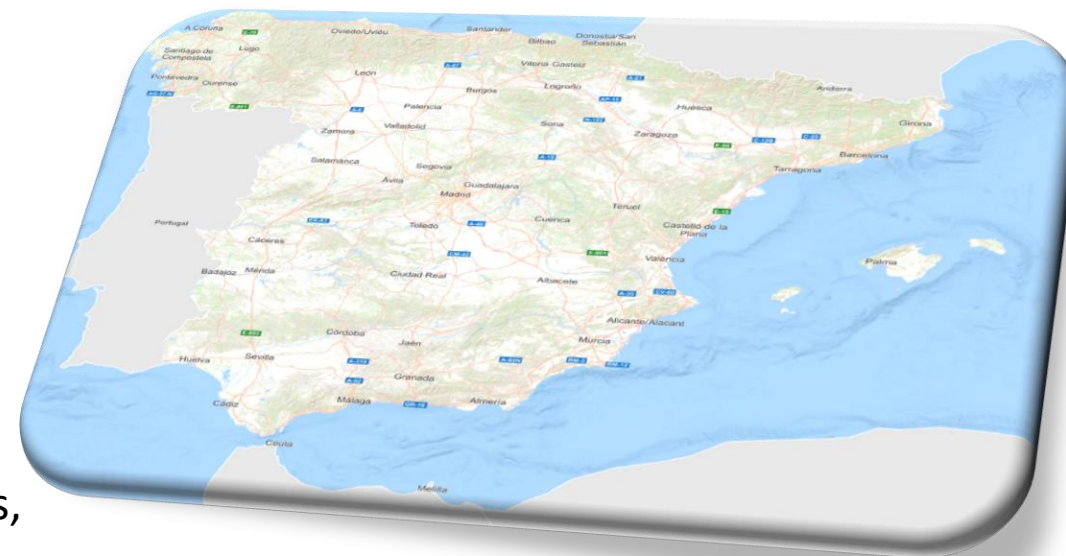
TODAY'S TOPICS...

- 1. BACKGROUND / INTRODUCTION**
- 2. CREATING GEOREFERENCED ADDRESSES FROM CADASTRAL DATA FOR SERVICES**
- 3. DISTRIBUTING ADDRESSES**
- 4. ABOUT THE FUTURE OF ADDRESSES AT SGDC**

BACKGROUND – SPANISH ADMINISTRATIVE STRUCTURE

SPAIN

- ~47 millions of inhabitants
- 505.000 km²
- 17 Regions + 2 autonomous cities
- 50 provinces (a region is formed by a group of provinces, in some cases only one province)
- ~8100 Municipalities



Size of municipality (inhabitants)

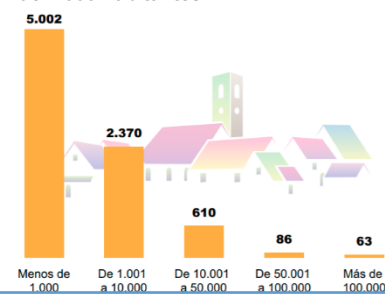
Number of municipalities

Population distribution

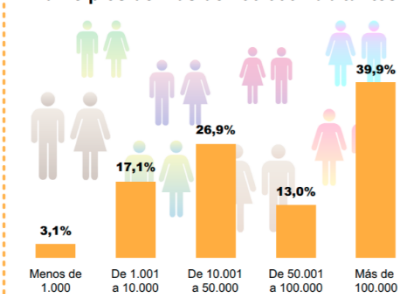


Población inscrita en el Padrón a 01/01/2021: **47.344.649**
(Datos provisionales)

5.002 municipios tienen menos de 1.000 habitantes



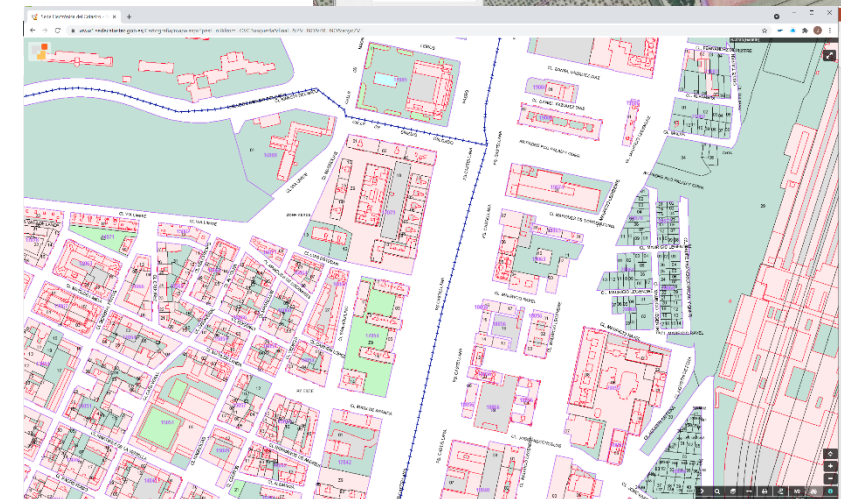
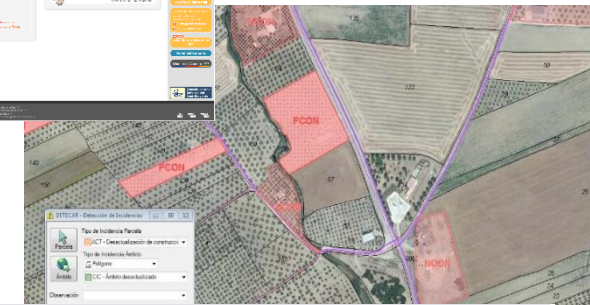
39,9% de la población vive en municipios de más de 100.000 habitantes





BACKGROUND – SPANISH GENERAL DIRECTORATE OF CADASTRE

- Part of the Ministry of Finances:
 - An administrative **official register** from the Ministry of Finances with **authoritative data**
- Contains all the real estate (**complete**):
 - Urban, rural, special characteristics.
 - Public and Private lands and buildings
 - Whole country, except Basque Country and Navarra.
- **Continuously updated**
- Provide **INSPIRE services** about cadastral parcels, **addresses** and buildings for its territorial scope of competence





BACKGROUND – ADDRESSES IN SPAIN

Related to addresses...

✓ **INE (National Statistics Institute)**

- registry of addresses not georeferenced
- registry of street names
- registry of municipalities names



✓ **MUNICIPALITIES**

- set names to streets
- set house numbers



✓ **CORREOS (Postal Service)**

- maintain postal codes



✓ **GENERAL DIRECTORATE OF CADASTRE**

- Georeferenced addresses from real state data (for its territorial scope of competence)

✓ **IGN (National Geographic Institute)**

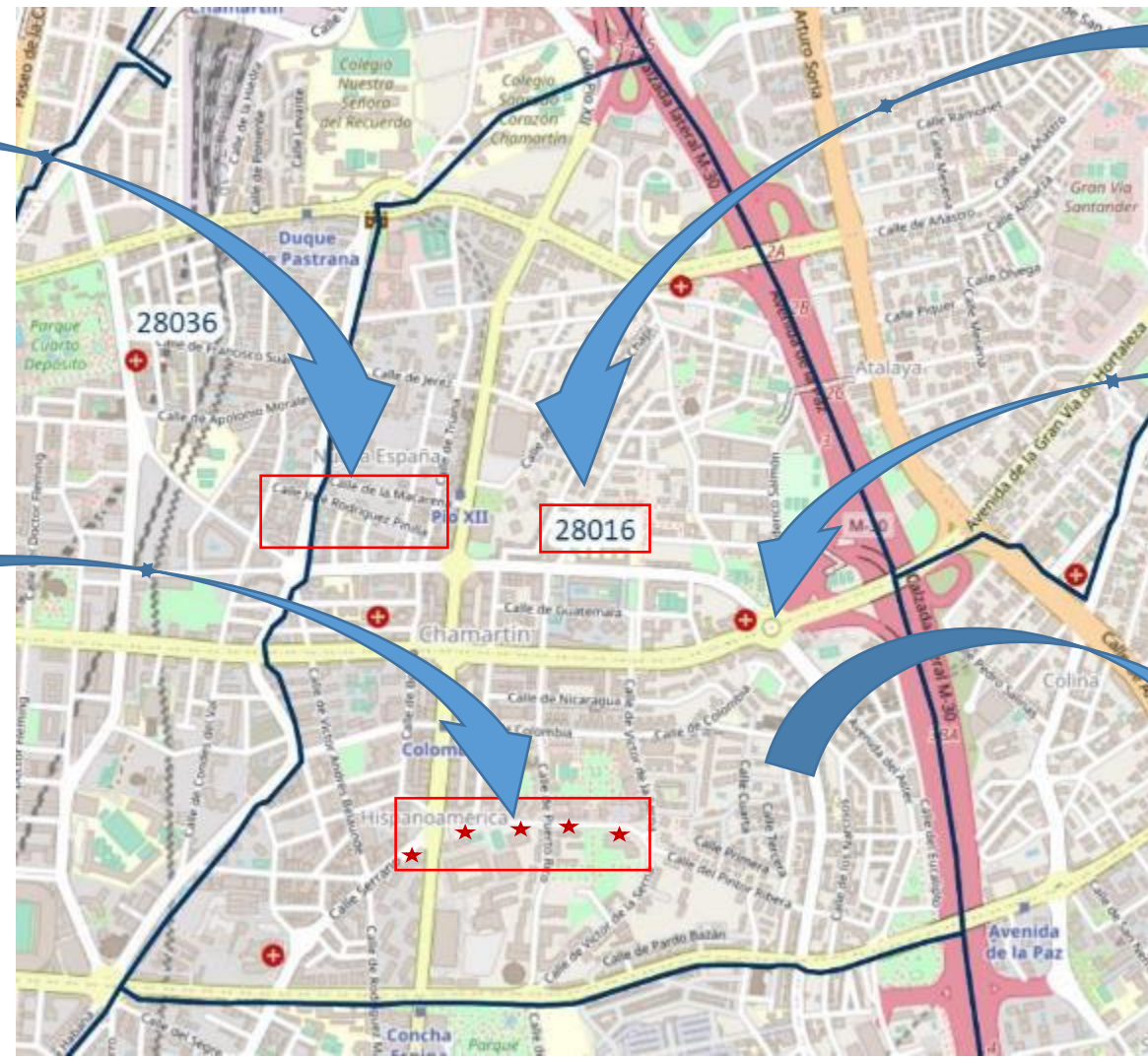
- Transport network
- Administrative units





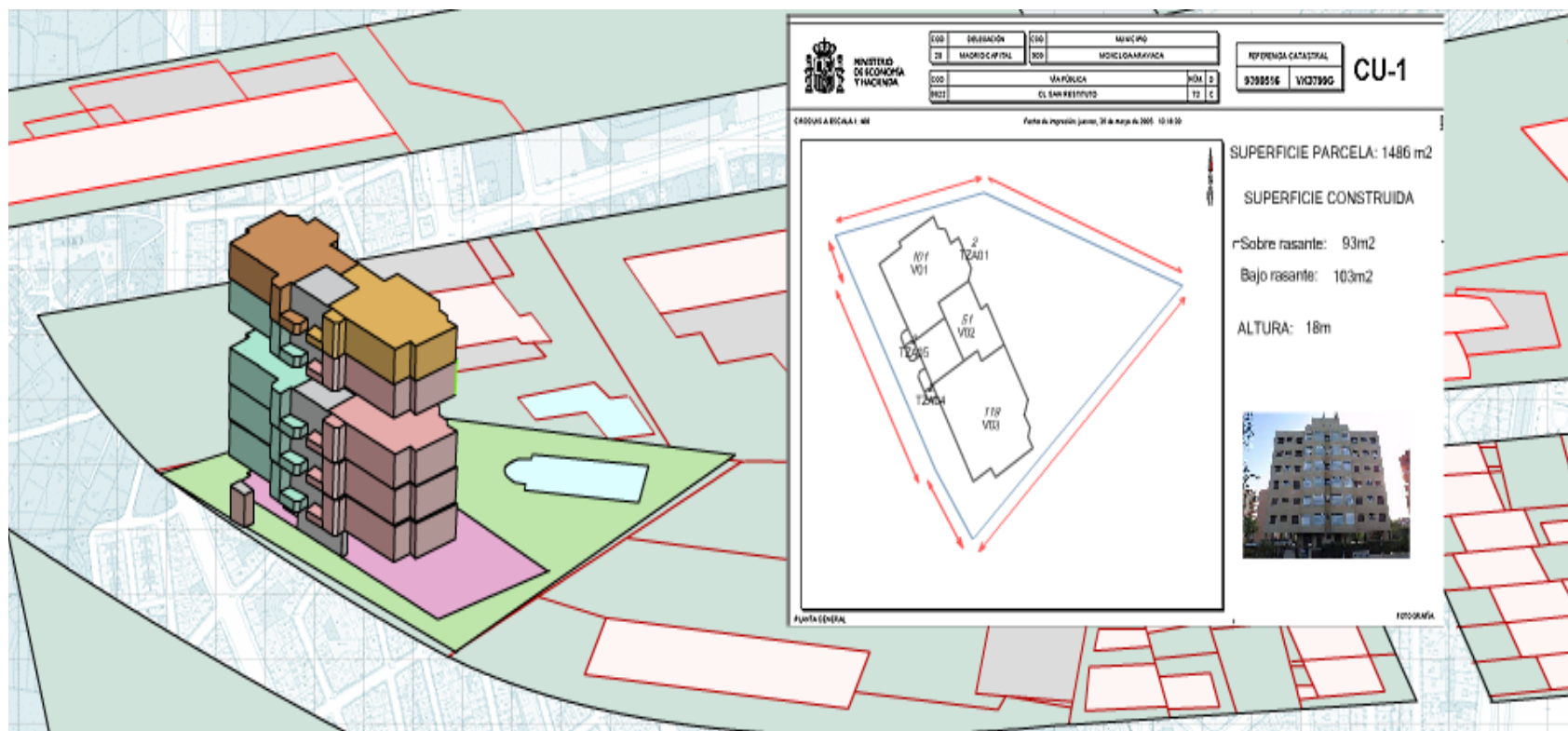
BACKGROUND – ADDRESSES IN SPAIN

 MADRID



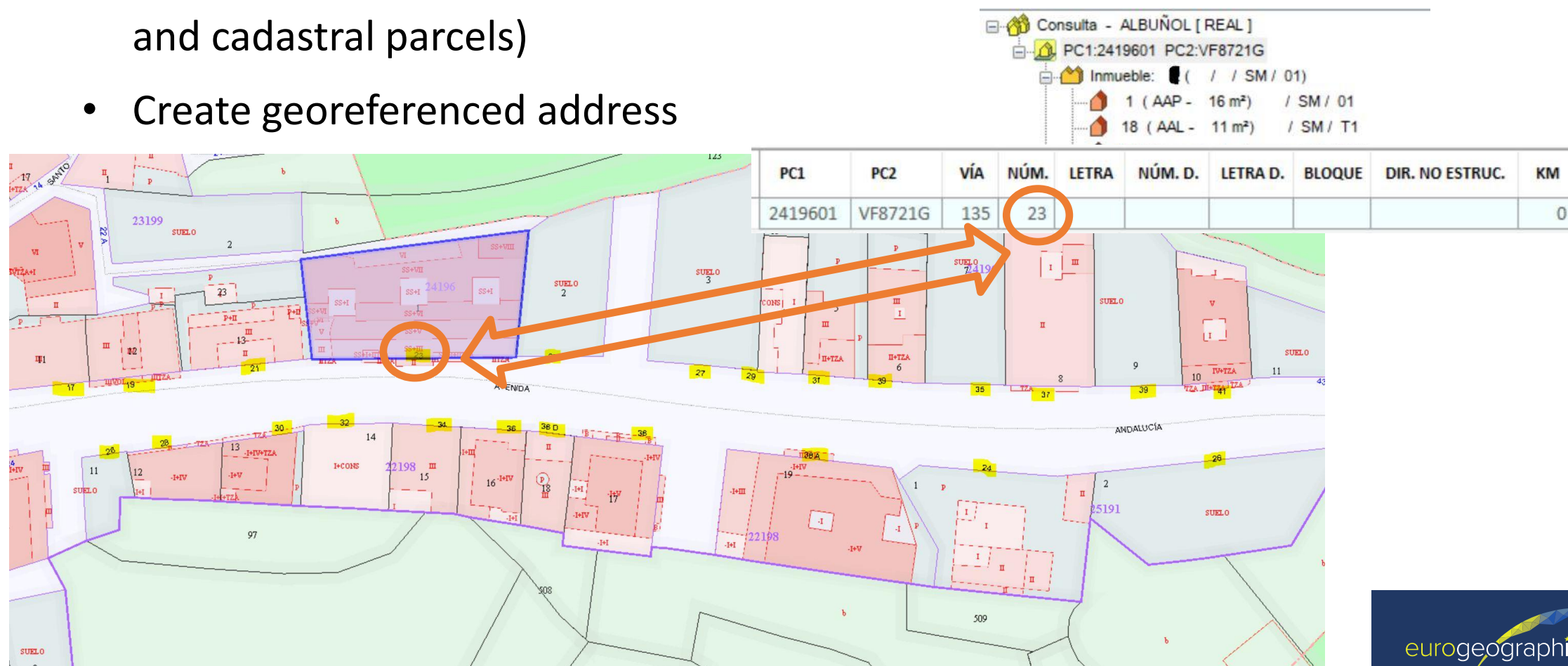
CREATING GEOREFERENCED ADDRESSES FROM CADASTRAL DATA FOR SERVICES

- Address information is part of the properties (cadastral parcels, apartments, ...)
- **Not yet a spatial object** in database



CREATING GEOREFERENCED ADDRESSES FROM CADASTRAL DATA FOR SERVICES

- Extract address information from database tables
- Find location based on spatial objects of the map (text labels and cadastral parcels)
- Create georeferenced address



- Process is performed “on the fly” for web services
- But massive download services (ATOM) are processed twice a year

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- But massive download services (ATOM) are processed twice a year





DISTRIBUTING ADDRESSES

- INSPIRE SERVICES
 - WMS
 - WFS
 - ATOM
- SOAP SERVICES
- SPECIAL REQUEST – ON DEMAND

DISTRIBUTING ADDRESSES

SGDC own developments!

- INSPIRE SERVICES → <http://www.catastro.meh.es/webinspire/index.html>

- WMS

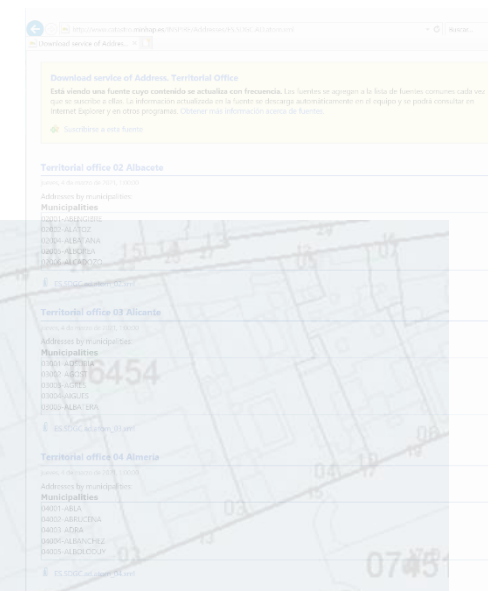
- <http://ovc.catastro.meh.es/cartografia/INSPIRE/spadgcwms.aspx>

- WFS

- Addresses:** <http://ovc.catastro.meh.es/INSPIRE/wfsAD.aspx?>
 - Cadastral Parcel:** <http://ovc.catastro.meh.es/INSPIRE/wfsCP.aspx?>
 - Buildings:** <http://ovc.catastro.meh.es/INSPIRE/wfsBU.aspx?>

- ATOM

- Addresses:** <http://www.catastro.minhap.es/INSPIRE/Addresses/ES.SDGC.AD.atom.xml>
 - Cadastral parcels:** <http://www.catastro.minhap.es/INSPIRE/CadastralParcels/ES.SDGC.CP.atom.xml>
 - Buildings:** <http://www.catastro.minhap.es/INSPIRE/buildings/ES.SDGC.BU.atom.xml>





DISTRIBUTING ADDRESSES

- SOAP SERVICES – Street map

<http://ovc.catastro.meh.es/ovcservweb/OVCSWLocalizacionRC/OVCCallejero.aspx>

- List of PROVINCES (where SGDC has competence to act)

<http://ovc.catastro.meh.es/ovcservweb/OVCSWLocalizacionRC/OVCCallejero.aspx?op=ConsultaProvincia>

- List of MUNICIPALITIES of a province

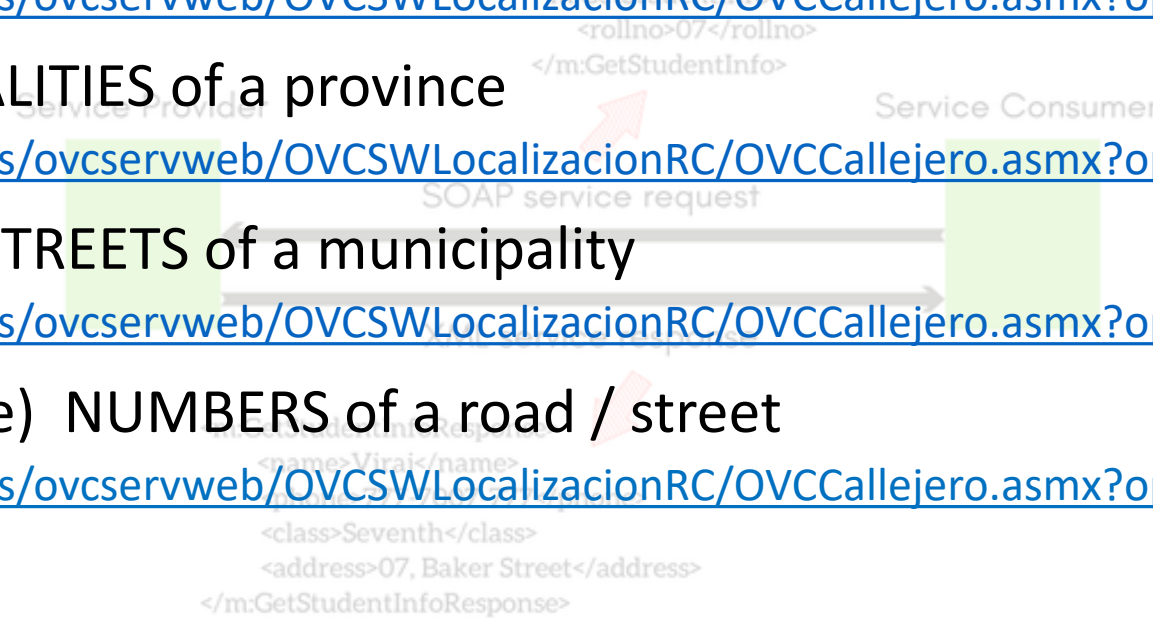
<http://ovc.catastro.meh.es/ovcservweb/OVCSWLocalizacionRC/OVCCallejero.aspx?op=ConsultaMunicipio>

- List of ROADS / STREETS of a municipality

<http://ovc.catastro.meh.es/ovcservweb/OVCSWLocalizacionRC/OVCCallejero.aspx?op=ConsultaVia>

- List of the (house) NUMBERS of a road / street

<http://ovc.catastro.meh.es/ovcservweb/OVCSWLocalizacionRC/OVCCallejero.aspx?op=ConsultaNumero>



DISTRIBUTING ADDRESSES

- SOAP SERVICES – Street map
 - Query of NON-PROTECTED CATASTRAL DATA (all information, except personal data of title holder and cadastral value) of a property identified by its location.
http://ovc.catastro.meh.es/ovcservweb/OVCSWLocalizacionRC/OVCCallejero.aspx?op=Consulta_DNPLOC
 - Query of NON-PROTECTED CATASTRAL DATA (all information, except personal data of title holder and cadastral value) of a property identified by its Cadastral Reference.
http://ovc.catastro.meh.es/ovcservweb/OVCSWLocalizacionRC/OVCCallejero.aspx?op=Consulta_DNPRC
 - Query NON-PROTECTED CATASTRAL DATA (all information, except personal data of title holder and cadastral value) of a property identified by polygon-parcel.
http://ovc.catastro.meh.es/ovcservweb/OVCSWLocalizacionRC/OVCCallejero.aspx?op=Consulta_DNPPP

Encontrará documentación más detallada de todos los servicios en la dirección: http://www.catastro.meh.es/ayuda/lang/castellano/servicios_web.htm

DISTRIBUTING ADDRESSES

- SOAP SERVICES - Coordinates converter.

<https://ovc.catastro.meh.es/ovcservweb/OVCSWLocalizacionRC/OVCCoordenadas.asmx>

- XY to Cadastral Reference conversion.

https://ovc.catastro.meh.es/ovcservweb/OVCSWLocalizacionRC/OVCCoordenadas.asmx?op=Consulta_RCCOOR

- Cadastral reference to XY conversion.

https://ovc.catastro.meh.es/ovcservweb/OVCSWLocalizacionRC/OVCCoordenadas.asmx?op=Consulta_CPMRC

- Location of references by proximity to XY coordinates.

https://ovc.catastro.meh.es/ovcservweb/OVCSWLocalizacionRC/OVCCoordenadas.asmx?op=Consulta_RCCOOR_Distancia



DISTRIBUTING ADDRESSES

- All these services have a series of input parameters (these can be consulted on the page corresponding to the service) and return an XML with the requested information or, if applicable, an error code.
- <http://www.catastro.meh.es/ws/esquemas/esquemas.htm>

```
POST /ovcswweb/OVCSWLocalizacionRC/OVCCallejero.asmx HTTP/1.1
Host: ovc.catastro.meh.es
Content-Type: text/xml; charset=utf-8
Content-Length: length
SOAPAction: "http://tempuri.org/OVCServWeb/OVCCallejero/Consulta_DNPLOC"
```

```
<?xml version="1.0" encoding="utf-8"?>
<soap:Envelope xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/">
  <soap:Body>
    <Provincia xmlns="http://www.catastro.meh.es/">string</Provincia>
    <Municipio xmlns="http://www.catastro.meh.es/">string</Municipio>
    <Sigla xmlns="http://www.catastro.meh.es/">string</Sigla>
    <Calle xmlns="http://www.catastro.meh.es/">string</Calle>
    <Numero xmlns="http://www.catastro.meh.es/">string</Numero>
    <Bloque xmlns="http://www.catastro.meh.es/">string</Bloque>
    <Escalera xmlns="http://www.catastro.meh.es/">string</Escalera>
    <Planta xmlns="http://www.catastro.meh.es/">string</Planta>
    <Puerta xmlns="http://www.catastro.meh.es/">string</Puerta>
  </soap:Body>
</soap:Envelope>
```

```
HTTP/1.1 200 OK
Content-Type: text/xml; charset=utf-8
Content-Length: length
```

```
<?xml version="1.0" encoding="utf-8"?>
<soap:Envelope xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/">
  <soap:Body>
    <Consulta_DNP xmlns="http://www.catastro.meh.es/">xml</Consulta_DNP>
  </soap:Body>
</soap:Envelope>
```



DISTRIBUTING ADDRESSES

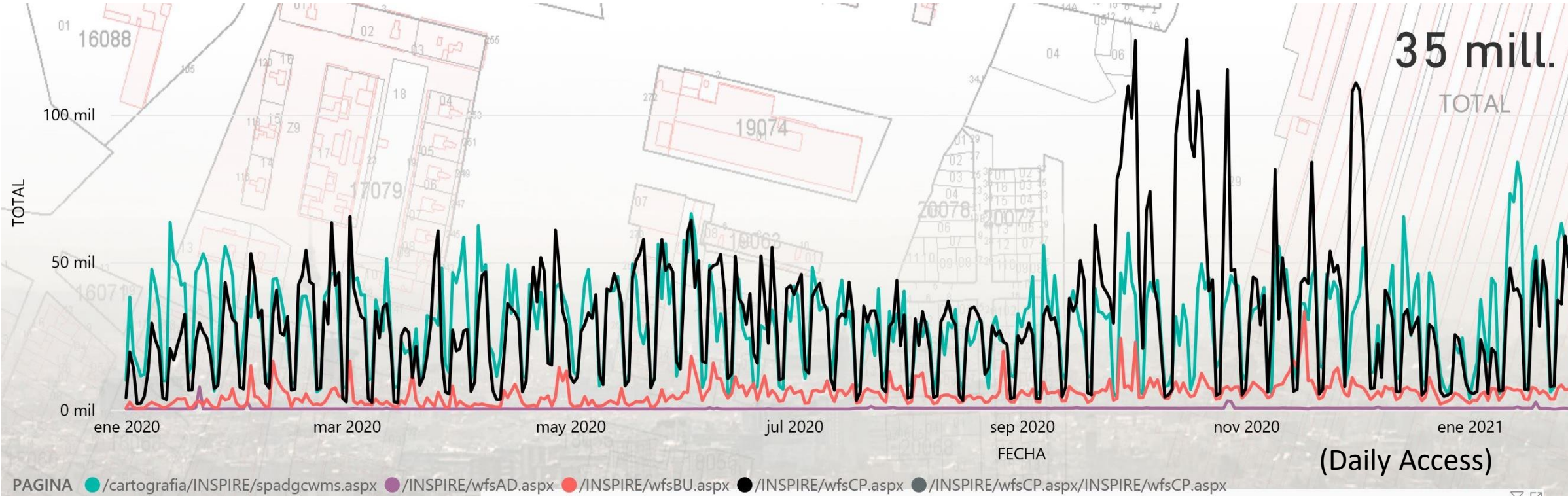
- **WHO USE OUR INFORMATION?**

- Public administration and organizations (State, regional and local levels)
- International organizations (i.e: Eurostat – GISCO)
- Private companies
- Citizens
- ...

DISTRIBUTING ADDRESSES

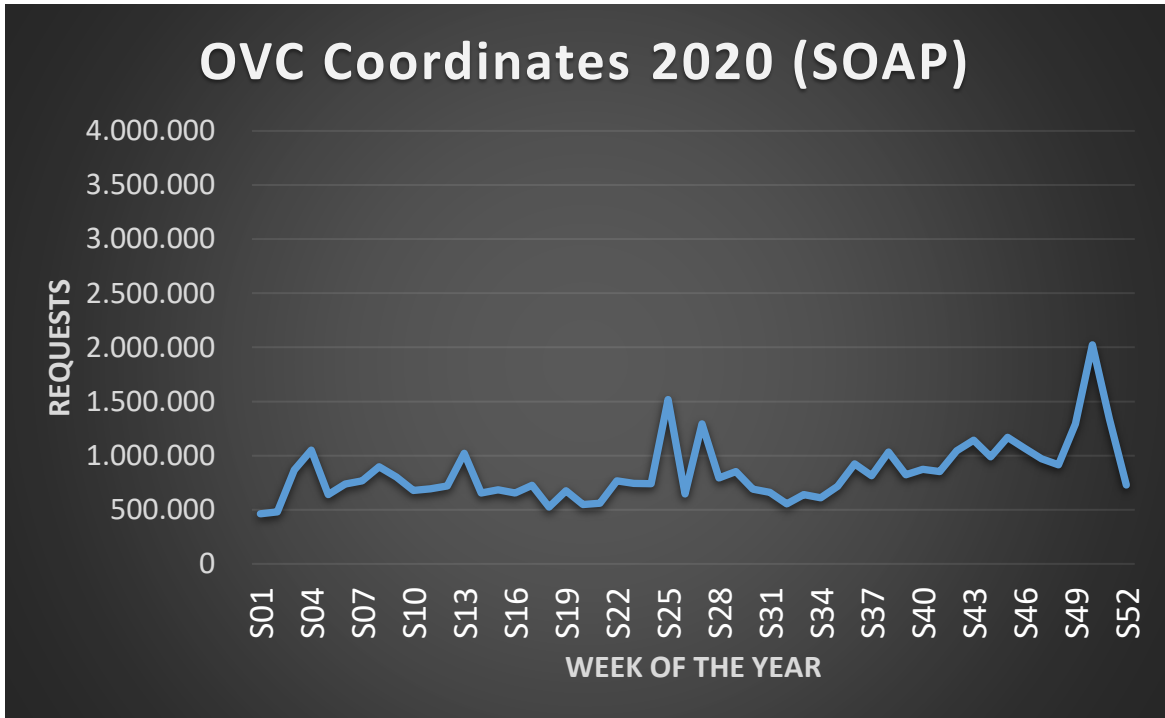
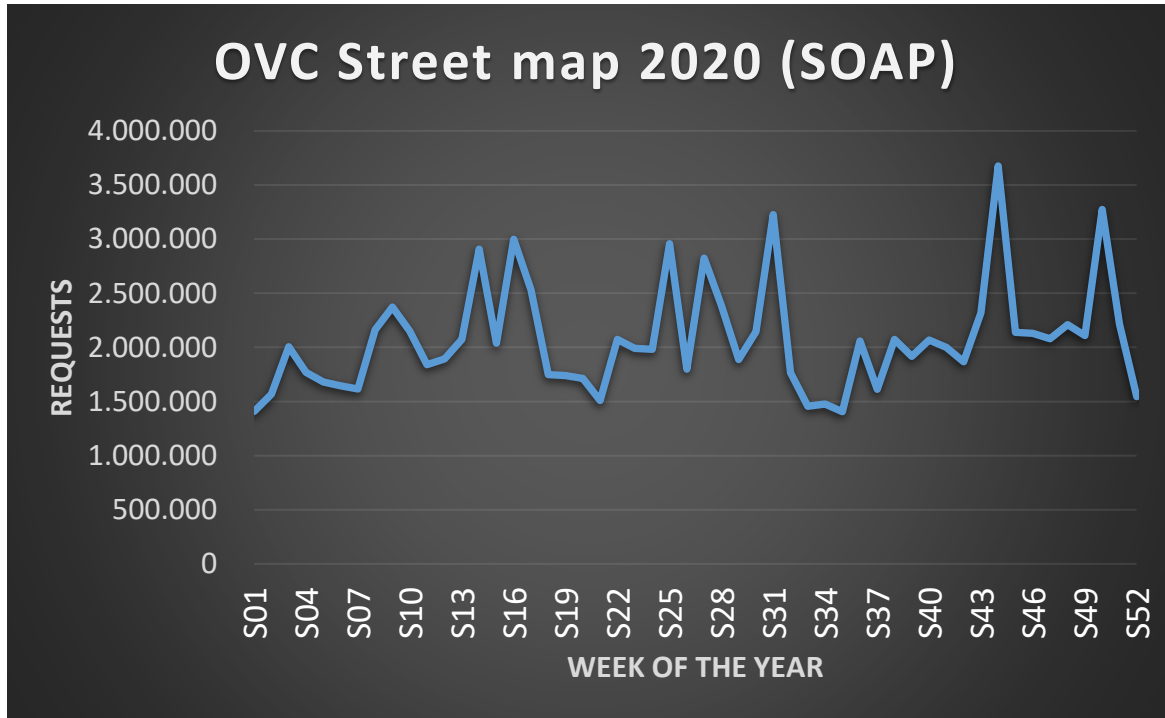
- USAGE STATISTICS – INSPIRE SERVICES

Index	From:	30/12/2019	SGDC – E-Site / Services		
	To:	31/12/2020			
	Total	Monthly Average	Weekly Average	Daily Average	
Access	8.923.432.064	546.332.575	127.477.601	18.211.086	
WMS Server	379.796.441	23.252.843	5.425.663	775.095	
OVCCallejero (SOAP)	108.041.210	6.614.768	1.543.446	220.492	
OVCCoordenadas (SOAP)	44.054.062	2.697.187	629.344	89.906	
WFS Server	7.329.868	448.767	104.712	14.959	



DISTRIBUTING ADDRESSES

- USAGE STATISTICS – SOAP SERVICES REQUESTS





ABOUT THE FUTURE OF ADDRESSES AT SGDC

- **WHAT ARE WE DOING?**
 - Studying a **new data model** → Address as spatial object itself
 - Developing **new quality checks** to improve logical consistency
 - Improve data accuracy based on **users / citizens feedback and request**

ABOUT THE FUTURE OF ADDRESSES AT SGDC

- **WHAT ARE WE DOING?**

- Studying a **new data model** → Address as spatial object itself
 - How are the addresses?
 - How should we store them?
 - How these changes can impact the organization?
 - How should we manage changes?
 - ...

ABOUT THE FUTURE OF ADDRESSES AT SGDC

- **WHAT ARE WE DOING?**

- Developing **new quality checks** to improve logical consistency
 - Need to transform information to new data model
 - Performed data analysis
 - Detected inconsistencies
 - Better to correct as much as posible before implementing new model

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ABOUT THE FUTURE OF ADDRESSES AT SGDC

- **WHAT ARE WE DOING?**

- Improve data accuracy based on **users / citizens feedback and request**
 - Users / Citizens make use of our information
 - Users / Citizens informs about mistakes in data
 - Legal procedures, or
 - Contact form:
<http://www.catastro.minhap.es/ayuda/EnsConInfCont.html>
 - These requests help to improve data quality

Background imagen by rawpixel.com - www.freepik.es



Many thanks for your attention!

Stay safe!

Javier Luque

Unit of Cartography

Spanish General Directorate of Cadastre