

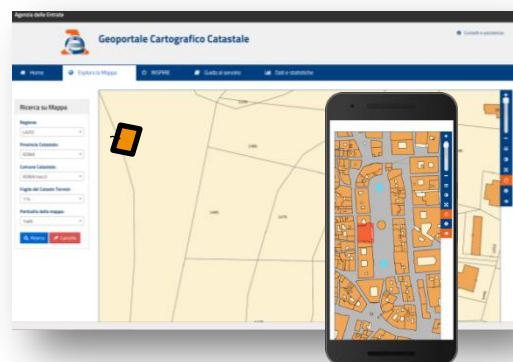


**AUTOMATIC REAL-TIME UPDATE  
AND DYNAMIC ONLINE SERVICES.  
THE ITALIAN CADASTRAL CARTOGRAPHY SYSTEM**

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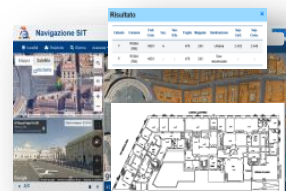
**AUTOMATIC UPDATING AND  
REAL TIME AVAILABILITY  
THROUGH ONLINE SERVICES**



The cadastral cartography system



The automatic cartographic updating

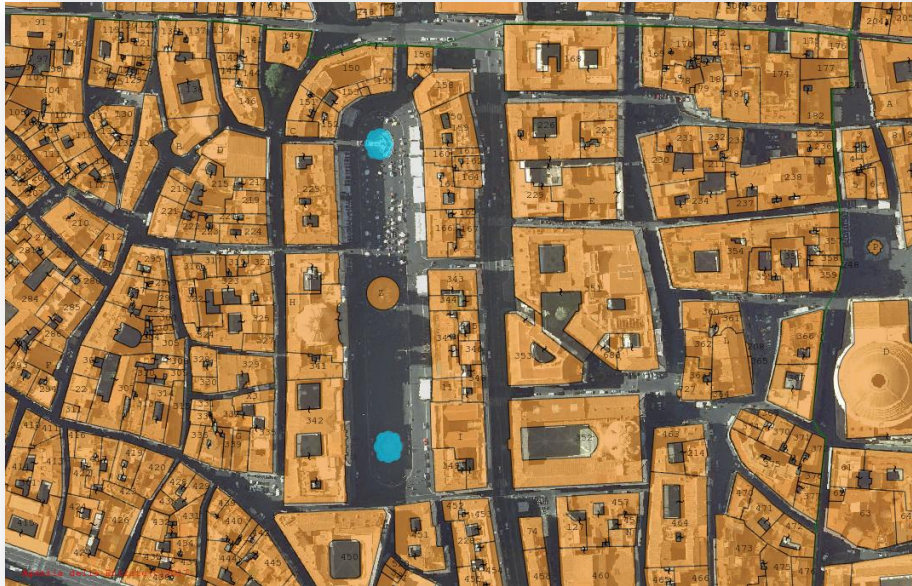


The integrated land information system – SIT



Cadastral cartographic online services

The **Revenue Agency** - *Agenzia delle Entrate* manages the national real estate information system. Its role in land administration is to draw up the complete inventory of real estate assets, describing technical and economic characteristics and registering real rights



The **cadastral cartography system** is designed to archive, manage and analyse geographic information on each:

- piece of land
- building
- street or surface water (rivers, lakes)

located on the national territory

The **Italian cadastre** is one of the five national official cartographic authorities and is **responsible for constant and permanent updating** of the large scale cadastral maps

## The Italian cadastral cartography today

It is complete and homogeneous

It is totally available in vector format

It is based on large scale maps

240.000 maps	scale 1:2.000
30.000 maps	scale 1:1.000
30.000 maps	scale 1:4.000

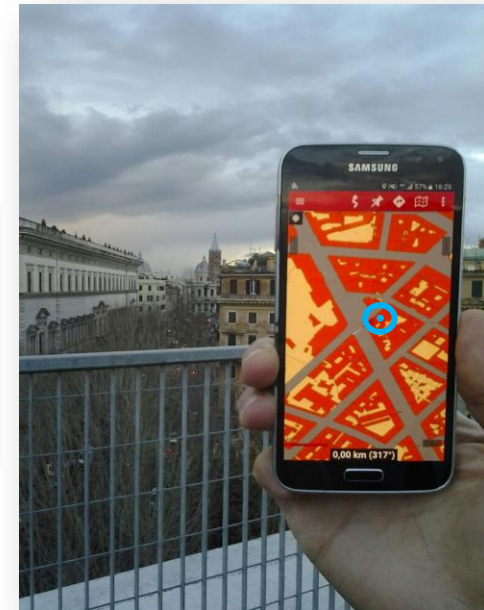
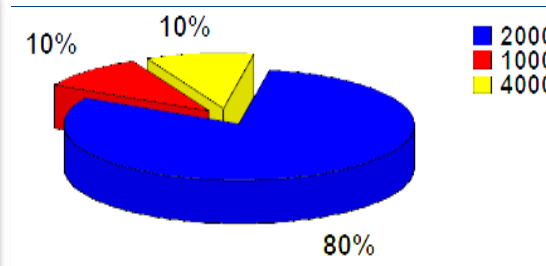
It is available in CRS based on ETRS89/ETRF2000

It is directly related to the Land Cadastre Database through a unique identifier: the parcel number

approx 300.000 km<sup>2</sup>

85 million parcels

18 million buildings



The Revenue Agency daily provides **online services** based on the cadastral cartography system, to institutions, citizens, professionals, enterprises



1956

1969 - 1972

Today



1886 - 1956

Periodical checks and surveys carried out by cadastral surveyors (every 5 years)

Involvement of professionals in the updating of cadastre...

Cadastre establishment



- Subdivision of land parcel
- Construction of new building or extension or demolition



- Technical rules
- Software (Pregeo)
- Online data exchange



- Automatic checks
- Automatic updating



## Procedure evolution

2003

1988

PreGeo

PreGeo 8

Simplification and standardization of:

- the implementing rules of surveys
- the updating procedures of the cadastral cartography and census archive

Digital management of cadastral cartography

WEGIS

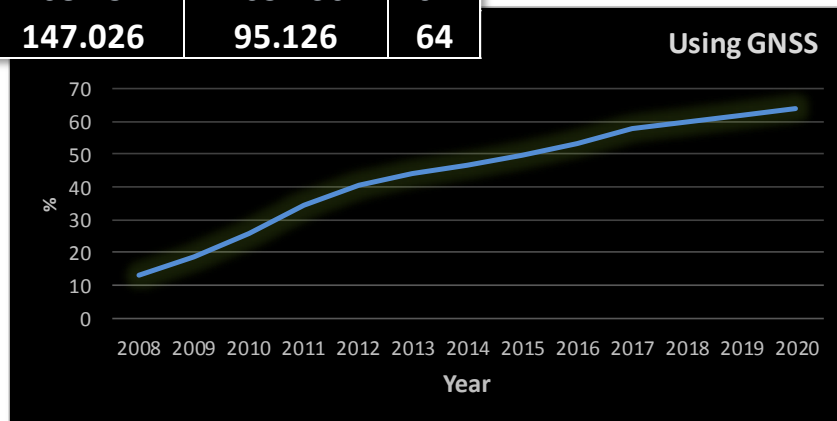
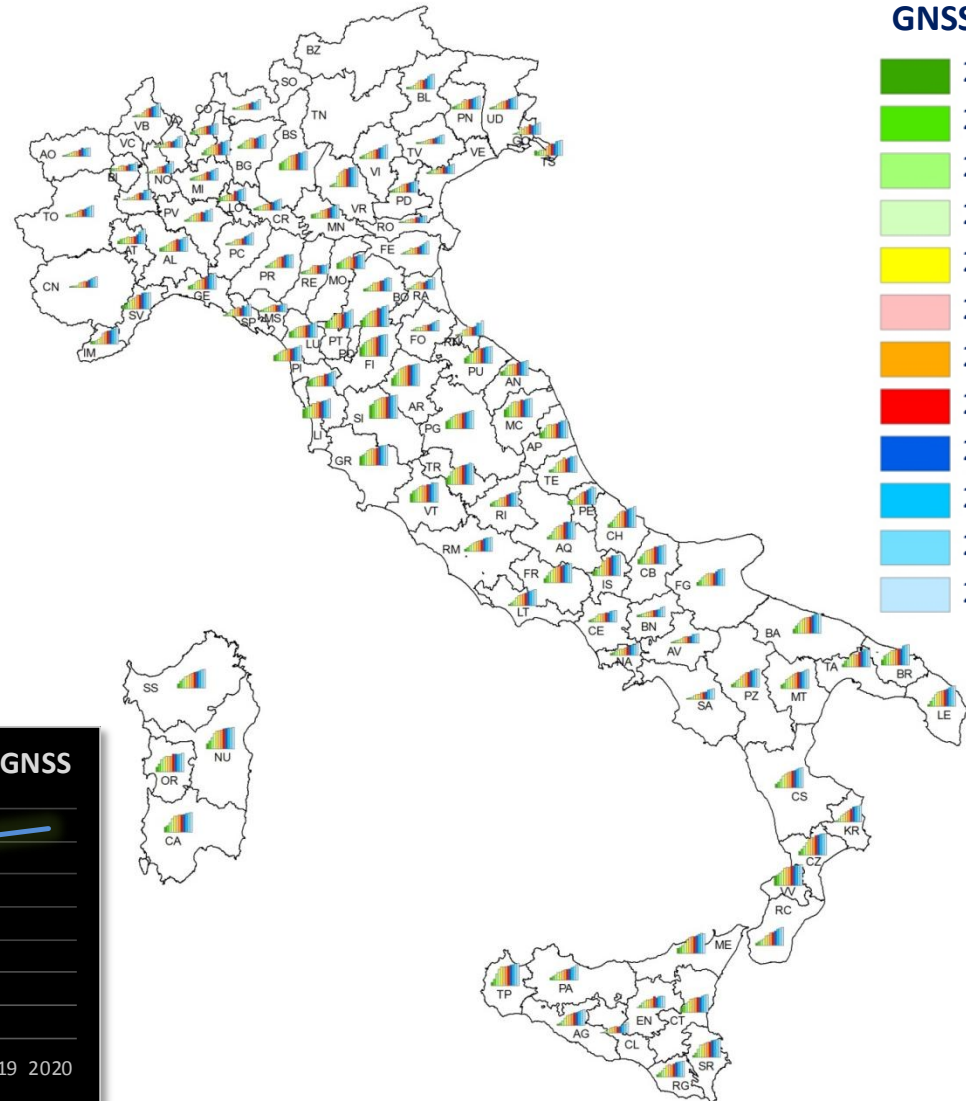
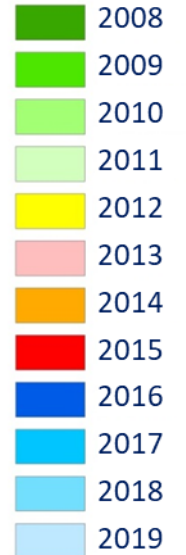
Cadastral surveys using GPS methods

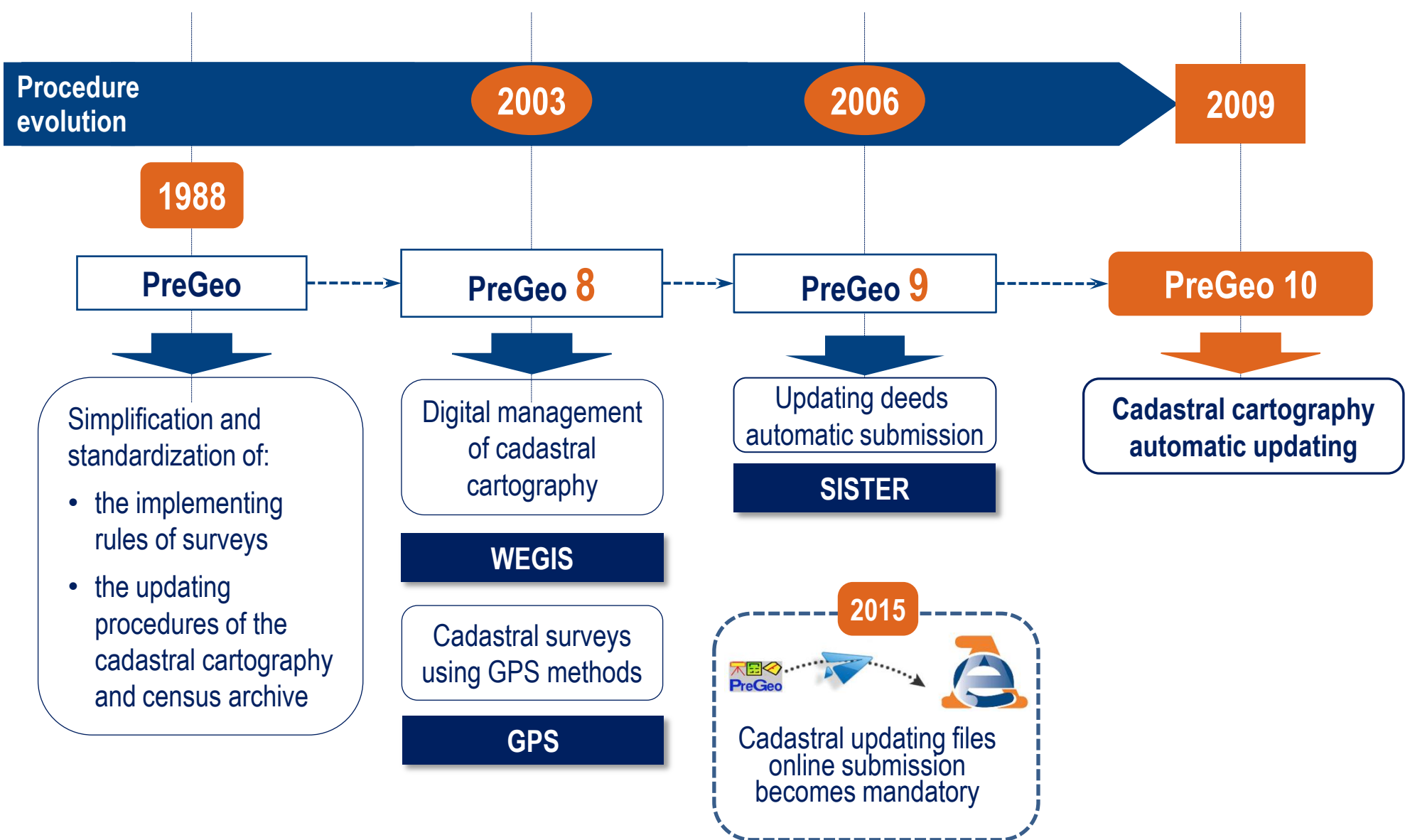
GPS

## Surveys using Global Navigation Satellite System

	Total updating deeds	Using GNSS	%
2008	404.672	52.900	13
2009	385.029	72.621	19
2010	413.674	107.067	26
2011	473.572	162.931	34
2012	386.953	156.179	40
2013	259.359	114.446	44
2014	200.617	93.874	47
2015	177.705	88.256	50
2016	180.324	95.542	53
2017	208.694	120.215	58
2018	187.097	112.408	60
2019	168.752	105.236	62
2020	147.026	95.126	64

### Surveys using GNSS (%)

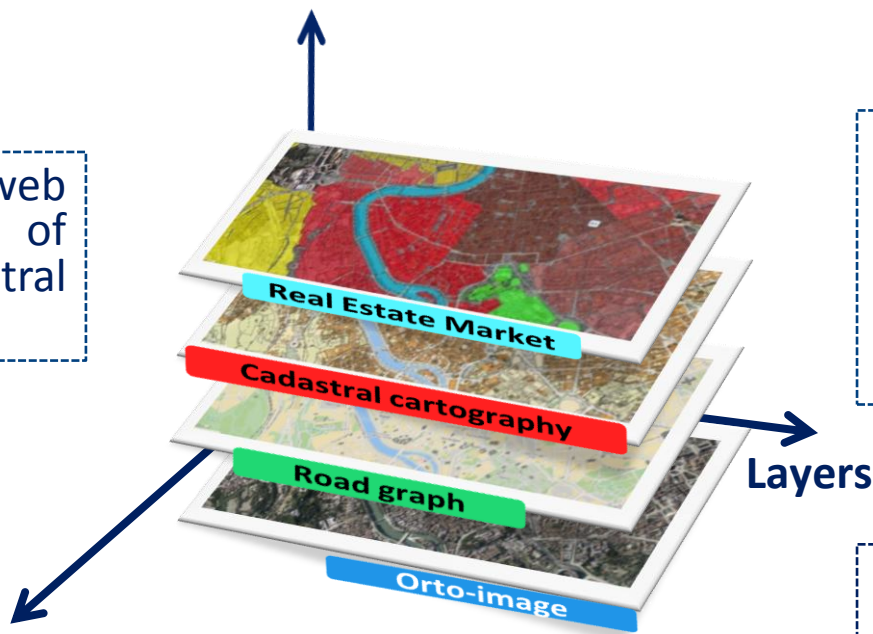






1

SIT is a modern web GIS, an evolution of the current cadastral cartography system



2

SIT is part of a wider project for the implementation of the integrated national real estate information system. The data historically managed in different systems are integrated in it

3

In the integrated national real estate information system the whole information asset is unified into one national system, whose elements are conveniently integrated each other

5

SIT goes beyond the current system based on the separation of all the archives (Cartography, Census DBs, Plans) and a web-architecture spread on 101 Provincial Offices of the Agency

4

SIT allows the geo-based data surfing and searching for all the information managed, the spatial analysis and integration with other data external to the cadastral domain

## Navigazione SIT

Località Posizione Ricerca Avanzata Ambiti Importa Storico

Mappa Satellite Etichette

8 Piazza Papa Pio XII  
Roma, Lazio  
Data Immagine: 2019-09  
Visualizza su Google Maps

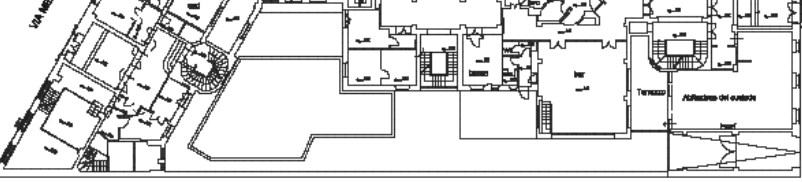
50 m

geo*poi*

Roma (RM) - Lazio

**Risultato**

Catasto	Comune	Cod. Com.	Sez.	Sez. Urb.	Foglio	Mappale	Destinazione	Sup. Cart.	Sup. Cens.
T	ROMA (RM)	H501	A		476	243	Urbana	2.432	2.440
F	ROMA (RM)	H501	-	-	476	243	Non residenziale	-	-

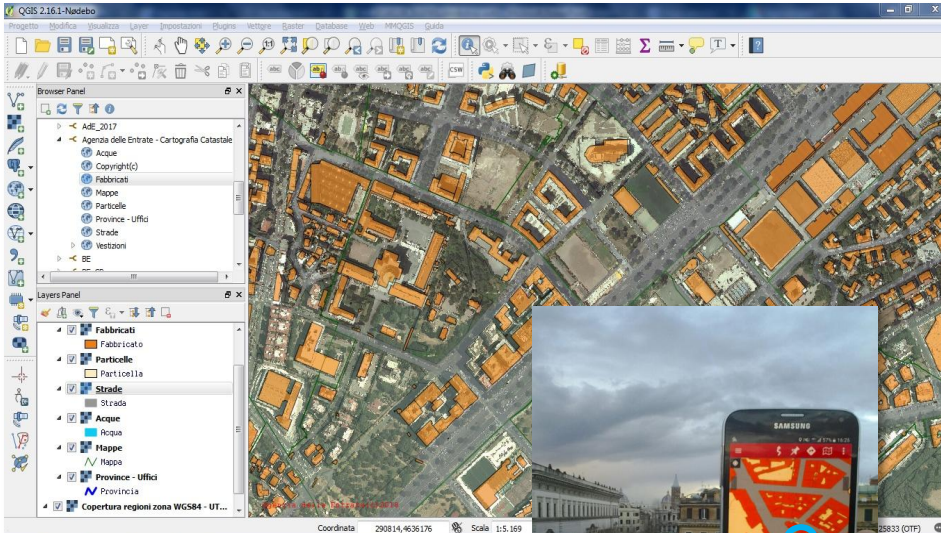


## Decision of the General Director of the Agency 23<sup>th</sup> November 2017 n. 271542

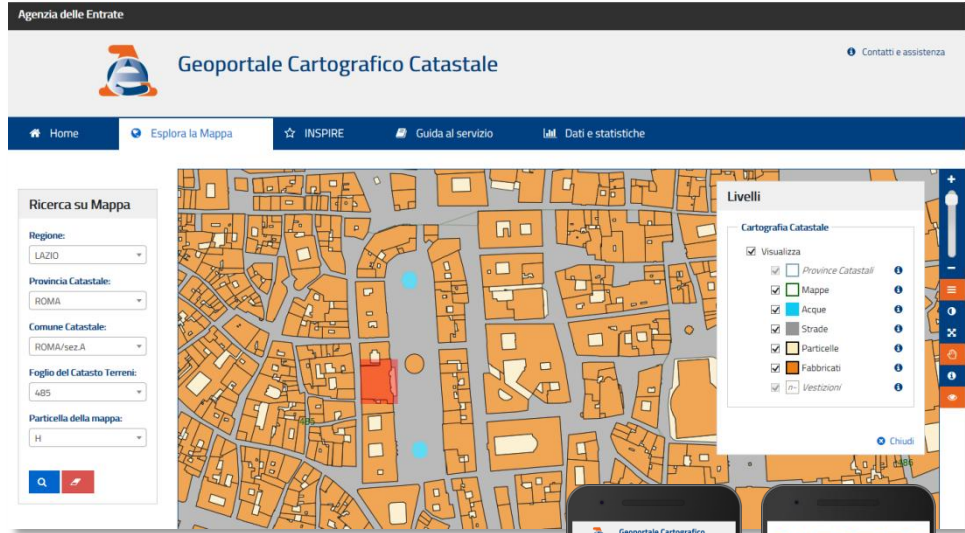
Implementation of the Italian Legislative Decree 27<sup>th</sup> January 2010 n. 32, concerning the establishment of an Infrastructure for Spatial Information in the European Community (INSPIRE). View services of parcels data sets

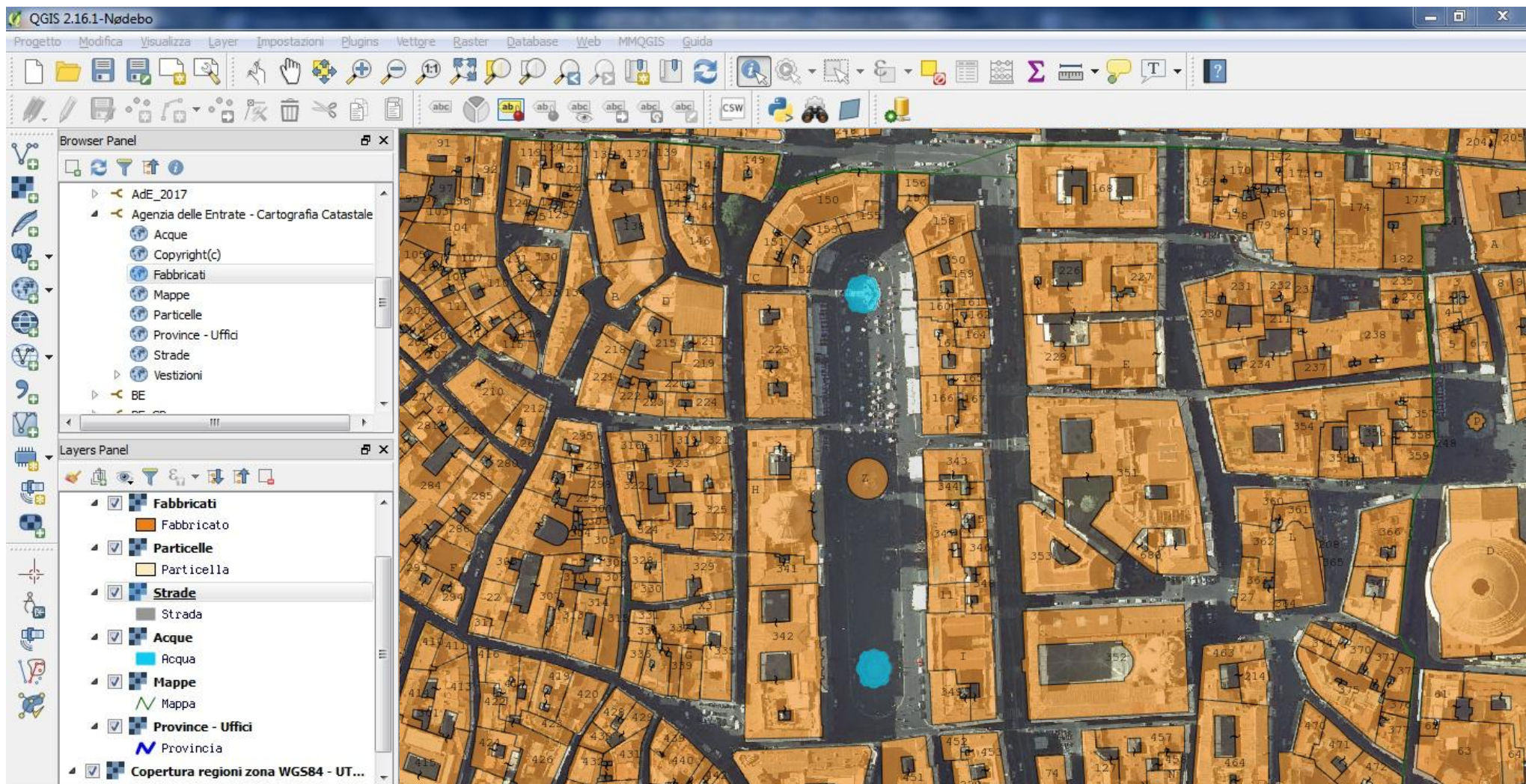


### WEB MAP SERVICE

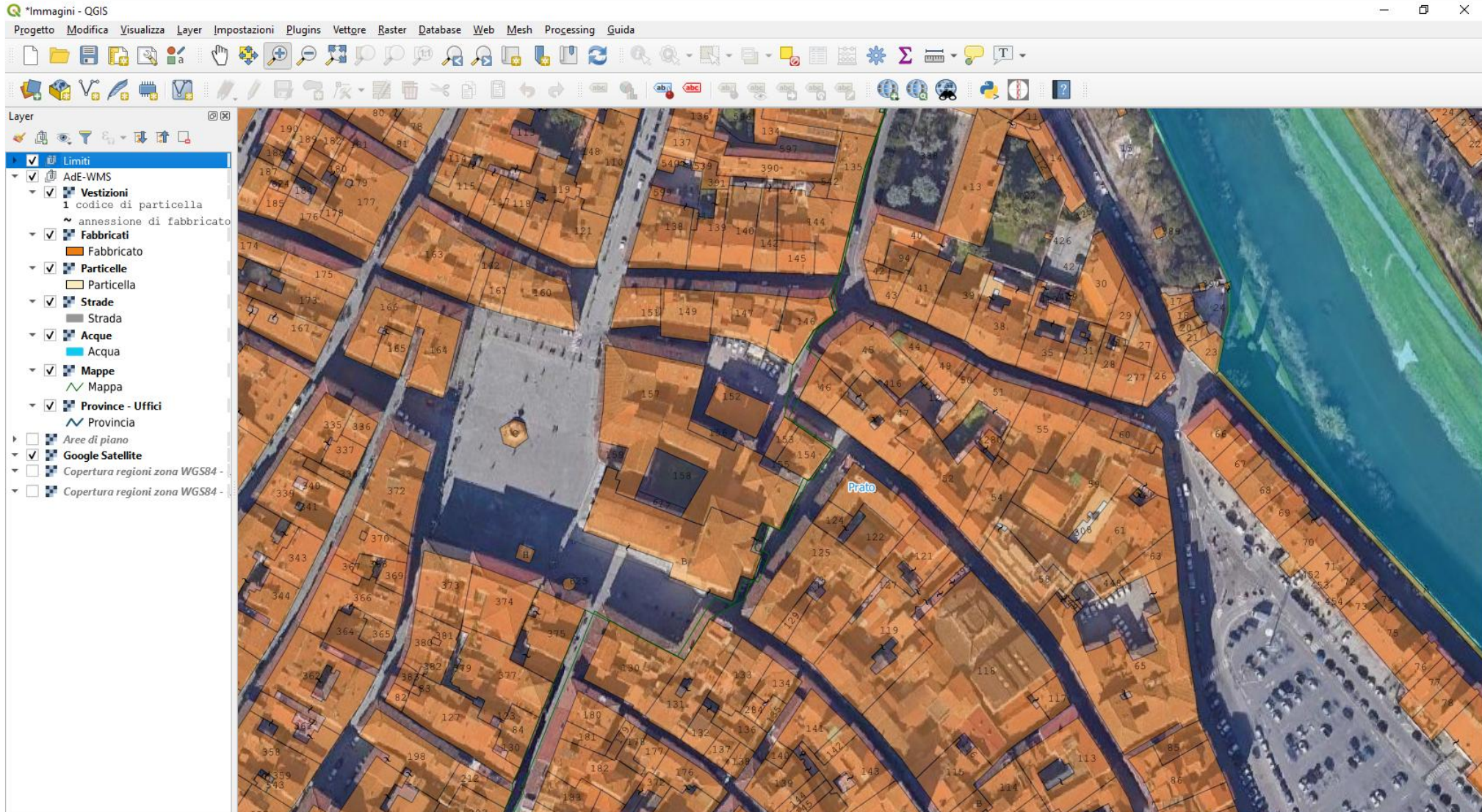


### CADASTRAL CARTOGRAPHIC GEOPORTAL

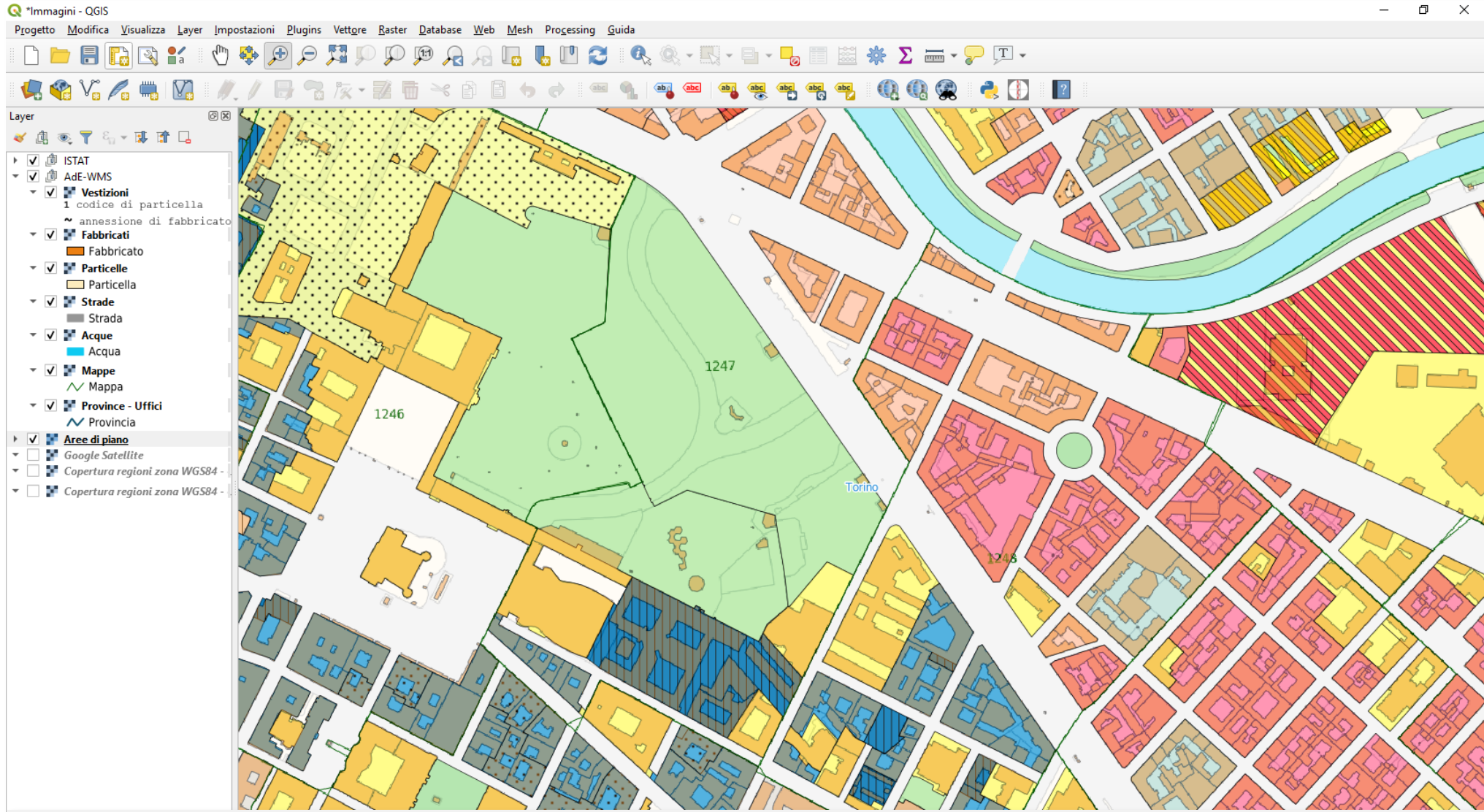




CADASTRAL WEB MAP SERVICE AND ORTOPHOTO (AGEA) – ROME



## CADASTRAL WEB MAP SERVICE AND GOOGLE SATELLITE - PRATO



QGIS \*Immagini - QGIS

Progetto Modifica Visualizza Layer Impostazioni Plugins Vettore Raster Database Web Mesh Processing Guida

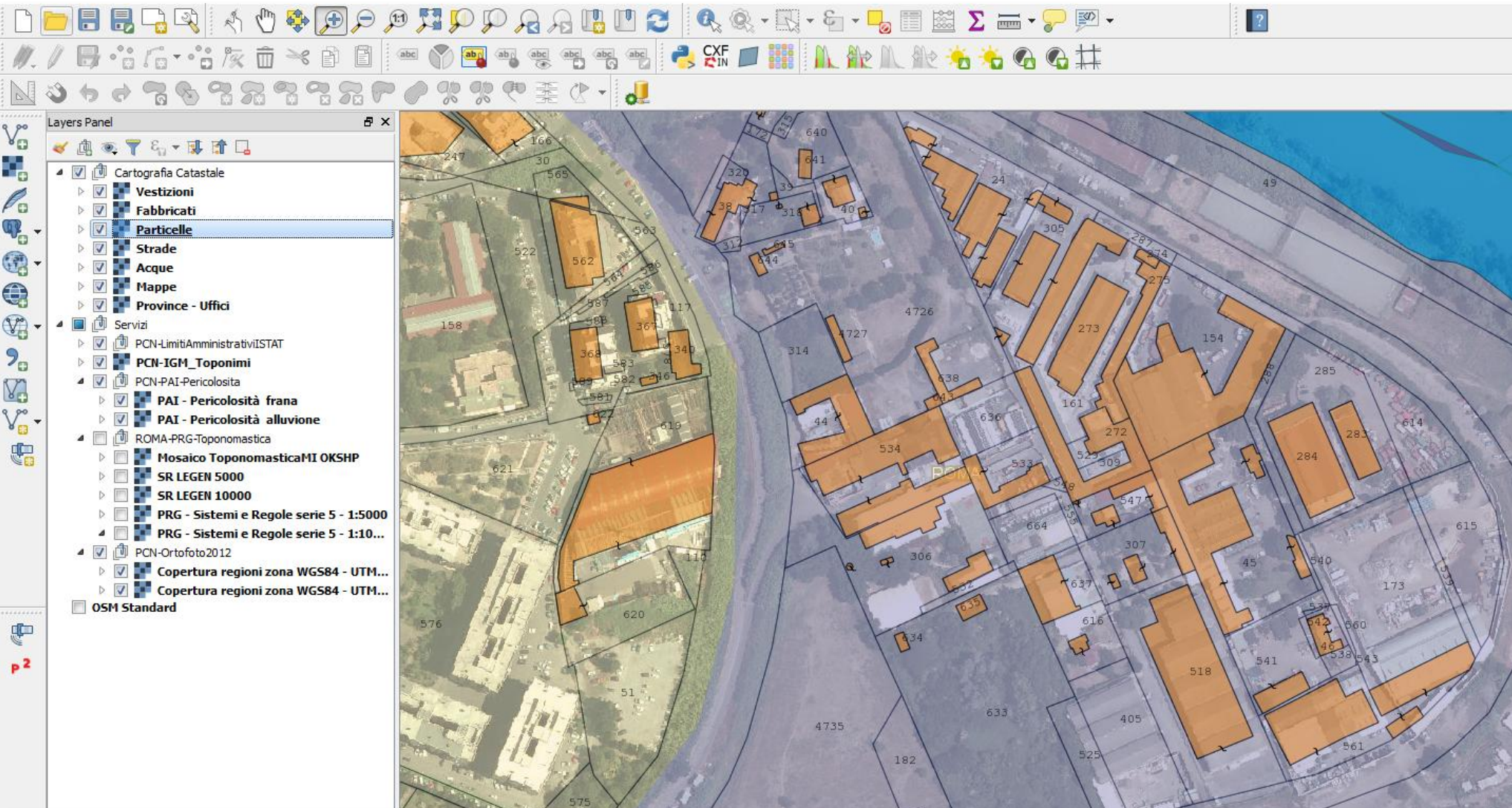
Layer

- ISTAT
- AdE-WMS
- Vestizioni
  - 1 codice di particella
  - ~ annessione di fabbricato
- Fabbricati
  - Fabbricato
- Particelle
  - Particella
- Strade
  - Strada
- Acque
  - Acqua
- Mappe
  - Mappa
- Province - Uffici
  - Provincia
- Aree di piano
  - Google Satellite
  - Copertura regioni zona WGS84
  - Copertura regioni zona WGS84

Torino

1246 1247 1248

## CADASTRAL WEB MAP SERVICE AND URBAN PLAN (MUNICIPAL WMS) – TURIN



**Layers Panel**

- Cartografia Catastale
  - Vestizioni
  - Fabbricati
  - Particelle
  - Strade
  - Acque
  - Mappe
  - Province - Uffici
- Servizi
  - PCN-LimitiAmministrativiIISTAT
  - PCN-IGM\_Toponomi
  - PCN-PAI-Pericolosita
    - PAI - Pericolosità frana
    - PAI - Pericolosità alluvione
  - ROMA-PRG-Toponomastica
    - Mosaico ToponomasticaMI OKSHP
    - SR LEGEN 5000
    - SR LEGEN 10000
    - PRG - Sistemi e Regole serie 5 - 1:5000
    - PRG - Sistemi e Regole serie 5 - 1:10...
  - PCN-Ortofoto2012
    - Copertura regioni zona WGS84 - UTM...
    - Copertura regioni zona WGS84 - UTM...
- OSM Standard

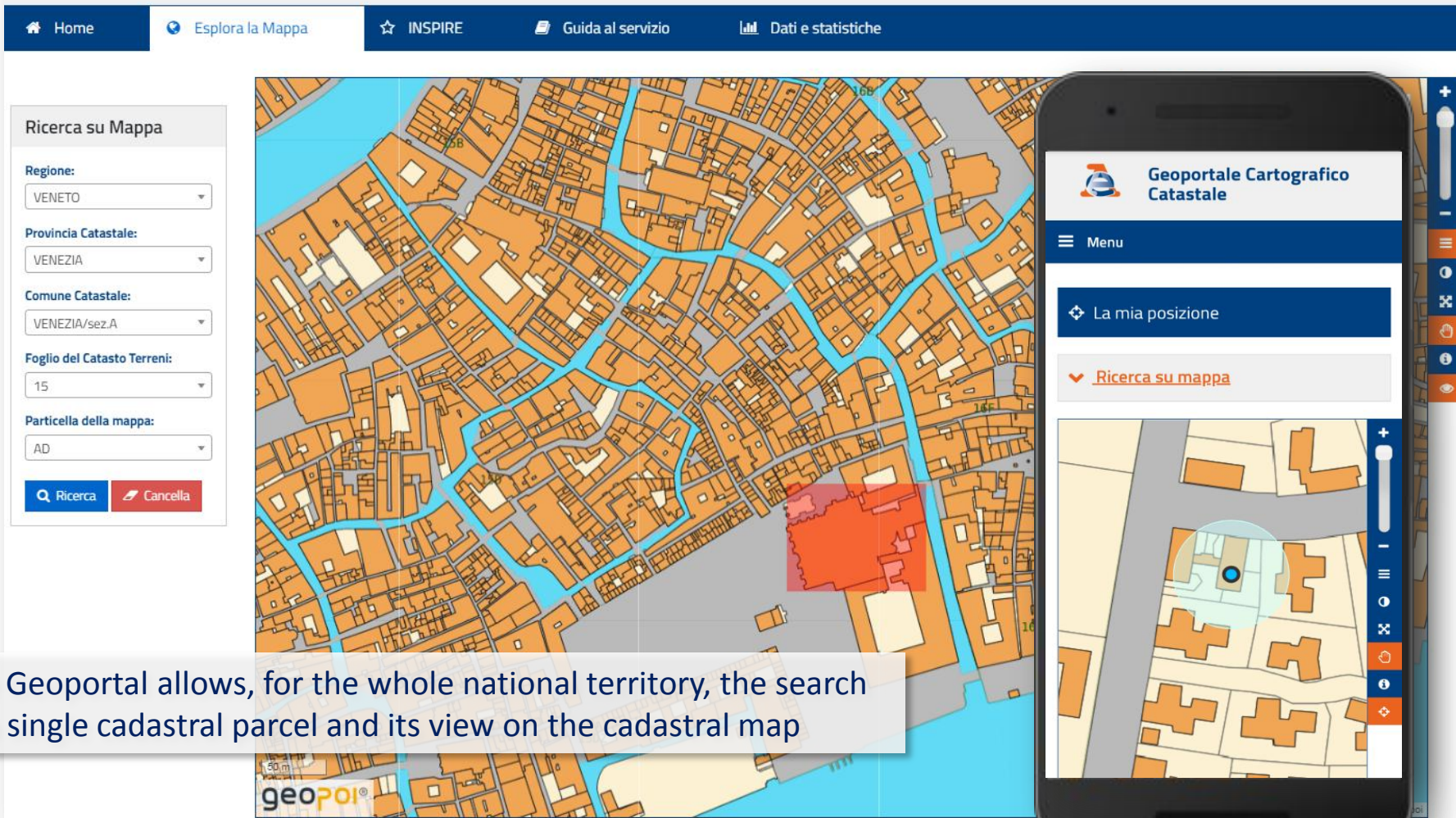
## CADASTRAL WEB MAP SERVICE AND FLOOD AREAS (MINISTRY OF ECOLOGICAL TRANSITION WMS) – ROME



## Geoportale Cartografico Catastale

## CADASTRAL CARTOGRAPHIC GEOPORTAL

<https://geoportale.cartografia.agenziaentrate.gov.it>



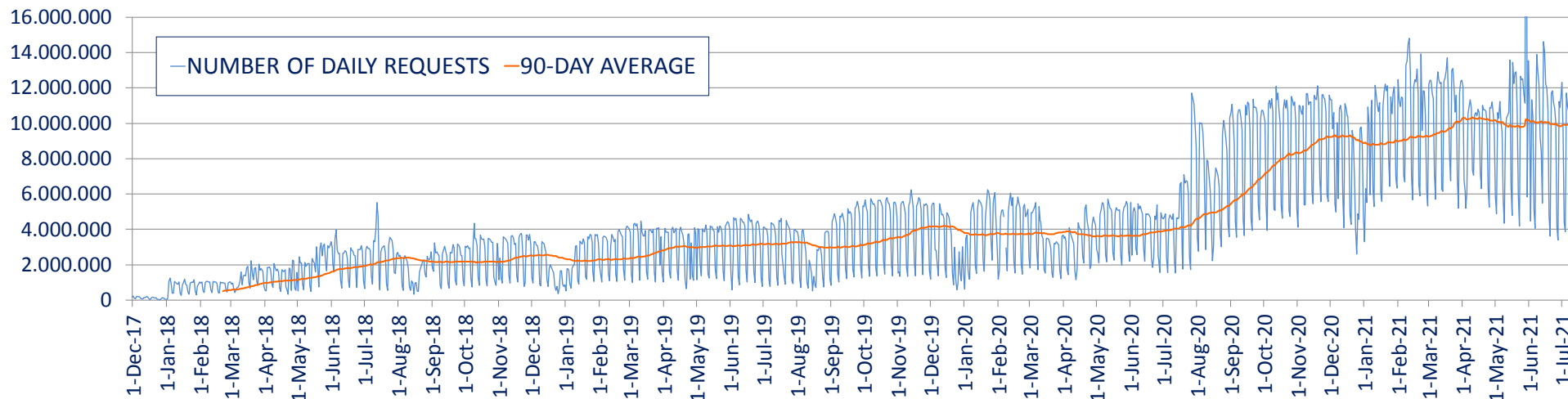
The screenshot displays the web interface of the Geoportale Cartografico Catastale. On the left, a search panel titled "Ricerca su Mappa" includes dropdown menus for "Regione:" (VENETO), "Provincia Catastale:" (VENEZIA), "Comune Catastale:" (VENEZIA/sez.A), "Foglio del Catasto Terreni:" (15), and "Particella della mappa:" (AD). Below these are "Ricerca" and "Cancella" buttons. The main area shows a cadastral map of a city with a red highlighted parcel. The top navigation bar contains "Home", "Esplora la Mappa", "INSPIRE", "Guida al servizio", and "Dati e statistiche". On the right, a smartphone displays the mobile app version, featuring a "Menu" button, "La mia posizione" button, and a "Ricerca su mappa" button. The app interface mirrors the web version's search and map capabilities.

The Geoportal allows, for the whole national territory, the search of a single cadastral parcel and its view on the cadastral map

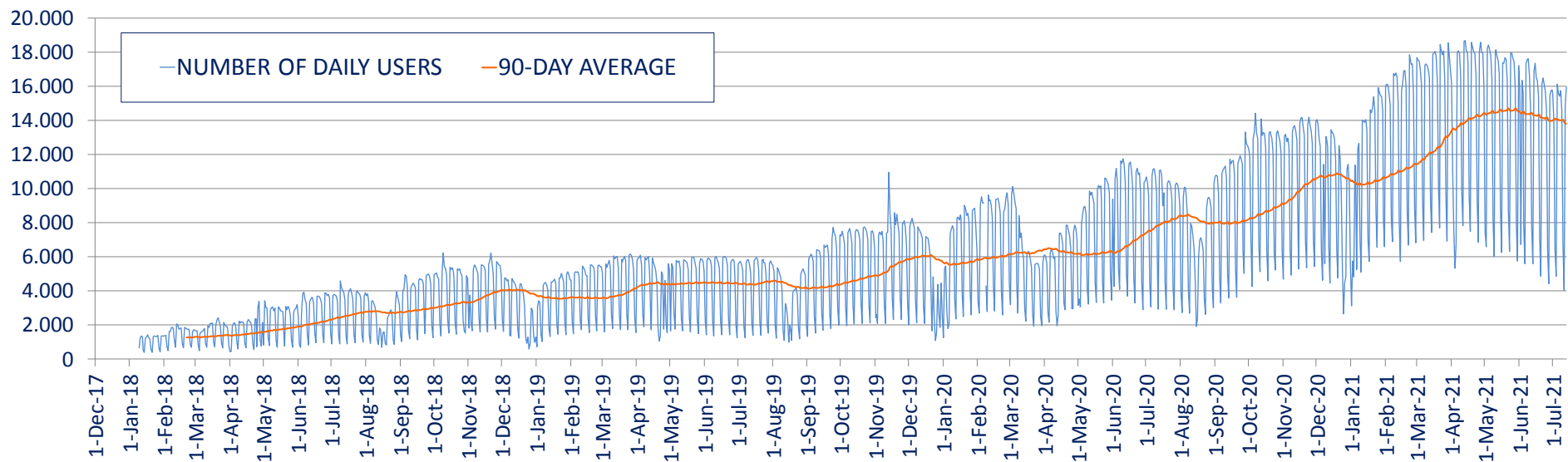




## CADASTRAL CARTOGRAPHY WEB MAP SERVICE (WMS) - DAILY REQUESTS



## CADASTRAL CARTOGRAPHY WEB MAP SERVICE (WMS) - DAILY USERS





## Geoportale Cartografico Catastale

- Home
- Esplora la Mappa
- INSPIRE
- Guida al servizio
- Dati e statistiche

### Dati e statistiche

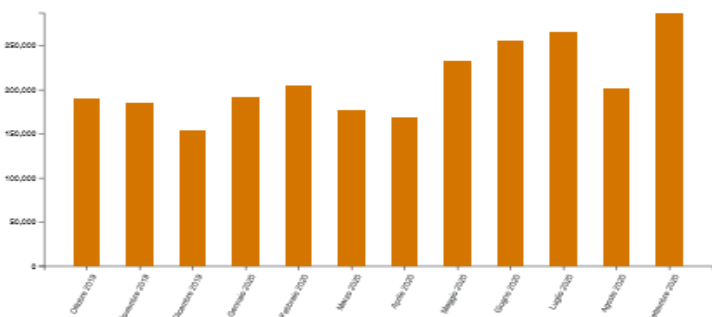
#### Servizio Web Map Service (WMS)

##### Utenti giornalieri nell'ultimo mese

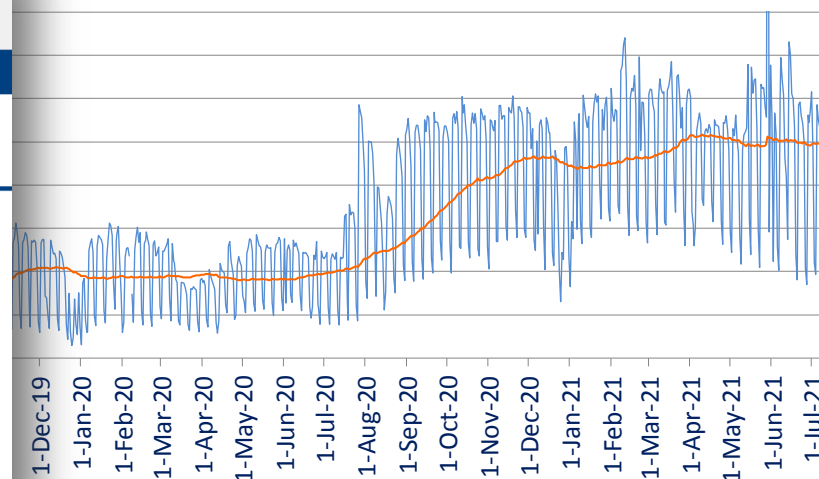
Numero degli utenti che nell'ultimo mese hanno usufruito del servizio WMS, distribuiti per ciascun giorno.



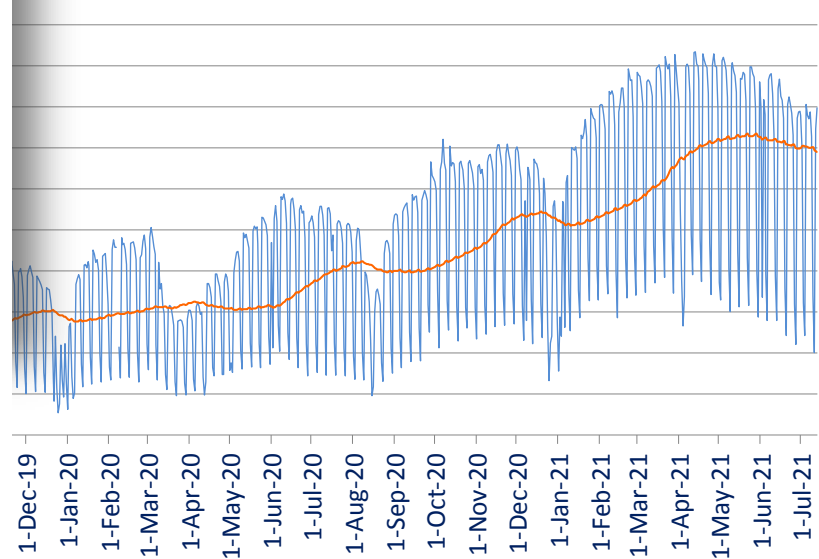
##### Totale mensile degli utenti giornalieri - ultimi mesi completi



### (WMS) - DAILY REQUESTS



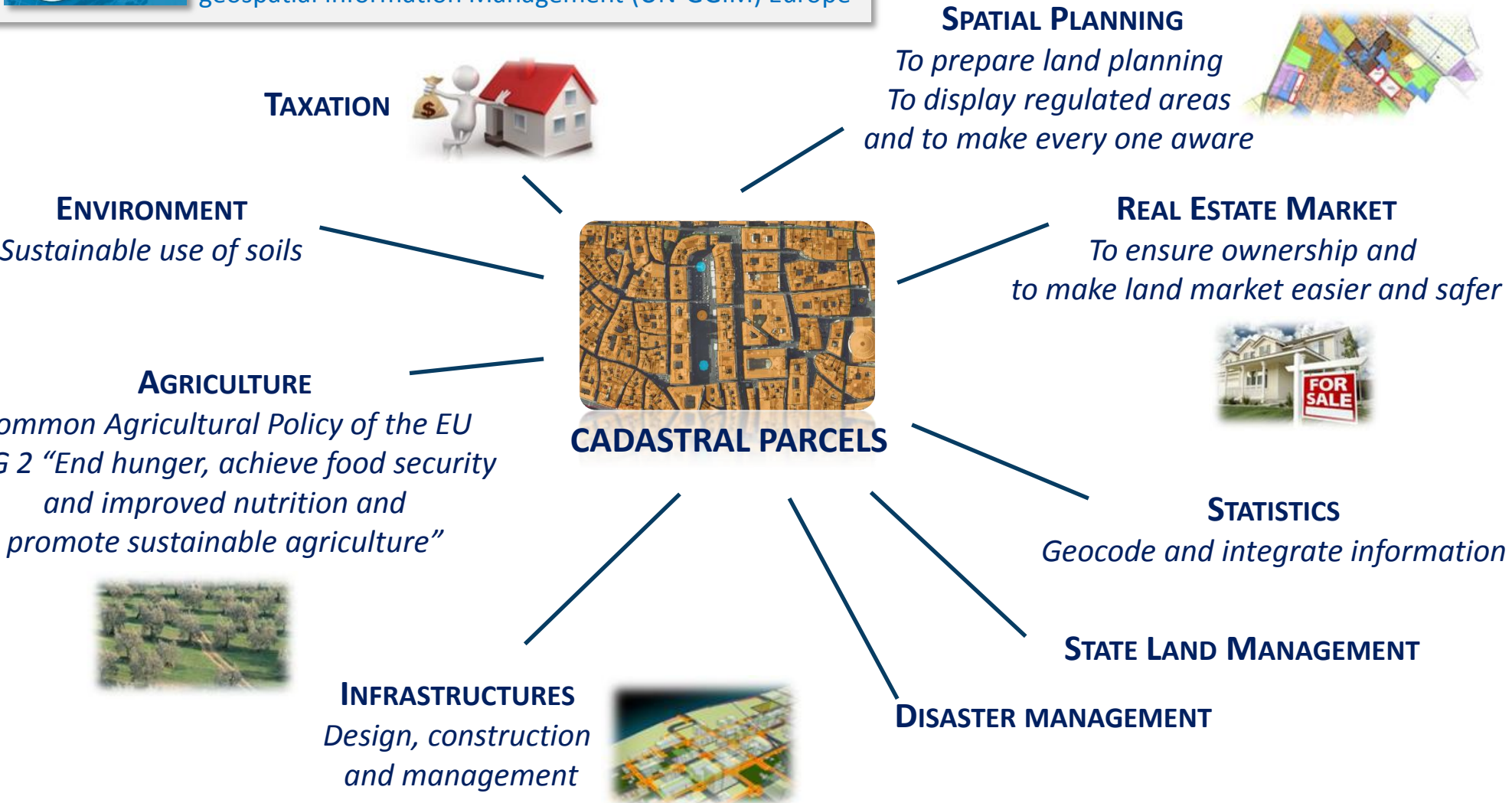
### UTENTI (WMS) - DAILY USERS





## EXAMPLE OF USE CASES

United Nations Committee of Experts on Global geospatial Information Management (UN-GGIM) Europe



## TOWN PLANNING AND LOCAL GOVERNMENT

### ADMINISTRATIVE UNITS

- Regional and local government authorities
- Municipalities
- Italian Navy Hydrographic Office



### PREVENTION, PREPAREDNESS AND RESPONSE TO DISASTERS

- Presidency of the Council of Ministers
  - Civil Protection Department
  - *Casa Italia* Department
- Italian Ministry of Interior – Department of Fire Corps, public rescue and civil defence



### ENVIRONMENT

- Carabinieri Corps (polluted areas)
- National Agency for New Technologies, Energy and Sustainable Economic Development (ENEA)

### FIGHT AGAINST ORGANISED CRIME

- Italian national Agency for the Management of Seized and Confiscated Assets from Organised Crime



### STATISTICS

- Italian National Institute of Statistics

### CULTURAL HERITAGE

- Italian Ministry of Culture

### MANAGEMENT OF PUBLIC REAL ESTATE ASSETS

- Ministry of Economy and Finance - Department of the Treasury
- National Association of Italian Municipalities (ANCI)

### AGRICULTURE

- Italian Agricultural Payments Agency (AGEA)

### MONITORING LAND USE CHANGES

- Italian National Institute for Environmental Protection and Research (ISPRA)

### UPDATING OF TOPOGRAPHIC MAPS

- Italian Military Geographic Institute (IGM)

### AVIATION SAFETY

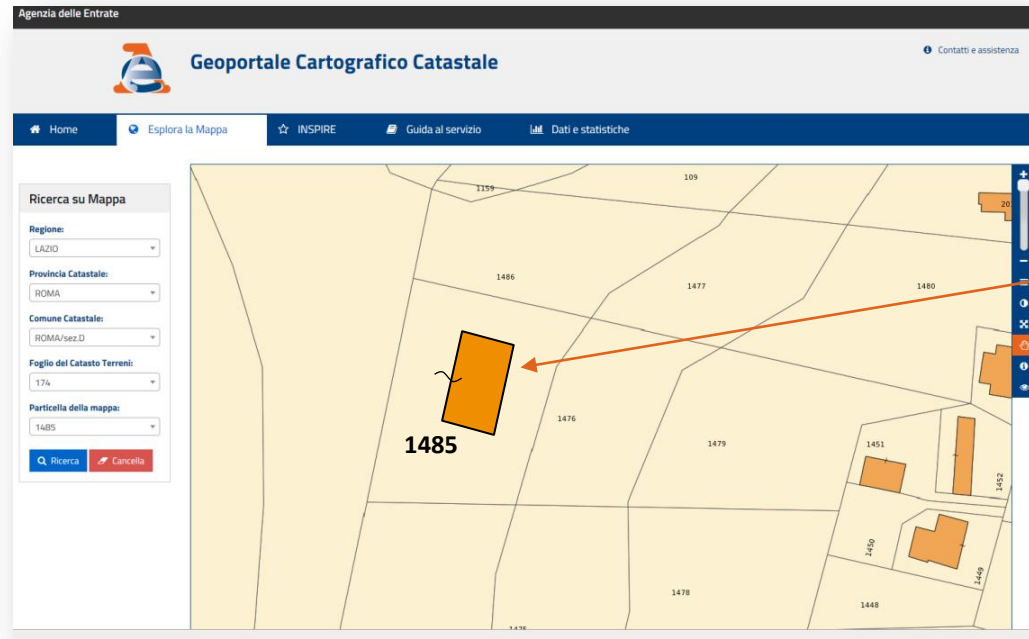
- Italian Air Force

### UTILITIES

- Several companies



## 1 CADASTRAL CARTOGRAPHIC ONLINE SERVICES



## 6 UPDATING IN REAL TIME

### PROFESSIONALS

## 2 MAP EXTRACT

## 3 SURVEY ON FIELD

## 4 PREGEO PROPOSAL PROCESSING

## 5 MAP & LAND CADASTRE DATABASE UPDATING



Pregeog Cfd e Altimetria v. 7.00 beta 1.0 - [Fiscale] Linguistiche, Coordinate, Quote e Parametri

File Modifica Visualizza Figeog 2

Diagnostici

In base all'est media inserita (5000)  
 Il calcolo pregeog nella impostazione cartografica Casini-Soldner:  
 sottostazione effettuata sui 3 PF elenati  
 dello stesso foglio citato nella riga 0  
 parametri allineamento: i rotazione 0,0005 gr  
 parametri allineamento: i coeff. scala 1,0000 unite'

Composizione Planimetrica

Poligono semplice con n=6 osservazioni sovrabbondanti

s.q.m. dell'unita' di peso a priori	0,02806
s.q.m. dell'unita' di peso e portatori	0,01264
s.q.m. dell'unita' di peso interna	0,21672
s.q.m. dell'unita' di peso esterna	0,05934

Numero di cicli di composizione: 6

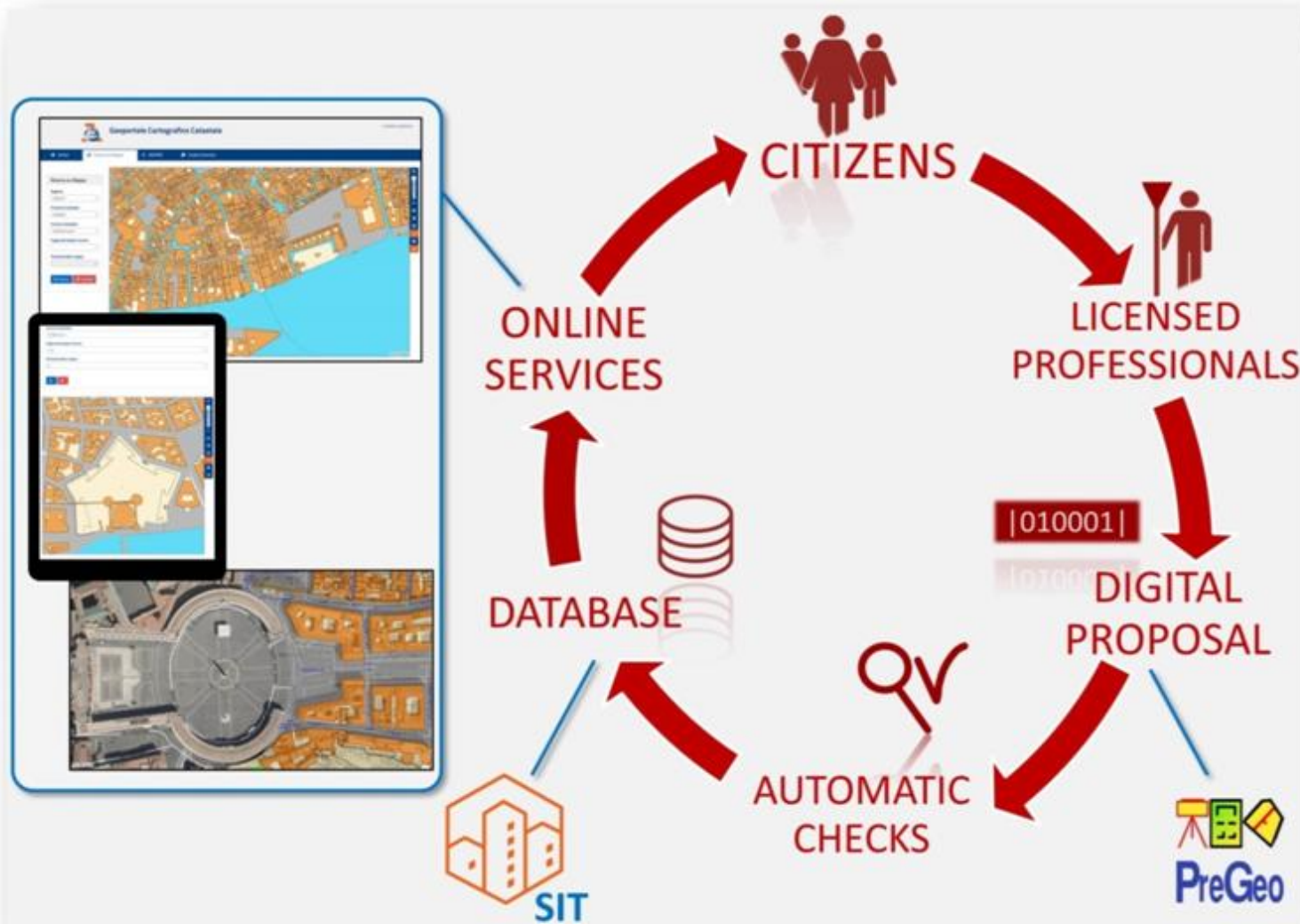
Punti della Rete

nome	nord	est	oga	precisioneMax	precisioneMin	incollazione
PF01/AD10/MIAAA	1079,365 +/-0,013	5040,632 +/-0,010	0,012	0,012	106,516	
PF02/AD10/MIAAA	727,275 +/-0,016	4956,229 +/-0,011	0,013	0,013	62,431	
PF03/AD10/MIAAA	866,901 +/-0,013	5139,511 +/-0,014	0,014	0,014	185,156	
100	999,997 +/-0,011	5000,000 +/-0,010	0,011	0,011	99,178	
200	927,125 +/-0,012	5176,228 +/-0,010	0,011	0,011	121,602	

Punti di Dettaglio

nome	nord	est	oga	precisioneMax	precisioneMin	incollazione
101	940,14 +/-0,01	5050,823 +/-0,010	0,011	0,011	30,617	
102	920,14 +/-0,01	5120,233 +/-0,010	0,011	0,011	20,470	





Our commitment to constant improvements, in terms of data quality and in opportunities for use through increasingly advanced services



**Thank you for your kind attention**

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