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Istituto Superiore per la Protezione
e la Ricerca Ambientale



SERVIZIO GEOLOGICO D'ITALIA
Organo Cartografico dello Stato (legge N°68 del 2-2-1960)

Are Smart Applications driver or passenger of the INSPIRE Directive?

Carlo Cipolloni

ISPRA – Italian INSPIRE MIG-T

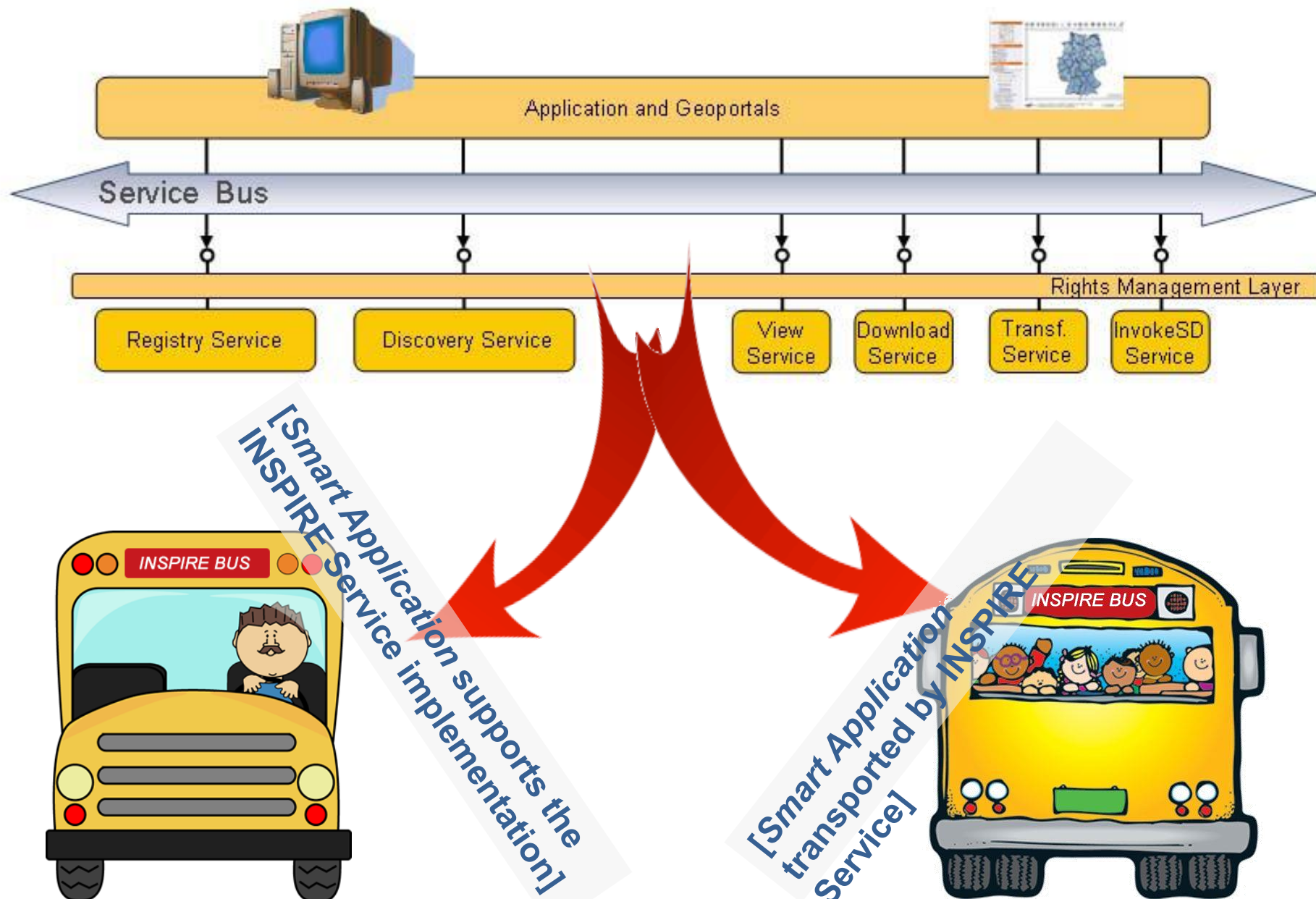


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INSPIRE is a legislation and set of mandatory rules that each Member State must apply

COMMISSION REGULATION (EC) No 976/2009
of 19 October 2009
implementing Directive 2007/2/EC of the European Parliament and
of the Council as regards the Network Services

THE COMMISSION OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Community,

Having regard to Directive 2007/2/EC of the European Parliament and
of the Council of 14 March 2007 establishing an Infrastructure for
Spatial Information in the European Community (INSPIRE) (*), and in
particular Article 16 thereof,

Whereas:

- Directive 2007/2/EC lays down general rules for the establishment of the Infrastructure for Spatial Information in the European Community. Member States are required to establish and operate a network of services for the spatial data sets and services for which metadata have been created in accordance with that Directive.
- In order to ensure the compatibility and usability of such services on the Community level, it is necessary to lay down the technical specifications and minimum performance criteria for those services with regard to the themes listed in Annexes I, II and III to Directive 2007/2/EC.
- In order to ensure that public authorities and the third parties are given the technical possibility to link their spatial data sets and services to the Network Services, it is necessary to lay down the appropriate requirements for those services.
- The measures provided for in this Regulation are in accordance with the opinion of the Committee established by Article 22 of Directive 2007/2/EC,

HAS ADOPTED THIS REGULATION:

INSPIRE
Infrastructure for Spatial Information in Europe

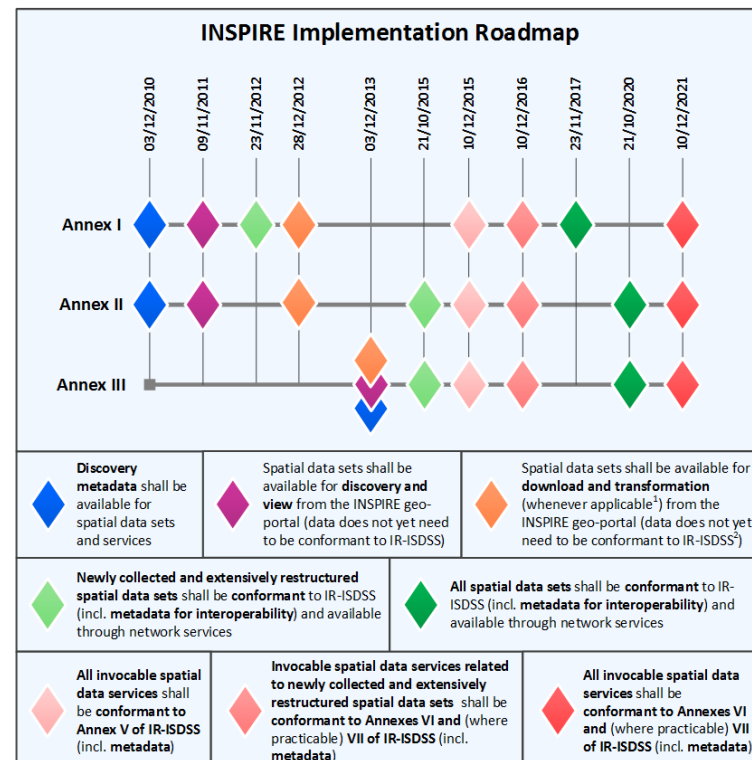
Technical Guidance for Implementation of INS Services

Title	Technical Guidance for Services
Creator	Initial Operating Capability
Date	2011-11-07
Subject	INSPIRE Discovery Service
Status	Version 3.1
Publisher	IOG Task Force for Network
Type	Text
Description	This document defines recommendations and or INSPIRE Discovery Service directive and the Regular Discovery Services.
Contributors	Members of the INSPIRE (C) of the INSPIRE IOG Task Force Operating Capability Task 1
Format	PDF
Source	Technical Guidance for Services v3.0
Rights	Public
Identifier	Technical Guidance Discov
Language	EN
Relation	Commission Regulation implementing Directive 200 Council as regards the Net
Coverage	Project duration

INSPIRE
Infrastructure for Spatial Information in Europe

D2.8.III.13-14 Data Specification on Atmospheric Conditions and Meteorological Geographical Features – Technical Guidelines

Title	D2.8.III.13-14 INSPIRE Data Specification on Atmospheric Conditions and Meteorological Geographical Features – Technical Guidelines
Creator	INSPIRE Thematic Working Group Atmospheric Conditions and Meteorological Geographical Features
Date	2013-12-10
Subject	INSPIRE Data Specification for the spatial data theme Atmospheric Conditions and Meteorological Geographical Features
Publisher	European Commission Joint Research Centre
Type	Text
Description	This document describes the INSPIRE Data Specification for the spatial data theme Atmospheric Conditions and Meteorological Geographical Features
Contributor	Members of the INSPIRE Thematic Working Group Atmospheric Conditions and Meteorological Geographical Features
Format	Portable Document Format (pdf)
Source	Public
Rights	D2.8.III.13-14_v3.0
Identifier	En
Language	En
Relation	Directive 2007/2/EC of the European Parliament and of the Council of 14 March 2007 establishing an Infrastructure for Spatial Information in the European Community (INSPIRE)
Coverage	Project duration



Deadline and/or milestones to respect and follow



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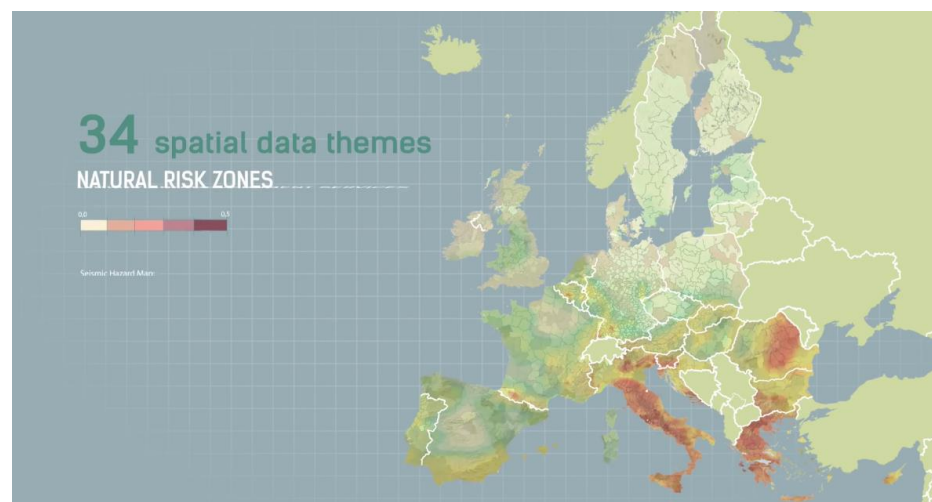
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*But we need to consider INSPIRE as
service tool that can help the Public
Administration to produce better
decision and policy*

*INSPIRE can help
Europe to make
sustainability decision
and policy*





Citizen want

- smart application to use data
- Easy access to the data
- Understanding data

[They need of INSPIRE]

Open Geo Data paradigm

The collage shows several regional Open Data portals:

- DATI.Piemonte.it**: Features a navigation bar with links like HOME, OPEN DATA, DATASET, and a search bar. It highlights 476 datasets published.
- dati.emilia-romagna.it**: Promotes "Emilia-Romagna 'Open Sanità', i dati aperti della sanità e del sociale". It includes a calendar of events for June 2014.
- Open Data ROMA CAPITALE**: Features a large graphic of a hand holding a tablet displaying data. It lists categories like INCIDENTI STRADALI, POPOLAZIONE E SOCIETÀ, and ECONOMIA E LAVORO.
- dati.trentino.it**: A portal for the Trentino region, mentioning "E' online dati.trentino.it il portale dei dati aperti del Trentino".



What Smart Application developer think about INSPIRE?

- ☐ To complex to apply and understand
- ☐ A lot of rules to improve and explain
- ☐ WFS services are not faster and manageable
- ☐ Some information haven't solution to expose and exploit data contents
- ☐ Great part of local Public Administration haven't started to apply due to lack of resources



What Mrs. INSPIRE can offer to the Smart Application?

- ☐ A Legal framework with common practices
- ☐ Common data models and vocabularies to share information
- ☐ Services and data can validate using a common structure
- ☐ Technical Guideline to use data and a discussion forum
(*Thematic Cluster portal*)



In this case a common process can be applied in different geographic contest or in different time windows thanks to a new INSPIRE layers.

You are logged in. **LOGOUT**

07s SC3

Land cover flow reporting
The process returns the changes occurred between two years in the land cover of the pilot area. The result is a map that will be loaded automatically.

Start year - End year:
2007 - 2013

Soil consumption processes

National level indicators

Degree of imperviousness

Land cover flow report

Landslides processes

ICZM processes

Geospatial processes

Q ZOOM ↑ RAISE ↓ LOWER ⌂ ADJUST

DATASETS **PROCESSES**

☒ Land Use (Toscana Nord 2007-20) **i**

☐ Cultural Heritage (Cinque Terre) **i**

☐ Difference DTM (Cinque Terre) **i**

☐ Difference DTM Mask (Cinque Te) **i**

☐ Imperviousness (Tigullio 2006) **i**

☐ Imperviousness (Tigullio 2009) **i**

☐ Imperviousness (Tigullio 2012) **i**

☐ Land Use (Tigullio 2009) **i**

☐ Land Use (Tigullio 2012) **i**

☐ Land Cover Change Flow (Toscan) **i**

☐ Landslide Hazard (Cinque Terre) **i**

☐ Landslide Inventory (Cinque Terri) **i**

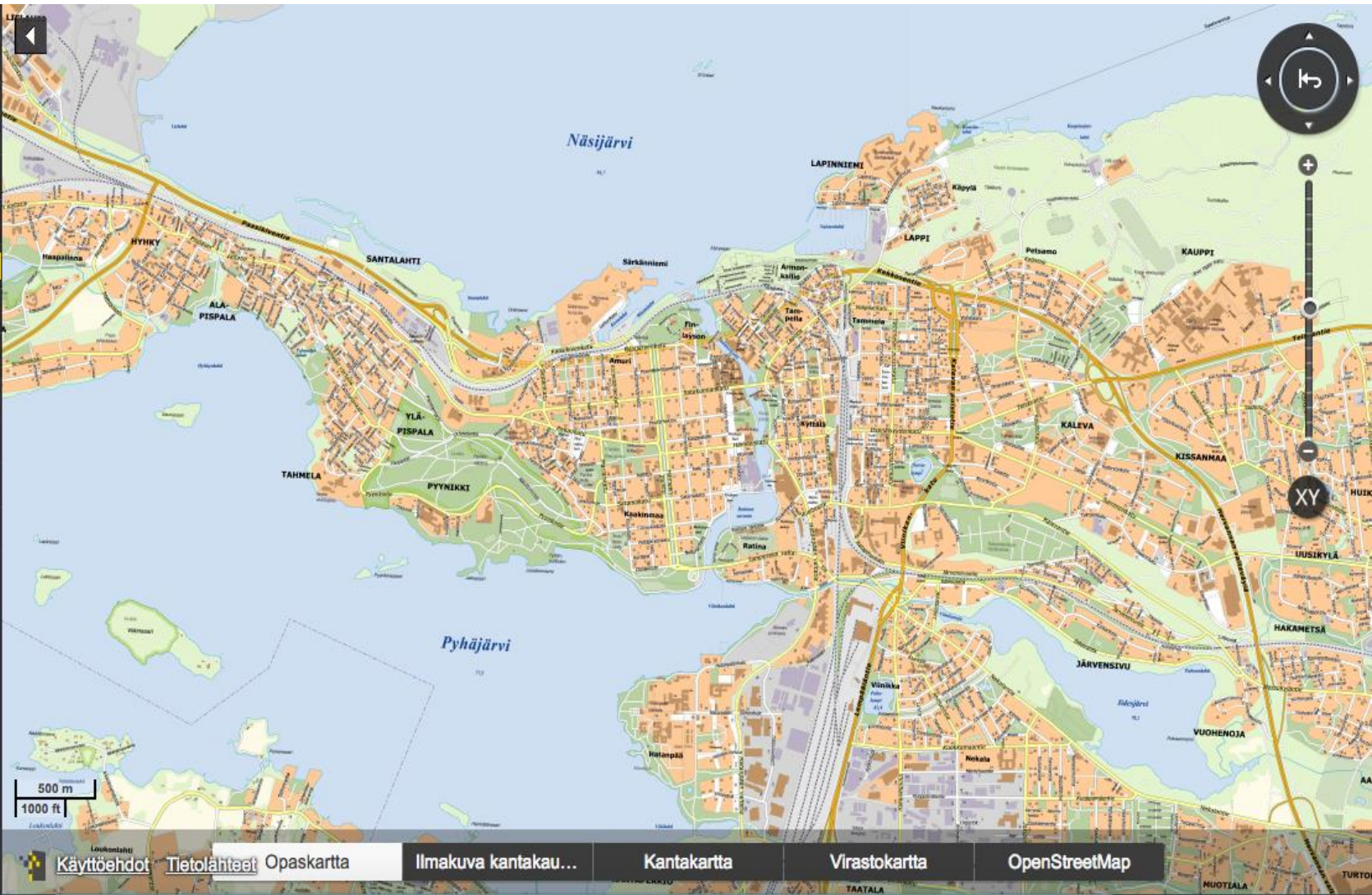
☐ Municipalities (Tigullio) **i**

Ligurian Sea

Select Basemap **Terrain is ON** **Screen Shot**

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INSPIRE Drives



In this case a common harmonised geological information allow the user to analyse the geological coverage and improve or modified the quality of susceptibility classes.

LithoID	206
OlderAge	Miocene
YoungerAge	Miocene
Litho1	conglomerate
Litho2	claystone
Litho3	lignite
Litho4	
Litho5	
eventEnv	river_plain_system_setting
eventProc	traction saltation or suspension
Foliation	cleavage
consolidationDegree	consolidation_variable
geneticType	clastic_sedimentary_genesis
proportion	variable
proportionLess	subordinate
roleLitho	unspecifiedPartRole
mflid	3368
bbox	0 12.87316531100003
	1 46.18847525100004
	2 12.952154846999992
	3 46.21068309400006



Geohazard Disclaimer

Thematic layers

- ☐ sinergis:dem3
- ☐ OneGeology 1M ITA INSPIRE
- ☐ OneGeology 1M SLO INSPIRE
- ☒ Geology 100K ITA
- ☒ Geology 100K SLO
- ☐ Geology 1M ITA
- ☐ Geology 250K SLO
- ☐ IFFI - ITA Landslide
- ☐ Geology 100k GeoSciML

Legend

eENVplus



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INSPIRE Drives



... but also allow to compare data

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GeoZS eENVplus Geological Data Harmonisation Pilot

Add Data Geohazard Disclaimer

Show Analysis

Add Data

WFS Service URL

Service Name

Add

Thematic layers

- ☐ sinergis:dem3
- ☐ OneGeology 1M ITA INSPIRE
- ☐ OneGeology 1M SLO INSPIRE
- ☒ Geology 100K ITA
- ☒ Geology 100K SLO
- ☐ Geology 1M ITA
- ☐ Geology 250K SLO
- ☐ IFFI - ITA Landslide
- ☐ Geology 100k GeoSciML

Layers

- ☒ Landslide

Legend

5 km

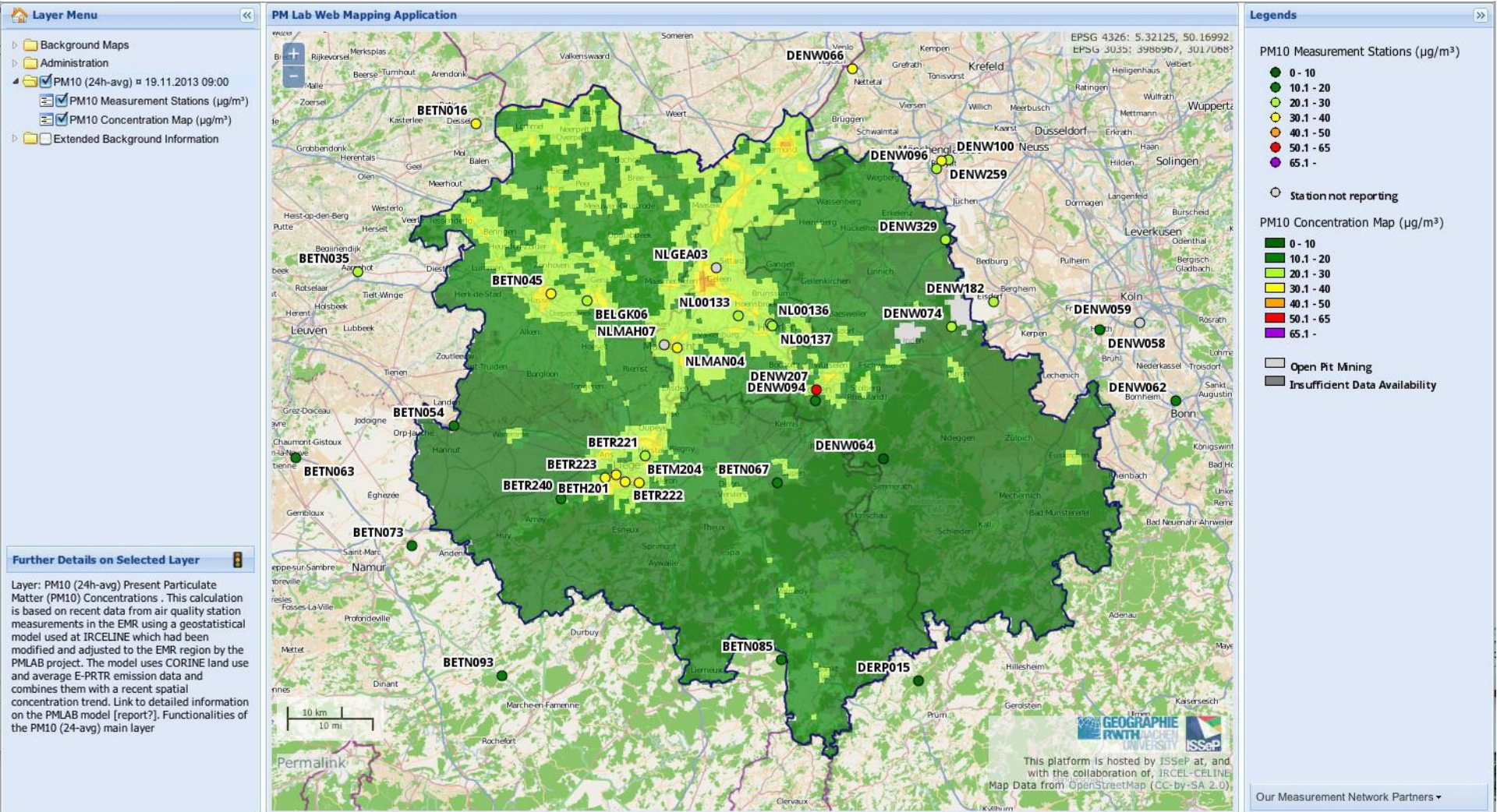
CESIUM Content may not reflect National Geographic's current map policy. Sources: National Geographic, Esri, DeLorme, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, Increment P

eENVplus

LANDSLIDE AND FLOOD MODEL



Using SOS developed in eENVplus project to provide a map in PMLab projects application.

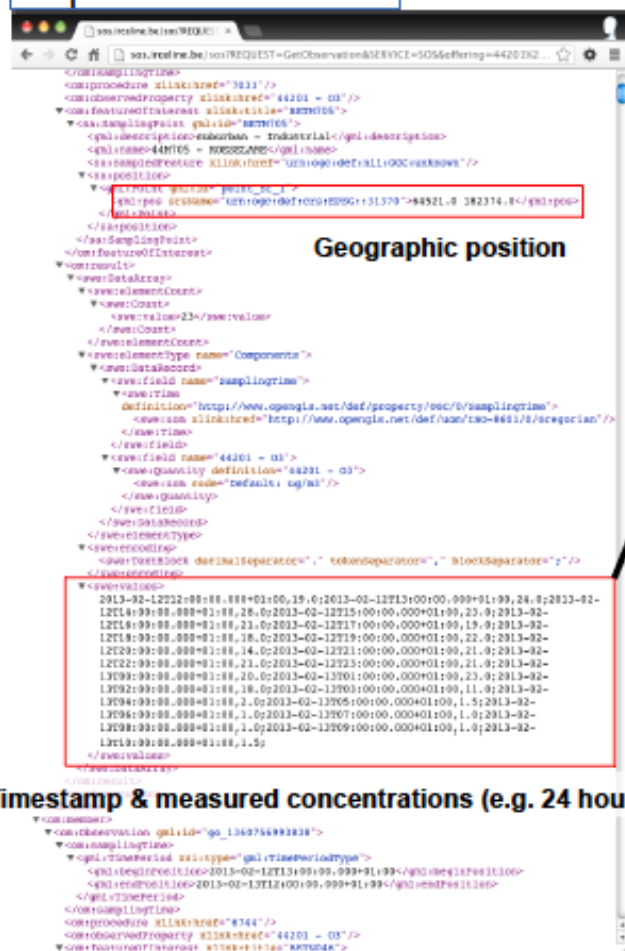




Sensor observation services (SOS)

... on the verge of becoming an official INSPIRE downloading service

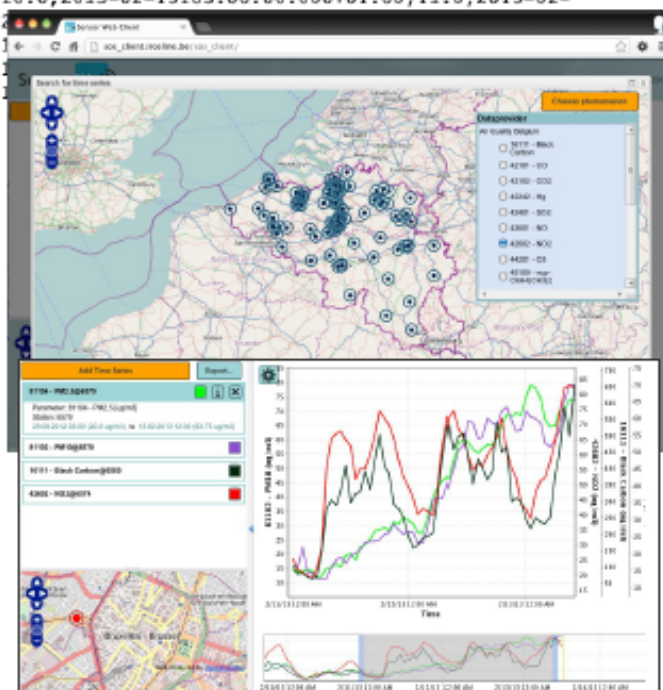
<http://sos.irceline.be>



- Efficient transmission of time series

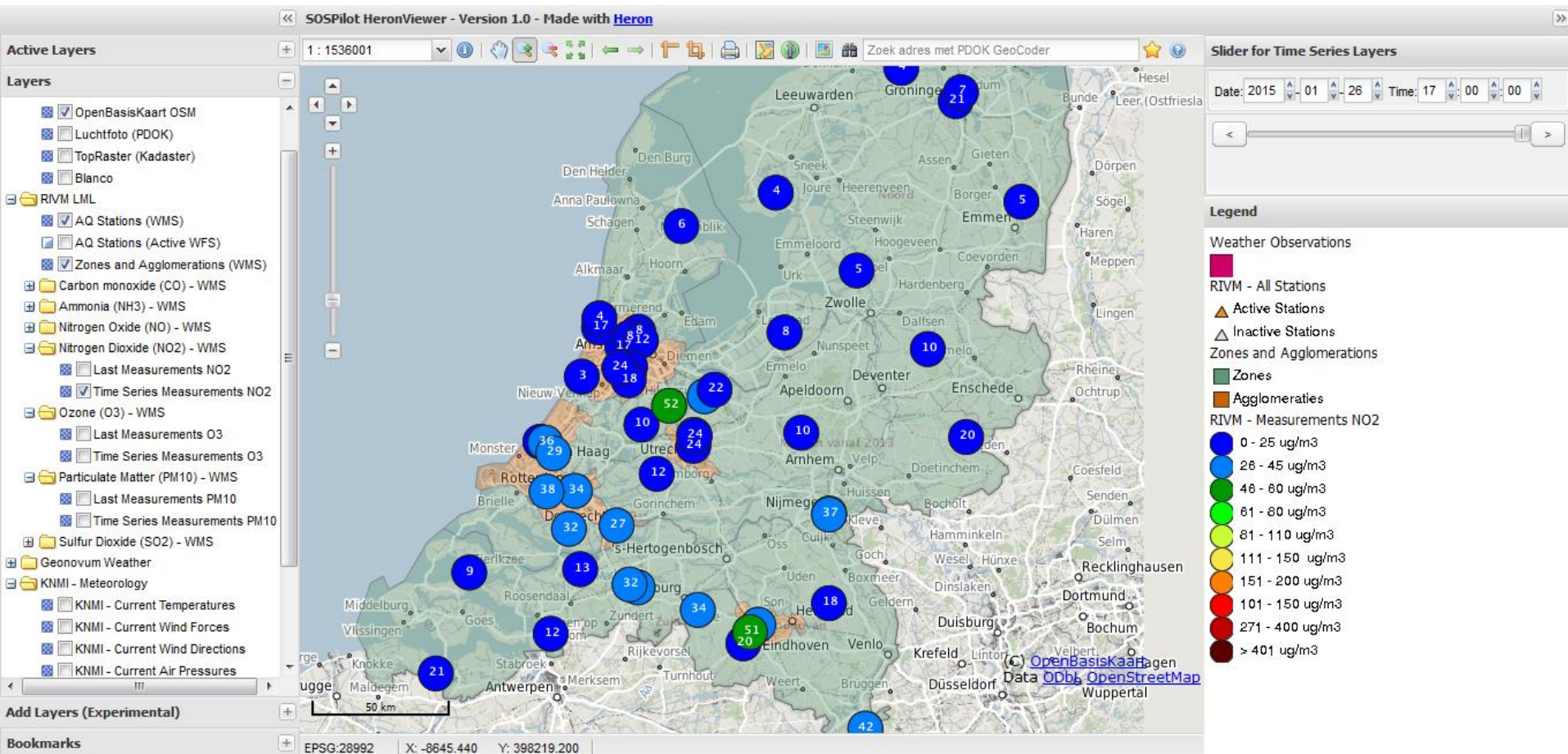
```
<sws:encoding>
  <sws:TextBlock decimalSeparator="." tokenSeparator="," blockSeparator=";" />
</sws:encoding>
<sws:values>
  2013-02-12T12:00:00.000+01:00,19.0;2013-02-12T13:00:00.000+01:00,24.0;2013-02-
  12T14:00:00.000+01:00,28.0;2013-02-12T15:00:00.000+01:00,23.0;2013-02-
  12T16:00:00.000+01:00,21.0;2013-02-12T17:00:00.000+01:00,19.0;2013-02-
  12T18:00:00.000+01:00,18.0;2013-02-12T19:00:00.000+01:00,22.0;2013-02-
  12T20:00:00.000+01:00,14.0;2013-02-12T21:00:00.000+01:00,21.0;2013-02-
  12T22:00:00.000+01:00,21.0;2013-02-12T23:00:00.000+01:00,21.0;2013-02-
  13T00:00:00.000+01:00,20.0;2013-02-13T01:00:00.000+01:00,23.0;2013-02-
  13T02:00:00.000+01:00,18.0;2013-02-13T03:00:00.000+01:00,11.0;2013-02-
  13T04:00:00.000+01:00,
  13T06:00:00.000+01:00,
  13T08:00:00.000+01:00,
  13T10:00:00.000+01:00,
</sws:values>
```

- querriable:





The Web Application on Air quality analysis in the Netherlands are using WMS (Time) and WFS this is a input to start INSPIRE implementation.





In this case the result maps are directly transformed in INSPIRE layers and the user can download the WFS/GML in INSPIRE “conformance” data.

You are logged in. [LOGOUT](#)

- Soil consumption processes
- Landslides processes
- Informing and motivating citizens
- Transport network routing
- Agricultural and cultural heritage
- ICZM processes
- Geospatial processes

Q ZOOM ↑ RAISE ↓ LOWER ⌂ ADJUST

DATASETS **PROCESSES**

- Landslide Hazard (Cinque Terre)
- Landslide Inventory (Cinque Terre)
- Cultural Heritage (Cinque Terre)
- Difference DTM (Cinque Terre)
- Difference DTM Mask (Cinque Terre)
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- Imperviousness (Tigullio 2009)
- Imperviousness (Tigullio 2012)
- Land Use (Toscana Nord 2007-20)
- Land Use (Tigullio 2009)
- Land Use (Tigullio 2012)
- Land Cover Change Flow (Toscana)
- Municipalities (Tigullio)

Landslides and agriculture&cultural heritage

The process return the points of interest that are inside a zone with the selected hazard category and inside the landslide inventory areas buffered by the amount selected.

Cultural heritage: ☒ Terracing: ☐

P3b

Buffer value: 20 m

[Load related data](#) [Start process](#)

[Select Basemap](#) [Terrain is ON](#) [Screen Shot](#)

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IHM (open data) Portal

with WFS-services

This pushes the WFD App to start the use of INSPIRE to have a common layer

Backgrounds

Nat Geo-Register

Europ Projects

Large Marine Projects

• New Harbours

• Sandmining

• Windfarms

• Benthos

• Fish

Informatiehuis Marien

Home Functies en gebruik Projecten **Open data** Internationaal Documenten Nieuws

Home > Open data

Open data

en

- Achtergrond kaarten
- Nationaal Geo Register
- EU Projecten
- Marine Data projecten
 - PMR-NCV
 - RWS Benthos
 - ☐ meet object [wms]
 - ☐ Metingen per jaar
 - ☒ meting 1993 [wms]
 - ☒ meting 1994 [wms]
 - ☐ meting [wms]
 - ☐ monster [wms]
 - Short List Wind Op Zee
 - MEP-NSW
 - ☒ Pelagische Vis [wms]
 - ☐ Pelagische Vis [wfs]
 - BAG

Legenda

- pelagischevis
- oetbenthosmeting1992
- oetbenthosmeting1993

Objectinformatie

vismeting

8 Resultaten

Begindatum	Tijd_utco...	Biotaxon_naam	L...	Nu...	Mon...	Me...	Para...	Eenheid
2011-04-18T00:00:00	+00:00ST	Pomatoschistus	=	1.0	6376	6376	Aantal	n
2003-04-23T00:00:00	+00:00ST	Pomatoschistus	=	10.0	5213	5213	Aantal	n
2007-04-12T00:00:00	+00:00ST	Loligo subulata	=	2.0	6953	6953	Aantal	n
2007-04-19T00:00:00	+00:00ST	Loligo subulata	=	1.0	6893	6893	Aantal	n
2007-04-19T00:00:00	+00:00ST	Loligo subulata	=	1.0	6885	6885	Aantal	n
2007-04-13T00:00:00	+00:00ST	Loligo subulata	=	1.0	6673	6673	Aantal	n
2007-04-18T00:00:00	+00:00ST	Loligo subulata	=	1.0	4698	4698	Aantal	n

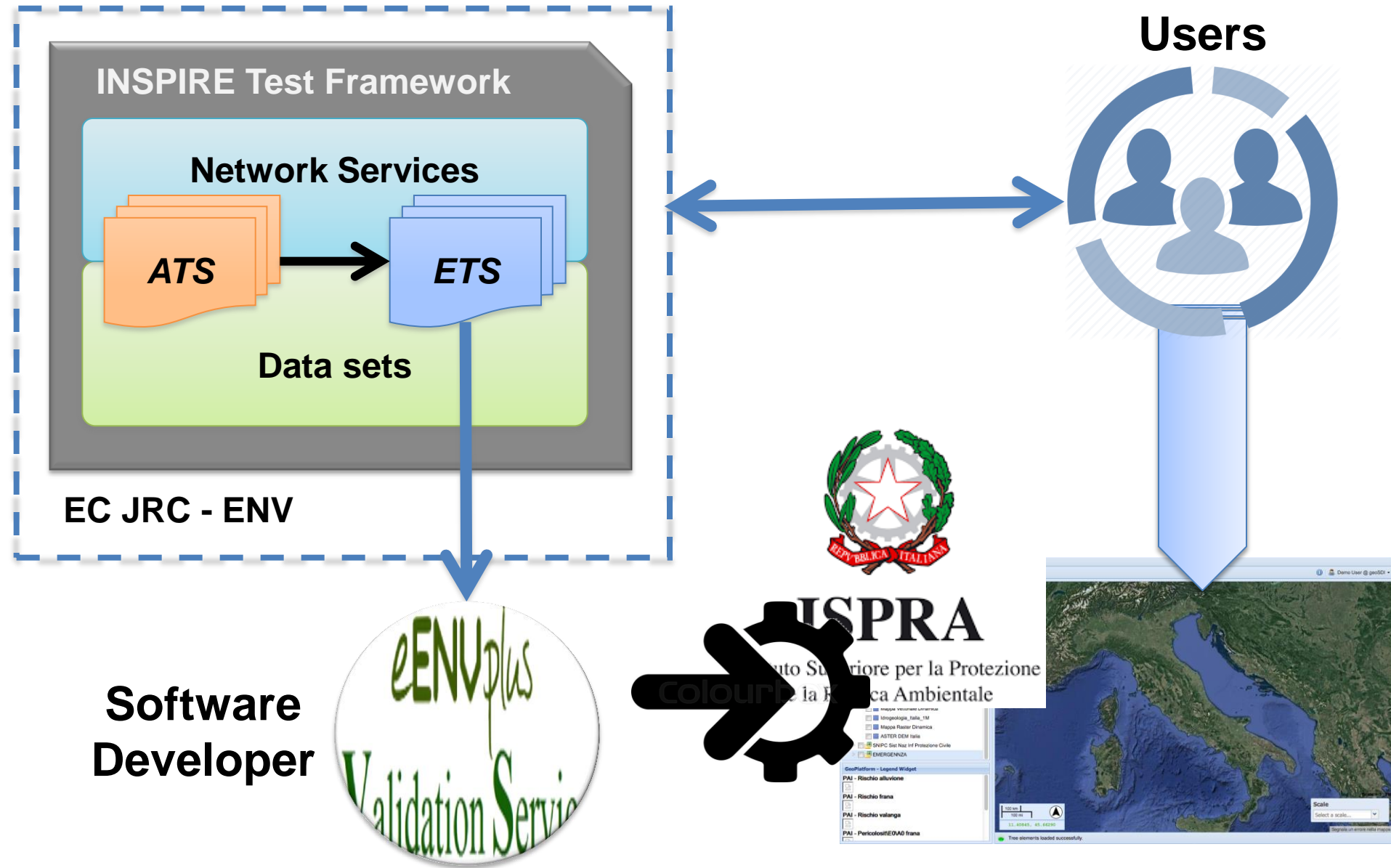
The screenshot displays the eENVplus web application interface. On the left, a map shows a landslide susceptibility assessment with a color-coded legend: low (light green), medium-low (medium green), medium (dark green), high (yellow), and very-high (red). A scale bar indicates 2 km. The top navigation bar includes logos for ISPRa, GeoZS, and eENVplus. The main content area is divided into several sections:

- Data Table:** A table with 5 columns (ID, Material, Susceptibility, etc.) showing data for various geological units. The table is partially obscured by a validation section.
- Validation Section:** A table titled "Validation" showing the relationship between Susceptibility and Percentage.

Susceptibility	Percentage
low	6
medium-low	12
medium	25
high	34
very-high	23
- INSPIRE format:** A section showing the XML output of the map data in INSPIRE format, including metadata and geometry information.
- Map Controls:** A sidebar on the right contains a legend with checked items for "Landslide" and "eenvplus:Frane_FVG", a scale bar, and a "2 km" indicator.



How can integrate them?





Conclusion



- ☐ Most of the smart applications at the moment need of INSPIRE TGs and rule to provide a wider sharing system;
- ☐ INSPIRE can help great part of local Public Administration to share and provide data for different purpose (Scientific, Technical work or Citizen awareness)
- ☐ INSPIRE need to learn easily path from smart application to be more flexible and easily to provide different type/format of data
- ☐ Smart application represents the most important citizen request also to demonstrate the importance of data integration.



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спасибо
danke 謝謝
ngiyabonga
teşekkür ederim
dank je
gracias
tapadh leat
hvala
mauruuru
moichakkeram
dziękuje
sagolun
sukriya
kop khun krap
go raibh maith agat
arigatō
takk
dakujem
merci
obrigado
bedankt
obrigado
terima kasih
감사합니다
ευχαριστώ
grazie
merci

Questions...

