Citizens Science and Smart Cities Summit

Your Host: Max Craglia

www.jrc.ec.europa.eu

Serving society
Stimulating innovation
Supporting legislation
The Joint Research Centre is the European Commission's in-house science service. We provide EU policies with independent, evidence-based scientific and technical support.

We are organised in 7 research institutes in 5 countries, Ispra, Italy, being the main site with over 2000 scientists.
Institute of Environment and Sustainability

Provides scientific and technical support to EU policies for the protection of the environment and the more efficient and sustainable management of natural resources at global and continental scales.
Our work areas

- Integrated assessment of climate and air quality policies
- Climate Risk Management
- Land Resource Management - Competition for land in Africa
- Forest Resources and Climate
- Water Resources
- Sustainability Assessment
- Monitoring Agricultural Resources - The challenge of food security
- Digital Science
- Environmental Standards

All Major Users of Geospatial information
**JRC is Technical Coordinator of INSPIRE**

“Infrastructure for Spatial Information in the European Community”

<table>
<thead>
<tr>
<th>Institutional framework</th>
<th>Technical standards</th>
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<td>Fundamental data sets</td>
<td>Data Services</td>
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**General rules for establishment**

- Environment
- 34 Spatial Data Themes
- Entry into force 15/5/2007

**Distributed infrastructure**

- 28 countries, 23 languages

Set of European and national Legal Acts and their coordinated implementation
INSPIRE thematic scope

**Annex I**
1. Coordinate reference systems
2. Geographical grid systems
3. Geographical names
4. Administrative units
5. Addresses
6. Cadastral parcels
7. Transport networks
8. Hydrography
9. Protected sites

**Annex II**
1. Elevation
2. Land cover
3. Ortho-imagery
4. Geology

**Annex III**
1. Statistical units
2. Buildings
3. Soil
4. Land use
5. Human health and safety
6. Utility and governmental services
7. Environmental monitoring facilities
8. Production and industrial facilities
9. Agricultural and aquaculture facilities
10. Population distribution - demography
11. Area management/restriction/regulation zones & reporting units
12. Natural risk zones
13. Atmospheric conditions
14. Meteorological geographical features
15. Oceanographic geographical features
16. Sea regions
17. Bio-geographical regions
18. Habitats and biotopes
19. Species distribution
20. Energy Resources
21. Mineral resources
INSPIRE provides access to spatial data via network services and according to a harmonised specification to achieve interoperability of datasets.

-Datasets used in Member States may stay as they are.

-Data or service providers have to provide a transformation between their internal data model and the harmonised data specification.
Coordination

Transparency and inclusiveness
Stakeholder consultations
Support to Member States on the implementation
Extend INSPIRE to and ensure consistency of different policy domains
Promote INSPIRE in international standardisation
“Deepening” INSPIRE: Air Quality pilot

Using **INSPIRE** for enabling access to **comparable** near real-time **air** quality information

Cooperation between DG ENV, JRC, EEA and MS volunteers
Conformant with INSPIRE & existing reporting data flows between MSs and the EEA
Cross-border applications

Improved sharing of harmonised data (e.g. air quality measures) enables improved modelling and alert system

Long range transport of air pollutant a clear example

On March 4 and 5, 2013 Belgium, Germany, The Netherlands and United Kingdom organise the working conference

SAFETY, MOBILITY, SUSTAINABILITY

www.poweredbyinspire.eu
Extending INSPIRE to other policies

Railways need many data sets to run their daily business.

Inspire and RINF are complementary

Harmonisation is urgently needed!
Inspire is the most promising approach as it is **global enough**!

**Inspire Advantage:**
Provides access to **different data sets** (Annexes I-III) within MS

**RINF Advantage:**
Provides railway data from Point A to Point B within EU

Source: Erika Nissi, International Union of Railways Senior Advisor
From INSPIRE to Railway Business Solutions
Powered by INSPIRE Conference, Brussels, 4-5 March 2013
INSPIRE meets Open Data (PSI)

Open Data initiatives around the world
In EU, Open Data Strategy
- Communication on Open Data (COM(2011)882)
- A revision of the Decision governing the re-use of Commission's own information (2011/833/EU)
- Revision of the Directive on the re-use of public sector information (2013/37/EU)
- Open data-portals
- EU Open Data portal
- pan-European portal
Open Research Data

• Open Access put forward by the Commission for scientific publications/data within Horizon 2020
  • For a subset of thematic areas, funded projects shall include data management plans and ensure open access
• JRC has proposed a strategy for online dissemination of JRC research activities and scientific results
New Data Sources = Volume and Variety

- 2 Terabytes per day once in operations
- Raises issues of where and how to store the data, how to provide easy and rapid access, how to process and analysis, and maintain over time.
Massive diffusion of cheap sensors provides new opportunities and challenges

- Mobile phones sensing better in some fields than others (e.g. noise)
- Drones some limitations relating to regulatory framework
- Waspmotes need programming and issues of calibration and response time but opportunities high..
Combining Remote Sensing with Social Sensing
Large scale experiment at JRC to assess quality of social network data

• Project at JRC 2010-12 to develop automatic workflow and extract and assess data from Flickr and Twitter related to forest fires and compare to official data from European Forest Fire Information System managed by JRC.
More than 20million Tweets and 1 million Flickr images retrieved and analysed for fires South of France

Spatio-temporal clustering and analysis shows 80% of fires correctly detected
New 3-year JRC Project on Urban Sustainability and Quality of Life

- Aims at harnessing novel collaborative research paradigms in citizen-science to identify and measure new quality of life (QoL) indicators in the urban environment.
- Complements the existing knowledge on urban QoL conditions, by combining quantitative and qualitative information from authoritative and crowd-sourced data.
Blossoming landscape of Smart Cities and Citizens-centred projects

- Many projects in Europe and beyond researching the integration of information provided by the public for collective intelligence, co-creation and open innovation, public participation, etc.
- Future and Emerging Technologies stream of EU R&D programme, and Open Data initiatives supporting many of these developments in Europe
But how to ensure interoperability and re-use?

- Many Open Data initiatives
- Many Smart Cities/regions
- Many Spatial Data infrastructures
- Many Research infrastructures
- Many social networks, citizen science project, crowdsourcing, etc. etc.

- How to link them in a framework allowing interoperability, transparency, ethical re-use, verifiability of analyses, reproducibility of results over time ?????
Objectives of this meeting

• Explore the interoperability and reusability of data across citizen-centred projects (technical, organizational, legal perspectives)
• Understand the relationships between Smart Cities and Citizen-centred projects
• Improve the interoperability with official data infrastructures such as the Infrastructure for Spatial Information in Europe (INSPIRE) of which JRC is the technical coordinator.
Citizens Science and Smart Cities Summit

JRC Ispra – 5-7 February 2014

Agenda 2014-02-04

**Wed. 5th February, Venue: Amphitheatre**

14:00–14:20 Welcome and introduction

*Presentation Citizens Science/crowdsourcing/VGI projects (Part 1)*
- 14.20-14.30 Citizens Observatories (DG RTD)
- 14.30-14.45 CitiSense
- 14.45-15.00 Omniscientis
- 15.00-15.15 Cobweb
- 15.15-15.30 WeSenselt
- 15.30-16.00 Discussion

**16.00-16.30 Coffee**

*Presentation Citizens Science/crowdsourcing/VGI projects (Part 2)*
- 16.30-16.45 ENERGIC
- 16.45-17.00 Mapping and the citizen sensor
- 17.00-17.15 EveryAware
- 17.15-17.30 Open Air Laboratories (OPAL)
- 17.30-17.45 European Citizens Science Association
- 17.45-18.30 Discussion

**18.30 Bus to hotel**

**Thur. 6th February, Venue: Amphitheatre**

**Smart Cities**

- 09.00-09.15 EPIC: EU Platform for Intelligent cities
- 09.15-09.30 Helsinki
- 09.30-09.45 Trento
- 09.45-10.00 Future Cities
- 10.00-10.30 Discussion
- 10.30-11.00 Coffee
- 11.00-11.15 The Geothink Project
- 11.15-11.30 City BluePrints
- 11.30-11.45 Ecological Sequestration Trust
- 11.45-12.00 European Urban Benchmarking
- 12.00-12.15 Cities Geo-Wiki
- 12.15-12.45 Discussion
- 12.45-14.00 Lunch

*Other relevant Projects*
- 14.00-14.15 Uni Geneva: Quality of Life Technologies
- 14.15-14.30 Smart Citizen Science
- 14.30-14.45 Politecnico Milano: Policrowd
- 14.45-15.00 GEODAN: EarthWatchers
- 15.00-15.30 Discussion
- 15.30-16.00 Coffee
- 16.00-16.15 GeoSmartCity
- 16.15-16.30 GeoKnow
- 16.30-16.45 SmartOpenData
- 16.45-17.00 European Environment Agency (TBC)
- 17.00-18.00 Discussion

**Fri 7th February, Venue: Room 2**

*How to ensure interoperability and reuse of data*

- 09.00-09.30 The Brokering Approach 09.30-10.30 Discussion
- 10.30-11.00 Coffee
- 11.00-11.10 HackForGood: SmileSpaces

*How to ensure long-term sustainability*

- 11.10-12.00 Discussion
- 12.00-13.00 Wrap-up and Way Forward
- 13.00: End of Meeting
Social Programme

Tonight PYOP  
(Pay Your Own Pizza)  
Restaurant Vecchia Angera, 8 p. m

Tomorrow, YAOG  
(You Are Our Guests)  
Same restaurant, Fish-based meal.
So, Let’s Get Started!

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