

Scientific Support to the Danube Strategy: Specific focus on the Danube Delta



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Danube Region – Environmental assets

- Major international hydrological basin and ecological corridor
- Rich and diverse flora and fauna
- Interrelated and interdependent ecosystem
- Danube Delta as a World Heritage site with unique biodiversity and great potential for touristic development



Danube Region – Environmental challenges

- Extreme weather phenomena (floods and droughts) and global climate change
- Gradual reduction of biodiversity and variety of ecosystems
- Land pollution
- Air pollution
- Deforestation
- Disappearance of wetlands and floodplain areas





Danube Region – Water-related challenges

- High Nutrient (nitrogen and phosphorous) loads
- Competition for available water
- Overexploitation of surface and groundwater
- Changes in river flow patterns, including transport of sediment
- Contamination with hazardous substances
- Accidental pollution





How can the JRC contribute?

- Environment as a key priority of JRC's mission
- Long-standing expertise on environment related matters:
 - European Flood Awareness System (EFAS)
 - Forest connectivity assessment
 - European Drought Observatory
 - European Soil
 - Water quality monitoring ...Etc.
- Scientific Support to the Danube Strategy as a specific initiative dedicated to the Danube Region





JRC support to situation assessment and flood forecasting

European Flood Awareness System (EFAS)

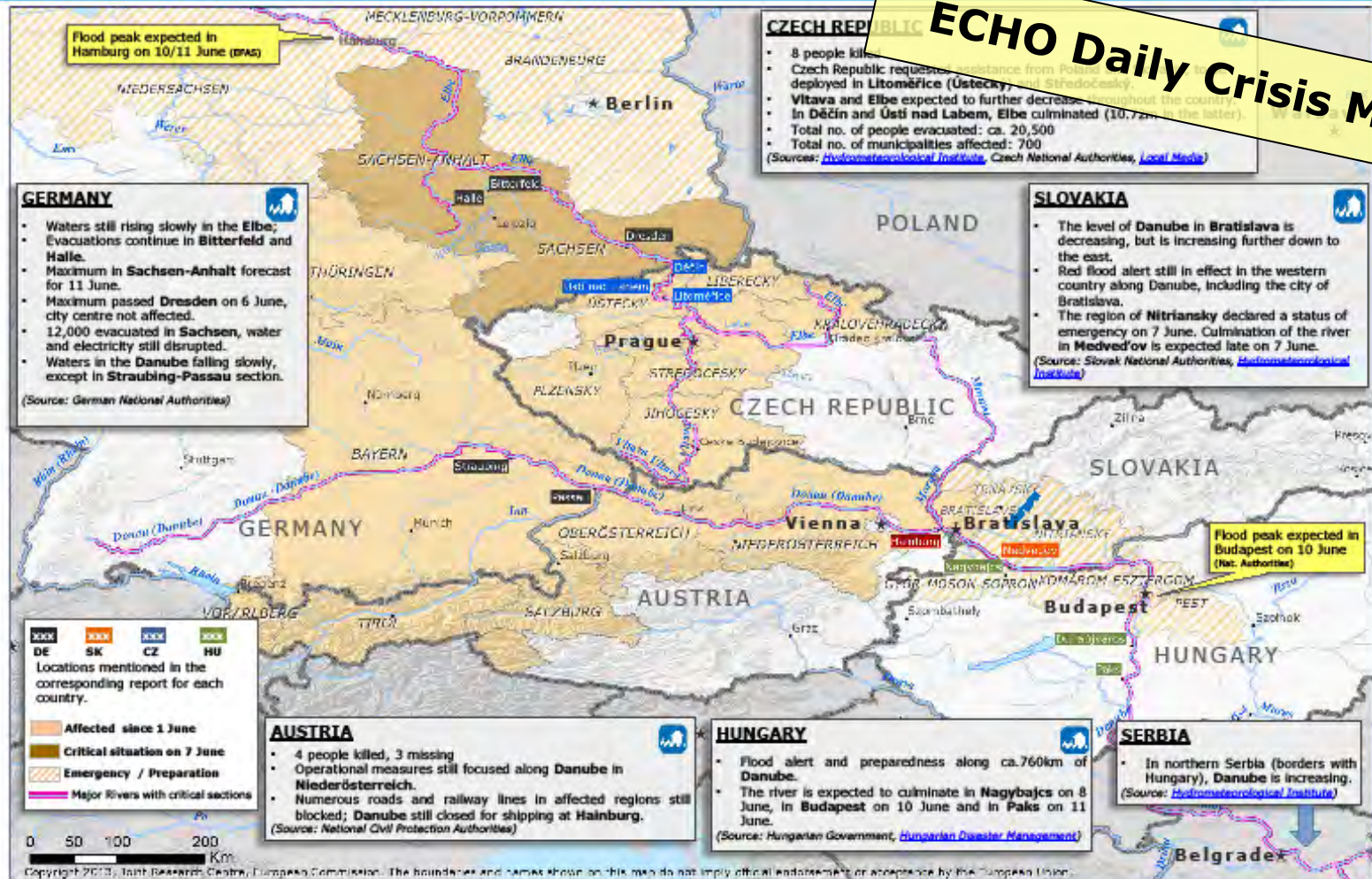
- Developed by JRC since 2002 in close cooperation with EC services, national hydrological and meteorological services and other institutes
- Early flood forecasting up to 10 days ; overview of on-going and forecast flood in support to the EC Emergency Response Centre

Copernicus Emergency Management Service (EMS)

- Service coordinated by JRC, aiming to provide timely geo-spatial information to support informed decision-making
- Activated 44 times to deliver map information in case of natural disaster

JRC support to situation assessment and flood forecasting

07 June 2013: Central Europe – Floods

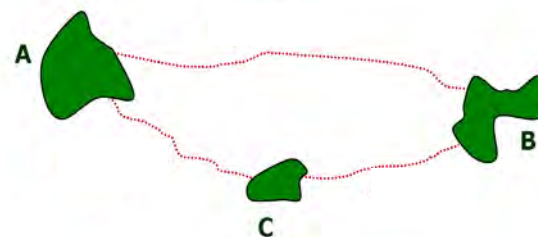
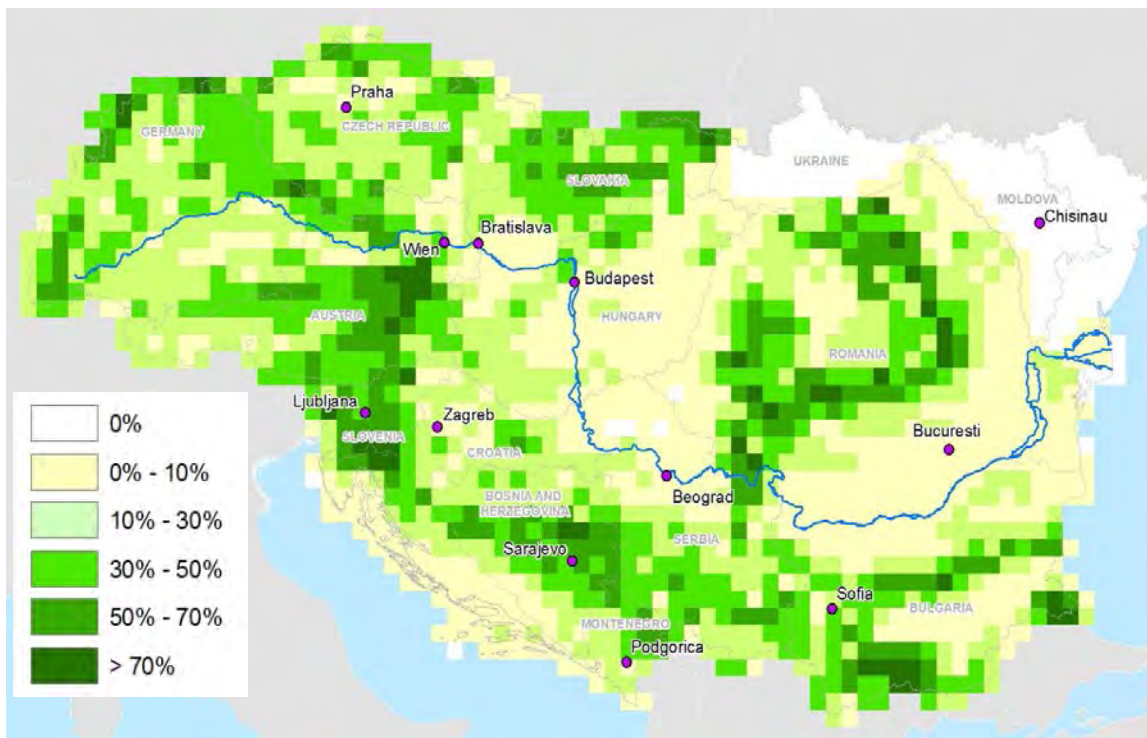


ECHO Daily Crisis Maps



Assessing forest fragmentation trends

Forest connectivity in the Danube region in 2006



Intra-patch (area) and inter-patch (distance) connectivity are accounted together with the dispersal abilities of species (EU wide maps available for 1,5,10 km average dispersal ability).



Data source: JRC Forest Type map, year 2006 (raster resolution 25m, forest features with spatial details down to 1ha)

Connectivity Index: RPCn - Landscape unit : 25 x 25 km²

Connectivity is crucial for the viability and survival of species, for the control of invasive species and diseases.



Scientific Support to the Danube Strategy

Objectives:

- Addressing the scientific needs related to the implementation of the EUSDR
- Strengthening scientific cooperation in the Danube Region





Launch and implementation

2011- 12: Launch, identification and validation of scientific priorities

2013: Identification and launch of the flagship clusters

March 2013: Scientific meeting with partners in Ispra (Italy)

May 2013: High-level event in Bratislava





Flagship clusters and activities

4 thematic flagship clusters:

- Danube Water Nexus (DWN)
- Danube Land and Soil Nexus (DLSN)
- Danube Air Nexus (DAN)
- Danube Bio-energy Nexus (DBN)

2 horizontal activities:

- Danube Reference Data and Service Infrastructure (DRDSI) pilot project
- Smart Specialisation



Danube Water Nexus (DWN)

- **Scenarios** of environmental and economic impacts of alternative water allocation measures across competing water-using sectors
- **Methodology** for modelling of water resources in the Danube river basin integrating quantity, quality, ecology and hydro-morphology
- Supporting the implementation process of the **Water Framework Directive** and planning of medium and long-term actions for the 2nd cycle of **River Basin Management**



Danube Land and Soil Nexus (DLSN)

- Land and soil availability
- Land and soil quality
- Land and soil-related risks
- Preservation and restoration of above- and belowground ecosystems and biodiversity
- Harmonised data collection and monitoring
- Awareness raising and capacity building





Relevant DLSN activities:

- Danube-wide assessments of land and soil availability, quality (including above- and below-ground ecosystems and biodiversity) through harmonised national activities
- Assessments of land and soil consumption/sealing (including drivers and impacts on issues such as agricultural productivity, flooding, biodiversity, etc...)
- Underpinned through development of harmonised high-resolution soil database for Danube Region (1:250,000 scale based on the E-SOTER methodology & INSPIRE principles) that support national land inventory base



Danube Air Nexus (DAN)

- Identifying air pollution sources
- Scenarios of future air quality emissions
- Climate impact on air quality and health
- Assessing impacts of PAH on health



Danube Bioenergy Nexus (DBN)

- **Mapping bioenergy development potential** of the Region (extension of National Renewable Energy Action Plan databases to non-EU Danube countries and update of EU countries' data; detailed maps of raw resources potential, etc.)
- Assessing the relevant **technological options**
- Assessing the **impacts** of bioenergy development on agriculture, climate change, soil quality and on biodiversity

Danube Reference Data and Services Infrastructure (DRDSI) Project

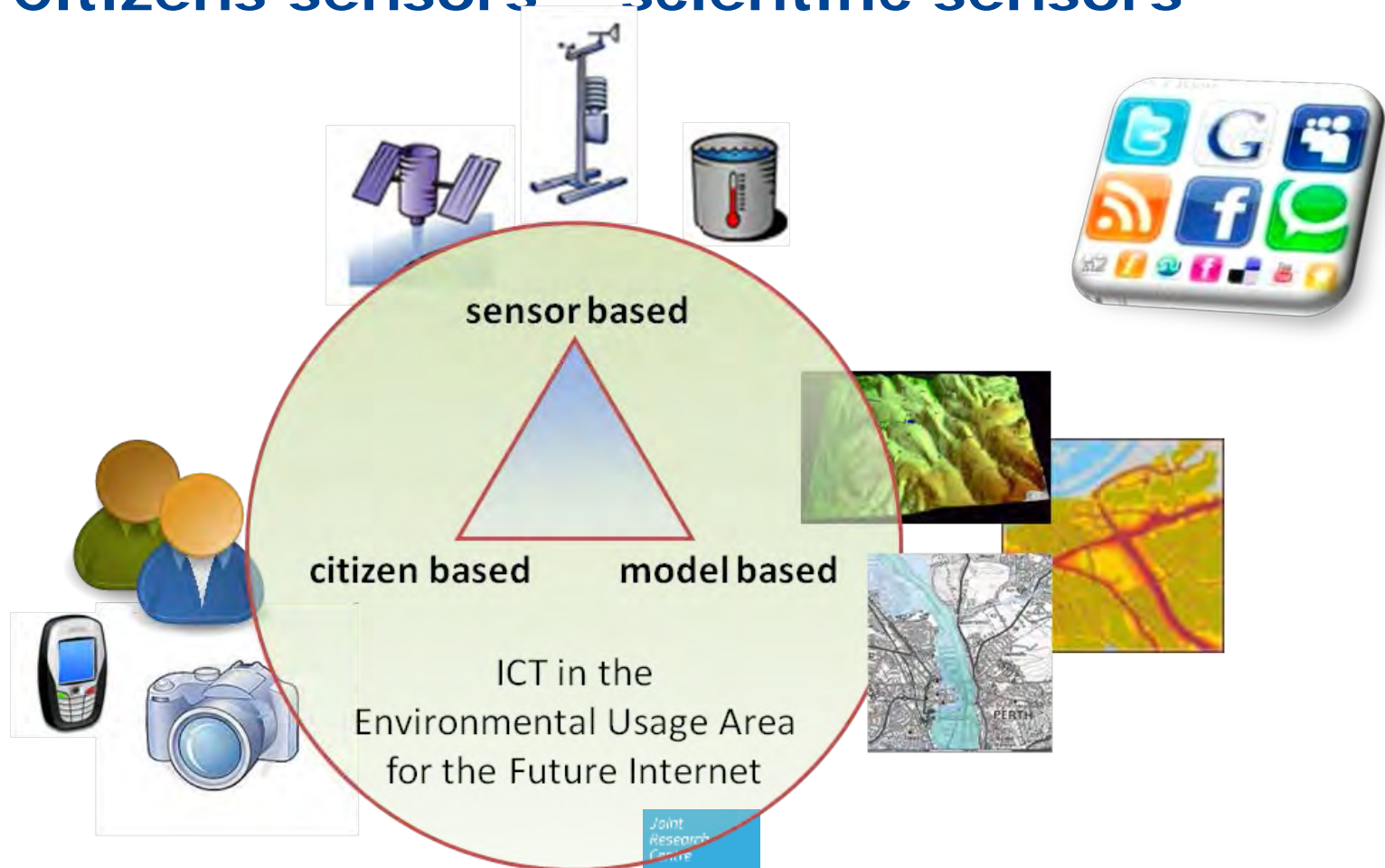


The screenshot shows the DANUBE RDSI PORTAL website. At the top left is the European Commission logo. The main header reads "DANUBE RDSI PORTAL" and "Enhancing access to data from Danubian region". Below this is a navigation breadcrumb: "EUROPEAN COMMISSION > JRC > IES > DERD UNIT > DRDSI > DRDSI Discovery". There are two buttons: "Home" and "Discovery". Below the buttons is a satellite map of a Danube region with a blue line indicating a data path. A copyright notice at the bottom of the map reads "Copyright TerraColor. Data provided by JRC GLOBESEC Unit." Below the map is a section titled "The 4 Priorities" with four images: "Environment protection" (a river landscape), "Navigability" (a barge on a river), "Irrigation & agricultural development" (aerial view of agricultural fields), and "Energy production" (a power plant or dam structure).

- Access to comparable and harmonised data across the Region
- Aligned to Priority areas of Danube strategy
- Shared governance
- Reflecting actual needs of Danube region users
- Includes Observatory for monitoring biodiversity in the Danube Delta

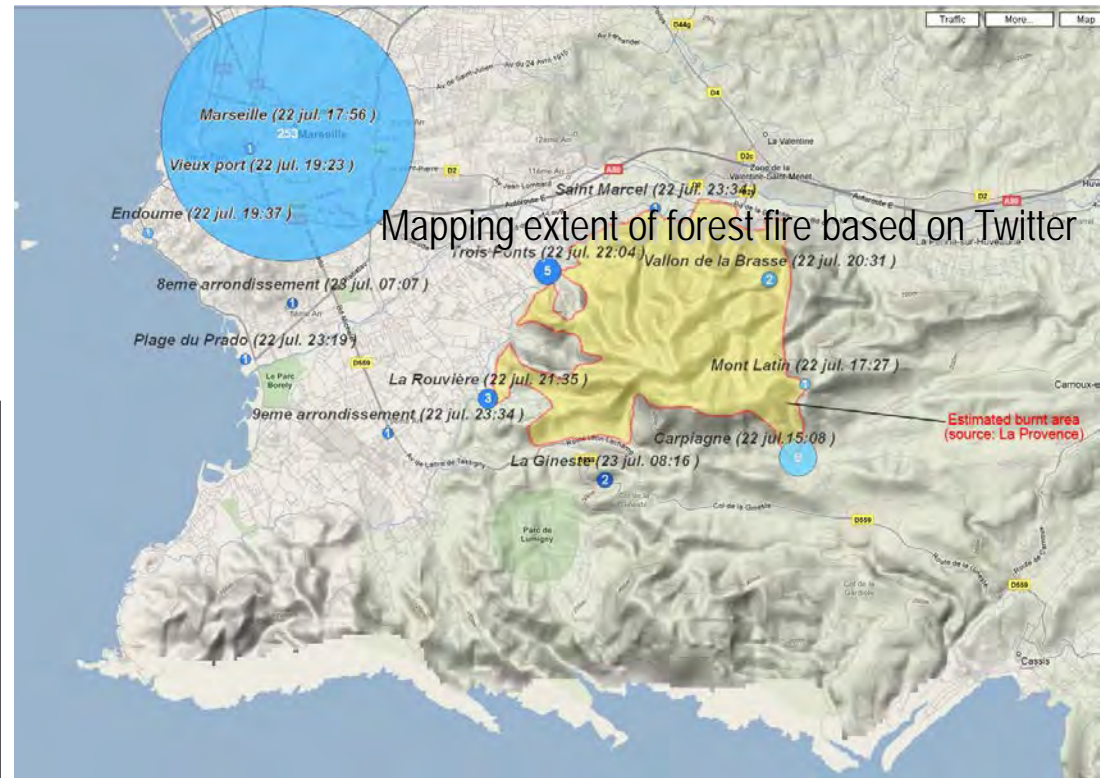
Citizens science

Citizens sensors – scientific sensors



Citizens – producers of the geographic and environmental data

Specific offer from the JRC to the Danube Delta



RSPB BIG GARDEN BIRDWATCH 09

30

Home How to take part Results About

The results are in!
Thanks to everyone who took part

View results

Look out for a surprise at no 10



Smart Specialisation for the Danube Region

Danube Region as **pilot area** to study and foster integration and coordination of regional and national RIS3 at macro-regional level

Action plan:

- Identification of **transnational dimension** of RIS3 in the wider macro-regional context
 - *Kick-off event on 26 April in Brussels*
- Development of **new actions** targeted at national policy-makers
 - *1st peer-review workshop of national RIS3 on 24-25 June in Budapest*
- Strengthening of support already provided to the **regional authorities** of the EU Danube countries, but also of the non-EU Danube countries