

DriDanube project - Drought Risk in the Danube region

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DROUGHT RISK MANAGEMENT IN THE ALPS EXPERT WORKSHOP & 2nd WATER MANAGEMENT PLATFORM MEETING

Ajdovščina, Slovenia, September 14, 2017





Drought enigma & drought watch



Drought appearance on European level



Drought in 2017

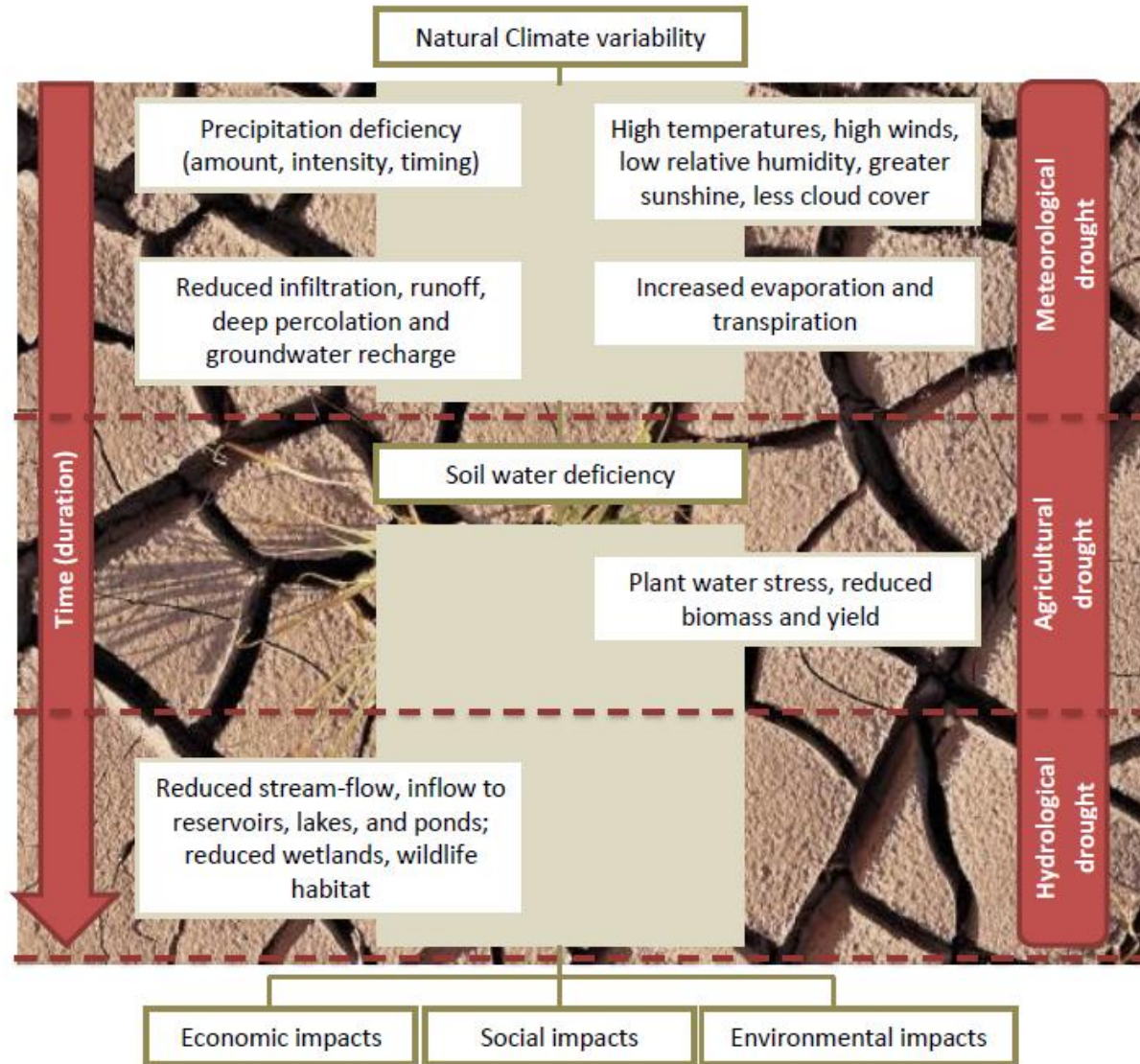


First steps of drought policy



DMCSEE & DriDanube project and future cooperation

Drought enigma

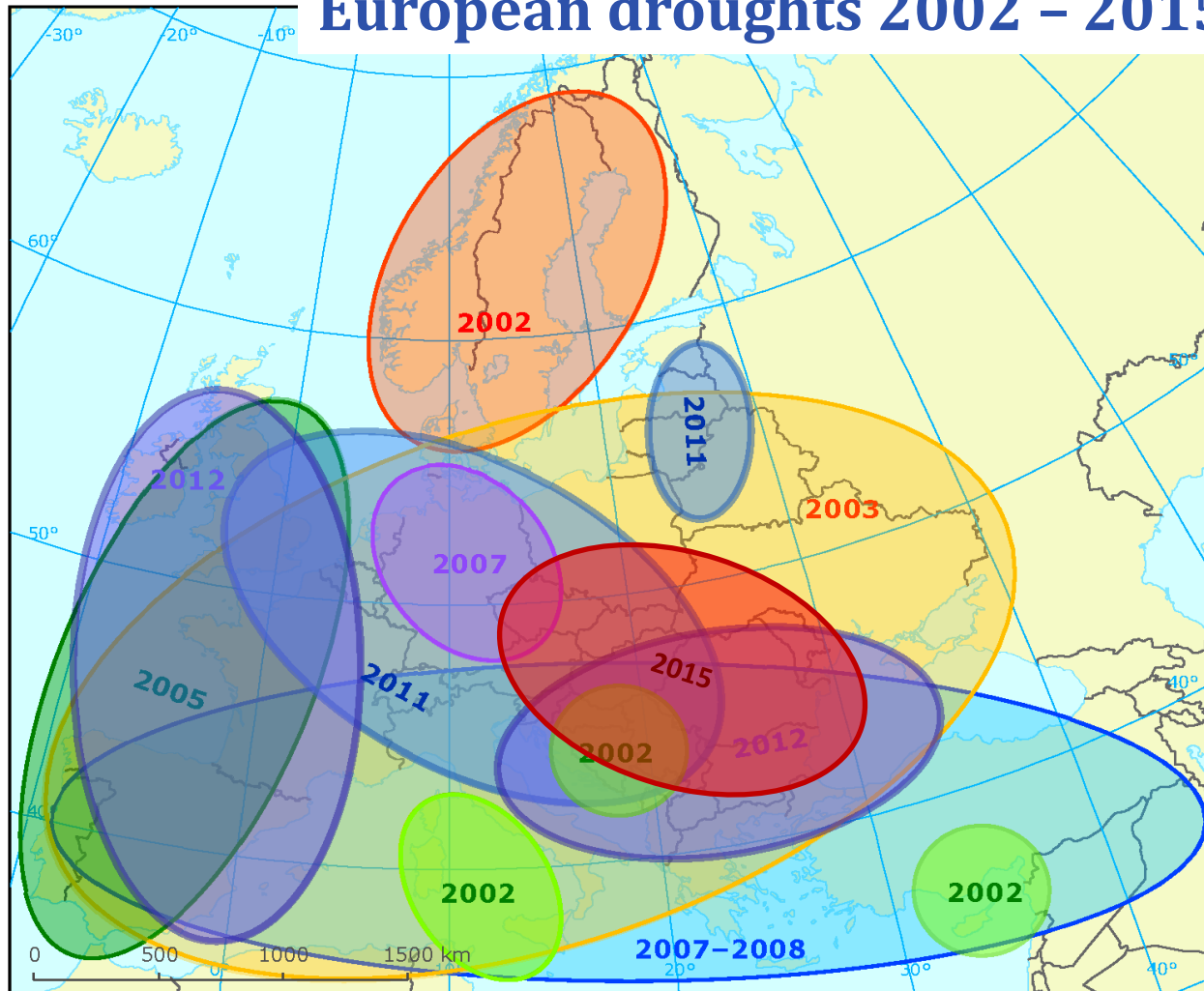


Drought events are regional phenomena, affecting transnational water management.

Figure 1: Sequence of drought occurrence and impacts for commonly accepted drought types (Source: National Drought Mitigation Center, University of Nebraska-Lincoln, USA) (figure modified by Horion, 2012)

Growing concern - drought on European level

European droughts 2002 – 2015

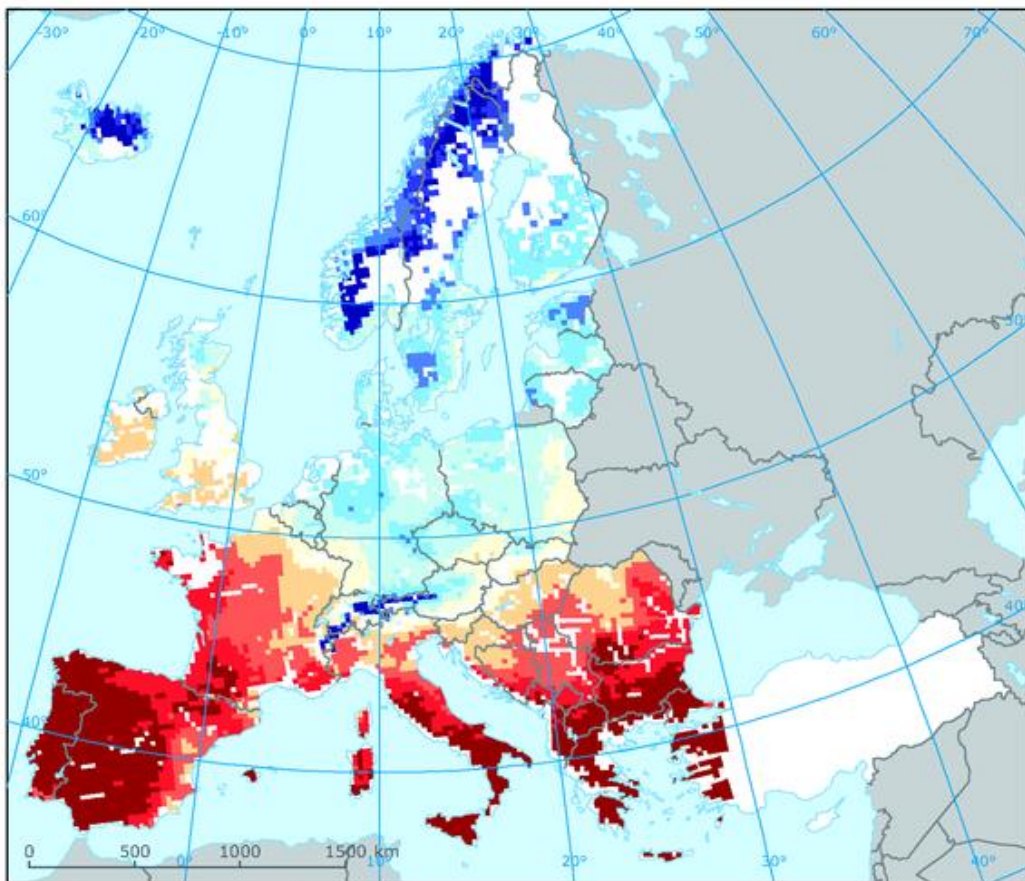


- Large areas of EU have been affected by several major droughts in recent decades.
- Severity and frequency of droughts have increased, including in water rich countries.
- **Damage costs in 2003: 100 million people affected, 8,7 billion eur.**
- Damage costs 1986- 2009 100 billion eur.

Source: EEA, 2012; EEA, 2017

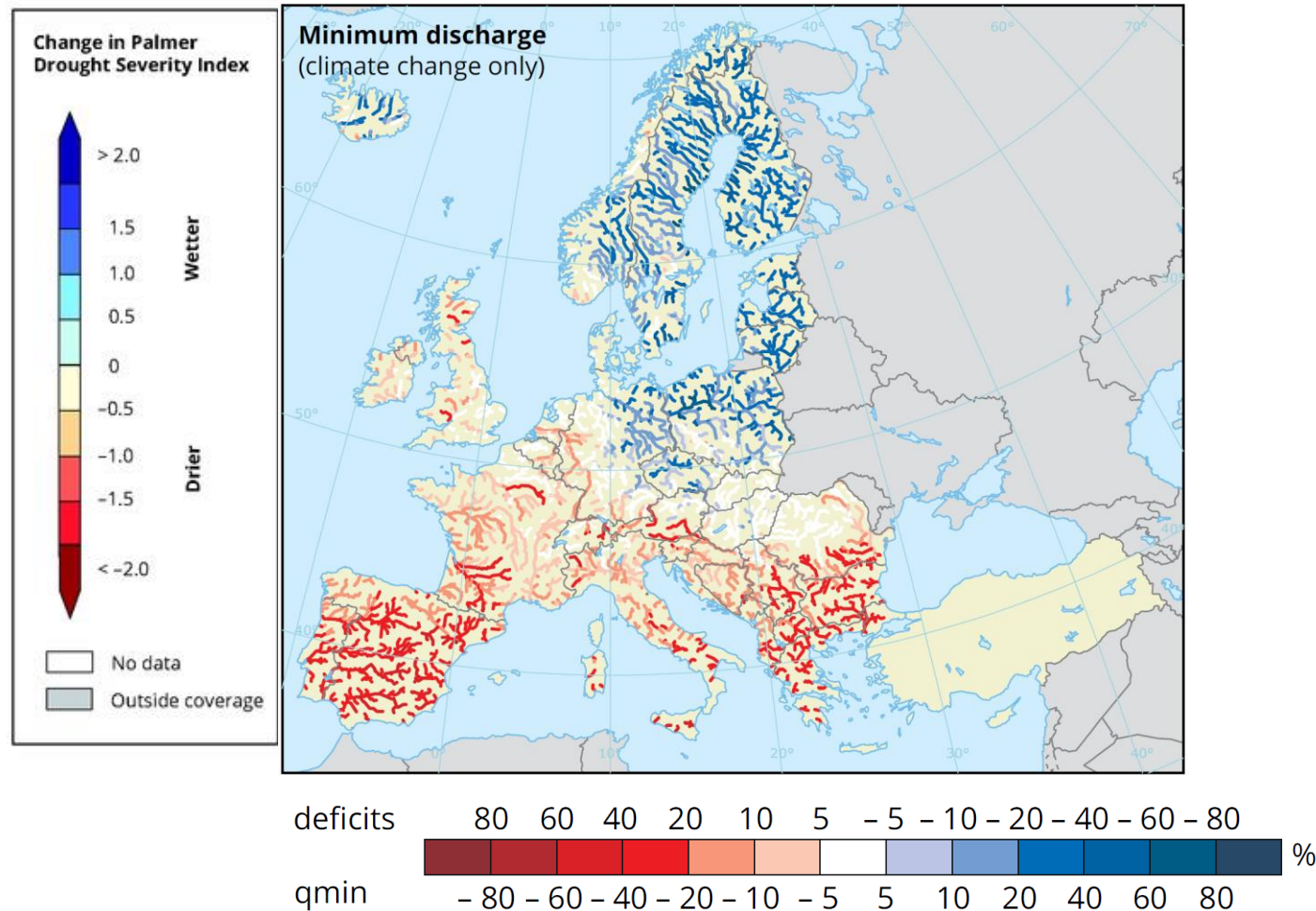
Higher drought risk in the future?

Changes in summer soil moisture between the periods 1961 to 1990 and 2021 to 2050



Source: EEA, 2017

Projected change in 20-year return level minimum flow and deficit volumes due to climate change

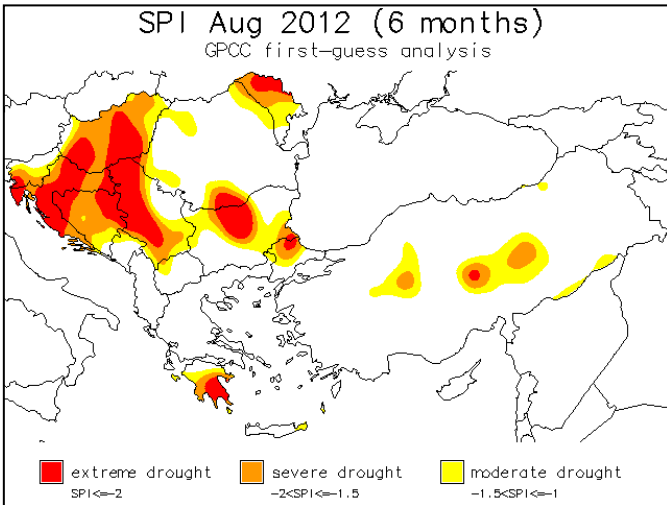


Source: EEA, 2017

- Regions bordering the **Mediterranean Sea** and **SEE regions** are expected to be especially dry

Regional multi-sectoral drought impacts

In past decades the drought-related damages in the region of South-Eastern Europe (SEE) have had large impact on the economy and welfare, **mainly reflected in destroyed crops and devastated farmland** and other water related sectors.



Suša "gasi" svjetla na Balkanu

Amerin M. | Šetvrtak, 06. Septembar 2012 11:08

Svidi mi se Pošaji Budi prvi među svojim prijateljima kome se ovo sviđa.



Agriculture

Navigation

Water supply (drinking water)

Energy (Hydropower)

Industry (cooling water)

Water quality

Ecology (Biodiversity)

Recreation

Others

Suša na Balkanu povzročila vsaj milijardo evrov škode

Celotna regija že več tednov ni imela dežja, temperature pa so se povpele preko 40 stopinj Celzija.

Pl. K., Delo at
sob, 26.08.2012, 13:43



Foto: Jože Suhadolnik (Delo)

Beograd, Zagreb, Sarajevo - Balkan letos pesti



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TOP STORIES ENVIRONMENT

FOR CULTURE

Drought shrivels harvest in Central Europe

Farmers in Austria and Hungary are rethinking climate change as a bitter drought tears through their fields. How will they grow food if the weather is so unpredictable?



Overview of water-related sectors Danube countries experienced impacts from 2015 droughts

TABLE 1

	AT	BA	BG	CZ	DE	HR	HU	RS	SI	SK	MD	ME	RO	UA
Agriculture	XX	XX	/	XX	X	XX	XX	XX	X	XX	XX		X	X
Navigation	XX	0	/	X	X	X	0	0	0	X	X		/	/
Water supply (drinking water)	X	XX	/	X	X	X	0	X	0	X	X		/	XX
Energy (Hydropower)	X	X	/	X	X	0	X	0	0	X	X		/	X
Industry (cooling water)	na	X	/	X	0	0	0	0	0	0	0		/	XX
Water quality	XX	X	/	0	0	0	X	X	0	X	X		/	/
Ecology (Biodiversity)	X	X	/	XX	X	X	X	X	0	X	XX		/	/
Recreation	0	X	/	0	0	0	0	0	0	0	X		/	/
Others	/	/	/	X	0	X	/	/	/	X	/		/	/

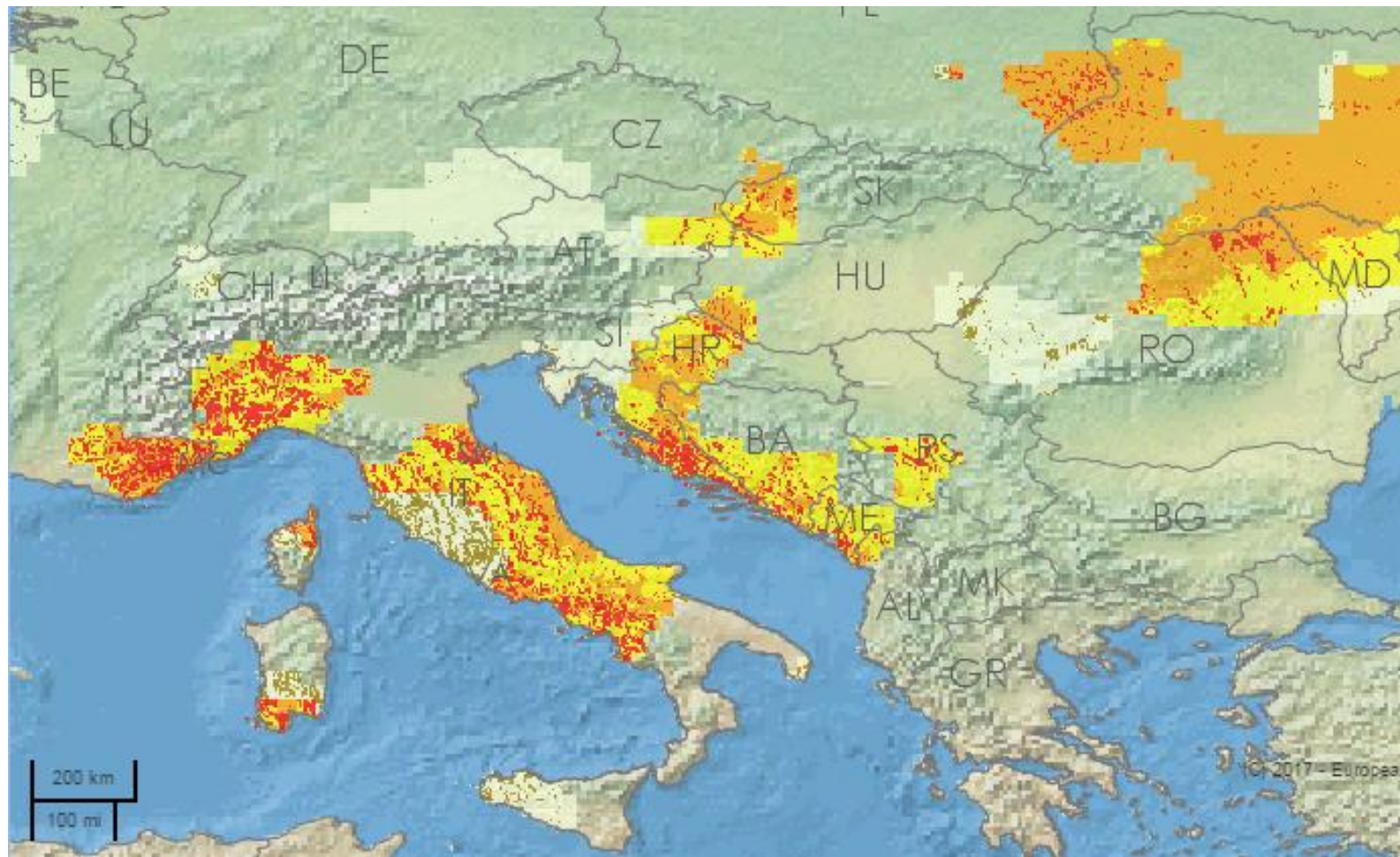
0 – no impacts; X – low impacts; XX – high impacts; na – no information available; / – not relev




* source: Bavarian State Ministry of the Environment and Consumer Protection.






Severe drought in 2017

- affected also Alpine region



Legend:

 ☒ Combined Drought Indicator - 2017-08, 2nd ten-day p.

-  Watch: rainfall deficit
-  Warning: soil moisture deficit
-  Alert: vegetation stress following rainfall / soil moisture deficit
-  Partial recovery of vegetation
-  Full recovery of vegetation to normal conditions

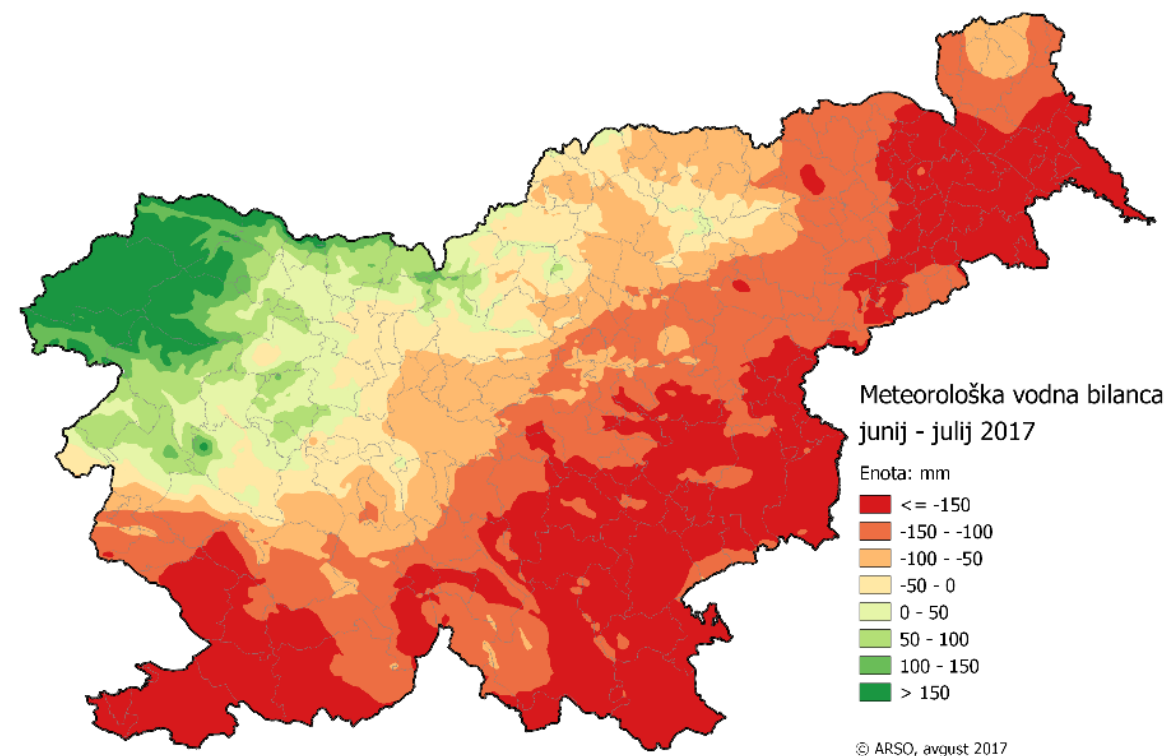
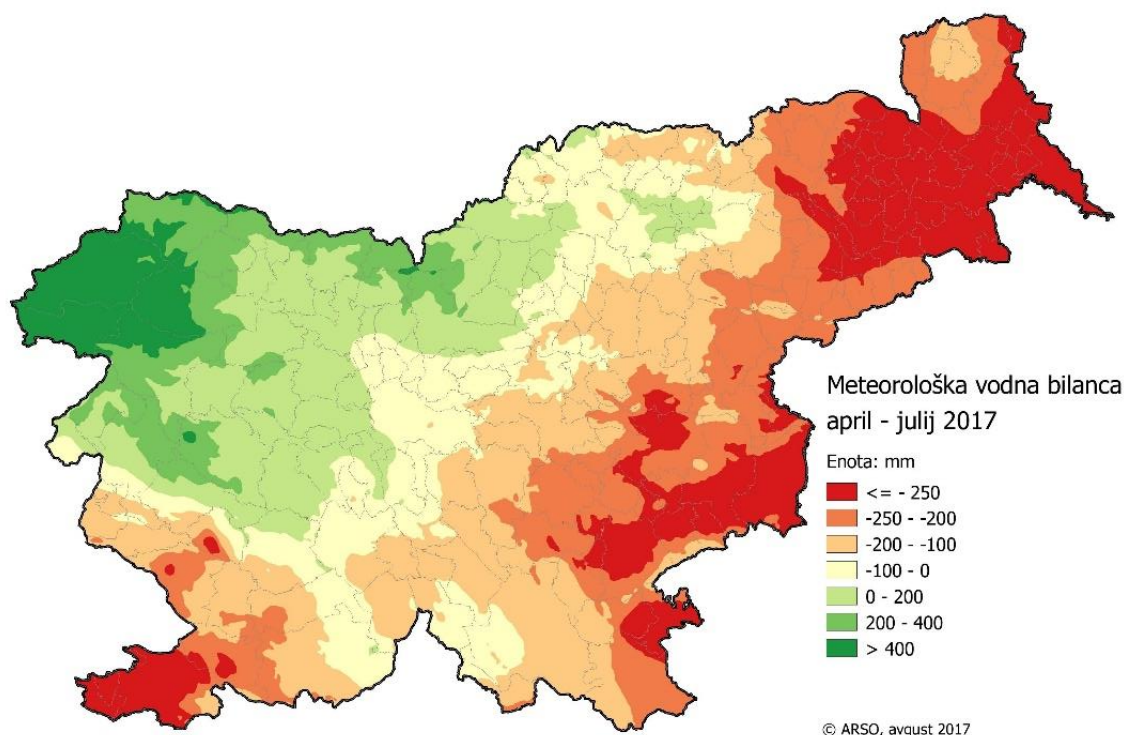
Source: Joint Research Center, EDO – European Drought Observatory, URL, <http://edo.jrc.ec.europa.eu/edov2/php/index.php?id=1111>, cit. 8.9.2017)

Agricultural drought in Slovenia in 2017

- Spring drought 2017 continued and intensified through summer
- Most affected regions: Prekmurje, Dolenjska, Primorska
- Precipitation deficit in some regions exceeded the record in 2003 (Dolenjska)
- First estimation of the damage: 120 millions EUR



Cerklje ob Krki, 6.9.2017



... in summer developed in hydro drought

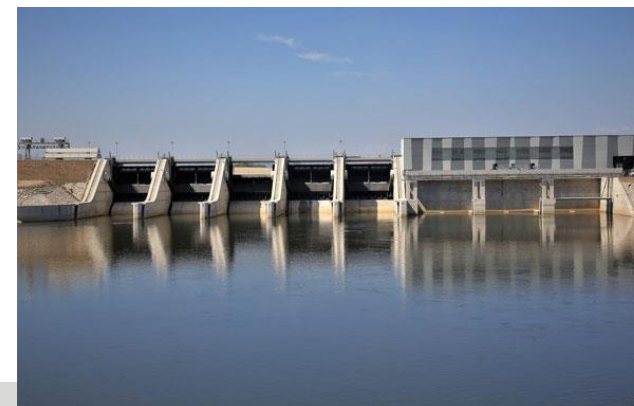
Aktualno

Oplotničani zaradi pomanjkanja pitne vode ponoči brez vode

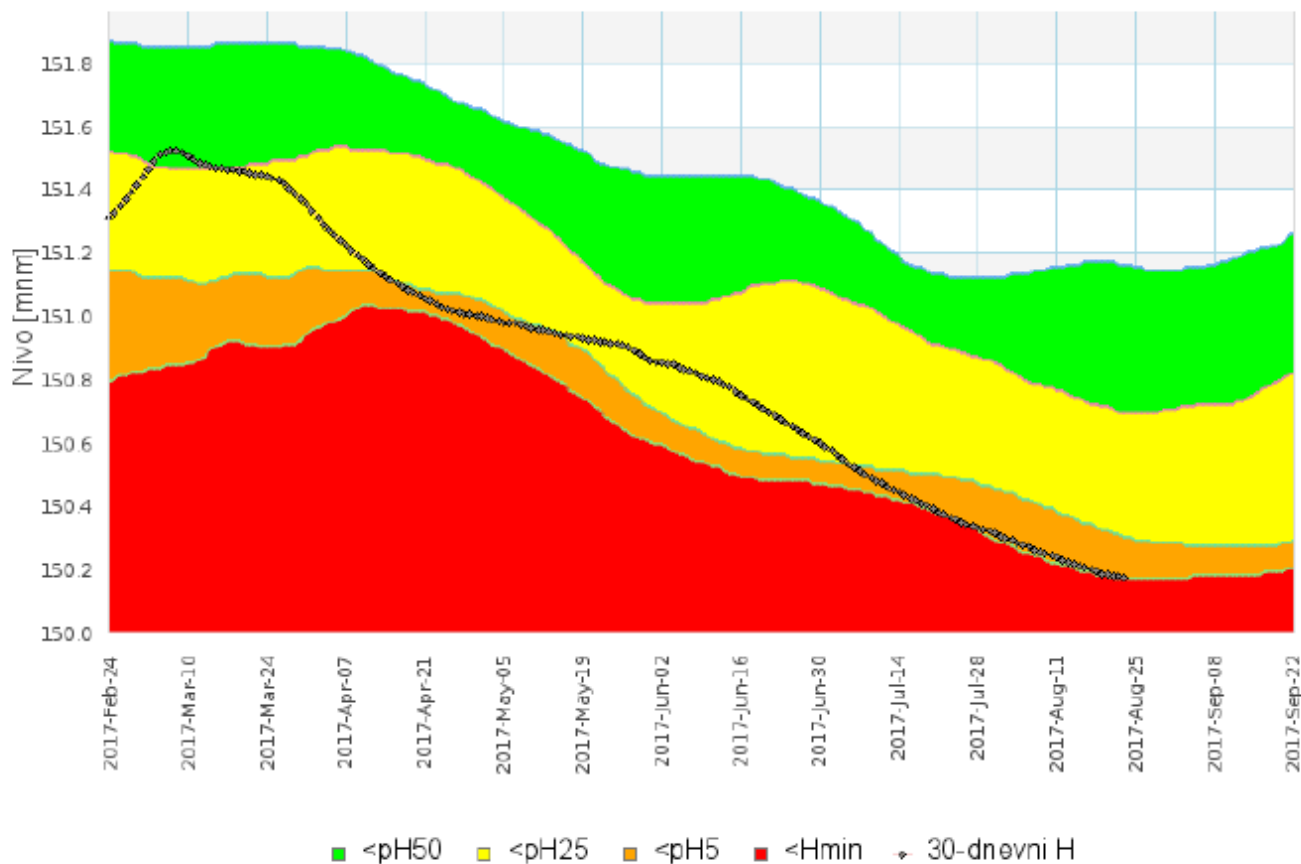
19. 7. 2017



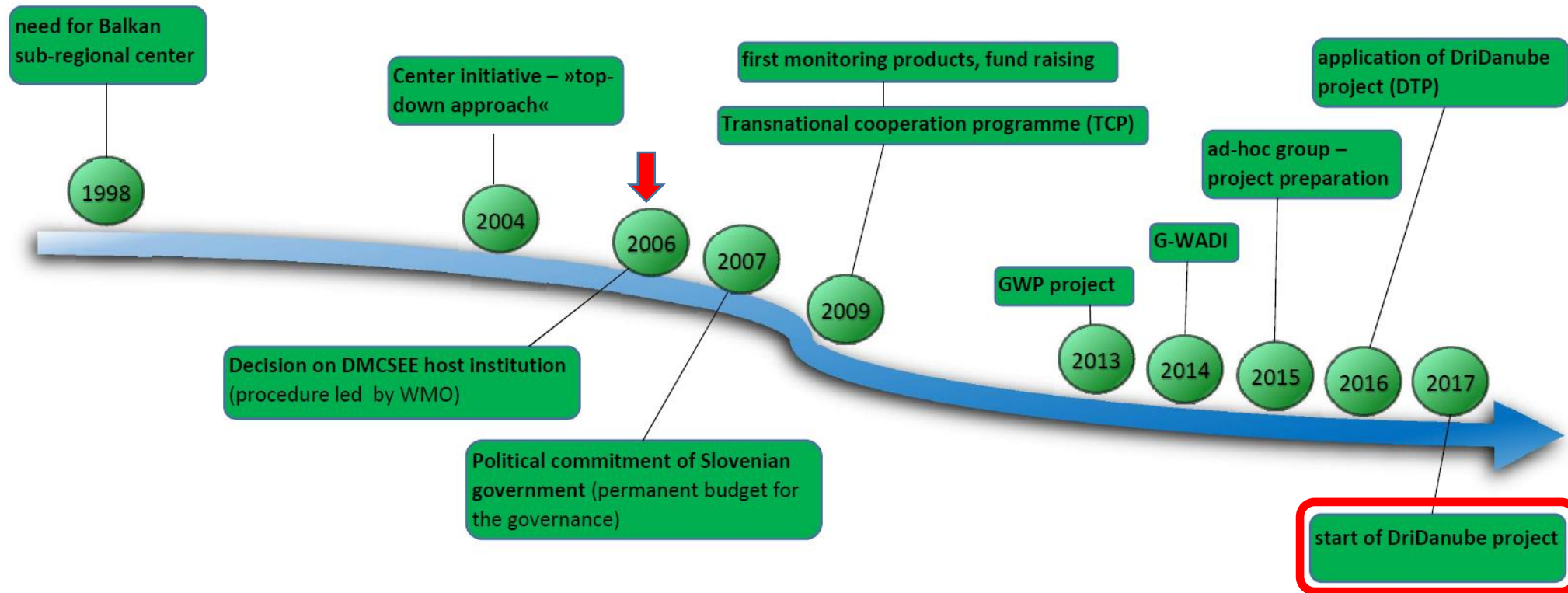
Na območju občine Oplotnica vode zelo primanjkuje. Zaradi izjemnega zmanjšanja izdatnosti vodnih virov od včeraj velja ukrep prekinitev dobave vode v nočnem času. Občani Oplotnice, ki se oskrbujejo z vodo Komunale Slovenska Bistrica, so torej od desete zvečer pa do sedme zjutraj brez pitne vode. Ponoči se tako namreč vodohran spet napolni. Prekinitev dobave pitne vode v nočnem času bo veljala do preklica oziroma do izboljšanja razmer.



HE Brežice



Groundwater levels from March to August 2017 – Šentjernejsko polje



DMCSEE activities 2006 -2017



Project: Drought Risk in the Danube Region - DriDanube

Lead Partner: Slovenian Environment Agency
(Drought Management Centre for Southeastern Europe)



Slovenia 2
Austria 2
Czech Republic 1
Slovakia 2
Hungary 2
Romania 1
Croatia 1
Serbia 2
Montenegro 1
Bosnia and Herzegovina 1

7 EU countries
3 Non-EU countries
15 partners
9 ASP partners

Project budget: 1.974.750,00EUR

Duration of project: 30 months (January 2017 – June 2019)

DriDanube project

GENERAL OBJECTIVE

- Project aims to increase the capacity of the Danube region to adapt to climatic variability by **enhancing resilience to drought** with recently developed tools and data sets;

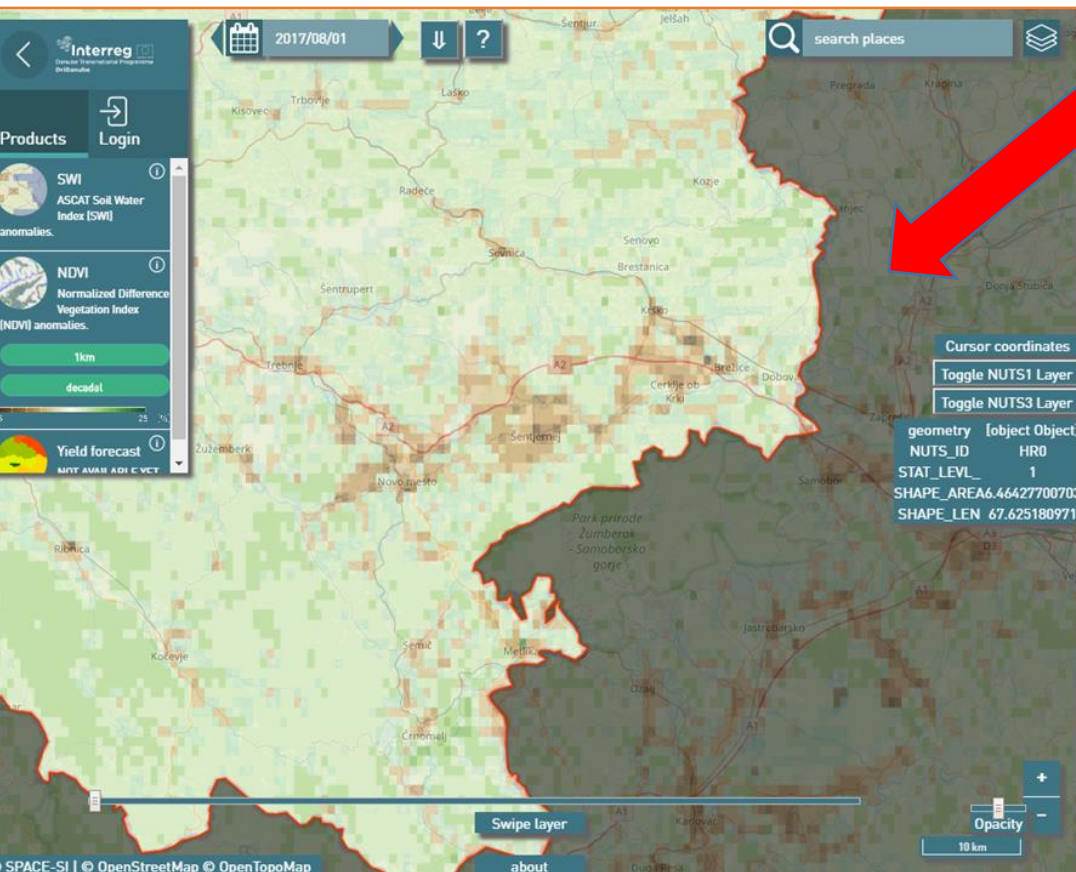
SPECIFIC OBJECTIVES

- **New drought monitoring services** will be developed and prepared for operational use;
- **Unified drought risk protocol** based on the Civil Protection Mechanism will be prepared;
- **Improve drought emergency response in the Danube region.**



Main Result & Outputs

Improved drought emergency response and better cooperation among operational services and decision making authorities in a Danube region.



TOOLS

Drought User Service

Methodology for drought impact assessment
Methodology for drought risk assessment

STRATEGY

Strategy to improve drought emergency response

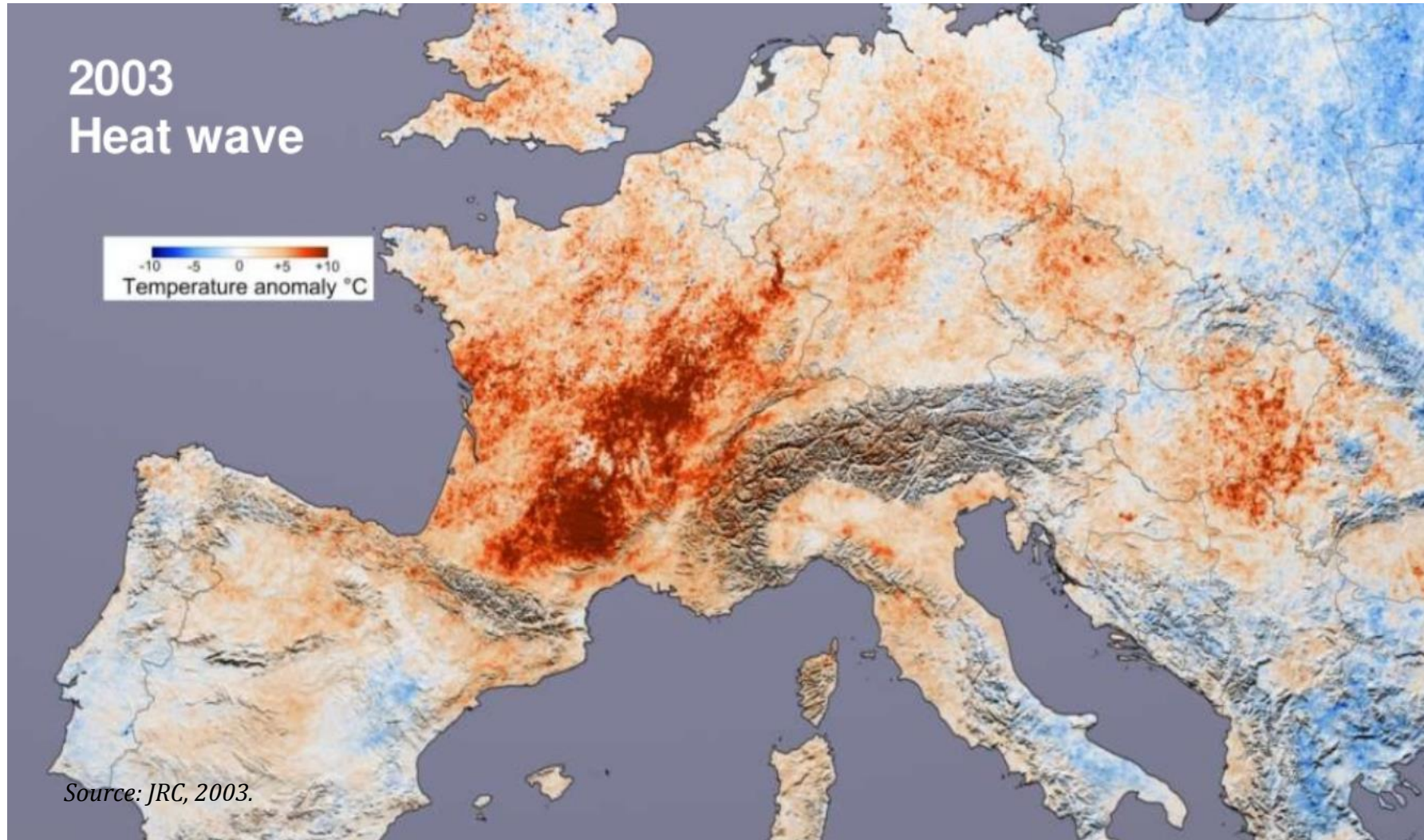
PILOT ACTIONS

LEARNING INTERACTIONS on regional and national level

Soil Water Index - SWI, SE Slovenia, August 2017

First trigger to think about drought policy on EU level

– drought 2003



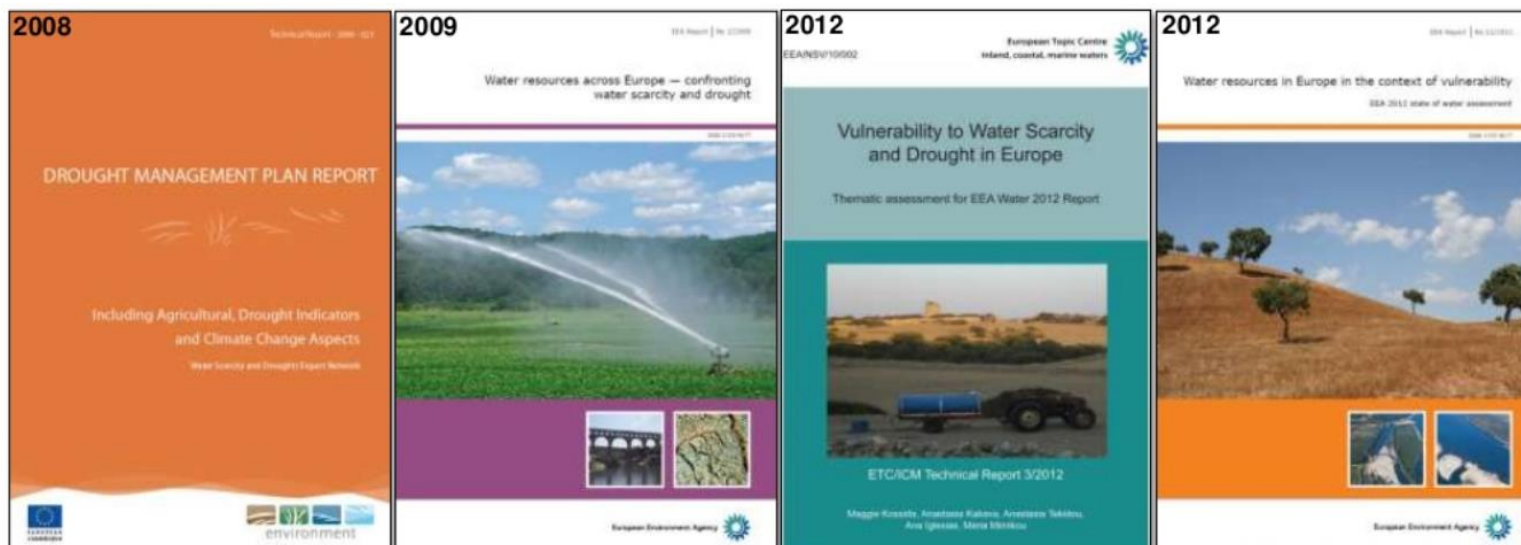
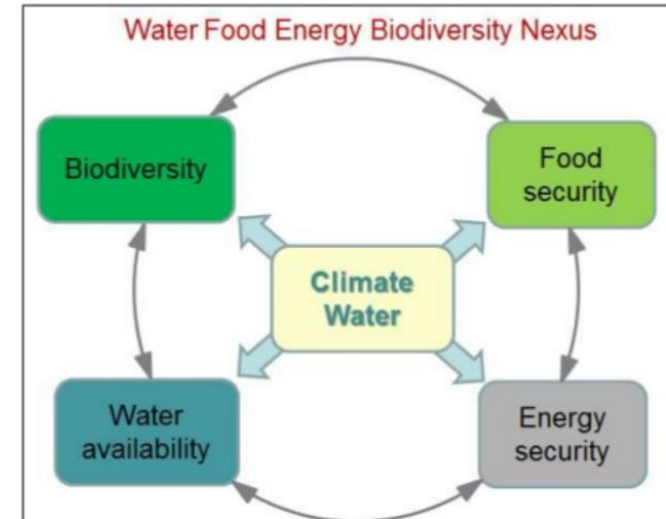
**Strategy to improve drought
emergency response**

First steps of EU drought policy

2006 / 2007	In-depth assessment of water scarcity and droughts in the European Union
2007	Communication on WS&D
2008, 2009, 2010	Follow-up reports "Addressing the challenge of water scarcity and droughts in the European Union"
2012	Blueprint – policy review WS&D

Blueprint 2012 – Policy review

- Objectives 2007 (*revert WS&D trends*) not achieved
- Next WFD cycle: further integration of water quantity issues into sectoral policies



Mission of DriDanube project – developing Drought strategy in Danube region.

Source: van Ek, 2014

Capitalization of drought-related projects in DriDanube project

Integrated Drought Management
in Central and Eastern Europe
Compendium of Good Practices

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Guidelines for preparation of the Drought Management Plans

*Development and implementation
in the context of the EU Water Framework Directive*

Handbook of Drought Indicators and Indices

Integrated Water management



+



Basis: Monitoring Measures of water management

- ✓ Measures to increase efficiency of irrigation
- ✓ Measures to reducing leakage in water distribution network
- ✓ Natural water retention measures
- ✓ Wastewater recycling
- ✓ Rain water harvesting
- ✓ Drought monitoring/ forecasting
- ✓ Market-based or incentive instruments
- ✓ Education of public on water saving measures

Cooperation options

Early drought warning in SEE/Danube region/Alpine region:

- active countries participation in existing platforms (global, regional – EDO, DMCSEE), exchange information inside/outside the countries).

Drought management as a part of national legislation (national commitments)

- Europe/WFD, UNCCD/NAP, Civil mechanism, CCAdaptation strategies...

Networks

- DMCSEE and consortium partners, **Alpine countries**.



Common projects

- GWP/IDMP, WMO, Adaptation fund, FAO (study visits);
- secondment of staff (WMO support, Adaptation Fund);
- project calls (enlarge DriDanube in Alpine space, DTP projects cooperation or **new initiatives?**).



Food and Agriculture Organization
of the United Nations

Public awareness /capacity building

- drought news/impacts information sharing, media;
- guidelines, manuals, trainings, publications;
- common project events (workshop)





Project webpage:
<http://www.interreg-danube.eu/dridanube>

