ARSO METEO
Slovenian Environment Agency

Interreg
Danube Transnational Programme
DriDanube

DriDanube project

dr. Andreja Sušnik
Slovenian Environment Agency
Sandor Szalai
Szent Istvan University
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Project co-funded by European Union funds (ERDF, IPA)

ARSO METEO
Slovenian Environment Agency

DMCSEE hosted by ARSO

- 10 years – anniversary
- Web based platform: www.dmcsee.org

WHY?
Current status

Monitoring
- untimely delivery
- cross-border inconsistencies
- lack of integration of risk and impact data
- increase in the number and duration of droughts in the Danube region in last decades (in 2003, 2007, 2015, 2016, 2017)

Impacts and risk assessment
- no systematic collection of drought impacts
- lack and incomparable drought risk assessment methodologies
- despite the impacts on the economy and welfare of people, mainly in agriculture, drought is still not considered an issue of high priority

Management
- reactive, dealing mainly with losses and damages
- cooperation between key actors is missing
- formal legislation does not exist

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Motivation for the project

Drought is becoming one of the major challenges in water management in the Danube region.

www.interreg-danube.eu/dridanube

Drought Risk in Danube Region
DriDanube

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- Project financed by European fund for regional development (85%)
- Lead partner: ARSO/DMCSEE
- Project budget: 1.974.750,00€
- Duration of project: 30 months **(January 2017 – June 2019)**

7 EU countries
3 Non-EU countries
15 partners
8 Strategic partners

ICPDR - ASP

Lead Partner:
- Slovenian Environment Agency (ARSO), Slovenia

Partners:
- EODC Earth Observation Data Centre for Water Resources Monitoring GmbH (EODC), Austria
- Global Change Research Institute CAS, (CzechGlobe), Czech Republic
- Global Water Partnership Central and Eastern Europe (GWP CEE), Slovakia
- Hungarian Meteorological Service (OMSZ), Hungary
- Vienna University of Technology (TU Wien), Austria
- Szent Istvan University (SZIU), Hungary
- National Meteorological Administration (NMA), Romania
- Centre of Excellence for Space Sciences and Technologies (SPACE-SI), Slovenia
- Meteorological and Hydrological Service (DHMZ), Croatia
- Slovak Hydrometeorological Institute (SHMU), Slovakia
- Faculty of Agriculture, University of Novi Sad (FAUNS), Serbia
- Republic Hydrometeorological Service of Serbia (RHMSS), Serbia
- Institute of Hydrometeorology and Seismology (IHMS), Montenegro
- Republic Hydrometeorological Service of Republic of Srpska (RHMZ RS), Bosnia and Hercegovina

Associated Strategic Partners:
- International Commission for the Protection of the Danube River (ICPDR), Austria
- Administration of the RS for Civil Protection and Disaster Relief (URSZR), Slovenia
- The State Land Office (SLO), Czech Republic
- Agricultural Station/Forecasting and Warning Service of Serbia in plant protection (PIS), Serbia
- Environment Agency Austria (EAA), Austria
- Austrian Federal Ministry of Agriculture, Forestry, Environment and Water Management (BMLFUW), Austria
- Ministry of Environment and Energy, Water management directorate (MZOIE), Croatia
- Ministry of Agriculture (FM), Hungary

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

Main Outputs

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

Drought User Service

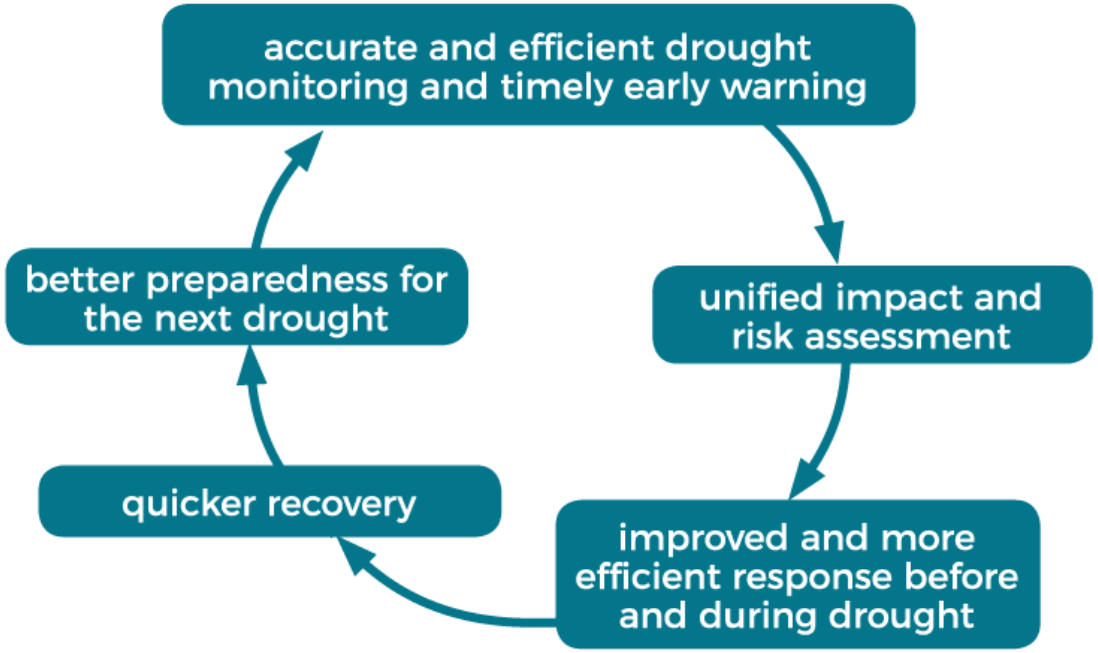
An innovative tool integrating all available data, including large volume of remote sensing products and serving the authorities to monitor, forecast and respond during drought development faster and with higher precision.

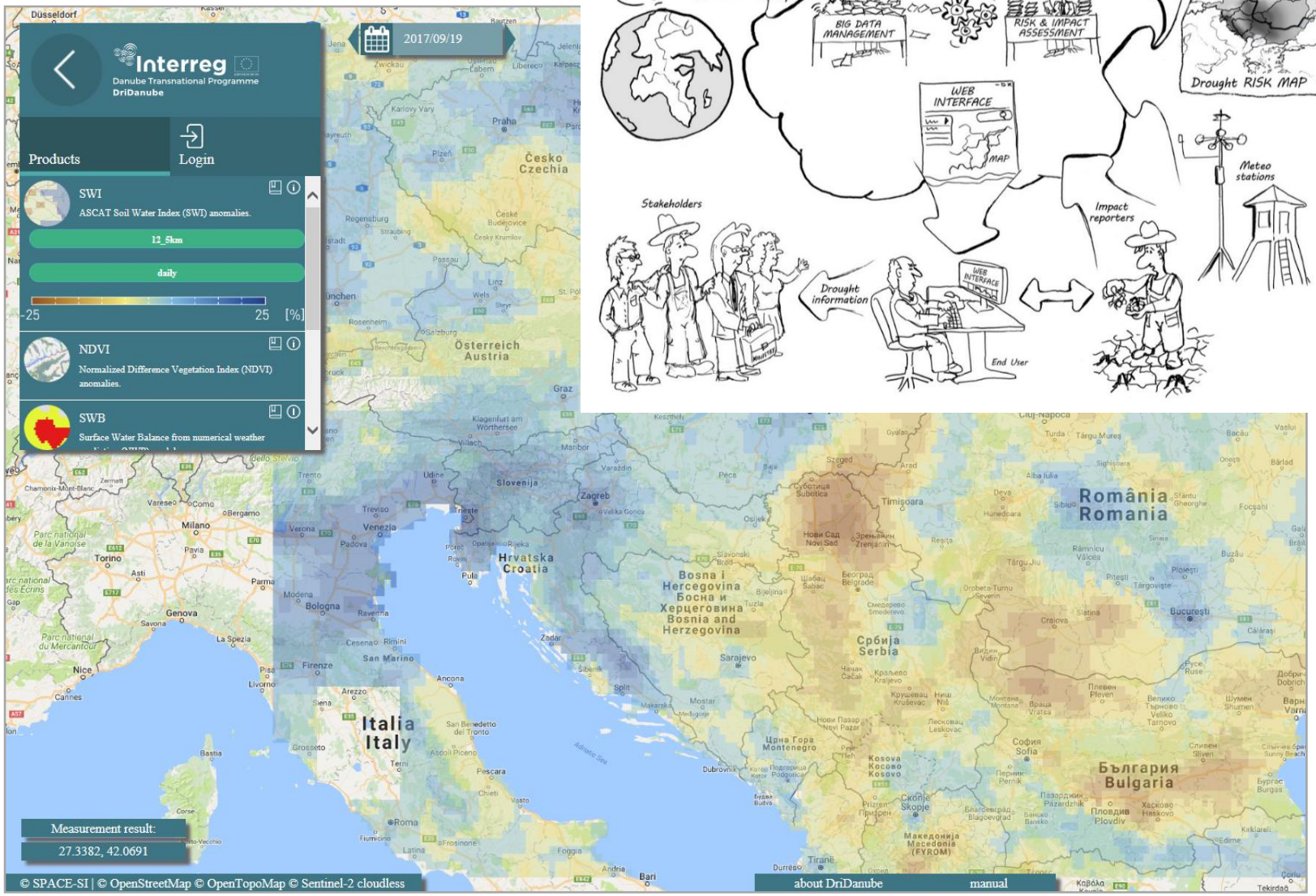
Methodologies for drought impact and risk assessment

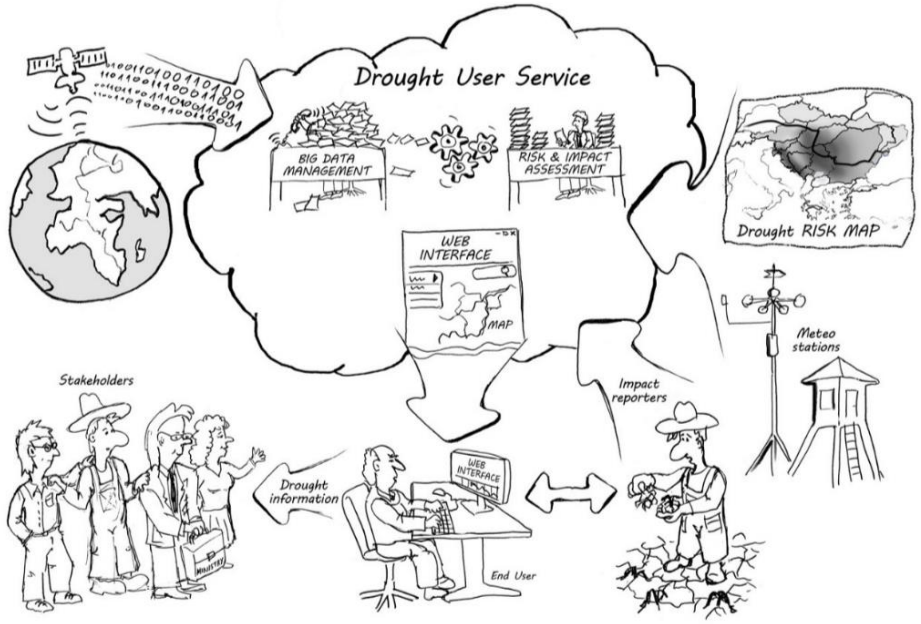
Unification and cross-border coherence of drought Risk and Impact assessments. Establishment of network of reporters as additional source of information for drought impacts in agriculture.

DriDanube Strategy

A clear guidance for overcoming the gaps in the drought decision-making processes and improvement of drought emergency response in the Danube region.







Drought User service –

common view on drought development in real time

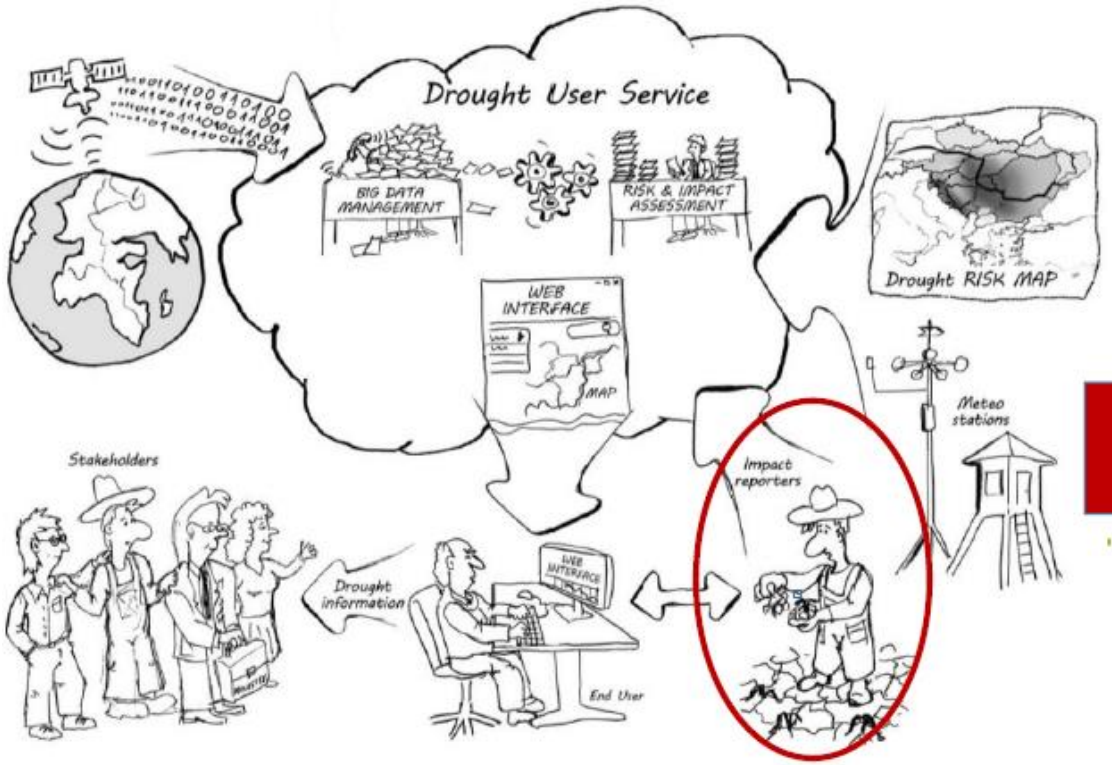
Some integrated products:

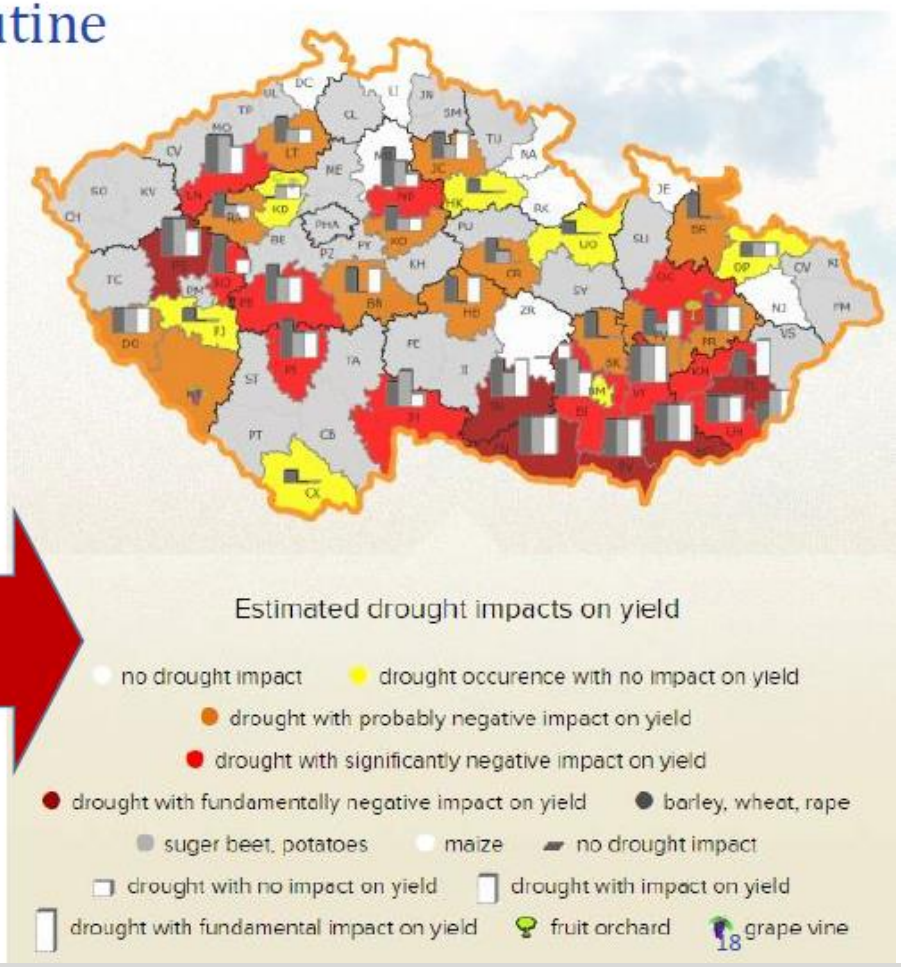
- **SWI anomalies** – product of the SSM used to express ammount of water contained in soil (daily)
- **NDVI anomalies** – Vegetation greenness/vigor (decadal)
- **SWB** – Surface Water Balance from numerical weather prediction (NWP) model
- **SWBSLO** – Surface Water Balance from numerical weather prediction (NWP) model for the territory of Slovenia
- **VegCon1** – Relative vegetation condition for crops and grasslands
- **VegCon2** – SRelative vegetation condition for all vegetation types

ARSO VREME

Metodology for drought impacts assessment – interactions with reporters on weekly routine

In Danube region including Slovenia, already in place in CZ, SK





Estimation of the risk

- Generally in risk calculation the impact and the probabiltiy of the event (drought) is taking into account
- The simpliest way is:

  Risk = hazard impact * probability of occurrence
- There are more general calculation methods
- Focus will be on agricultural impacts
- Requested data are: yield data and meteorological data from PPs
- Final outputs will be risk maps for the whole region

Optimal drought management model

- DriDanube Strategy:
  - aims at going beyond present national mechanisms that regulate drought preparedness and response
  - common strategic document to combat current partial and insufficient drought management
  - to cover entire region

- **decision:** to provide a common drought management model for all participating countries

- Pilot profects, one of them is a twin project with JoinTisza

Points for discussion

- DriDanube project has intention to increase technical capacities and elaborate more targeted water management policies taking into account water scarcity and droughts;
- results will be considered and used as input for further strenthening of RBMP (3rd DRMBP & 2nd DFRMP) according to the EU WFD;
- stronger link with EC and support with the preparation of drought related policy or other regional policy (EUSDR)
- get more info at www.interreg-danube.eu/dridanube

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Thank you for your attention

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