SOUTH EAST EUROPE
Transnational Cooperation Programme

DMCSEE
Drought Management Centre for Southeastern Europe

Programme co-funded by the EUROPEAN UNION

# Drought Management Centre for Southeastern Europe
# DMCSEE

Jointly for our common future

# Drought Management Centre for Southeastern Europe

# **Background**

DMCSEE initiative – "top-down" approach

October 2004: A "Balkan Drought Workshop" in Poiana/Brasov (RO), co-sponsored by the UNCCD

Outcome: establishment of a Working Group to formulate a proposal that identified the needs and further actions for laying the foundation of the Balkan Sub-regional Drought Management Centre.

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# DMCSEE Background

April 2006: "2nd technical workshop" in Sofia (BG)

Participants: UNCCD focal points, permanent representatives with the WMO + observers from UNCCD and WMO

Outcomes:

1) Framework for the preparation of a project proposal on the establishment of a Drought Management Centre for South-Eastern Europe (DMCSEE) within the context of the UNCCD,

1) Further steps towards the establishment of DMCSEE.

2) Decision on DMCSEE host (September 2006)

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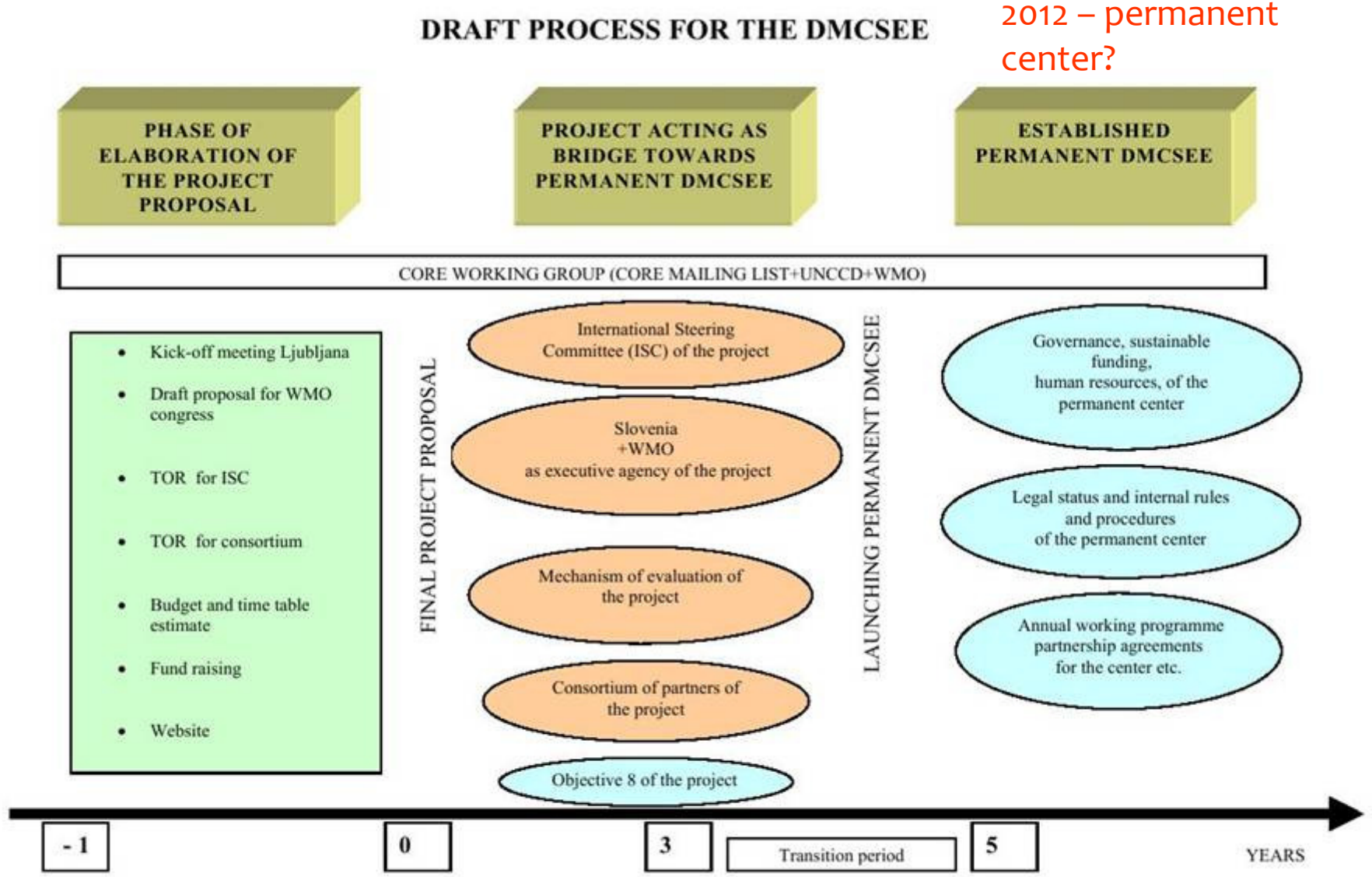
2012 – permanent center?



# DMCSEE – TCP-SEE project

15 partners from 9 countries

Total project budget 2.2 M€

Not all countries participate!

(not all countries are eligible)

| | |
|---|---|
| Environmental Agency of Slovenia | Slovenia |
| Slovenian Institute of Hop Research and Brewing | Slovenia |
| Hungarian Meteorological Service | Hungary |
| VITUKI Environmental Protection and Water Management Research Institute | Hungary |
| Directorate for Environmental Protection and Water Management of Lower Tisza District | Hungary |
| Institute of Soil Science "Nikola Poushkarov" | Bulgaria |
| National Institute of Meteorology and Hydrology | Bulgaria |
| Agricultural university of Athens | Greece |
| GEORAMA (non-governmental and non-profit organization) | Greece |
| Meteorological and Hydrological Service | Croatia |
| Republic Hydrometeorological Service of Serbia | Serbia |
| Hydrometeorological Institute of Montenegro | Montenegro |
| Hydrometeorological Service | FYROM |
| Institute for Energy, Water and Environment | Albania |

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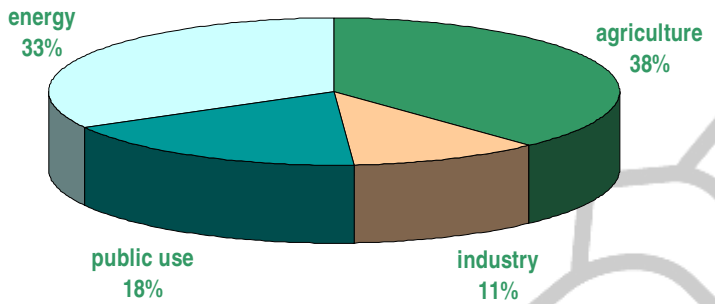
# DMCSEE – TCP-SEE project

## Water use in agriculture

southern European countries have the highest water use for irrigation. It represents around **78 %** of the total abstraction in southern Accession Countries and 80 % of their consumptive uses, and 51 % of the total abstraction in southwestern European countries which represents around 65 % of their consumptive uses.

Europe

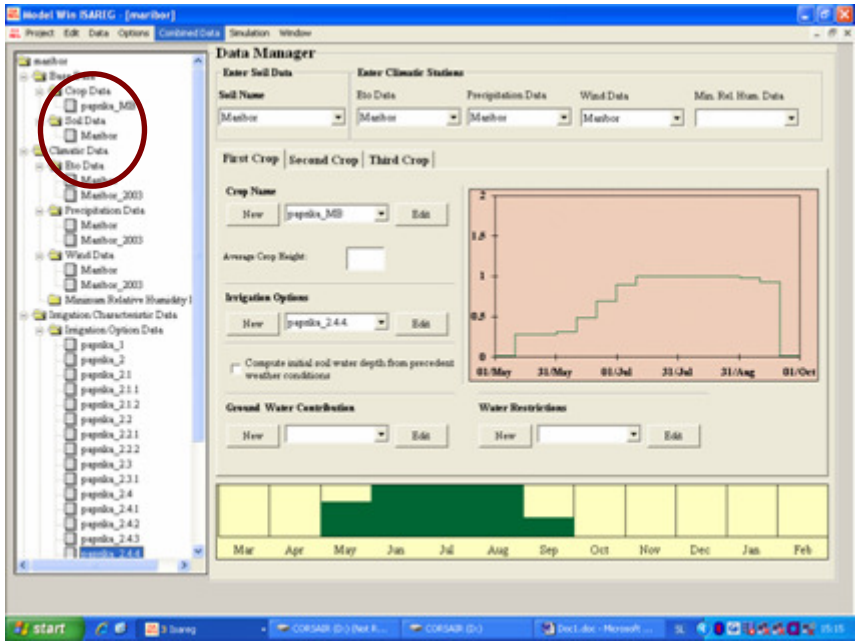


# Practical experience with crop-water balance model WinIsareg

## Irrigation scheduling

***Why using WinIsareg (Pereira et al, 2003)?***

- soils divided into several layers;
- large selection of irrigation methods;
- results: variety of data




- **problems with data**

**CROP DATA**

dates of phenological stages

**SOIL DATA**

data for different soil layers

**CLIMATOLOGICAL DATA**

humidity, wind, sunshine…

**Etp:** in Slovenia we will use Penman-Monteith metod

# DMCSEE – TCP-SEE project

**Foreseen outcomes of the TCP project**

## Regional implementation of the Standardized Precipitation Index

**A statistical method for processing precipitation data; fits the data to local distribution**

**SPI is independent of both the location and the range of values**

- > different seasons and climate areas are represented on an equal basis.

***SPI represents number of standard deviations from mean***

| SPI | Classification | Probability (%) |
|---|---|---|
| 2.00 > | Extremely wet | 2.3 |
| 1.50 to 1.99 | Very wet | 4.4 |
| 1.00 to 1.49 | Moderately wet | 9.2 |
| 0 to 0.99 | Mildly wet | 34.1 |
| 0 to -0.99 | Mild drought | 34.1 |
| -1 to -1.49 | Moderate drought | 9.2 |
| -1.50 to -1.99 | Severe drought | 4.4 |
| -2.00 < | Extreme drought | 2.3 |

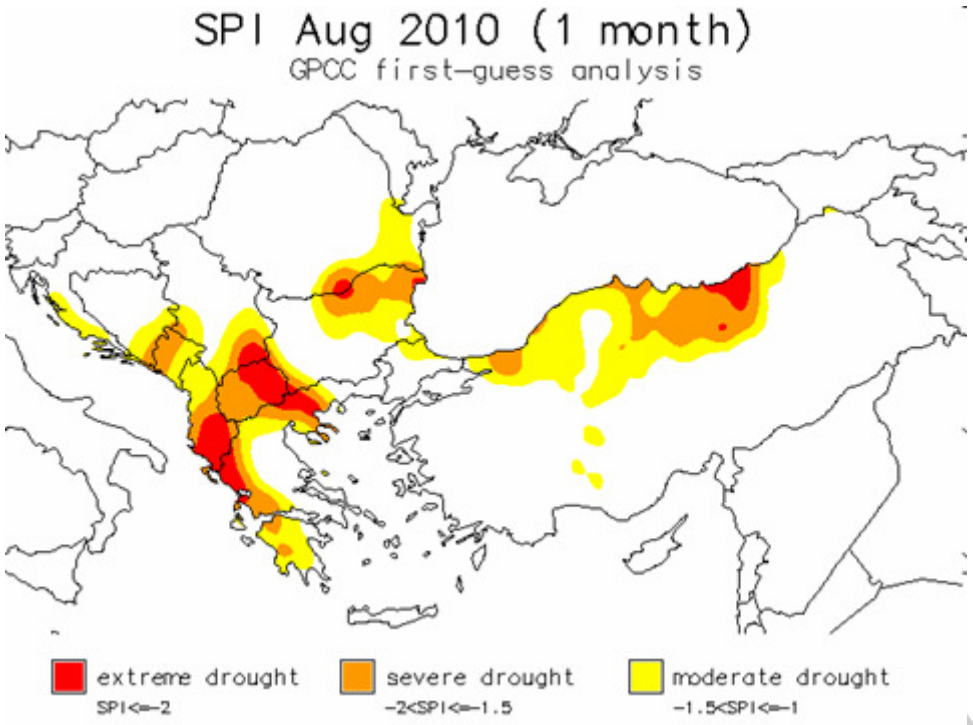
# SPI – regional reference index

**SPI maps**

- **Global gridded data sets**
- **Global station data sets**

- **Local calculation/distribution - > close collaboration with NHMSs**

www.dmcsee.org

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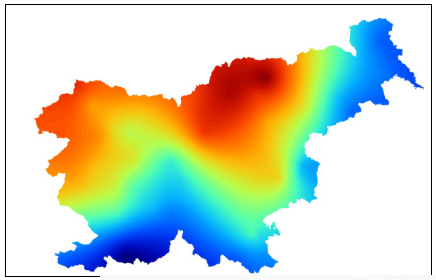
# DMCSEE – TCP-SEE project

## From regional to local implementation

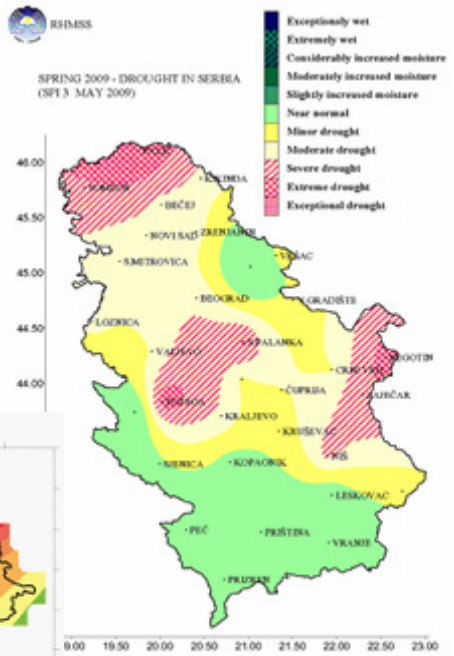
**Step 1 Calculation of SPI**

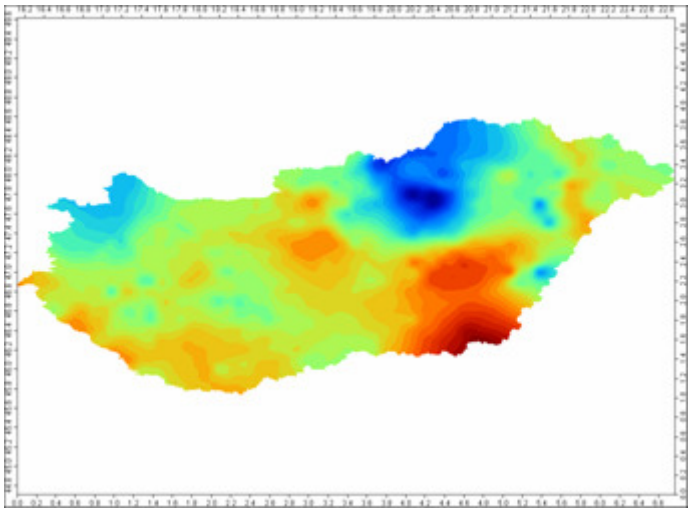
**Stpe 2 Mapping of SPI**

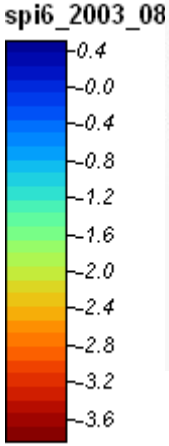
**Step 3 Dissemination**

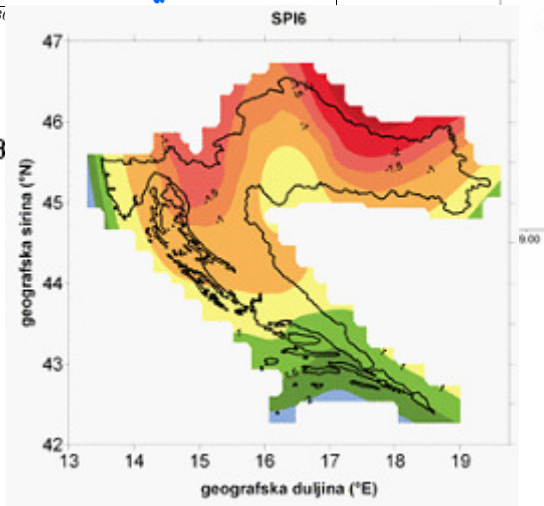


Map for SPI3 (3



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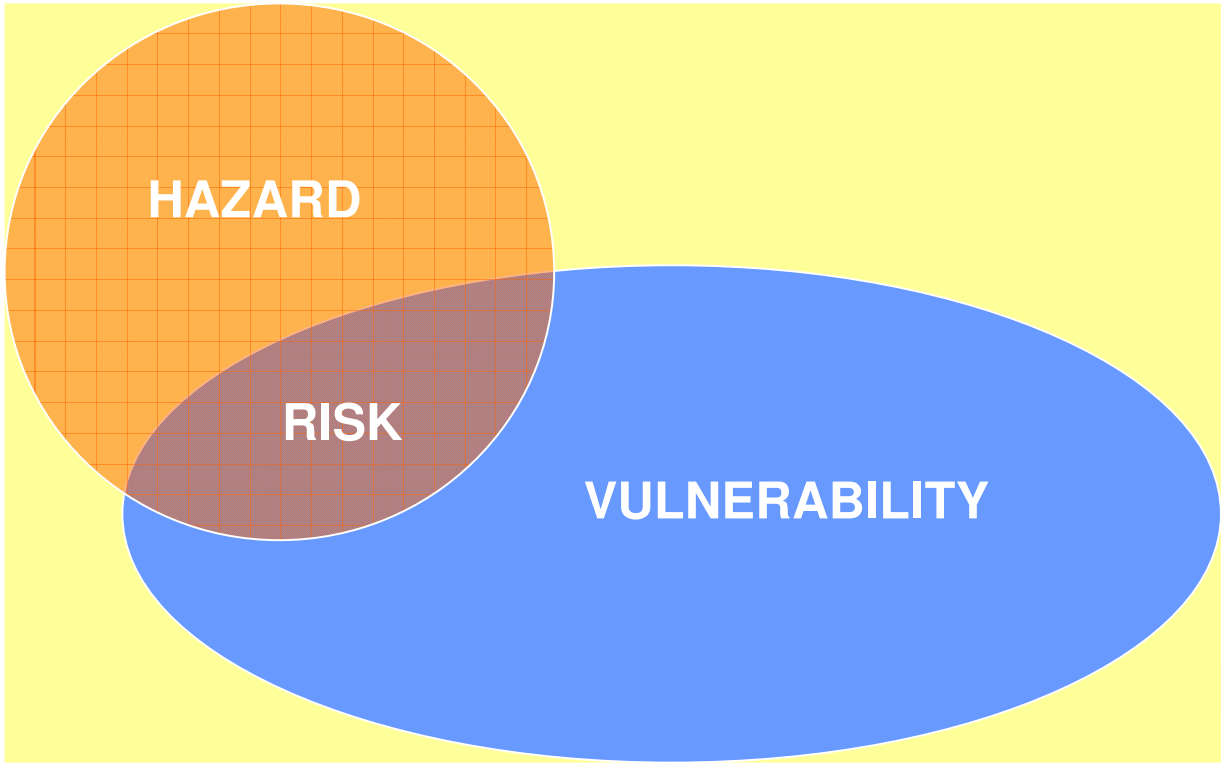
# DMCSEE – TCP-SEE project

**Foreseen outcomes of the TCP project**

## Overview of existing procedures for climatological mapping

**risk = hazard x vulnerability**




Both, natural hazard due to climate variability, and more subjective vulnerability, cause risk of drought impacts

common future

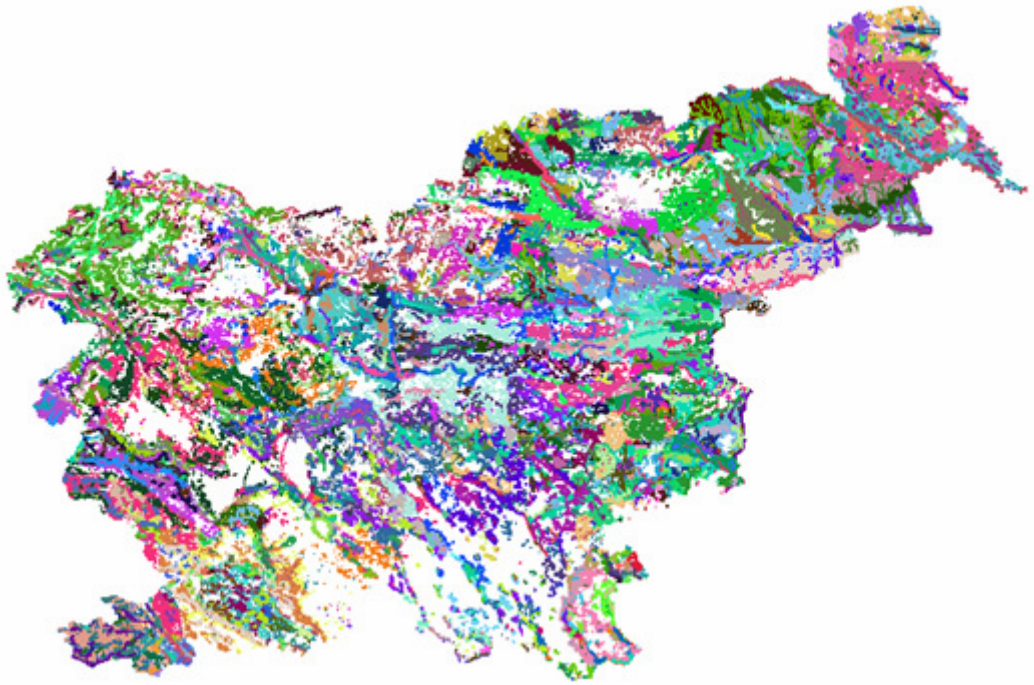
(Source: MEDROPLAN)

# DMCSEE – TCP-SEE project

## Modelling vulnerability

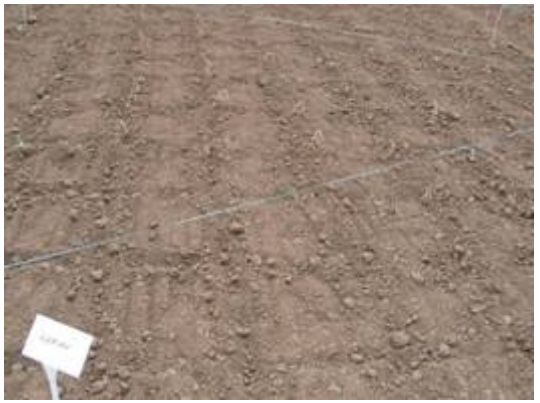
Factors that increase vulnerability in agriculture:

- **soil water holding capacity**
- terrain slope and aspect
- land use / land cover
- access to irrigation infrastructure



# Concept of risk

**Impact data**



Data of crop yield losses – historical data (bulletins, agricultural reports...)

- > preparation of SE regional drought impacts data base

| TIME PERIOD | MAIN AREAS AFFECTED | DETAILED MAIN AREAS AFFECTED DESCRIPTION | SUBJECT OF IMPACT | DROUGHT IMPACTS |
|---|---|---|---|---|
| 2. decade/11.-20.4. | | | winter crops | mild |
| 2. decade/11.-20.4. | W | Primorska region | | soil cultivation hindered |
| 3. decade/21.-30.4. | | | summer crops (sugar beet) | severe |
| 2. decade/11.-20.5. | NE | NE | winter crops (wheat) | mild |
| 2. decade/11.-20.5. | not specified | not specified | summer crops | mild |
| 2. decade/11.-20.5. | not specified | not specified | dried soil | herbicide application hindered |
| 2. decade/11.-20.6. | W | Primorska region | dried soil | dried soil |
| 2. decade/11.-20.6. | W | Primorska region | vegetable crops, summer crops (maize) | mild |
| 1. decade/1.-10.8. | | | summer crops | severe |
| 2. decade/11.-20.8. | NE | NE | summer crops (sugar beet) | mild |
| 3. decade/21.-30.8. | NE | NE | summer crops (maize, sugar beet) | maize, sugar beet seriously affected |
| 3. decade/21.-30.8. | NE | NE | summer crops (maize) | severe |
| 3. decade/21.-30.8. | not specified | not specified | summer crops | mild |
| 3. decade/21.-30.8. | not specified | not specified | summer crops (maize) | yield reduced by 50% |

# Projekt EuroGEOSS in suša

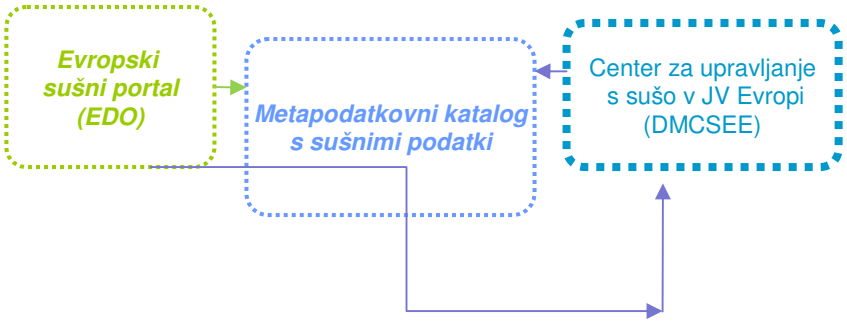
- raziskuje in določa medoperabilne dogovore in možnosti med sistemi za upravljanje s sušo v Evropi;
- gradi medoperabilnost med EDO ter nacionalnimi in regionalnimi sistemi za upravljanje s sušnimi podatki;
- omogoča več-disciplinarno raziskovanje tematskih področji EuroGEOSS-a;
- globalni dostop do evropskih sušnih informacij.

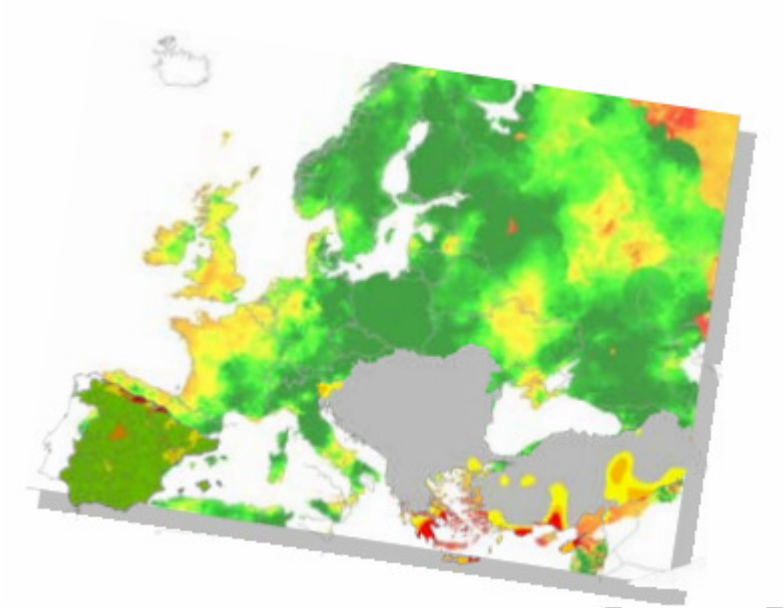
## Orodja:

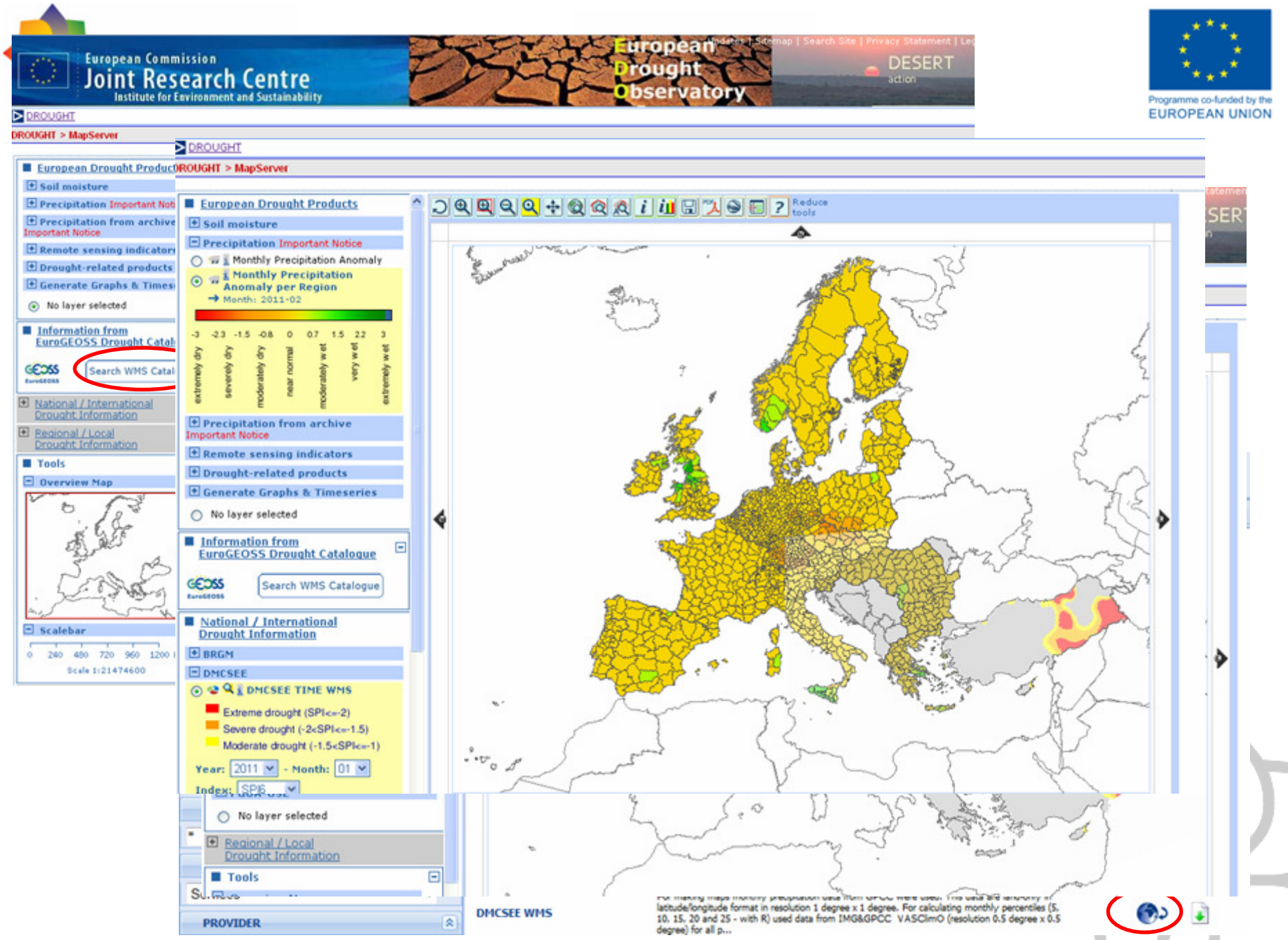
- za iskanje sušnih informacij,
- za dostop servisov s sušnimi podatki.

# EuroGEOSS - Rezultati

- vzpostavljena povezava med metapodatkovnim katalogom, EDO portalom in DMCSEE
- omogočeno iskanje metapodatkov in njihovo prikazovanje




European Commission
Joint Research Centre
Institute for Environment and Sustainability
European Drought Observatory
DESERT action
Programme co-funded by the EUROPEAN UNION
DROUGHT
DROUGHT > MapServer
European Drought Products
Soil moisture
Precipitation Important Notice
Monthly Precipitation Anomaly
Monthly Precipitation Anomaly per Region
Month: 2011-02
-3 -2.3 -1.5 -0.8 0 0.7 1.5 2.2 3
extremely dry
severely dry
moderately dry
near normal
moderately wet
very wet
extremely wet
Precipitation from archive
Important Notice
Remote sensing indicators
Drought-related products
Generate Graphs & Timeseries
No layer selected
Information from EuroGEOSS Drought Catalogue
Search WMS Catalogue
National / International Drought Information
BRGM
DMCSEE
DMCSEE TIME WMS
Extreme drought (SPI<=-2)
Severe drought (-2<SPI<=-1.5)
Moderate drought (-1.5<SPI<=-1)
Year: 2011 - Month: 01
Index: SPI6
Regional / Local Drought Information
Tools
Overview Map
Scalebar
0 240 480 720 960 1200
Scale 1:21474600
Reduce tools
DMCSEE WMS
PROVIDER

# Zaključki

EuroGEOSS medoperabilna arhitektura predstavlja trajnostni način povezovanja prostorsko ločenih operativnih sistemov.

Trajnostna komponenta se kaže v sposobnosti nadgradnje obstoječih operativnih sistemov in s tem povezanega napredka tako za stroko kot uporabnike.

Omogoča integracijo vseh vpletenih ustanov kar zagotavlja integrirano reševanje problema suš. Slednje zagotavlja ohranjanje ključnih naravnih virov kot sta voda in tla.