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

Introduction

Gregor Gregorič
Slovenian Environmental Agency

Jointly for our common future

DMCSEE Final Conference
14 – 15 May 2012

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Contents

Description of DMCSEE process

Introduction of the DMCSEE „TCP“ project

Introduction of the conference agenda

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DMCSEE Process

2004 **First initiative** – "top-down" approach

(International Commission on Irrigation and Drainage (ICID) adopted a declaration which expressed the need to establish this centre to alleviate problems caused by drought in the area "Balkan Drought Workshop" in Poiana/Brasov (RO), co-sponsored by the UNCCD)

2006 **Triangle approach**: UNCCD focal points, permanent representatives with the WMO + observers from UNCCD and WMO)

UNCCD United Nations Convention to Combat Desertification

World Meteorological Organization
Working together in weather, climate and water

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DMCSEE Process

2006 **Second technical workshop** for national experts and representatives of National Meteorological and Hydrological Services

The workshop was organized jointly by UNCCD and WMO in April 2006 in Sofia, Bulgaria, to discuss the establishment of a sub-regional drought centre in South-Eastern Europe within the context of the UNCCD.
Participants: UNCCD focal points and Permanent Representatives with the WMO from sub-region were invited.

Important outputs: **Framework for the preparation of a project proposal on the establishment of DMCSEE** and agreement on further steps towards the establishment

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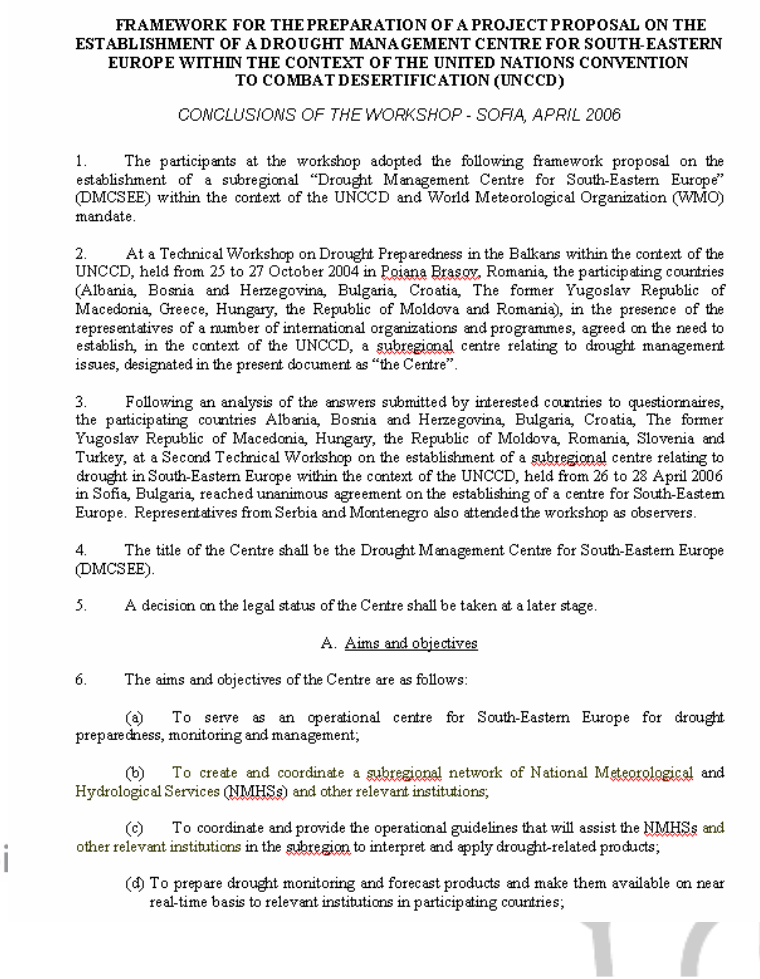
DMCSEE Process

"Framework document" is considered as founding document of the DMCSEE

- 9 "aims and objectives"
- 11 "core functions" of DMCSEE
- 18 "core tasks" of DMCSEE



FRAMEWORK FOR THE PREPARATION OF A PROJECT PROPOSAL ON THE ESTABLISHMENT OF A DROUGHT MANAGEMENT CENTRE FOR SOUTH-EASTERN EUROPE WITHIN THE CONTEXT OF THE UNITED NATIONS CONVENTION TO COMBAT DESERTIFICATION (UNCCD)

CONCLUSIONS OF THE WORKSHOP - SOFIA, APRIL 2006

1. The participants at the workshop adopted the following framework proposal on the establishment of a subregional "Drought Management Centre for South-Eastern Europe" (DMCSEE) within the context of the UNCCD and World Meteorological Organization (WMO) mandate.

2. At a Technical Workshop on Drought Preparedness in the Balkans within the context of the UNCCD, held from 25 to 27 October 2004 in Poiana Brasov, Romania, the participating countries (Albania, Bosnia and Herzegovina, Bulgaria, Croatia, The former Yugoslav Republic of Macedonia, Greece, Hungary, the Republic of Moldova and Romania), in the presence of the representatives of a number of international organizations and programmes, agreed on the need to establish, in the context of the UNCCD, a subregional centre relating to drought management issues, designated in the present document as "the Centre".

3. Following an analysis of the answers submitted by interested countries to questionnaires, the participating countries Albania, Bosnia and Herzegovina, Bulgaria, Croatia, The former Yugoslav Republic of Macedonia, Hungary, the Republic of Moldova, Romania, Slovenia and Turkey, at a Second Technical Workshop on the establishment of a subregional centre relating to drought in South-Eastern Europe within the context of the UNCCD, held from 26 to 28 April 2006 in Sofia, Bulgaria, reached unanimous agreement on the establishing of a centre for South-Eastern Europe. Representatives from Serbia and Montenegro also attended the workshop as observers.

4. The title of the Centre shall be the Drought Management Centre for South-Eastern Europe (DMCSEE).

5. A decision on the legal status of the Centre shall be taken at a later stage.

A. Aims and objectives

6. The aims and objectives of the Centre are as follows:

(a) To serve as an operational centre for South-Eastern Europe for drought preparedness, monitoring and management;

(b) To create and coordinate a subregional network of National Meteorological and Hydrological Services (NMHSs) and other relevant institutions;

(c) To coordinate and provide the operational guidelines that will assist the NMHSs and other relevant institutions in the subregion to interpret and apply drought-related products;

(d) To prepare drought monitoring and forecast products and make them available on near real-time basis to relevant institutions in participating countries;

DMCSEE Process

2006 **Decision on DMCSEE host institution** (procedure led by WMO).

Slovenian Environmental Agency is executing DMCSEE tasks

2007 **Political commitment of Slovenian government** (permanent budget for the governance).

DMCSEE Kick-off meeting

Adoption of **project proposal document**, prepared with assistance of WMO

2008 First ISC Meeting, adoption of ISC Terms of reference. Cooperation with Joint Research Centre

2009 Start of the **DMCSEE "bridging" project in framework of Transnational cooperation programme** (TCP).

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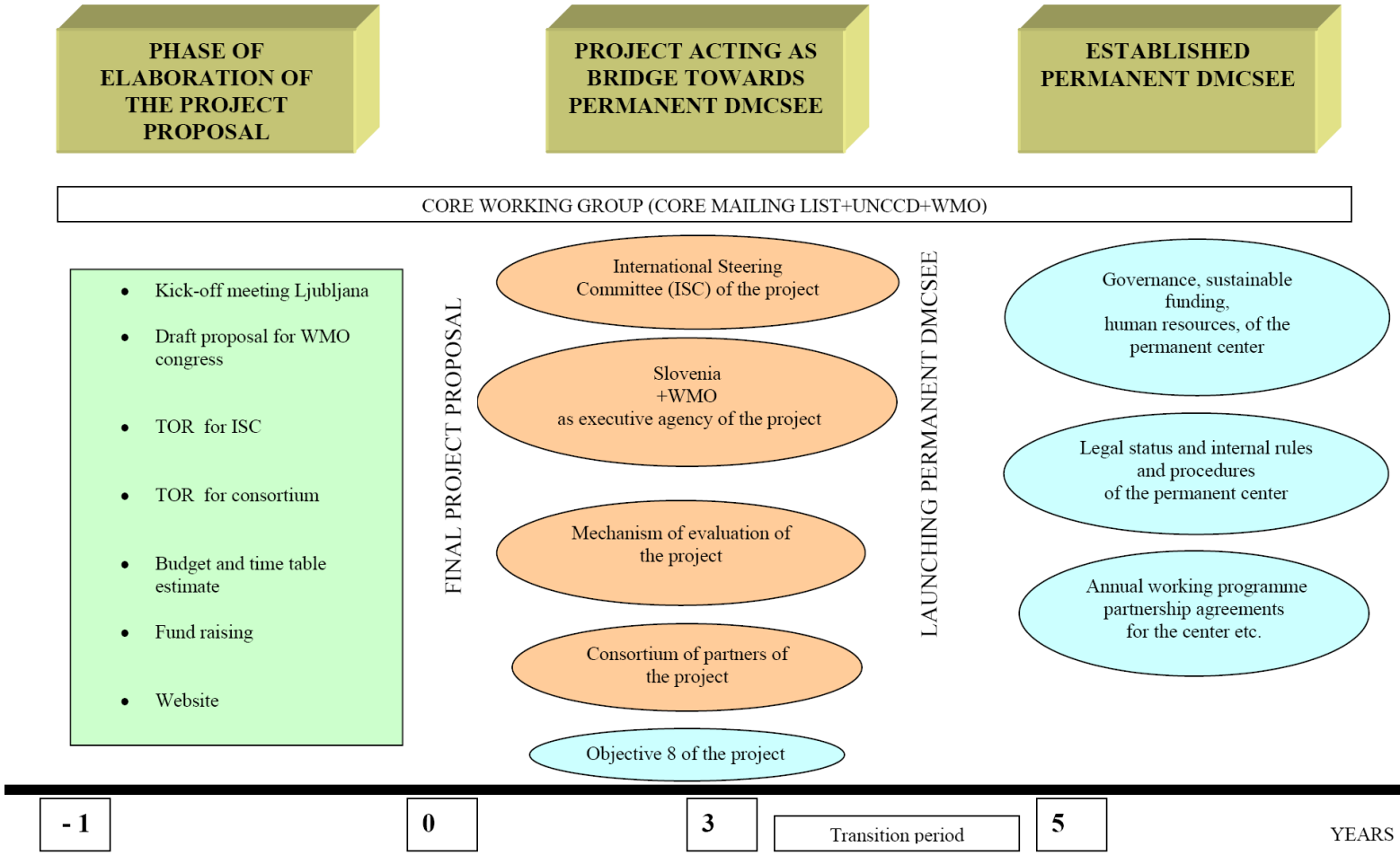
DMCSEE Process



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DMCSEE TCP project

Most suitable project framework was found to be
Transnational Cooperation Programme (TCP) for SE Europe
www.southeast-europe.net

(application to call for project was supported by ISC during 2nd meeting)

Main aim of transnational cooperation programme is to foster a balanced territorial development and territorial integration within the cooperation area
-> common infrastructure, not research!

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DMCSEE TCP project

15 partners from 9 countries

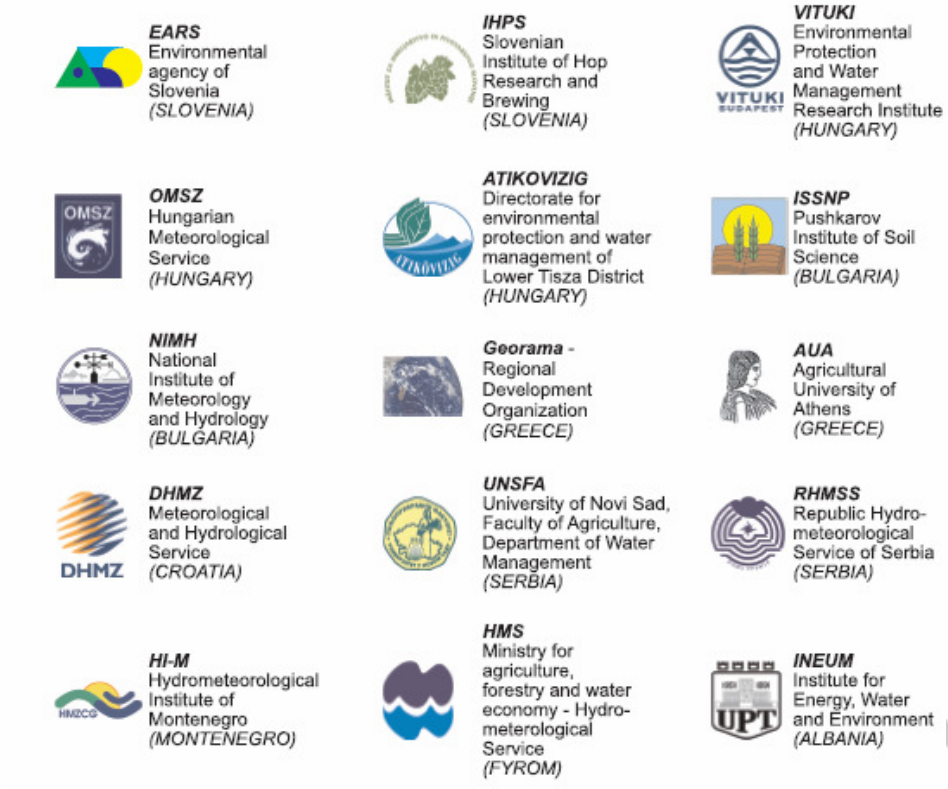
Total project budget 2.1 M€

Start: March 2009

End: May 2012

Not all countries participate!

(not all countries were eligible)



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Project work packages

WP3 – Monitoring and mapping system

- Assessment of existing institutional and technical capacity for effective drought monitoring and early warning system.
- Implementation of drought indices: Standardized Precipitation Index (SPI), Palmer Drought Severity Index (PDSI) Palfai Aridity Index (PAI) and others.
- Irrigation scheduling system implemented to assess watering needs of crops
- Development of software to detect snow cover.

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Project work packages

1st Training on climatological practices-
CLIMATOLOGICAL HOMOGENIZATION AND INTERPOLATION METHODS
Budapest, 5. – 10. February 2010

Lecturers:

Olivier Mestre, Meteo-France; lecture on homogenization as technique for elimination of features in data series that are not connected to climate

Mojca Dolinar, EARS; lecture on standard applications of geostatistics for spatial interpolation of climatological and drought monitoring data

Project work packages

1st Training on climatological practices- CLIMATOLOGICAL HOMOGENIZATION AND INTERPOLATION METHODS

Lecturers (continued):

Reinhardt Schiemann, Meteo Swiss; lecture on advanced geophysical applications for complex terrain

Tamas Szentimrey, OMSZ; lecture on MISH software, available in Hungarian met. Service (OMSZ) for statistical interpolation with use of past data;

Gregor Gregorič, EARS; lecture on application of open-source GIS software SAGA for SPI interpolation.

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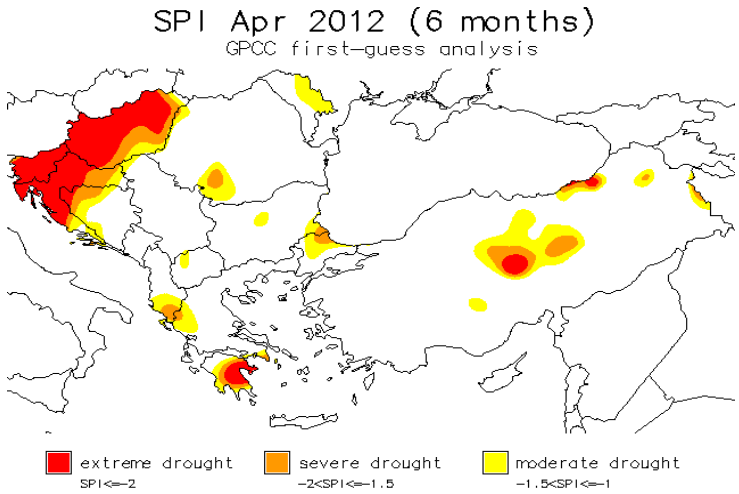
Project work packages

Result:
regional and local implementation of Standard Precipitation Index



Tuesday, 9:30

Drought Monitoring Process and DMCSEE solutions

Gregor Gregorič,

Slovene Environmental Agency

Regional implementation of Palfai drought index

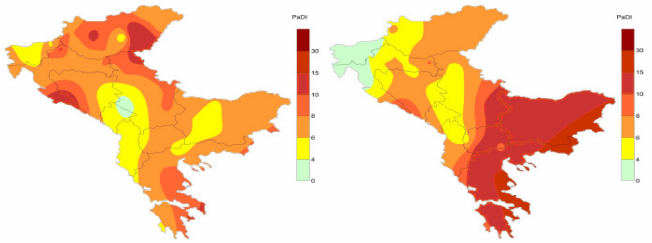


Fig. 15. Spatial distribution of PaDI in SEE region in 2003 and 2007

Tuesday, 11:30

Palfai drought index

Arpad Herceg, Lower Tisa water authority, Szeged

Jointly fc

Project work packages

2nd Training on irrigation scheduling systems
Ljubljana, 7th – 11th June 2010

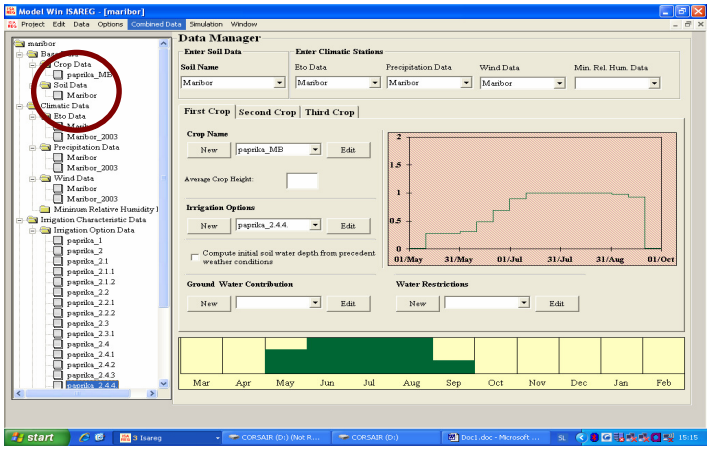
Lectures:
Prof. Luis Pereira, dr. Paula Paredes, Technical University of Lisbon

- Irrigation Demand management as drought mitigation measure
- Introduction to ISAREG model

Project work packages

Wisareg model (Pereira et al, 2003)

Irrigation scheduling tool
large selection of irrigation methods;
soils divided into several layers;
results: variety of data



Data requirements

CROP DATA

dates of phenological stages

SOIL DATA

data for different soil layers

CLIMATOLOGICAL DATA

humidity, wind, sunshine…

Etp and RR

Tuesday, 10:15

Risk Assessment of Drought in Agriculture, Irrigation Management and Drought Monitoring through Simulation Models

Prof. Zornitsa Popova,

Soil Science Institute, Sofia

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Project work packages

WP4 – Drought risk assessment

- A common methodology for drought assessment (based on available meteorological data and climatologic archives) will be developed and adopted.

Monday, 17:45

Drought Vulnerability and Risk Assessment in SE Europe

Prof. Christos Karavitis,

Agricultural University of Athens

3rd Training on Drought Risk Assessment
Nauplion, Greece, 22nd – 26th November 2010

Lessions learned:

How to prepare categorical drought vulnerability/sensitivity map based on natural factors (soil parameters, slope, aspect, groundwater depth, meteorological factors and land use)

Risk assessment based on multicriteria

Decision analysis

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Project work packages

WP4 – Drought risk assessment

- The impacts will be analyzed from the historical records.

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%

Tuesday, 12:00
Regional archive of past drought impacts
Prof. Christos Karavitis,
Agricultural University of Athens

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Project work packages

WP4 – Drought risk assessment

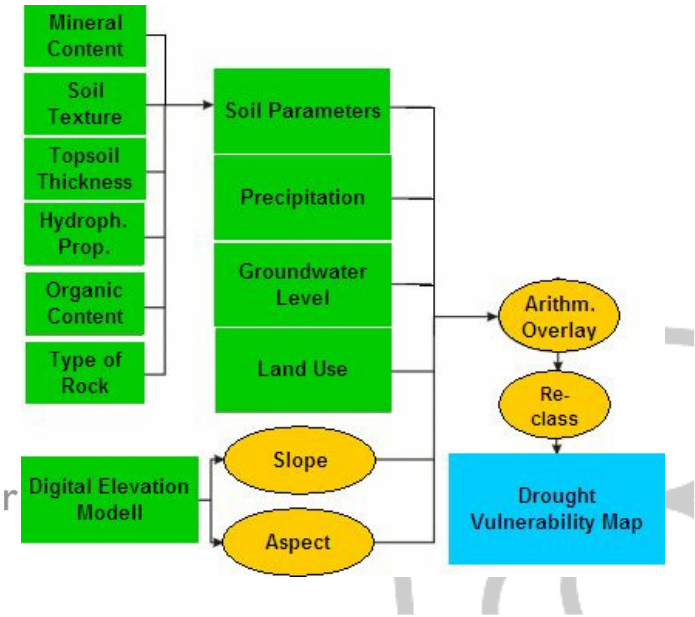
- The drought risk and drought vulnerability maps will be developed for the region using GIS techniques. All relevant impact factors (with available data layers) will be considered and appropriately weighted. Vulnerability will be categorized and visualized in relative scale in order to provide decision makers with essential basis for drought management policy options.

Tuesday, 12:30

Estimation and mapping of drought vulnerability on the basis of climate, land use and soil parameters using GIS technique

Andrea Móring

Hungarian Meteorological Service



Project work packages

WP4 – Drought risk assessment

- Drought vulnerability estimates based on simulations using crop-yield models

Tuesday, 10:15

Risk Assessment of Drought in Agriculture, Irrigation Management and Drought Monitoring through Simulation Models

Prof. Zornitsa Popova,

Soil Science Institute, Sofia

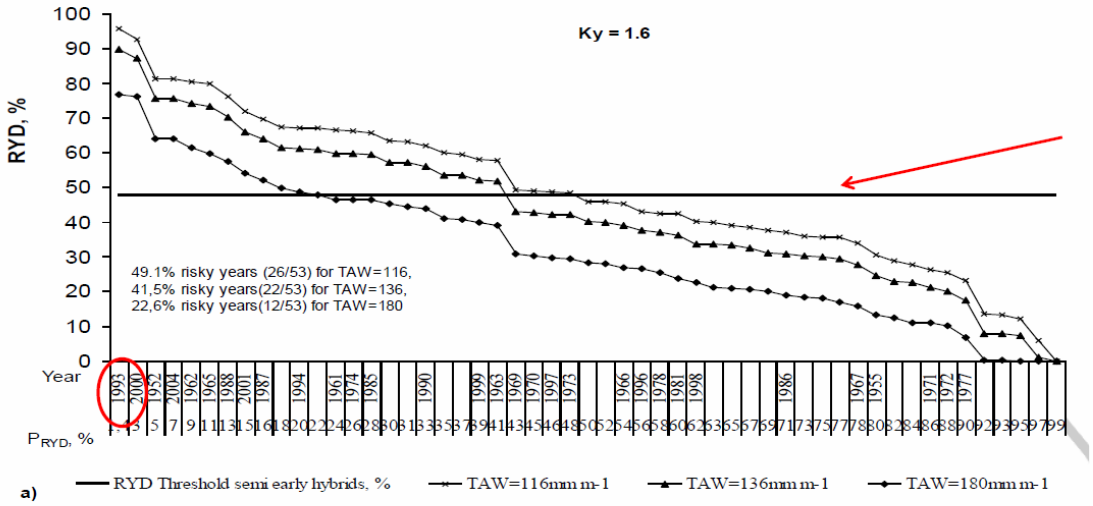


Fig.7. Probability exceedance curves of RYD under rainfed maize on the soil of small, medium and large water holding capacity TAW (116, 136, 180 mm m-1), Ky=1.6, at: (a) Sofia for a semi earlymaize hybrid 1951-2004.

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Project work packages

WP1 – Project Management

WP2 - Dissemination

- Establishment of GIS server for dissemination of georeferenced products
- Communication strategy, newsletters, web page www.dmcsee.eu

WP5 – Capacity building

- Trainings, manuals, national seminars

WP6 – Sustainable DMCSEE

- Appropriate legal personality, preparation of business plan, prioritization of tasks, policy recommendations -> round table discussion

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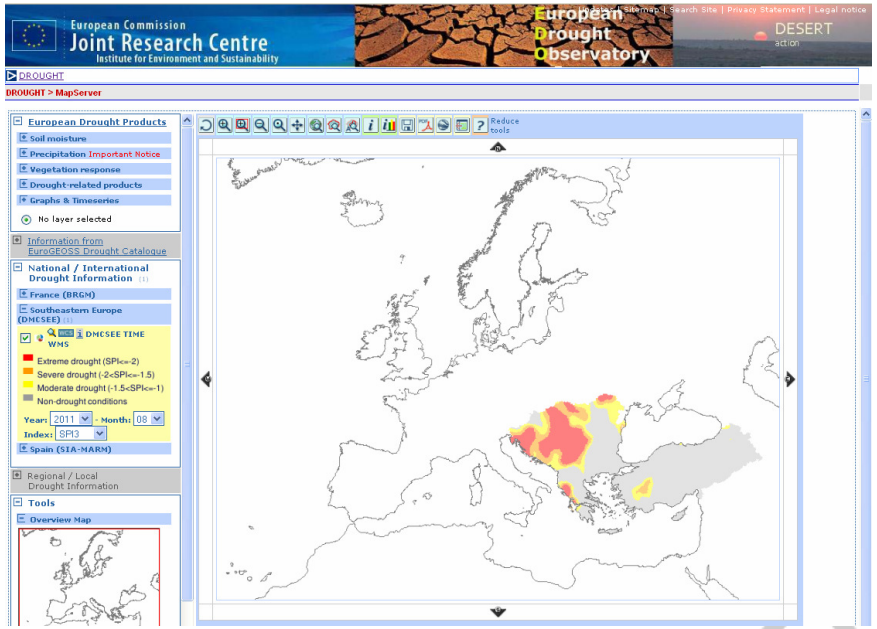
DMCSEE – Cooperation with Joint Research Centre

DMCSEE mapping service included in drought catalogue in European Drought Observatory

Currently, GPCC SPI and NWP water balance anomaly are included in EDO.

There is possibility to include local drought monituring products in global exchange!



Tuesday, 14:30

Drought monitoring and interoperability concept – the EuroGEOSS project

Andrej Ceglar

University of Ljubljana

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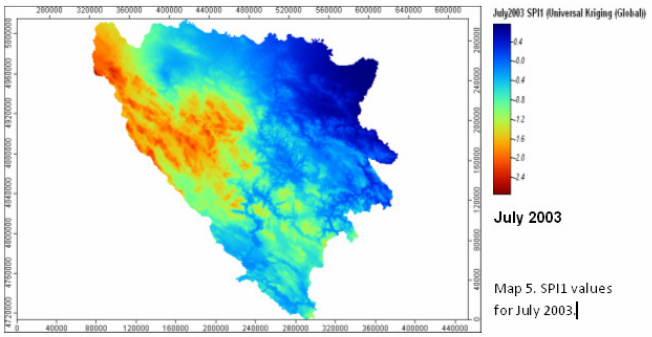
DMCSEE – Cooperation with WMO

Secondment of experts from Bosnia and Turkey to DMCSEE headquarters (WMO DRR/SEE project, task #4.3)

Mr. Enis Krečinić, Mr. Ayhen Erkan
September – December 2010

Focus: Application of GIS in drought monitoring (Reports submitted to WMO)



Map 5. SPI1 values for July 2003.

Monday, 15:45

WMO Drought Activities and Role of Drought Regional Centres

Jose Camacho

WMO