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

Gregor Gregorič

Environmental Agency of Slovenia

Jointly for our common future

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About DMCSEE

Chronology and Mandate

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

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**,

2) Further steps towards the establishment of DMCSEE

September 2006: Decision on DMCSEE host institution (procedure led by WMO as decided in Sofia).

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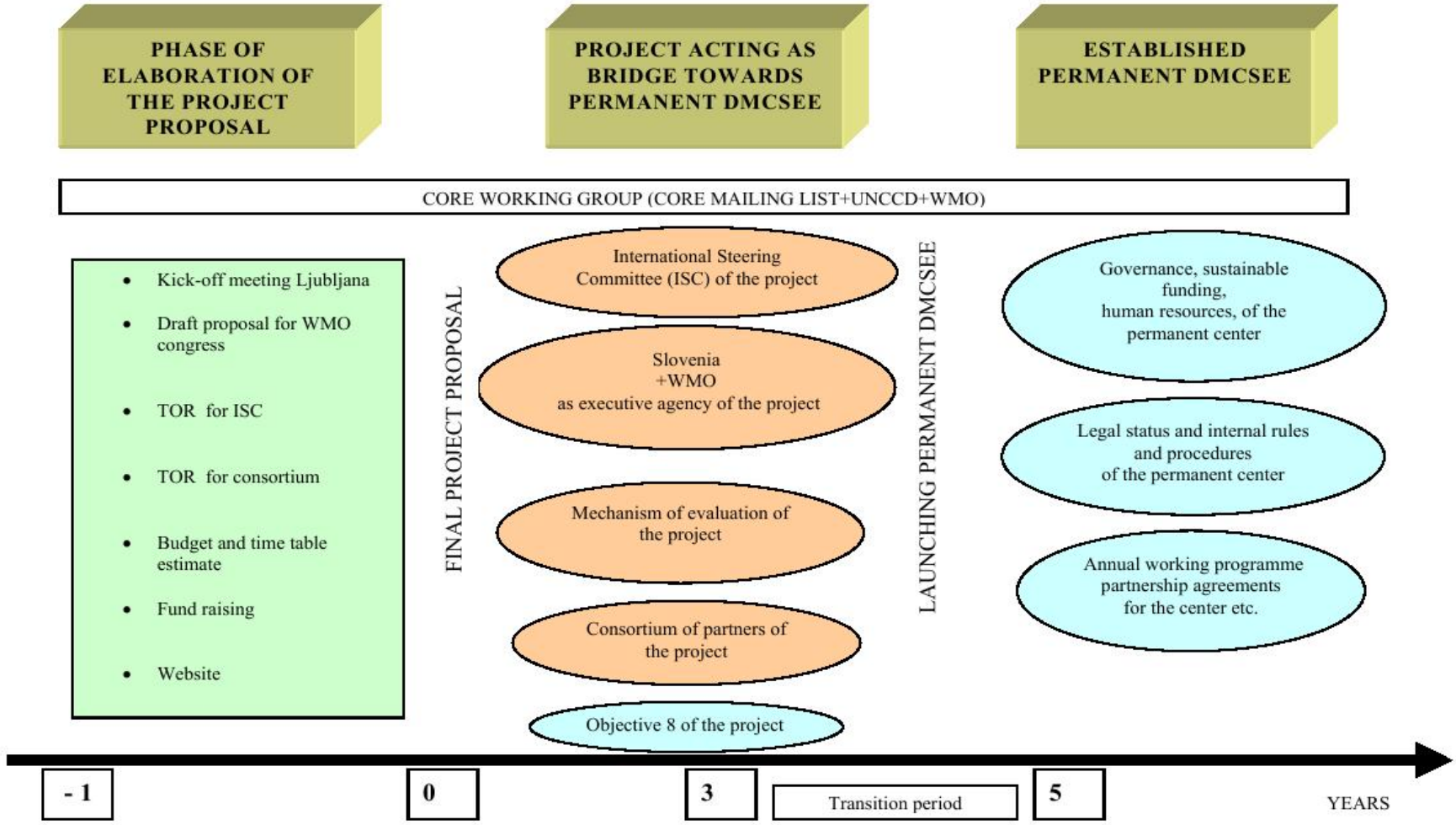
About DMCSEE

DMCSEE Stakeholders

- DMCSEE Consortium or Core contact group
  - UNCCD Focal Points
  - Permanent Representatives with the WMO
  - Designated drought researchers
- 13 Member countries
  - Albania
  - Bosnia and Herzegovina
  - Bulgaria
  - Croatia
  - FYROM
  - Greece
  - Hungary
  - Moldova
  - Romania
  - Slovenia
  - Turkey
  - Montenegro
  - Serbia

DRAFT PROCESS FOR THE DMCSEE



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Currently, DMCSEE is a TCP-SEE supported project!

15 partners from 9 countries

Total project budget 2.2 M€

Not all countries participate!

(not all countries are eligible;

See www.southeast-europe.net)

Environmental Agency of Slovenia	Slovenia	(lead partner)
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 – recent events

2nd meeting of DMCSEE TCP project consortium

1st Training on climatological practices

Budapest, 1st – 5th February 2010

Lessions learned:

How to interpolate point data and prepare maps of drought indices which can be exchanged and intercompared – this can potentialy be used for preparation of regional climatological and drought monitoring products

DMCSEE – recent events

2nd Training on irrigation scheduling systems

<u>Ljubljana, 7th – 11th June 2010</u>

Lectures:

<u>Prof. Luis Pereira, dr. Paula Paredes, Technical University of Lisbon</u>

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

<u>Lessions learned:</u>

How to use prepare meteorological data and use WinISAREG model to assess crop needs for irrigation and crop yield reduction in case of water stress

DMCSEE – recent events

4th meeting of DMCSEE TCP project consortium

3rd Training on Drought Risk Assessment

Nauplion, Greece, 22nd – 26th November 2010

→ DMCSEE TCP project – establishing regional services

Regional reference index?

Standardized precipitation index

World Meteorological Organization
Working together in weather, climate and water

Lincoln declaration on drought indices - 2009-12-30

….

Experts participating in the Inter-Regional Workshop on Indices and Early Warning Systems for Drought, held in Lincoln Dec. 8-11, made a significant step in agreeing that all National Meteorological and Hydrological Services around the world should use the Standardized Precipitation Index to characterize meteorological droughts.

….

SPI – regional reference index

DMCSEE TCP project

- **Calculation of SPI**
- **Mapping of SPI**

Partner's country	No. Of stations with SPI calculations
Bulgaria	329
Montenegro	77
FYROM	60
Greece	46 (more stations relocated)
Serbia	90
Slovenia	69
Albania	63
Hungary	177
Croatia	22 (real time)

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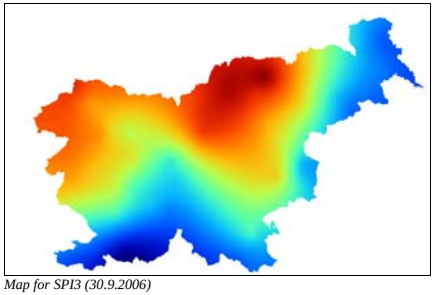
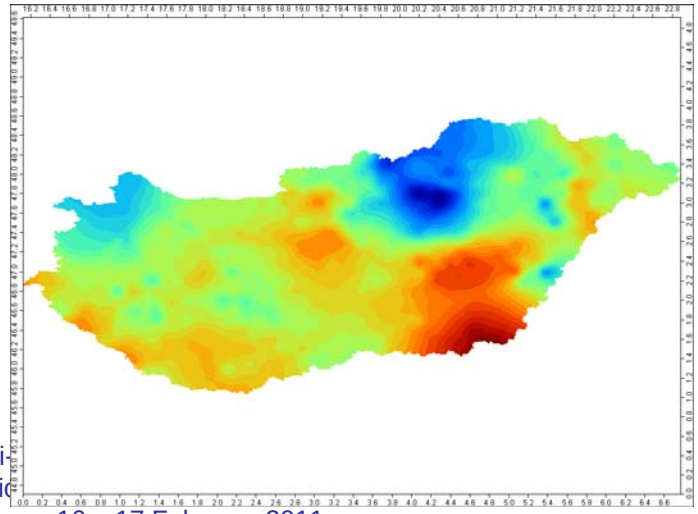
SPI – regional reference index

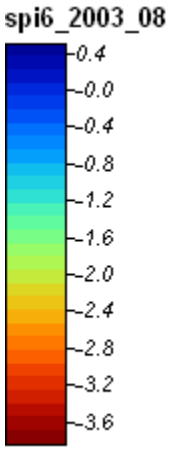
DMCSEE TCP project

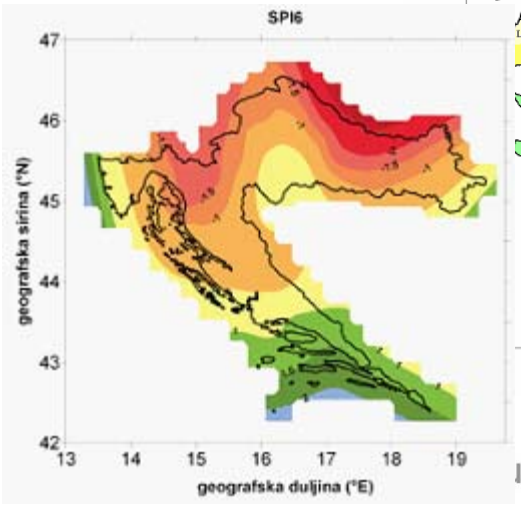
- **Calculation of SPI**
- **Mapping of SPI**

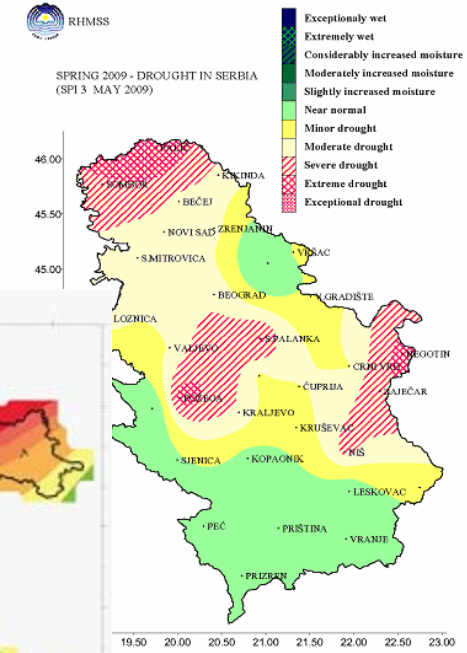


Map for SPI3 (30.9.2006)









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Aim: regional early warning system

www.dmcsee.org

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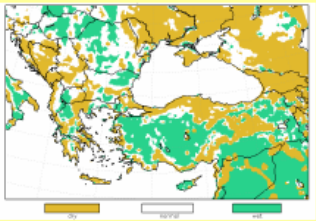
DROUGHT MONITORING BULLETIN

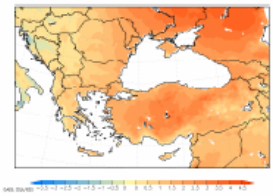
12th September 2010

Hot Spot

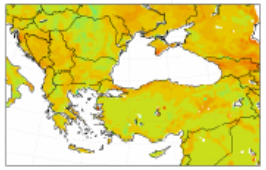


Numerical weather prediction model simulations for the time period 30 June - 7 September 2010 indicate dry conditions in parts of western and southern Balkan and relatively wet conditions in Carpathian region and Pannonian plain. Negative anomalies with respect to long term average (1989-2009) remained moderate, reaching negative values of 150mm. Situation has changed with respect to July conditions; some parts of the region became drier and warmer with respect to long term average.

Air temperatures and surface water balance



The comparison of air temperature for period 30. June – 7. September to long term average is presented in left figure. Temperatures generally exceed 20-year average; as during previous month, positive anomaly is increasing from western part of the region to eastern and south-eastern part where it exceeds 2 degrees. The gradient then continues towards southern Russia where positive temperature anomaly reaches 4 degrees.



Surface water balance (difference between precipitation and potential evapotranspiration) shows moderate negative anomalies for period 30. June – 7. September with respect to long term average (see left figure). Mainly in parts of the western Balkan negative anomalies in some regions reach -150mm. In other parts of the SE Europe region water balance remained close to (or exceeding) long term average.

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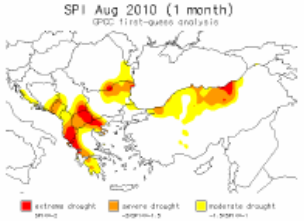
SPI Index



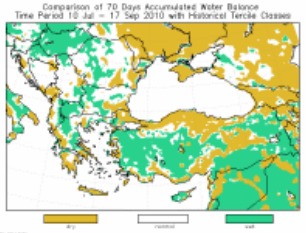
SPI index shows (in contrast with previous calculations) dry conditions in parts of southern Balkan and northern Turkey. Distinct regions with negative values can be observed only for accumulation period of 1 month. Due to short duration of dry conditions and favourable average conditions in 3 month and longer accumulation period, drought occurrence due to insufficient precipitation is not expected.

Impact reports

There are no drought impact reports originating from precipitation deficiency. Some reports indicate water shortages in small communities in Cycladic islands, originating from imbalance of water exploitation and supply.

http://www.ekathimerini.com/4dcgi/news/politics_1Kathi1ev&.xml/&aspKath/politics.asp&fdate=16/08/2010

Outlook



Situation is not expected to change significantly in middle of September. Western part of the region is expected to become colder and wetter. Surface water balance will remain close to long term average, temperatures are expected to be close or slightly above long term averages. Temperatures will remain above long term averages throughout most of the region.

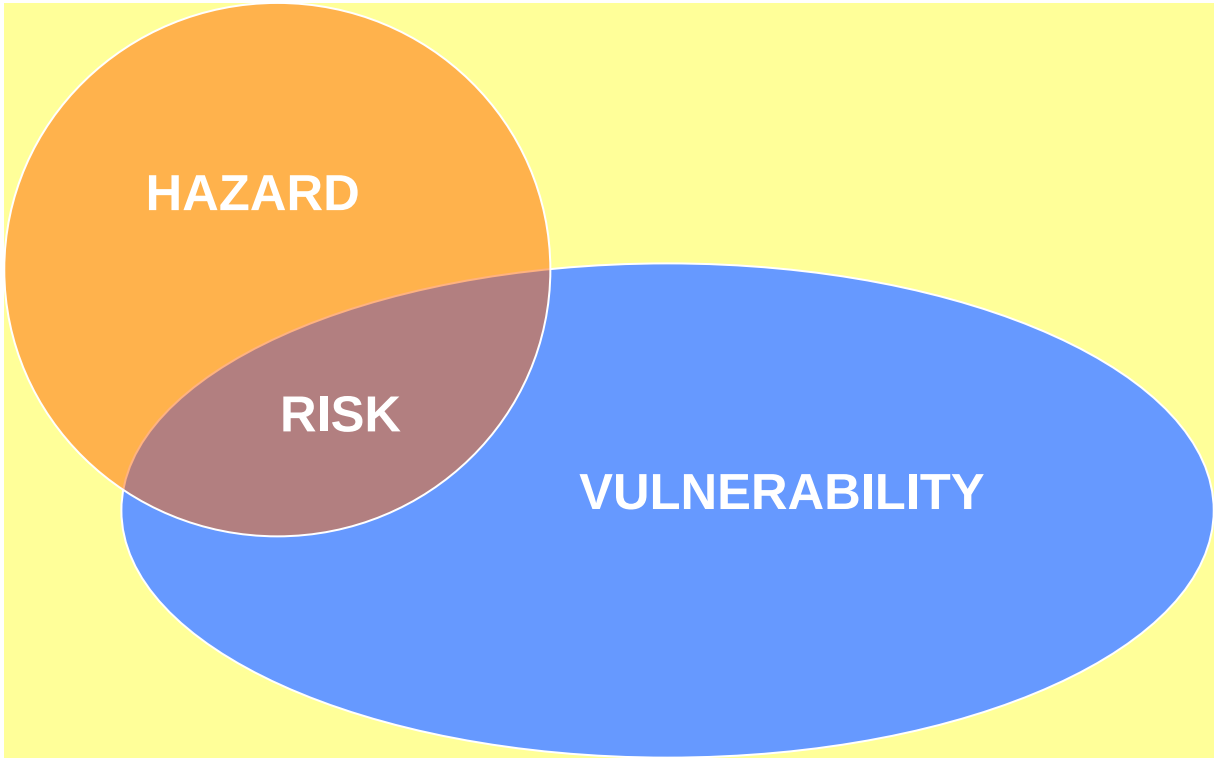
Methodology

Drought monitoring bulletin is based on numerical weather prediction (NWP) model simulations over SE Europe and SPI index calculations. Precipitation data is provided by Global Precipitation data Centre (GPCC, gpcc.dwd.de). NWP simulations are performed with Non-hydrostatical Meso-scale Model (NMM, see: http://www.dkrz.de/wrf-nmm/users/). Historical DMCSEE model climatology was computed with NMM model for time period between 1st January 1989 and 31st December 2009. European Center for Medium Weather Forecast (ECMWF) ERA-Interim data set (see: http://www.ecmwf.int/research/era/do/get/era-interim) was used as input data. Long term averages (1989 - 2009), used for comparison of current weather conditions, are obtained from this data set. For the current conditions, operational (truncated) ECMWF data set is used as input for simulations. Comparison of current values to long term averages provides signal on potential ongoing drought severity.

jointly

Concept of risk

risk = hazard x vulnerability



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

- > early warning is more than monitoring natural hazards!

(Source: MEDROPLAN)

Concept of risk

Impact data

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

- > preparation of regional impact data base

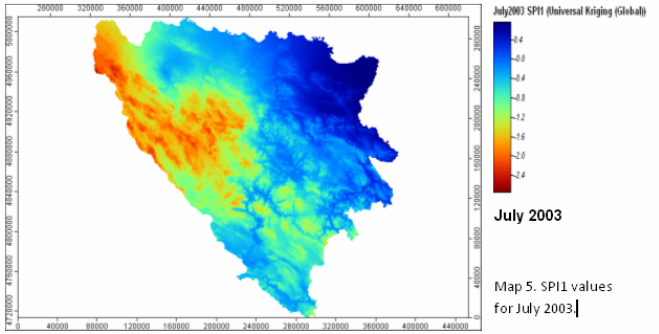
TIME PERIOD	MAIN AREAS AFFECTED	DETAILED MAIN AREAS AFFECTED DESCRIPTION	SUBJECT OF IMPACT	DROUGHT IMPACTS
2. decade/11.-20.4.			winter crops	mild
2. decade/11.-20.4.	W	Primorska region		soil cultivation hindered
3. decade/21.-30.4.			summer crops (sugar beet)	severe
2. decade/11.-20.5.	NE	NE	winter 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%

DMCSEE beyond the TCP project…

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

Mr. Enis Krečinić, Mr. Ayhen Erkan

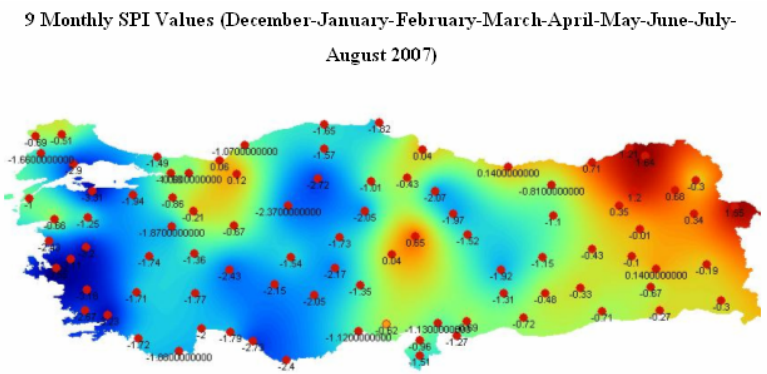
September – December 2010



Map 5. SPI1 values for July 2003.

Focus: Application of GIS in drought monitoring

(Reports submitted to WMO)



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DMCSEE key challenges

- Establishment of permanent DMCSEE office
- Performing regional services started with TCP project (EW, trainings)
- Collaboration with other relevant bodies
- JRC – European Drought Observatory – EuroGEOSS project !!!
- Involvment in project calls