

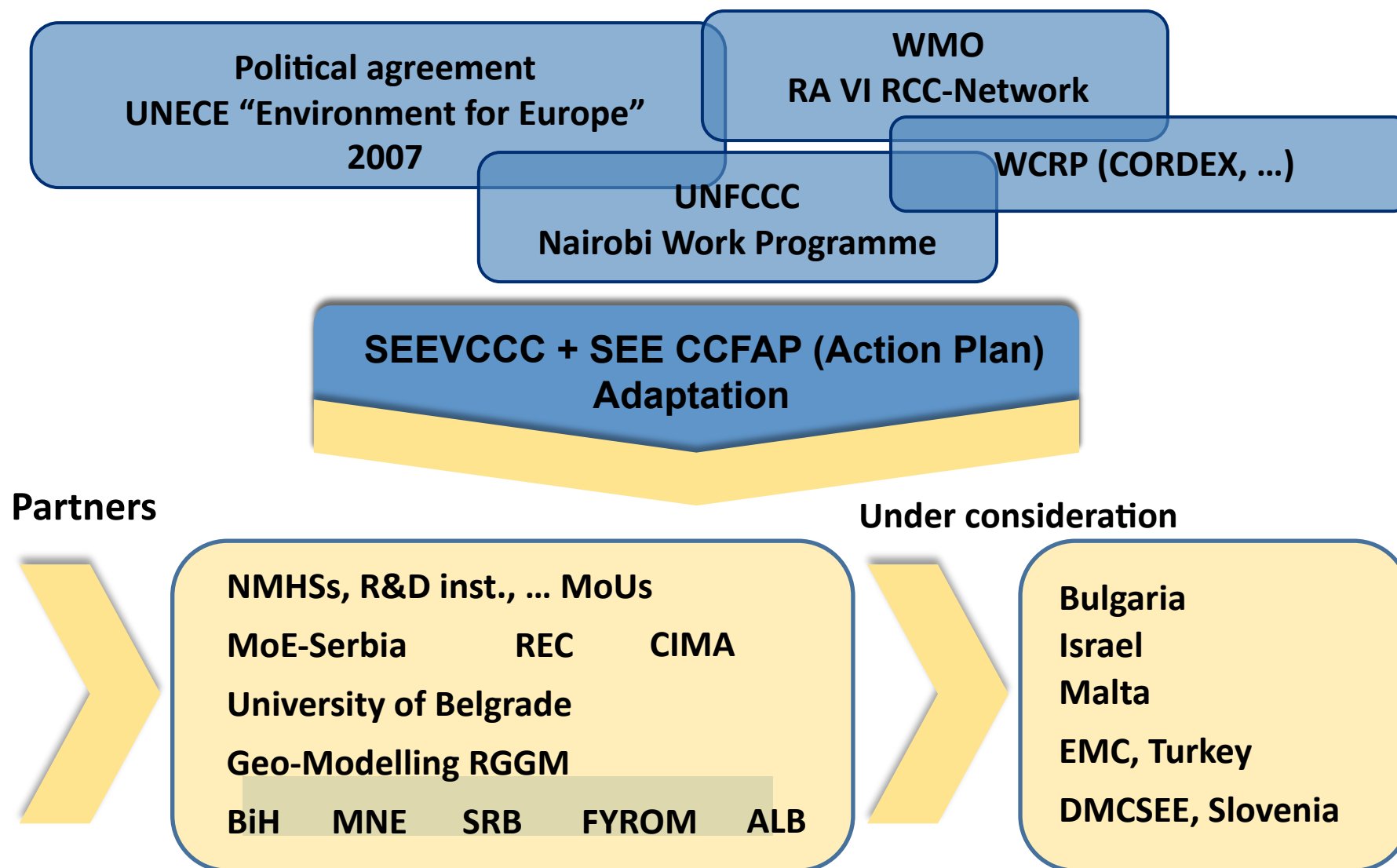
SEVCCC experience in providing climate services in South East Europe

Vladimir Djurdjevic

Institute of meteorology, Faculty of Physics

RHMSS/SEEVCCC

SEEVCCC Background - Enhancing sub-regional SEE cooperation in climate related issues



➡ **WMO RA VI-Europe
RCC functions**

WMO RA VI RCC-Network

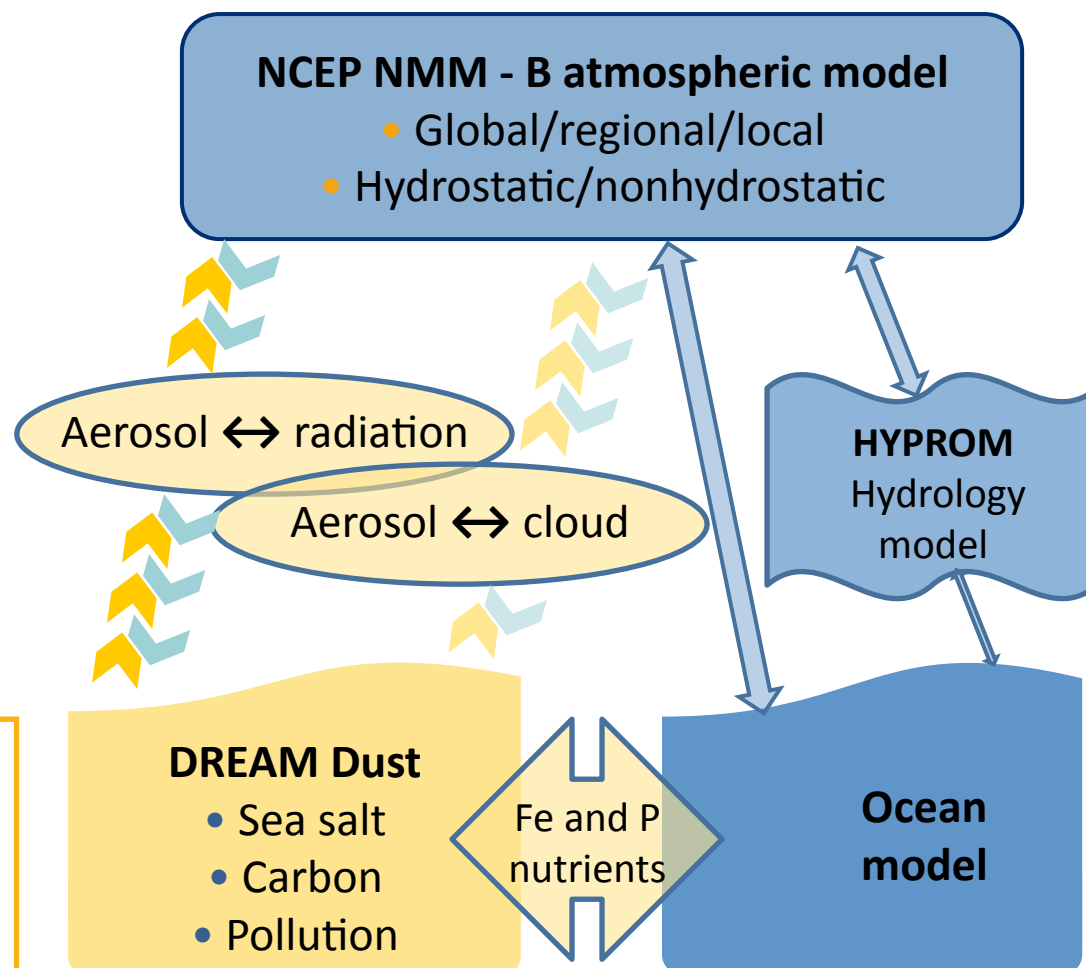
Implementation Plan
Pilot RA VI RCC Network Nodes

➡ Climate Data
Lead: KNMI/Netherlands
(SEEVCCC/RHMS-Serbia)

➡ Climate Monitoring
Lead: DWD/Germany
(SEEVCCC/RHMS-Serbia)

➡ LRF
**Lead: Météo-France &
ROSHYDROMET**
(SEEVCCC/RHMS-Serbia)

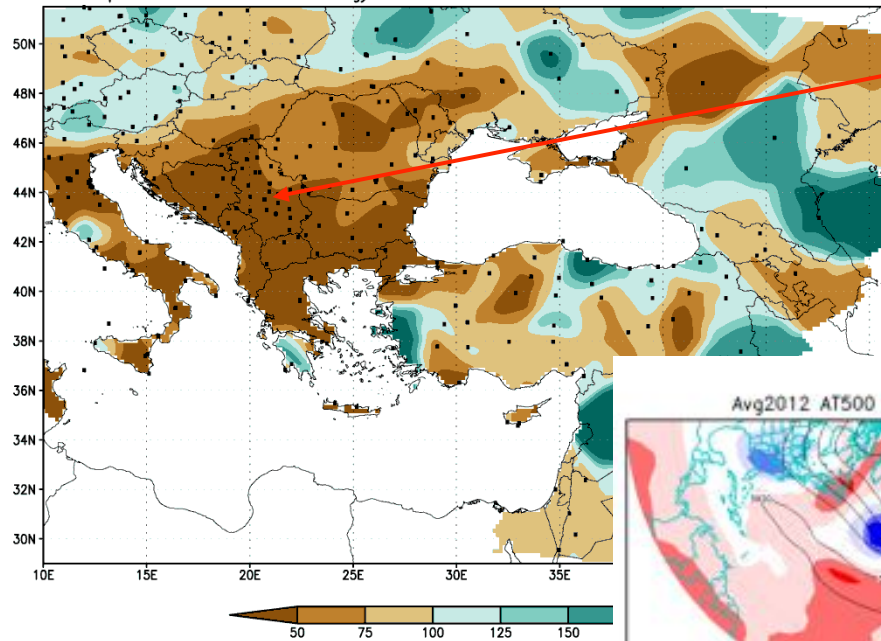
➡ **SEEVCCC Modeling framework**



Climate monitoring node – monthly/daily data

Monthly data available through *ECA&D* data base by the middle of the month - late

Climate monitoring: Precipitation (percent of normal) for JunJulAug 2012
with respect to 1961–1990 climatology

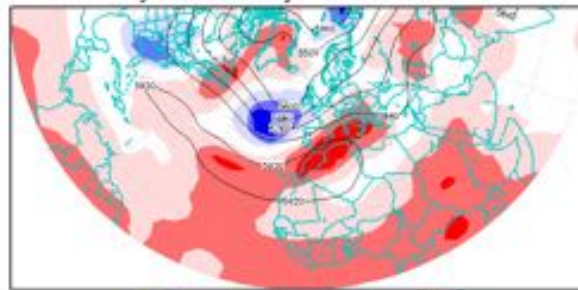


Rainfall deficiency in JJA 2012

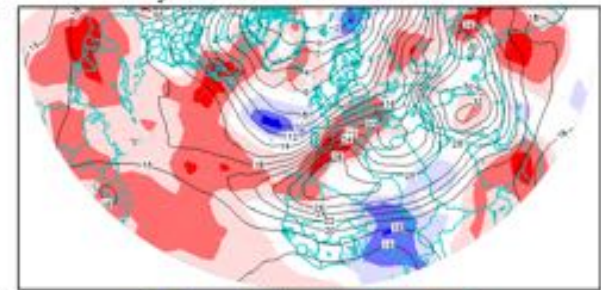
Reanalysis NCAR/NCEP

- Daily and monthly available
- Available at the beginning of the month

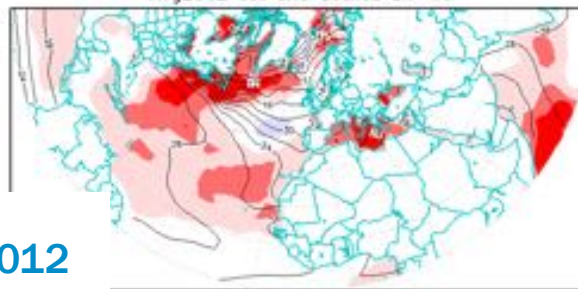
Avg2012 AT500 hgt and deciles 81–10



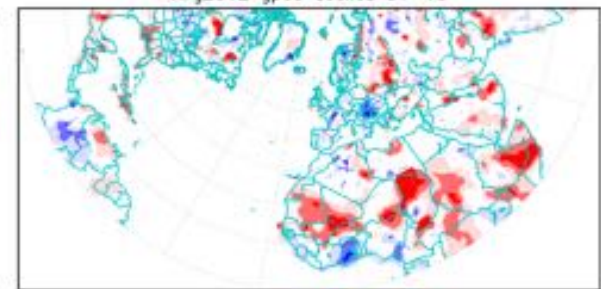
Avg2012 AT850 T and deciles 81–10



Avg2012 sst and deciles 81–10



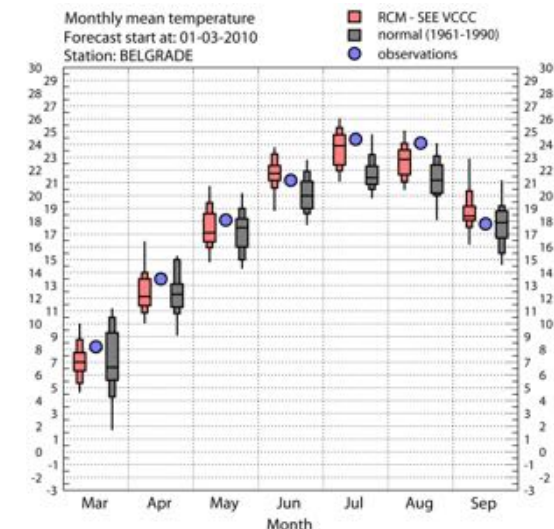
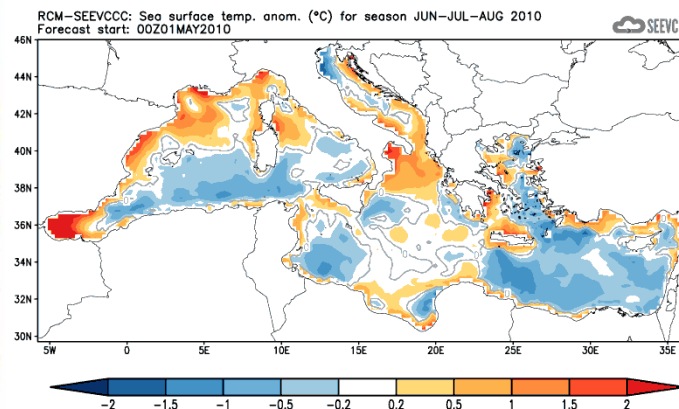
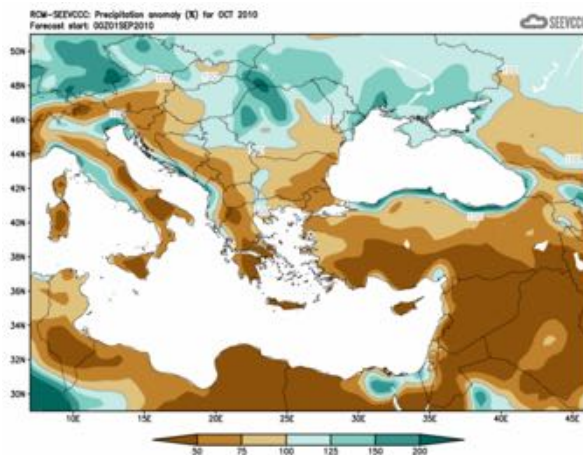
Avg2012 gpcc deciles 81–10



August 2012

Long Range Forecast / Seasonal forecast

- **Probabilistic forecast** provides statistical summary of the atmosphere and ocean state in forthcoming season.
- **RCM-SEEVCCC LRF** regional dynamical downscaling using fully coupled atmosphere-ocean Regional Climate Model
 - model start: 08th of each month; operational since June 2009.
 - forecast duration: 7 months
 - model resolution: ~35km atmosphere ; ~20km ocean
 - model domain: Euro - Mediterranean region extended towards Caspian Sea
 - 51 ensemble members
 - initial & boundary conditions: ECMWF, ~75km
 - winter hindcast (1981-2010) – December run, 7 months
 - operational forecast available in GRIB via WIS-DCPC-Belgrade



Climate Watch Advisory for SEE

CWS issued by SEEVCCC

Outlook

Within the first week (April 14th to 20th, 2014), ECMWF monthly forecast predicts above normal mean weekly air temperature, with anomaly up to +2°C over Balkans, south Caucasus and some parts of Turkey. Probability for exceeding upper tercile is around 70%, while in central Turkey and south Caucasus it is less confident. Precipitation deficit is expected in most part of the SEE region, with the highest probability, of around 80% for exceeding lower tercile over eastern Mediterranean.

During the second week (April 21st to 28th, 2014), above normal mean weekly temperature with anomaly up to +3°C is forecast for eastern part of SEE region. Probability for exceeding upper tercile is around 80%. Precipitation deficit is expected in central parts of Turkey, with probability for exceeding lower tercile is around 60%.

In the period from April 14th to May 11th 2014, above normal mean monthly temperature

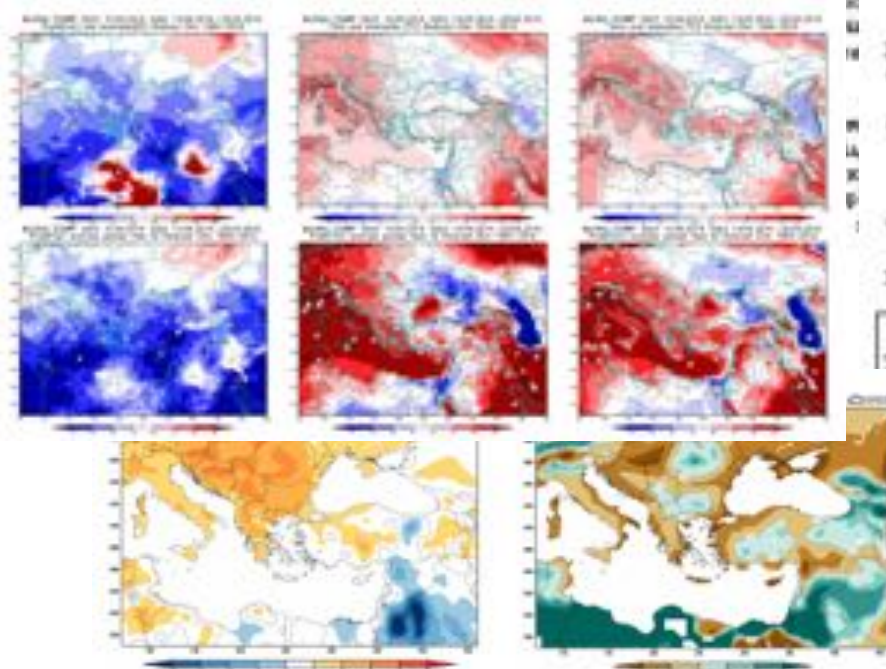


Figure 6. Mean seasonal temperature and precipitation anomaly for the season MJJ (seasonal outlook for RCM - SEEVCCC)

Climate Watch (Serial No.: 20141117-00)

Initial/Updated/Final

Topic: precipitation
Organization issuing
the statement:

SEEVCCC

Issued/ Amended/
Cancelled

17-11-2014 12:00 P.M.

Contact:

E-mail: seevccc@seevccc.rs

Phone: +381112006025

Fax: +381112006029

Valid from - to:

17-11 - 30-11-2014

Next assessment: 26-11-2014

Region of concern: South-Eastern Europe

„During the next week, precipitation surplus is expected along the Adriatic Sea coast, Bosnia, Moldova and south Caucasus. Probability for exceeding upper tercile is around 80%.”

Summary:

In the period from November 2nd to 15th, 2014 above normal air temperature, with anomaly up to +4°C, was registered in most of the SEE region. Weekly precipitation sums ranging from 25 mm to 200 mm were observed along Adriatic coast, western Greece and western Italy.

www.seevccc.rs/CWS

SEECOF and MEDCOF activity

http://www.wmo.int/pages/prog/wcp/wcas/clips/outlooks/climate_forecasts.html



SOUTH-EAST EUROPEAN CLIMATE OUTLOOK FORUM (SEECOF-16)
(22-23) November, 2016

**SEASONAL OUTLOOK FOR THE WINTER
SOUTH EASTERN EUROPE AND CAUCASUS**



**Step 3 of the
MEDITERRANEAN CLIMATE OUTLOOK FORUM (MedCOF-7)**
Last updated 23rd November 2016

**SEASONAL OUTLOOK FOR THE WINTER SEASON 2015-16 FOR THE
MEDITERRANEAN REGION**

Derived products from LRF downscaling

Grapevine ripening date for GDD 2800/3500 – year 2012

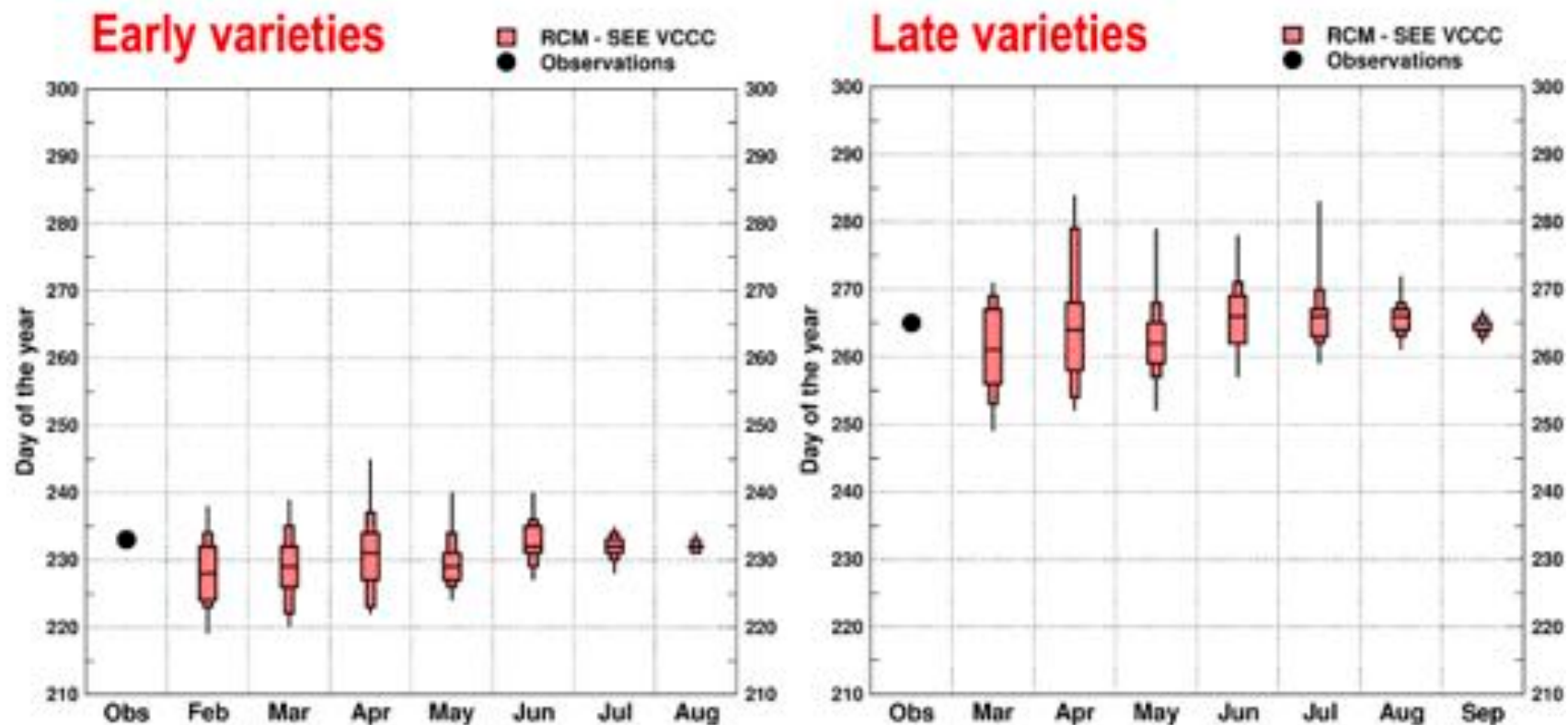
Start of the growing season fixed on 1.april, $GDD = \sum(T)$, if $T > 10C$

Ripening date = first day when GDD reached 2800/3500 heat units

Leading months: January – September 2012

Observations: Rimski Sancevi, Vojvodina, Serbia, 2012

Percentiles: (min), 10, 25, 50, 75, 90, (max)



Derived products from LRF downscaling

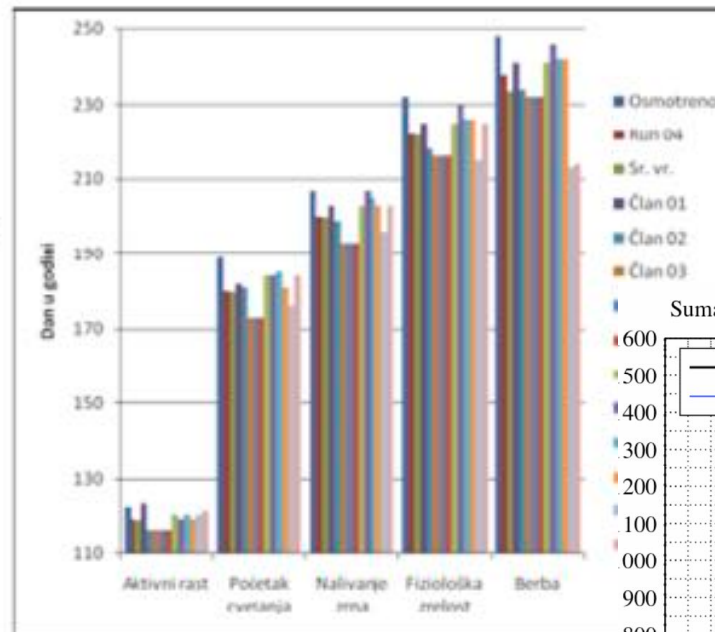
Use of LRF and CropSyst

Corn; Year 2012; Leading month: April 2012

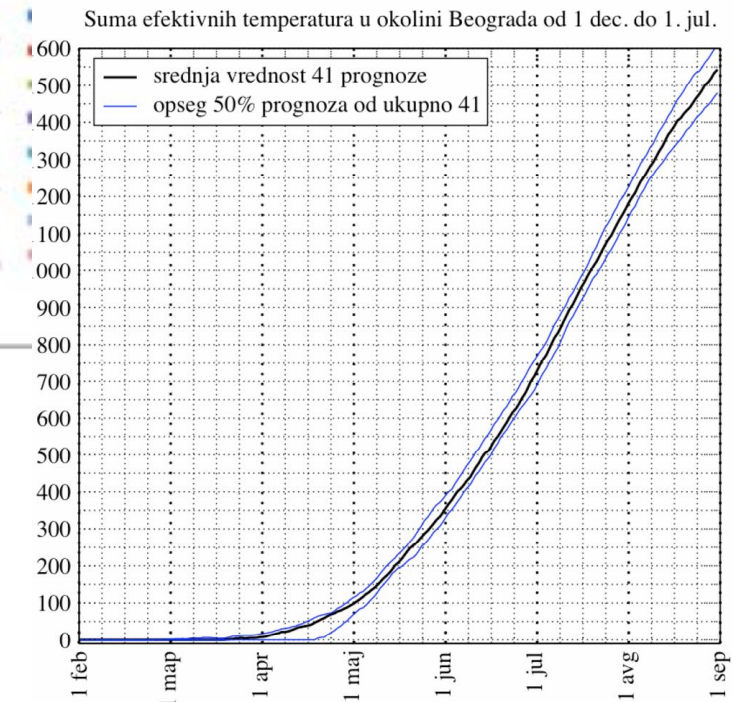
11 ensemble members

Observations: Smederevska Palanka, Sumadija, Serbia, 2012

- Simulated phenology stages
- Using observations and LRF
- Results mainly within 10-20days
- Problems:
 - use of precipitation data
 - crop model simulation of soil wetness
 - other uncertainties in crop model parameters

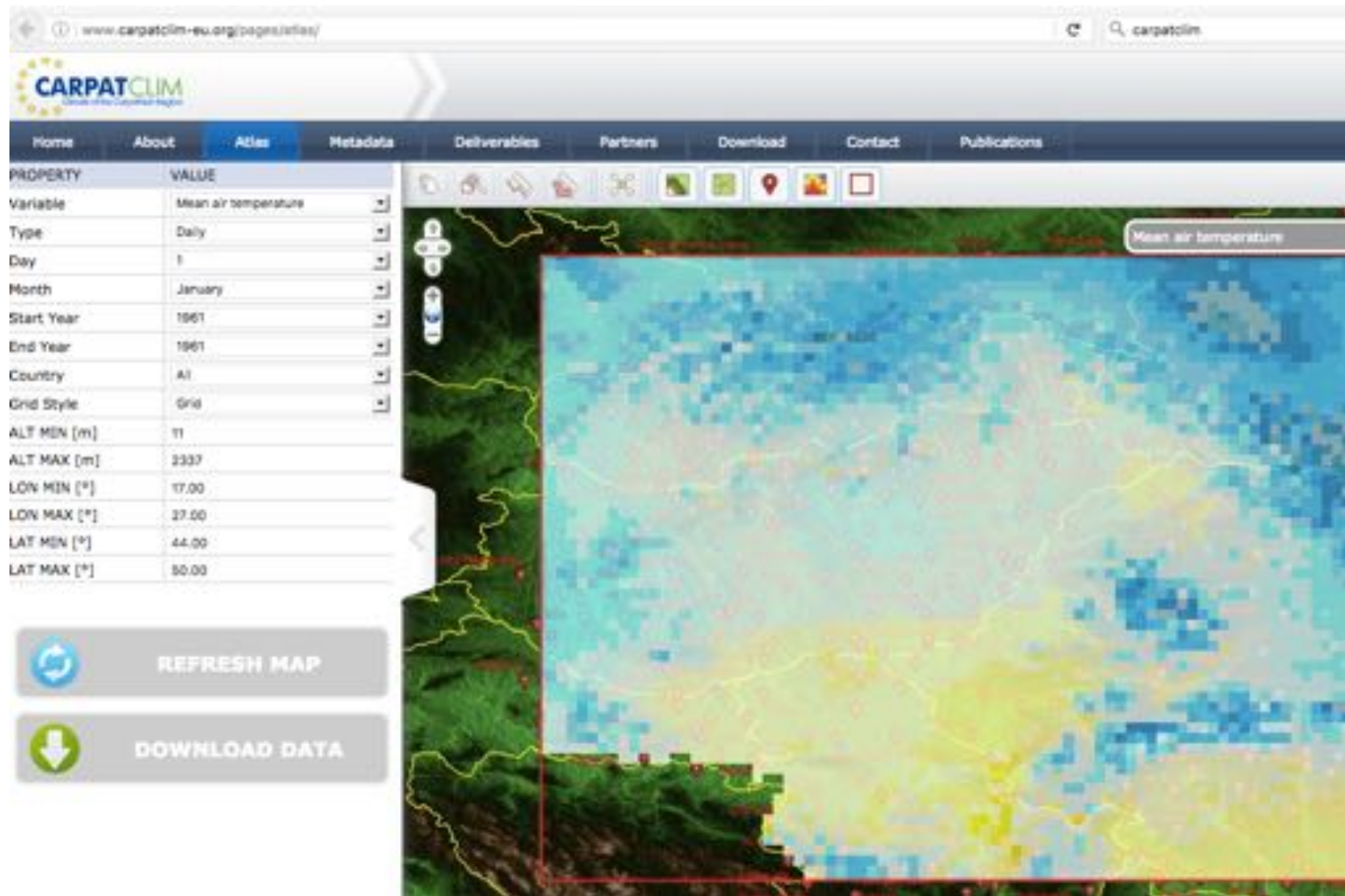


effective temperature sum



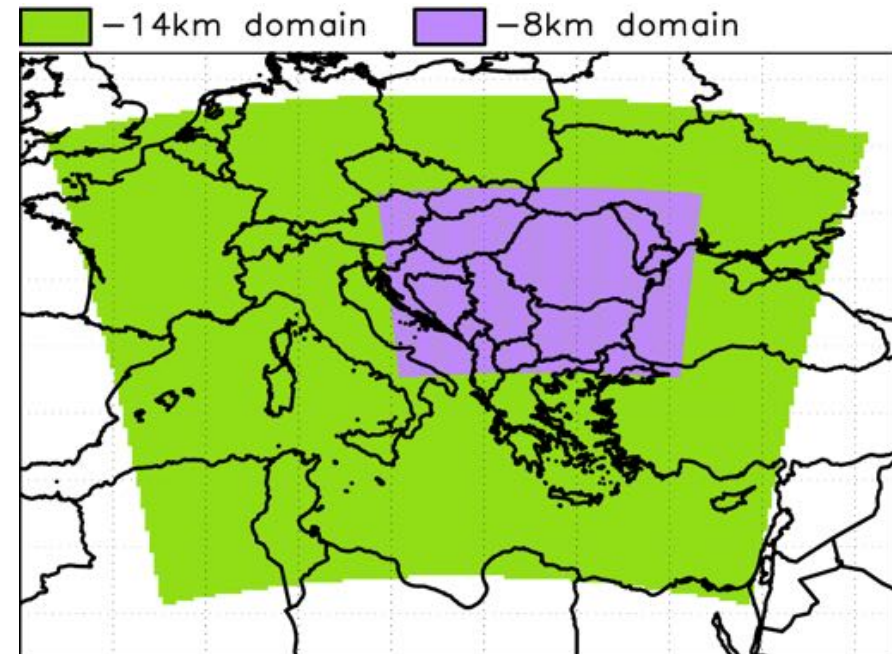
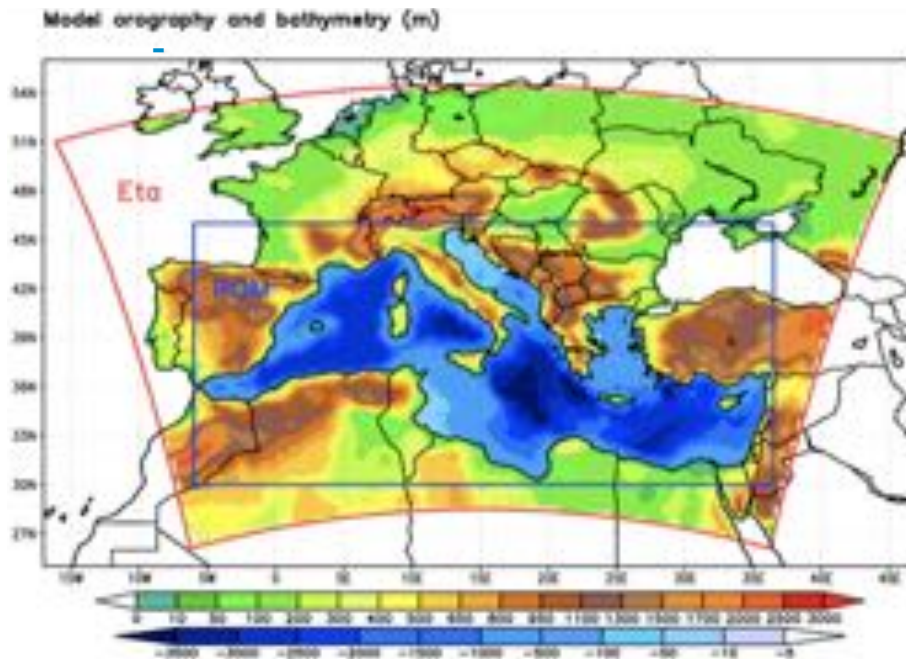
Gridded climatology

- **CARPATCLIM** - *Climate of the Carpathian region* <http://www.carpatclim-eu.org>
- 10 km gridded climatology of key variables and climate indices



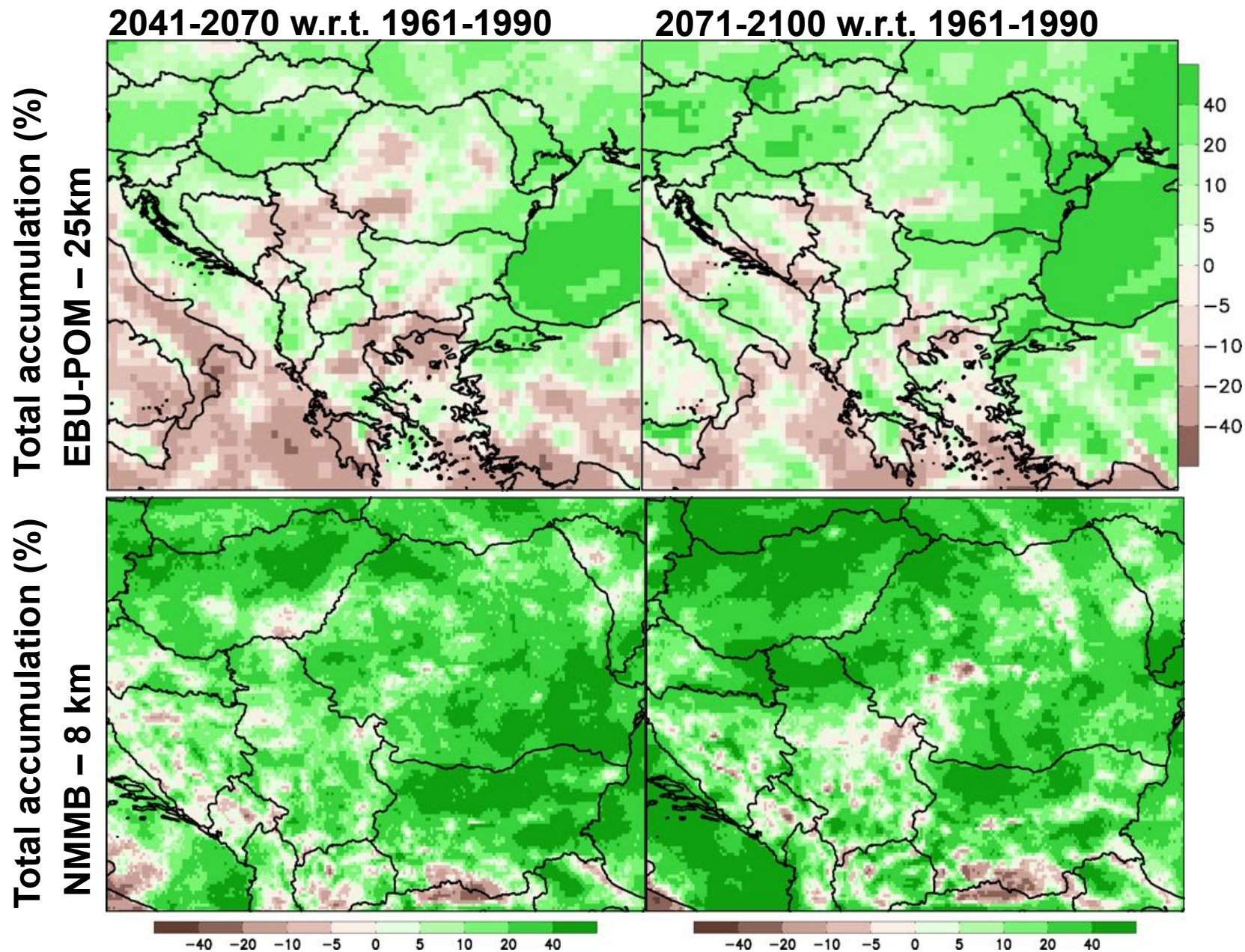
Climate change projections - downscaling

- **EBU-POM (RCM-SEEVCCC)** regional climate model
 - Fully coupled atmosphere-ocean model
 - MED-CORDEX
- **NMMB** regional climate model
 - RCP8.5 - 8 km resolution, part of the Balkan peninsula



Climate change projections – downscaling

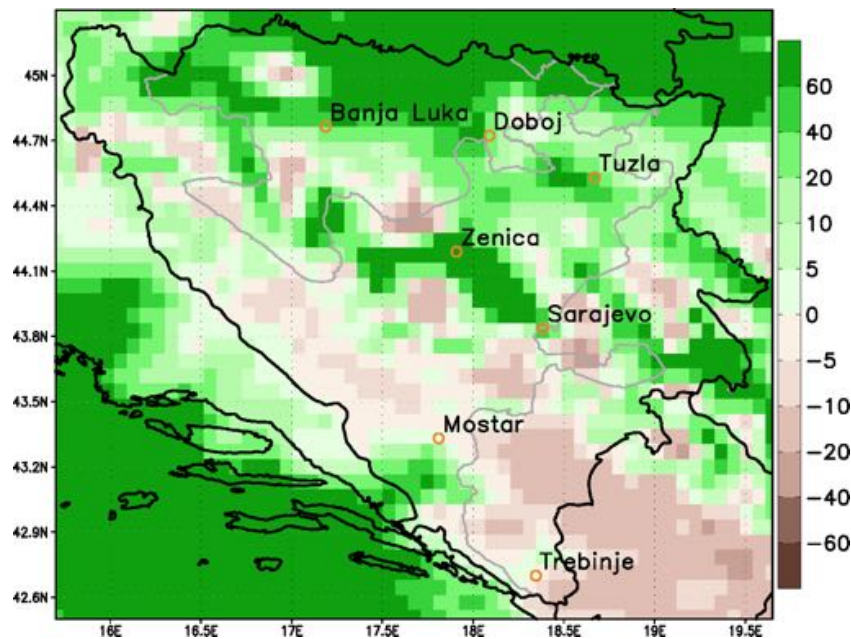
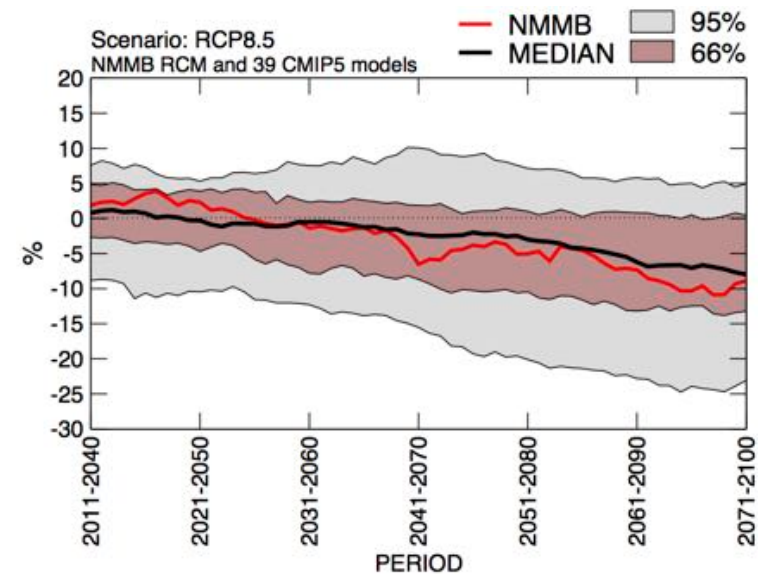
R95p (top 5% precipitation) change



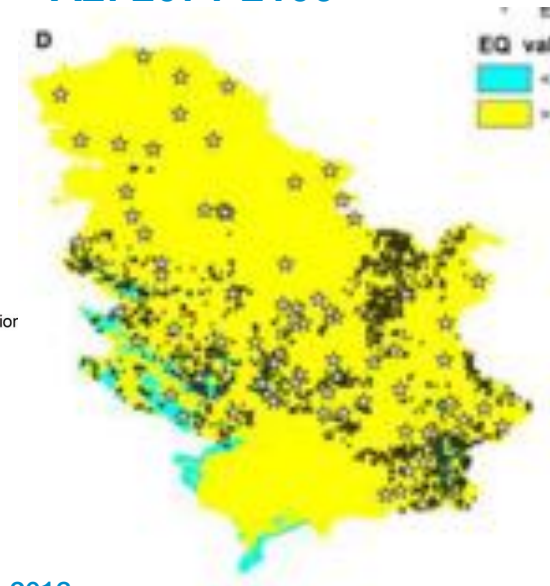
Climate change projections – downscaling

Support for several countries in the region
(Bosnia and Herzegovina, Montenegro, Greece, Romania)

- Support for impact studies
- Support countries in the preparation of documents for the UNFCCC (BIH and MNE)



A2: 2071-2100



Stojanovic et al., 2013

Barriers in communication with users

- Users outside community often don't have experience in operational use of products
- Lack of understanding of basic concepts: ensemble/probabilistic forecast, model drift/bias, time/space resolution ...
- Not familiar with data formats: grib/netcdf
- Incompatibilities in the software; e.g. Fortran or R vs. MS Excel
- More interested in derived product and less in raw model data
- Hard to get feedback or some verification assessment

Thank you!