SOUTH EAST EUROPE
Jointly for our common future

DMCSEE
Drought Management Centre for Southeastern Europe

Programme co-funded by the EUROPEAN UNION

PROGNOZA SUŠE I MOGUĆNOSTI ZA RANU NAJAVU

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RHMZ i SEEVCCC tim

Republic Hydrometeorological Service of Serbia

Suša i rane najave

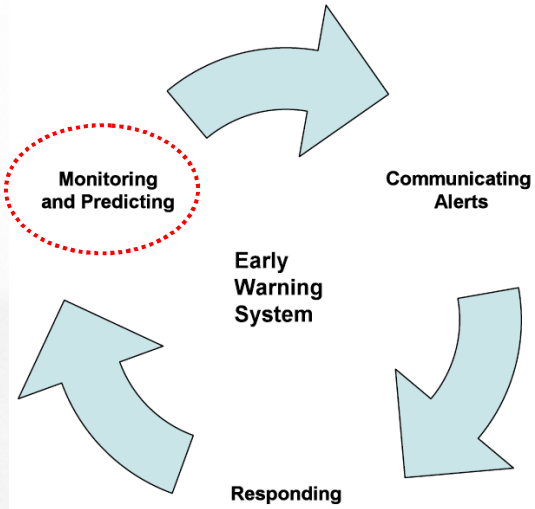
• ***Suša*** – prirodna nepogoda - rezultat deficita količine padavina u odnosu na normalu; kada deficit traje duži period vremena količina padavina je nedovoljna da odgovori na potrebe okoline i ljudskih aktivnosti.

• ***Tipovi suše***: - meteorološka – odstupanje količine padavina;
- agrikulturna – abnormalni uslovi vlažnost zemljišta;
- hidrološka – abnormalni vodeni resursi;
- socioekonomski – kada manjak vode utiče na život ljudi i ekonomiju.

• ***Rana najava*** - pravovremeno dostavljanje informacija od značaja javnosti radi pripremanja odgvarajuće reakcije i preuzimanja mera za sprečavanje ili redukcije rizika.

• ***Monitoring***

• ***Prognoza***

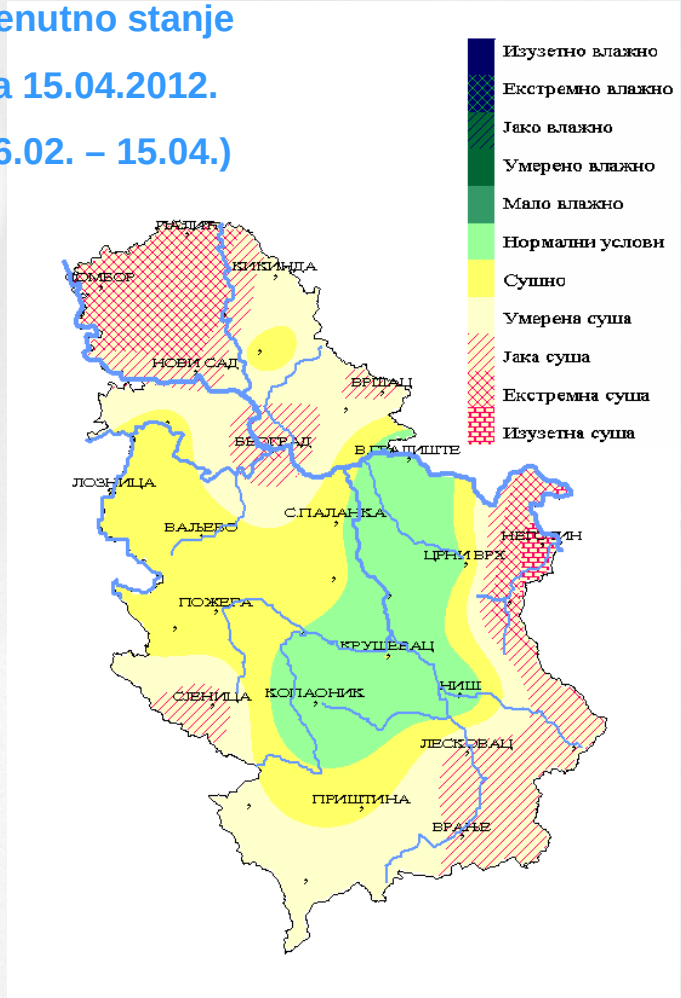


Trenutni i prognozirani uslovi vlažnosti za Srbiju – SPI-60

Trenutno stanje

za 15.04.2012.

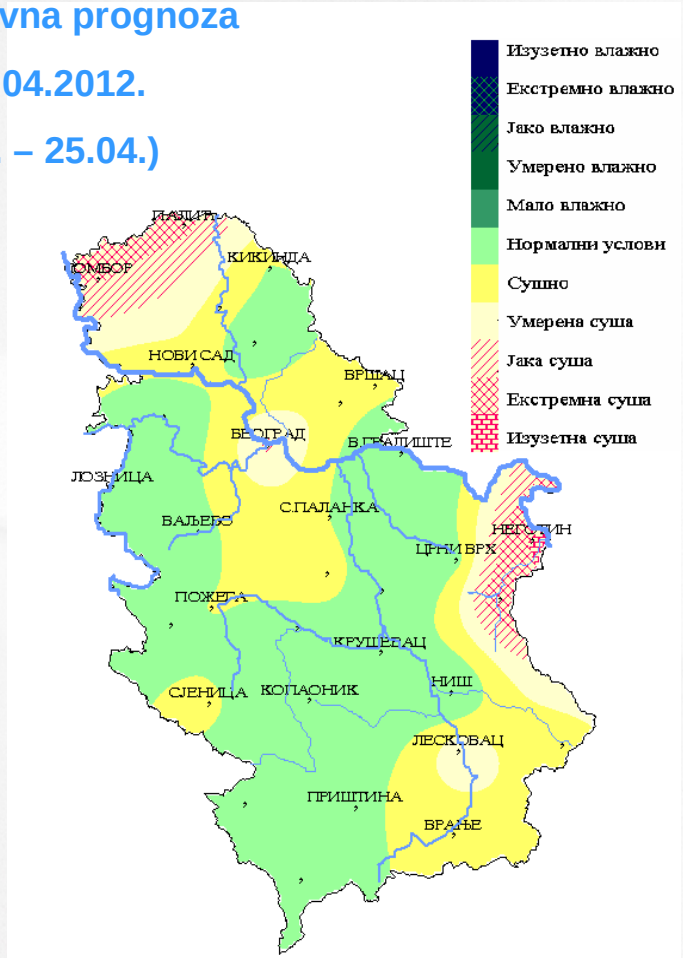
(16.02. – 15.04.)



Desetodnevna prognoza

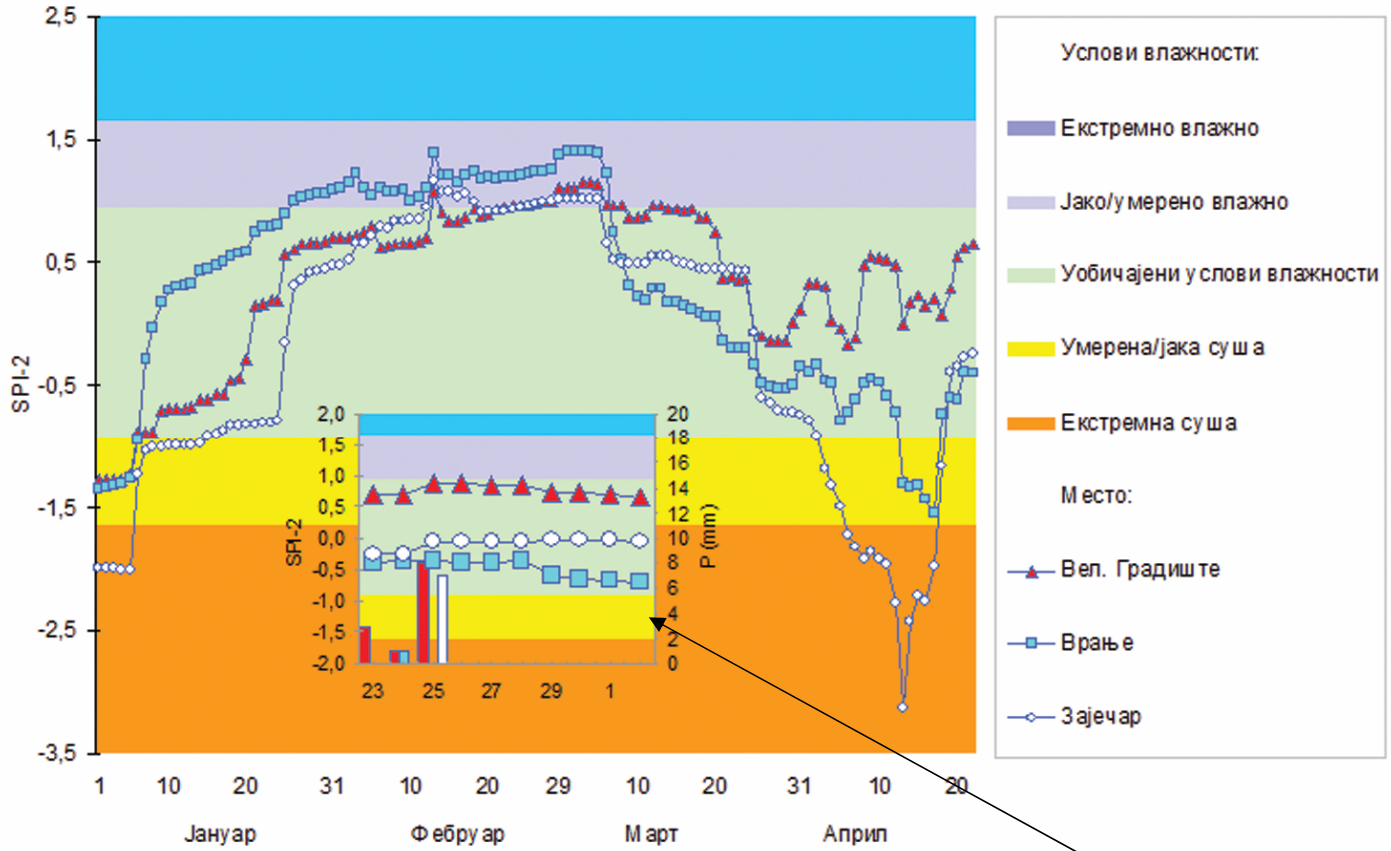
za 25.04.2012.

(16.04. – 25.04.)



Trenutni i prognozirani uslovi vlažnosti – SPI-60

1. januar – 2. maj 2012.



Prognoza

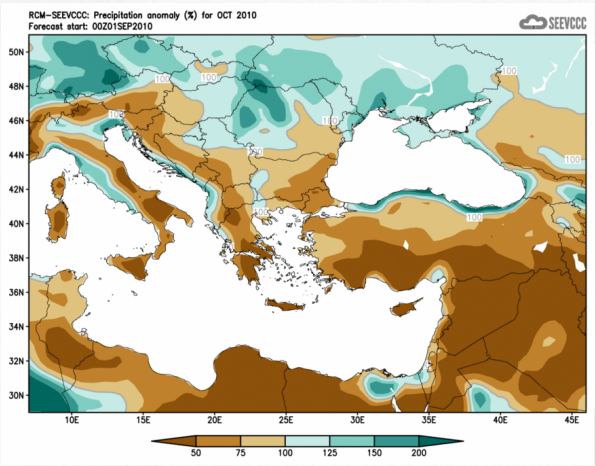
Šezdesetodnevni SPI kao i desetodnevna prognoza na osnovu prognoze ECMWF-a (23. april – 2. maj)

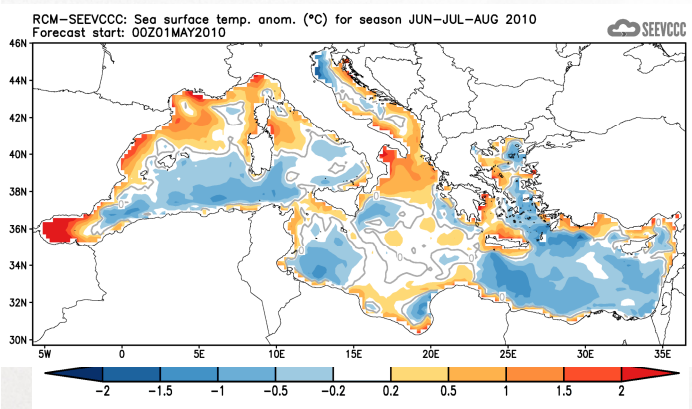
Dugoročna prognoza / Sezonska prognoza (LRF)

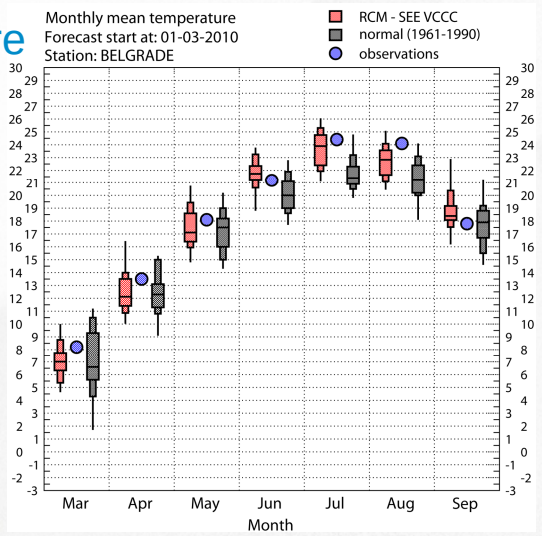
- **Probabilistika prognoza** pruža statistički pregled stanja atmosfere i okeana u nastupajućoj sezoni

- **RCM-SEEVCCC LRF** regionalno dinamičko skaliranje koristeći potpuno povezani atmosfera-okean regionalni klimatski model (Regional Climate Model – RCM)
  - start modela: 16th of each month
  - dužina prognoze: 7 meseci (~215 dana)
  - rezolucija modela: ~35km atmosfera ; ~20km okean
  - domen modela: Euro - Mediteranski region proširen prema Kaspijskom moru
  - **41 član ansambla!**
  - početni & bočni uslovi: ECMWF, ~125km

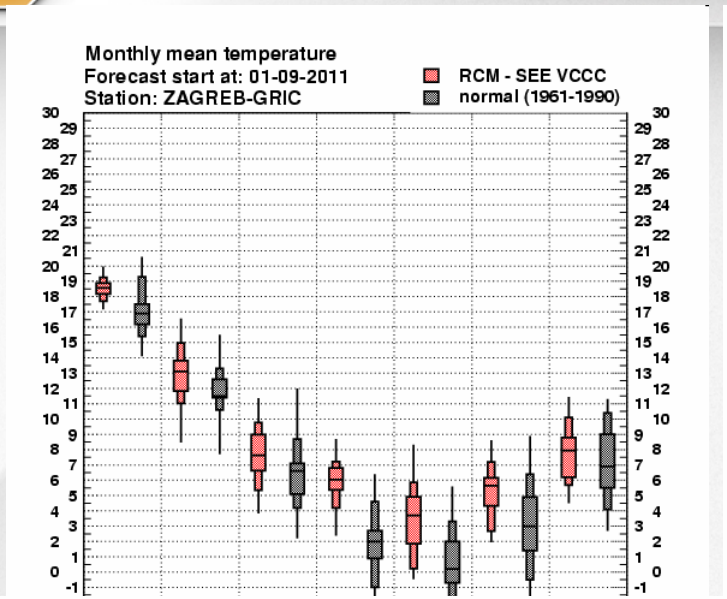
- podaci uskoro na raspolaganju u GRIB formatu za zemlje partnere

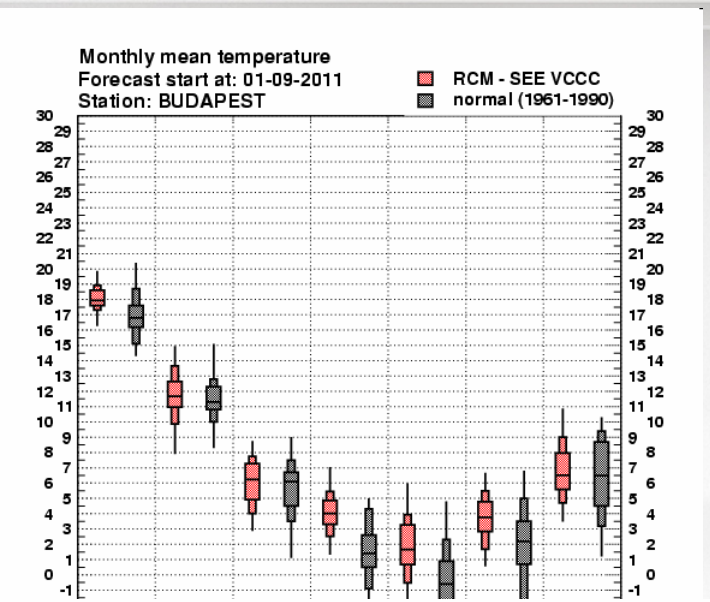




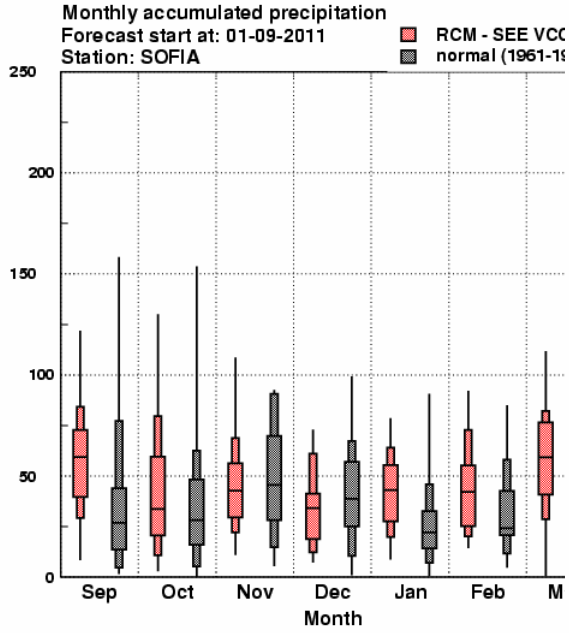


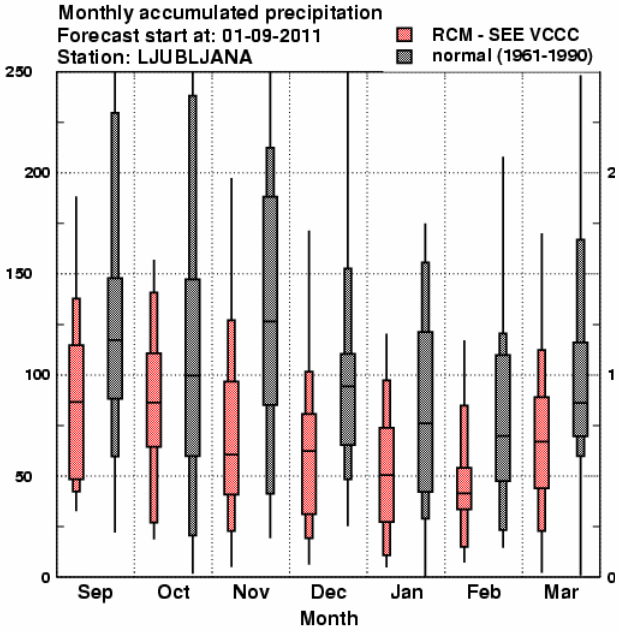
LRF RCM-SEEVCCC – probabilistički diagrami

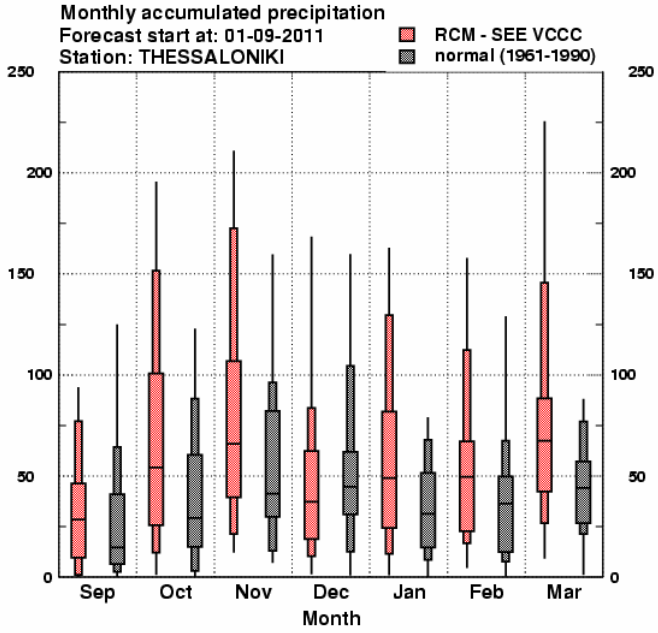




Bugarska
Hrvatska
Grčka
Mađarska
Makedonija
Srbija
Slovenija





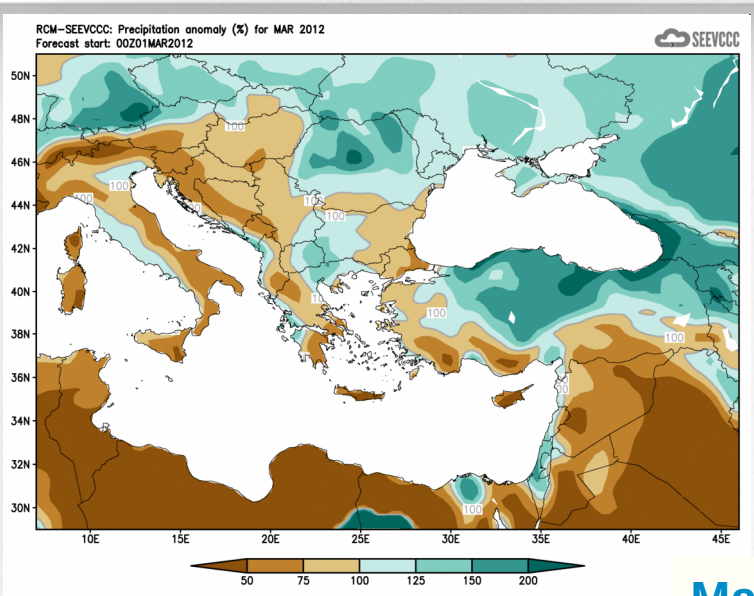


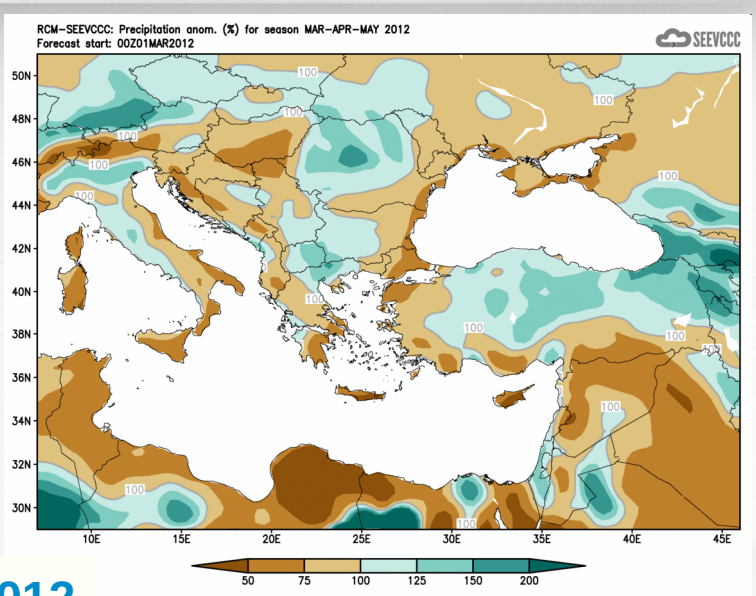
LRF RCM-SEEVCCC - mape

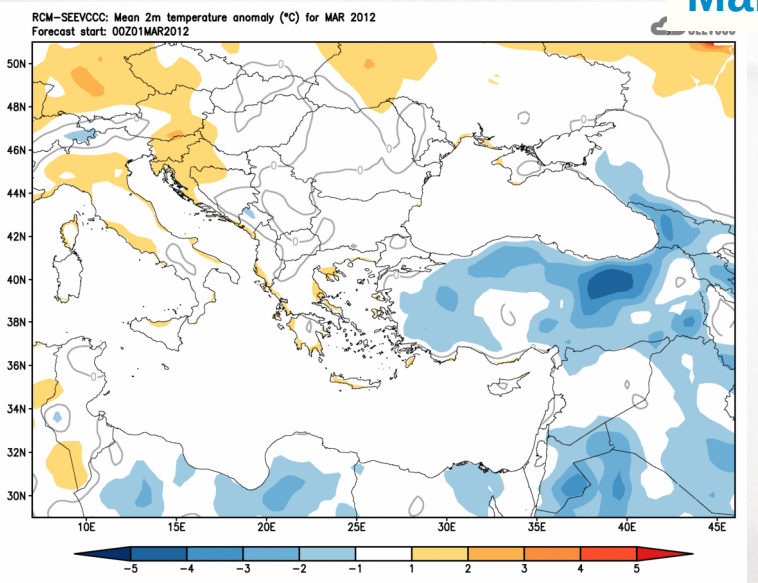
Mesečne

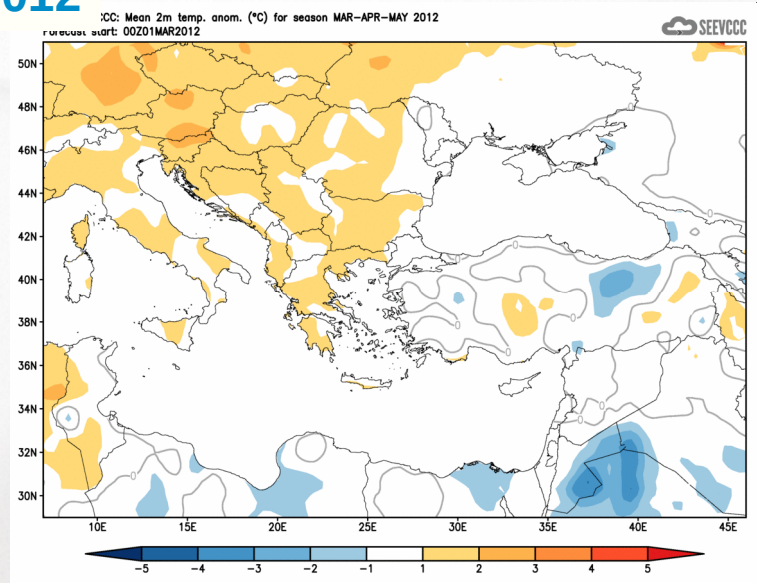
Sezonske

Mart 2012

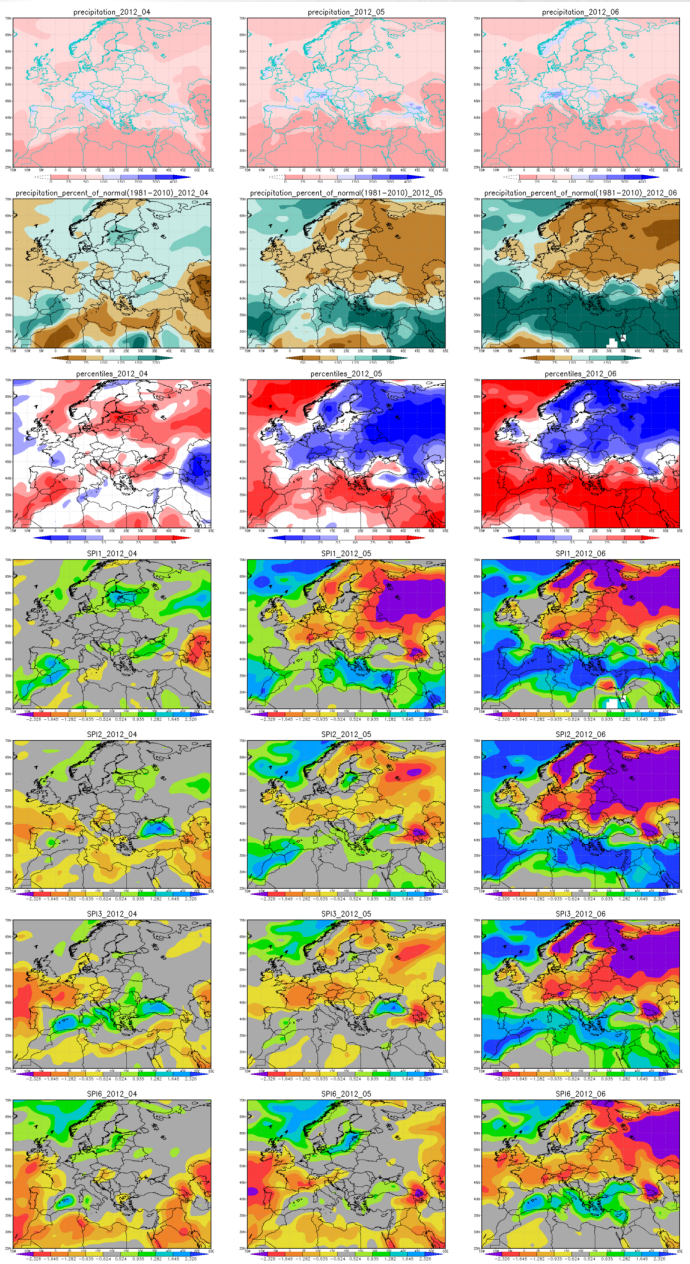








LRF ECMWF – start prognoze april 2012



← količina padavina

← procenat od normale

← percentili

← SPI1

← SPI2

← SPI3

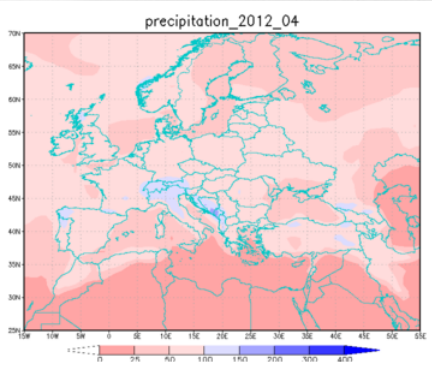
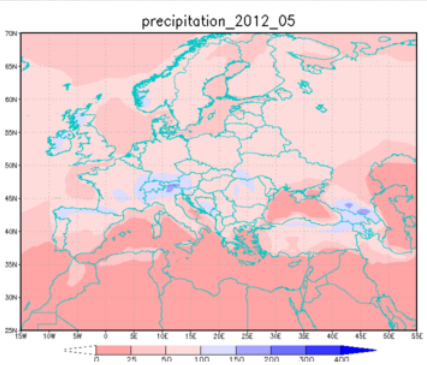
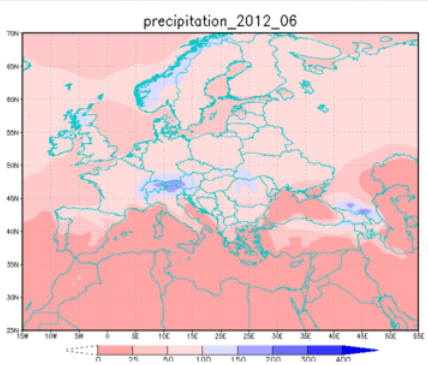
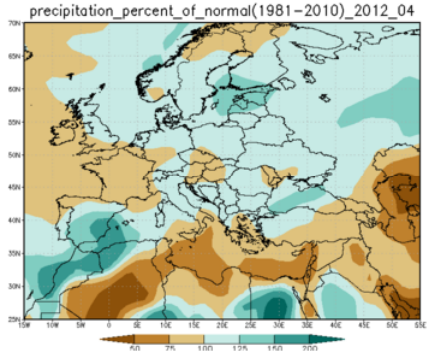
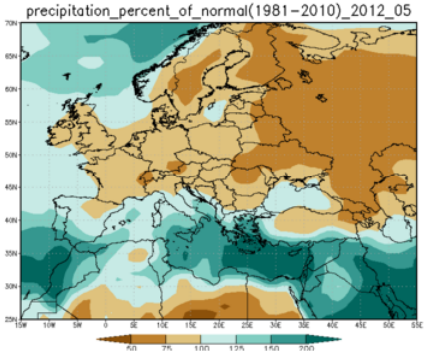
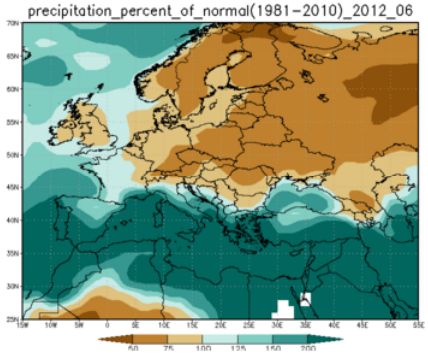
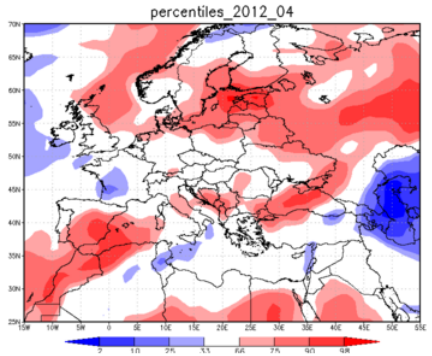
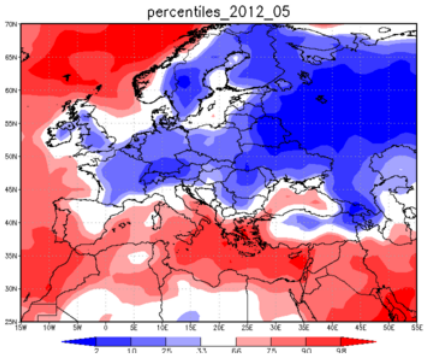
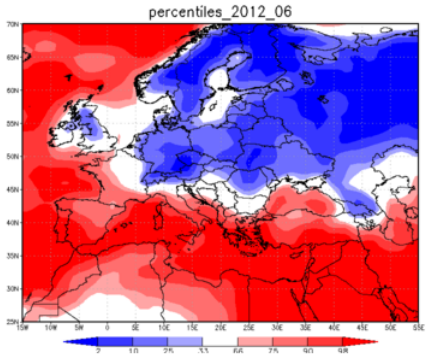
← SPI6

Prognoza količine padavina za 3 meseca unapred

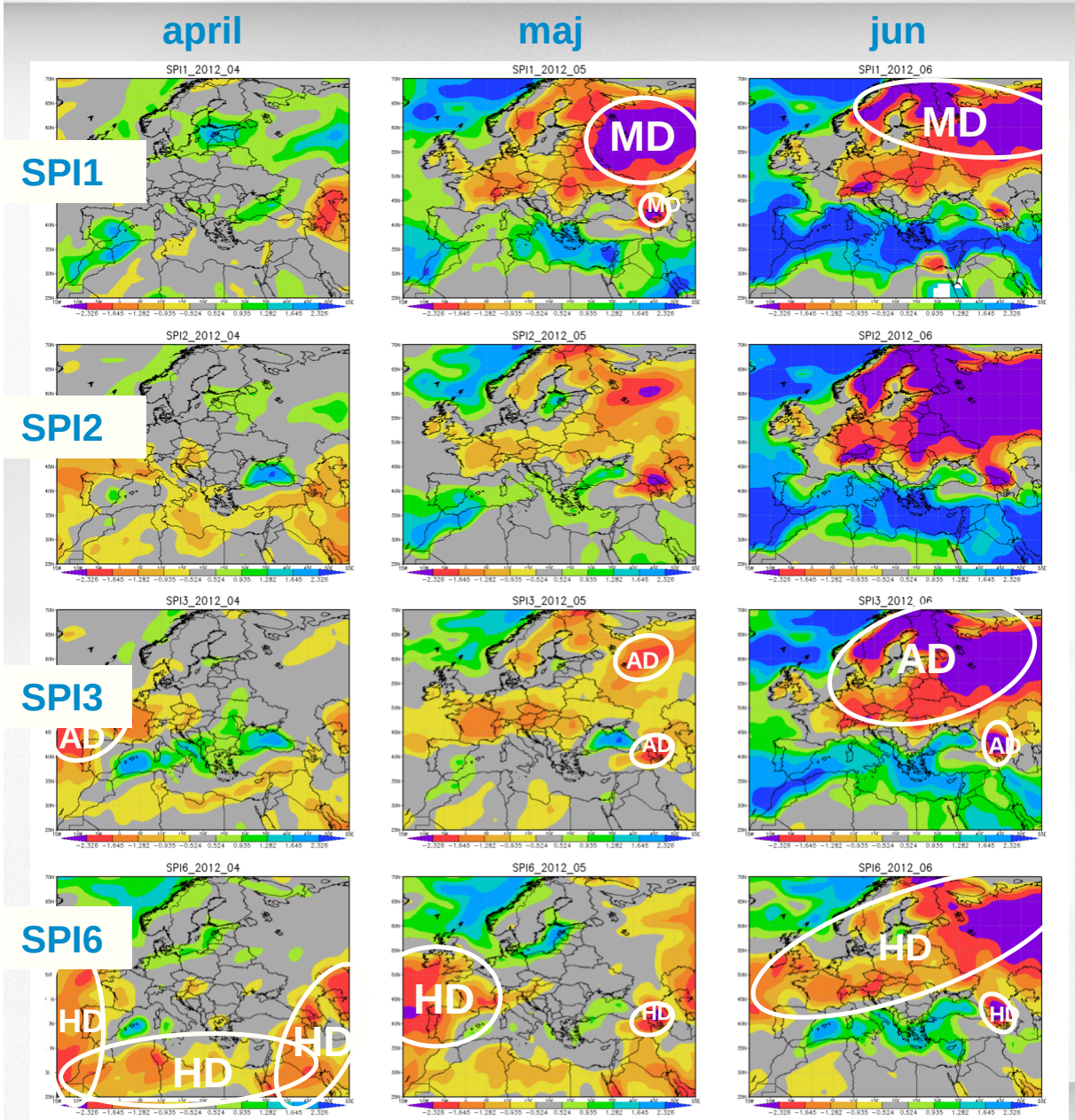
Klimatologija modela 1981-2010

SPI – Standardized Precipitation Index

LRF ECMWF – start prognoze april 2012

april	maj	jun	
			← količina padavina
			← procenat od normale
			← percentili

LRF ECMWF – start prognoze april 2012



Mogućnost izdavanja upozorenja

MD – SPI1 < -2.3

AD – SPI3 < -1.6

HD – SPI6 < -1.3

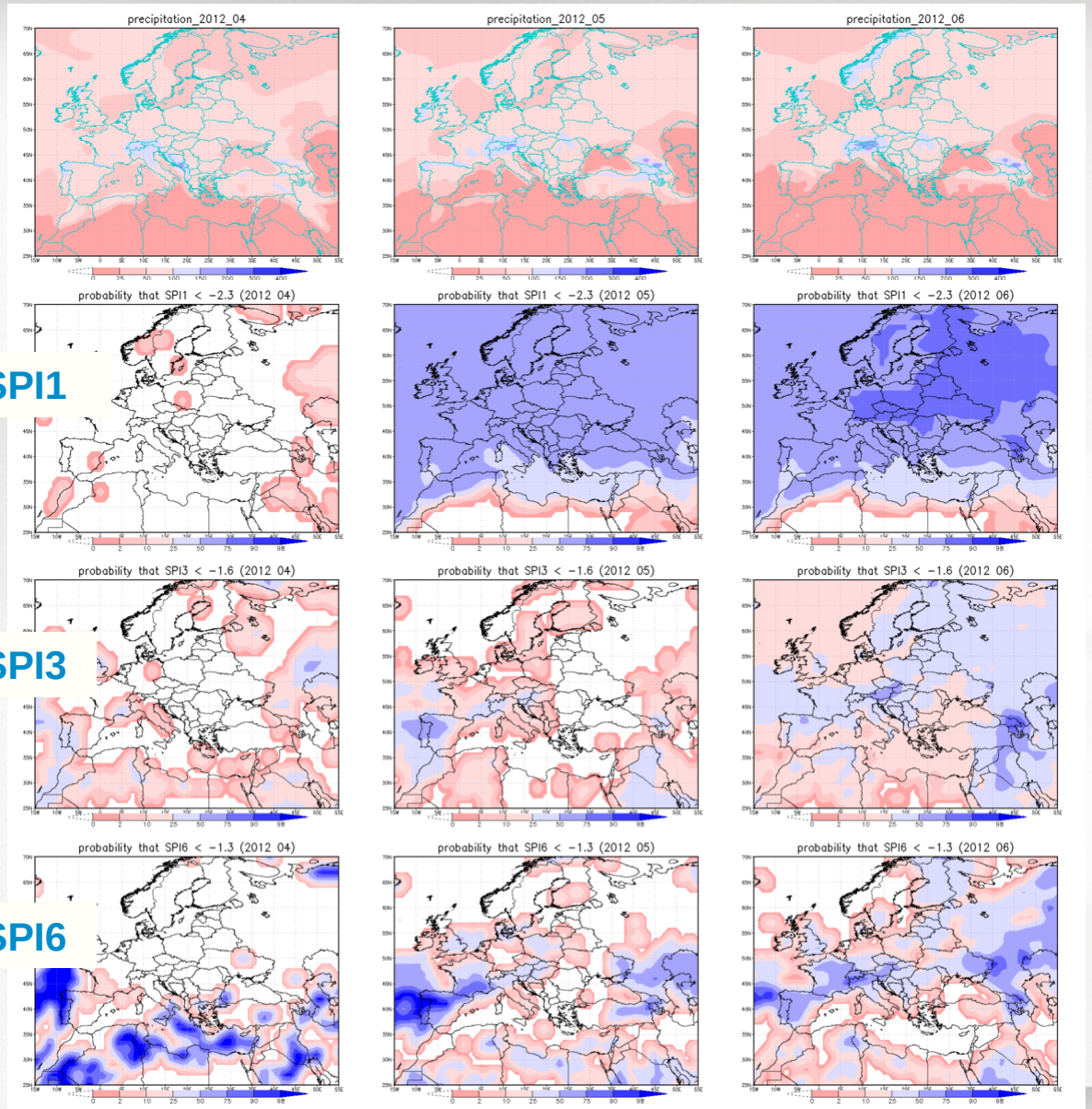
MD – meteorološka suša

AD – agro suša

HD – hirološka suša

LRF ECMWF – probabilistička SPI prognoza - test

	april	maj	jun
	precipitation_2012_04	precipitation_2012_05	precipitation_2012_06
SPI1	probability that SPI1 < -2.3 (2012 04)	probability that SPI1 < -2.3 (2012 05)	probability that SPI1 < -2.3 (2012 06)
SPI3	probability that SPI3 < -1.6 (2012 04)	probability that SPI3 < -1.6 (2012 05)	probability that SPI3 < -1.6 (2012 06)
SPI6	probability that SPI6 < -1.3 (2012 04)	probability that SPI6 < -1.3 (2012 05)	probability that SPI6 < -1.3 (2012 06)



Mogućnost izdavanja upozorenja

Verovatnoća da je:

SPI1 < -2.3 - MD

SPI3 < -1.6 - AD

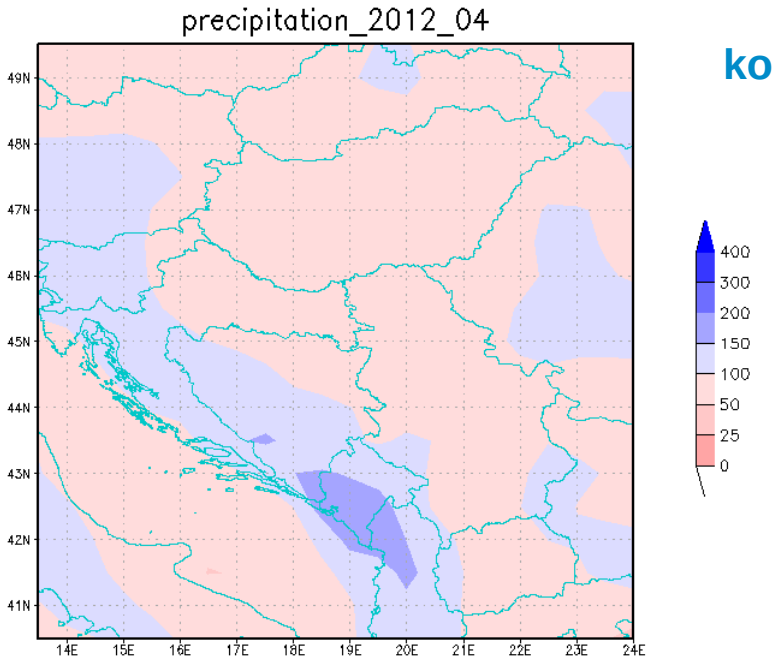
SPI6 < -1.3 - HD

MD – meteorološka suša

AD – agro suša

HD – hirološka suša

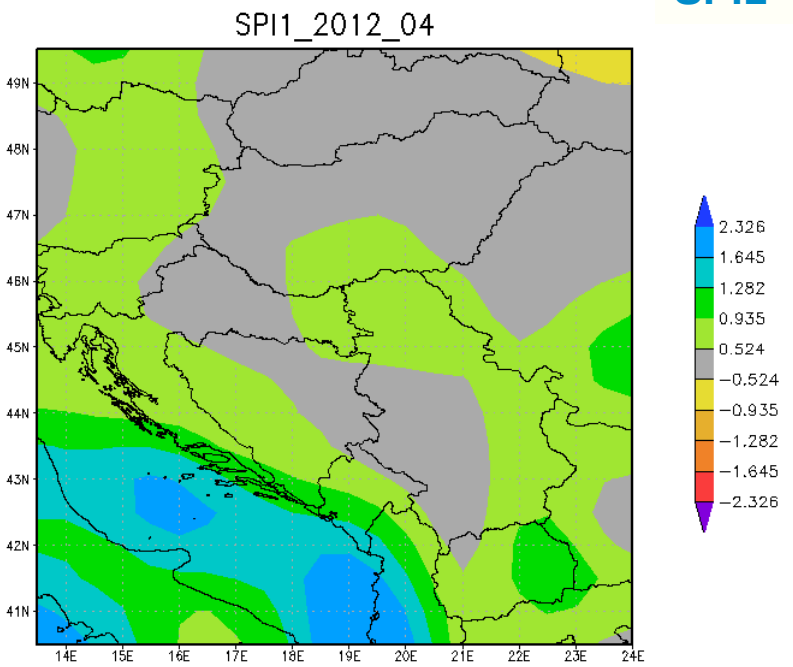
Mesečna prognoza ECMWF – u pripremi



količina padavina

April 2012

SPI1



Cilj dobiti preciznije rezultate u odnosu na sezonsku prognozu

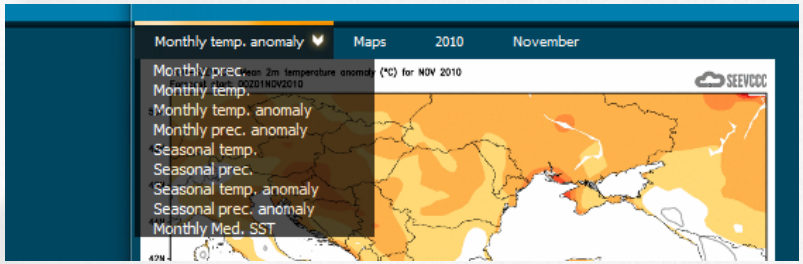

Climate Monitoring « SEEVCCC - Mozilla Firefox
File Edit
WWW. SEEVCCC.RS
OPERATIVNI PRODUKTI
MONITORING KLIME
SEZONSKA PROGNOZA
SEARCH
Operational Products
Climate
About SEEVCCC
Climate Monitoring
Seasonal Forecast
Dust Forecast
» More Details
» More Details
» More Details
Dust Forecast
Seasonal Forecast
SEECOF 5
OPERATIONAL PRODUCTS
CLIMATE MONITORING
The purpose of climate monitoring is to collect climate data in Southeast Europe region that will describe present climate and compare it with a reference period. It provides data for evaluation of past and present climate patterns and it is an important tool for seasonal forecast validation, as well as a necessary part of SEECOF process.
SEEVCCC gathers temperature and precipitation data from around 450 stations in Southeast Europe domain. Main data source is ECA&D, while some data are collected from climate bulletins and synops, as well. Using collected climate data, SEEVCCC creates monthly and seasonal (three consecutive months) maps of mean temperature, accumulated precipitation, temperature anomaly and precipitation percent of normal in respect to reference period 1961-1990. Maps are issued between 15th and 20th of a month for a previous month and a three months period.
Monthly temp. 2011 October
Monthly temp. 2011 October

LRF – Sezonska prognoza

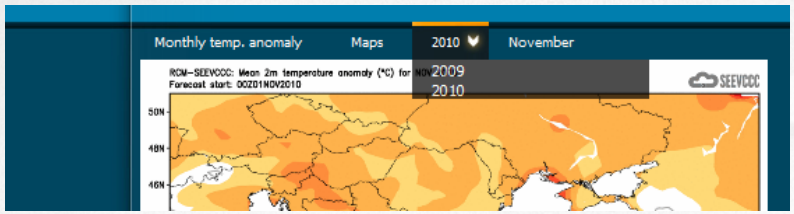
WWW.SEEVCCC.RS

Raspoloživi produkti za sada!

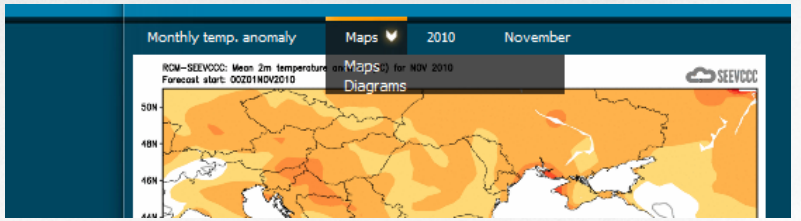
Izabrati parametar



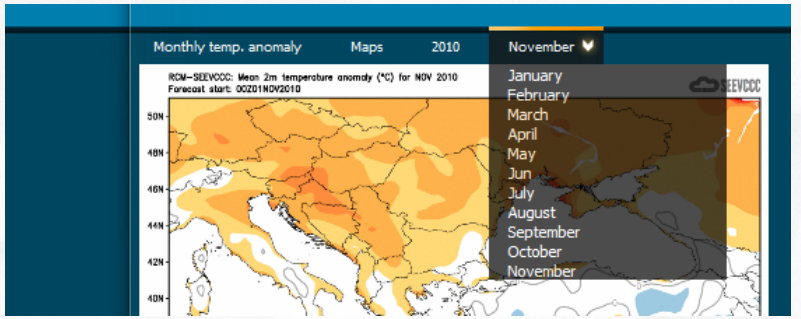
Izabrati godinu



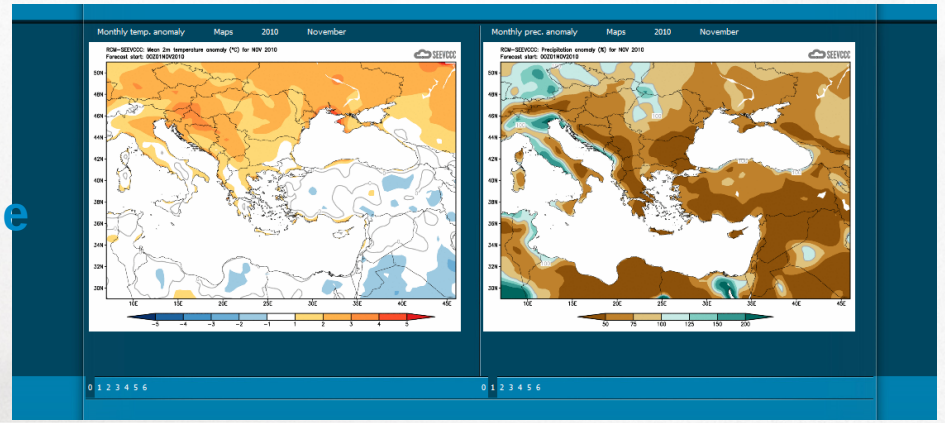
Izabrati mapu ili diagram



Izabrati početni mesec



Opcija za poređenje rezultata za različite parametre ili selektovane prognoze



Rapoloživi podaci iz LRF

- Podaci na raspolaganju za svaki član ansambla:
  na svakih 6h (atmosferski model) i srednjak za 5 dana (okeanski model)

• Koristeći ove podatke može se raditi skaliranje na manje domene ili veće rezolucije
• Proračun različitih parametara na zahtev krajnjih korisnika

Atmospheric output variables:	Ocean output variables:
● Geopotential of surface/topography, m ● Sea/land mask, 1/0 ● U wind (standard pressure levels), m/s ● V wind (standard pressure levels), m/s ● Temperature (standard pressure levels), K ● Specific humidity (standard pressure levels), kg/kg ● Cloud water mixing ratio (standard pressure levels), kg/kg ● Surface temperature, K ● Temperature on 2m, K ● Specific humidity on 2 m, kg/kg ● U 10m wind, m/s ● V 10m wind, m/s ● Temperature on 10m, K ● Specific humidity on 10m, kg/kg ● Accumulated precipitation total (6h accumulation), m/m^2 ● Accumulated snow (6h accumulation), m ● Accumulated convective precipitation (6h accumulation), m/m^2 ● Soil moister content, m^3/m^3 ● Latent heat flux on surface, W/m^2 ● Short wave incoming on surface, W/m^2 ● Long wave incoming on surface, W/m^2 ● Sensible heat flux on surface, W/m^2	● Elevation, m ● U barotropic vel., m/s ● V barotropic vel., m/s ● U surf. momentum flux, m/s ● V surf. momentum flux, m/s ● Surf heat flux, W/m^2 ● Surf short wave flux, W/m^2 ● U bot. momentum flux, m/s ● V bot. momentum flux , m/s ● Temp. on sigma levs, °C ● Salinity on sigma levs, psu ● U vel. on sigma levs, m/s ● V vel. on sigma levs, m/s

Dalji rad

- Napraviti modelsku klimatologiju i izlaze iz modela u GRIB formatu (za RCM-SEEVCCC model – MARS arhiva)
- Izdavanje operativne probabilističke SPI prognoze
- Izdavanje operativne mesečne prognoze
- Monitoring i prognoza dodatnih indeksa vezanih za uslove vlažnosti
- Primena mesečnih i sezonskih prognoza u modelima vreme/usev
- Svi produkti dostupni javnosti – dodatni linkovi na SEEVCC sajtu
- Operativno izdavanje upozorenja za sušu
- Posebni zahtevi. Sugestije?

HVALA NA PAŽNJI !

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