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

SEASONAL OUTLOOK FOR THE WINTER SEASON 2016/2017 FOR THE SOUTH EASTERN EUROPE AND CAUCASUS REGION (SEE&C)

Climate experts from WMO RA VI RCC Network Node on long-range forecasting (Meteo France, France and Roshydromet, Russia) and WMO RA VI RCC Network Node on climate monitoring (Deutscher Wetterdienst, Germany), Global Producing Centre ECMWF, International Research Institute for Climate and Society (IRI, USA), National Centers for Environmental Prediction (NCEP, USA), South East European Virtual Climate Change Centre (SEEVCCC, Serbia), and National Hydrometeorological Services of the SEECOF region provided their valuable contribution to the successful implementation of SEECOF-16 by developing relevant documents and providing their scientific guidance and recommendations.

SEECOF-16 was composed of the following Steps:

- Step 1: qualitative verification of the SEECOF-15 climate outlook for 2016 summer season;
- Step 2: assessment of the current state of the climate, including large-scale climate patterns worldwide, and assessments of likely climate evolution in the course of the following months;
- Step 3: building the consensus forecast for 2016/2017 winter season.

All relevant documentation is posted and updated on the SEEVCCC web site: http://www.seevccc.rs

SEECOF-16 CLIMATE OUTLOOK FOR 2016/17 WINTER SEASON

This prediction is based on output from dynamical models, statistical models and known teleconnections of large-scale climate features. The analysis of the current state of the driving factors prepared by MedCOF-7 also applies to the South East European region.

A weak La Niña event now established in the tropical Pacific Ocean seems to be maintained during the remainder of fall, persisting through mid-winter, then weakening to cool-neutral by later winter. The long lasting North Atlantic cold blob over a large area to the south of Greenland shows some weakening trend. Although, Tropical Ocean forcing is relatively weak, possible teleconnections from North Atlantic tropics suggest some perspective of anomalous cyclonic circulation over Southern Europe consistent with a negative phase of NAO. Finally, as a summary, a significant number of GPC models shows as common feature some slight predominance of a positive phase for

EA and SCAN patterns of variability and also climate drivers tend to point to a enhance occurrence of negative NAO.

Due to the contradictory forcing over the North Atlantic/European sector with mean circulation dominated by a positive EA pattern with potentially cold episodes during negative NAO periods (possibly more frequent than climatology), there is uncertainty in the forecasting systems' prediction of large-scale atmospheric circulation during the winter. However, the most probable scenario over the Mediterranean basin is a cyclonic signal in the western part - due to the above mentioned teleconnection from the tropics- and a high geopotential anomaly over Middle East.

This probable scenario would explain the consensus for a positive gradient of probabilities for the warmer-than-normal winter, stretching from the north to the south of the SEECOF region (zones 2 and 3 in Figure 1). The exception is domain of the Pannonian Plain, central parts of the Balkan Peninsula, Carpathian region and Ukraine (zone 1 in Figure 1), where the normal winter temperature conditions are favoured.

The maps show the probabilistic consensus forecast for tercile categories of anomalies for seasonal mean temperature and precipitation, relative to the period 1981-2010. Due to the climate warming trend anomalies are affected by the selected reference period.

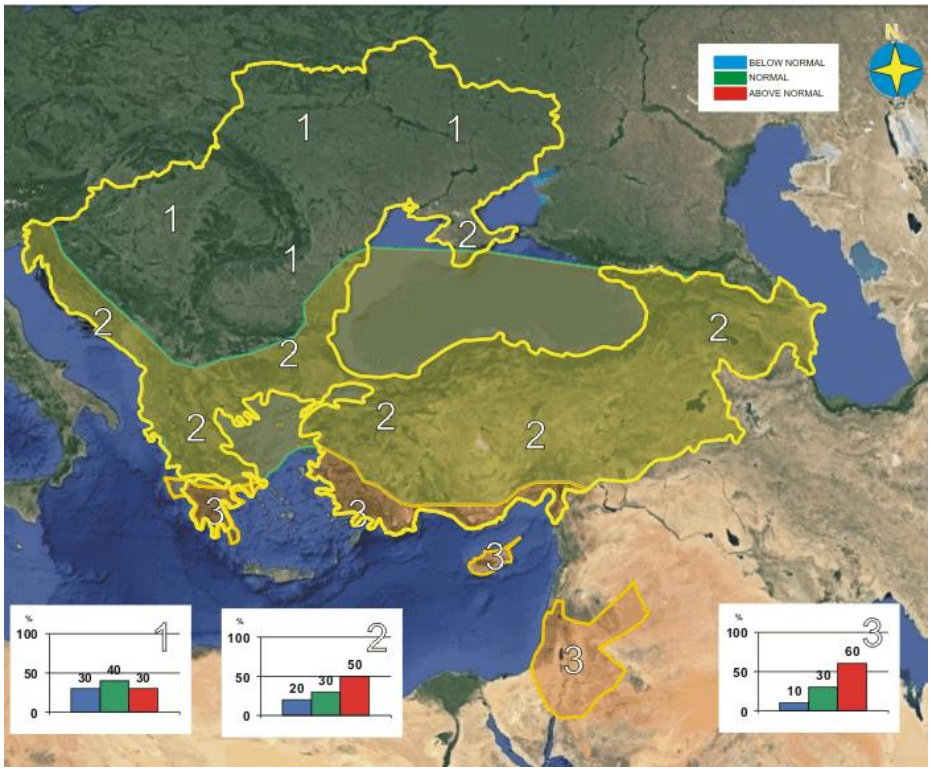

Figure 1. Graphical presentation of 2016/17 winter temperature outlook

Although precipitation uncertainties are larger than for temperature, along the costs and its hinterland of Adriatic, Ionian and Aegean Sea a wetter-than-normal (zone 1 in Figure 2) winter is favoured, whereas in Eastern Mediterranean, in Israel, Jordan, in southern and south-eastern parts of Turkey, eastern and south part of South Caucasus region, a drier-than-normal winter is likely to predominate (zone 3 in Figure 2). For the rest of the region no large-scale precipitation signal is present in the forecasts (zone 2 in Figure 2).

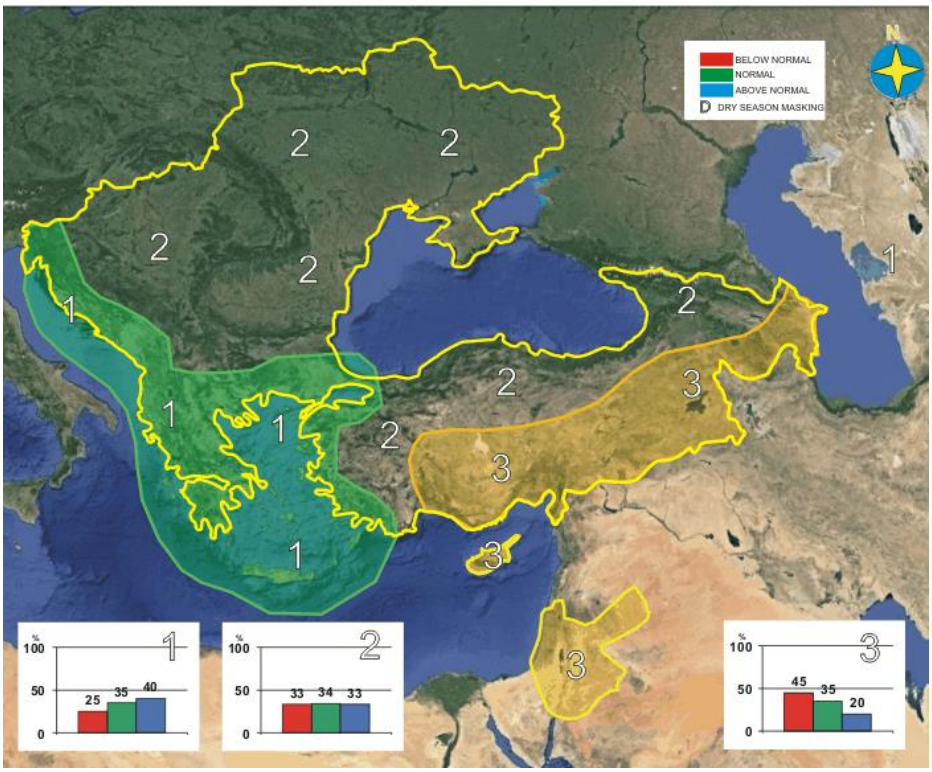

Figure 2. Graphical presentation of 2016/17 winter precipitation outlook

Seasonal averages cannot provide details about short spells of weather during the season. It is possible than even in an average season spells of severe wintry weather (for example: winter storms, very cold episodes, very wet spells) occur and lead to significant local socio-economic impacts.

Note that it is necessary to express seasonal forecasts in terms of probability due to inherent uncertainty. Any further advice on the forecast signals, shorter-range updates and warnings will be available throughout the winter from the National Meteorological Services, along with details on the methodology and skill of long-range predictions.

** The graphical representation of climate outlook in this statement is only for guidance purposes, and does not imply any opinion whatsoever concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.*

APPENDIX A: Contributors to SEECOF-16

- World Meteorological Organization
- Met Office, United Kingdom
- International Research Institute for Climate and Society, United States of America
- European Center for Medium Range Weather Forecasts
- Meteo France, Republic of France
- Deutscher Wetterdienst, Federal Republic of Germany
- Institute of Geosciences, Energy, Water and Environment, Albania
- National Center for Environmental Prediction, United States of America
- South East European Virtual Climate Change Center hosted by Republic Hydrometeorological Service of Serbia, Republic of Serbia
- Armenian State Hydrometeorological and Monitoring Service, the Republic of Armenia
- National Institute of Meteorology and Hydrology, Republic of Bulgaria
- Meteorological and Hydrological Service, Republic of Croatia
- Meteorological Service, Republic of Cyprus
- Hellenic National Meteorological Service, Greece
- National Environmental Agency of Georgia, Georgia
- Israel Meteorological Service, State of Israel
- Jordan Meteorological Department, Hashemite Kingdom of Jordan
- Republic Hydrometeorological Institute, Former Yugoslav Republic of Macedonia
- Hydrometeorological Institute of Montenegro, Montenegro
- National Meteorological Administration, Romania
- Federal Hydrometeorological Service of the Federation of Bosnia and Herzegovina, Federation of Bosnia and Herzegovina, Bosnia and Herzegovina
- Republic Hydrometeorological Service of the Republic of Srpska, Republic of Srpska, Bosnia and Herzegovina
- Republic Hydrometeorological Service of Serbia, Republic of Serbia
- Slovenian Environment Agency, Republic of Slovenia
- Turkish State Meteorological Service, Republic of Turkey
- Ukrainian Hydrometeorological Center, Ukraine