



## **SOUTH-EAST EUROPEAN CLIMATE OUTLOOK FORUM (SEECOF-30)**

### **SEASONAL OUTLOOK FOR THE WINTER SEASON 2023/2024 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-30 by developing relevant documents and providing their scientific guidance and recommendations.

SEECOF-30 was composed of the following Steps:

- Step 1: qualitative verification of the SEECOF-29 climate outlook for 2023 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 2023/2024 winter season.

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

<sup>1</sup> Quasi Biennial Oscillation, an oscillation in the zonal winds of the equatorial stratosphere having a period that fluctuates between about 24 and 30 months.

## SEECOF-30 CLIMATE OUTLOOK FOR 2023/24 WINTER SEASON

This prediction is based on output from dynamical models, statistical models and known teleconnections of large-scale climate features prepared by MedCOF-21, which also applies and has been adapted to the South East European region.

Observed sea surface temperatures and forecast for the coming three months show moderate to intense El Niño conditions, positive Indian Ocean Dipole and positive anomalies over most of Atlantic Ocean. In the atmosphere, models show cyclonic anomalies over northwestern Europe, and anticyclonic anomalies over northwestern Africa and parts of Mediterranean Sea. Diagnostic of upper levels show tendency to a weaker than normal Stratospheric Polar Vortex, which would favour negative NAO phase for late winter, in agreement with El Niño impacts.

Winter temperature is likely to be near or above-normal in most of the SEECOF region (zone 1 in Figure 1) and above-normal in Jordan, Israel, southern parts of Turkey, along the coasts of the Ionian, Aegean, Central and Eastern Mediterranean Seas with belonging hinterland (zone 2 in Figure 1).

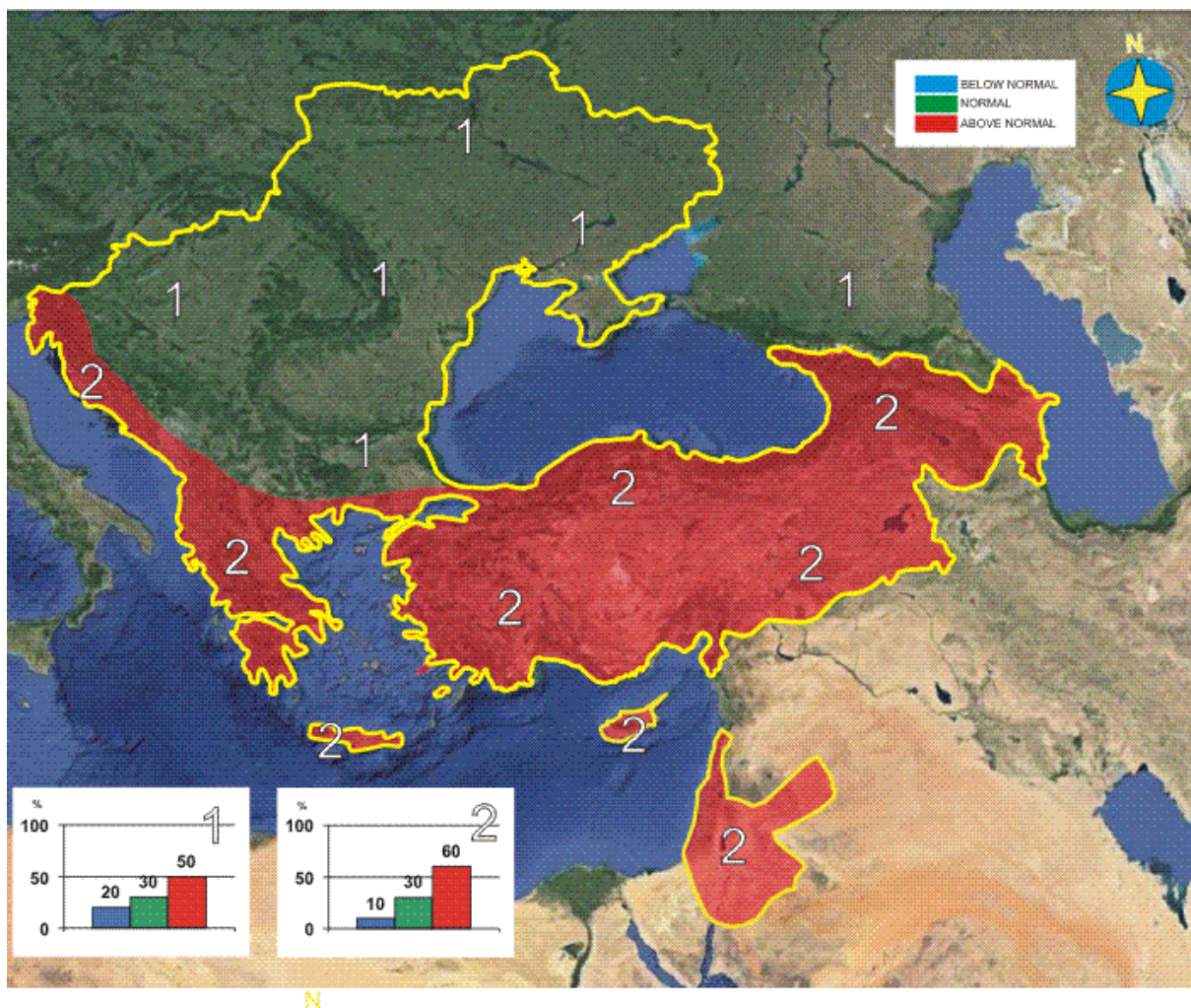


Figure 1. Graphical presentation of the 2023/24 winter temperature outlook

<sup>1</sup> Quasi Biennial Oscillation, an oscillation in the zonal winds of the equatorial stratosphere having a period that fluctuates between about 24 and 30 months.

In the most of the SEECOF region (zone 1 in Figure 2) winter precipitation totals are likely to be above-normal, while in the south of Greece, Turkey, Israel, Jordan, along the coasts of Ionian, southern coasts of the Aegean, southern and eastern coasts of the Black Sea (zone 2 in Figure 2) the uncertainty is high: probabilities for below, near- or above-average conditions are approximately equal.

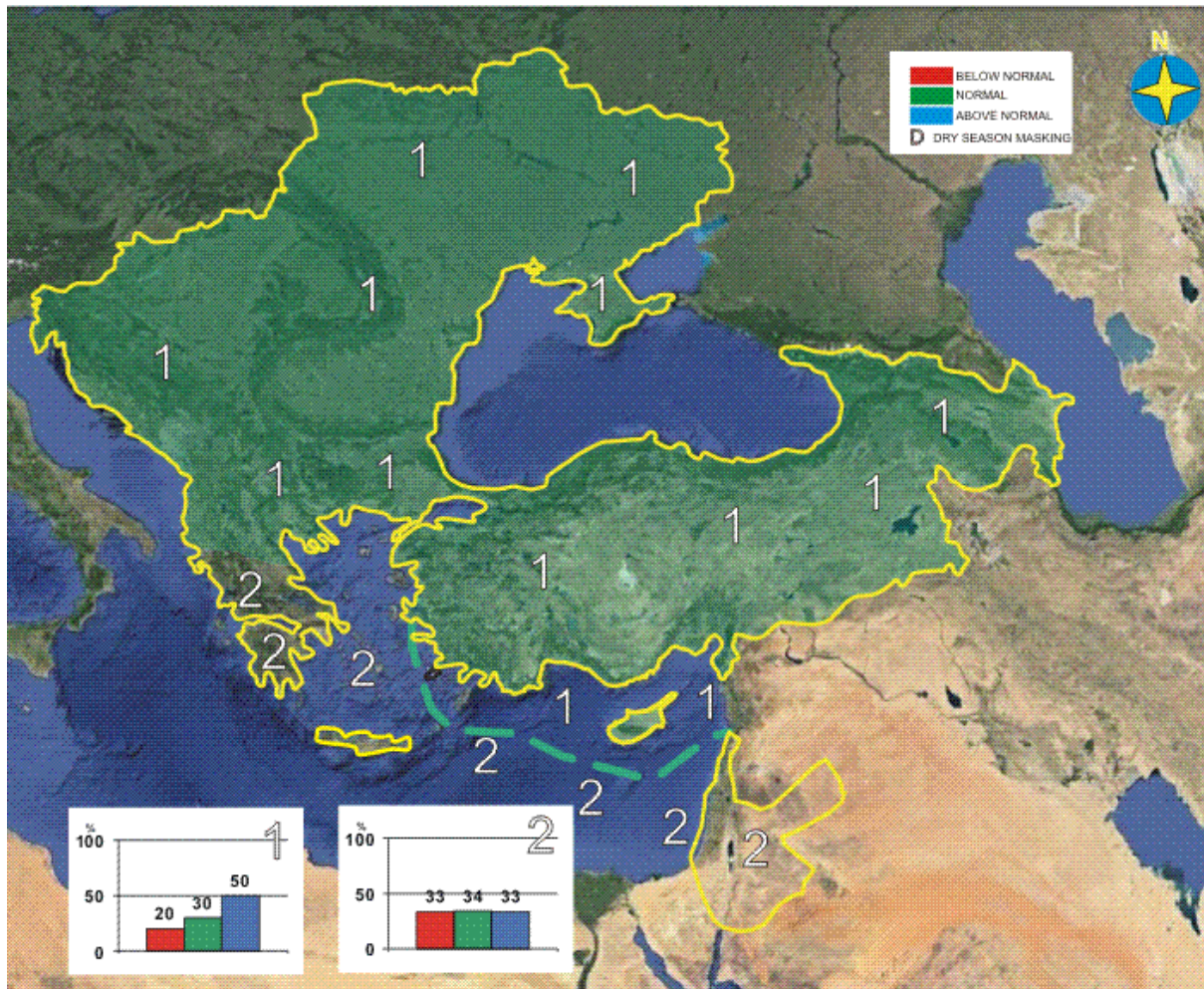


Figure 2. Graphical presentation of the 2023/24 winter precipitation outlook

Sub-seasonal developments may occur therefore regular updates to the forecast are strongly recommended. In addition, local factors (for example SSTs in the smaller basins of the region) may shape local variability at a regional level.

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.

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.

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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-30**

- World Meteorological Organization
- Met Office, United Kingdom
- Météo France, Republic of France
- Roshydromet, Russia
- European Center for Medium Range Weather Forecasts
- Deutscher Wetterdienst, Federal Republic of Germany
- Centro-EuroMediterraneo sui Cambiamenti Climatici (CMCC), Italy
- International Research Institute for Climate and Society, United States of America
- National Center for Environmental Prediction, United States of America
- PRESANORD, Regional Climate Outlook Forum for North Africa
- MedCOF, Mediterranean Climate Outlook Forum
- 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
- Institute of Geosciences, Energy, Water and Environment, Albania
- Israel Meteorological Service, State of Israel
- Jordan Meteorological Department, Hashemite Kingdom of Jordan
- Republic Hydrometeorological Institute, Republic of North Macedonia
- Hydrometeorological Institute of Montenegro, Montenegro
- State Hydrometeorological Service of the Republic of Moldova
- 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 Türkiye
- Ukrainian Hydrometeorological Center, Ukraine

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