RCOF Review 2017

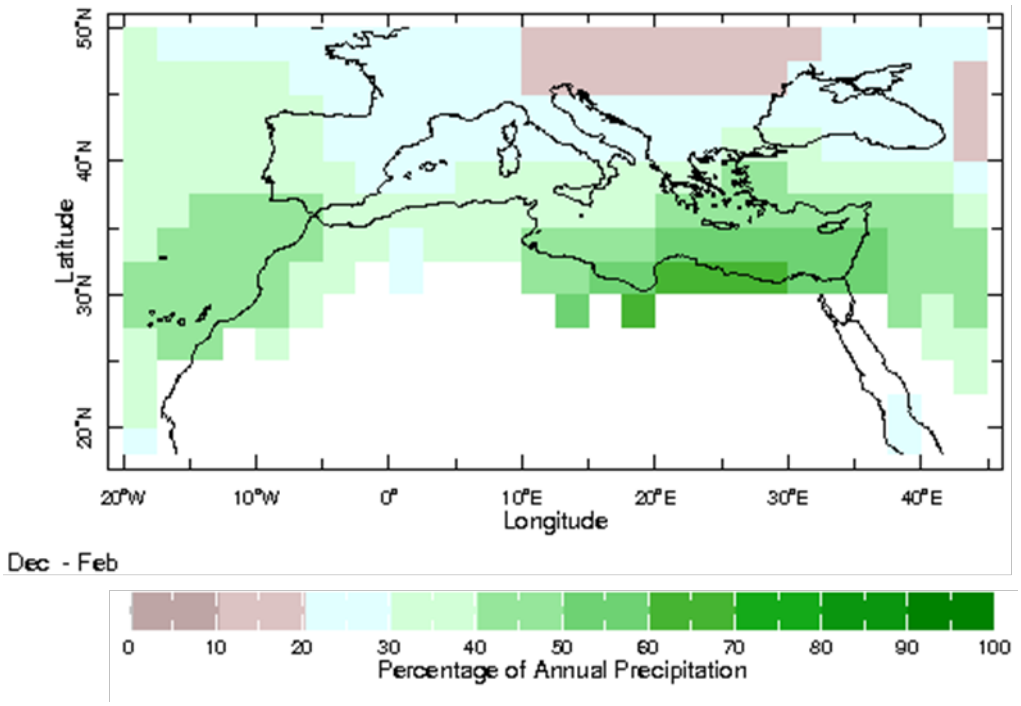
PRESANORD

Regional Climate Outlook Forum for North Africa

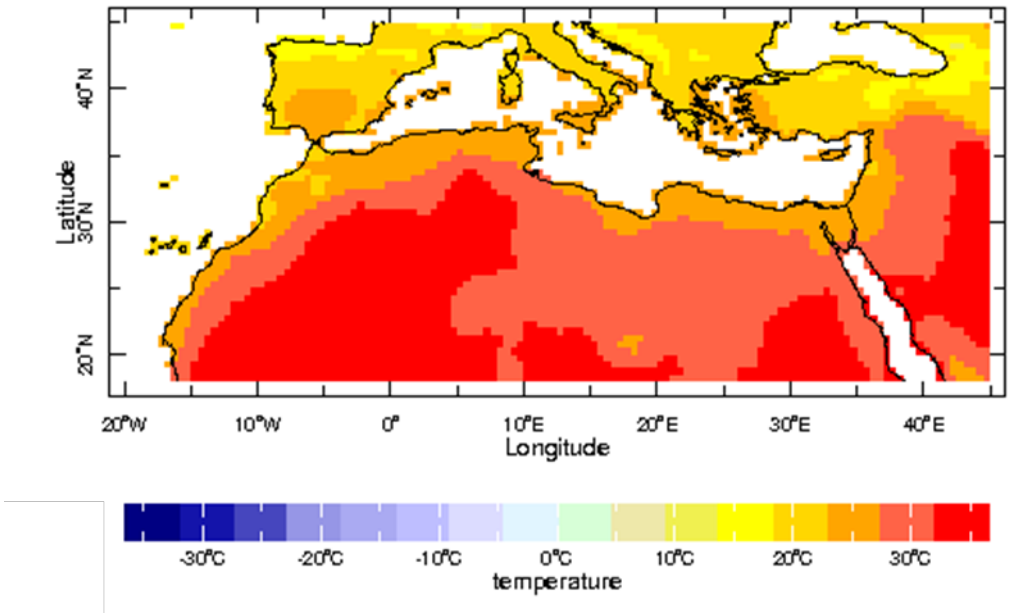
Status Report (Survey)

Climate features

North Africa typically covers the Mediterranean area in Africa between the Mediterranean Sea and Sub-Saharan Africa. The regional climate is hot in summer and moderately humid in winter.



Percentage of annual precipitation that occurs during December-January-February in North Africa, based on climatological precipitation using the 1981-2010 base period. (Source: IRI)



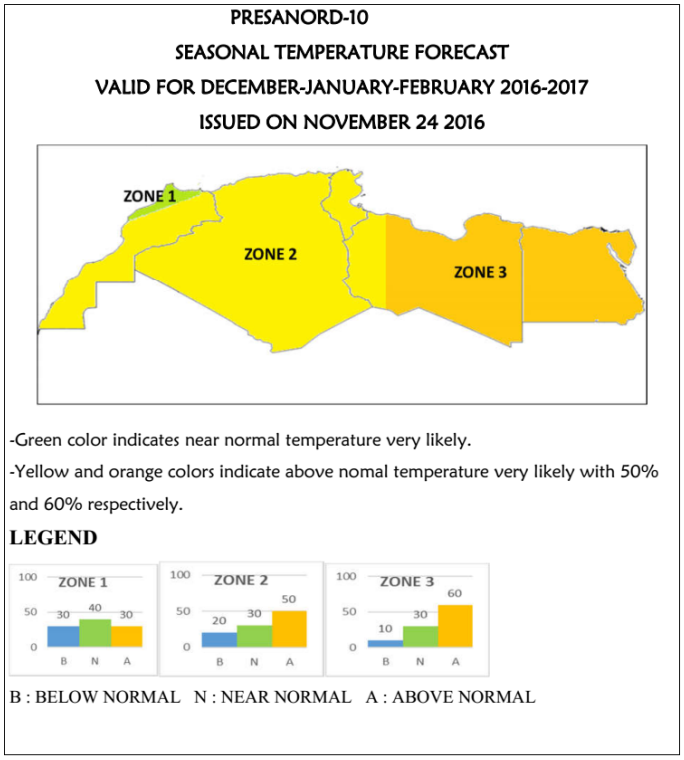
Surface air temperature climatology in Summer (1971- 2000) in North Africa (Source: IRI)

The large-scale circulation exerts a strong influence on winter precipitation and temperature through the North Atlantic Oscillation (NAO). El Niño Southern Oscillation shifts in the upper troposphere jet over the eastern Mediterranean region with synoptic systems passing over central and northern Europe and the Scandinavian pattern as additional features impacting the Mediterranean winter climate. In summer, Asian and African monsoons, blockings and Mediterranean Sea Surface Temperatures (SSTs) significantly modulate the Mediterranean climate. The SSTs of the equatorial Pacific, the tropical North Atlantic, the Eurasian snow cover, the Scandinavian pattern, the NAO, the Quasi- Biennial Oscillation (QBO), tropical intrusion, troughs, ridges and blockings constitute the major sources of seasonal climate variability and predictability in the region.

Both subsistence economies and commercial activities are highly dependent on weather and climatic factors. Floods, droughts, heat and cold waves significantly alter the production and transport patterns of commodities. Road and infrastructure damage, and loss of life and property associated with floods have become a matter of strong concern for cities in the area. The adverse impacts of climate variability include a large drop in agricultural production due to drought and reduced water availability. Moreover, climate is a principal driver of global seasonality in the tourism sector. The vagaries of the climate in North Africa can put the brakes on tourism activities.

PRESANORD: PREvisions climatiques SAisonnières en Afrique du NORD

The National Office of Meteorology and the African Centre for Meteorological Application for Development (ACMAD), in collaboration with the World Meteorological Organization (WMO), the National Meteorological and Hydrological Services (NMHSs) and its partners in seasonal forecasting, organized the first forum of Prévisions Climatiques Saisonnières en Afrique du Nord (PRESANORD) in January 2012 in Alger, Algeria. The PRESANORD sessions are held once a year in late November for the December-January-February season. Since YYYY, November sessions are being held together with the Mediterranean Climate Outlook Forum (MedCOF), which operates as an overarching entity in support of two other RCOFs in the Mediterranean Region the PRESANORD and the South East European Climate Outlook Forum (SEECOF). The countries involved in the forum are Algeria, Egypt, Libya, Morocco and Tunisia.



Example: Seasonal temperature forecast for winter 2016/2017 for PRESANORD domain

The PRESANORD process includes the following components:

- *A training workshop on seasonal climate prediction to strengthen the capacity of national and regional climate scientists; generally preceding the November face to face MEDCOF , PRESANORD and SEECOF sessions.*

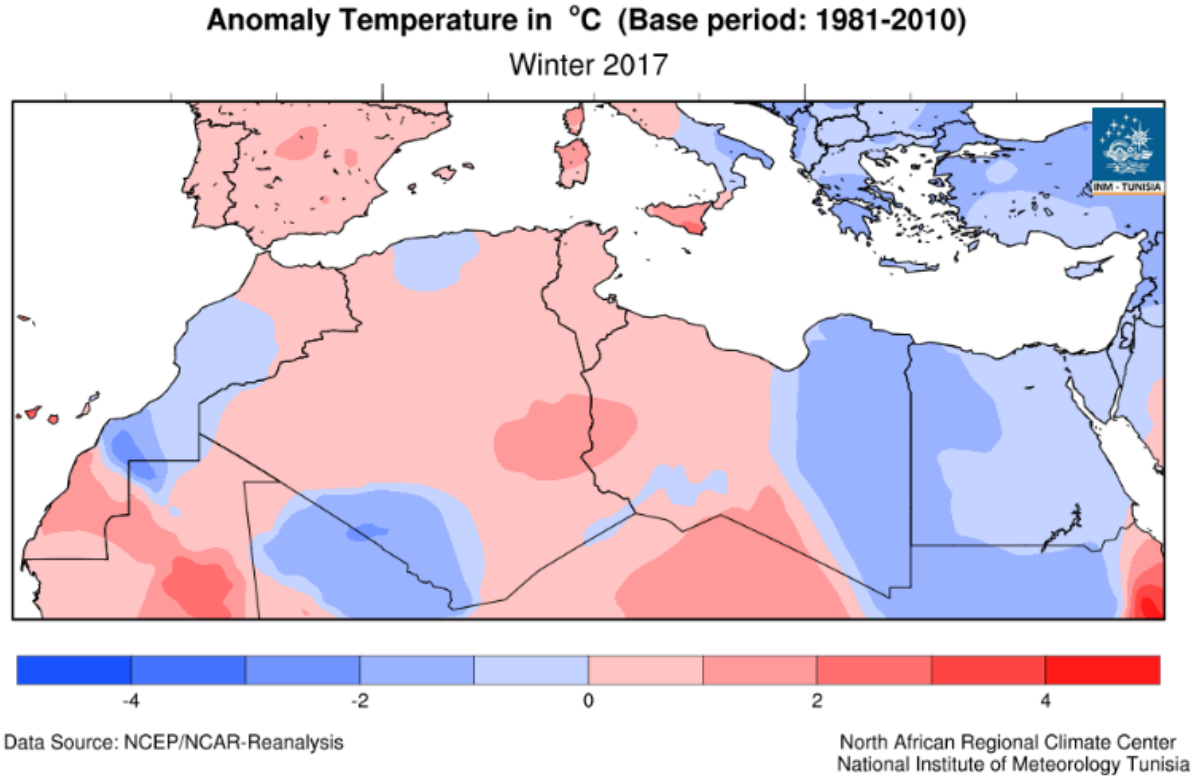
- *Meetings of regional and international climate experts, first to assess the consensus seasonal climate outlook for the region for the previous season (comparative method using*

reanalyzes and observation data, due to insufficient period to calculate skill score) ; second to develop a consensus for the regional climate outlook based on WMO GPC-LRF and NA RCC and Europe RCC

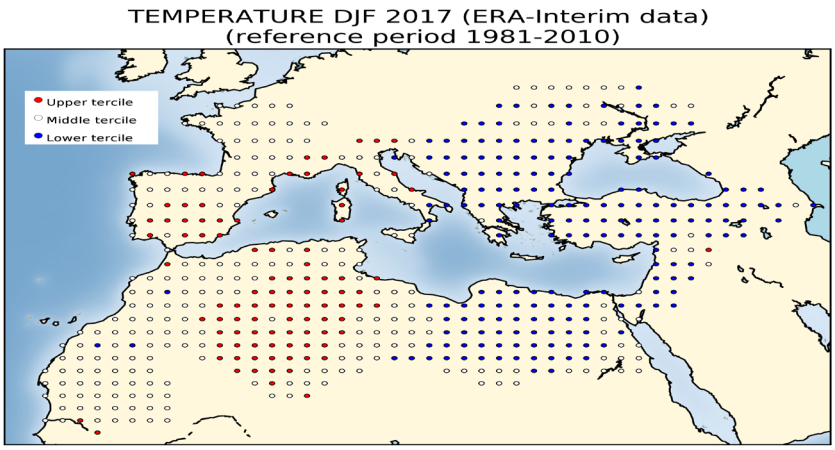
• User 's session, in which both climate scientists and representatives of user sectors discuss on the potential applications of RCOF products of the regional and international climate experts to develop a consensus for the regional climate outlook.

At national levels, monthly seasonal forecasts bulletin for the three upcoming months is produced and disseminated to governmental authorities, public services for various sectors (water, energy, agriculture, tourism).

Evaluation of products



Verifying winter 2016/2017 temperature for North Africa region using anomaly of temperatures relative to the period 1981-2010



Verifying winter 2016/2017 temperature for MEDCOF region using tercile categories of temperature anomalies relative to the period 1981-2010

The evaluation of PRESANORD seasonal forecast product is carried out twice a year for winter (December-January and February) and summer (June-July-August) seasons. The evaluation is based on National Climate reports and Climate Monitoring information from MEDCOF and PRESANORD;

Capacity needs

In order to improve the quality and consistency of PRESANOR products, there is a need to promote capacity development by ensuring regular training process that allows:

- *Better understanding of climate mechanisms influencing the climate of the region*
- *The elaboration of tailored seasonal forecast products to be used by sectors*
- *An appropriate evaluation of seasonal forecast products*

Discussions during PRESANORD user's session highlighted the importance of climate information for socio-economic sectors (Agriculture, Water resources, Public health, Energy, Tourism…) as well as its accuracy and mentorship by the climate experts to enable an efficient use of this information.

User involvement

The forum brings, in principle, together climate specialists from NMHSs, international experts in climate analysis and forecasting, representatives of research centers and academics, and representatives of institutions using climate information for diverse sectors such as agriculture and food security, water resources, energy, health, tourism, natural ecosystem and disaster management. Experts from the tourism and agriculture sector of the North African countries have been engaged during forums for application of seasonal forecasts in the sector.

SWOT ANALYSIS

The forum provides an opportunity for member countries to exchange information on the last and current knowledge of climate conditions and also a good knowledge of Climate features of the North Africa region. It also allows evaluating seasonal forecasts in several regions and give broader idea about their quality.

Some weaknesses are related to the availability of funding which limits the participation of users. The weak reactivity and implication of some members is another constraint.

The official designation of North African RCC should be very helpful tu go further with seasonal forecast in the region. Increasing users need for tailored seasonal forecast products is another opportunity to catch to start the application of seasonal forecast to sectors.

Success stories based on user feedback

Morocco: Works are undertaken in order to evaluate the use of seasonal forecast information to strengthen the resilience of Agriculture; collaboration between DMN (Moroccan Met Service) and INRA (National Institute of Agronomic Researches)

Sustainability of RCOF

PRESANORD was at the beginning leaded by ACMAD. The North Africa RCC-Network has been formally designated by CBS at its 16 session in 2016. Since then, he ensures the coordination along with the MedCof for the organization of PRESANORD, chair of its sessions and finalizing the Consensus Statement.

Most of the North African countries participate to PRESANORD and express their needs to have better forecast for the rainy season. Each country has a focal point but still there is a need to enhance the collaboration in the organization of this RCOF.

At this stage, PRESANORD is organized at least once a year thanks to the contribution of Agencia Estatal de Meteorología - Aemet-Spain which provides financial support (through WMO) for participants and trainers. We hope that this support will be maintained for the next few years. At the end of the rainy season, use for web meeting may be a good solution to assess the seasonal forecasts of PRESANORD.

Way forward

- *Improve consensus outlook products: scientific research on ocean-land-atmosphere modeling, new predictors for statistical forecasting tools, studies on local and regional climate variability and trends, assessments of regional performance of forecasting*

systems, including their strengths and weaknesses in predicting NAO, tropical Atlantic SSTs, QBO, blockings, troughs, ridges and other features modulating significantly regional climate variability, are proposed. Specifically, better understanding and prediction of the tropical North Atlantic SSTs, NAO and interactions between troposphere and stratosphere are required.

- *Improve model forecast over the region*
- *Demonstrate the usefulness of seasonal forecast at long term through practical project.*