Annex

Country: Israel

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Assessment of the seasonal forecast for the winter season

DJF 2015-16

1. MedCOF-5 Climate outlook for the 2015-16 winter season:

The MedCOF-5 temperature outlook assigned 50% chance for the "above normal" tercile, 30% for the "normal" tercile and 20% for the "below normal" terciles (fig. 1).

The MedCOF-5 precipitation outlook had no preference for any climate defined category. Therefore a-priori the forecast skill was zero (fig. 2).

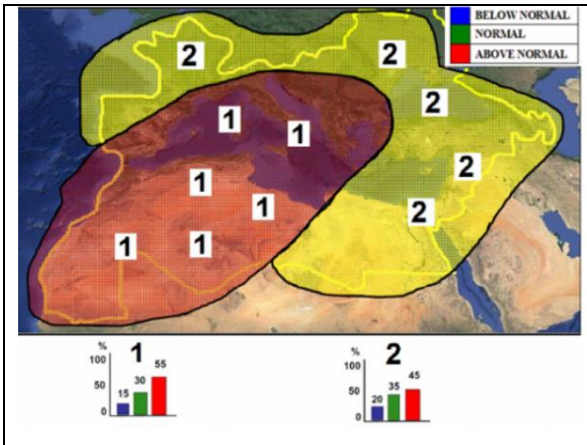

Fig. 1: 2015/16 winter temperature outlook

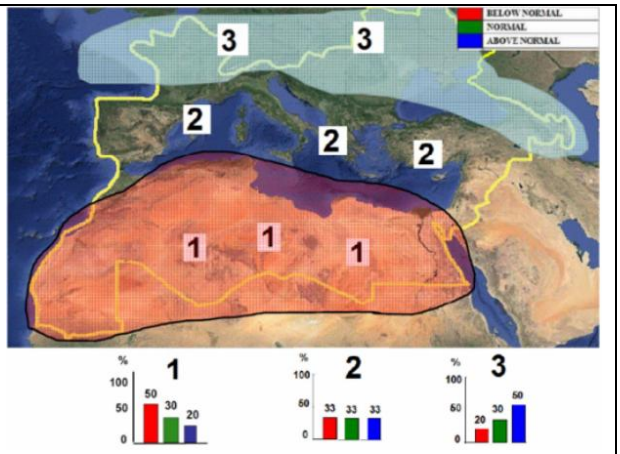

Fig 2: 2015/16 winter precipitation outlook

2. Analysis of the 2015-16 winter season:

2.a) Temperature

The average temperature of five stations, which represent most of the country's climate regimes, was used. The stations used are: Eilat (southern Israel) Negba (southern coastal plan), Bet-Gimal (central low mountain ridge), Jerusalem (central mountain ridge) and Zefad (Northern mountain ridge). The choice was proved to be correct as these stations' average temperature for the last decade (2001-2010) turned out to be almost identical to the average temperature produced from 39 stations spread all over the country.

It can be seen from figure 3 that the 2015-16 DJF average temperature resides in the "above normal" tercile.

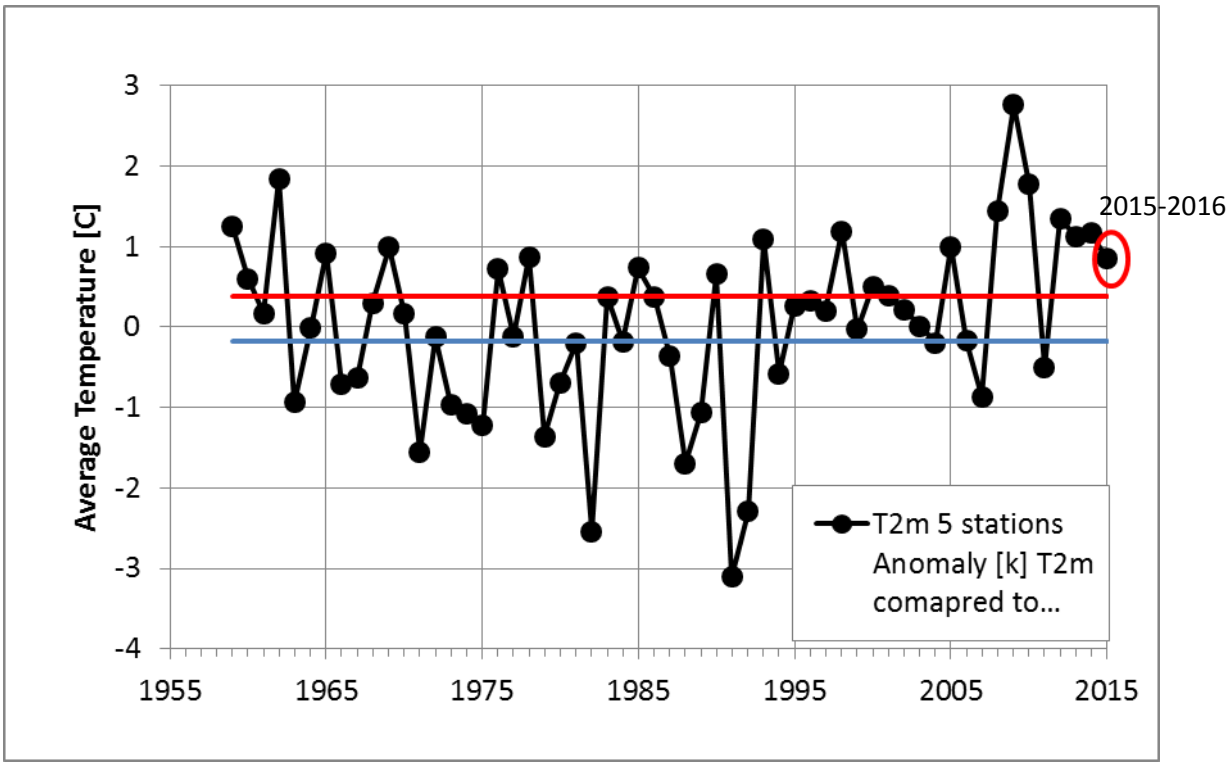

Fig. 3: DJF average temperature anomalies (base period 1981-2010) for Israel since 1959 (DJF 1959/1960). The horizontal lines represent the upper and lower tercile thresholds for the 1981-2010 reference periods.

2.b) Precipitation

The average DJF 2015/16 precipitation observed for the Mediterranean part of Israel was 295.3 mm. This value is 36.8% below the 1981/82-2010/11 average, 1.0% below the median and resides in the 48.1% percentile from the precipitation distribution. Hence, DJF 2015/16 resides in the "around normal" tercile and close to median of 1981/82-2010/11. From Figure4 it is evident that in Southern Israel the precipitation was above normal while in Northern Israel below normal precipitation was observed.

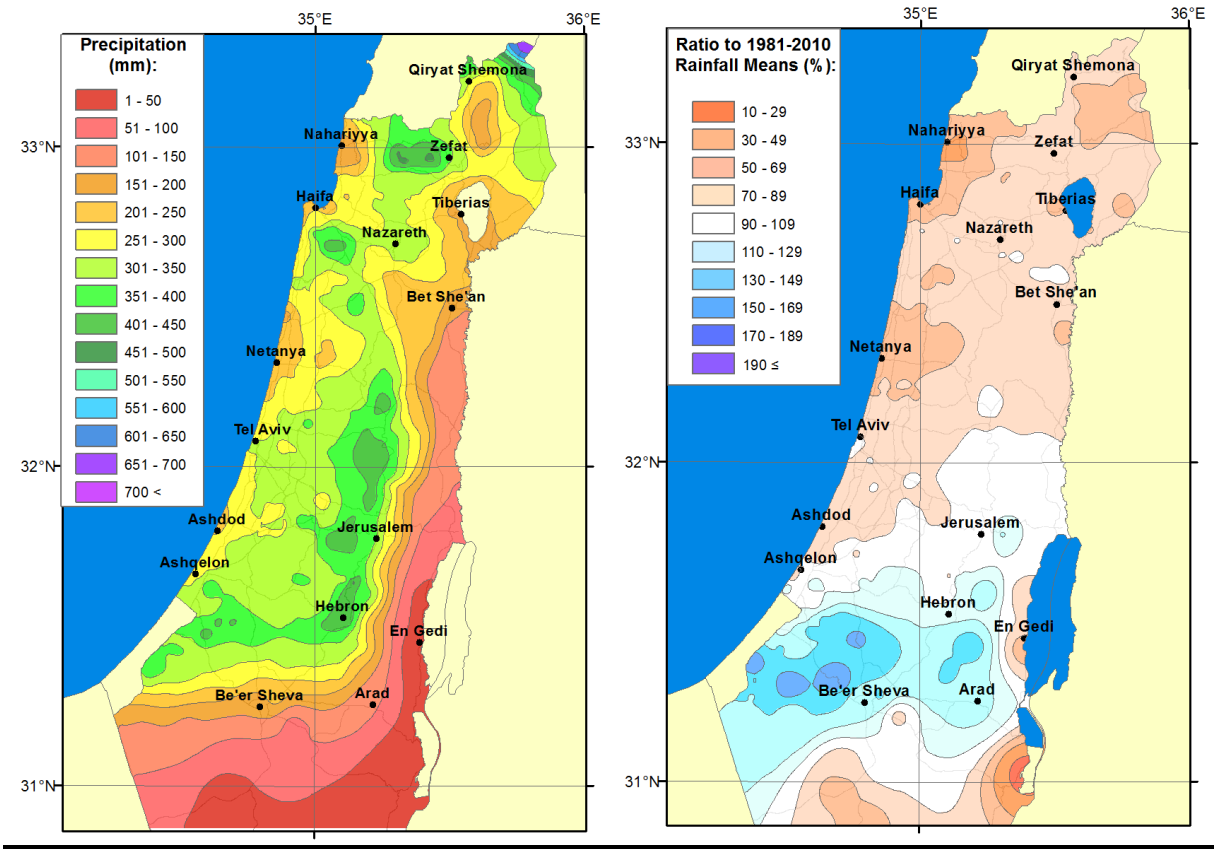

Fig 4: (a) DJF 2015/16 accumulated precipitation (mm). (b) Percent of normal (1981-2010).

3. Verification of the MedCOF -5 climate outlook for the 2015-16 winter season:

The table below is a verification summary of the climate outlook for the DJF 2015-16 to the reference period of 1981-2010.

Country	Seasonal temperature (DJF)			Seasonal precipitation (DJF)		
	Observed	MedCOF-5 climate outlook for temperature	Ranked Probability Skill Score*	Observed	MedCOF-5 climate outlook for precipitation	Ranked Probability Skill Score
Israel	Above normal	45% above normal, 35% Around Normal and 20% Below Normal	0.3836	Around normal	Equal probability for all categories	-0.011

*The Rank Probability Skill Score (RPSS) is essentially an extension of the Brier score to 3 event situation.

$$RPS = \sum_{m=1}^{j}\left[\left(\sum_{j=1}^{m} F_J\right) - \left(\sum_{j=1}^{m} O_j\right)\right]^2$$

Where F and O denotes the Forecast and Observed values, respectively for tercile forecasts j=3.

The skill score is defined by:

$$RPSS = 1 - \frac{RPS}{RPS_{c\lim}}$$

Were RPS_{clim} is obtained by assigning equal probability of 33.33% to all categories.

4. Users' perceptions of the MedCOF-5 outlook

The seasonal forecast skill is still too low in order to provide it to decision makers in the government or to public services. As there are other professional and unprofessional seasonal forecasts in the air, we provide only the wide public with the seasonal forecast to show our efforts to deal with this tough issue.

The most important forecast is for precipitation. As we did not indicate any preferable scenario, obviously the end users were not satisfied.