Annex

Country: Israel

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Assessment of the seasonal forecast for DJF 2024-25

SEECOF-32 Climate outlook for the 2024-25 winter season:

The SEECOF-32 temperature outlook assigned 60% chance for the “above normal” tercile, 30% for the “normal” tercile and 10% for the “below normal” terciles (fig. 1). The SEECOF-32 precipitation outlook assigned 10% chance for the “above normal” tercile, 40% for the “normal” tercile and 50% for the “below normal” tercile (fig. 2).

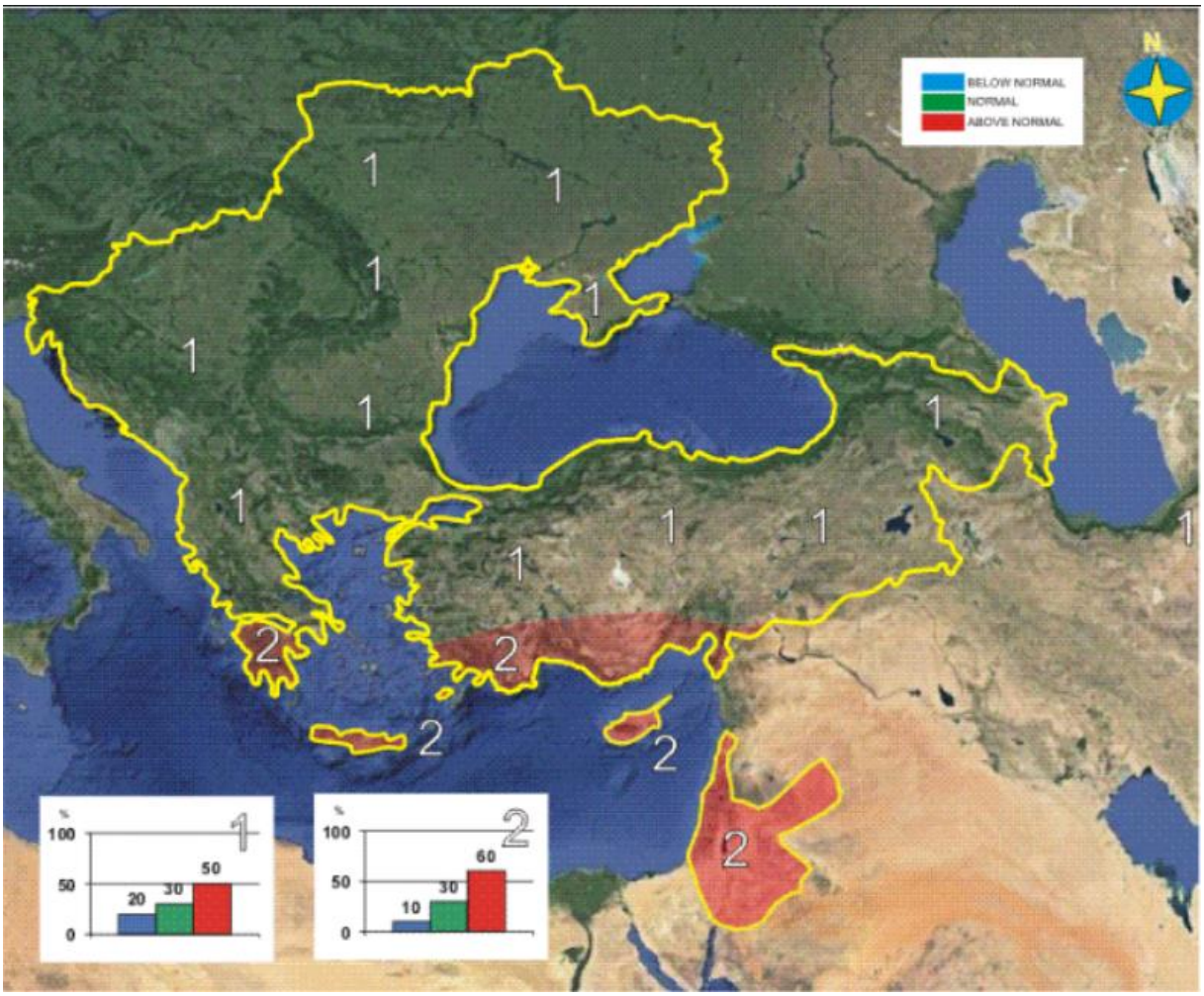

Fig 1. SEECOF-32 temperature outlook for 2024-2025.

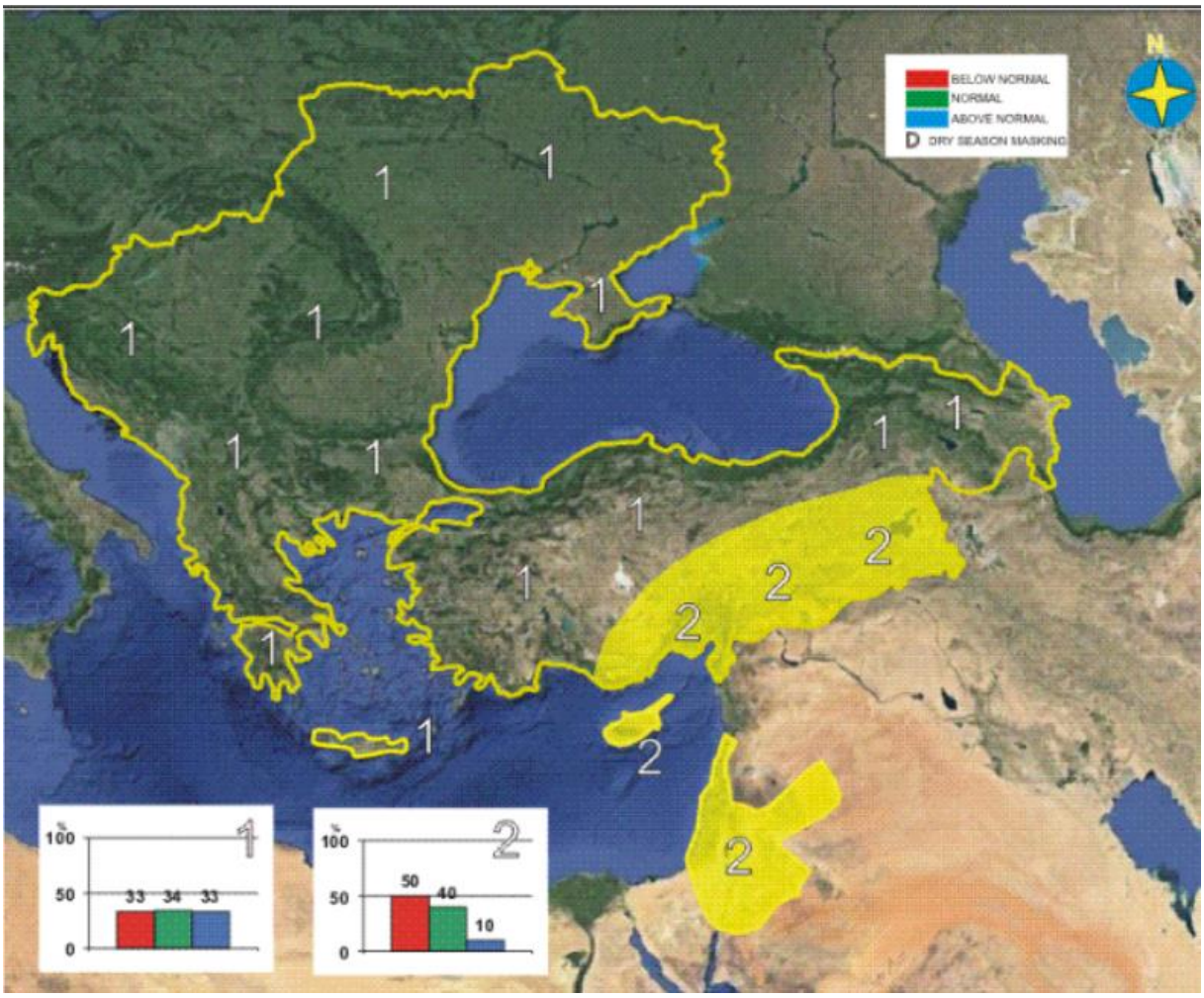

Fig 2. SEECOF-32 precipitation outlook for 2024-2025.

1. Analysis of the 2024-25 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). 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 DJF 2024/25 average temperature resides in the "above normal" tercile.

DJF 2024/25 was warmer by 0.57°C relative to the period 1991/92-2020/21, this value is in located in the 65% percentile of 1991/92-2020/21 distribution. DJF 2024/25 was "normal".

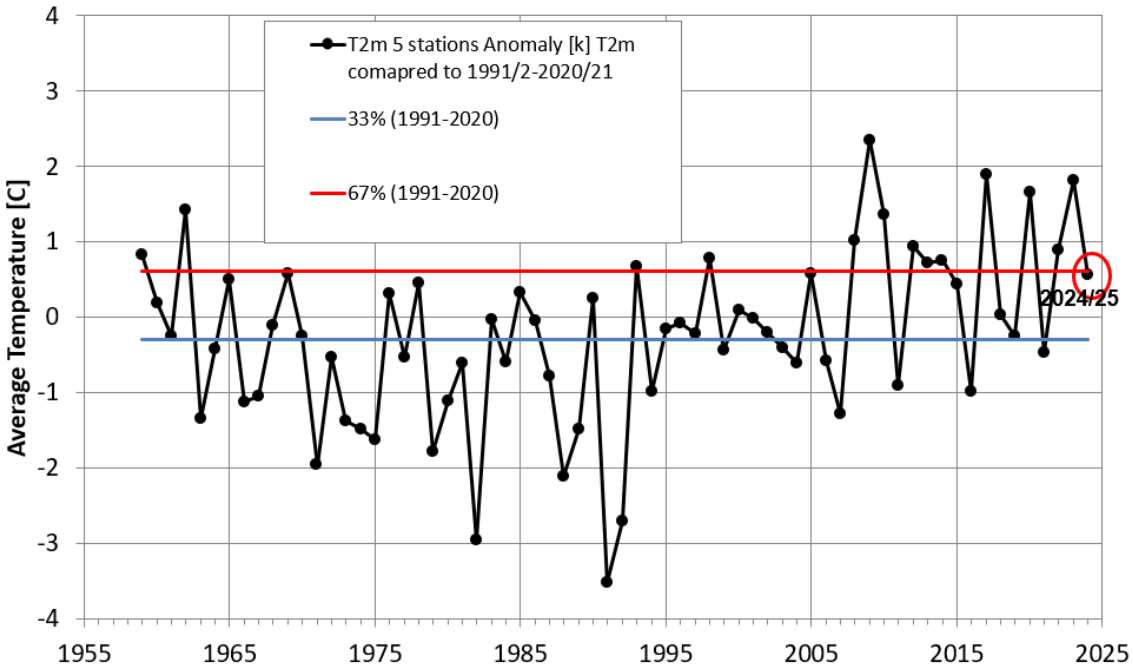

Fig. 3. DJF average temperature anomalies for Israel since 1959 (DJF 1959/1960). The horizontal lines represent the upper and lower tercile thresholds for the 1991-2020 reference periods.

2.b) Precipitation

The precipitation over the Mediterranean part of Israel is averaged by GIS calculation for stations which are above the of 200 mm isohyet (for all the rainy season not only DJF), to exclude the desert areas which are less predictable.

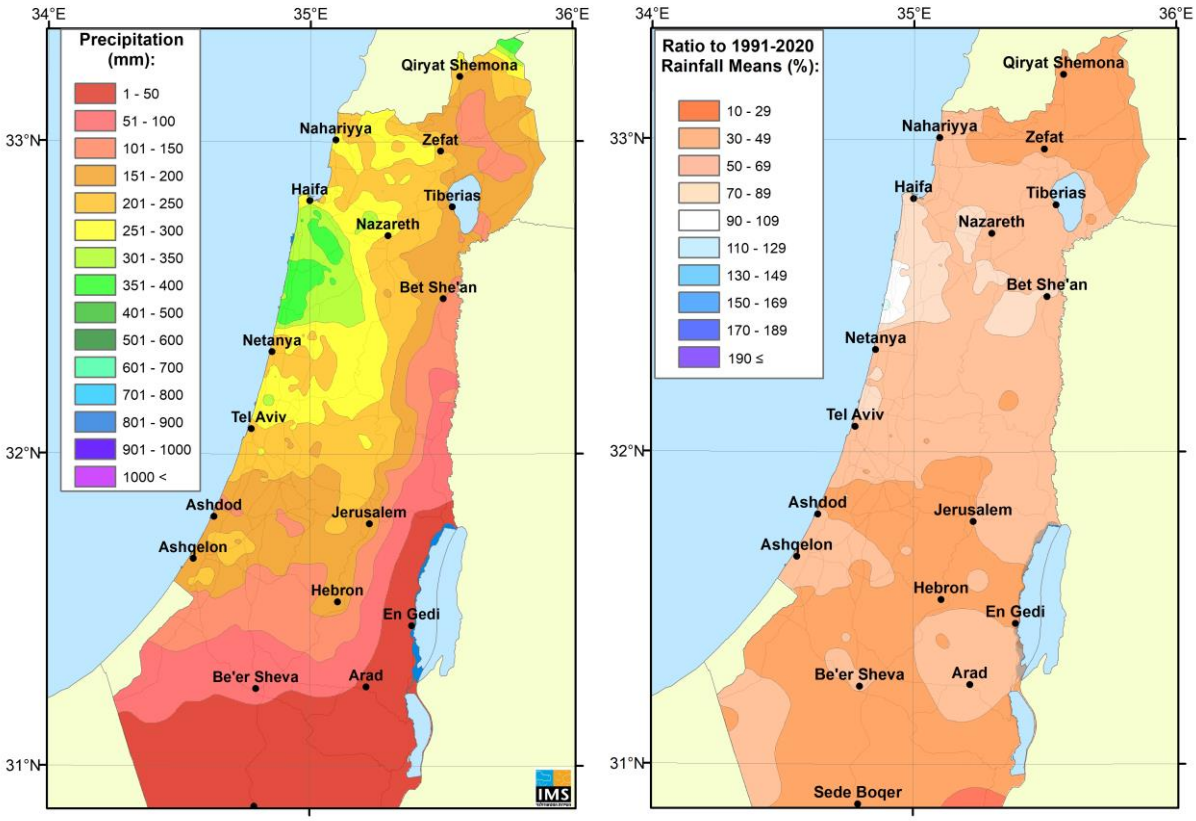

Fig 4. (a) DJF 2024/25 accumulated precipitation (mm). (b) Percent of normal (1991-2020).

The 1991-2020 DJF precipitation distribution is skewed towards high values. Therefore, the mean of 352.5 mm is higher than the median (324.6 mm) by 8.6%. The lower tercile resides for precipitation lower than 296.5 mm and the higher tercile resides for precipitation that equals or above 353.7 mm. Therefore, the mean almost resides in the third tercile! The mean located in the 65.7% percentile from the precipitation distribution, which is almost in the limit between the "normal" tercile to the "above normal" tercile. The average DJF 2024/25 precipitation observed for Israel was 193.4 mm. This value is 45.1% below the 1991/92-2020/21 average, 40.4% below the median and resides in the 0.2% percentile from the precipitation distribution. Hence, DJF 2023/24 resides in the "below normal" tercile of 1991/92-2020/21.

2. Verification of the SEECOF -32 climate outlook for the 2024-25 winter season:

The table below is a verification summary of the climate outlook for the DJF 2024-25 to the reference period of 1991-2020.

Country	Seasonal temperature (DJF)			Seasonal precipitation (DJF)		
	Observed	SEECOF-32 forecast	RPSS	Observed	SEECOF-32 forecast	RPSS
Israel	normal	60% above normal 30% around normal 10% below normal	-0.665	below normal	10% above normal 40% around normal 50% below normal	0.532

*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.

3. Users' perceptions of the SEECOF-32 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. The IMS gave no signal for the DJF precipitation, therefore the end users were not satisfied as they could not use the forecast.