



SEECOF-8 verification for DJF 2012-2013 over Israel

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a. Precipitation

21 stations from Northern and Central Israel were used to calculate mean DJF precipitation over Israel. Table 1 presents the average, median and tercile values for DJF 2012-2013 precipitation (421 mm) compared to 3 reference periods of 30 years.

Table 1: Evaluating DJF average precipitation amount of **421 mm** to determine tercile categories and anomalies with respect to mean and median for 3 climatology reference periods.

climatology periods	Tercile thresholds	2012/13 category	Climate mean	2011/12 anomaly	Climate median	2011/12 anomaly
1961-1990	286 - 399	Above	349	21%	333	26%
1971-2000	282 - 371	Above	352	20%	315	34%
1981-2010	291 - 343	Above	348	21%	315	34%

Conclusions:

- 1) The SEECOF-8 precipitation outlook assigned 20% chance for the “below normal” tercile, 35% for “normal” and 45% for the “above normal” terciles for our region (Fig. 1).
- 2) Comparing to all three climatologically periods, DJF 2012-13 (421 mm) was in the “above normal” tercile (Fig. 2), matching the most probable tercile of the SEECOF forecast.
- 3) Examining the results of 12 GPC’s (Figs. 3, 4) it can be seen that: Exeter gave a strong erroneous negative anomaly, Washington and CPTEC (Brazil) gave a correct positive anomaly and ECMWF, Moscow and Pretoria gave a weak positive anomaly. The other 6 centers did not predict any precipitation anomaly.

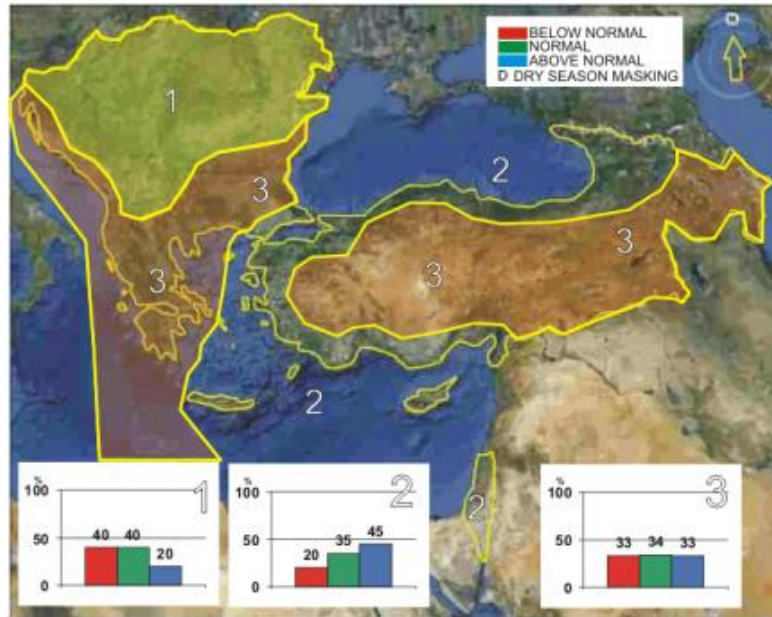


Figure 2. Graphical presentation of 2012/13 winter precipitation outlook

Fig. 1: The SEECOF-8 DJF precipitation forecast map that shows the probabilistic consensus forecast for tercile categories of anomalies of seasonal mean precipitation, relative to the period 1981-2010.

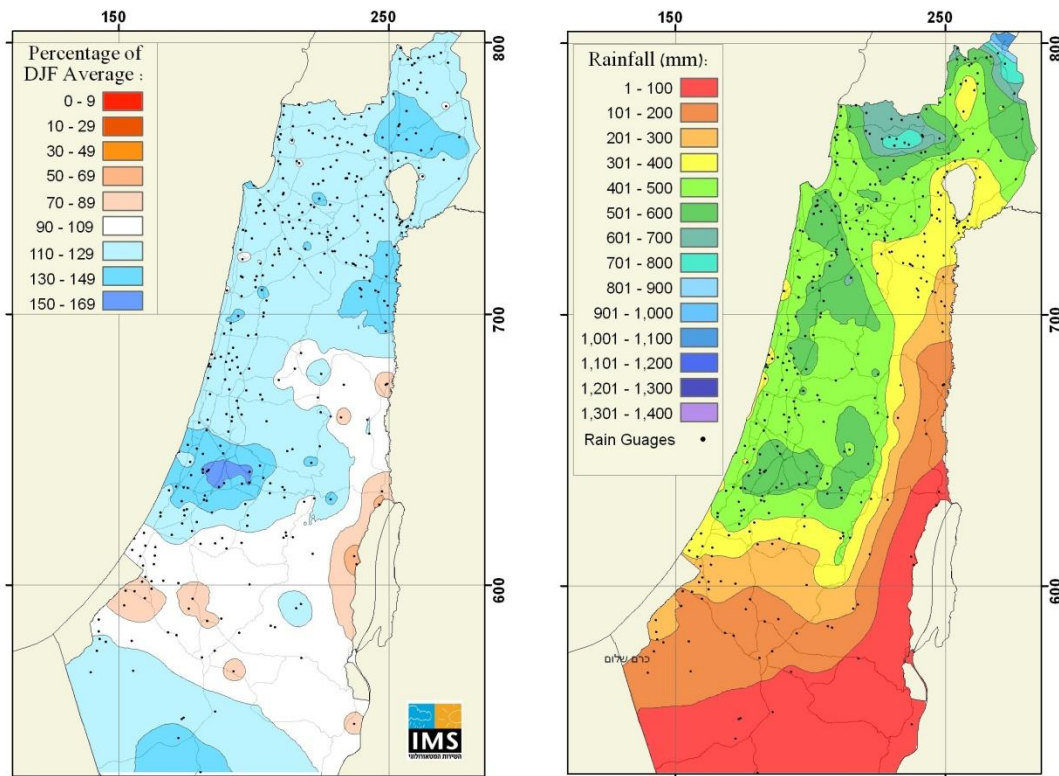


Fig. 2: DJF 2012-2013 rainfall in Israel compared to 30 year average

lat=30 50
lon=15 50

Precipitation : 02012

(issued on Nov) [Unit: mm/day]

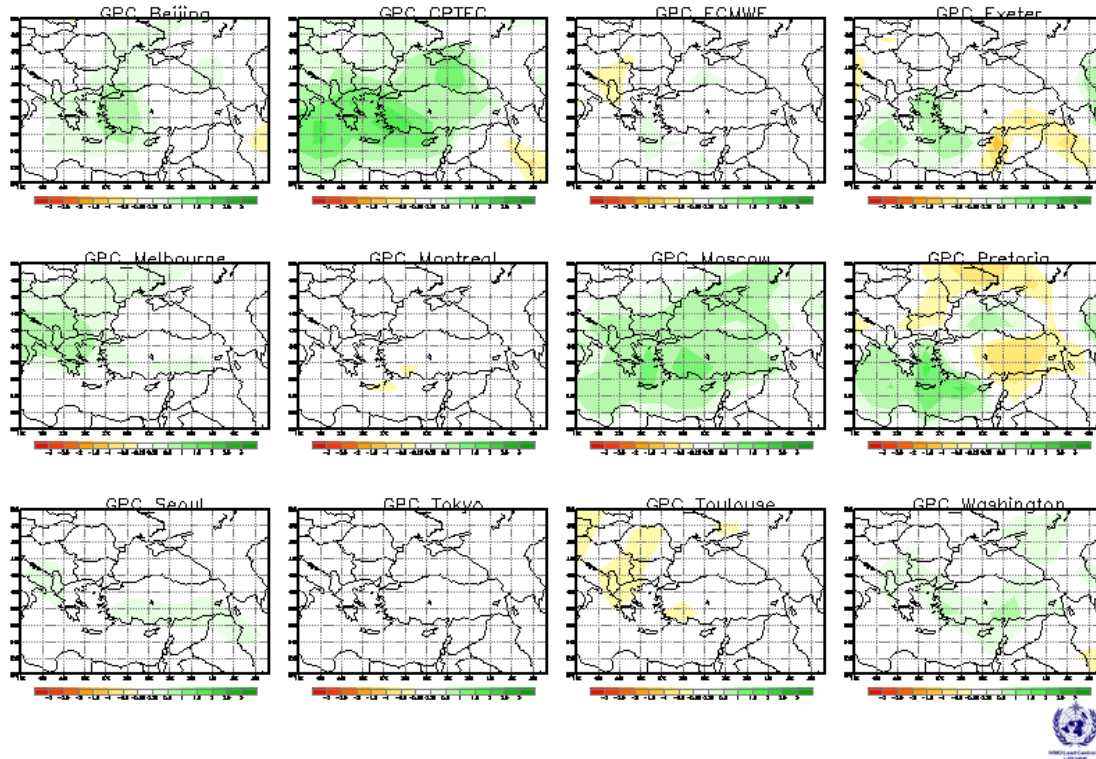


Fig 3: 12 GPC forecast for DJF precipitation anomaly over the SEECOF domain.

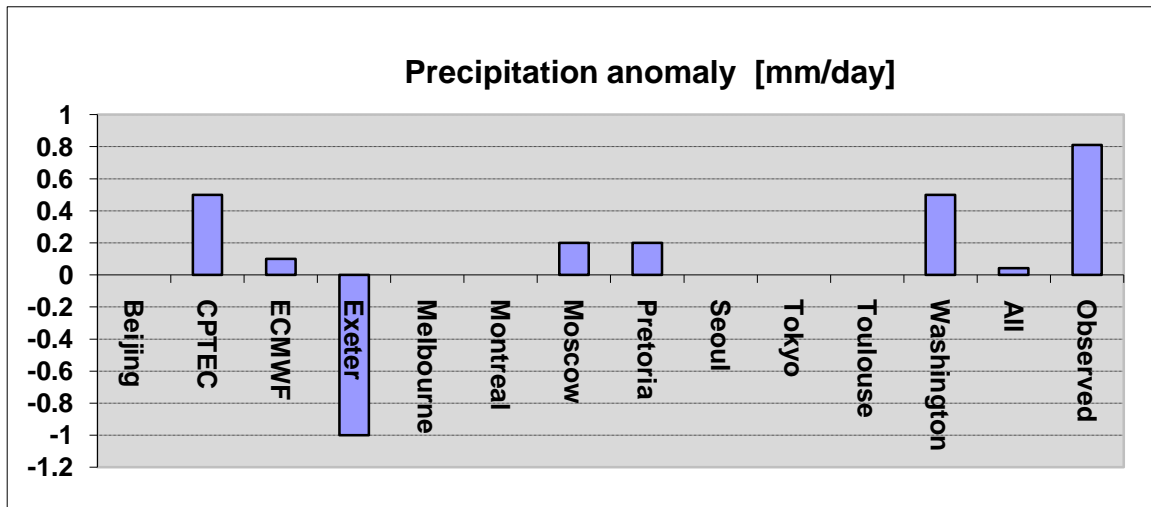


Fig 4: The 12 GPC forecast precipitation anomaly in mm/day for DJF over Israel. The values were subjectively retrieved from figure 3.

b. Temperature

Five stations were used to represent the country average temperature: Eilat (southern Israel) Negba (southern coastal plan), Bet-Gimal (central low mountain ridge), Jerusalem (central mountain ridge) and Zefad (Northern mountain ridge). Table 2 presents the average DJF 2012-13 of the five stations (13.7°C) compared to 3 reference periods of 30 years: 1961-1990, 1971-2000, 1981-2010.

Table 2: Comparing five stations average DJF temperature value of 13.7°C to determine tercile categories and anomalies with respect to mean and median for 3 climatology reference periods.

climatology periods	Tercile thresholds	2011/12 category	Climate mean	2011/12 anomaly	Climate median	2011/12 anomaly
1961-1990	11.7-12.6	Above	12.1	+1.6	12.2	+1.5
1971-2000	11.6-12.7	Above	12.0	+1.7	12.2	+1.5
1981-2010	12.2-12.8	Above	12.4	+1.3	12.6	+1.1

Conclusions:

- 4) The SEECOF-8 temperature outlook assigned 40% chance for the “above normal” tercile, 40% for the “normal” tercile and 20% for the “below normal” terciles (Fig. 5).
- 5) It can be seen in table 2 and figure 8 that the DJF average temperature was in the “above normal” tercile.
- 6) Examining the results of 12 GPC’s (Figs. 6, 7) it can be seen that: CPTEC, Montreal and Melbourne indicated a relatively strong positive anomaly, ECMWF, Pretoria, Seoul, Tokyo and Washington indicated a weak positive anomaly and Exter and Toulouse indicated an erroneous negative anomaly.
- 7) SEECOF assigned correctly low probability for the “below normal” category. Since the chance for warm and wet winters in Israel is only 5% (table 3), the decision to assign equal probabilities for “normal” and “above normal” temperatures seems logical after assigning high probability for “above normal” precipitation.

Table 3: Contingency table for 61 year (1951-2011) of joint Rain-Temperature tercile probabilities, calculated for the reference period 1971-2000.

		Temperature		
		Below	Normal	Above
Rain	Below	2%	5%	20%
	Normal	8%	16%	15%
	Above	13%	16%	5%

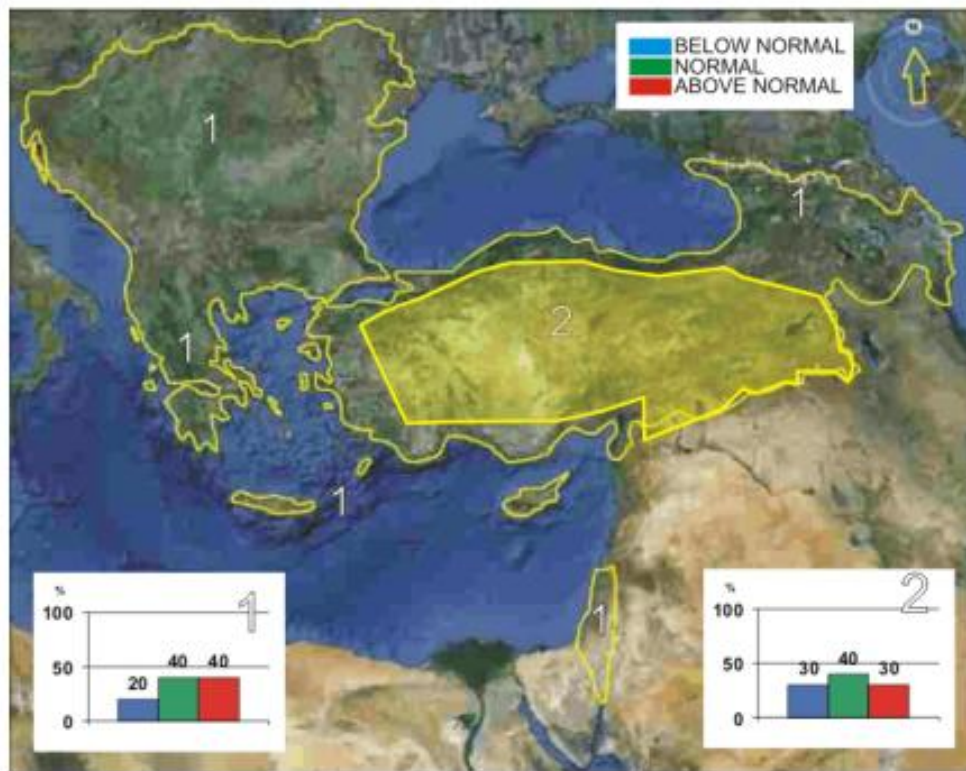


Figure 1. Graphical presentation of 2012/13 winter temperature outlook

Fig. 5: The SEECOF-8 DJF temperature forecast map that shows the probabilistic consensus forecast for tercile categories of anomalies of seasonal mean temperature, relative to the period 1981-2010.

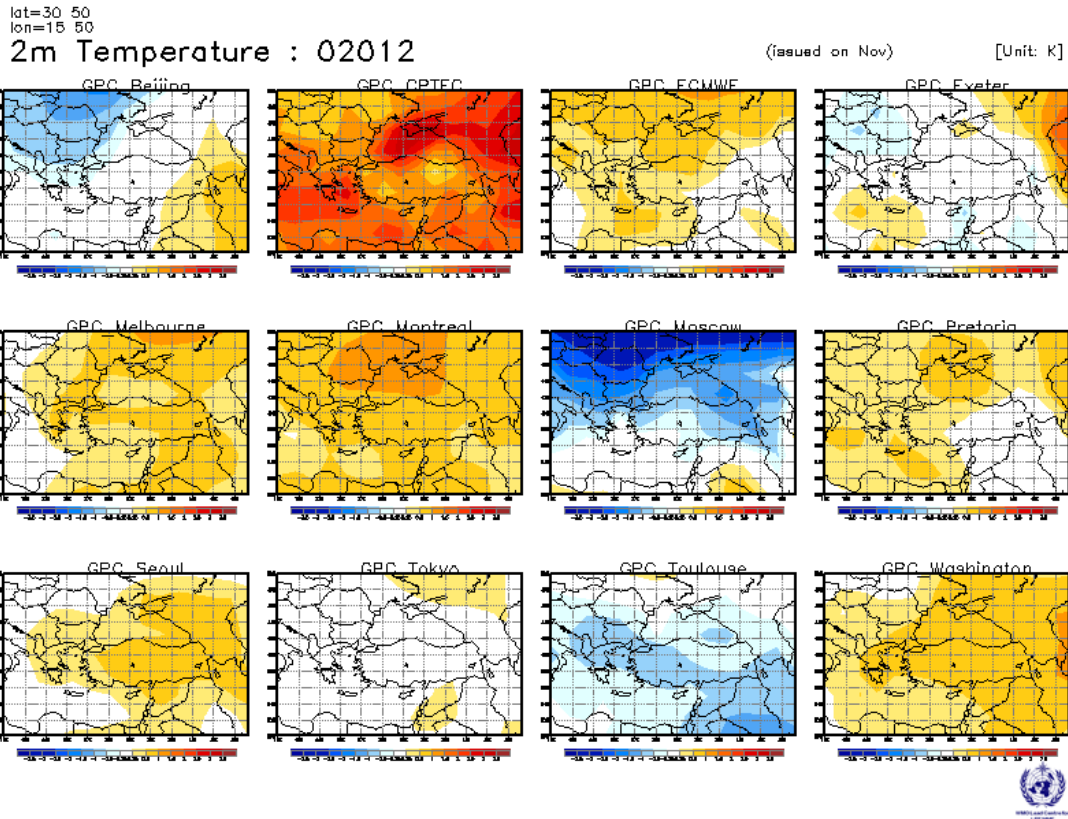


Fig 6: 12 GPC forecast for DJF temperature anomaly over SEECOF domain.

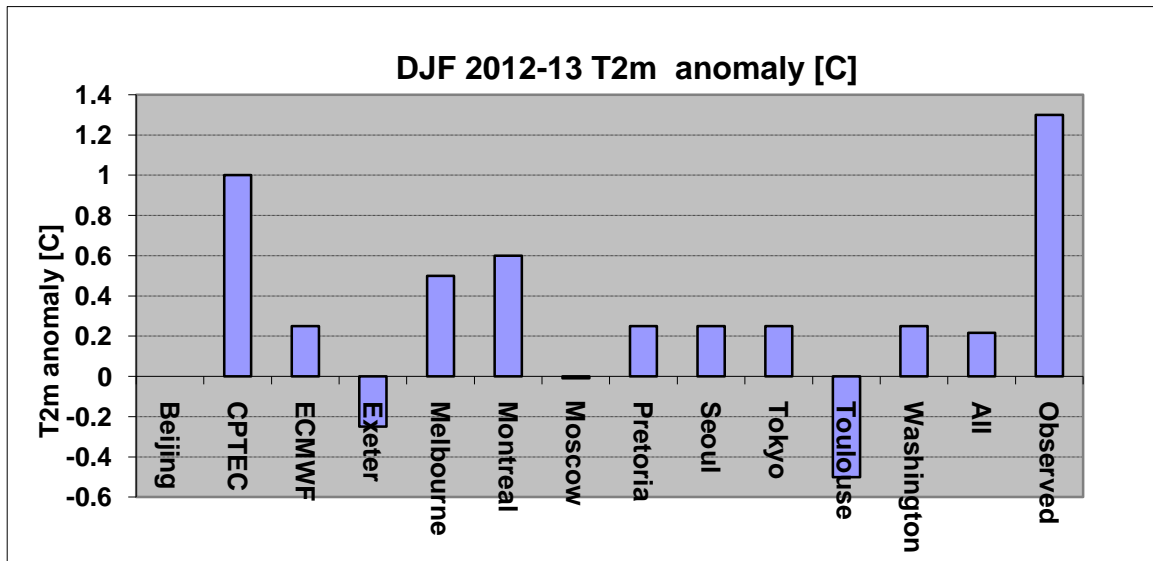


Fig. 7: The 12 GPC forecast temperature anomaly for DJF over Israel. The values were subjectively retrieved from figure 6. The "observed" value is the average of five stations anomaly calculated for 1981-2010 reference periods (table 2).

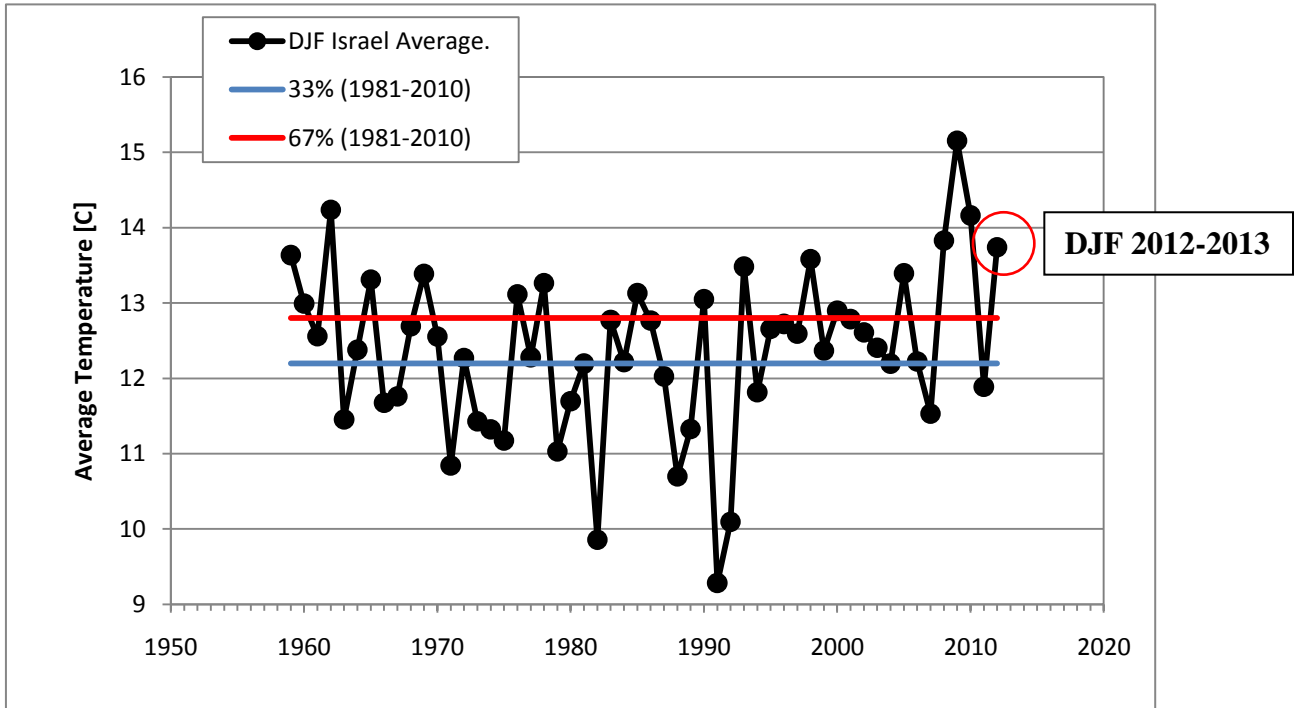


Fig. 8: The average DJF temperatures from five representing stations in Israel. The horizontal lines represent the upper and lower tercile for the 1981-2010 reference periods.