

Seasonal outlook for summer 2013 weather conditions over Greece

The seasonal forecasts of the forthcoming summer 2013 provided by Hellenic National Meteorological Service (HNMS) were archived from the European Centre for Medium-Range Weather Forecasts (ECMWF). The IRI experimental Climate Outlook for Europe for June - August 2013 was also taken under consideration (source: <http://portal.iri.columbia.edu>). IRI maps given only show the tercile probabilities of precipitation and temperature.

ECMWF seasonal forecast plots for summer 2013 based on the May 2013 run for mean temperature anomalies are presented in figure 1. A small positive mean 2m temperature anomaly up to 1°C over central and eastern parts of Greece (mainly the Aegean islands) is expected. A slight increasing tendency of 0.0-0.5°C over north and south mainland of Greece as well as Cyclades and Crete Island is also illustrated.

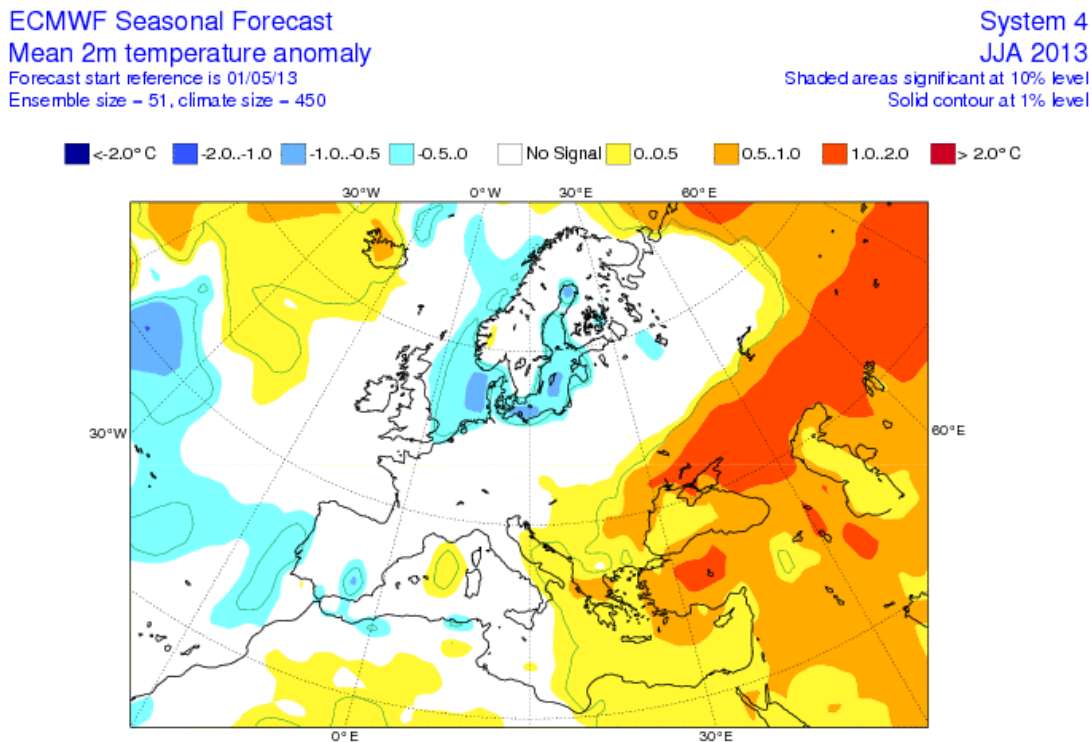


Figure 1. ECMWF seasonal forecast plots for summer 2013 based on the May 2013 run for mean temperature anomalies

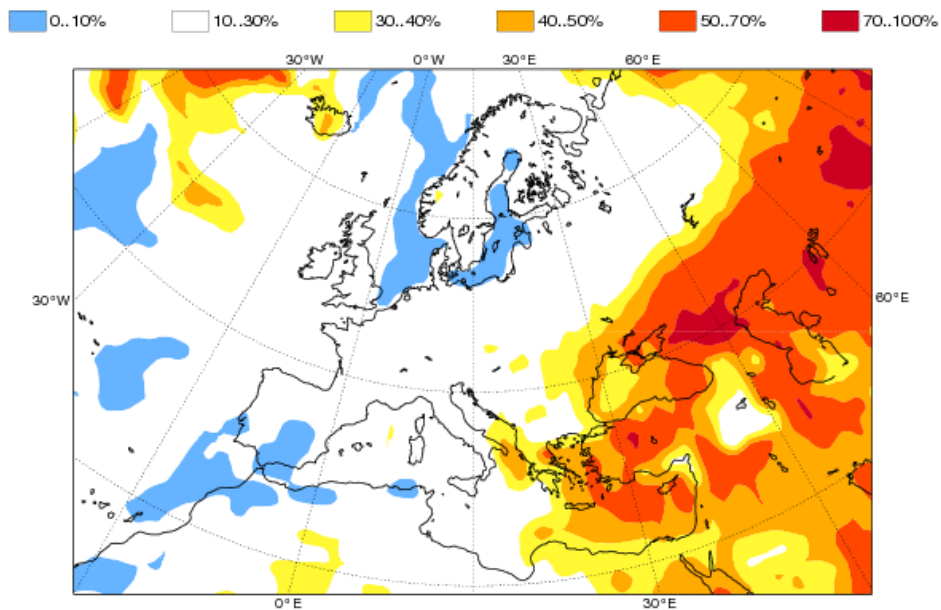


Figure 2. ECMWF seasonal forecast plots for summer 2013 based on the May 2013 run of the probability 2m temperature to exceed the upper 20th percentiles.

Figure 2 illustrates the probability map for 2m temperature to exceed the upper 20th percentiles highlighting regions where the distribution of likely outcomes is shifted very substantially from the climatological average. These are mainly as already stated the eastern parts of Greece with the East Aegean islands having an up to 70% probability to exceed the warmest climatological average. This statement is also supported by the IRI multi-model probability forecast presented in figure 3. Map of temperature for JJA 2013 prepared by IRI shows the expected probabilities that the seasonal temperatures will fall into the warmest third of the years, the middle third of the years, or the coldest third of the years. The numbers for each region on the temperature maps indicate the probabilities of temperature to fall in each of the three categories, above-, near-, and below-normal. Thus substantially enhanced probability (>48%) for above normal temperature over Greece is evident.

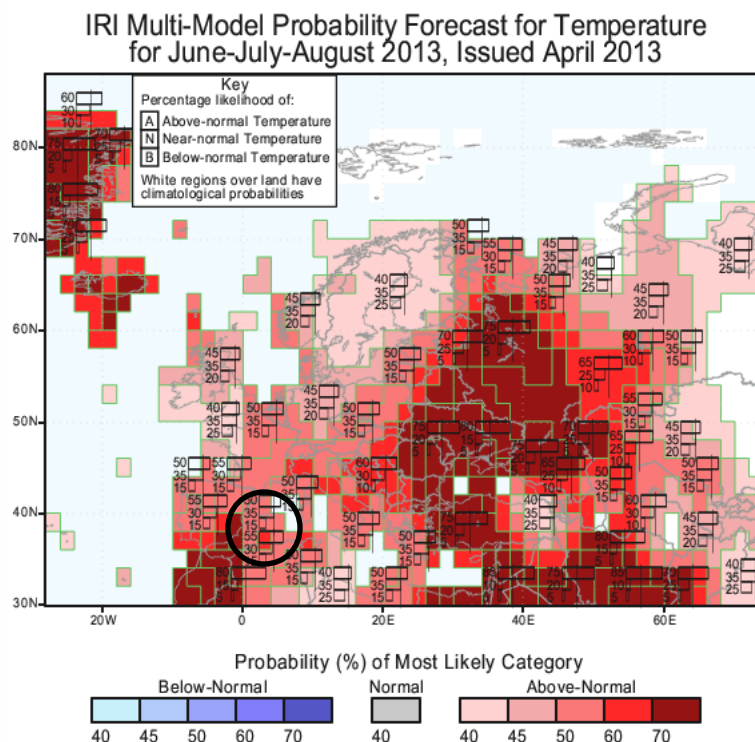


Figure 3. IRI seasonal forecasts for summer 2013 based on the April 2013 run for the 2m temperature probabilities.

Regarding the mean precipitation, the ECMWF seasonal forecast illustrated in figure 4, indicates a small negative anomaly over north eastern Greece suggesting a drier summer, while for the rest of Greece no signal was apparent in comparison to the model climatology. This is also supported by figures 5 and 6 where the ECMWF and IRI maps for precipitation probabilities respectively are illustrated. ECMWF probability map indicates that precipitation has up to 50% probability to be below the lower tercile over the north eastern part of Greece while there is not any trend for the rest of the country. IRI map (figure 6) for precipitation indicates also the probabilities that the seasonal precipitation will fall into the wettest third of the years (top number), the middle third of the years (middle number), or the driest third of the years (bottom number). The color shading indicates the probability of the most dominant tercile -- that is, the tercile having the highest forecast probability. The color bar alongside the map defines these dominant tercile probability levels. The upper side of the color bar shows the colors used for increasingly strong probabilities when the dominant tercile is the above-normal tercile, while the lower side shows likewise for the below-normal tercile. The gray color indicates an enhanced probability for the near-normal tercile (nearly always limited to 40%). Areas that are marked by "D" represent regions for which less than 3cm of precipitation typically occurs over the season according to the climatological values. Thus it is suggested that precipitation during summer 2013 will be normal to below normal over north –eastern parts of the country, favoring a drier summer while no conclusion can be made for the other parts of the country.

ECMWF Seasonal Forecast
 Mean precipitation anomaly
 Forecast start reference is 01/05/13
 Ensemble size - 51, climate size - 450

System 4
 JJA 2013
 Shaded areas significant at 10% level
 Solid contour at 1% level

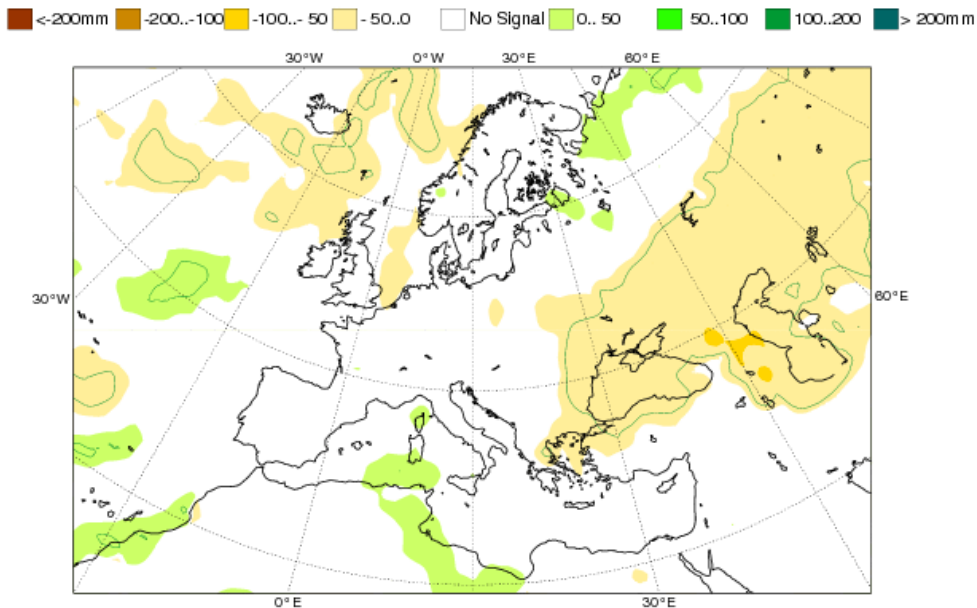


Figure 4. ECMWF seasonal forecast plots for summer 2013 based on the May 2013 run for mean precipitation anomalies

ECMWF Seasonal Forecast
 Prob(most likely category of precipitation)
 Forecast start reference is 01/05/13
 Ensemble size - 51, climate size - 450

System 4
 JJA 2013

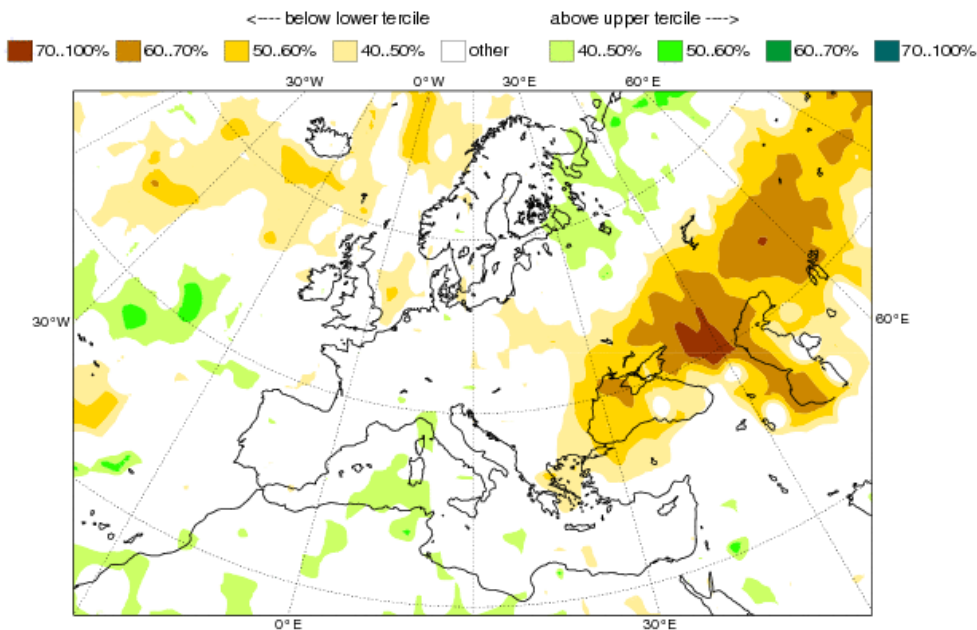


Figure 5. ECMWF seasonal forecast plots for summer 2013 based on the May 2013 run for precipitation probabilities

IRI Multi-Model Probability Forecast for Precipitation for June-July-August 2013, Issued April 2013

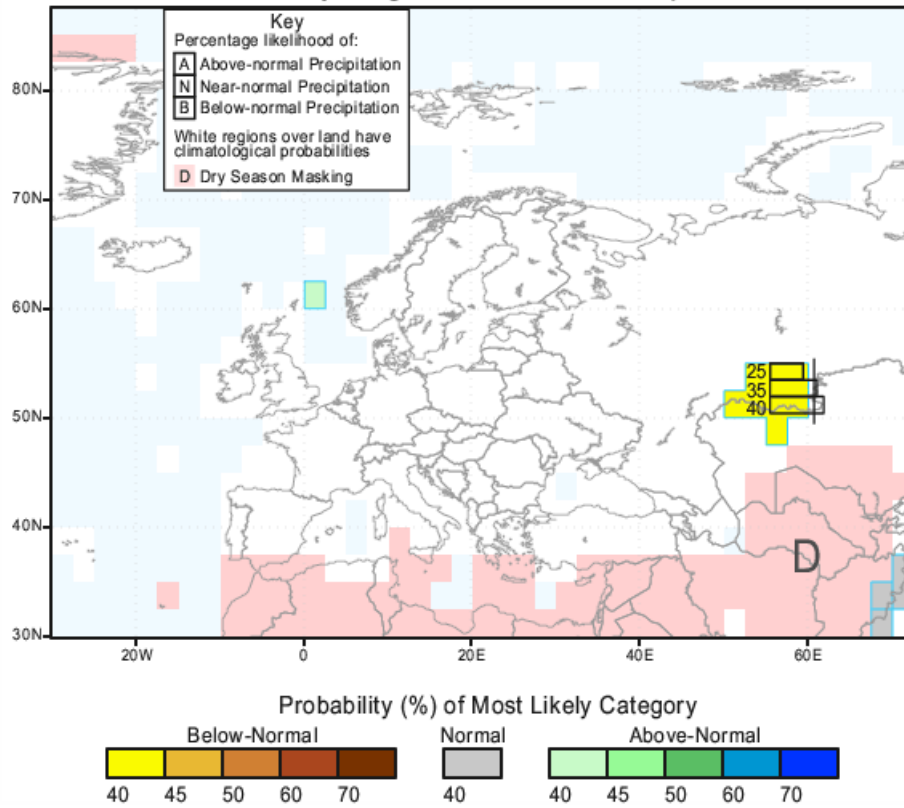


Figure 6. IRI seasonal forecast map for summer 2013 based on the April 2013 run for precipitation probability.