Seasonal outlook for summer 2015 weather conditions over Greece

The seasonal outlook for summer 2015, namely June, July and August (JJA) provided by Hellenic National Meteorological Service (HNMS) is mainly archived from the European Centre for Medium-Range Weather Forecasts (ECMWF). In addition the forecasts discussed are also from the Met Office global seasonal prediction system version 5, referred to as 'GloSea5' (source: http://www.metoffice.gov.uk/research/climate/seasonal-to-decadal/gpc-outlooks/glob-seas-prob) and the International Research Institute (IRI) experimental Climate Outlook for Europe (source: http://portal.iri.columbia.edu). The seasonal outlook for summer for precipitation and temperature based on all three systems, with reference to the 1981-2010 climatology for both ECMWF (IFS model) and IRI and 1996-2009 UK Met Office (GloSea5) are presented in this report.

ECMWF seasonal forecasts of mean 2m temperature anomalies for summer 2015, performed on May 2015, are presented in Figure 1. A slight increasing tendency of 0.5-1ºC is evident over the entire country while a lower positive mean 2m temperature anomaly of 0.5ºC is also detected. These lower anomaly values for 2m temperature are forecasted over eastern parts of Greece (mainly Aegean islands). Additionally according to Figure 2, illustrating the probability map for 2m temperature to exceed the upper 20th percentiles, north and northwestern parts of Greece, as well as Crete island are more likely to have higher than normal 2m temperatures. The probability of these regions to be above climatologically average reaches up to 100%. The IRI multi –model probability forecast indicates regions whose distribution of likely outcomes is shifted substantially from the climatologically average. According Figure 3 (based on April 2015) these regions are mainly eastern parts of Greece. The probability map of 2m temperature for JJA 2015 prepared by IRI, shows that the expected probabilities of the seasonal temperatures are at least moderately (45-50%) enhanced for above normal with Crete Island to have a 60-70% probability for above normal temperature. Figure 4 illustrates the UK Met Office forecasts based on May 2015. Probability maps of above, near and below normal 2m temperature presented for summer 2015 indicate that temperature will be above normal over the entire country (60-80% probability). This is also in accordance to ECWMF and IRI outlook. Thus the proposed by HNMS outlook for summer 2015 indicates that it will be an overall warmer than climatology summer, while higher 2m temperatures are most likely to occur over Western and South-Eastern parts of Greece.

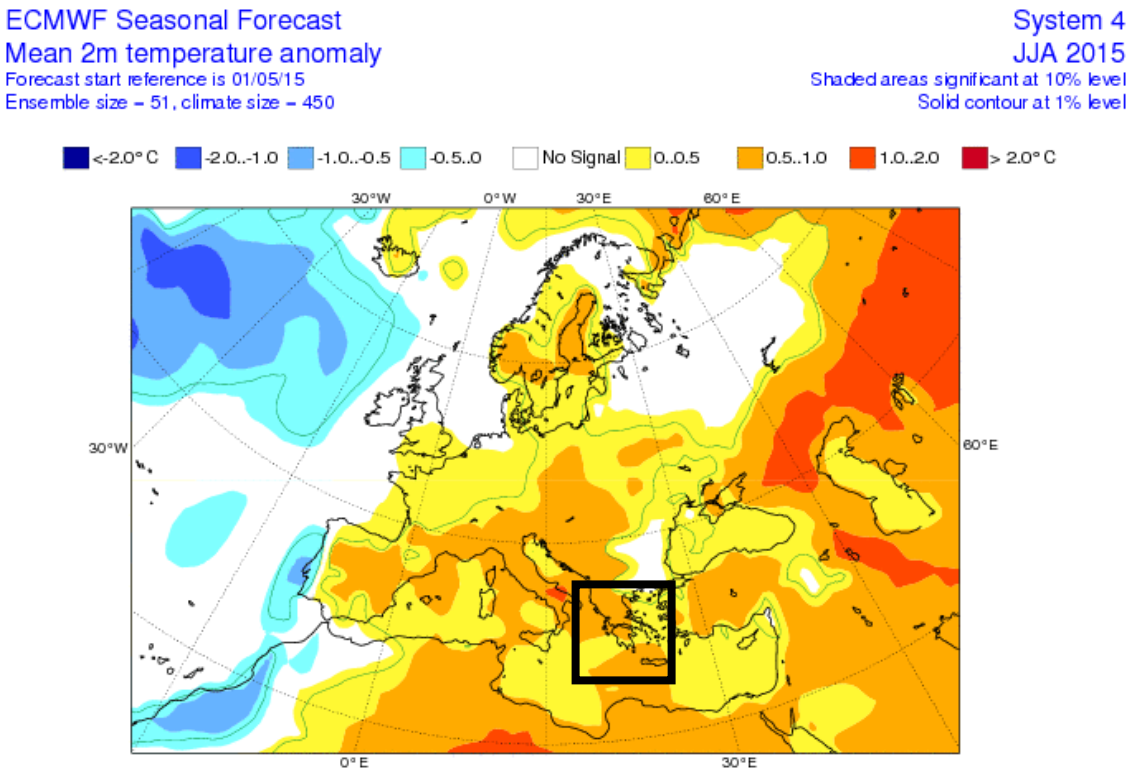

Figure 1. ECMWF seasonal forecast for summer 2015 for mean temperature anomalies, based on May 2015
Source:http://www.ecmwf.int/products/forecasts/d/charts/seasonal/forecast/seasonal_range_forecast/

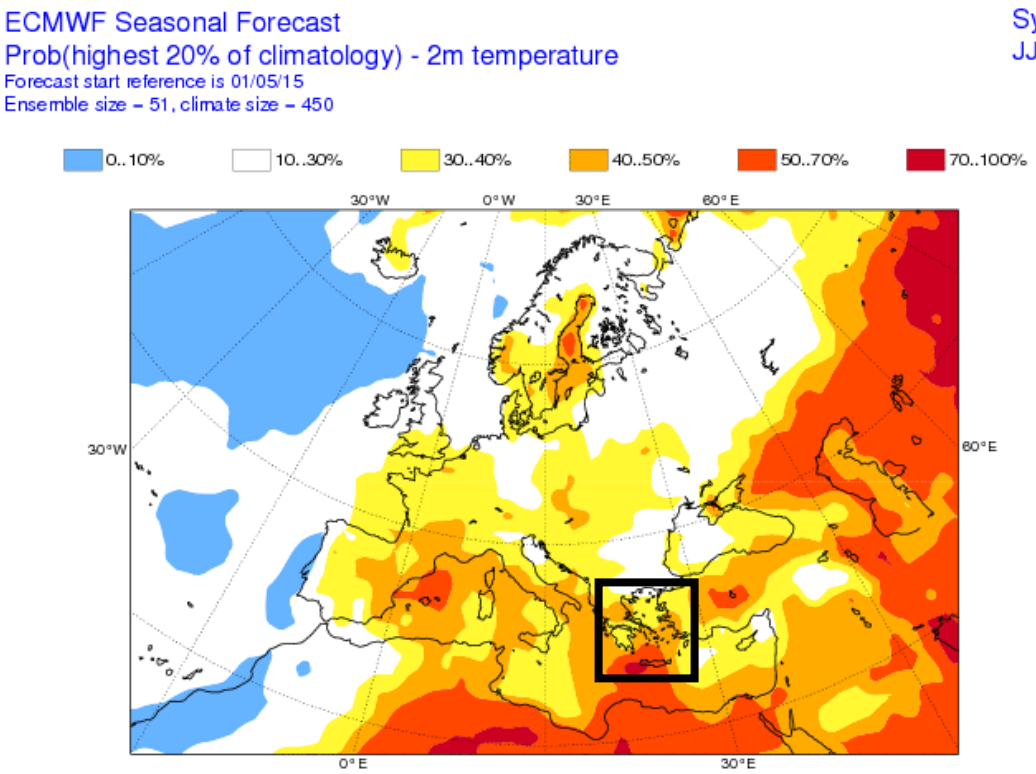

Figure 2. ECMWF probability map of 2m temperature at the 20% highest climatology value for summer 2015, based on May 2015
Source:http://www.ecmwf.int/products/forecasts/d/charts/seasonal/forecast/seasonal_range_forecast/

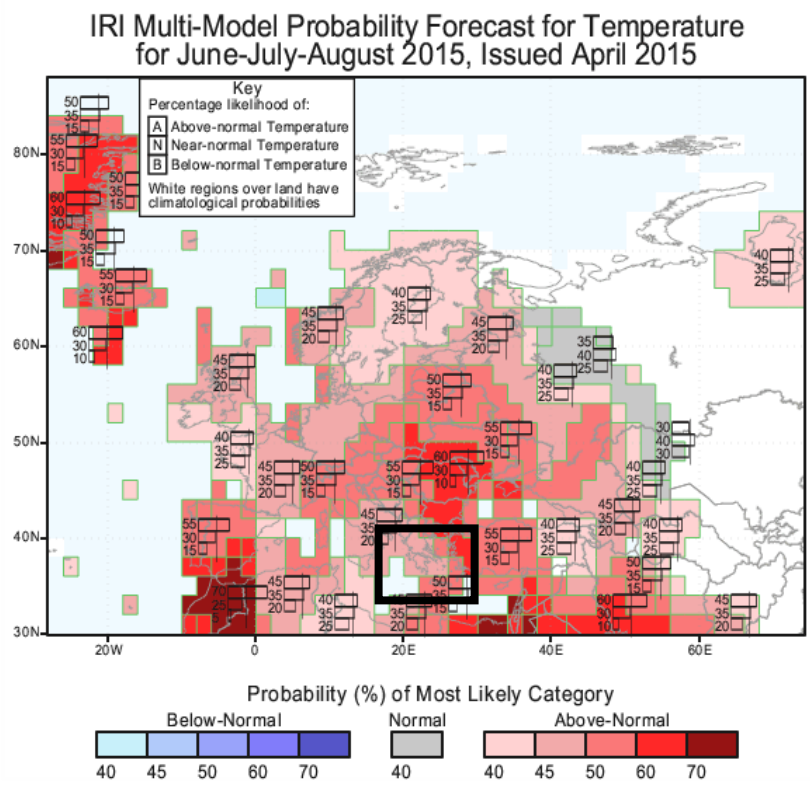

Figure 3. IRI seasonal forecast for summer 2015 issued on April 2015 for the 2m temperature probabilities.
Source:http://iri.columbia.edu/our-expertise/climate/forecasts/seasonal-climate-forecasts

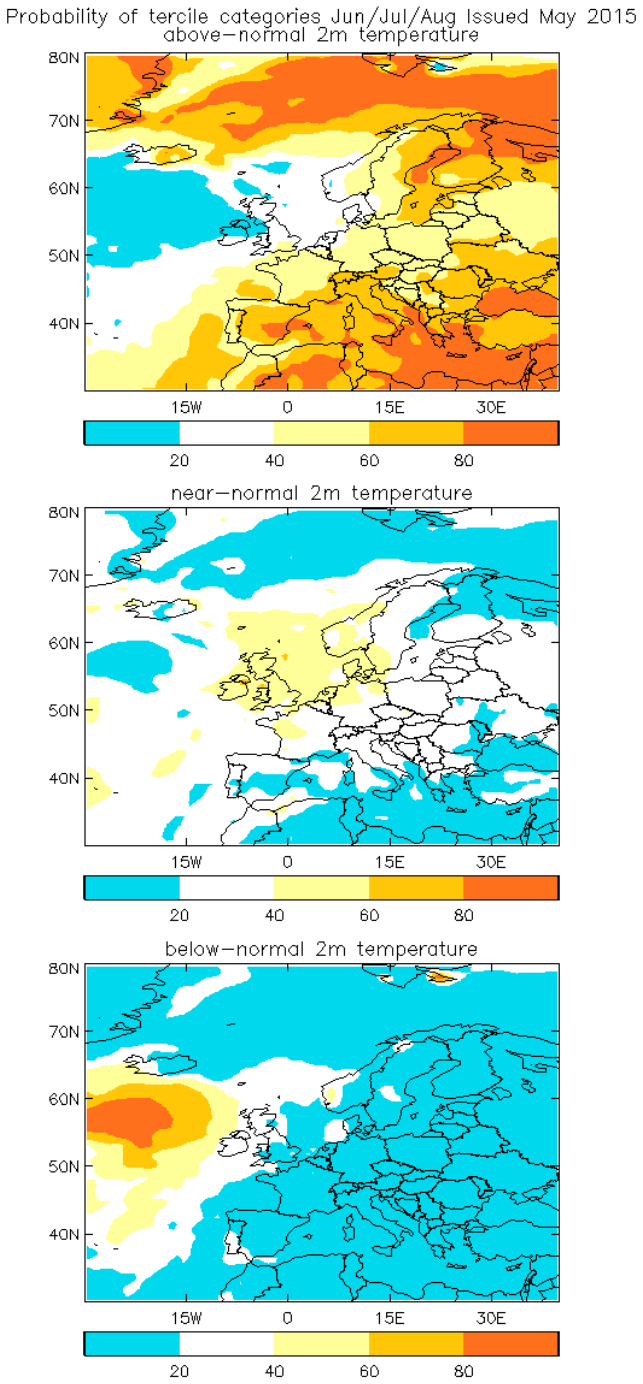

Figure 4. UK Met office seasonal forecast of probability for summer 2015 for 2m temperature, based on May 2015
Source:http://www.metoffice.gov.uk/research/climate/seasonal-to-decadal/gpc-outlooks/glob-seas-prob

Regarding mean precipitation, the ECMWF seasonal forecast illustrated in Figures 5

and 6, the IRI probability maps in Figure 7 as well as the UK Met Office forecasts in Figure 8, indicate a weak signal. According to all seasonal forecasts presented, based on April and May 2015, it is evident that a specific seasonal outlook for precipitation can not be determined. A small above upper tercile probability (40-60%) in Figures 6 and 8 over Crete and south-eastern parts compared to model climatology is detected. Therefore it is suggested that precipitation during summer 2015 will be normal and slightly shifted above climatologically normal values for southern Greece following the presented model outputs.

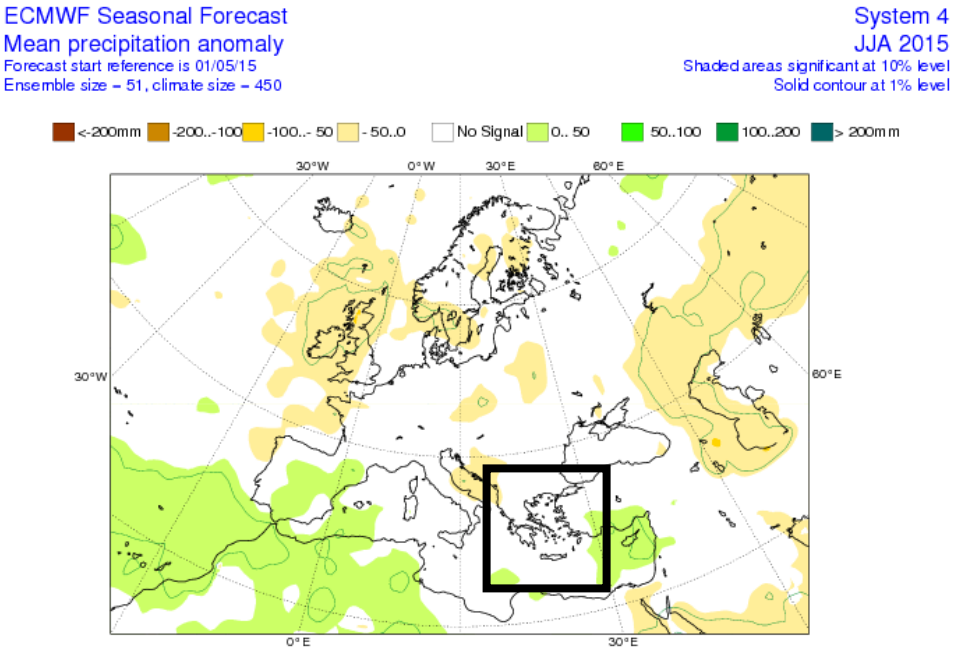

Figure 5. ECMWF seasonal forecast for summer 2015 for mean precipitation anomalies, based on May 2015
Source:http://www.ecmwf.int/products/forecasts/d/charts/seasonal/forecast/seasonal_range_forecast/

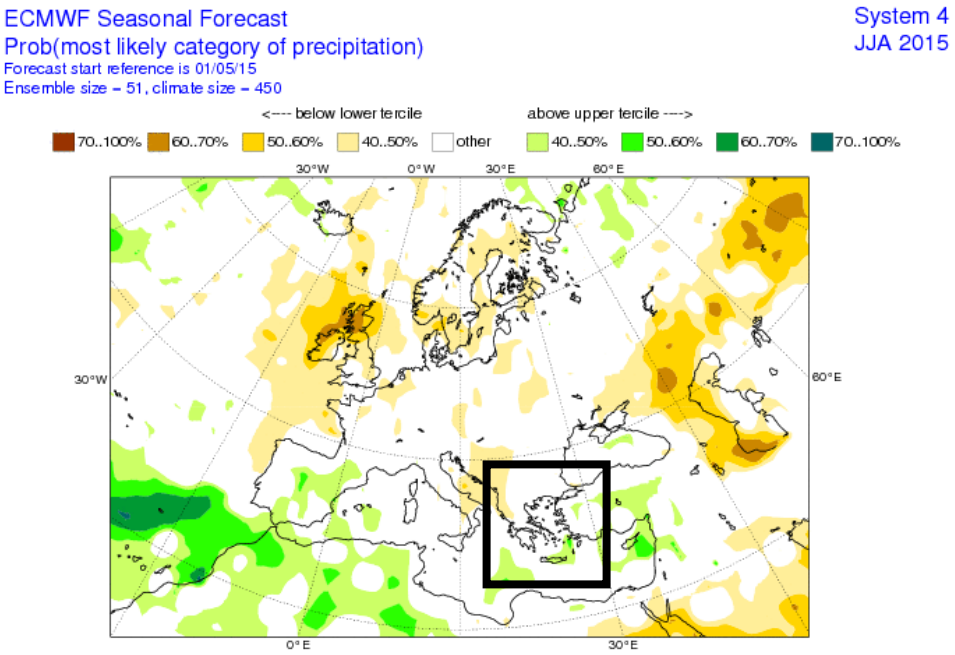

Figure 6. ECMWF probability map of most likely category of precipitation (below-above upper tercile) for summer 2015, based on May 2015
Source:http://www.ecmwf.int/products/forecasts/d/charts/seasonal/forecast/seasonal_range_forecast/

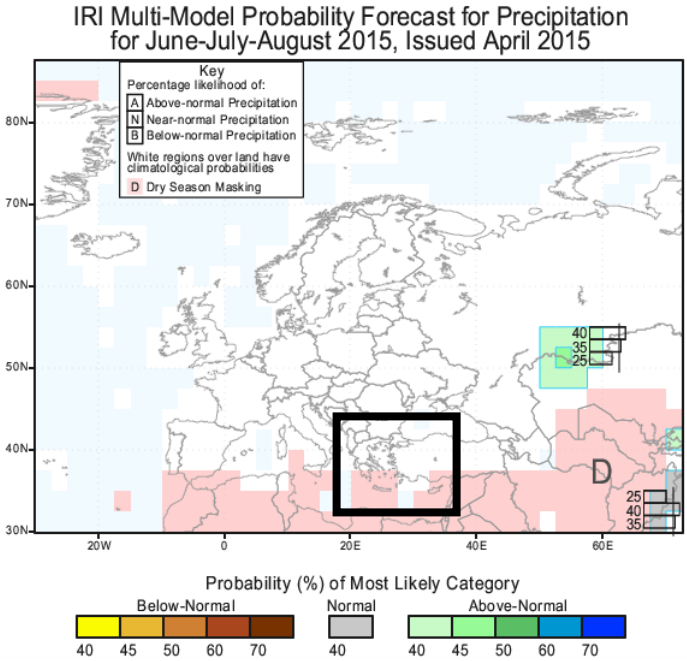

Figure 7. IRI seasonal forecast for summer 2015 issued on April 2015 run for precipitation probability.
Source:http://iri.columbia.edu/our-expertise/climate/forecasts/seasonal-climate-forecasts

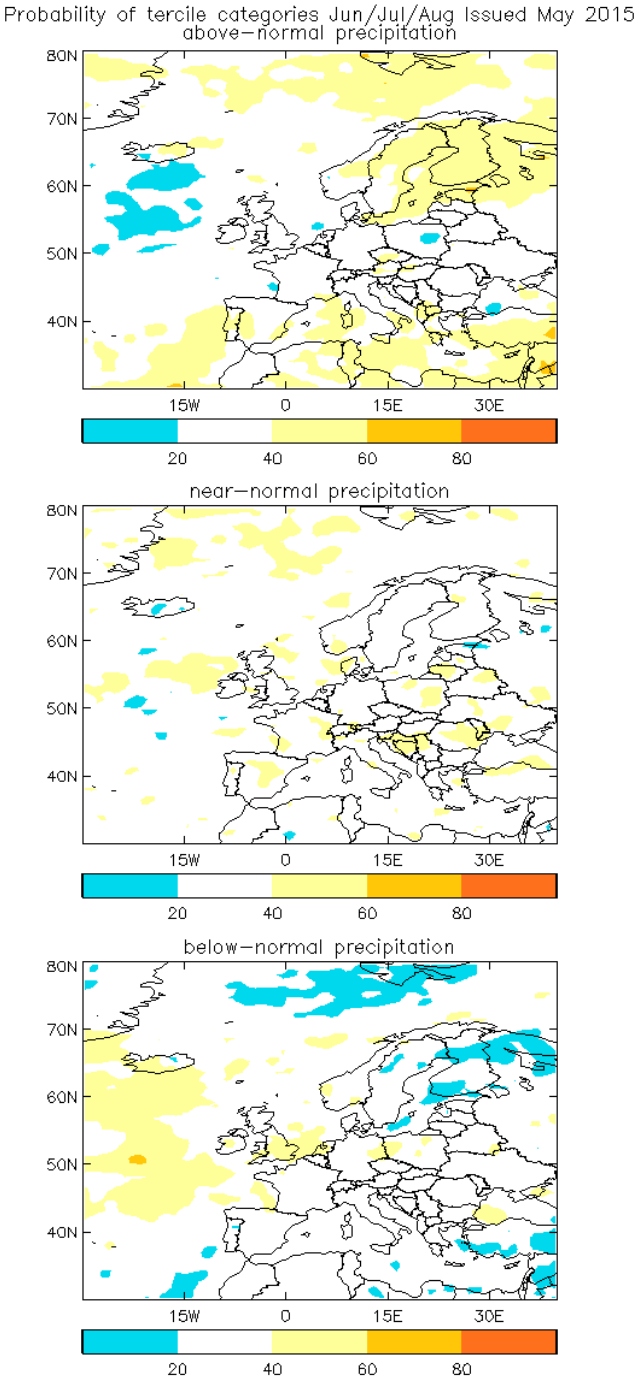

Figure 8. UK Met Office seasonal forecast for summer 2015 of probability for mean precipitation, based on May 2015 run.
Source: http://www.metoffice.gov.uk/research/climate/seasonal-to-decadal/gpc-outlooks/glob-seas-prob