

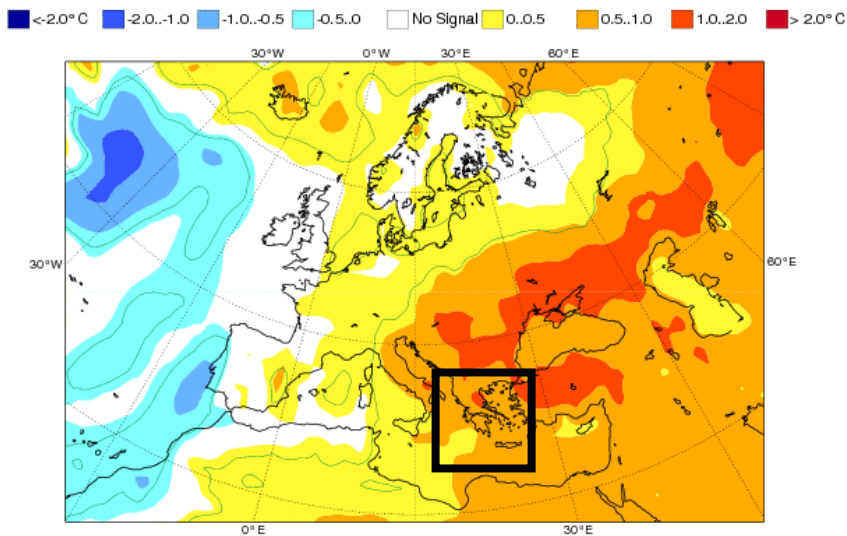
## **Seasonal outlook for summer 2014 weather conditions over Greece**

Hellenic National Meteorological Service (HNMS) provides seasonal outlook for the forthcoming summer 2014, namely June, July and August (JJA) mainly archived from the European Centre for Medium-Range Weather Forecasts (ECMWF). This year the forecasts discussed are also from the Met Office global seasonal prediction system (source: <http://www.metoffice.gov.uk/research/climate/seasonal-to-decadal/gpc-outlooks/glob-seas-prob>) version 5, referred to as 'GloSea5' 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 2014, based on the April 2014 run, are presented in Figure 1. A slight increasing tendency of 0.5-1°C is evident over the entire country while a higher positive mean 2m temperature anomaly up to 2°C is also detected. These higher anomaly values for 2m temperature are forecasted over central and eastern parts of Greece (mainly East Aegean islands). This is also supported by Figure 2, which illustrates the probability map for 2m temperature to exceed the upper 20<sup>th</sup> percentiles. The probability of these regions to be above climatologically average reaches up to 70%. This statement is also supported by the IRI multi-model probability forecast presented in Figure 3, where regions whose distribution of likely outcomes is shifted very substantially from the climatologically average, are highlighted. The probability map of 2m temperature for JJA 2014 prepared by IRI, shows that the expected probabilities of the seasonal temperatures are at least moderately (45-50%) enhanced for above normal. Figure 4 illustrates the UK Met Office forecasts based also on April 2014. Probability maps of above, near and below normal 2m temperature presented for summer 2014, indicate that temperature will be above normal over the entire country (40-60% probability) as also supported by the ECMWF forecast. However, contradictory to ECMWF and IRI outlook, the warmest areas are depicted over the western parts of the country, namely the Ionian Islands. Thus the summer 2014 forecast for 2m temperature for Greece suggests, a warmer than climatology summer 2014, while the proposed by ECMWF and IRI scenario for higher 2m temperatures over Central and Eastern parts of Greece is adopted by HNMS.

ECMWF Seasonal Forecast  
 Mean 2m temperature anomaly  
 Forecast start reference is 01/04/14  
 Ensemble size - 51, climate size - 450

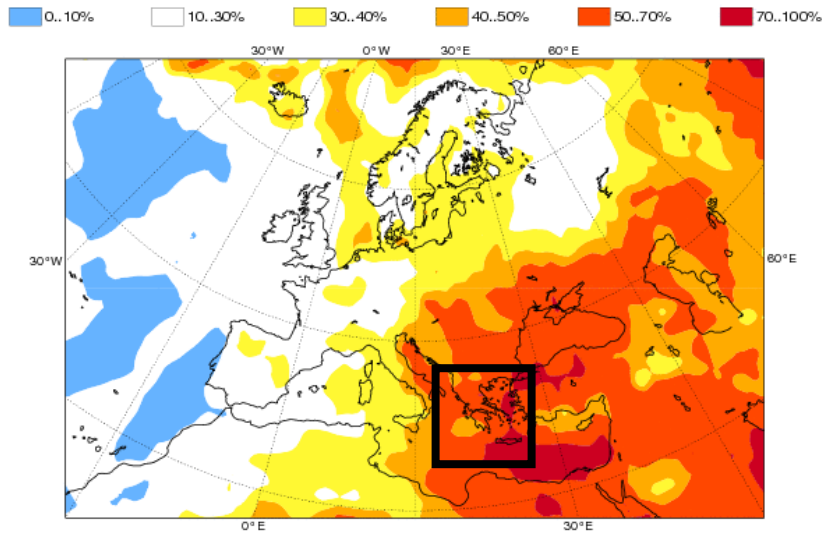
System 4  
 JJA 2014  
 Shaded areas significant at 10% level  
 Solid contour at 1% level



**Figure 1.** ECMWF seasonal forecast for summer 2014 for mean temperature anomalies, based on the April 2014 run.  
 Source:[http://www.ecmwf.int/products/forecasts/d/charts/seasonal/forecast/seasonal\\_range\\_forecast/](http://www.ecmwf.int/products/forecasts/d/charts/seasonal/forecast/seasonal_range_forecast/)

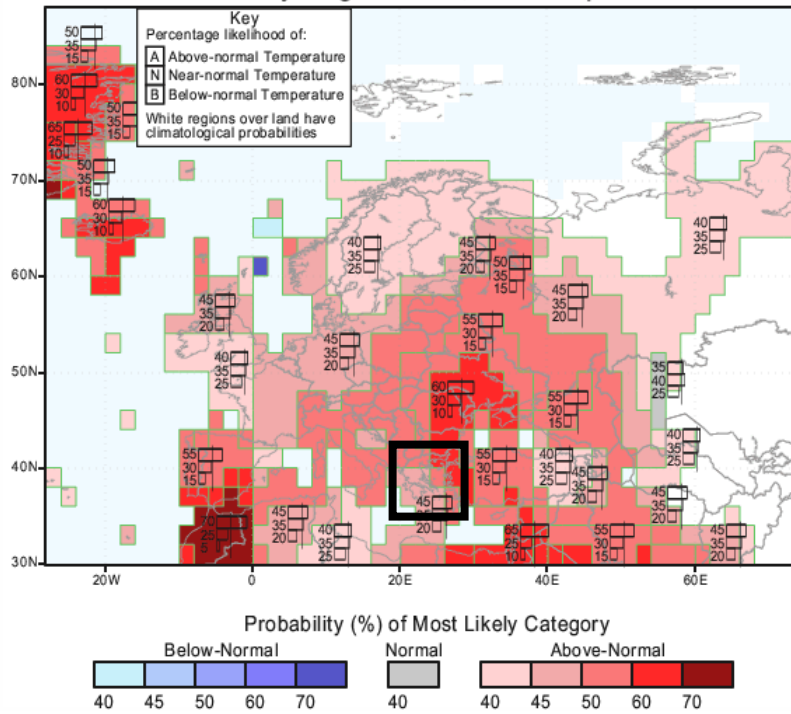
ECMWF Seasonal Forecast  
 Prob(highest 20% of climatology) - 2m temperature  
 Forecast start reference is 01/04/14  
 Ensemble size - 51, climate size - 450

System 4  
 JJA 2014



**Figure 2.** ECMWF seasonal forecast for summer 2014 for probability of 2m temperature at the 20% highest climatology value, based on the April 2014 run  
 Source:[http://www.ecmwf.int/products/forecasts/d/charts/seasonal/forecast/seasonal\\_range\\_forecast/](http://www.ecmwf.int/products/forecasts/d/charts/seasonal/forecast/seasonal_range_forecast/)

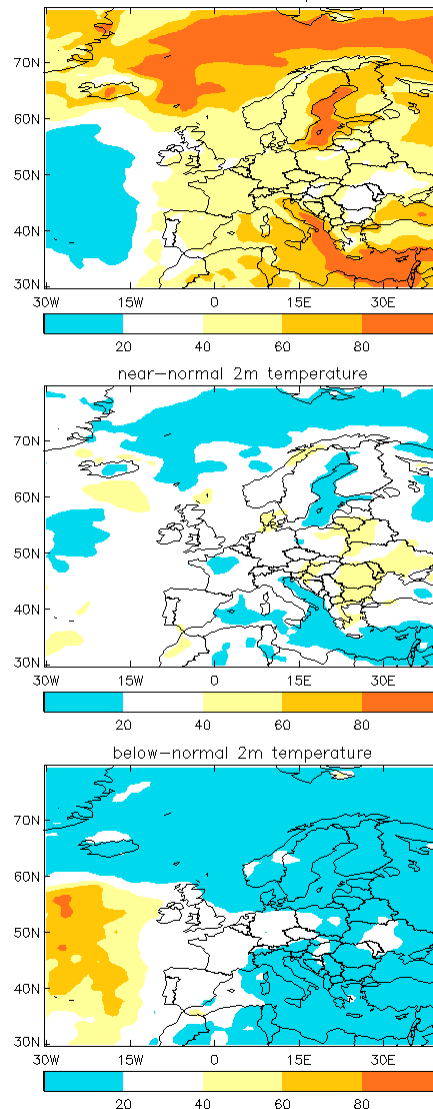
IRI Multi-Model Probability Forecast for Temperature  
for June-July-August 2014, Issued April 2014



**Figure 3.** IRI seasonal forecast for summer 2014 based on the April 2014 run for the 2m temperature probabilities.

Source: <http://iri.columbia.edu/our-expertise/climate/forecasts/seasonal-climate-forecasts>

Probability of tercile categories Jun/Jul/Aug Issued Apr 2014  
above-normal 2m temperature



**Figure 4.** UK Met office seasonal forecast of probability for summer 2014 for 2m temperature, based on the April 2014 run

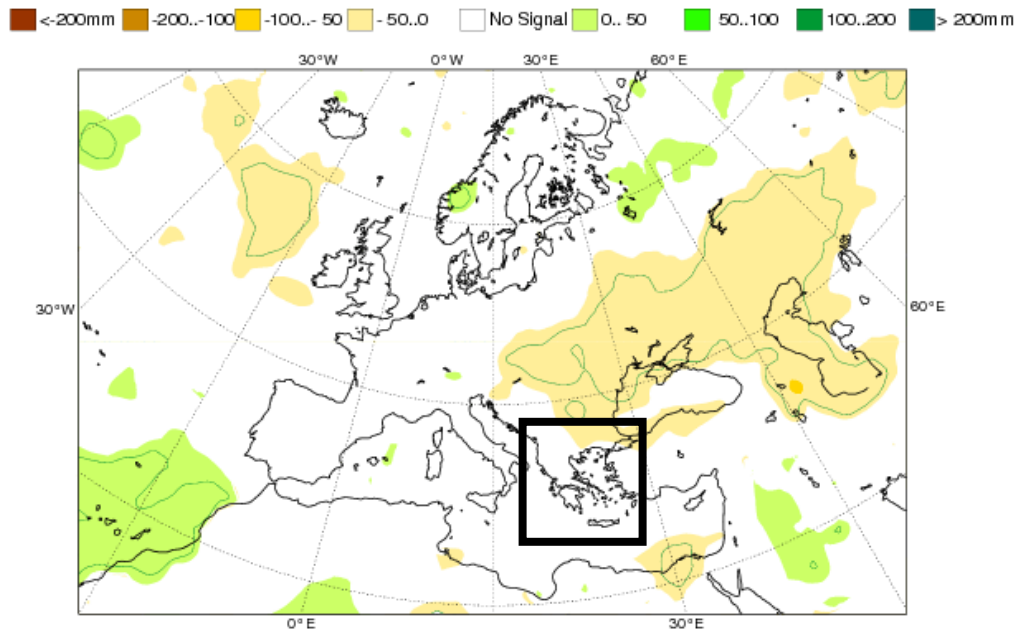
Source: <http://www.metoffice.gov.uk/research/climate/seasonal-to-decadal/gpc-outlooks/glob-seas-prob>

Regarding the 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 strong lack of signal. According to all seasonal forecasts presented, based on the April 2014, it is evident that a specific seasonal outlook for precipitation can not be determined. The small above upper tercile probability (40-50%) detected in Figures 6 and 8 near a small part of south western part of Greece compared to model climatology is assumed negligible and therefore not evaluated. Thus following all

outlooks it is assumed that during summer the precipitation is not likely to be shifted from the climatologically averages for Greece.

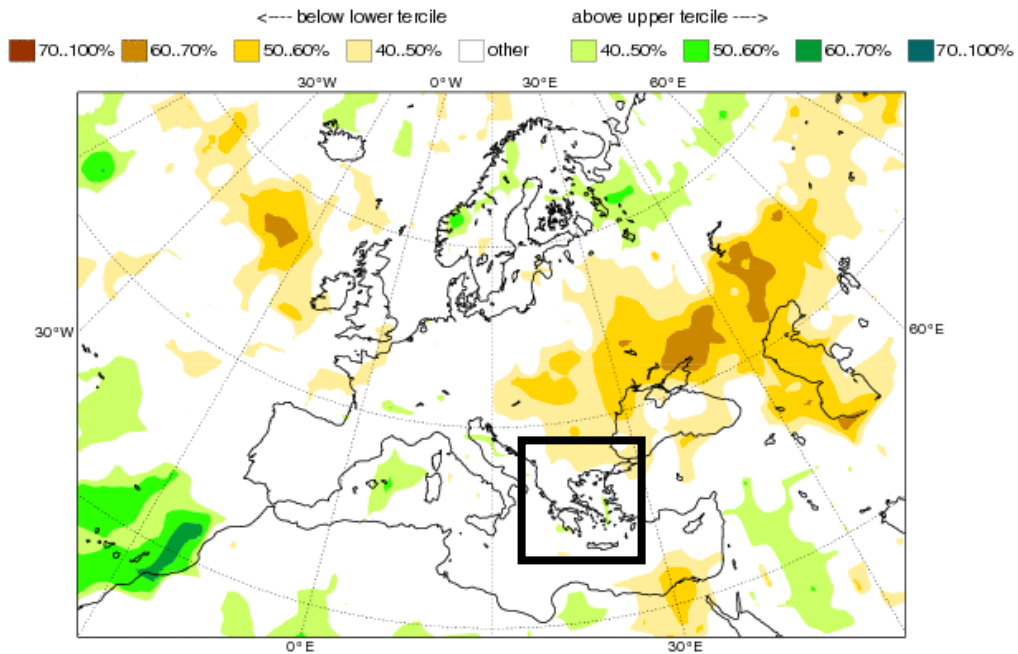
ECMWF Seasonal Forecast  
Mean precipitation anomaly  
Forecast start reference is 01/04/14  
Ensemble size = 51, climate size = 450

System 4  
JJA 2014  
Shaded areas significant at 10% level  
Solid contour at 1% level



**Figure 5.** ECMWF seasonal forecast for summer 2014 for mean precipitation anomalies, based on the April run

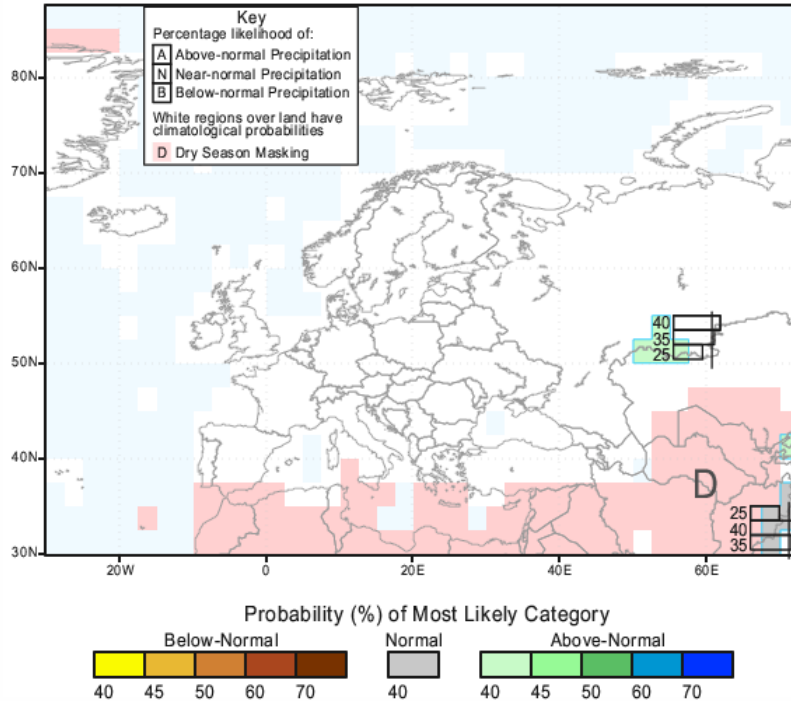
Source: [http://www.ecmwf.int/products/forecasts/d/charts/seasonal/forecast/seasonal\\_range\\_forecast/](http://www.ecmwf.int/products/forecasts/d/charts/seasonal/forecast/seasonal_range_forecast/)



**Figure 6.** ECMWF seasonal forecast for summer 2014 for the probability of most likely category of precipitation (below-above upper tercile), based on the April 2014 run

Source:[http://www.ecmwf.int/products/forecasts/d/charts/seasonal/forecast/seasonal\\_range\\_forecast/](http://www.ecmwf.int/products/forecasts/d/charts/seasonal/forecast/seasonal_range_forecast/)

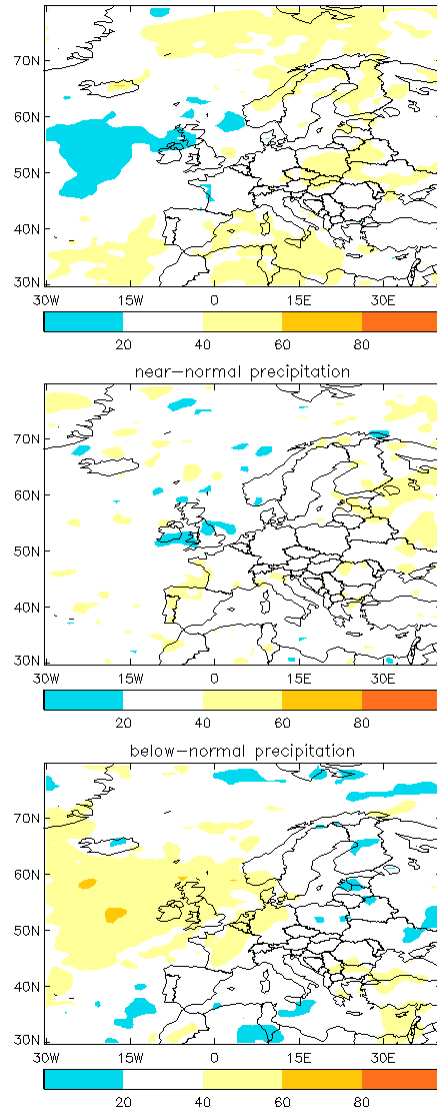
IRI Multi-Model Probability Forecast for Precipitation  
for June-July-August 2014, Issued April 2014



**Figure 7.** IRI seasonal forecast for summer 2014 based on the April 2014 run for precipitation probability.

Source: <http://iri.columbia.edu/our-expertise/climate/forecasts/seasonal-climate-forecasts>

Probability of tercile categories Jun/Jul/Aug Issued Apr 2014  
above-normal precipitation



**Figure 8.** UK Met Office seasonal forecast for summer 2014 of probability for mean precipitation, based on the April 2014 run.

Source: <http://www.metoffice.gov.uk/research/climate/seasonal-to-decadal/gpc-outlooks/glob-seas-prob>