



## **Linking the Mediterranean regional and the global climate change**

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This contribution analyzes 22 CMIP5 global climate projections to show how is the regional climate change in the Mediterranean related to the global climate change. The aim is to use these recent results to revisit evidences suggesting that the Mediterranean region is a climate change hot spot. Results show that future increase of temperature in the Mediterranean region has a strong seasonal connotation, with summer warming at a pace 40% larger than the global mean. This future trend is consistent with the global reduction of the meridional temperature gradient that is produced by climate change. However spatial distribution of changes shows a strong a sub-regional modulation depending of the land-sea contrast, the role of soil moisture feedback and changes of large scale atmospheric circulation leading to increased subsidence conditions. Projections show that precipitation decrease will affect most of the region, but with a strong difference between southern and northern areas, where CMIP5 projections suggest a 7% and 3% decrease of annual precipitation for each degree of global warming, respectively. For both Mediterranean temperature and precipitation, the dependence is substantially linear in the range up to 40C of global warming. Interannual variability and intermodel differences are a substantial source of uncertainty for precipitation (while there is a robust consensus for temperature changes). Therefore, future precipitation changes are still a controversial issue, in terms of intensity and precise location of the transition belt that separates the decrease of precipitation over the MR from areas in central and northern Europe, where precipitation is expected to increase. On this respect, though the overall drying trend appears consolidated in the scientific literature, its precise evaluation remains to some extent controversial.