

## **Anthropogenic forcing is a plausible explanation for the observed surface temperature and specific humidity trends over the Euro Mediterranean area**

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Future climate change in general is an issue of broad interest- satisfying a general intellectual curiosity but also having much to do with practical managerial decisions about how to plan, design and shape our future on global to local scales. The principle aim of this study is to tackle the question, whether the recent change is a plausible harbinger of future change that is, we examine to what extent the observed climate trends in the Mediterranean region are already an indication of the conditions described by the climate change scenarios at the end of this century. With this purpose in the first step we assess whether the observed changes are likely to have been due to natural (internal) variability alone, and if not, whether they are consistent with what models simulate as response to anthropogenic (Greenhouse gases and tropospheric Sulphate aerosols, GS) forcing. We have determined that recently observed warming over the Mediterranean region has very likely an anthropogenic origin and thus will likely continue, albeit not in a monotonous manner. We conclude that anthropogenic GS forcing is a plausible explanation for the observed warming in the Mediterranean region (except winter). The consistency analysis of surface specific humidity ( $q$ ), which is an important factor in human thermal comfort, indicates that the increases in annual and seasonal  $q$  over this region are very unlikely to be due to natural variability or natural forcing alone and that the large-scale component (spatial-mean) of the anthropogenic forcing has a detectable and dominant influence in the observed trends of  $q$  (except winter).

### **Biography**

Armineh Barkhordarian is a Postdoctoral researcher at Helmholtz-Zentrum Geesthacht (HZG) in Germany. He received his Ph.D. in Geoscience from the University of Hamburg in November 2012. He has 4 peer-reviewed publications. His current research is about 'Detection and Attribution of Anthropogenic Climate Change'.

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