

Statistical trends of some meteorological drought indices in Europe

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Out of all the natural phenomena that afflict human society, droughts are one of the most damaging. Droughts have been estimated to cost an average of 6 to 8 billion dollars in damages per year, yet they are often overlooked in comparison to other natural disasters, because they are invisible to the naked eye, and quite difficult to measure. The presented research display a developed methodology to assess the behavior of different meteorological drought indices on a continental scale in Europe. Firstly, is assessed the behavior on varying temporal scales, and secondly, it is determine whether or not droughts have become more frequent and/or intense in recent decades. Results over the analyzed period (1950 to 2014), shows that the frequency of meteorological drought events are slightly increasing (in the SPEI index). Instead for the SPI index, this trend is not patent probably because of his own definition. About the intensity, in contrast, it seems the events are become more intense. A plausible conclusion is that the quantity of annually events of drought over Europe are conserved, but the same are becoming longer and intense.

The findings of this research emphasize the impacts that climate change and increasing temperatures will have on drought impacts and the need for water management sectors to incorporate that knowledge into the consumption and protection of water resources. The advantage of using geospatial techniques into the drought monitoring, like the kriging interpolation used in the present model, allow us to comprehensively analyze drought events in different time and spatial scales.