



## **Health effects on daily mortality of a hydrological extreme: the case of the droughts in Galicia, Spain (Tromp Foundation Travel Award)**

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The prestigious 2018 Lancet report on climate and health, "The Lancet Countdown: tracking progress on health and climate change", begins with the devastating phrase: "The World Health Organization (WHO) estimated that in 2012 12.6 million deaths (23% of all the deaths in the world) were attributable to modifiable environmental factors, many of which could be influenced by climate change or be related to driving forces of climate change". These cold World Health Organization (WHO) numbers confirm that the research on the relationship of climatic factors on health should be a priority issue for public health services, especially considering that climate change already observed and the foreseeable will act as a multiplying factor of the threat to global health.

Climate change projections indicate that droughts and floods will be more frequent and intense in the 21st century. In recent years up to 50 million people per year have suffered intense droughts. There is some work on the effect of floods but much less on the effect of droughts given the complexity in assigning their onset and offset and the accumulated effects in time. In addition, many of their effects are indirect. In this work a pre-diagnostic study will be carried out in the last decade about the effect of droughts on different effects on health analysing the impact on daily mortality in Galicia, Spain. For the study, we studied the period from 2001 to 2009. We analysed the drought over the area of interest using the SPEI and SPI drought indexes from the Spain Drought database (<http://monitordesequia.csic.es>, Vicente-Serrano et al., 2017) to identify the drought and non-drought periods, and we classify the droughts by intensity. The dataset offers information with a 1.1 km spatial resolution in a weekly time resolution (4 time-steps per month). The calibration period for the indices is 1961-2014. We used daily rates of cardiovascular mortality (CIE X: I00-I99), respiratory mortality (CIE X: J00-J99), and natural mortality (CIE X: A00-R99) from the Spanish National Statistics Institute. Preliminary findings suggest that there is a different behaviour in mortality in droughts and no drought periods analyzed in the Galician provinces.

### Reference:

Vicente-Serrano SM, Tomás-Burguera M, Beguería S, Reig-Gracia F, Latorre B, Peña-Gallardo M, Luna Y, Morata A, González-Hidalgo JC. A High Resolution Dataset of Drought Indices for Spain. *Data*, 2 (3): 22 (2017).