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Spatial variability of NDVI at different seasons in the Community of Madrid (Spain)

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Agricultural drought quantification is one of the most important tasks in the characterization process of this natural hazard and its implications in crop insurance. Recently, several vegetation indexes based on remote-sensing data (VI) has been applied to quantify it (Dalezios et al, 2012). VIs are obtained combining several frequency bands that represent the relationship between photosynthesis and absorbed/reflected radiation. The most widely used VI is the Normalized Difference Vegetation Index (NDVI). It is based on the principle that healthy vegetation mainly absorbs visible light and reflects the near-infrared frequency band.

Drought can be highly localized, and several authors have recognized the critical role of soil moisture and its spatial variability in agricultural losses (Anderson et al., 2011). Therefore, it is important to delimit locations within a homogeneous area that will share main NDVI statistics and in which the same threshold value can be applied to define drought event. In order to do so, we have applied for the first time in this context the method of singularity maps (Cheng and Agterberg, 1996) commonly used in localization of mineral deposits. The NDVI singularity maps calculated in each season through 2011/2012 are showed and discussed (Martín-Sotoca, 2014).

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