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Monitoring rainfed cereals under different soils and rainfall pattern

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In most Mediterranean climate regions drought events are of great importance and their effects on rainfed crops are evident. Crop yields of rainfed cereal are highly dependent of the soil-plant-atmosphere system, especially referred to the weather conditions and soil properties. However, very few studies are found on the importance of both factors on crop condition.

Several plots were localized in the midlands of Eresma-Adaja watershed. Combining remote sensing data and agricultural survey work those with monocrop cereal sequences were identify. These plots were clustered based on which soil class were allocated based on a Self-Organizing Map and precipitation regimen elaborated in the area (Rivas-Tabares et al., 2019). Within this area, two contrasting soil properties sites were selected to assess plots with at least 20 years of rainfed monocropping sequences but under similar weather regime. This allows us to analyze the effect and relationships of soil type and rainfall with Normalized Difference Vegetation Index (NDVI) in time.

The NDVI average from both areas are statistically different in the growing season suggesting that soils and weather conditions are motivating the spectral variability of sites. The influence of soil texture and rainfall regimen related to NDVI values and interannual variability during the crop growth are discussed.

References

Rivas-Tabares, D., AM Tarquis, B Willaarts, Á De Miguel. 2019. An accurate evaluation of water availability in sub-arid Mediterranean watersheds through SWAT: Cega-Eresma-Adaja. Agricultural Water Management 212, 211-225.

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