

Management of large vineyard areas using multispectral images of uavs and satellites

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The satellite images allow to observe the evolution of the vegetation of the crop in certain areas. It is also possible to know the state of the cultivation with the analysis of indexes from data of the pixels of each image. The study of historical photos allows to monitor the crop as well as aspects related to the state of the plant cover, irrigation, vigor of the plant, etc.

In this study, a practical case is presented in which different plots of vine cultivation are evaluated in which multiple satellite images are analyzed are coming from satellites Sentinel 2, Landsat 7 and Landsat 8 in order to reach crop monitoring over the years, as well as a prediction of harvesting and really useful parameters for crop management during the campaign.

The plots under study are: Ribadulla and Monteveiga both located in the province of Lugo and Lobeira, in the province of Pontevedra. The indexes used for the images were: NDVI, NDRE, NDWI, SAVI, PCD, SIPI, TACARI and MSI.

The comparative analysis of the satellite imagery of the vineyard in the evolution of the years and in the most critical moments of the crop in relation to the field data available, allows us to offer the farmer useful information on the evolution during the crop campaign, irrigation management as well as the vigor of the plants and estimate of harvest.