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## DATA CLUSTERING FOR THE PRODUCTION OF ECO-CLIMATIC MAPS

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Land cover map production over large areas (national or continental scales) can be performed by automatic classification of high resolution satellite image time series [1]. Machine learning algorithm performances are better when an eco-climatic stratification is used: specialised classifiers are trained for each eco-climatic area. The eco-climatic partition comes usually from maps produced decades ago and therefore, their pertinence can be argued.

The goal of the internship is to design a procedure for the generation of eco-climatic map using data from climate, meteorological (Worldclim), topographical (digital elevation models) and phenology (medium and low-resolution vegetation indices) data bases. The method will use unsupervised machine learning techniques (clustering). The maps produced will be compared to existing ones and their usefulness for land cover mapping will be evaluated using standard machine learning metrics.

- Skills: statistics, machine learning, image processing or remote sensing; Python programming
- Period: 5 months between February and September 2019
- Monthly compensation: 568.76 €
- Location: CESBIO, Toulouse.
- Applications: CV and motivation letter to [jordi.inglada@cesbio.eu](mailto:jordi.inglada@cesbio.eu)

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[1] Inglada, J., Vincent, A., Arias, M., Tardy, B., Morin, D., & Rodes, I., Operational high resolution land cover map production at the country scale using satellite image time series, *Remote Sensing*, 9(1), 95 (2017). [<http://dx.doi.org/10.3390/rs9010095>]