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Bioclimatic Indices for Wine Growers: The sCAP project

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We report on the use of climate and soil data to build bioclimatic, phenology informed indices destined to wine producers in order to bridge the gap between producers' needs for value-added agroclimate products and available geographical, weather, and climate-related 'raw' datasets.

While viticulture is affected by climate change through impacts on the timing, duration, and pattern of the growing season, viticulturists globally report a dearth of routinely accessible, reliable agroclimate information. To address this, through the Climate-KIC funded project sCAP (sustainable Climate-smart sourcing of Agricultural Products) underway at the University of Reading, we will develop and explore the viability of a new solution for climate-smart, phenology informed sourcing of agriculture products.

Specifically, we will derive seasonality and phenology measurements from model data output on climate variables, from remote sensing data on vegetation, land use / land cover, and soil moisture, and from soil databases, using statistical modelling to derive phenology relevant bioclimatic indices. While applicable to all agricultural products (food, fibre, fodder, and fuel crops), in the first stage of the project we focus on viticulture in the UK, France, and Italy.

The target outcome is to develop a model that is driven by the requirements of end users from the private, public, and non-government sectors, and one that is scalable to other crops and geographic regions. The tool will enable users to extract region-specific profiles of crops that are vulnerable to extreme weather and/or climate change impacts to make informed and strategic decisions. For example, buyers can identify alternative crops or sourcing regions in case of crop production shortfall or surplus in a given area, while farmers can make decisions related to pest management and/or fertiliser application, subject to local/national regulations.