



Developing a stakeholder tool to assess impacts and adaptation options for Mediterranean islands' agriculture through climate and crop modeling

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Agriculture is one of the economic sectors likely to be hit hardest by climate change, since it directly depends on climatic factors such as temperature, sunlight, and precipitation. The EU LIFE ADAPT2CLIMA (<http://adapt2clima.eu/en/>) project aims to facilitate the development of adaptation strategies for agriculture in three Mediterranean islands, namely Crete (Greece), Sicily (Italy), and Cyprus by developing an innovative decision support tool. The tool construction will be closely monitored by the project steering committee comprising of climate and crop scientists, government policy makers as well as farm association executives who will be interacting to tailor make the final product perfectly suited to their needs. The ADAPT2CLIMA tool will make it possible to simulate the impacts of climate change on crop production and the effectiveness of selected adaptation options in decreasing vulnerability to climate change.

In order to investigate the potential impacts of climate change, high resolution RCMs at 12x12km horizontal resolution from the CORDEX database are used. Future projections are forced by the IPCC RCP 4.5 and 8.5 scenarios. Climate changes directly or indirectly affecting agriculture are studied using both appropriately constructed climatic indices and crop simulation models. The climate impacts on agriculture are analyzed in terms of yield, water requirements, and health of the main perennial and annual crops cultivated in the three Mediterranean islands. Moreover, the sensitivity, exposure and adaptive capacity of the crops to future climate scenarios are also assessed. Vulnerability maps are constructed integrating crop models outputs and the aforementioned climatic indices depicting changes between the future and the current time period.