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Characterisation and change detection of the agricultural terraced landscape of Costa Viola (Calabria, Italy) in view of its sustainable management

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The research presented in this paper aimed at the dynamic characterisation of the historical terraced landscape of 'Costa Viola', a coastal region in South Italy, in view of its sustainable management. Here the agricultural terraces, used for vineyards, over time have occupied very steep sites and today are recognised as worthy of protection because of their high cultural and scenic value. During the last century, because of the loss of economic competitiveness, the agricultural terraces have undergone progressive abandonment, followed by landscape deterioration and increase of hydrogeologic risk. As a consequence it has recently emerged the need to support the permanence of terraced agriculture through a sensitive management of the area, based on a precise and updated knowledge of the landscape system and its ongoing dynamics of change. To this end the main characteristics of the Costa Viola dry-stone terraces and the Land Use/Land Cover (LU/LC) evolution between 1955 and 2012 were analysed. Taking into consideration the very steep slopes of Costa Viola and the need to analyse with high precision the historical evolution of the terraced landscape, they were implemented investigation methods coupling the use of precision tools with in-situ detailed surveys. A parallel diachronic study was also carried out, covering nearly 60 years and aiming to identify the local geomorphological processes and forms (such as landslides) through stereoscopic analysis of high resolution historic aerial photograms (1955 and 1976) compared to full colour digital orthophotos (1988, 2006, 2008, 2012), direct on-field verification, analysis of cadastral data and pluviometric data series. The geomorphological processes were analysed also in relation with the changes occurred over time in the agricultural terraces and in the urban/rural interface evolution. They were implemented a geographic database based on PostGIS and a Spatial Data Infrastructure (SDI) developed in a GFOSS (Geographic Free and Open Source Software) environment.