AGU 100 FALL MEETING
Washington, D.C. | 10-14 Dec 2018

GC41F-1516: Man-made Terraces: From Ancient Anthropic Landscape Modification to Value at Risk. The Example of 5 Terre and Portofino, Italy.

Thursday, 13 December 2018
08:00 - 12:20
Walter E Washington Convention Center - Hall A-C (Poster Hall)

Man-made terraces for agricultural purposes are a quite diffuse and ancient anthropogenic landscape modification in mountainous areas. The original slope alteration, obtained through a sequence of sub-vertical and sub-planar surfaces, represents a human interference with the geomorphic system, altering the original balance of geomorphological and geo-hydrological factors. Stone walls and soil formed by human activity have been artificially immobilized on the slopes and are available again to gravitative processes once in abandonment and may be subject to deep degradation in case of intense rain events. However, socio-economic conditions play often a crucial role in the abandonment of terraces, indirectly contributing to increase gully erosion and walls failure.

The modification of the original slope profile, due to its regular geometry in respect to the typical more complex natural surface, is rather suitable to be detected through remote sensing, particularly LIDAR, as many authors have recently demonstrated. In the present research the attention has been focused on the assessment of terraces and of the volume of stones and soil that have been involved by human activity. The research area is among the most deeply modified by terraces in the Mediterranean area and internationally famous for this landscape anthropogenic alteration: The Cinque Terre in Italy is a National Park intensively visited by tourists all over the year. Then terraces represent an important economic asset that need to be preserved from degradation and collapse as partially occurred in 2011 after the intense rain event that caused flood, hundreds of landslides and consequently damage. During the 2011 event many terraced slopes have collapsed with significant loss of soil and stone walls: the research allowed to evaluate the lost volumes and to estimate the remaining ones in the Vernazza catchment.

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