

## **SLOPE INSTABILITY MECHANISM AND STABILIZATION WORKS IN THE HILLTOP “TUFF TOWNS” OF SOUTHERN TUSCANY (ITALY)**

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In central Italy several historical hilltop towns of Etruscan origin are affected by instability problems. Placed on isolated flat-topped hills completely surrounded by steep cliffs, they were ideal locations in the past for defense purposes. Today these same characteristics, combined with increasing population, urban expansion and, not secondarily, faulty consolidation works, have led to precarious conditions of instability. Pitigliano and Sorano are exemplary both for their history and for the landslide problems by which they are affected. Although founded by the Etruscans around the VIII century BC the towns were intensely modified during mediaeval times, a period of great prosperity and growth. However, in the surrounding countryside great treasures of Etruscan origin remained intact and are visible today. The towns in the area are all built on Tuff, a weak, easily excavatable rock of volcanic origin that is easily deteriorated and weathered. The problems by which they are affected basically regard topples and rockfalls along the cliffs together with collapses of underground cavities. This paper describes the main instability mechanisms and illustrates their predisposing and triggering causes. The remedial works carried out for the risk mitigation are described with the emphasis placed more on their environmental impact rather than on their effectiveness, already abundantly established in other sites.