

**The instability phenomena of the monumental complex of Monte Oliveto Maggiore (Tuscan, Italy): the failures of the ancient library.**

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The paper describes the main characteristics of the gravitational phenomena and the failures affecting the relief and some buildings of the historical monumental Monastery of "Monte Oliveto Maggiore". In particular some controversial aspects are discussed, on the basis of the analysis of the effects of ancient and more recent rehabilitation and consolidation works carried out on one building i.e. the so called "Book Pathology" (restauration of ancient books and parchments). The monastery of M.Oliveto Maggiore is famous for the frescoes by Signorelli (1487-98) and by Sodoma (1505). The building under examination has always presented stability problems, and the most important underpinning work was carried out in '50's, however this only made the situation worse with structural damage. Over the last few years the settlements and failures have increased. The Monastery is situated on a small ridge which is bordered by high steep slopes and scarps. Falls can occur on some of these and they often correspond to the crowns of ancient or dormant landslides. The outcropping terrains are sands, cemented at times, which lie on a formation of heavily over-consolidated stiff silty clays. The soundings revealed a clear heterogeneity nature of the lithology, with eteropic lateral variations and some inclined soundings have shown the presence of fracturing in the clayey terrains. An interpretative model of the complex behaviour of the clayey terrains was therefore drawn up. In particular it takes into account the effects of slope relaxation and the influence of physical and mineralogic parameters on time dependent geomechanical decay.