

Chapter 17

Agrigento Cathedral: Landslide Assessment and Mitigation of the “Girgenti Hill”

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This chapter illustrates the studies carried out to interpret the landslide phenomenon that affected the hill where the Cathedral of Agrigento (Girgenti) and the entire diocesan area stand, producing subsidence of the bearing soil and damage to the superstructures of the buildings. The interpretation of the landslide phenomenon made it possible to rationally address the design of landslide risk mitigation interventions and, consequently, the execution of structural consolidation works on the building.

17.1 Introduction

The city of Agrigento (Girgenti) is known worldwide for the presence of the Valley of the Greek Temples. The morphological configuration of the site and the cathedral's location on the slope, together with the geological characteristics of the subsoil, have caused numerous instabilities since its original construction, which, despite numerous interventions over the centuries that have been mostly of a structural nature, have not stopped the ongoing deformation process. The slope bordering the City of Agrigento on the north side contains numerous architectural assets belonging to the Diocese of Agrigento: from the left side of the picture in Figure 17.1, one can note the Church of St. Alphonsus, the Curia, the Bishopric, the Cathedral, the Diocesan Museum and the Seminary. The area is also characterised by the presence of underground *hypogea* (underground chambers) of Greek origin.

The cathedral, whose construction began in the 11th century, is located on a ridge that develops in the east-west direction. The instability of the area manifested along the ridge with a lesion starting from the Church of St. Alphonsus and extending westwards to the Diocesan Museum, also affecting the cathedral.