

Remote Sensing for Risk Assessment of Via Iulia Augusta in Albenga

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Today, the field of cultural heritage faces many challenges: cultural heritage is always at risk and heritage recording can be time-consuming and result in low accuracy. These challenges were visible during the risk assessment of Via Iulia Augusta in Albenga (Liguria, Italy). The traces of Via Iulia Augusta, a former Roman Road, connect several cultural heritage resources in Albenga's landscape. The cultural significance of these heritage sites is at risk. Threats and disturbances related to humans, development, site management, nature and climate were observed during the onsite visit. These impacts can be sudden or part of a very slow process, resulting in reduced values on cultural, social, economic and ecological level. Nature and climate (change) in Albenga impact the heritage sites the most. Water-related problems such as flooding and surface runoff have always been present in Albenga, but the amount seems to increase year by year due to global warming and is supposed to become even more critical in the future. The first step towards a risk management plan is recording and documenting these cultural heritage sites at risk. Heritage recording provides valuable documentation of the primary source, the cultural heritage itself. The produced ground plans, elevations, sections and details are the most important primary information source for every research. However, the size and complexity of the cultural heritage, the required accuracy and the time span could have a negative influence on heritage recording and documentation.

This paper demonstrates the potential of remote sensing techniques for cultural heritage at risk. On site surveys with GPS, Unmanned Aerial Vehicle and photo camera gave reliable information of the heritage resources and its state of conservation. WorldView-2 Satellite images, extracted at different time periods, gave insight in the evolution of the cultural landscape in Albenga. This information resulted in several conclusions. First of all, the used remote sensing tools proved to be time-efficient and effective since they are able to gather a large amount of data with a high accuracy on a relative short time. Secondly, they are non-destructive techniques and fit in this sense within the concepts of preventive conservation. They do not decrease heritage's cultural significance. Third, aerial orthophotos, created with the use of photogrammetry, give insight on the state of conservation of heritage sites. They give the ability to monitor the risks and the threats of the site, as part of a risk management method. Finally, multi-spectral satellite images extracted at different time periods, made it possible to carry out studies on land use evolution. The results revealed that Albenga is subjected by urban sprawl. This uncontrolled development is threatening the intrinsic values of the cultural landscape and the cultural heritage sites along the Via Iulia Augusta.

In conclusion, remote sensing tools proved to be time-efficient, accurate, non-destructive, recording and monitoring tools which provide information on the state of conservation of heritage sites and the evolution of cultural landscapes. This information is extremely useful when managing threats and disturbances at cultural heritage sites.