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ABSTRACTS

Photographs and UAV. Our second gold key in civil engineering monitoring

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Abstract

The entrance of surveyors, geographical or surveying engineers into the world of the monitoring of civil engineering structures has about one century. Civil engineers responsible for dam safety realize that our knowledge to determine coordinates with high accuracy could be used to calculate displacements of selected points of the structures, a key factor and still nuclear information to the analysis of the behaviour of structures. Our second entrance in the domain of the monitoring is more recent. It makes use of photographs and explores either the color or the position of the intake which, along with the data from the photos and powerful photogrammetric software, can generate orthomosaics and point clouds. The use of UAV has enlarged even more our domains of work: new kind of structures and other kind of specialist, in different domains of expertise, are demanding our collaboration. For instance, specialist in maritime structures can have, for the first time, quantitative information about their breakwaters, experts in metallic structures can easily see the top of high advertising totems and alert to weak points in the structures. Little by little we are creating a group of experts that need, or even better, cannot leave, without our information. It will be presented the experience of a group of geographical engineers and surveyors of the National Laboratory for Civil Engineering from Portugal, in the use of photos (many acquired with the help of an UAV) and how these contribute to studies in the domain of civil works. How some of the problems encountered were solved and how the experts responsible for the safety of structures are using this new data. The presentation will include examples of the more interesting works made by this Portuguese team and the challenges they are facing.