



Application of mobile devices for the rapid assessment of masonry arch bridges – worked example and benchmarking

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Abstract

Reassessment of masonry arches necessitates feasible methods for analysing the static behaviour of the persisting structure and an applicable way how to calculate the remaining load bearing capacity. Especially when a quick assessment of a structure is necessary, easily measurable characteristics, such as geometric properties have to be used. In this paper, the existing Application BRASSCO-NG is extended for masonry arch bridges by implementing the methodology described in paper [16] of this conference proceedings. Embedded into a worked example, the application of the tool is explained in detail from the first reconnaissance to the interpretation of the results. A subsequent benchmark evaluation to the static calculation and the empirical MEXE methodology compares the outcome to the techniques currently used in military and civil engineering. Even though the tool is mainly aimed for military application, the basic structure can easily be adopted for civil use, e.g. the rapid assessment of a structure after a natural disaster.

Keywords: Masonry arch bridges, arch, reassessment, rapid classification, STANAG 2021, MEXE, BRASSCO-NG, line of resistance, App, military technology, reconnaissance