Re-consideration of monitoring for a variety of roles of infrastructures

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Abstract. When considering bridge failure in a remote area or an urban area, although physical impact will be compatible, failure impact on social or economic aspects will be remarkably different. Specifically risk scale of each case shall be considered when the maintenance program is planned. Currently five-years' span of routine inspection and four levels of condition assessment of infrastructures are mandatory irrespective to the risk of the structures with using only by close visual inspection. In the presentation, corresponding to the risk of the structures, the classification of assessment levels as well as the inspection techniques are discussed. And as for the examples depending on the structural risk, NDT approaches using vibrations from second to micro-second order will be demonstrated. Finally, as a promising application of NDT through the life cycle assessment of structures, digital twin of large reinforced concrete having surface information by point cloud as well as internal information of condition will be exhibited.

Keywords: Failure, Risk, Levels of assessment, Nondestructive technique, Vibrations.

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