State of Art in Structural Geodetic Monitoring Solutions

Vincent Lui, Hong Kong SAR, China

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SUMMARY

The technical field of structural monitoring has made major progress in the recent years. New developments were driven by the need to keep engineering infrastructures in service beyond their expected lifetime due to limited funds for their replacement (typical case for bridges where the today traffic loads are far above the parameters that have been used to design them) or because the projects are so exceptional and the designers have not yet gained experience on the long term (Burj Dubai eg). Actually the term “Structural Health Monitoring” is more and more often used and refers to methods witch access the health status and safety of a structure and make estimation of its remaining lifetime. However, structures can only be kept in service if they do not put the safety of the users at risk. Critical parts of a structure as well as global behaviour have to be monitored in continuous intervals with high precision. The aim of deformation analysis has shifted and nowadays experts are not even looking if critical points of a structure have moved (and by the way due to thermal loads every structure is moving ) but well is some patterns have significantly changed to be alerted and lead more investigations ... With highest resolution and highest recording rate of today’s instruments the small deformations caused by the daily temperature changes, wind loading etc. can be observed. The paper will review the performances of new geodetic sensors and analysis methods regarding the context of a solution that would address the today interests of the experts. Key successful projects will be used to illustrate that topic.

CONTACTS

Vincent Lui
Hong Kong SAR, China
vincent.lui@leica.com.hk