

Deformation Monitoring of Danube Bridges in Slovakia by Integrated Measurement System

Alojz Kopacik, Imrich Liptak, Jan Erdelyi and Peter Kyrinovic (Slovakia)

Key words: Bridge surveying; Deformation measurement; bridge monitoring; measuring system; tilt measurement; robot station; GeoMoS; accelerometer; GNSS receiver; time synchronisation

SUMMARY

One of the main tasks associated with the safety of civil engineering structures are monitoring of their deformation. The modern and often non-typical shape of these objects generates special requirements on structural deformation monitoring. Current approach in automation of the geodetic measurements allows the application of automated systems for structural monitoring. The paper presents the design of developed automated measurement system for permanent geodetic monitoring of bridge structures over the river Danube in capital city of Slovak Republic - Bratislava. Describes the topology and preliminary experimental testing of the automated system at the real bridge structure. The base of the system are geodetic total station, tilt sensors, accelerometers and complementary sensors such as meteorological station and temperature sensors. Measurement process control is realized by remote management and data server by mobile internet connection. The system is able to real-time monitoring long-term deformation and dynamic behavior of the bridge.

Deformation Monitoring of Danube Bridges in Slovakia by Integrated Measurement System (8542)
Alojz Kopacik, Imrich Liptak, Jan Erdelyi and Peter Kyrinovic (Slovakia)

FIG Working Week 2017

Surveying the world of tomorrow - From digitalisation to augmented reality

Helsinki, Finland, May 29–June 2, 2017