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Czeslaw Machleski, Maciej Hildebrand

Sensitivity and Usefulness Analysis of Simple Monitoring System of a Steel Cable Stayed Bridge

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The cable stayed bridge over the Vistula River in Plock, Poland, contains the longest span among Polish bridges, i.e. 375 m. The bridge was therefore equipped with monitoring system consisting of 25 sensors. They are: 8 sensors of force in selected stays, 2 inclinometers located on the tops of pylons, 10 strain gauges located on the steel structural members, 3 temperature sensors located inside the main span, 2 anemometers. The results obtained from the system, which works since the year 2005, were analyzed in terms of sensitivity of the structure as well the sensitivity of the monitoring system to the actions or loads imposed to the structure. The analysis of loads affecting stay forces is presented. Short comment on pier settlement is added. The analyses are performed to answer the question if it is possible to identify the selected phenomena of behavior of the bridge based on the records from a simple monitoring system.

Доклад. Конференция по мониторингу технического состояния гражданских сооружений (CSHM-4), «Системы мониторинга технического состояния сооружений, обеспечивающие продление срока службы сооружений». Ноябрь, 2012. Берлин. Германия.

Ключевые слова:

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