Presentation introduces results of investigation carried on by the Centre of Applied Geomatics in Military University of Technology on the multi-sensor system for structural monitoring of high-rise structures. The system based on high rate GNSS was developed to get reliable information about dynamic loading on the construction caused by environmental effects like sun or wind. Solutions were tested in a laboratory conditions and two large bridge constructions in Warsaw. It was the first application of such a GNSS-based system for structural monitoring in Poland. Last year the Centre of Applied Geomatics started new project for developing the idea of real time sub centimetre GNSS measurement application for monitoring geometry of geotechnical and engineering objects. In 2010 the integrated permanent monitoring system on the 300-meters concrete chimney of CHP was installed. It consisted of GNSS receivers, motorized laser sensor and precise inclinometers combine in the compatible network. Data integration, transmission issues, preliminary results and interpretation of these studies are also described in details.