

## **The new methodology of geophysical monitoring for preservation of monuments of architecture**

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### **Abstract**

The article shows the results of geophysical monitoring used for the preservation of architectural monuments. Geophysical monitoring, a new trend in applied geophysics allow to record the changes in physical fields caused by active geological processes in urban territories. Complex high-precision gravimeter survey and electromagnetic sounding permits to study the impact of ground waters on foundations of modern buildings by recording variation of physical fields. Using gravimeter monitoring the dynamics of ground waters was studied and has been found that groundwater is a major cause of the inclination of the Suyumbeki Tower, destruction of the annex of the Governor's Palace and fortress's walls in the Kazan Kremlin. Results of the gravimetric monitoring in buildings of the Institute of Geology and Petroleum Technology of Kazan Federal University have revealed the negative impact of groundwater and technogenic water on the base of the buildings and make corrective actions to avoid destruction.

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