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Extended Abstracts

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Groundwater monitoring

title: **Groundwater quality in Pomeranian region in the light of monitoring surveys**

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Groundwater monitoring is one of the most important tools in groundwater protection and management. Monitoring system is regulated by Polish Water Law consistent with European Union Water Framework Directives. Groundwater monitoring investigations are very important for hydrogeological research thanks to long term and cyclic observations including wide range of analysis.

In Pomeranian Voivodeship (total area 18 293 km² — around 6% of the Poland territory) monitoring is run from 1991 (country monitoring) and from 1995 — regional monitoring. In 2004 when the Water Framework Directive has been implemented, the observation system has been changed into diagnostic, operational and investigative monitoring and it is run in groundwater bodies. In Pomeranian Voivodeship there are 19 groundwater bodies and 13 of them are located entirely in the range of the voivodeship. Diagnostic monitoring is led in order to assess and verify anthropogenic changes in groundwater quality and also to indicate areas where long term changes in the chemical composition occur. On the basis of the results, the investigative monitoring is planned.

Operational monitoring serves to assess the state of groundwater quality in the region.

In Pomeranian region the monitoring is run in three multiaquifer formations: Quaternary, Tertiary and Cretaceous. In most areas the chemical composition of groundwater is good and stable, although in urban areas some undesirable changes have been observed. There are also areas where groundwater quality is poor mainly due to increased concentrations of chlorine and fluoride ions. Such a poor quality is observed mainly in the region of Vistula River Delta and also in some areas in the northern part of the region.



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