

XXXVIII IAH Congress

Groundwater Quality Sustainability
Krakow, 12–17 September 2010

Extended Abstracts

Editors:
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University
of Silesia
Press 2010



abstract id: **535**

topic: **3**
Aquifer management

3.2
Transboundary aquifers

title: **The monitoring system of the transboundary aquifer in the Polish-Czech zone of the intrasudetic basin**

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keywords: groundwater monitoring, transboundary aquifer, drinking water supply

The studied area is located in the catchment of the Ścinawka and Kudowski Potok rivers and covers major part of the intrasudetic basin, in the Czech-Polish transboundary region. The hydrological, hydrogeological and geophysical observations, including the drilling works, have been carried out since 1975. The research on the groundwater resources has been connected with the extensive groundwater exploitation in both Poland and Czech Republic (formerly Czechoslovakia). Currently the water circulation is strongly affected by the long term quarrying activities and groundwater exploitation for municipal and industrial purposes.

The main aim of the monitoring studies is to observe the hydrodynamic conditions and quality of surface- and groundwaters with special concern on drinking water supply and mineral waters. Before 2008 the monitoring was run by the Geological Enterprise "PROXIMA" S.A., and thereafter by the Polish Geological Institute – National Research Institute (PGI - NRI), Lower Silesian Branch in Wrocław. These Polish institutions always co-operated with several Czech counterparts.

The monitoring network consist of the basic network and the complementary network. The following parameters are monitored and measured: depth of the groundwater table, groundwater flow volume, water temperature as well as the basic physico-chemical properties of water. Since 2009 all the measurements at the monitoring points of the basic network are fully automatic. The newly installed automatic equipment includes: the KELLER logger DCX-22 with a compensator, digital manometers with record function LEO RECORD, float-operated shaft encoder with integral data logger (Thalimedes). At present the measurements of the groundwater table depth and temperature are taken with an interval of one hour.

The presented monitoring system is one of the most advanced in Poland, with a very long record of measurements and observations of groundwater. High quality of data results from the applied practice based on unification of measurements and assessment methods, homologation of measuring equipment and joint measurements.

The monitoring of the groundwaters in the studied area is required by the EU legislation. Up to now the monitoring programme continues and develops. All the results of investigations are discussed by the joint Czech – Polish expert group which meets twice a year. Every year two separate reports, one by the Polish Institutions and the second by the Czech ones, are produced and exchanged between the counterparts. The results clearly demonstrate the necessity of further joint hydrological and hydrogeological observations in the studied area. The challenge to this transboundary monitoring system is to achieve in the future a single network with a common database in order to build a single common groundwater model.



International Association of Hydrogeologists



AGH University of Science and Technology

2-vol. set + CD
ISSN 0208-6336
ISBN 978-83-226-1979-0