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PUMa – modelling the groundwater flow in Baltic Sedimentary Basin

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In 2009-2012 at University of Latvia and Latvia University of Agriculture project „Establishment of interdisciplinary scientist group and modelling system for groundwater research" is implemented financed by the European Social Fund. The aim of the project is to develop groundwater research in Latvia by establishing interdisciplinary research group and modelling system covering groundwater flow in the Baltic Sedimentary Basin. Researchers from fields like geology, chemistry, mathematical modelling, physics and environmental engineering are involved in the project.

The modelling system is used as a platform for addressing scientific problems such as: (1) large-scale groundwater flow in Baltic Sedimentary Basin and impact of human activities on it; (2) the evolution of groundwater flow since the last glaciation and subglacial groundwater recharge; (3) the effects of climate changes on shallow groundwater and interaction of hydrographical network and groundwater; (4) new programming approaches for groundwater modelling.

Within the frame of the project most accessible geological information such as description of geological wells, geological maps and results of seismic profiling in Latvia as well as Estonia and Lithuania are collected and integrated into modelling system. For example data form more then 40 thousands wells are directly used to automatically generate the geological structure of the model.

Additionally a groundwater sampling campaign is undertaken. Contents of CFC, stabile isotopes of O and H and radiocarbon are the most significant parameters of groundwater that are established in unprecedented scale for Latvia.

The most important modelling results will be published in web as a data set.

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Project web-site: www.puma.lu.lv