

Abstract:

This work deals with groundwater quality of the Police Cretaceous Basin which is important hydrogeologic structure highly exploited by water-supply engineering. The aim of the thesis is to evaluate groundwater quality especially in the light of its contamination by nitrates. High concentrations of nitrates in resident groundwater have origin in excessive and also untimely usage of mineral fertilizers. The work focuses on important water-withdrawal area „Plachty“ located near by Police city in the south part of the basin.

Previous geological exploration and geologic and hydrogeologic structure of the basin were described. Time analyses of changes in groundwater quality within broad area of the basin were processed in many figures. Resulting correlations with groundwater quality data from “Plachty” water-withdrawal area allows draw the conclusion about main factors participant in the quality of drawn water and its changes.

The second part of the thesis is mathematical model of groundwater flow supplemented by model of nitrates transport in groundwater. The main finding of the model is an identification of possible sources of contamination and long-range forecast of supposed future progress of nitrates contamination in the water-withdrawal area “Plachty”.