

## Distribution of abnormal formation pressure and influence to long-term groundwater flow on Niigata Basin

# Kimio Miyakawa[1]; Satoru Yokoi[2]; Yukihiro Mizuochi[3]; Makoto Asakawa[4]

[1] CRIEPI; [2] JAPEX; [3] Sumicon; [4] NUMO

The abnormal formation pressure in the basin exists in the depth of 1000m or more, and will not influence the groundwater flow of the surface area for the short term. However, the abnormal formation pressure tends the decrease of pressure at the time of tens of thousands of years or more, and there is a possibility of influencing the regional groundwater flow and the chemical composition of groundwater in this process. Authors examined the distribution of the space hydraulic pressure from 60 sonic log data of the Niigata basin by using the method of Takahata (2004). As a result of the analysis, the excess pressure tended to increase with depth. The excess pressure tends to be high in the center part of the basin, and to be low in the rim of the basin in the same formation. On the other hand, the pressure gap and pressure leak locally by the influence of the fault. Generally, because the horizontal hydraulic conductivity of the formation is about two orders larger than that of the vertical, the groundwater flows from the center part of the basin with a high excess pressure to the rim with a low pressure for the long term. The salinity of the groundwater is high though this groundwater flow is very slow. Therefore, it might influence the regional groundwater flow by the fresh-salt water boundary moving to the surface. On the other hand, there is a possibility that this groundwater rise episodic through the fault and the mud volcano where the abnormal pressure sequences is distributed in the vicinity of surface by geological structures.