On characterizing hydrogeological properties of Choshuishi Alluvial Fan, Taiwan

Kuo-Chin Hsu[1], Liang-Tzu Hsu[1], Chein-Lee Wang[1], and Youe-Ping Lee[2]

[1]Department of Resources Engineering, National Cheng-Kung University, Tainan, Taiwan, Republic of China

[2]First River Management Office, Water Resources Agency, Yilan, Taiwan, Republic of China

Characterizing the subsurface system is important to understand the processes of groundwater flow, solute transport or earthquake mechanism. The Choshuishi Alluvial Fan is one of the most important groundwater resources in Taiwan. The aquifers are mainly composed of gravel and coarse sand and are separated by aquitards of clay and silt. The existing monitoring system composing of 188 monitoring wells at 73 stations mainly provides hydrogeological information of aquifer for the purpose of water resources management. However, the properties of aquitards are required to construct a hydrogeoloical model. Natural excitations such as earthquake, rainfall or atmospheric pressure change is useful to characterize the properties of aquitard. In this study, long-term record of groudwater level fluctuation is analyzed by harmonic analysis to obtain the vertical hydraulic conductivity. With the obtained aquitard properties, the hydrogeology of the Choshuishi Alluvial Fan becomes more lucid.