Estimating the specific yields and groundwater variations with the resistivity method in the northern Pingtung Plain

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We have conducted the time-lapse electrical resistivity imaging surveys in the northern Pingtung area, in order to learn the variation of the groundwater level and estimate the hydraulic parameters. We selected 10 sites for the time-lapse resistivity surveys, and collected measurements in February, May, July, and September in the Pengtsuo Farm area. The resistivity images suggest that the estimated groundwater level were at a depth between 7-11 meters in the area. And the average estimated groundwater level drops to the lowest due to the dry condition in May. The Groundwater level were raised for 2 to 6 meters deep because the increased precipitation in July and September. From the distribution pattern of the groundwater level, we concluded that the Wuluo creek may serve as a local recharge source and the pumping activity in the area may shape the distribution pattern of the local groundwater table. The estimated specific yield from the resistivity measurements were in a range of 0.16 to 0.22. The resistivity-estimated specific yields are consistent to those estimated from the gravity measurements, which indicates 0.14, 0.11, and 0.18 of the specific yields at the Wanlung, Szelin, and the Pengtsuo elementary schools, respectively.

Keywords: specific yield, groundwater , resistivity method

