

## Investigation of fresh and salt water distribution by resistivity method in Yellow River Delta

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Yellow River is one of the largest river and provide many sands to the sea. There is the large delta of Yellow River in the lower reach, and it is continuing to grow up by sediment from the river. However, many environment issues occur such as the problem which river water can not reach to the river mouth from depletion of river water by overuse since 1970's. Therefore, delta of Yellow River is the region where the change of natural environment is large. We are evaluating the condition of groundwater to evaluate the influence of natural environment change to groundwater under the delta and groundwater discharge to the sea. Purpose of this study is the evaluation of fresh and salt water distribution under the delta.

Methods are measurement of resistivity under the ground by resistivity method and conductivity measurement of groundwater from the well. In general, analysis of groundwater is used for evaluation of fresh and salt water distribution. However, this method needs many wells and resolution of result depends of number of wells. On the other hands, resistivity method does not depend on number of wells and resistivity values can become the indicator of groundwater conductivity. However, it is necessary to compare resistivity values and conductivity of groundwater for accurate evaluation. Therefore, resistivity method and conductivity measurement was applied for this purpose.

As the results, negative correlation between resistivity values under the delta and conductivity of groundwater is seen by comparison of results. In addition to that, it is thought that change of resistivity values indicates change of groundwater conductivity because geology of this delta is mainly sands from Yellow River. According to results of resistivity measurements, it is guessed that paleo-seawater remains under the delta in the inland and near the coastal zone.