

Seasonal change of underground resistivity distribution in the tideland, Omaehama beach, southwest Japan.

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We investigated underground distribution of resistivity using VLF-MT method in tideland at the Omaehama beach. The tideland locates at the eastern mouth of the Syukugawa river, Hyogo, southwest Japan. The tideland spread about 150meters from beachline at low tide. The resistivity distribution is measured seven times, May./2005, Nov./2005, Jan./2006, Apr./2006, May./2006, Aug./2006, and Nov./2006, in a same measuring line. The length of measuring line was about 150 meters and the line was perpendicular to the direction of sand beach. Results are concluded as follows.

(a) Resistivity and phase difference distribution in measuring line varied in every measuring day. This seasonal change in resistivity distribution may be reflected by seasonal salinity change of groundwater. If resistivity distribution is reflected variation of the tideland geology, ex. size of sediments, the resistivity distribution may not show seasonal change.

(b) High resistivity peak was observed in the measuring line. The places, scale and magnitude of high resistivity peak varied in every measuring day. The places and amount of fresh groundwater discharge probably change in the time.

(c) The phase differences showed about 45 degree in Jan./2006 and Apr./2006. On the other hand, rather low phase differences, 25 to 40 degree, observed in another days. About 45 degree of phase differences show homogenous vertical salinity distribution, and low phase differences show that low salinity water exist in deeper part.

We found that seasonal change of underground resistivity distribution in tideland by VLF-MT measurements. It may relate to change in the time of places, scale and vertical distribution of the fresh groundwater discharge.