# Influence of sea water intrusion by tidal fluctuation in coast area

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1.First

There is a meaning very when it knows the tip of the subterranean water flow system of the land area to grasp the flow process and penetration quantity of the circulation water of the sea water, in other words, sea water that invaded the underground of the coast area.

As for the research of the coast area, be not announced the phenomenon of the scale that being small in short term like the tide in these research, although it is carried out prosperously from before.

Thereupon, it made that the influence of the tide is the big Inland Sea of Japan with this research and announce about the flow and quantity of the circulation water of the sea water accompanied by the tide from the distribution of the potentials and sea water contribution rate of 2 dimension by location observation the purpose.

2.Research area

Experimental slope is located on Ikuchi Island, east of Hiroshima of western Japan. The study area is able to call it with the place which was suited very much in order that tide level fluctuation is a big place among Japan and see the influence of the circulation water of the sea water by the tide.

3.Method

I studied potential distribution by using piezometers in this research. Simultaneously, it does the subterranean water of each piezometer and the same depth water sampling and take back a/the specimen to the study room and measured ion chlorine ion density. And, the distribution was stopped in quest of the contribution rate of sea water, from the ratio of the chlorine ion density of the specimen and sea water. I established the measurement point 7 places in the interval 20 m.

4.Result and study

The following became clear by this research.

(1) the potential of the surface of the earth becomes high from the low tide through high tide and sea water penetrates from the surface of the earth. And the potential of the surface of the earth drops when the tide level drops from the high tide through low tide and begin and subterranean water flows toward the surface of the earth from underground. And, the potential of the point drops sharply, when the surface of the earth exposes it and subterranean water begins to flow out. This process is repeated twice a day and the outflow of the penetration and subterranean water of the sea water are breaking out by the tide.

(2) as for the contribution rate of sea water the one of the flood tide was generally a few% high. The factor that decides the sea water contribution rate here is the ratio of salt water and fresh water. Thereupon, the penetration quantity from the next low tide to low tide of flood tide the penetration quantity of a/the neap tide becomes 2529040cm2/s similarly 2956408cm2/s, as the circulation water of sea water estimated the quantity that penetrates from observation section surface of the earth department and the penetration quantity was a contribution rate and harmony target a lot the one at the time of flood tide. It was able to confirm that the quantity of the circulation water of sea water increases as tide level fluctuation is big from this case.

(3) it was 95% or more when are 89% and see the whole on the average even when the sea water contribution rate in the observation section is lowest. It there is much quantity of the circulation water of sea water because the tide is big and conceivable that this breaks out because always the circulation water of sea water is staying behind to the surface department of the coast area. This result became as a result that the subterranean water of the land area overthrows the conventional research result that does a direct outflow in the coast area. The day when rain does not fall in the time when observation is conducted as the cause is conceivable with one of the factor even that continuance, the underground surface of the water were dropping substantially. However, it is the very interesting result that the subterranean water from the land is flowing out by only the mixture.