The examination method for distribution of the submarine groundwater discharge in the closed sea area.

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To calculate nutrient load amount from the land about the enclosed coastal seas, it was considering only a loading amount from the river. However, that the load of the groundwater origin from the marginal sea bottom, is the quantity which can not be ignored is becoming in the clarifying with the research in recent years.

To calculate nutrient load amount via the groundwater, the groundwater distribution on the seabed must be grasped widely.It had a purpose of grasping the correlation of the potential malfunction which accompanies groundwater flow under the bottom of the sea in applying SP method to the groundwater decrement investigation in the area of sea in the this research and the spring water spot.

It selected Einoo seashore in the Yatsushiro-bay to be confirming that the spring water exists to verify it. It measured the self-potential values by 58 points on Einoo seashore, the falling tide of the middle tide and the floodtide.Also, it arranged four Lee-type seepage meters on the traverse line which crosses at right angles in the strandline and it observed a water inflow respectively for about 20 minutes while measuring a self-potential.

To win a self-potential in the seawater zone, it decided to use a silver-silver chloride electrode, the one which is made from polyvinyl chloride as the box as the pole which doesn't generate a polarization operation.The observation method used one pair of poles and measured the electric potential difference with the multimeter.The measurement did the tideland area that the water depth is equal to or less than 1 m in the time zone when the tide level declined by the walking movement.

The phenomenon with the measure which is in the drift causes the self-potential measurement which used a silver-silver chloride electrode by the change of the salinity of seawater and there is a case that the stable value can not be gotten.Therefore, it used the way of not evaluating measure itself, but making first an electrode interval 0 m and measuring, and measuring it continuously in the 1 m interval and measuring the electric potential gradient several times.As a result, the error of the measure showed the stable value of equal to or less than 0.02 mV/m.It measured a pole, dividing it into the north-south and the eastern and western way about the main research and it fixed a multimeter + pole in the north or the east.

The SGD which was observed with the Seepage meter showed most 0.013mm/s by the average of the observation period in the spot which is near the shore.There was possibility that the malfunction of the self-potential inclination is remarkable in the spot where the that it is possible to fold up water inflow that it was possible to confirm that the self-potential gradient distribution changed rapidly by about 0.2 - 0.3 mV/m around the spot is rich.

To verify this result in the wider range, in the Ariake-bay coastal region, it did the investigation of the self-potential gradient distribution.It selected Kumamoto Prefecture coastal regions and Shimabara Peninsula coastal regions as the area where there are possibility of the submarine spring water out of the Ariake-bay coastal region.In the spot where the SGD showed above 0.01mm/s in the 10 spot investigations, the self-potential inclination of equal to or more than 0.1 mV/m was attended and showed high correlation.

As a result, it found the thing that the possibility that the spring water spot can be specified in measuring an electrode interval, dividing it in case of 0 m and 1 m when doing SP investigation as the groundwater decrement distribution propspecting on the area of sea and making the electric potential gradient (mV/m) an evaluated value is high.