

Factors of beach change on the Ose coast in Ibaraki prefecture during the last 2 years

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[Introduction]

In recent years, the impact of coastal erosion has been reported in the north of the coast of Ibaraki Prefecture (Uda et al, 2008). We examined by using aerial photographs the situation of shoreline of Ose coast in Hitachi City. As a result, it seemed that coastal erosion occurred on the Ose coast. So, we started this study.

[Purpose]

The purpose of this study is to examine the situation of the beach change on the Ose Coast and to examine the beach change factor.

[Overview of the Ose coast]

Ose coast is located about 1km away south from Hitachi Station. Ose coast lies between Ose fishing port and abrasion platform. Sea cliffs are located behind the coast. The length of the coast is about 100m of sandy beach. The sediments on the Ose coast were mainly medium sand and coarse sand.

[Experiments and results]

During the two year study period, the average elevation value fluctuated between 239.3 and 175.3 cm. And the foreshore part was the most fluctuating than the backshore. Furthermore, the slope angle of the foreshore became large when the fluctuation was large. In the first half of the study period, the average elevation value fluctuated greatly. In the latter half of the year, the value of the average elevation shows a gradual declining trend.

[Consideration]

From the result of concentration of the fluctuating field in the coastal area, we consider three points of "coastal flow", "heights of wave" and "typhoon".

-coastal flow-

We used ocean buoys located about 5 km off the Ose coast to examine the coastal flow over the past three years. As a result, three of the southeast (21%), the south (18%), the southwest (11%) are predominant, and we named them "south-facing coastal flow". The proportion of this "south-facing coastal flow" was inversely proportional to the increase and decrease of the average altitude. The flow velocity of "south-facing coastal flow" was also the same. There was a slight negative correlation between coastal flow and average altitude.

-heights of wave-

We analyzed the wave height using the data of Hitachi Naka Port, located about 20 km south of the Ose coast. The height of wave value repeatedly fluctuated, and it was inversely proportional to the average altitude value. There was a slight negative correlation between significant wave height and average altitude.

-typhoon-

We analyzed longitudinal section view when the typhoon came. As a result, fluctuations were not seen much. Therefore, the influence on the beach topography due to temporary events such as typhoons is considered to be small.

From these results, the coastal flow and the height of the waves are likely to be factors of the beach change. And it is thought that the coastal shoreline is more influential. Moreover, it is thought that the influence of typhoon is small compared with coastal flow etc

[References]

Takaaki UDA, Toshiro SAN-NAMI, Hideki NAGAYAMA, Michio SUMIYA and Takayuki KUMADA,(2008) : BEACH EROSION ON NARUSAWA, TAGA AND KAWARAGO COASTS IN IBARAKI PREFECTURE, Annual journal of civil engineering in the ocean, 24,pp1327-1332

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