Factors of beach change on the Ose coast in Ibaraki prefecture

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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 etl,2008). We examined by using aerial photograghs the situation of shoreline of Ose coast in Hitachi City. As a result, we investigated the coast as beach erosion seemed to be happening.
[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 marine bench. Sea cliffs are located behind the coast. The length of the coast is about 100m ofsandy beach. The sediments on the Ose coast were mainly medium sand and coarse sand,and developed sedimentary structure. Incidentally, in December 2015 , the embankments-protection works of the Ose fishing port was held.
[Experiments and results]
In an region of 50m ×30m in the coast, we measured to 5m intervals. We studied from July 2015 to December 2016. As a result, the average altitude of the Ose coast was fluctuating.It was confirmed that a beach change occurred. Furthermore, it turned out that beach change repeatedly occurred.
[Consideration]
In order to clarify the factors of this beach change, we made the following consideration.
As a result of analyzing the beach topography section, it turned out that the only foreshore was fluctuating. So,we considered the coastal current and the significant wave height.
In case of coastal current,we used the data of marine research buoy,at 5 km off the coast(Tohoku National Fisheries Research Institute,Japan Fisheries Research and Education Agency). We analyzed the data for the past two years. The dominant trends were southeast, south, southwest. We grouped these three flows together as "southward current". The proportion of this "southward current" was fluctuating. And it was inversely proportional to the variation of the average altitude. The correlation coefficient (R) was -0.78.(This result does not include data for the embankments-protection works period.)In case of significant wave height,we used the significant wave height data of Hitachi Naka Port that 20 km south from the Ose coast (Nationwide Ocean Wave Information Network for ports and harbours) . The fluctuation of the significant wave height was also similar to coastal current.The correlation coefficient (R) was -0.46.
[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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