Feature of submarine sediment around the mouth of Teshio River, northern Hokkaido

Kazuya Suga[1]

[1] Marine, Geol.Surv.Hokkaido

http://www.gsh.pref.hokkaido.jp/

I carried out the analysis of submarine sediments corrected from the mouth of Teshio River, situated in northern Hokkaido. The purpose of this analysis is to examine the effect of coastal erosion and discharged materials from Teshio River. The means of analysis are 11 elements determination, grain size analysis and microscopic identification of particles.

Sampling points are shown in Figure. Surface sediments of sea bottom were caught by the grab sampler at those points. Corrected samples were dried and ground. Fe,Mn,Ca,Mg and Ti of 11 elements were determined by X-ray Fluorescence Spectrometer for the samples consolidated by press. Cu,Pb,Zn,Ni,Co and Cr were determined by Zeeman Atomic Absorption Spectrometer for the samples decomposed by acid solution. Grain size analysis was done by Laser Diffraction Particle Size Analyzer for the wet samples.

From the element determinations, there are some variations of those contents by areas. So I did the Principal Component Analysis for multivariate data analysis to examine the features of those variations. As a result, I could know the main four groups(A,B,C,D in Figure) by the component scores of this analysis. The A located in the south of Teshio River mouth has higher contents of Zn, Co,Cr,Fe,Ti and an abundance of heavy minerals(magnetite, ilmenite, pyroxene, hornblende). Those heavy minerals are considered the discharged materials from Teshio River mainly.

The B located in the northwest offshore of Teshio River mouth has higher contents of Cu,Pb,Ni,Mg and an abundance of muddy particles. There is a Serpentinite area in the middle part of Teshio River. Serpentinite is known to be abundant in Ni and Mg. Therefore the two elements are considered to have an origin in this area. Cu and Pb are relatively abundant in muddy sediment in general.

The C close mainly to the south shoreline has lower contents of those 11 elements and an abundance of quartz, feldspar and mudstone.

The D located in offshore of the C has a characteritic of intermidiate of C and A.

As a result of this analysis, there are some sediments abundant relatively in heavy minerals near the mouth of Teshio River. In the northwest offshore of this mouth, there are some muddy sediments from Teshio River and its muddy area has been expanded in comparison with the old bottom sediment chart. The area close to the south shoreline has a sandy sediment supplied from the near shore by coastal erosion.

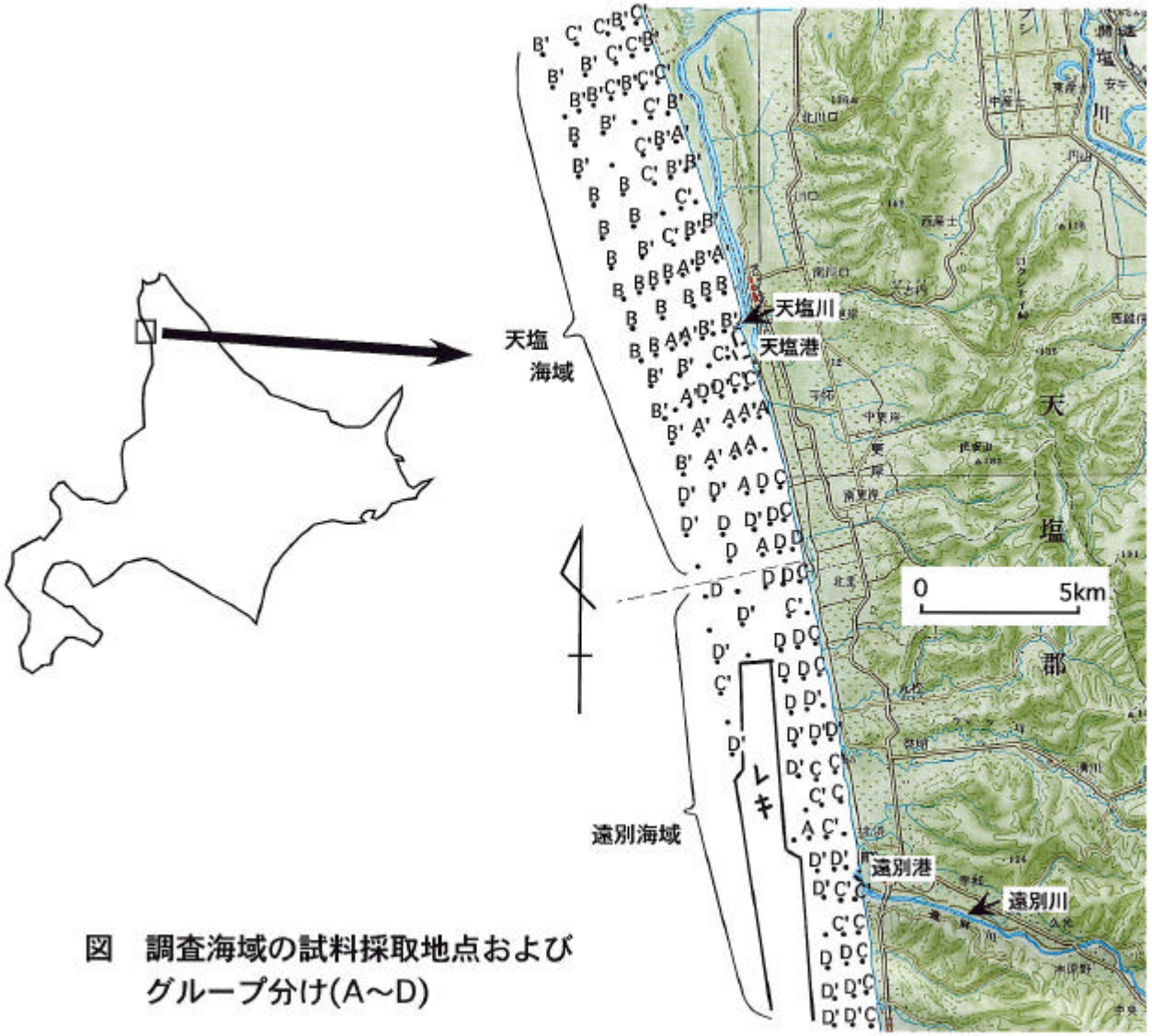

図　調査海域の試料採取地点および
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