

## Analysis of submarine sediment in the littoral of Ishikari Bay on Hokkaido by using the principal component analysis

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In recent years, coastal erosion on Ishikari Bay has occurred in many parts. And sediments of the coast and of the littoral sea bottom have suffered a sand drift and a change of those characteristics surely. I carried out sediment survey around those river mouths, Ishikari River and Yoichi River. By the examinations of the principal component analysis on sediments using 10 element contents and particle composition analysis, sediment transfer on Ishikari River mouth is mainly of two routes. One is from Ishikari River, another is from west off this sea. It is estimated that two are mixed on center to west of this sea. On Yoichi River mouth, the sediment spreads out from this mouth to northeast offshore and coarse sand which is composed of mainly rock fragments is remained coastal zone.

In recent years, coastal erosion on the littoral of Ishikari Bay has occurred in many parts. And sediments of the coast and of the littoral sea bottom have suffered a sand drift and a change of those characteristics surely.

For this reason, I carried out sediment survey around those river mouths, Ishikari River and Yoichi River in Ishikari Bay. Sampled number of sediments are 139 for Ishikari and 48 for Yoichi. The determination of 10 elements (Cu, Pb, Zn, Ni, Co, Cr, Fe, Mn, Ca, Mg), grain size analysis and particle composition analysis have been done on each sample. And the principal component analysis as the multivariate data analysis was done for those samples using 10 element contents.

As a result, sediment transfer on Ishikari River mouth is mainly of two routes resulted from the principal component analysis. One is from Ishikari River, another is from west off this sea. It is estimated that two are mixed on center to west of this sea. On Yoichi River mouth, the sediment spreads out from this mouth to northeast offshore and coarse sand which is composed of mainly rock fragments is remained coastal zone.

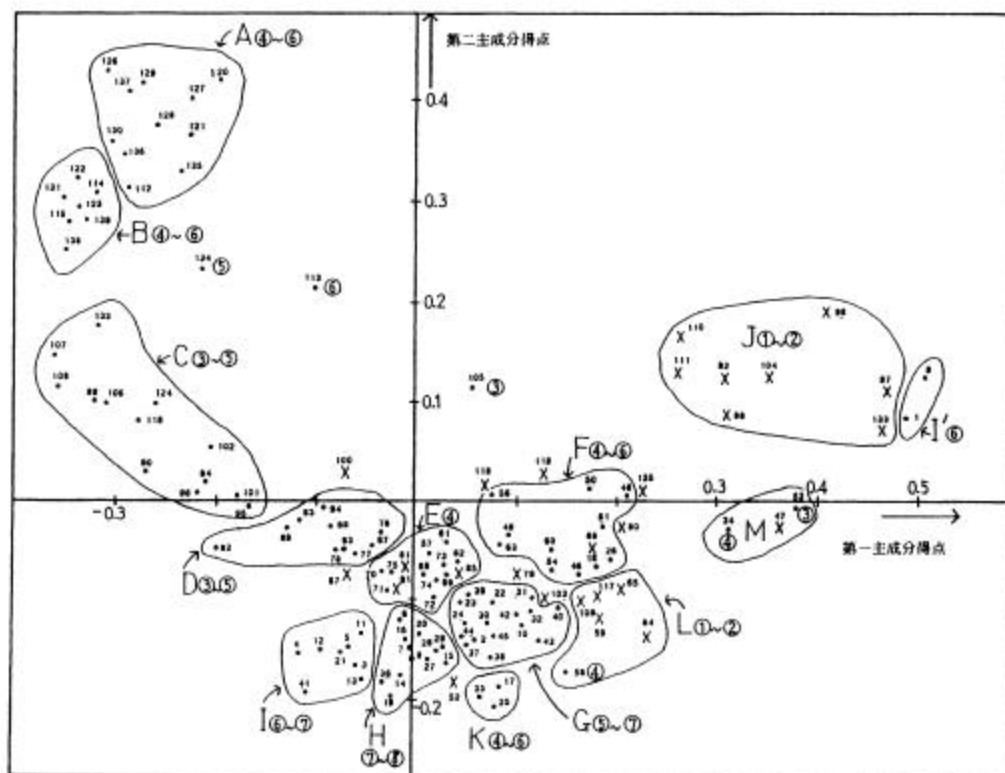


図 主成分得点分布(石狩海域)

A~L: グループ分け。丸囲いの数字は第三主成分得点のランク値。ただし、×印は同ランク値が②以下  
Fig. Factor scores of the principal component analysis on the Ishikari sea.

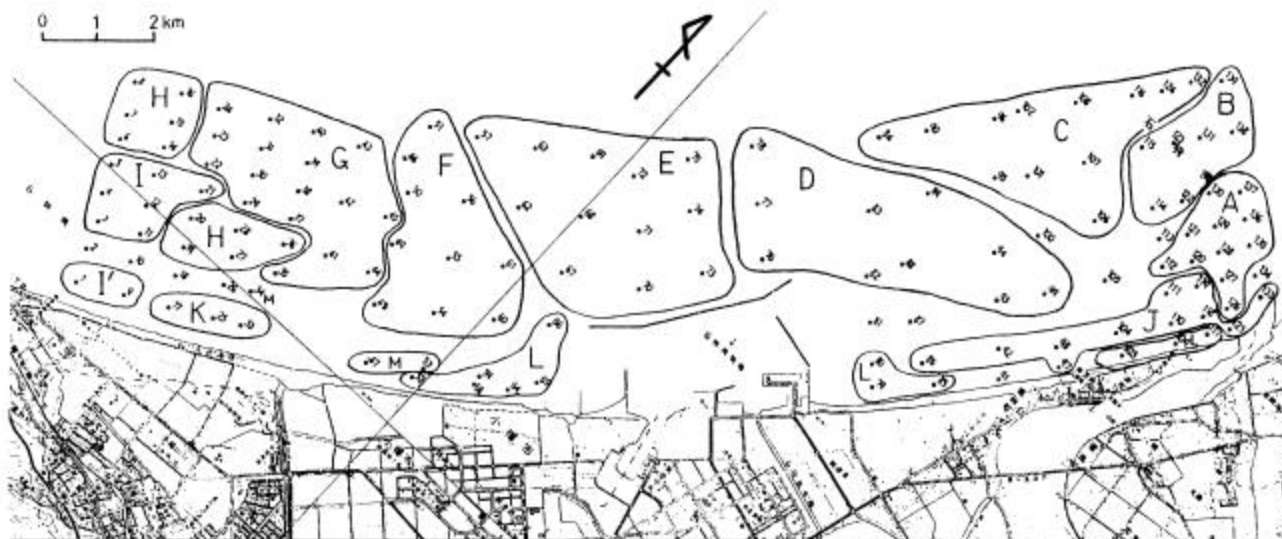


図 主成分得点による各地点の区分(石狩海域)

(国土地理院発行の5万分の1地形図「石狩」、「小樽東部」、「札幌」、「銭函」を使用)

Fig. Classification of sampling points by factor scores.