北海道南部沖日高舟状海盆を埋積する海底地すべり堆積物の分布と堆積学的特徴ーとくに第四系最上部の地すべり堆積体についてー

Distribution and sedimentological characteristics of the submarine landslides filling Hidaka Trough, offshore southern Hokkaido, northern Japan with special attention to the uppermost Quaternary submarine landslide bodies

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In the last few years, many examples of submarine landslides have been reported worldwide, and their systematic and genetic researches have been initiated. The studies in distribution, sedimentary pattern and mechanism of submarine landslides are remarkably important mainly from the following two reasons: (1) Submarine landslides affect significantly the state of surrounding water mass due to long distance migration of huge volume sediment mass within relatively short time period. One of the critical phenomena is megatsunami induced by submarine landslides, (2) Secondly nature of submarine landslides is deeply related to transportation mechanisms of siliciclastic sediments into tectonically formed sedimentary basins and their burial processes. In this study, two dataset of 3D seismic survey are utilized to describe some submarine landslide examples, under the owner’s permission. They are Geophysical Survey and Basin Evaluation Projects “2013FY Hidaka Shujo Kaibon 3D”(hereinafter, called HSK-3D) and “2014FY Hidaka Shujo Kaibon Seibu 3D” (HSKW-3D), acquired at the offshore southern Hokkaido by Ministry of Economy, Trade and Industry (METI).
The surveys cover the northeastern marginal slope and a part of central basin floor of Hidaka Trough elongated NW-SE direction. Water depth of covering area ranges from 577 to 1,156 mBMSL. The seismic reflector indicating seabed have been traced by using “seeded autotracking” function of PETREL, then a time structural contour map for the surface, which is equivalent to bathymetric map, have been drawn. Based on the topographic features, the survey area can be subdivided broadly into two types; one is characterized generally by smooth sea bottom surface, and another by irregular or rough surface in seismic scale. The area of smooth sea bottom cover approximately southwestern two thirds portion of HSKW-3D and a part of the western HSK-3D areas. On the other hand, northeastern one thirds of HSKW-3D, northwestern corner of HSK-3D, and northeastern portion and some extending areas are characterized by irregularly swollen, or roughly heaped unsmooth sea bottom surface. Such irregular topographic features of the seabed can be interpreted formed by Holocene or the youngest Quaternary submarine landslides from the point of view of their distribution within the basin. Within cross sectional views of the seismic data, those landslide bodies are observed as externally discontinuous and internally chaotic layers within orderly stacking parallel layered succession in seismic facies. These youngest submarine landslides seen in recent topography can largely be classified into 4 groups; called i) Shizunai, ii) Urakawa, iii) Samani and iv) Erimo Submarine Landslide, and they are laterally arrayed from northwest to southeast and running down generally from northeast to southwest on the continental slope of Hidaka Trough (Figure).
In addition, many buried submarine landslide bodies in the sediments filling the Hidaka Trough (e.g., Monbetsu SLS) can be recognized by seismic facies interpretation in the cross sections and time slice

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images. In the Hidaka Trough, Cretaceous to Quaternary sediments ranging up to 10km in thickness are present. Four horizons, A, B, C and D had been selected and traced within the sedimentary succession in this study. On the basis of chronostratigraphic correlation to the preceding studies, B, C, and D are correlative to intra-middle Pleistocene equivalent to the base of NPD12, base of middle Pleistocene Calabrian, and base of Pliocene, respectively. Horizon A is inferred as a horizon in the upper Pleistocene or Holocene. At least more than 3 landslide events can be detected in the stratigraphic unit between seabed and horizon A. In the unit between horizons A and B, 3 to 5 events are recognized, and there are equivalent numbers of landslide events in the unit between horizons B and C. Almost sediments are interpreted as chaotic seismic facies below horizon D.

キーワード：海底地すべり、日高舟状海盆、海底地すべり津波、三次元地震探査
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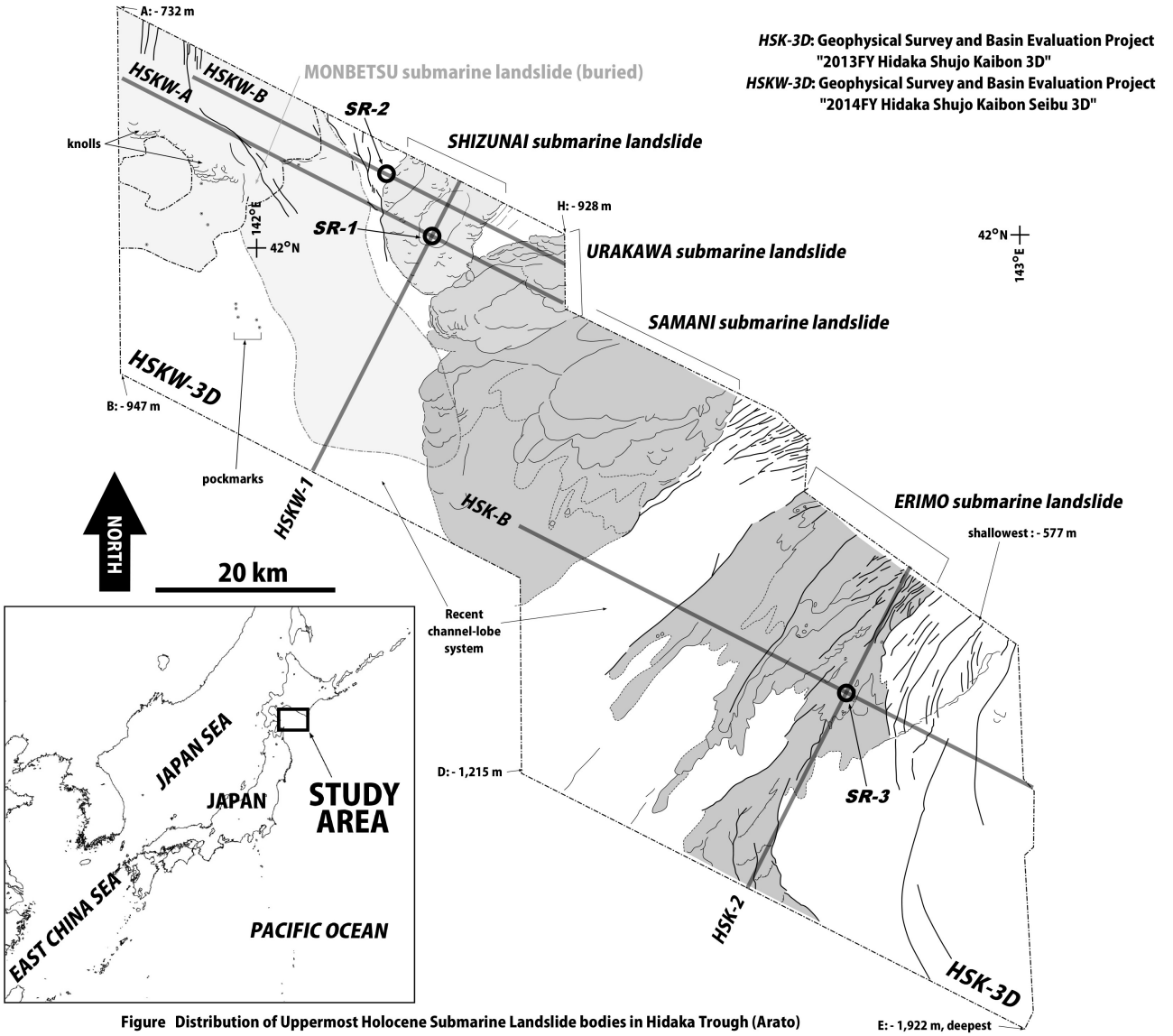

Figure Distribution of Uppermost Holocene Submarine Landslide bodies in Hidaka Trough (Arato)

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