Multibeam bathymetric and sediment profiler evidence for pockmarks and ice grounding on the Chukchi borderland, Arctic Ocean : implicaion for subseafloor past environmental changes including methane hydrate instability

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Multibeam bathymetry and subbottom profiler data collected from the Japanese R/V Mirai in 2004 and 2008 provide convincing evidence for ice grounding scour and mega craters on the Chukchi and Beaufort borderland, Arctic Ocean. The data presented here were collected hull-mounted multibeam echo sounder and 12 kHz subbottom profiler. The multibeam bathymetry soundings were compiled into digital terrain models with a Polar Stereographic projection and its grid resolution of the digital terrain models are 25 to 100m. The size of craters and scoursare measured on the digital terrain models to determine pockmarks diameter and scour width. We also measured scour direction and displayed them as a rose diagram. In this study, we obtained a bathymetric dataset ofapproximately 610000 km in the area. The running time of the seabeam system was more than about 700 hours.

Seabeam data were converted and visualized by CARIS (Geospatial Software Solutions) and ArcGIS (ESRI).