



The role of multibeam sonar from AUVs in mapping climate-induced change in Arctic sea ice

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The Autosub-II autonomous underwater vehicle (AUV) has been operated with a Simrad EM2000 multibeam sonar looking upwards, underneath first and multiyear sea ice off NE Greenland. The imagery of the ice underside gives us a new and better view of the changing nature of Arctic sea ice. In particular, we can see the difference in structure between recently formed ridges, with sharp-edged blocks; old worn-down ridges; and partially melted or disintegrated ridges where the ice blocks are separated. Melt features on the underside of undeformed ice can also be seen. The results yield insight into the problem of whether the recent decline in mean sea ice thickness in the Arctic is due to enhanced bottom melt or to other factors