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U.S. CLIVAR Working Group on Ice Sheet/Ocean Interactions in Greenland: Making progress by building bridges across communities

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The recent, rapid mass loss from both polar ice sheets has been attributed to increased mass discharge at the marine margins of Greenland and Western Antarctica. Here, evidence points at ice sheet/ocean interactions as a key player in the ice sheets' mass balance and likely trigger for the changes. Yet the relevant ocean and glacier dynamics are poorly understood and constitute a fundamental barrier to the correct representation of ice sheets in climate/earth systems models and to our ability to accurately predict sea level rise. This situation is exacerbated in Greenland, where ice sheet/ocean interactions have received less attention than in Antarctica and whose unique characteristics require special consideration. As scientists seek to advance our knowledge of this complex system, progress is hindered by the inherent separation of the communities involved (including glaciologists, oceanographers, sea-ice experts, atmospheric and climate scientists). The U.S. CLIVAR Working Group on Ice Sheet/Ocean Interactions in Greenland brings together a diverse group of scientists who are addressing Greenland glacier/ocean/atmosphere/sea-ice related questions from a variety of disciplines and sub-disciplines. Its goal is to foster and promote interaction between the diverse communities, oceanographic, glaciological, atmospheric and climate (including modelers, field and data scientists within each community), interested in glacier/ocean interactions around Greenland, to advance our understanding of the process and improve its representation in climate models. Here, we will present a synthesis of our efforts to identify the highest priority questions within each community and for the problem as a whole as well as strategies on how to address them.