**Pan-Arctic Options: Holistic Integration for Arctic Coastal-Marine Sustainability**

**Call:** Arctic Observing and Research for Sustainability

**Type of Project:** Type 3 - Research Grant

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**Sponsored by**: NSFC, ANR, RCN, NSF

The Arctic Ocean is experiencing an environmental state-change with expanding human activities ranging from commercial shipping and energy development to ship-based tourism. Accordingly, with involvement of indigenous peoples, Arctic and non-Arctic states have begun to develop national and international management regimes to address emerging issues, impacts and resources in the Arctic Ocean. In every case, there will be challenges to implement agreements in the face of political and financial constraints. "Pan-Arctic Options - Holistic Integration for Arctic Coastal-Marine Sustainability" is designed in an international, interdisciplinary and inclusive manner, involving cost-effective collaboration with currently funded projects to contribute to informed decision-making by policy makers from government and industry. The core team includes natural and social scientists from Canada, China, France, Norway, Russia and the United States who will integrate document collections, geospatial data and stakeholder perspectives. This integrated decision-support tool will involve users in the co-design and co-production of options for both policy and built elements that are needed together for sustainable infrastructure development in the Arctic Ocean. A unique observational contribution from Pan-Arctic Options will be the analysis of Automatic Identification System (AIS) data of ship traffic across the Arctic Ocean collected from polar-orbiting satellites from 2009 forward. Results will be disseminated via journals (e.g., Science, Nature) and books as well as less-conventional methods involving facilitated dialogues in annual venues (e.g., Arctic Frontiers, Arctic Circle) and in the 2016 Arctic Expedition Summit involving the National Geographic Society and Google Ocean program. Management of this holistic project will be in the hands of a Steering Committee and an international Advisory Board involving global thought leaders and organizations (e.g., Arctic Monitoring and Assessment Programme), contributing to Arctic Ocean sustainability on a pan-Arctic scale.