



Special Issue on
Systems and Solutions for Arctic Challenges

The Arctic region has received increased attention as changes in the area's climate enable a much more robust human footprint there than in the recent past. Implications of increased human presence in the Arctic are wide-ranging, affecting a broad spectrum of endeavors, and many of these implications represent calls for technologies and systems that help facilitate this inevitable increase.



Because of the inhospitable, unique and extremely challenging conditions of the Arctic region, operating there safely requires unique solutions. With no infrastructure, no land mass, and an austere climate, the region brings unique challenges that few people have experienced to-date. Navigation and safety in the maritime and aerospace environments of the Arctic could benefit from innovative technological systems and solutions, and this special edition of Aerospace and Electronic Systems Magazine will focus on technologies, systems and processes that can support the increasing human presence in the region.

Understanding the implications of climate change on the Arctic region, AESS, in partnership with the U. S. Navy's Arctic Submarine Laboratory, intends to compile a Special Issue of the AESS Magazine that will cover the technical solutions and systems that can be applied to increased human presence in the region. This Special Issue will present the view point of experts in the relevant domains to illustrate the current state-of-research and to discuss the challenges that must be addressed to support further advances in industry-focused research and innovation.

Key Topic Areas

- Methods to predict, report and manage changing climate conditions in the Arctic.
- Application of (airborne, land-based, vessel-based, space-based) technologies and systems to Arctic operations.
- Use of unmanned and autonomous systems to support Arctic operations (airborne, land-based, surface and sub-surface ocean-based).
- Energy conversion and power generation and management systems to support Arctic-condition operations.
- Data analytics for regional applications, to include meteorological, ice conditions, navigational safety, voyage planning, etc.
- An understanding of past and current Arctic region operations: who goes there and why?
- Survival and rescue in the Arctic environment.
- Leveraging existing systems and strategies for applications in the Arctic environment.

For information on paper submission, prospective authors should visit http://sysaes.msubmit.net/cgi-bin/main.plex?form_type=do_cat&file_nm=info.htm. Manuscripts should be submitted using the manuscript submission web site for IEEE Aerospace and Electronic Systems Magazine at <http://sysaes.msubmit.net>. Manuscripts will be peer reviewed according to the standard IEEE AES process.

Important Dates

- Manuscript submission deadline: July 2021
- First review completed: October 2021
- Revised manuscript due: January 2022
- Second review completed: March 2022
- Final manuscripts due: April 2022

Guest Editors

- Mr. Howard Reese, Director, Arctic Submarine Laboratory
- Dr. James A. McGee, Office of Naval Research
- LT Colleen Wilmington, U.S. National Ice Center
- Dr. Hajo Eicken, Director, International Arctic Research Center
- Dr. Andy Mahoney, Geophysical Institute, University of Alaska Fairbanks
- Mr. Scott Bawden, Arctic Submarine Laboratory and AESS Magazine Associate Editor

