

Ship Detection in Arctic

Since 1906, when Norwegian Roald Amundsen first transited the Northwest Passage in his sloop, Gjøa, Atlantic mariners have dreamed about a northern route to the Pacific. With retreating sea ice and longer periods of thin ice and open waters in the Arctic Summer, this dream may soon be a reality. With increased shipping activity and other economic opportunities, including potential offshore oil and gas development and tourist cruises in the Chukchi Sea, the U.S. Coast Guard is increasing their presence and capabilities in all US Arctic waters. Part of this increased focus requires the ability to monitor vessels working and transiting through the area.

Together with Rutgers University, the University of Alaska Fairbanks has implemented CODAR Ocean Sensors' real-time ship detection software simultaneously on Long-Range and Hi-Res SeaSondes during Summer of 2012 in Barrow, Alaska, the focal point for vessels transiting between the Beaufort and Chukchi Seas. This software is a true dual-use application in that it runs as a complementary, parallel process and does not interfere with nor detract from SeaSonde current and wave processing. The main purpose of the vessel detection work in Alaska was to demonstrate that the real-time capability Rutgers already has in operation for monitoring the New York Harbor approaches could also be applied to an Arctic environment where unique sea ice and auroral effects exist. In addition, it has proven to operate well in remote arctic settings where shore-based grid power is unavailable requiring autonomous power and communication systems. The HF-generated vessel detections and AIS data feeds from the ships operating in the area are passed to Rutgers in real-time for further association and QC analysis. Funding for this work is provided by the U.S. Department of Homeland Security.

Background image: SeaSonde antenna with UAF's solar/wind/fuel power + communications hut. Image courtesy of UAF.

