

**Problem:** The Department of Homeland Security (DHS) has specific statutory responsibilities in U.S. arctic waters. DHS is responsible for ensuring safe and environmentally responsible maritime operations in arctic areas that were once inaccessible but are now ice-free during summer months. The vast distances, lack of communications infrastructure, harsh weather, and high latitude ionic disturbances combine to make communications and operations in the arctic difficult. Efforts must be accomplished in close coordination with DHS components, and involve facilitating commerce, managing borders, and improving resilience to disasters.

**Solution:** This project will identify and evaluate appropriate technology to enable and enhance DHS maritime security and safety operations in the arctic, including maritime domain awareness and voice and data communications.

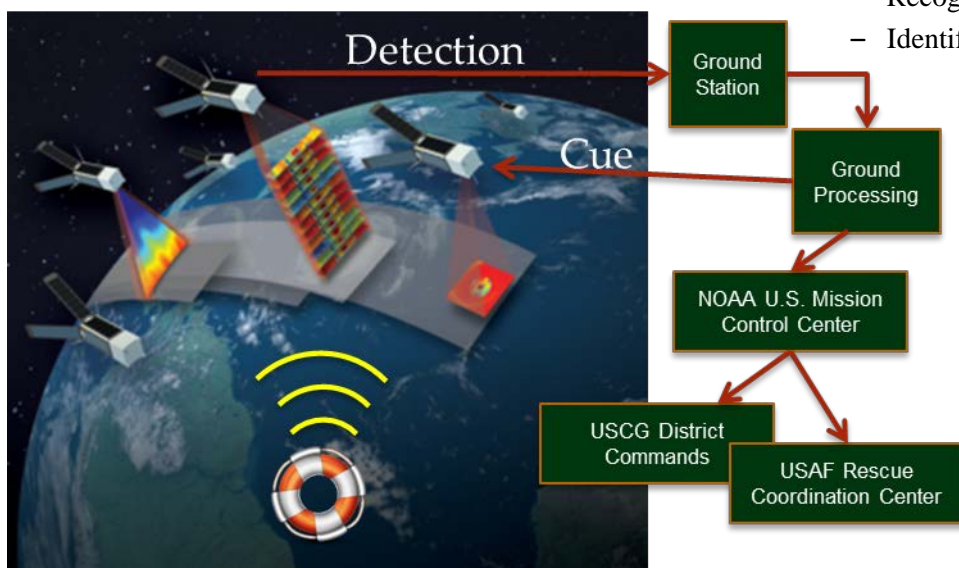
**Impact:** the Science and Technology Directorate (S&T) developed technology solutions will assist the DHS maritime components in the acquisition and implementation of capabilities in the arctic, essential for safe and effective operations.



*USCGC Healy operating in the arctic*

### Current and Future Investments

- **Arctic Communications.** Project will identify, leverage or develop capabilities to enable sufficient and reliable voice and data communications in the arctic region to enable Coast Guard operations and disaster response.
- **Advanced Sensor Analytics Project (ASAP).** Project will leverage and repurpose commercial analytic tools to exploit future growth of data from commercial space systems (Imagery & Signals Intelligence) to:
  - Create persistence surveillance; the unblinking eye
  - Recognize patterns of life
  - Identify dark/non-emitting vessels



*Graphical representation of the Advanced Sensor Analytics project*