

Maritime Situational Awareness

Enhancing Safety and Stability on the World's Seas

Volpe has been in the vanguard of developing and deploying state-of-the-art, easy-to-use, cost-effective vessel tracking networks that enhance maritime situational awareness in waterways around the world. Renowned for its major technological advances in communications, traffic management, and marine navigation systems, Volpe's expert team provides invaluable technical leadership to organizations in the U.S. and abroad.



The team was awarded the prestigious Innovations in American Government Award from Harvard's Kennedy School of Government for enhancing levels of safety and economic stability in the global seas.

Also, in a rare gesture, the Panama Canal Pilots Association awarded honorary membership to three Volpe engineers in recognition of their outstanding contributions.



U.S. Department of Transportation
Research and Innovative Technology Administration
Volpe, The National Transportation Systems Center



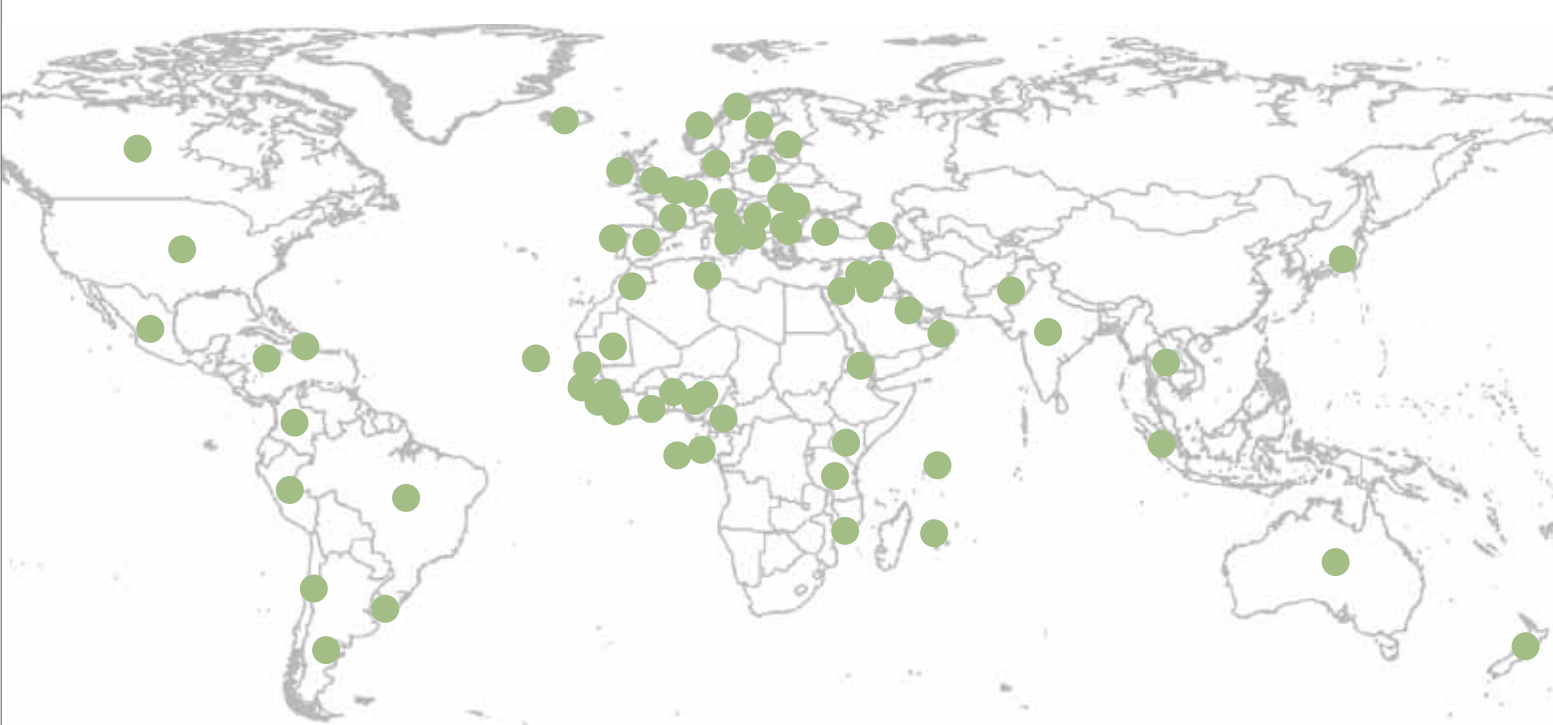
[Watch the video — featured on PBS](#)

A Global Success

Real-Time Tracking of Over 40,000 Vessels From Over 70 Nations

When the U.S. Naval Forces Europe Commander brooded over the state of worldwide maritime awareness, Volpe stepped up. Only a handful of commercial vessels were being tracked in 2005. Working closely with NATO and the U.S. Navy, Volpe quickly built and deployed a multinational, freely-shared, unclassified, and low-cost vessel tracking system based on Automatic Identification System (AIS) technology.

The Maritime Safety and Security Information System (MSSIS) network provides users with streaming and real-time information on global vessel traffic movement. Volpe's work disproved industry experts who predicted that the project would take years and cost tens of millions of dollars.

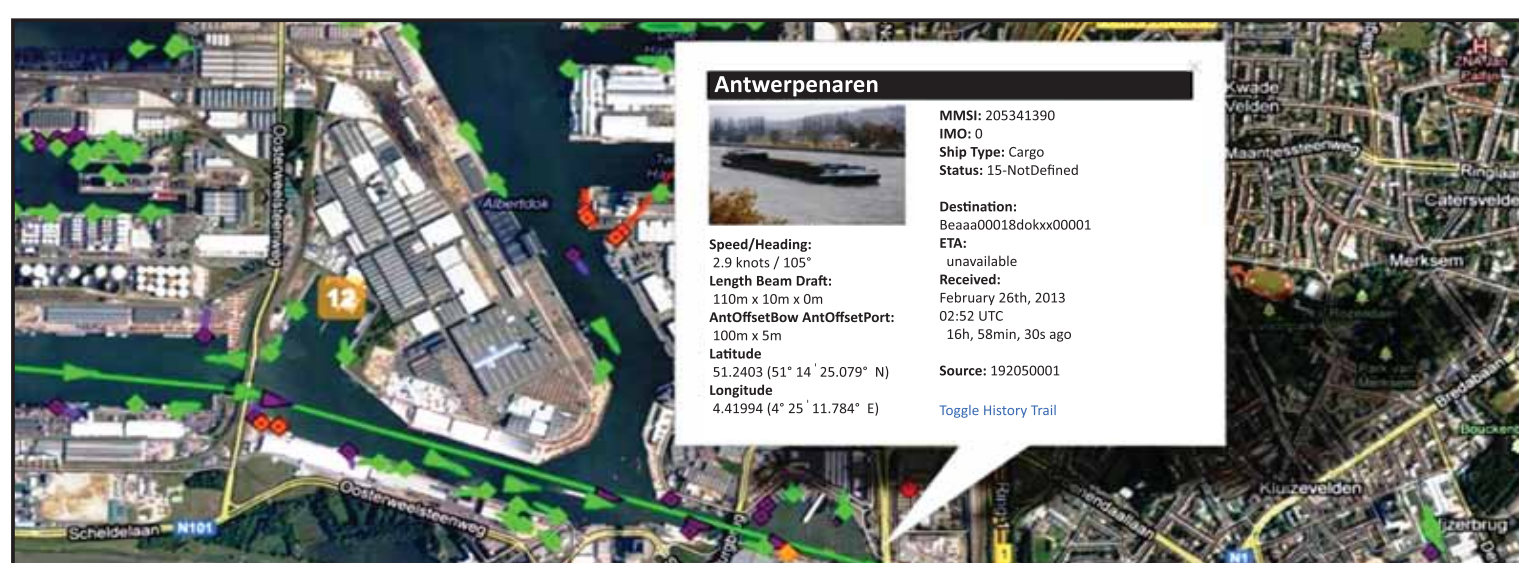


Participating Nations

Albania	Croatia	Greece	Lithuania	Pakistan	Togo
Argentina	Denmark	Guinea	Malta	Peru	Tanzania
Australia	Djibouti	Iceland	Mauritania	Poland	Thailand
Bahrain	Dominican Republic	Iraq	Mauritius	Portugal	Tunisia
Belgium	Estonia	India	Mexico	Romania	Turkey
Benin	Finland	Ireland	Montenegro	São Tomé & Príncipe	Ukraine
Brazil	France	Israel	Morocco	Senegal	United Kingdom
Bulgaria	Gabon	Italy	Mozambique	Seychelles	United States
Cameroon	Gambia	Jamaica	Netherlands	Singapore	Uruguay
Canada	Georgia	Japan	New Zealand	Sierra Leone	
Cape Verde	Germany	Jordan	Nigeria	Spain	
Chile	Ghana	Kenya	Norway	Sweden	
Colombia		Liberia	Oman		

A New Tool for International Diplomacy

- Fosters greater trust and cooperation among nations.
- Promotes greater willingness among nations to collaboratively address regional and global maritime security issues.
- Contributes to efforts to combat piracy, terrorism, and the smuggling of humans, drugs, and weapons.
- Fosters global economic stability by enhancing the secure global transfer of goods.



Innovation and the Evolution of an Idea

1 Saint Lawrence Seaway: A Giant Step Forward

Volpe designed and deployed an Automatic Identification System (AIS) based data network, dramatically improving navigation safety and traffic management on the Saint Lawrence Seaway. Ship owners and Seaway management benefit from:

- Enhanced safety through real-time vessel locations and water measurements.
- Reduced transit time and fuel consumption.
- Faster response times to accidents.
- The ability to monitor and enforce vessel speeds.
- More effective monitoring of vessels.
- Improved coordination of ship inspections.



Using the Seaway's Draft Information System and transmitting accurate and real-time depth information through the AIS network, ships may travel at a draft 3" beyond the Seaway's published maximum, which could result in an additional 350–400 metric tons of cargo per trip.

2 Central American Ports: Building in Resiliency

The ports in Honduras and Nicaragua were ravaged by Hurricane Mitch in November 1998. In support of the U.S. DOT and the U.S. Agency for International Development, Volpe helped both nations achieve a marked enhancement in the safety and efficiency of port operations. Specifically, Volpe:

- Supported the U.S. response — a humanitarian program to “build it back better.”
- Designed, created and deployed a Differential Global Positioning System (DGPS) installation to support 24-hour navigation.

3 Panama Canal: A Milestone in Navigation History

A real-time Communications, Traffic-Management and Navigation (CTaN) system developed and installed by Volpe engineers in the Panama Canal had a major impact on safety and efficiency. Volpe's contributions:

- Enabled pilots to safely guide 50,000-ton vessels through the narrow channels under any weather conditions.
- Dramatically improved situational awareness, resulting in a significant reduction in accidents.



4 Global Disaster Relief Efforts in Haiti and Japan

In the aftermath of the devastating earthquakes that struck Haiti and Japan, the arrival details of supply ships were critical to relief organizations. Volpe's support to DoD:

- Ensured that Navy personnel and relief workers had continuous access to real-time ship arrival data.
- Hastened distribution of desperately needed supplies.

5 Building an African Maritime Safety and Security Capability

In support of U.S. Naval Forces Africa's (NAVAF) international security cooperation initiative, Volpe developed SeaVision, a web-enabled vessel tracking display system for enhancing maritime domain awareness (MDA).

SeaVision is an extension of the MSSIS MDA software toolkit. Using an internet browser, users can observe the location of commercial vessels, track the history of ship movements, and conduct search queries. Today, SeaVision is a cornerstone of MDA outreach and is used by NAVAF and its African partners to:

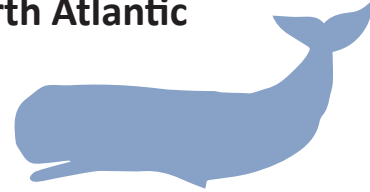
- Assist developing nations in combatting piracy, illegal fishing activities, and the smuggling of humans, drugs, and weapons.
- Support joint military exercises.
- Help build and strengthen maritime partnerships among countries on the western coast of Africa.

6 Search and Rescue Off the Mexican Coast

In Mexico, the Volpe-developed AIS network was key to:

- Rescuing stranded workers from an oil platform forced adrift by Hurricane Nate.
- Helping authorities find and capture offshore drug smugglers.

7 Saving the Whales in the North Atlantic



Collisions with vessels are a leading cause of death for the endangered North Atlantic right whale. A unique application developed by Volpe has:

- Enabled the National Oceanic and Atmospheric Administration's National Marine Fisheries Service to better monitor vessel speed compliance.
- Assisted in speeding violation enforcement in seasonal right whale migration zones along the Atlantic seaboard.

[NOAA Ship Strike Web Page](#)

Valued Partners: Volpe's Sponsoring Organizations

- U.S. Agency for International Development
- U.S. Department of Commerce
 - National Oceanic and Atmospheric Administration
 - National Marine Fisheries Service
- U.S. Department of Defense
 - Executive Agent for Maritime Domain Awareness
 - U.S. Naval Forces Africa

- U.S. Naval Forces Europe
- U.S. Northern Command
- U.S. Department of Transportation
 - Saint Lawrence Seaway Development Corporation
- U.S. Panama Canal Commission
- Columbia River Pilots Association

