Introduction

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Learning Objectives

Upon successful completion of this lesson, the student will be able to:

- Understand an overview of the SeaVision (SV) application
- Understand the capabilities of SV
- Identify SV development and support
- Understand the role of the SeaVision Technical Assistance Field Team (SV-TAFT)
- Identify SV data sources
  - Automatic Identification System (AIS)
  - Fairplay by IHS Markit
  - Visible Infrared Radiometer Suite (VIIRS)
  - Satellite Synthetic Aperture Radar (SAT-SAR)
  - Coastal Radar

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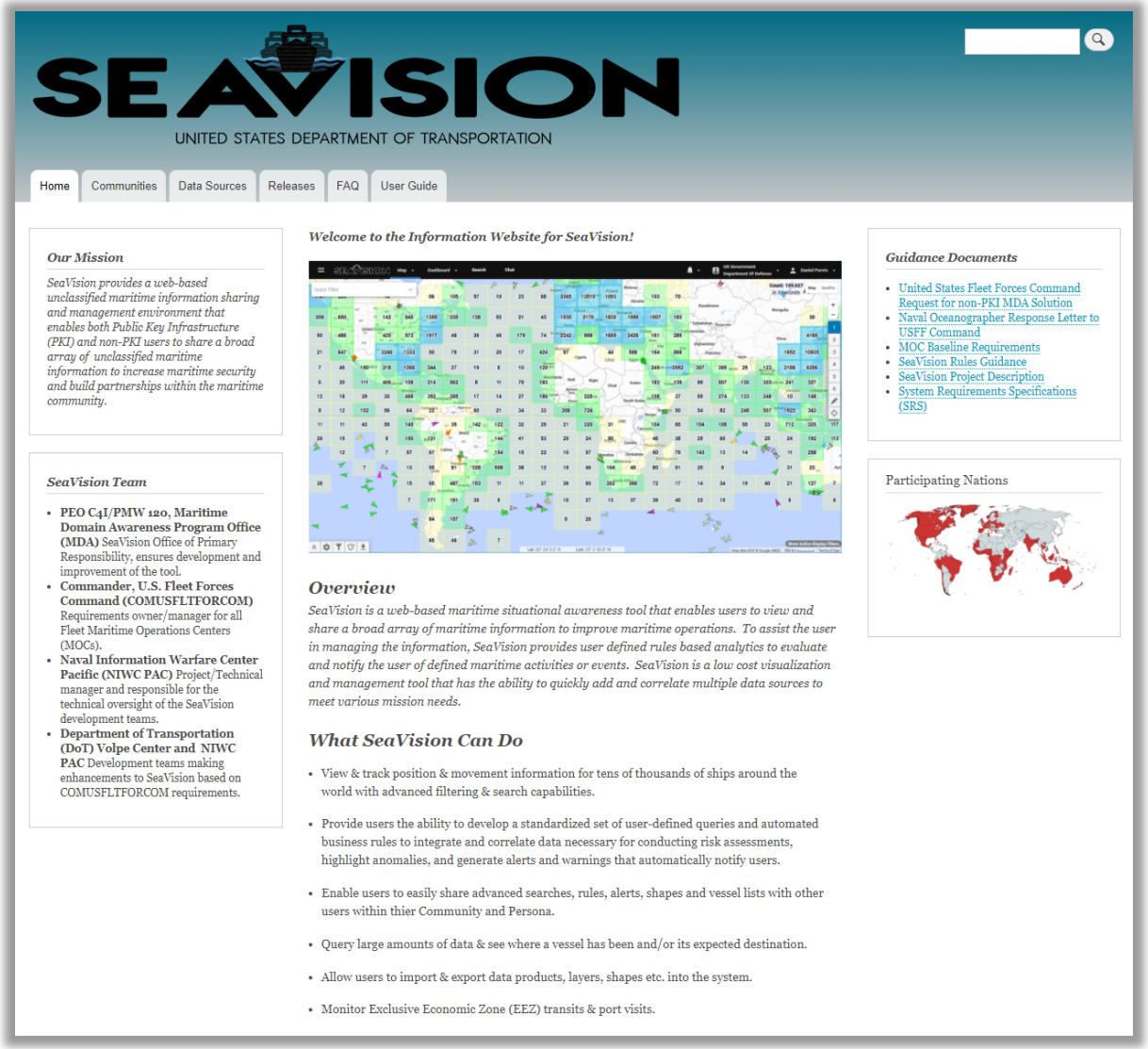
SeaVision Overview

- Web-based, unclassified Maritime Domain Awareness (MDA) tool:
  - View and share a broad array of maritime information
  - Enhance maritime safety and security
  - Build partnerships with participating countries



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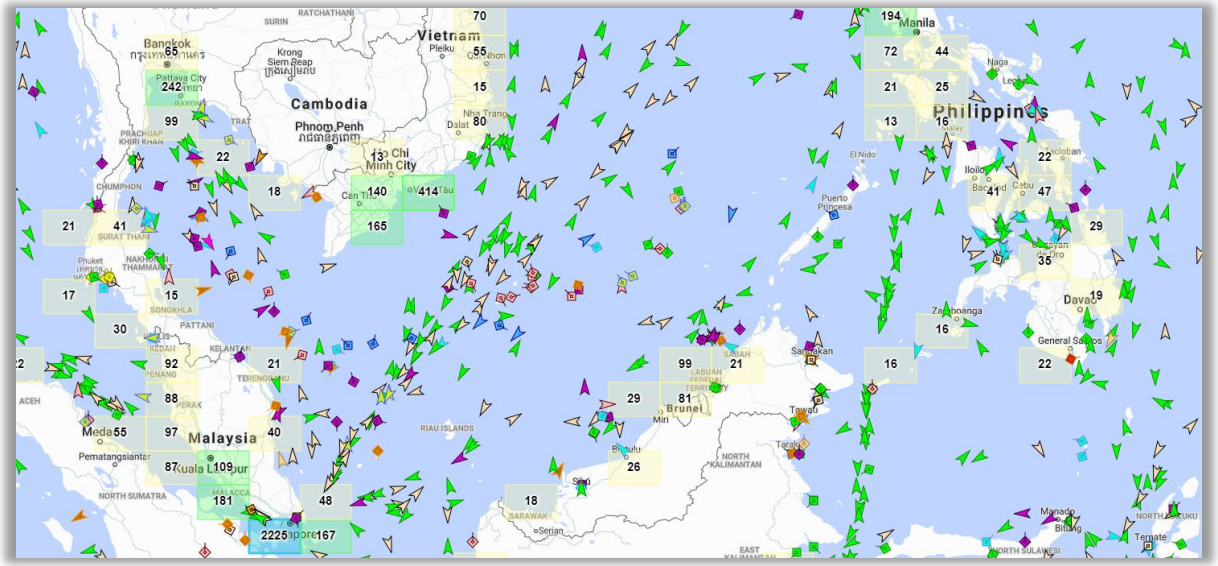
SeaVision Capabilities

- View and track tens of thousands of ships around the world
- Share searches, rules, alerts, shapes, and vessel lists with other SV users
- Monitor Exclusive Economic Zone (EEZ) transits and port visits



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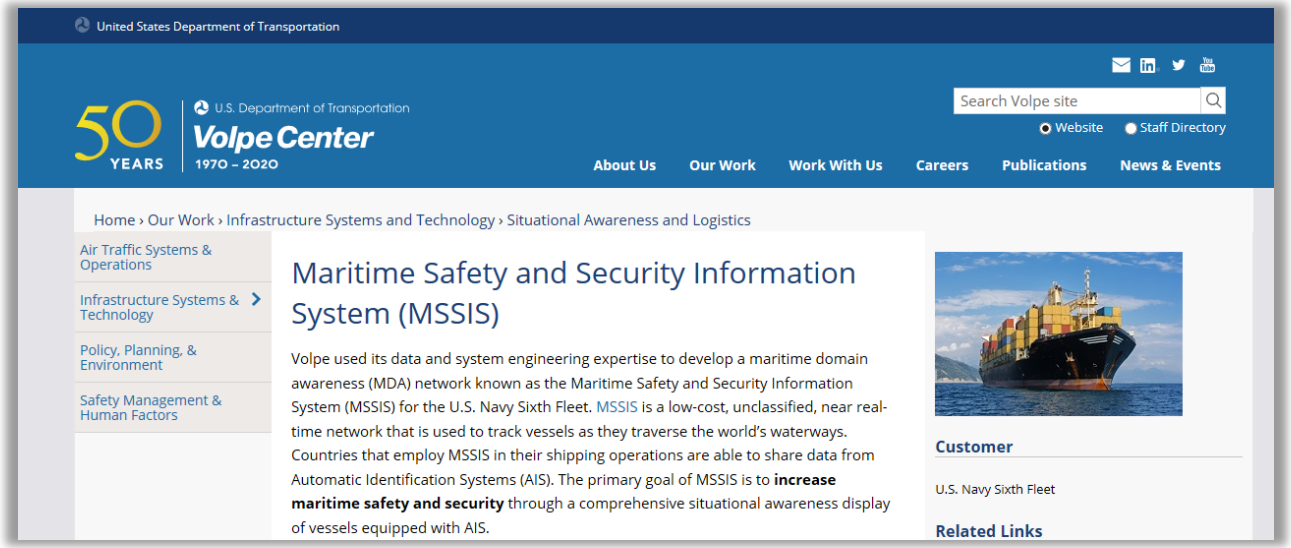
SeaVision Development and Support

- Codeveloped and managed by U.S. Department of Transportation (DOT) Volpe and U.S. Naval Information Warfare Center (NIWC) Pacific
- Designed to take advantage of the Maritime Safety and Security Information System (MSSIS) network
- Field training and support provided by NIWC Pacific's SV-TAFT



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SeaVision Technical Assistance Field Team

- SV-TAFT is a group of technical experts from NIWC Pacific, San Diego, California that support MDA and information-sharing capabilities between partner nations
- Possess technical expertise in tools, sensors, applications and solutions to collect, process, and display maritime data
- Offer on-site expertise and assistance on current mission focus, equipment, systems, and processes with the goal of identifying areas for potential capabilities enhancement
  - Equipment Installation
  - MDA Sensor Site Training
  - Exercise Support
  - Sensor Data Integration
  - AIS Sensor Field Demonstration
  - RADAR relay using AIS Transponder

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SeaVision Technical Assistance Field Team Cont.

- Establishes, sustains, and integrates data for partner nations' Regional Maritime Pictures (RMPs)
- Provides basic-to-advanced SV training courses:
  - Operator
  - Analyst
  - Executive
  - Train-the-Trainer

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SeaVision Data Sources

- SV integrates multiple government and commercial data sources to aid in developing an RMP:
  - Automatic Identification System (AIS)
  - Fairplay by IHS Markit
  - Visible Infrared Imaging Radiometer Suite (VIIRS)
  - Satellite Synthetic Aperture Radar (SAT-SAR)
  - Coastal Radar

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AIS

- AIS is a maritime navigation safety communication system that automatically provides:
  - Vessel identity
  - Type
  - Position
  - Course/Speed
- AIS data is provided to SV by the following sources:
  - MSSIS network
  - ORBCOMM (Satellite AIS)
  - ORBCOMM_T (Terrestrial AIS)
  - ORBCOMM_LR (Long-Range AIS)

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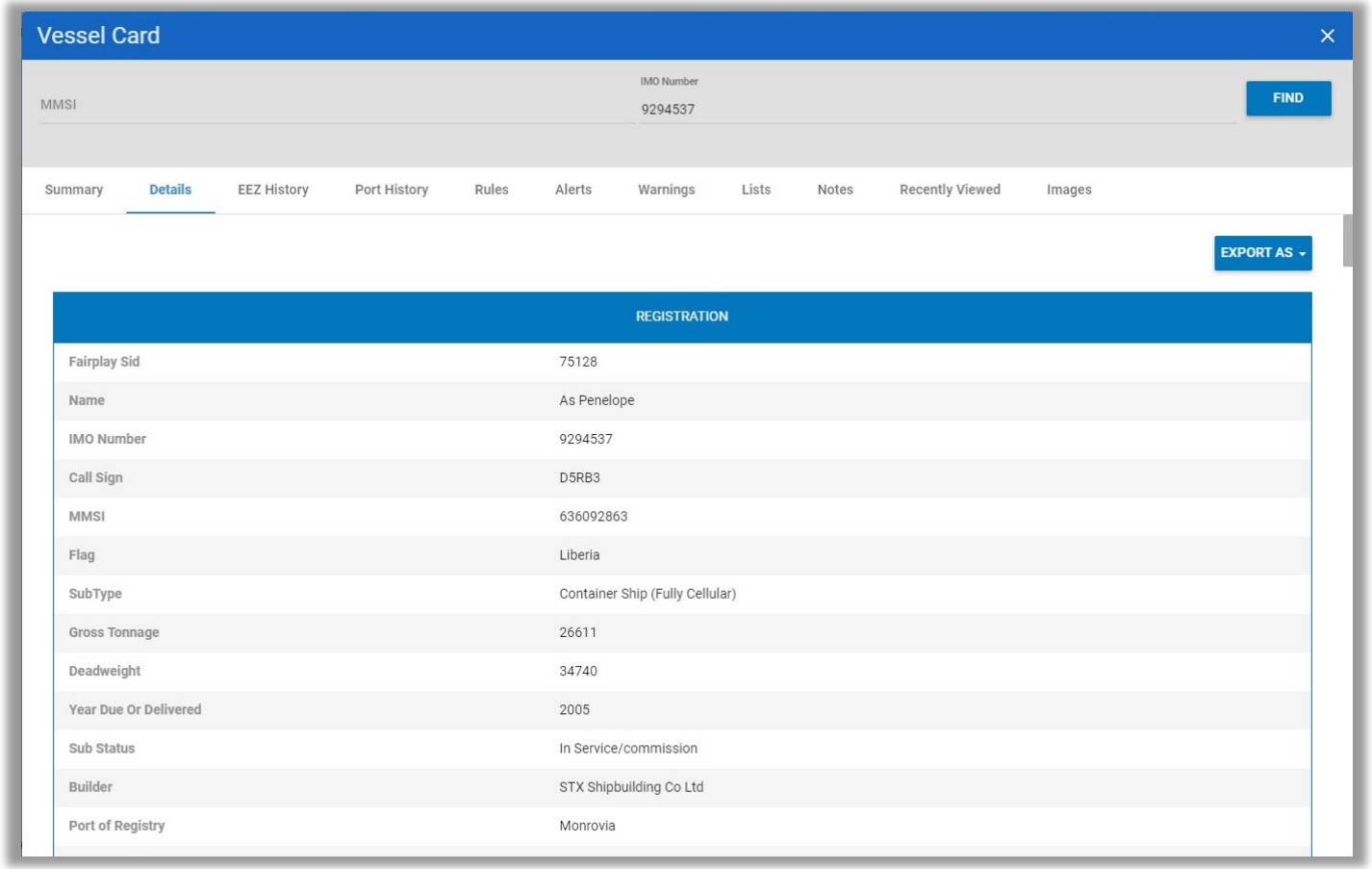
Fairplay by IHS Markit

- Fairplay is a repository for International Maritime Organization (IMO) ship registry data:
  - Vessel Details
  - Crew
  - Inspections
  - Port History



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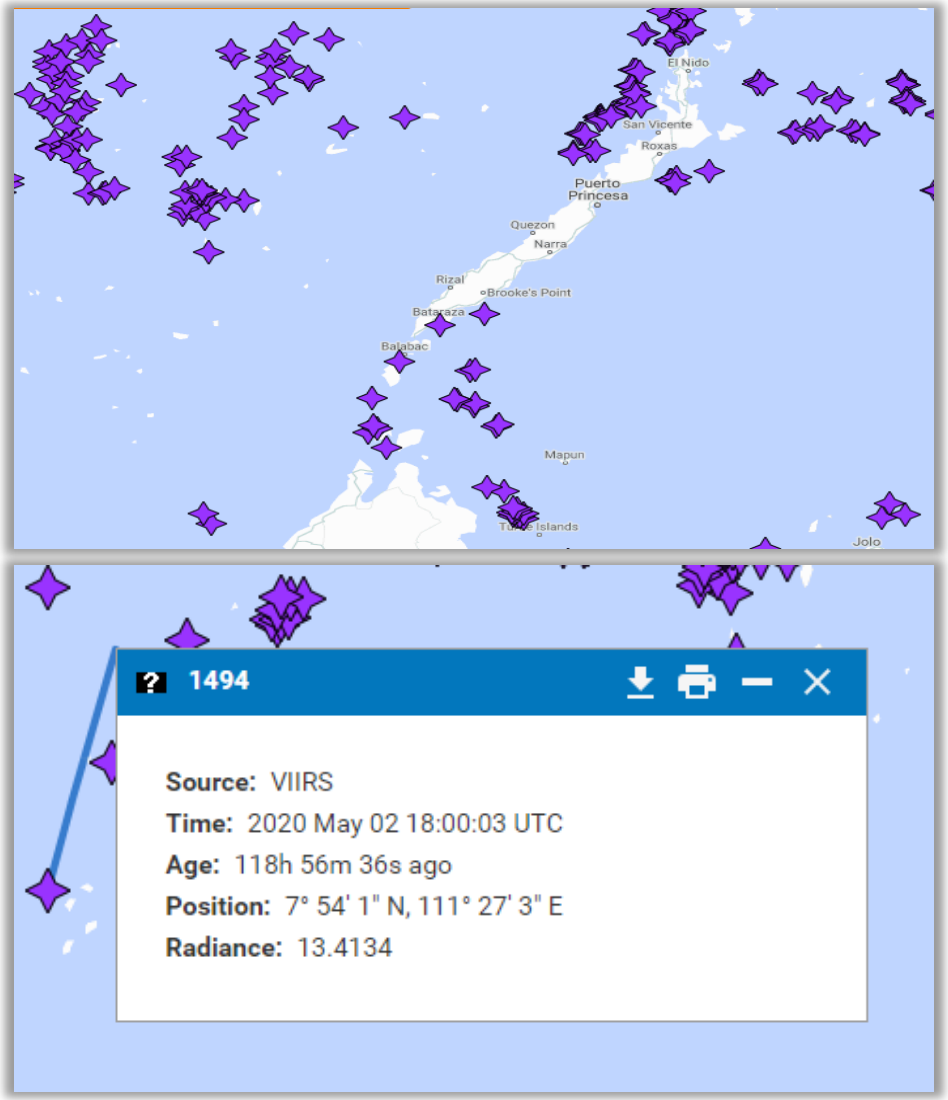
VIIRS

- Joint NASA/NOAA project with the primary mission of weather tracking
- An algorithm developed for reporting the locations of boats based on satellite sensing of light sources
- Ships detected in images are displayed as position reports in SeaVision
- Has the ability to correlate data with AIS position reports



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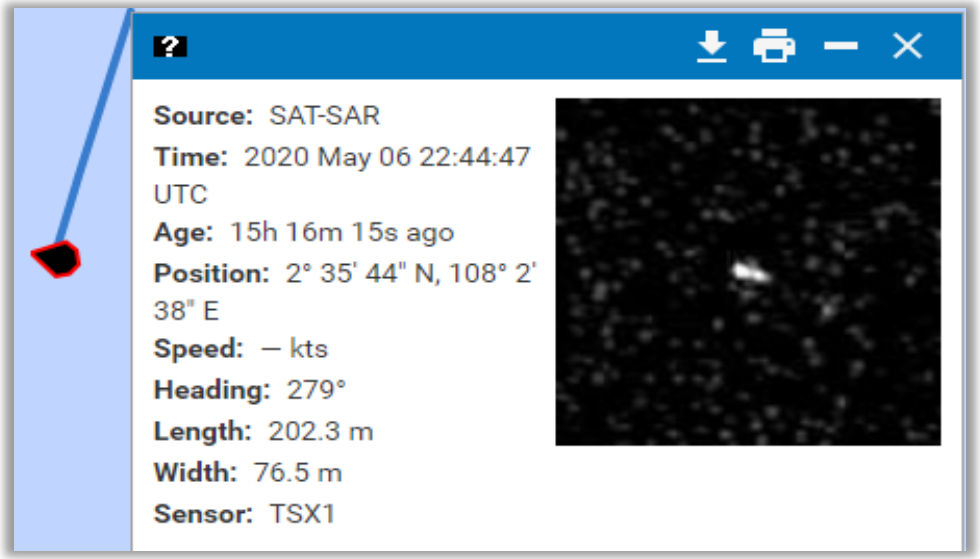
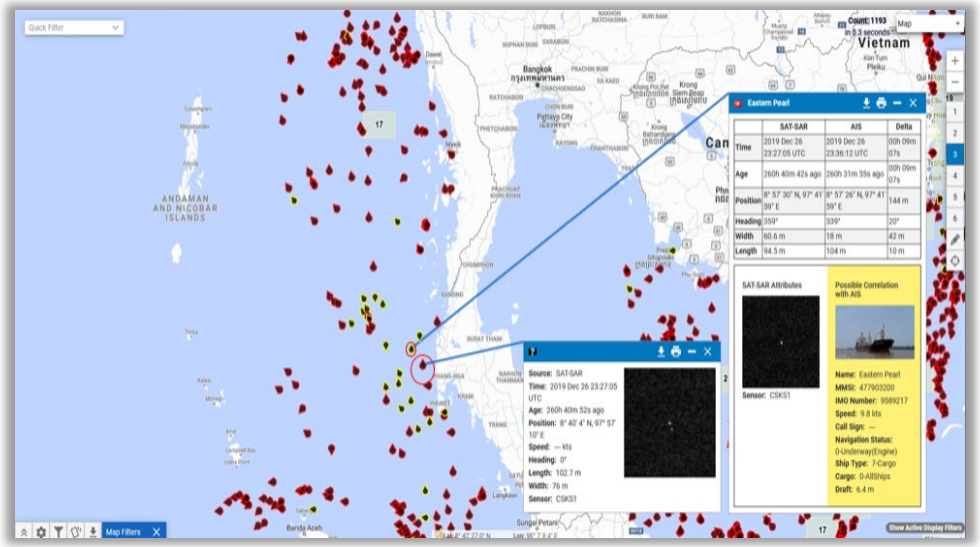
SAT-SAR

- Benefits
  - Very large coverage area
  - Works in all weather, day or night
  - Well suited for ship detection
  - Able to see through clouds
- Limitations
  - Does not look like a picture
  - Ships need to have a reflective surface
  - Lower resolution than electro-optical imagery
- Results
  - Ships detected in the image are displayed as position reports in SeaVision





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Coastal Radar

- Sourced from a SeaVision participant nation’s shore-based sea radar network
- Ships detected are displayed as position reports in SV
- Has the ability to correlate data with AIS position reports
- Integration of Coastal Radar data in SV is possible. Please contact SV-TAFT for more information

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Differences of Data Sources Content

Data Source		Range	Delay into SeaVision
AIS	Terrestrial	20-40 NM	Near Real-Time (NRT) 30 sec - 3min
	Satellite	Footprint of Satellite	1-3 Hours
RADAR	Coastal/Vessel	20-60 NM	Near Real-Time (NRT) 30 sec - 3min
	SAT-SAR	Footprint Of Satellite	1-3 Hours
VIIRS		Footprint of Satellite	24 Hours

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Summary

In this lesson, we covered:

- An overview of the SV application
- Capabilities of SV
- SV development and support
- The role SV-TAFT plays in SV
- SV data sources
  - AIS
  - Fairplay by IHS Markit
  - VIIRS
  - SAT-SAR
  - Coastal Radar

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