



Vessel Detection

Reliable vessel detection, day or night, independent of cloud cover.

Capella Space offers vessel detection as an enrichment to our very high-resolution (VHR) image tasking service for Synthetic Aperture Radar (SAR). Customers tasking waterbodies such as ports, anchorages, shipping lanes, channels, canals, rivers, exclusive economic zones, or restricted water areas can automate vessel detection to extract insights from Capella's imagery products.

Support human-in-the-loop workflows

Gain productivity in locating and counting vessels, enabling analysts to focus on higher-level activities.

Quickly add SAR capability to existing services

Easily incorporate SAR into maritime domain awareness service offerings, uncovering information across the globe—even during the night and on waterbodies prone to cloud cover.


Monitor key ports and waterways

Combine with Capella Monitoring and Repeat Tasking to regularly monitor for maritime traffic congestion, track vessel counts over time, and identify anomalies.

Capella's Vessel Detection is based on SAR data, locating vessels regardless of clouds and weather and enabling reliable monitoring during nighttime, twilight, and daylight hours. Utilizing Capella's agile satellite constellation, locations may be tasked on-demand or at regular intervals to monitor critical situations and locations of interest.

Port of Gibraltar, Gibraltar

lat 36.142 | lon -5.355



Capella provides a deep learning, computer vision-based approach for detecting vessels within a Capella SAR image. Capella imagery with Vessel Detection is delivered through the Capella Console web application, API, or a customer's designated AWS S3 bucket. The analytic product is provided in standard geospatial file formats that can be opened using any GIS software and easily integrated into existing operational workflows.

Product Description	<ul style="list-style-type: none">• Provided as a vector data file (GeoJSON)• Applied to the entire scene of a Spotlight or Stripmap image• Bounding boxes identify each detected vessel• Relative sizing estimates are calculated for each vessel (XS, S, M, L, XL)• Each detection has an associated confidence score
Ordering	May be applied to tasked Capella imagery by selecting the Vessel Detection enrichment when placing orders
Delivery	<ul style="list-style-type: none">• Download from the Capella Console or API• Access from a customer-owned Amazon S3 bucket
Source Imagery	<ul style="list-style-type: none">• Capella Spotlight (0.25 meter resolution)• Capella Stripmap (1.2 meter resolution)

Port of Dinghai, China
lat 30.004342 | lon 122.103688

About Capella Space

Capella Space is an American space tech company with data and satellite solutions for government and commercial use. A pioneer in the Earth observation industry, Capella is the first U.S. company with a constellation of Synthetic Aperture Radar (SAR) satellites, delivering the best quality, highest resolution SAR imagery commercially available. Capella provides easy access to frequent and timely information affecting dozens of industries worldwide, including defense and intelligence, supply chain, insurance, maritime and others. Its market-leading SAR satellites are matched with unparalleled data infrastructure to quickly deliver reliable global insights that sharpen our understanding of the changing world - improving decisions about commerce, conservation, and security on Earth. Learn more at www.capellaspace.com.