TCARTA

DATA SHEET

Satellite Derived Bathymetry (SDB)

Easily access, analyze and enhance your littoral mission planning workflows with the addition of TCarta Global Marine Basemap and Satellite Derived Bathymetry (SDB) data to SecureWatch. Available as a base information layer, Global Marine Basemap provides situational awareness, context and backdrops to maritime operations on a global scale. Satellite Derived Bathymetry (SDB) offers a completely remote process for seafloor classification of coastal areas, providing advanced reconnaissance of the locations most important to your mission.

Features and benefits

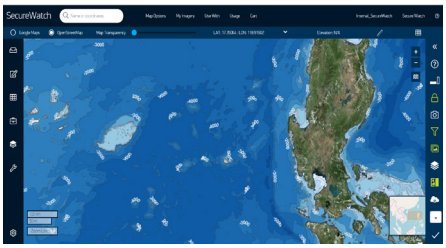
Advantages

- Access: Seamless integration into your SecureWatch workflow
- Validation: Enhance your imagery with a view of the ocean floor to build a more confident plan
- Cost Effective: Virtually save time and costs without having to send ground resources
- Current: Ideal for rapid deployments and clandestine operations
- Operational: Blend activity on, above and below the water in littoral environments for seamless operations
- Anti-Access/Area Denial (AS/AD): Access up-to-date datasets with refresh over points of interest, even denied areas
- Scalable: Gain coverage over broad regions of coastline

GEOINT Applications

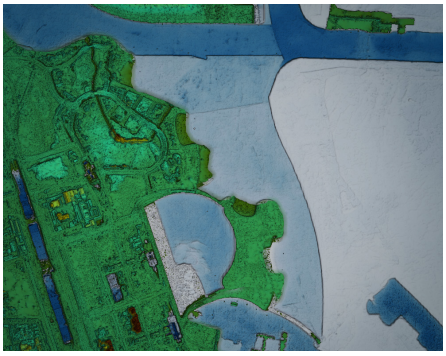
- Amphibious landing planning
- Advanced reconnaissance for terrain assessment
- All-source fusion for coastal defense
- Tactical and operational planning
- Humanitarian assistance and disaster response
- Infrastructure planning
- Visibility across denied coastal regions for operations

GLOBAL MARINE BASEMAP



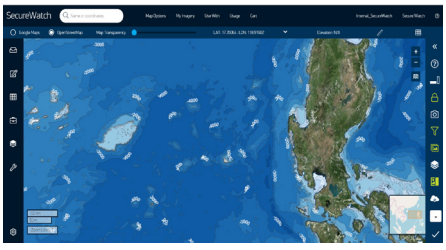
South China Sea, Philiphines

TOPOBATHY



2 m SDB of Qatar

2 M SDB IN SECUREWATCH



Scarborough Shoal, South China Sea

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Specifications

- Stylized backdrop, contours, marine features and shoreline
- Includes 1:60,000 scale shoreline, enhanced contour density and scale dependent labeled marine features
- Includes global 1:150,000 scale basemap

SDB and Seabed data for tactical planning and operations

Up to 2 m resolution, SDB can be hosted within SecureWatch to provide greater clarity into the subsurface environment, along with accompanying seabed classification. The high fidelity of the seabed texture, combined with up to sub-meter contour intervals and variable density of depth points provide greater information on the nature of the seabed and reconnaissance of your target before you set course.

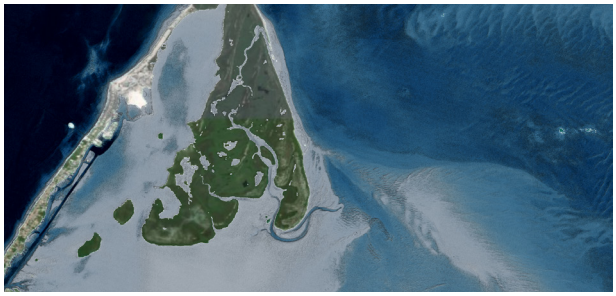
Advantages

- Rapid production from satellite derived bathymetry data
- Increased detail and visibility of seabed texture, particularly in previously un-surveyed areas
- Highly customizable to specific user requirements
- Valuable granularity to make confident decisions

Specifications and delivery options

All satellite derived data is rigorously assessed by TCarta hydrographic experts to ensure that exact specifications are delivered. Maps are derived from WorldView-2 and WorldView-3 high-resolution spectral data and processed to meet the following specifications for SecureWatch:

- 2-meter pixel size on sea floor
- 5-meter horizontal accuracy (CE90)
- 10% depth of water +/- 0.5 vertical accuracy (LE90) with a maximum acceptable uncertainty of 20% depth of water column +/- 0.75m vertical accuracy (where conditions allow)
- 20-meter water depth penetration (where conditions allow)
- ASCII x, y, z, u file deliverables (where u represents vertical uncertainty value)
- GCS WGS 1984 coordinate reference system
- Charts supplied in S-57 format
- Soundings and contours also available in CAD and ESRI formats



2 m Satellite Derived Bathymetry of Bimini Island, Bahamas

METHODS

TCarta deploys three methods, each with specific benefits and drawbacks to extend geographic applicability and validate results.

Multispectral: Depths are extracted using an attenuation coefficient algorithm that analyzes the light frequency within different parts of the spectral range of the satellite imagery. Produces high resolution data in clear water conditions.

Stereophotogrammetric: Using a through-the-water photogrammetric method, object-based depths are calculated from overlapping images to extract highly precise points.

Wave Kinematic: Utilizes time delay in imagery collection to model wave patterns and speed to derive water depths in wavy conditions; works in turbid waters.

SEAFLOOR CLASSIFICATION

Seabed Texture Information for Tactical Planning: This Benthic mapping product derived from very high-resolution satellite imagery categorizes the seafloor into preset classes including coral, seagrass, sand, and substrate. Underwater hazards and obstacles are identified and attributed.

WHY TCARTA?

TCarta provides innovative geospatial products and Earth observation analytics, producing actionable intelligence for wide ranging applications in the marine, littoral and coastal domains. TCarta GIS professionals, hydrographers and developers provide off the shelf data as well as on-demand solutions for onshore and offshore geospatial applications, including intelligence preparation for the battlefield and geospatial intelligence preparation for the environment.

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