

*Oceanic Imaging Consultants, Inc. provides software & systems for mapping the seafloor for the world's military, commercial and academic markets. OIC develops seafloor imaging software and systems that acquire and process sidescan and sub-bottom sonar, interferometric and multi-beam bathymetry, and associated navigation/meta-data for underwater mapping applications.*

## ABOUT OIC

Oceanic Imaging Consultants, Inc. was founded in 1993 as a spin-off of research done for the Office of Naval Research at the University of Hawaii. OIC provides consulting and data processing services pertaining to seafloor mapping including the scientific analysis and interpretation of sonar data, and creation of mapping products. OIC also provides complete turn-key systems including OIC software bundled with a workstation and/or sonar of the client's choosing.

Under DARPA (Defense Advanced Research Projects Agency) funding, OIC developed ROVer's Eye, a product that enables an ROV to be piloted underwater even in zero visibility conditions. More recently, OIC has developed the SmartSonar™ package to automate survey execution and interpretation.

## SOFTWARE PRODUCTS AND SERVICES

OIC's flagship product is **GeoDAS**, a Geophysical Data Acquisition System featuring simultaneous collection of up to 8 channels data; real-time processing; coverage maps to show navigation and coverage; a target viewer to capture and save targets; and a mosaic option for creating real-time mosaics of seafloor mapping data, ready for export to GIS. Our **GeoDAS** software comes custom-configured for individual client needs, including **GeoDAS-MB** for multibeam sensors, **GeoDAS-DT** for playback, reprocessing and mosaicking, **GeoDAS-LT** for serial devices such as fathometers, magnetometers and sidescan sensors.

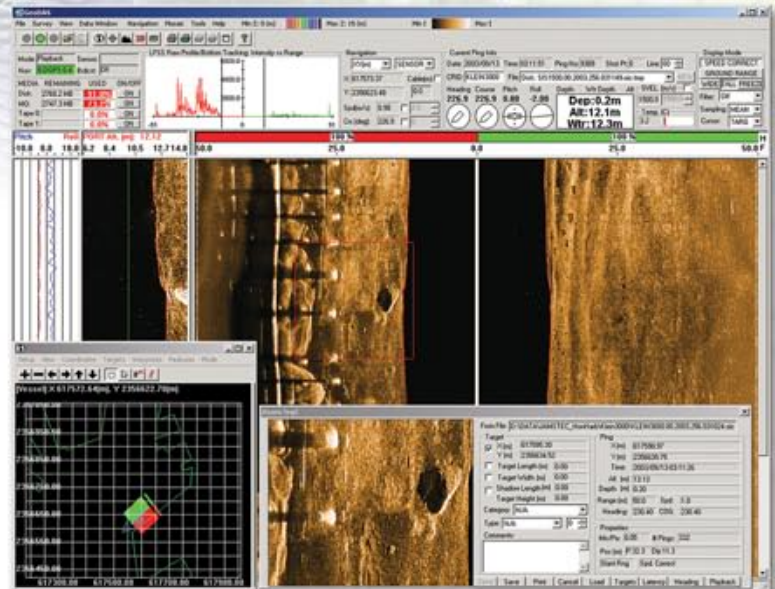
**OICcleansweep** provides a turn-key solution for post-processing sidescan and bathymetry data, producing publication-quality digital mosaics from raw sonar data. **OICcleansweep** can import data from all major sonar systems, remove water column, process navigation and attitude, correct beam patterns, enhance imagery, mosaic the data, and export the final image to other GIS and mapping packages.

**ROVer's Eye**, a PC-based real-time 3-D virtual reality package designed to help underwater vehicle operators navigate the seabed terrain and avoid unseen hazards.

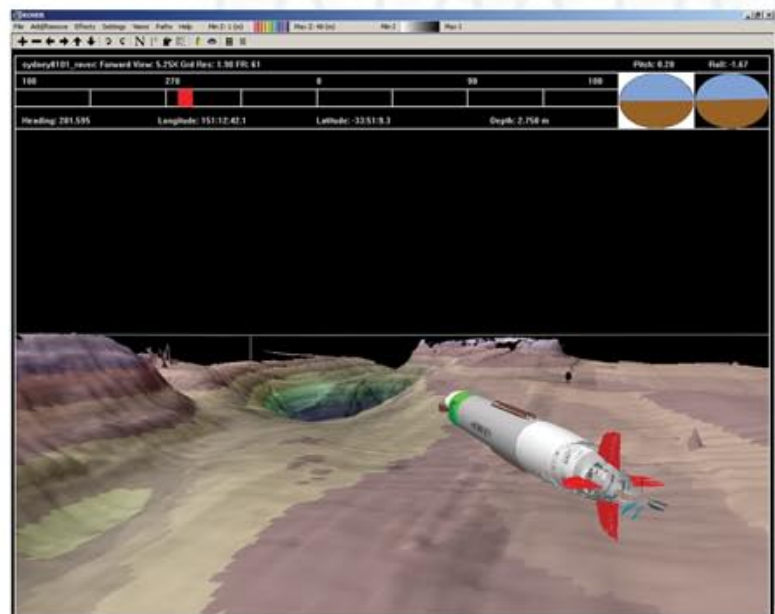
**OICclass**, a Windows-based tool for analysis and classification of sidescan and swath bathymetry data.

**OICpipetrack**, our automatic pipeline tracking, free-span detection and reporting software tool.

OIC also provides survey support, software training, consulting and data processing services. Contact us for more information!



*GeoDAS GUI showing Klein 3000 sidescan data of Honolulu Harbor, with vector shoreline displayed over survey coverage map, and target window with target shown at 2x zoom.*



*ROVer's Eye Main GUI in real-time, showing the REMUS vehicle with real-time position data from Paradigm.*

Thank you for your interest in Oceanic Imaging Consultants, and our seafloor mapping products.

OIC offers a full range of software, services and systems for your entire seabed imaging applications. We are proud to present an overview of some of our products, including our Geophysical Data Acquisition Systems (**GeoDAS**), **OICCleanSweep** for post-acquisition processing and **ROVer's Eye**, our ROV/AUV real-time visualization software. We summarize our products below, and highlight some features. For more details, please visit our website at [www.oicinc.com](http://www.oicinc.com)

## Acquisition

**GeoDAS** acquires, logs and processes sidescan, multi-beam, sub-bottom and interferometric sonar data, with associated navigation, attitude and meta-data, providing fail-safe logging while still offering real-time processing and data interactivity.

New: Survey Management Package supports design, editing & execution of survey run lines. Survey planning module includes free world charts, bathymetric and world-vector shoreline databases. User-definable coordinate system (UTM, SPCS, British Coordinate System, Japanese etc.) for easy surveying anywhere in the world.

New: Chart Support feature allows loading of raster and vector nautical charts in GeoDAS. Watch your survey evolve directly over ARCS, BSB, DNC and S-57 charts, with full control of chart background, objects and transparency.

New: SmartSonar™: Automated tuning of both sensor and display.

Real-Time Mosaics! Create real-time, co-registered mosaics of up to four layers of sidescan, backscatter, bathymetry, magnetometry or seabed type at arbitrary resolution, orientation and size.

Real-time records broadcasting over a network or serial connection to a GeoDAS client terminal for viewing, processing and mosaicking of data, independent of raw logging.

Real-time navigation display showing location of the swath, target items, path of the sonar and boat and sonar coverage.

Geo-coded target display with zoom, measurement, comments, classification and automatic databasing of flagged targets with easy thumbnail viewing and auto-playback.

Meta-data inputs including tidal data, vessel draft correction, cable-out, event generation and sound velocity input. Configurable output of sonar meta-data to files, ports & printers

Auto Range / Depth function automatically tracks and adjusts multibeam range setting and display gates.

Externally or internally generated navigation events, either fixed time or distance, displayed on the waterfall, printer and to the event log. Event information can include number, time, position, water depth, heading, speed and more.

Oceanic Imaging Consultants' other Acquisition products include our cost-effective **GeoDAS-LT**, and our multibeam sonar-specific **GeoDAS-MB**.

## Processing

**OICcleansweep** is OIC's next-generation PC post-acquisition processing software for sidescan & bathymetry data. Based on **OICToolkit**, **OICcleansweep** provides a powerful solution for your data processing needs.

All processing work is saved in Projects folder. Point and click interface allows easy loading and selection of just the data you want to process, from high-res coverage maps.

Wizard-based meta-data and nav cleaning, application of offsets, and recalculation of sensor position, using true fix data, with automatic latency corrections.

Sidescan processing utilities include ground-range correction, beam-pattern and artifact filters, and advanced contrast enhancements.

Bathymetry processing provides full attitude, tide and refraction corrections without any "ad-hoc" downsampling. All data retained to the final grid.

New: Interactive mosaic allows real-time mosaic recomposition. Individual swaths can be merged or removed from the final mosaic.

Advanced contrast enhancement and beam-pattern correction

Manual and automatic gain equalization

Automatic / manual sea-bottom tracking for ground range computation

State-of-the-art targeting: geocoded target database with XML / GeoTIFF import & export, height from shadow measurement, drag and drop target management. Supports target marking from raw data at full resolution, with marks saved as GeoTIFFs.

Advanced quality assertion filtering (quality profile, seabed profile approximation)

Native support for OIC, XTF, SDF, MB41, SIMRAD & other file formats

Handles sidescan, multibeam and interferometric bathy

Multiresolution sidescan / bathy overlay mosaic

Interactive swath ordering and merging

ASCII, XYZ, Binary grid export

Other OIC Processing products include **GeoDAS-DT**, **OICToolkit** and **OICSwath**

## Analysis And Visualization

**ROVer's Eye** is a PC-based real-time 3-D visualization package designed to help underwater vehicle operators navigate the seabed terrain and avoid unseen hazards.

Supports tracking & rendering multiple vehicles over realistic seabed models with real-time model and navigation update.

Real-time view adjustments as the submersible moves, using a joystick, mouse or keyboard control.

Two-up view allows for split screen viewing from two different vantage points.

30 frames/second update of complex scenes from archival or real-time data.

Mission Details Viewer provides real-time data including UTC time, local time, mission elapsed time, ROV northing and easting, ROV depth.

Pop up vehicle range grid for instantaneous distance to object measurement.

UTM tick marks for vehicle positioning and waypoint selection.

Compass rose for vehicle orientation and bearing measurements.

Available as a stand-alone program, or bundled with GeoDAS & sonar.

**OICclass** is a Windows-based tool for image, object & terrain analysis and classification from sidescan & swath bathymetry data.

Reads OIC mosaics from GeoDAS or post-processing, plus STD bitmaps

Works with both sidescan and bathymetry

Data-driven image segmentation automatically defines feature boundaries.

"Region Growing" algorithm evaluates image segment data mean & standard deviation to define boundaries of the image, providing superior classification results.

User-selectable features include texture, backscatter and fractal dimension.

Unsupervised classification supported by K-means and vector basis.

User-guided supervised training supported by Bayesian classifier.

Also new to our Analysis software line is **OICpipetrack**, a pipe and free-span detection tool.

We look forward to hearing from you regarding your seabed mapping requirements. If you require further information, please visit our website at [www.oicinc.com](http://www.oicinc.com), e-mail us at [info@oicinc.com](mailto:info@oicinc.com) for brochures and demo software, or call us at (808) 539-3706. Thank you again for your interest.

Sincerely,  
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