SeaStar℠
Fisheries Information Service

GeoEye's Satellites Support Ocean and Fishery Conservation

Virginia-based GeoEye, Inc. is an international information services company serving government and commercial markets. The Company owns and operates three Earth-imaging satellites that collect millions of square kilometers of imagery every month. Two of the satellites, *GeoEye-1* and *IKONOS*, take very high-resolution images that can see details on the Earth's surface as small as 0.41-meters in size or about the size of home plate on a baseball diamond. The third satellite, *OrbView-2*, collects very broad areas of the Earth at low resolution. From its 705 Km-high orbit, it can image the entire Earth every day. Imagery from *OrbView-2* is used for monitoring the oceans and landmass with a nominal resolution of 1.13 kilometers at nadir. *OrbView-2* is also used for mapping chlorophyll in the seas and for understanding macro-changes over time in the vegetation on the land.

Figure 1. Matangi Island, Fiji, from IKONOS.

Accurate imagery from all of GeoEye's satellites can be used by researchers and non-governmental organizations to better understand the impact of mankind's footprint on the Earth's surface. For example, the *IKONOS* and *GeoEye-1* high-resolution satellites help evaluate and monitor the condition of the world's coral reefs (Fig. 1). On a much larger scale, the *OrbView-2* satellite's SeaWiFS scientific sensor collects color imagery of the Earth's entire land and ocean surfaces on a daily basis. SeaWiFS stands for **Sea-viewing Wi**de **F**ield-of-view **S**ensor. GeoEye has partnered with NASA for the SeaWiFS Mission since the launch of *OrbView-2* in 1997.

OrbView-2, with its SeaWiFS sensor, contributes to the study of ocean color, which has many benefits to society including global warming and climate change research, monitoring harmful algal blooms (red tides), and ecosystem studies. Knowledge of ocean color provides our only large-scale window into the ocean ecosystem and is the only way to take a global view of the Earth's biosphere. Since three quarters of the Earth is covered by water, imagery from *OrbView-2* helps us understand what is happening to the entire Earth's ecosystem, water as well as land.

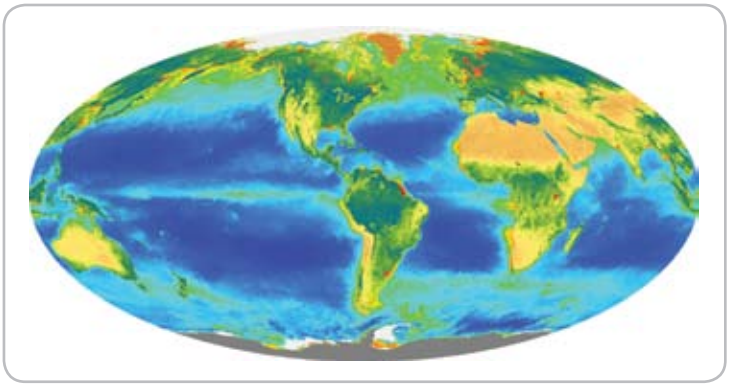

Figure 2. First NASA mission to map global biosphere (Ocean Chlorophyll & Land Vegetation Index). Image produced by NASA Goddard SeaWiFS program.

OrbView-2 is considered the "gold standard" for ocean-color measurements, and GeoEye is a proud contributor to the International Ocean-Color program with over 11 years of data.

http://www.ioccg.org/reports/WOC_brochure.pdf

GeoEye

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GeoEye's OrbView-2 Satellite and Fisheries Management

Besides its scientific and environmental mission, imagery from the *OrbView-2* satellite is used along with other layers of information in GeoEye's SeaStar℠ Fisheries Information Service. This service provides operational oceanographic imagery to fishermen and fisheries management and research organizations. The information provided by SeaStar enhances understanding of the ocean environment and helps guide commercial fishing vessels to areas of the ocean where they are more likely to find certain types of fish. The ocean-color imagery, along with sea surface temperature, sea surface height, surface currents, salinity, wave height, and more, is sent via e-mail to vessels where it is interpreted using the proprietary software OrbMap™. The SeaStar subscription service eliminates some of the guesswork in finding fish habitats, which enables captains to catch their quotas of fish far more efficiently, save fuel, and reduce carbon emissions.

GeoEye cooperates with fisheries conservation initiatives and fully supports the Code of Conduct for Responsible Fisheries published by the Food and Agriculture Organization of the United Nations (http://www.fao.org/fishery/ccrf/en). We encourage all fishers and states to follow these guidelines to ensure sustainable fishery resources will be available for future generations as a vital source of food and employment around the world.

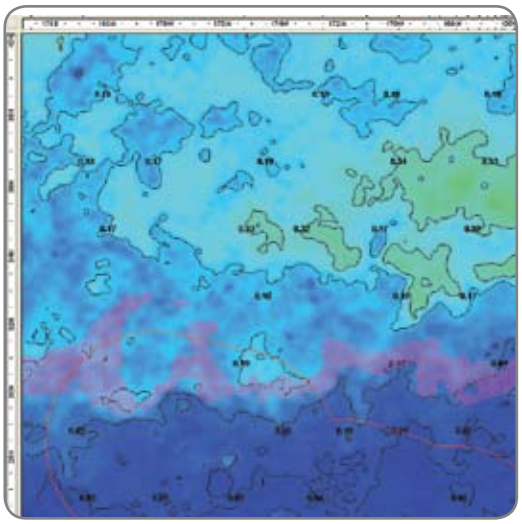

Figure 3. The red line shows the EEZ around the Hawaiian islands. (Economic Exclusive Zone). The hashed area represents the NOAA Turtle Exclusion Zone. The black lines and numbers show contour of Chlorophyll concentration.

Highlights of our SeaStar services' technology and GeoEye's corporate initiatives for the conservation of the ocean environment and responsible fishing include:

- SeaStar provides technology transfer to fishing fleets of developing nations.
- By increasing the efficiency of fishing operations, the SeaStar service enables fishing companies to better comply with fishing regulations.
- SeaStar technology supports the separation of target species to minimize by-catch. For example, the Turtle Exclusion Zone north of Hawaii is included in the SeaStar Service (Fig. 3). This allows fishermen to avoid areas where they are more likely to encounter sea turtles.
- The U.S. Coast Guard currently uses the SeaStar Service to enforce fisheries compliance throughout an enormous area of the Pacific, including the new Marine National Monuments in the Pacific, the Mariana Trench, Pacific Remote Islands, and Rose Atoll. SeaStar offers a vessel tracking solution for management organizations to minimize illegal fishing, improve their logistics, and reduce fuel consumption and emissions.
- The GeoEye Foundation (www.geoeyefoundation.org) supports tuna research being conducted by the Secretariat of the Pacific Community that will result in better population estimates and recommendations for management strategies.

The GeoEye Foundation is a 501(c)(3) non-profit organization established on the belief that GeoEye has an obligation and social responsibility to share the Company's technology and resources to help train others to map, monitor, and measure the Earth. We invite tuna and billfish fishery research or management organizations to apply for individual Foundation data grants from our OrbView-2/SeaWiFS satellite or SeaStar imagery at http://www.geoeye.com/CorpSite/corporate/foundation/application-process.aspx.

FURTHER INFORMATION

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