

A CASE STUDY:

WORLD LEADER IN GEOSPATIAL INFORMATION AND INSIGHT UPGRADES LEGACY SYSTEM WITH AGI SOFTWARE

Solution | Remote Sensing & C4ISR

Challenge:

Outpace a growing global demand for high-resolution satellite imagery and geospatial data management.

Solution:

Replace 15-year-old legacy software with AGI's modular commercial software.

Results:

Flexible software system that allows for efficiency, growth, adaptability and maximum reuse among satellite fleet. In one case, a shortened workflow cut out three weeks' worth of work each year.

In 1999, GeoEye, Herndon, VA, ushered in the first generation of commercial high-resolution imaging satellites with the launch of IKONOS, the world's first sub-meter commercial satellite. It again made history in 2008 with the launch of GeoEye-1, which still holds the record as the highest-resolution and most accurate commercial Earth imaging system. Today, the company has evolved into a complete provider of geospatial intelligence solutions, and in August 2010 won a \$3.8 billion contract from the National Geospatial-Intelligence Agency to provide products and services that will help meet the agency's increasing geospatial intelligence needs.

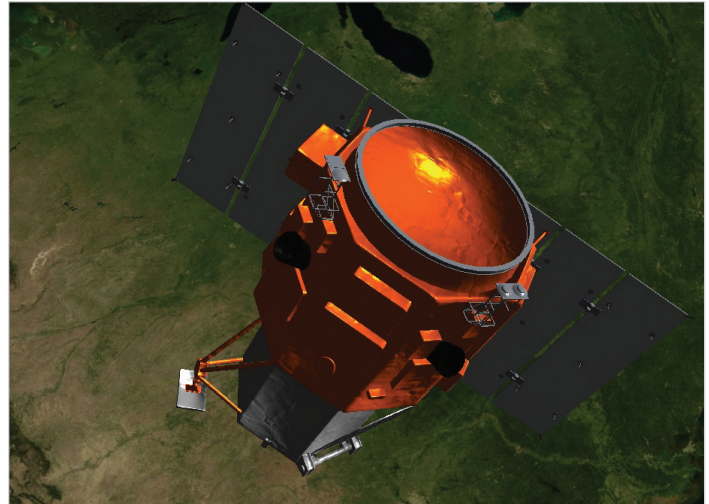
One efficiency the company has undergone to keep pace with demand is to upgrade its IKONOS legacy software system developed 15 years ago. GeoEye is working in conjunction with engineering services provider Applied Defense Solutions (ADS), of Fulton, MD, an AGI business partner adept at applying AGI technology.

"We have a wide selection of software to choose from and also write custom code ourselves," says Tim Craychee, ADS senior aerospace engineer. "In this case, we chose AGI tools wherever possible—especially over designing one-off solutions." Among the reasons: the modular commercial software is flexible, allowing for growth and maximum reuse across the satellite fleet.

AGI software products are used by GeoEye in several ways. When maintenance maneuvers are needed, orbit analysts plan them with



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STK/Astrogator. The software determines burn duration, attitude pointing, predicted burn ephemeris, fuel usage and conjunction analysis. GeoEye analysts routinely use AGI's STK/Conjunction Analysis Tools to determine if space objects come within unsafe distances of its satellites and assess if maneuvers are needed. STK, AGI's flagship product, is also part of the GeoEye flight dynamics system, where it performs orbit determination as well as contact and event planning. A separate STK-based software program created by AGI business partner Orbit Logic is used for daily image planning.

During the legacy system update, the GeoEye/ADS team encountered challenges that STK helped overcome:

- GeoEye-1 must maintain a specific tolerance when crossing the descending node, which requires high-fidelity software for operations. STK is providing the fidelity required.
- About three times a year analysts generate reference ephemerides that keeps IKONOS and GeoEye-1 on course in their repeating orbits. With the old system, producing a valid ephemeris took a week, whereas STK takes only a few hours. This saves about three weeks' worth of work a year and allows analysts to focus on higher-value tasks.

For GeoEye, efficiency is one arrow in the quiver of nimble growth. With AGI products, GeoEye's data products hit the mark.

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AGI delivers mission-proven software for timely and cost-effective development and deployment of advanced space, defense and intelligence applications. AGI products are used for modeling, engineering and operations in the areas of space, cyberspace, aircraft, missile defense, C4ISR and electronic systems. They can be purchased as ready-to-use applications, development tools or turnkey solutions.