

Esri News

for Petroleum

Winter 2013/2014

Hart Energy Launches Data Service on ArcGIS Online

Esri Cloud Serves Energy Data on Demand

Hart Energy (formerly Rextag) recently placed its extensive energy infrastructure dataset on Esri's ArcGIS Online mapping and analysis platform. Now, Hart Energy customers access and use high-quality data on demand from anywhere and interact with it using GIS tools.

Hart Energy provides a comprehensive energy GIS dataset for North America. By moving Hart Energy Mapping and Data Services to ArcGIS Online, the company can provide its customers with easy-to-leverage cloud resources in a low-risk and affordable manner. Hart Energy's extensive energy GIS data content is now instantly accessible and consumable by colleagues in the energy sector. As the first energy GIS data provider to use

Esri's cloud service platform, Hart Energy strengthens its lead in the energy industry.

With a paid Hart Energy license, ArcGIS Online users have password access to the complete dataset of pipeline and attributes such as oil and gas, natural gas, and crude oil pipelines in North America. Users select a basemap, add energy infrastructure data, and continue to augment their maps with more data, such as roads, electrical transmission lines, and railroads, from the collection of ArcGIS Online Landscape Layers group. By adding their own company data, they can see relationships, patterns, and possibilities. Users then save the map and share it with other selected users or user groups.

The dataset is continually growing. The Hart Energy research team constantly mines private industries and government agencies for acquisition, purchase, and investment information to update its digital GIS energy datasets. The team aggregates the data to create the most comprehensive mapping database of energy infrastructure assets in North America.

Customers can easily import data into Esri's ArcGIS and other GIS software. However, customers do not need to own software to use the service. They can use the data on the ArcGIS Online platform. Furthermore, they can access maps and apps using smart devices such as an iPad. Data is licensed to clients that use it for internal research and mapping purposes.

"We are very pleased to add a new and powerful avenue for distributing energy GIS data to our clients," Rey Tagle, vice president of Hart Energy and founder of Rextag Strategies, said. "ArcGIS Online provides the same level of accuracy and completeness, reduces the impact on data maintenance, and puts our information into potentially thousands of mobile applications in the field. We selected ArcGIS Online for its power, ease of use, and current popularity within our customer base as well as many new client groups."



↑ Underground pipeline and asset data added to satellite imagery and lidar improves analysis.

For more information, visit rextagstrategies.com.

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Incident Management in the Cloud to Improve Emergency Operations

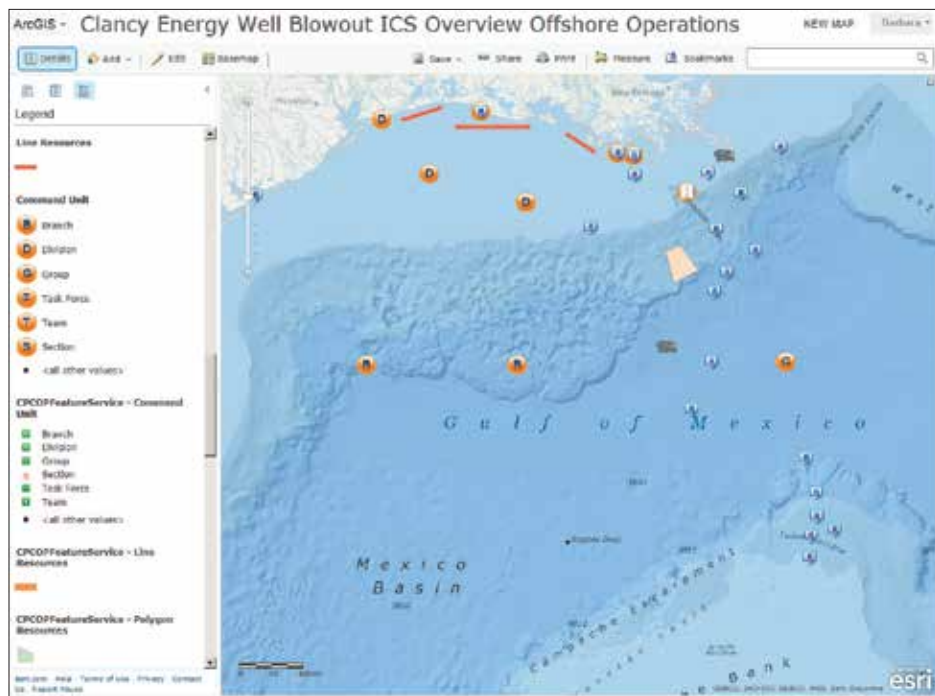
Esri and Witt O'Brien's have built a new GIS cloud service to increase an organization's capabilities to prepare for, respond to, and recover from ocean oil spill incidents. Emergency management personnel can visualize an integrated incident command system (ICS) through a common operational picture (COP) and systematically command, control, and coordinate multiagency emergency response.

CommandPro helps disaster managers do these important tasks:

- Develop a complete Incident Action Plan (IAP)
- Geographically display response tactics
- Publish interactive ICS-driven maps
- Utilize COP software delivered as a service
- Access published ICS forms from ArcGIS Online
- Leverage easy-to-use tools for making and sharing maps
- Capture and update information directly from a mobile device

The combined technologies in the COP simplify the complex process of ICS and increase the agility and capabilities of managers dealing with disasters of various sizes and scopes. Witt O'Brien's CommandPro automates the emergency management processes. The Esri ArcGIS Online platform provides user access to fit-for-purpose maps and workflow-enabled apps (e.g., mobile). The integrated solution aligns real-time data with the systematic approach of ICS. An added value is that COP users can access Esri's emergency management map templates, which incorporate adopted standards for spatial data and real-time incident management.

"The ability to communicate real-time situational awareness across both the incident management organization and those affected stakeholders is key to



↑ A situation map that contains real-time information can be viewed from Esri Operations Dashboard for ArcGIS and can be the primary display in the operation room. (Data has been skewed for demonstration purposes.)

a successful response and recovery," James Lee Witt, executive chairman of the board for Witt O'Brien's, said. "The integration of our emergency response management technology solutions, coupled with Esri's online GIS platform, will help our partners in government and the private sector better manage their response effort while enhancing collaboration across geographic and organizational boundaries."

First responders, government agencies, and private/commercial industries will have the combined ability to respond faster, control resources better, and generate timely incident reports accurately. The new COP will improve their vital communication and coordination capabilities and give them complete enterprise visibility.

"The integration of real-time information provided by Witt O'Brien's ICS software with Esri's GIS platform, via online

services, will transform the future of incident management," Jack Dangermond, president of Esri, said. "Already, Witt O'Brien's and Esri's advanced cloud service is proving itself within the oil and gas contingency planning and response theater. We expect this success to open up new possibilities that have positive implications across many other sectors of the incident management and response industry."

The prototype of CommandPro and ArcGIS Online COP has been used for various high-profile projects and incidents. These include many oil and gas readiness projects in which it adhered to heightened government efforts for deepwater operations safety.

Get a free trial of ArcGIS Online at arcgis.com.

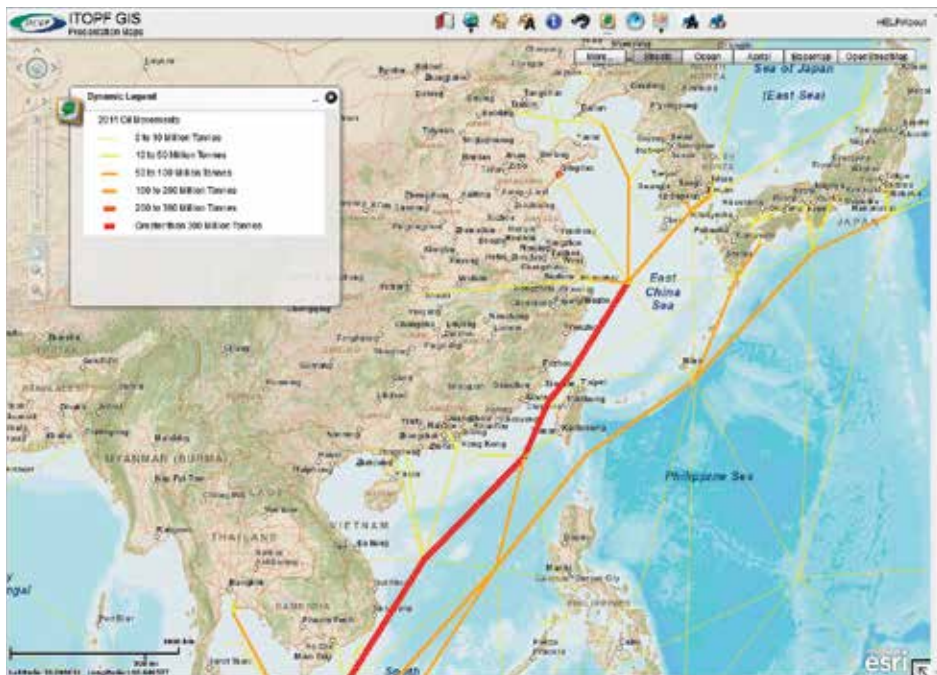
GIS Maps Help Oil Tanker Owners and China Coastal Communities Be Prepared

By Barbara Shields

A fisherman casts his net into the South China Sea, as did his father. Here the waves are calm, the waters shallow, and the fish abundant. In the past decade, he has seen more and more cargo ships and oil tankers cross his span of ocean, but he is unaware of the risk they bring to his livelihood.

In its current industrial age, China has huge shipbuilding yards, some of the busiest ports in the world, and a thirst for oil. The majority of oil is delivered to China by tankers coming from Saudi Arabia, Angola, and Iran. Globally, the number of accidental oil spills has continued to decline even though there is increased shipping traffic, but the risk of an incident occurring due to factors such as increased traffic, outdated navigation charts, and the number of oil tankers is a major threat to the ecology and economy of coastal cities. To mitigate this governments and commerce use GIS to understand the risk of oil spills along shipping routes.

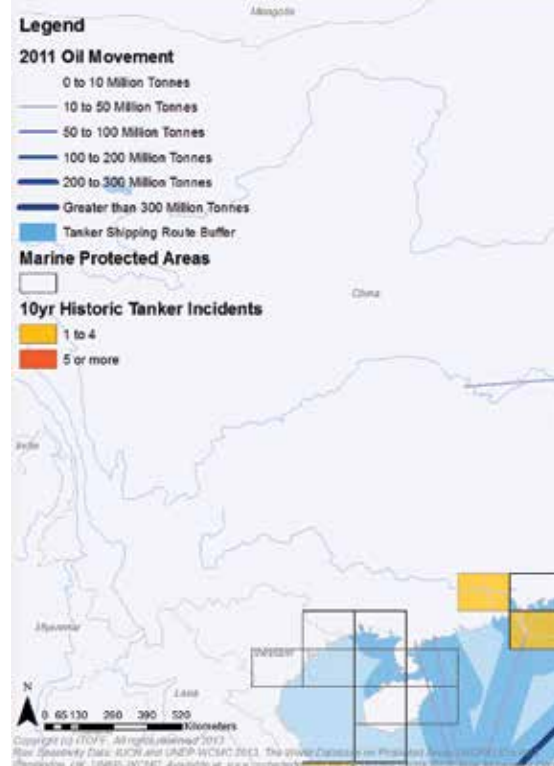
Collisions and groundings for medium and large incidents account for 50 percent of tanker spills worldwide; however, in China, they account for 78 percent. Knowing this, the International Tanker Owners Pollution Federation (ITOPF) is working to build awareness in China about the country's oil spill risk. The London-based, not-for-profit organization offers technical advice and information about pollution



↑ Figure 1. The schematic map of oil tanker traffic provides an uncluttered view of transport tonnage and routes. Maps are available to members on ITOPF's web GIS.

response and effects of oil spills on maritime environments. Its small response team is in constant readiness to assist at marine spills anywhere in the world.

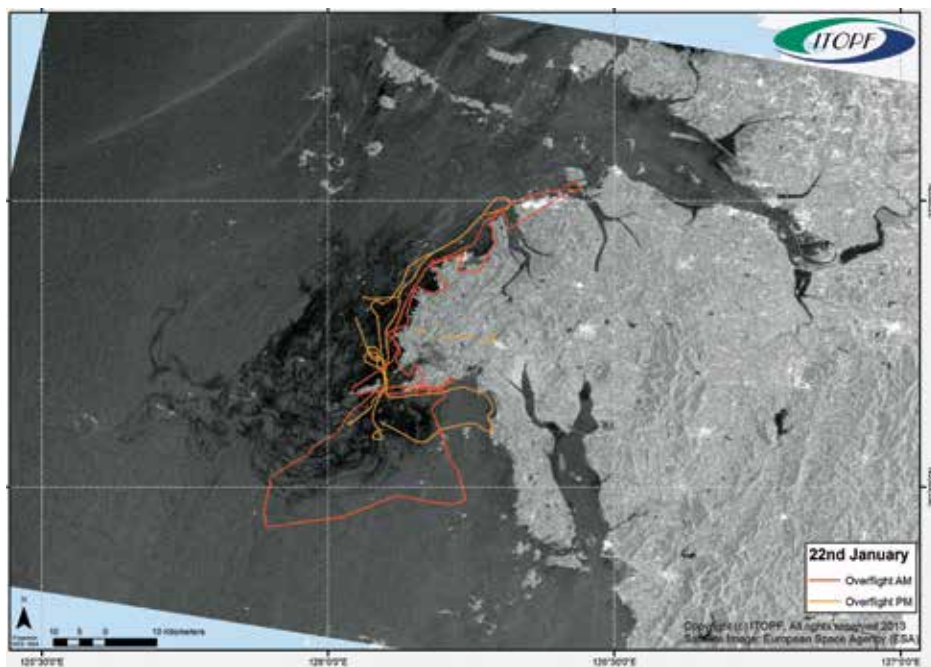
ITOPF researchers analyze seaborne transport data, such as Lloyd's List, about tanker types, movement, and incidents. They use Esri's GIS technology to map tanker routes and their proximities to sensitive environments. Hopefully, the



↑ Figure 2. Atop a basemap, a researcher overlays data layers for tanker traffic, oil spill incident history, and shallow water.

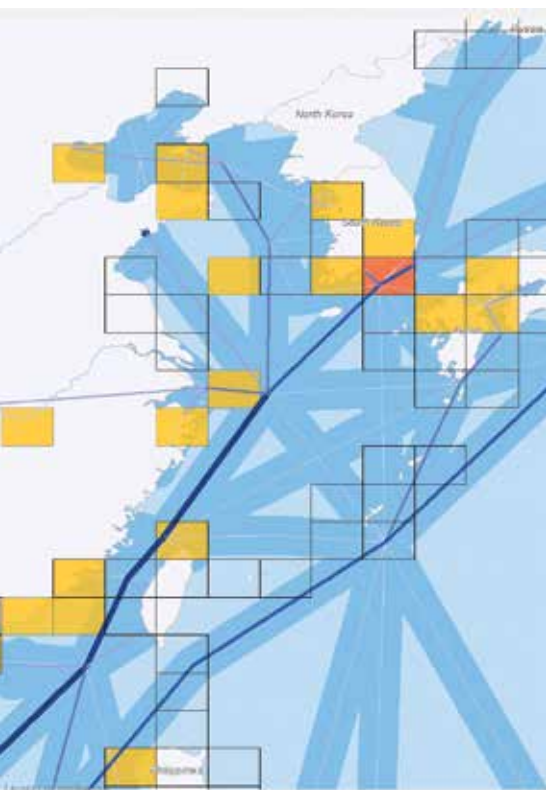


↑ A China coastal community works to clean its beaches after an oil tanker spill.



↑ Figure 3. An oil spill site aerial surveillance map shows a satellite image of the site and the flight paths of aerial surveillance planes.

information will persuade local governments to become involved in preparing for disasters.



At one time, the organization's researchers manually processed sea transit data to create risk maps. Lisa Stevens, senior technical support coordinator at ITOPF, and consultants from Makina Corpus, a web applications design company, created a geoprocessing routine that speeds the process of mapping oil tankers' journeys.

"Maps tell the story," Stevens said. "The analysis is not complicated, but GIS makes problem areas obvious."

ITOPF uses GIS to create schematic maps showing how much oil is transported along any particular coastline and shipping route and publishes them on its website (see figure 1). Map data includes tanker and vessel types, tonnage, and the number of journeys. In addition, the user can see a geographic history of major tanker oil spills since the 1970s. Adding data from the United Nations Environment Programme (UNEP) about the world protected areas to the map, along with tanker traffic over or near these areas, makes a strong visualization (see figure 2).

Stevens added widgets to the web maps so her colleagues who are not GIS professionals can easily create maps, print, and go. They use these maps

during presentations to local governments and other interested organizations to show areas of potential risk.

"Some countries don't know the amount of oil that is going past their coastlines and its potential threat," Stevens noted. "Seeing this geographically helps people realize the scale of the risk and that they need to be prepared with contingency plans and equipment stockpiles."

Whenever and wherever oil spills occur, ITOPF technical advisers use GIS as a tool for providing objective technical advice. Suppose a tanker runs aground off the coast of our fisherman's South China Sea province and oil begins to seep into the water. At the office in London, scientists create and publish a GIS web map that highlights the areas of sensitivity near the ship.

Once technical advisers arrive at the scene, depending on the available infrastructure, they instantly access basic GIS maps that show sensitive areas and reference oil spill case histories. Everyone involved in the incident sees the same data published on the GIS server. The map interface links to information so users can access information about key organizations involved in similar cleanup operations, review their efforts, and meet with them to discuss response activities. Furthermore, ITOPF puts reconnaissance efforts into geographic context by mapping the routes of surveillance flights over the spill site (see figure 3).

GIS presents information in a way that educates thousands of ITOPF members and helps them prepare for oil spills. They can see the amount of oil tonnage and journeys in areas that their own vessels transit and consider their preparedness plans should an incident occur in those waters. Moreover, countries whose shores are at risk of oil spill disaster can design response plans specific to local needs.

Read other ocean GIS user stories at esri.com/oceans.

Secure GIS Portal Opens Access to Project Data

GEMS Improves Data Management with Pangaea Portal

By Tom Bell, Geoscience Earth and Marine Services; Todd Buehlman, LOGIC Solutions Group; and Orlando McDowelle, LOGIC Solutions Group

GIS portal technology is rapidly being adopted by the oil and gas industry to manage geospatial content and extend the value of GIS and data investments. The appeal is that energy companies can deploy these portals on their own infrastructure behind the company firewall, allowing users to access up-to-date company data from a secure platform. Staff members will quickly become users because a GIS portal enables them to interface with the company's database via a map to get to information vital to their work.

Forum Energy Technologies provides products and services to energy companies worldwide. Its business unit Geoscience Earth and Marine Services (GEMS) recently deployed the Pangaea GIS portal using ArcGIS technology.

Pangaea has made it easier for employees to get to GEMS' project data, and it saves the company money.

GEMS specializes in geological, geophysical, geotechnical, and archaeological analyses. It provides its clients with insight to address critical issues for oil and gas exploration and development, especially for subsea projects and in complex environments such as oceans and the Arctic. All its services are geographic in nature, and it uses Esri's ArcGIS.

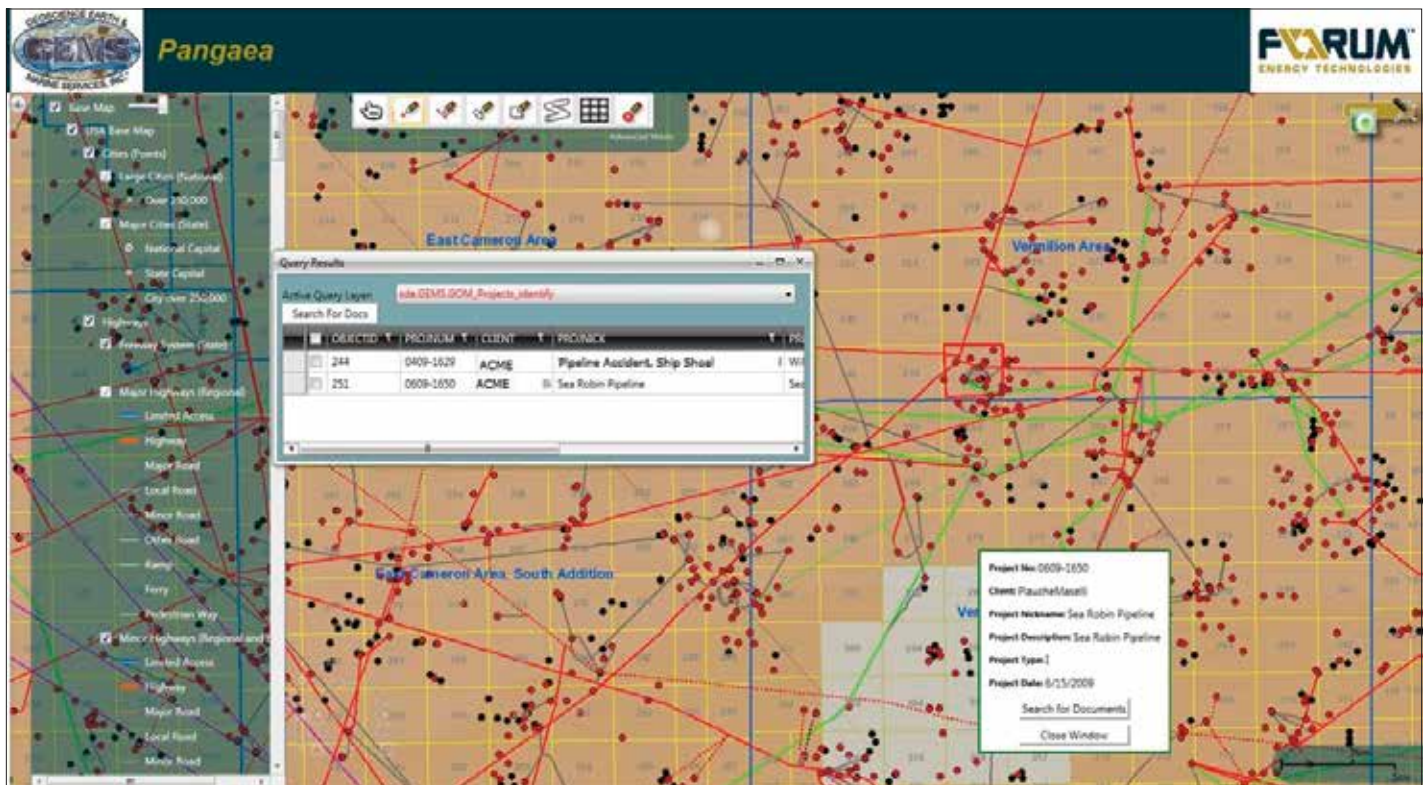
GEMS offers integrated geoscience consulting and geotechnical engineering. It performs shallow water hazard assessments by using 2D, 3D, and high-resolution images. Its experts support energy companies by planning studies for field layout and pipeline routing. They

also provide Arctic engineering, marine archaeology, and offshore field services.

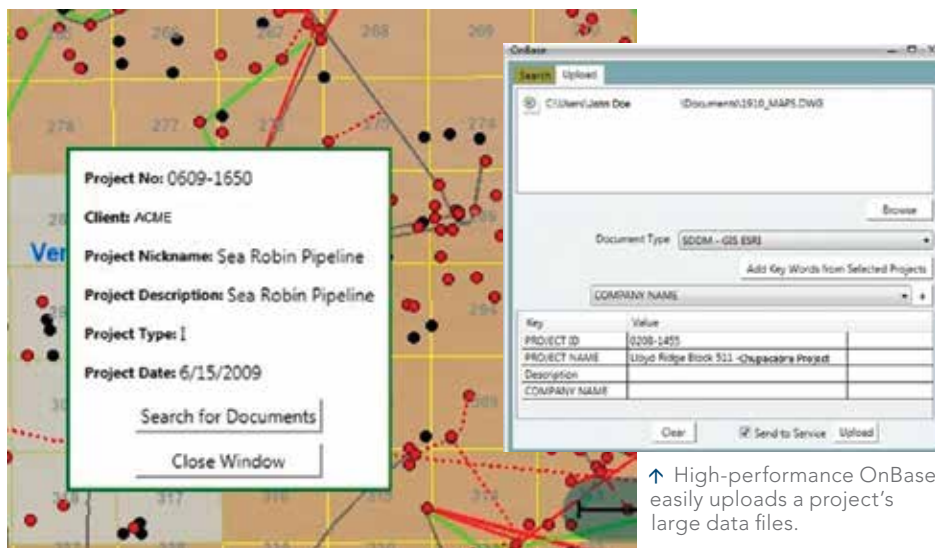
Meeting the Massive Data Challenge

GEMS has accumulated data from more than 2,000 projects, resulting in a massive file-based data store containing more than 50 terabytes of information. The store holds copious amounts of documents, images, and supporting information such as maps, seismic data, side-scan sonar, cores, imagery, spreadsheets, PDF files, Word documents, and GIS data.

Staff members edit, store, and eventually electronically deliver this information to GEMS' clients worldwide. Prior to launching its GIS portal, managing the large file-based system presented



↑ Project data is accessible via GEMS' Pangaea GIS portal.



↑ The portal search tools include a spatial query and an attribute query.

multiple challenges. Frequently, it was difficult to locate data quickly from previously completed projects. This caused rework and data duplication. In addition, the system could not search the database using geographic attributes such as latitude and longitude or an Outer Continental Shelf (OCS) lease block. Without metadata, there was no way to perform keyword searches for documents. Moreover, once a document was located, staff spent additional time trying to determine if they had the final version.

GEMS' director Daniel Lanier initiated the search for a state-of-the-art system. He wanted a solution that would manage and search for documents and perform analyses via an intuitive map.

GEMS worked with LOGIC Solutions Group to create the GIS-driven portal GEMS Pangaea. Pangaea integrates spatially aware document management and search capabilities. It provides users with intuitive, map-driven navigation of GEMS' database and enables them to search, view, and download and upload content.

Using Esri's GIS technology, Hyland Software's OnBase content management solution, and Microsoft's Windows Presentation Foundation (WPF) web browser application, LOGIC's developers designed an effective solution. The

Pangaea GIS portal fully leverages GEMS' existing, heavily used GIS.

Elevating the User Experience

The user activates the search for documents via the map by clicking a point, drawing a line or rectangle, or entering coordinates. Search functionality rapidly finds projects located within a selected OCS lease block. Documents contain geographic metadata as well as project name, client name, and description, which speeds up the search. LOGIC also developed an application that allows employees to search GEMS' legacy file system by client name, project name, or file type.

Pangaea users view project boundaries on a map and click a boundary to get basic information about the project. Within the interface, they can also search and get a quick view of documents associated with that project.

Users upload documents to the document management system and associate the documents with projects. OnBase allows users to upload large files to the system including ArcGIS map files, images, shapefiles, and other data associated with the project. They can also upload documents to the data store from outside the portal as well as download data to a specific work environment.

The system prevents data duplication during upload by flagging documents that already exist in the system. When the flag occurs, the user updates the version of the existing document or adds the appropriate metadata to associate the document with additional projects. By using OnBase with an Active Directory tool, an administrator can control document permissions, viewing, and download throughout the enterprise.

The solution is easily learned. It has expanded GEMS GIS as an enterprise business application, which is a powerful tool for managing projects and analyses. To accomplish this task, LOGIC worked with GEMS to provide an Esri and OnBase solution that includes Esri ArcGIS for Server and an OnBase enterprise content management (ECM) solution.

Many Benefits

GEMS' returns on its investment include the following:

- Reduced data search time. Using the intuitive map search interface, staff members now perform in a matter of minutes the previously difficult, and sometimes impossible, task of finding projects completed near an OCS lease block.
- Increased confidence. Staff members are assured that the version of the analysis, data, or document being reviewed is up-to-date.
- Eliminated data duplication.
- Improved customer service. Staff members quickly review historical analyses in an area for a client.

Learn about GEMS at f-e-t.com. To find out more about the Pangaea solution, contact Tom Bell of GEMS at Tom.Bell@f-e-t.com or 713-468-3705.

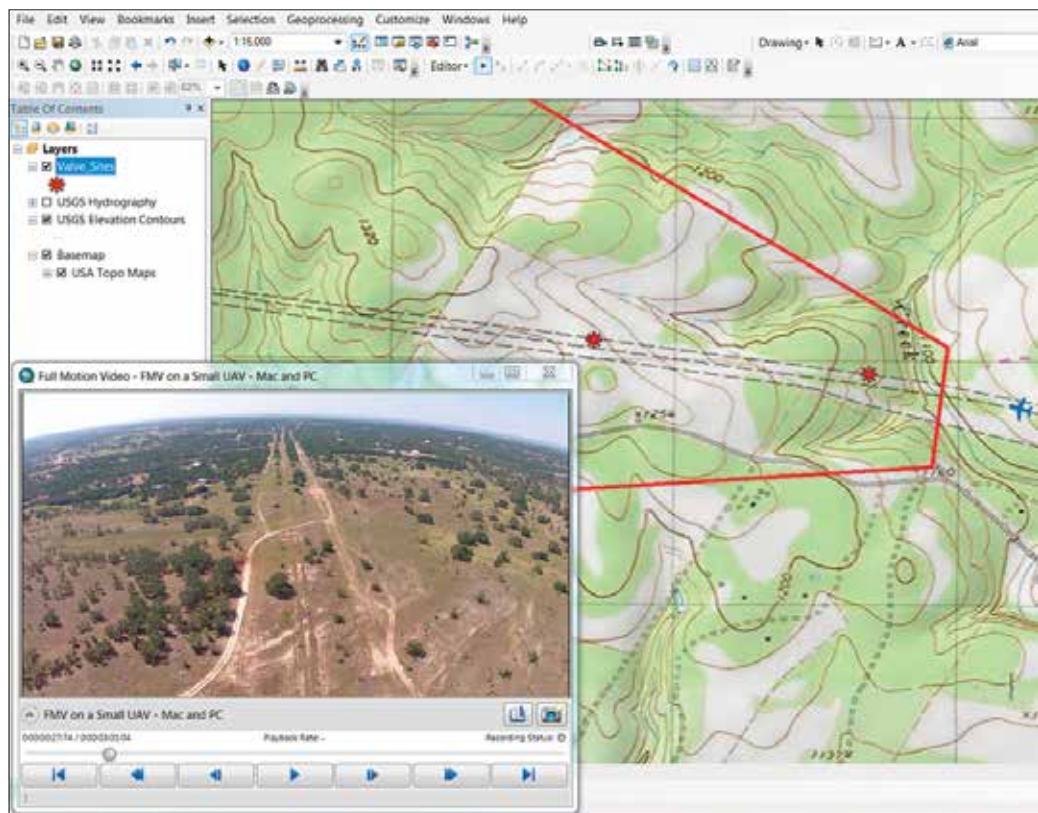
Bringing Airborne Video Into ArcGIS

By Devon Humphrey, Waypoint Mapping

Full-motion video (FMV) refers to the capture of airborne video in a data format that includes metadata about the aircraft's altitude, attitude, GPS location, and the corresponding orientation information about the camera sensor. Given these basic geometric parameters, GIS properly georeferences and displays the imagery on a map. Esri recently released its FMV Toolbar for ArcGIS, which allows video to be directly incorporated into GIS. Flight lines and footprints of the video frames are seen on the map, including those from multiple airborne platforms.

FMV is used to create composite mosaics of an area of interest, which is like using the video to "paint" an area with an updated basemap. This is particularly useful for pipeline corridor mapping, where a strip map can be quickly and affordably captured. The process is repeated to create change detection maps.

Perhaps the most powerful FMV GIS function is to capture features directly from the georeferenced FMV player window. For example, a GIS analyst plays back a video that was recorded along a pipeline and pauses the action at any time to capture features of interest, such

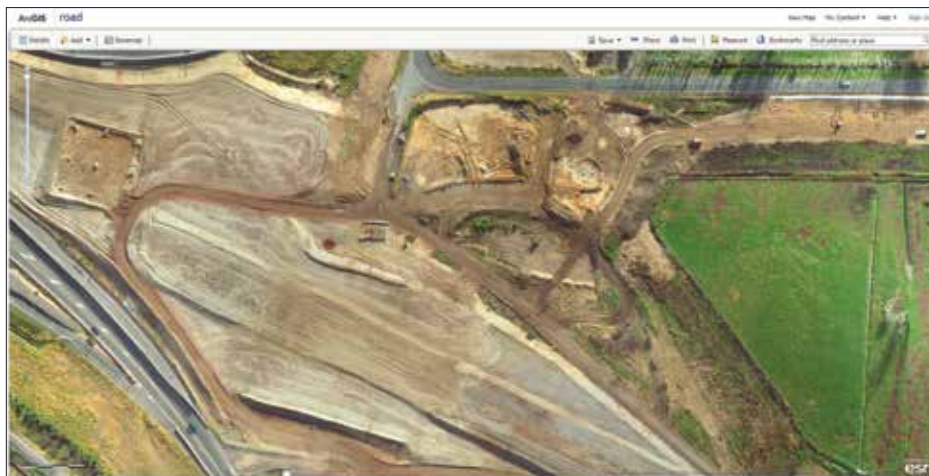


↑ In this FMV video clip, features of a pipeline are digitized from the window and put directly into GIS.

as encroachments. Using heads-up digitizing, the user captures features with a mouse and stores them directly in ArcGIS. This capability improves the

timeliness and capture of features for high-consequence areas (HCA) and other types of reports.

Emergency response managers can also use FMV. Because an FMV camera does not need to be perfectly perpendicular to the ground, an aircraft can be flown at a safe distance from an oil spill and capture FMV at an oblique angle. The operator can then feed the scene in real time to GIS viewers inside the incident command post (ICP) miles away. This greatly enhances the common operational picture (COP). Having a source of real-time visual intelligence for the COP is a game changer over traditional methods. The turnaround time for maps of the spill plume during the 2010 Gulf of Mexico spill was a half day at best. Obviously, by that time, the oil had moved. If responders had been able to



↑ Overlay of UAV orthoimage and 3D point cloud data from a road construction site in ArcGIS Online. UAV data is processed and delivered via online services for rapid turnaround and user convenience.



← The RQ-84Z AeroHawk UAV, shown in flight, is used by Flightline Geographics to capture FMV data at a low cost.



↑ This is the GIS-based ground control and flight operations interface. As the UAV flies its mission, the flight lines are tracked and adjusted as needed.

use FMV, the disaster information could have been processed and viewed in near real time.

The military has used FMV for many years. Now, the private sector is beginning to realize the advantages that this technology offers. Just as GPS moved from its original role as a military navigation tool to a civilian mapping tool, FMV has the potential to become a standard data source for GIS.

The video must be geoenabled to be used in GIS. Standard video does not include sufficient locational information on the aircraft and sensor combination to be of any use. At best, with nongeoenabled video, all the user can do is track a moving dot showing the location where the video was captured. FMV actually places the video on the map, where it can be processed into value-added information.

Traditional Imagery from a Nontraditional Source

Unmanned aerial vehicles safely fly at very low altitudes and much lower speeds than manned aircraft, resulting in incredibly detailed imagery down to two-centimeter ground pixel resolution. Small UAVs can also capture 3D point clouds at the same time as the imagery. These point clouds are very similar to lidar and can be used to create stunning 3D scenes and perform volumetric calculations in GIS. Because UAVs have unique flight characteristics, they can also capture data in difficult spaces, such as areas underneath overpasses and bridges; within agricultural fields and fragile wetlands; or other areas, which may not be accessible to ground vehicles.

Many parts of the world have no restrictions on the use of UAVs for mapping and

data capture. But in the United States, the current rules only allow for certain government organizations and universities to obtain permission to fly. That permission comes in the form of a Certificate of Authorization (COA), which is issued for specific project areas and particular models of UAVs. So it is cumbersome, if not impossible, to do commercial mapping with UAVs in the United States at this time. Waypoint Mapping is currently working on several projects within three separate COAs in the country.

A recent status report from the Federal Aviation Administration (FAA) explained that it will take a few more years to come up with acceptable safety rules and procedures before it will authorize widespread use of UAVs in national airspace. So for now, other countries are leading the way.

Few organizations outside law enforcement maintain their own airborne fleets, so many GIS users will be ordering and receiving data deliveries from service providers, just as they do now with traditional imagery. Waypoint Mapping has launched a new aerial services division called Flightline Geographics that captures, processes, and delivers FMV data and UAV technologies for a variety of GIS organizations.

For more information, contact Devon Humphrey at devon@waypointmapping.com.

Download the Full Motion Video 1.1 template with the FMV documentation, tutorial exercises, and data from ArcGIS.com.

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Esri Partners Improve GIS for Petroleum

Eagle Information Mapping Improves Data Management

Eagle Information Mapping, Inc., has an extensive history in the oil and gas industry managing exploration, production, and pipeline data. Eagle provides consulting and software services to clean, load, analyze, report, model, and maintain data. Eagle is engaged in the automation of many standard industry work processes including field data collection, quality control, approval, management, and distribution. Its business is the life cycle of data.

Eagle offers separate and unique suites of pipeline data maintenance applications for both the Pipeline Open Data Standard (PODS) data model and ArcGIS Pipeline Data Model (APDM). These applications directly interact with standard data model forms and can be adapted to work with required custom extensions. Eagle also offers a suite of pipeline integrity management and productivity tools that are data model independent. Eagle's automation tools integrate data management software components to provide a full enterprise solution.

Earth Analytic and Tierra Plan Focus on Energy Analysis

Since 2009, Earth Analytic, Inc., and Tierra Plan LLC have teamed to develop state-of-the-art geospatial tools and applications for energy customers. This strong alliance leverages combined expertise in energy-focused geospatial analysis and database and software development. Recent collaborations have yielded two robust web GIS applications: (1) SmartFootprint for ArcGIS and Geode and (2) the Pulsar Pipeline Progress Management System (PPMS).

Tierra Plan is a GIS software development and consulting firm. Tierra Plan creates web-based GIS and spatial database solutions for analyzing and visualizing data geographically and integrating spatial data with external nonspatial systems. Tierra Plan works with clients in Europe and North and South America that serve the energy, defense, real estate, economic development, academic, and environmental sectors. Tierra Plan's team is a small and elite group of developers, designers, project managers, and GIS experts.

Earth Analytic, Inc.

Earth Analytic, Inc., specializes in the design, implementation, and management of enterprise GIS solutions for natural and cultural resources, with a specific focus on the energy industry. Earth Analytic provides geospatial data, analysis, reporting, and integration solutions. Pipeline and midstream petroleum companies use these solutions to identify and select economically feasible and environmentally sound pipeline routes and facility locations for infrastructure development.

Geocortex Provides Web-Based Geography

Geocortex software by Latitude Geographics helps users succeed with web-based geography by enabling them to get things done in the real world. Petroleum industry customers use Geocortex oil and gas spatial workflows to rapidly build web GIS applications and enable end users to make critical operational decisions in the field.

Major industry processes such as exploration, extraction, refining, transportation, and distribution are intrinsically spatial, and accessing spatial data through an intuitive user interface greatly increases productivity. Viewer technologies (including HTML5 and Silverlight) provide visibility from the desktop to mobile platforms, allowing both online and offline use. Geocortex Workflow provides a simplified interaction experience for users, allowing goals to be reached quickly by modeling complex processes into a few steps. Geocortex extends the value of geospatial information with ArcGIS for Server by distributing it to a broader range of GIS and non-GIS users.

Geocortex enables companies to do more faster and at less cost and risk. Geocortex's approach makes it easy to create and maintain web-based GIS applications. In 2010, Latitude Geographics was recognized as an Esri Worldwide Partner of the Year. Best of all, companies effectively future-proof their ArcGIS investments by readily accommodating changes in technology over time.

Visit www.geocortex.com/petroleum/ for more information.

continued on page 12

geoLOGIC Benefits E&P

Headquartered in Calgary, geoLOGIC has been creating and supplying data and integrated software solutions to the energy and production industry for 30 years. The company's market-leading decision support tool, geoSCOUT, is a fully integrated, Windows-based exploration system that supports oil and gas professionals in their search for hydrocarbons by combining presentation-quality mapping and cross-section tools with data handling and analysis software. geoLOGIC also offers a range of data management solutions, including a robust data center (the gDC) that houses spatially enabled, value-added government well and land data in an open Public Petroleum Data Model, as well as a proprietary data engine for all data management needs. The company's newest product, gDCweb, features a web-based interface that allows clients to access industry-leading well and land data from almost anywhere.

Designed, built, and tested in-house by a team of experts, users can count on geoLOGIC's comprehensive suite of decision support tools and value-added data to help do their job faster and with unparalleled accuracy. From high-level decision makers to end users, geoLOGIC's solutions provide its customers with the tools needed to find answers, every step of the way. To learn more about geoLOGIC, visit www.geoLOGIC.com or twitter.com/geoLOGICsystems.

Inner Corridor Technologies: GIS for Petroleum Training

Based in Houston, TeachMeGIS (the training branch of Inner Corridor Technologies) has been providing GIS training and consulting services to the petroleum industry for the past 10 years. The company team offers petroleum-specific GIS courses monthly at its training center and also travels around the world to bring these courses locally.

Esri certified trainers have spent the last 10 years mastering the technique of getting geoscience professionals trained and excited about GIS. Instructors work hard to make each course relevant to the participant's current needs by teaching classes using wells, leases, pipelines, and other datasets familiar to the petroleum industry geoscientist. They bring numerous industry examples into the class and encourage discussion of common industry challenges. TeachMeGIS instructors have a knack for making participants feel comfortable asking questions, keeping the classes open and flexible.

Instructors often customize private courses by using client's data and workflows and making them even more relevant to the needs of students.



↑ Petroleum professionals shared helpful tips and best practices at topic sessions at the Esri Petroleum GIS Conference.

Petrosys Data Aggregation Produces Quality Maps

Petrosys is the most dynamic aggregator of data available. It has the unique ability to simultaneously model data from multiple input sources and draw on a range of vendor applications and data stores. Users can reinforce the credibility of their work by creating working and publication-quality maps and using the latest available data in the least possible time.

With a clear and logical user interface, strong applications, data integration, powerful gridding, workflow automation, and a pragmatic approach to data management, Petrosys supports businesses. Achieve exploration and production targets at a lower cost in an improved time frame with Petrosys.

TIBCO Spotfire Advances Analytics

TIBCO Spotfire helps oil and gas companies around the world bring the power of advanced analytics to their geographic data. By combining geographic, business, and external data into a self-service discovery platform, Spotfire enables users to freely explore data at any level. It radically accelerates critical business decisions for production optimization, fracking strategies, well engineering, and asset integrity.

Spotfire uniquely allows users to leverage the power of predictive analytics within a data discovery platform. It delivers new levels of statistical rigor to all business users without costly delays. Reservoir managers and engineers use Spotfire to explore complex models, such as the geospatial regression of production, and improve monitoring and estimated ultimate

recovery (EUR) processes. Engineers and geoscientists use it to visualize, interpret, and catalog data. It is useful for doing directional drilling surveys and creating post-frac reports to the corporate reserves database. Spotfire incorporates data generated internally and by service partners in the field without having to do lengthy data integration.

The WhiteStar Corporation

The WhiteStar Corporation provides digital cartographic data products and services, custom mapping, and consulting services to the oil and gas, pipeline, natural resource, engineering, and energy industries in the United States. The company offers WhiteStar data layers, including WhiteStar Grid, a digital mosaic of data layers developed to equip the energy industry with cartographic data layers; WhiteStar Culture, a cartographic data library consisting of basemap information layers; and WhiteStar Wells, a well database containing the geographic coordinates and well status symbols for oil and gas wells.

It also offers web services that include WhiteStar Streaming Imagery, which provides online access to large imagery archives and other streaming geospatial data; WhiteStar LeaseBuilder, a web-based application that allows users to calculate land polygons based on the public land survey system; and WhiteStar WellBuilder, a web application that translates a well's public land survey legal description into a precise geographic coordinate in real time. The company was founded in 1990 and is based in Lakewood, Colorado.



↑ Professional networks and friendships grew at the Esri Petroleum GIS Conference.

Esri Petroleum GIS Conference Highlights Business Values

The 2013 Esri Petroleum GIS Conference convened May 7–9, in Houston, Texas, where attendees represented more than 450 oil and gas, pipeline, and technology organizations from 25 countries.

During the first day, Esri demonstrated how petroleum companies could use the ArcGIS platform to improve decision making, collaboration, and response to changing operational conditions. Experts also showed ways GIS increases business efficiency in various critical oil and gas workflows.

Kevin McLay, geomatics manager and global GIS coordinator at Royal Dutch Shell, talked about the business value Shell's GIS platform provides from well inventory to urban planning. Esri and Witt O'Brien's announced their strategic partnership in the development of an integrated common operating platform for situational response. OSIsoft announced the integration of its SCADA PI System with ArcGIS. Ali Ferling, global managing director of oil and gas at Microsoft, shared some of the opportunities created for the petroleum industry by

the global alliance partnership between Microsoft and Esri.

More than 1,700 oil and gas professionals attended the conference that included presentations about the application of GIS to petroleum business challenges. The GIS Solutions EXPO featured more than 80 Esri partners who provided insight and recommended solutions. Technology workshops showed off the latest capabilities of the platform.

Read the 2013 Esri Petroleum GIS Conference papers at esri.com/events/petroleum-energy.



↑ The EXPO showed off geospatial technologies for oil and gas at the Esri Petroleum GIS Conference.

Discover the Power of GIS for Petroleum

Esri Petroleum GIS Conference

George R. Brown Convention Center
Houston, Texas

April 23–25, 2014

esri.com/events/petroleum-energy



↑ Participants watch a software demonstration.

The Esri Petroleum GIS Conference puts you at the heart of the petroleum, gas, and pipeline GIS user community. Attend presentations given by industry GIS professionals to learn how you too can improve your company's bottom line. See best-of-breed hardware, software, and services designed to meet your company's needs.

- Grow your GIS implementations for exploration, production, pipeline, downstream, and HSE domains.
- Get your questions answered in person by Esri staff and partners.
- Discover what is trending in GIS technology.
- Build your network of GIS professionals in oil and gas.
- Learn best practices for implementing GIS in petroleum.

Make a Difference— Work for Esri

Esri's petroleum team helps petroleum companies worldwide make better decisions using geospatial technology. Join Esri in making a difference in the petroleum industry. These positions are currently open:

- Industry Solutions Specialist—Petroleum
- Account Executive—Petroleum Operations
- Account Executive—Oil Field Services
- Account Executive—Pipeline

Learn more about these
Esri positions at esri.com/careers.

On the Road

Mark Your Calendar

Esri International Developer Summit

March 10–13, 2014

Palm Springs, California, USA

esri.com/events/devsummit

Esri Petroleum GIS Conference

April 23–25, 2014

Houston, Texas, USA

esri.com/events/petroleum-energy

Esri International User Conference

July 14–18, 2014

San Diego, California, USA

esri.com/uc

Geological Society of America (GSA) 2014

October 19–22, 2014

Vancouver, British Columbia, Canada

geocociety.org/meetings/2014

GITA Oil & Gas Pipeline Conference

October 28–30, 2014

Houston, Texas, USA

gita.org



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