Esri News
for Business
Spring 2012

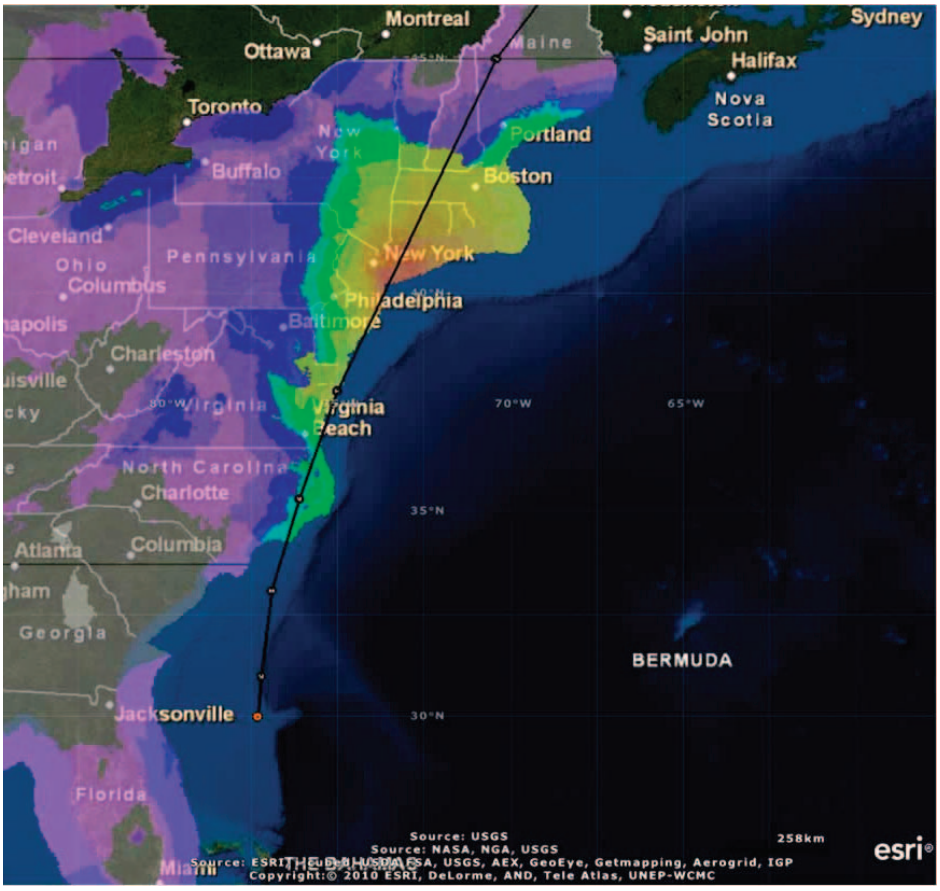
Storm Chaser

Amica Mutual Insurance Maps Real-Time Data, Providing Better Service to Policyholders

Because many Amica Mutual Insurance policyholders owned homes or other property in the path of Hurricane Irene, the company wanted to ensure that it had adequate resources to provide services when these people needed them most. Amica, a provider of personal insurance for autos, homes, and boats, is headquartered in Lincoln, Rhode Island.

Known in the industry for its high standard of customer service, the company has received several J.D. Power and Associates customer satisfaction awards.

Amica monitored Irene last summer as the hurricane moved up the East Coast of the United States, using real-time weather warnings from the National Oceanic and Atmospheric Administration (NOAA). This information, which included live radar loops focused on the strongest parts of the storm, was brought into Esri's ArcGIS Online as map services, a standard way to view location-based information on the web. By viewing live data streams and comparing them with internal policy data, Amica personnel were able to watch the storm in real time and quickly identify which areas were likely to generate the most claims.



↑ Amica used ArcGIS to track Hurricane Irene and view forecasted wind speeds from the National Oceanic and Atmospheric Administration's NowCoast web map services. This map displays the storm one day prior to making landfall in North Carolina.

Before their eyes, the path of destruction passed through North Carolina, Virginia, and all the way up the East Coast. "Our exposure along the forecast track was significant, and we immediately knew this would be a big event for us," said Adam Kostecki, a claims examiner in the Property Loss Division at Amica Mutual Insurance.

When tracking Irene, Kostecki combined real-time event tracking and geocoded policy locations displayed in ArcGIS. Taking an NOAA map service that forecasted wind speed and creating it as an ArcGIS web mapping service (WMS), Kostecki was able to input where Hurricane Irene was moving in real time on a map, along with Amica's plotted policies. He and other personnel drew lassos around policies in the areas they were interested in. The lasso Select tool allowed Amica staff to select multiple policies in contiguous areas without being restricted by administrative or geographic boundaries. Combining both datasets—wind speed high enough to cause damage plus policies in the area—Amica found out the number of policies that might be at risk.

By viewing the policy locations along with the area of impact, Kostecki could find out →

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A Country Divided

Looking at Income Disparity through a Geographic Lens

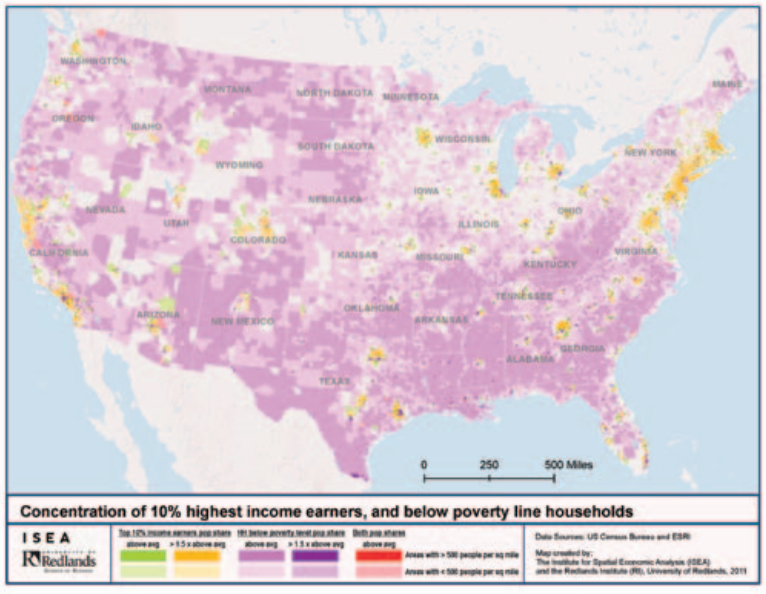
University of Redlands (U of R) researchers used Esri technology and data to analyze income disparity between the rich and poor in the United States. The study's findings—including the fact that people in more than half of the country's ZIP Codes experience above-average poverty—can be viewed at a national level on an interactive map, hosted on ArcGIS Online, Esri's cloud-based map and data service. You can pan and zoom to the ZIP Code level. "We were interested in looking closer at income inequality, which has obviously become a hot-button issue for many Americans, as evidenced through the Occupy Wall Street movement," said Carlo Carrascoso, a faculty fellow with the Banta Center for Business, Ethics and Society at the U of R in Redlands, California.

The rally cry of the Occupy Wall Street protesters, "We are the 99 percent," refers to the difference in wealth and income growth in the United States between the wealthiest 1 percent and the rest of the population. The Occupy Wall Street protest began on September 17, 2011, in Liberty Square in the financial district of New York City and quickly spread to many states, including Oregon, Colorado, and California, and other countries, such as Italy and Spain.

A report released last month by the Congressional Budget Office showed that while the average American household income, after government transfers and federal taxes, rose by 62 percent between 1979 and 2007, income growth for the top (wealthiest) 1 percent of households grew by 275 percent, while the income growth for the bottom (poorest) 20 percent of households grew by only 18 percent. "The growth for the richest households was more than 15 times greater than that of the poorest," said Carrascoso.

Researchers at the U of R Institute for Spatial Economic Analysis (ISEA) and the Banta Center for Business, Ethics and Society were interested in understanding more about this income disparity. Using data on average family size and amount of family income, found in the 2010 Esri data estimates from the US Census Bureau's American Community Survey (ACS), ISEA researchers approximated poverty levels by ZIP Code. "Since we cannot aim for exact precision, we approximated the share of people living below the poverty line," said Johannes Moenius, director of ISEA.

What they found was unexpected: poverty dominates the United States' landscape, especially in less populated areas. More than 50 percent of ZIP Codes in the country have above-average levels of poverty.



The purple zones on the map represent regions where between 13 and 19.5 percent of the households have 2009 income levels below the federal poverty line, defined by the US Department of Health and Human Services (HHS) for a family of four as $22,050. These regions comprise 28 percent of all ZIP Codes.

In deep purple regions, the percentage of households with incomes below the poverty line exceeds 19.5 percent. The regions represent 25 percent of all ZIP Codes and include almost all the southern states, New Mexico, North and South Dakota, and urban inner-city areas like those in New York City and Chicago. Within all these regions, more than one in four, or 27 percent, of households live below the poverty line.

The Congressional Budget Office report shows that the distribution of household income has become substantially more unequal in the last study year of 2007 than in 1979. By viewing and analyzing the data on a map, Moenius found that the rich tend to live away from those not as affluent. "Our research revealed that rarely will you find higher- than-average concentrations of rich (in this study defined as the top 10 percent of income earners by household) and poor (households living below the federal poverty line) in the same ZIP Code."

Only 0.7 percent of ZIP Codes have a higher-than-average concentration of both rich and poor. In populated areas, ZIP Codes containing either rich or poor households tend to be contiguous to each other. Higher-income earners tend to be concentrated in large urban metropolitan areas, such as Southern California/Greater Los Angeles and the Washington, DC/New York City/Boston corridor. Perhaps the most striking feature of the study was the appearance on the map of a "buffer zone" that seemed to separate the rich from the poor. These light gray zones appear in suburbia, where middle-income households dominate. Middle-income households were defined for this study as neither the top 10 percent nor those living below the poverty line.

ISEA researchers continue to look at the income disparity problem and other areas of economic analysis that have a strong connection to people and where they live. Visit ISEA.redlands.edu to learn more.

Follow the protests on Esri's Occupy Wall Street Social Media map, where events can be visualized by following updates on Twitter, YouTube, and Flickr.

View map at esri.com/occupy.

Transparent Communication Keeps Contributions Coming

By Karen Richardson, Esri Writer

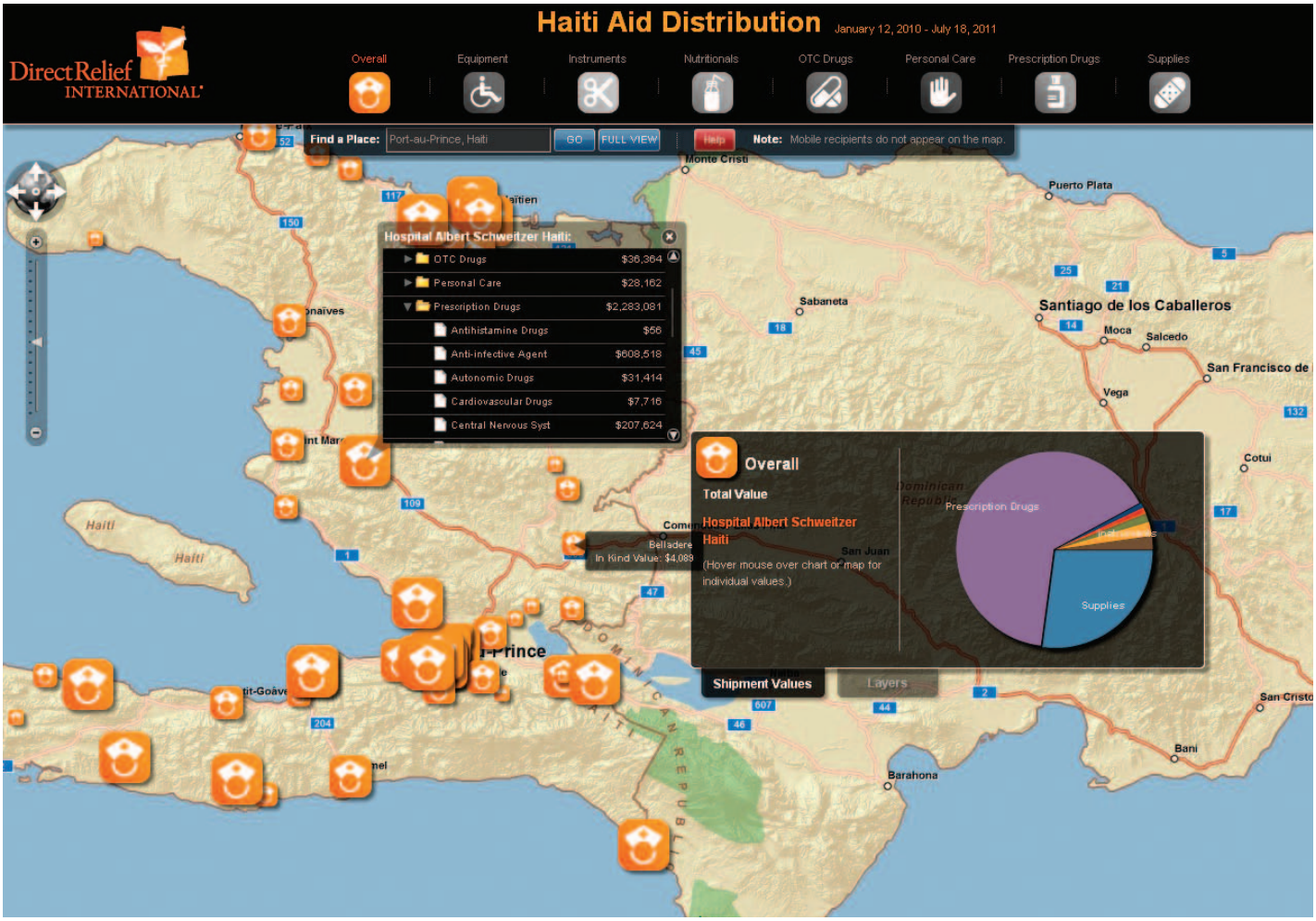
"It's important that our donors and others, such as the public and news media, see that we are able to deliver essential supplies in the right amounts, forms, strengths, and dosages to the facilities that need them."

Andrew Schroeder, Director of Research and Analysis for DRI

GIS web apps keep donations coming into Direct Relief International (DRI) by constantly apprising donors of how their contributions are being spent.

Nonprofit organizations like Santa Barbara, California-based DRI rely on the charity of individuals, businesses, and foundations to operate. DRI collects and distributes medical supplies and pharmaceuticals to 72 countries, including the United States. The organization provides medicines and medical supplies for those who otherwise can't afford them because they are low-income and don't have health insurance or live in developing countries that lack the infrastructure to provide basic health services. In addition to partnering with licensed health care providers to deliver reliable medical services throughout the world, DRI also responds to crises such as the 2010 Haiti earthquake.

The earthquake in Haiti killed or injured hundreds of thousands of people and displaced more than a million. DRI relied on generous donations from individuals and corporations to reach out to help those



↑ Anyone visiting the DRI website can explore details about shipments to Haiti.

suffering. "Unlike some nonprofits, DRI does not use US government funding or grants for the services we provide. We rely solely on charitable contributions," explained Andrew Schroeder, director of research and analysis for DRI.

Current and prospective donors can visit an interactive map of Haiti to ensure that contributions are being put to good use. The map, located on DRI's website, allows anyone to explore details about DRI's shipments to the country based on the location and type of medical supplies required. Pie charts provide a visual breakdown of the composition of medical donations (e.g., prescription drugs, instruments) matched with their associated costs.

As new donations arrive in Haiti, DRI's website tracks supplies, needs, and working partners. "It's important that our donors and others, such as the public and news media, see that we are able to deliver essential supplies in the right amounts, forms, strengths, and dosages to the facilities that need them," said Schroeder. "If they see their money is being well spent, we have a better chance of retaining donors and attracting new ones."

In the six months following the Haiti quake, DRI provided more than 400 tons of emergency medical assistance worth approximately $57 million to 53 Haitian health care facilities, international medical teams, mobile medical clinics, tent-based hospitals, and medical units at camps for displaced people across the country. The ability to raise the substantial funding needed for these medical supplies is substantially aided by what Schroeder described as "transparency and communication."

DRI provides a similar map for contributions at work in the United States. It contains information on the amounts and types of donations provided to more than 1,100 nonprofit clinics throughout the 50 states. The map of clinic locations can display donations nationwide or by state or individual clinic. Icon size indicates the amount of medical aid a clinic receives. Users can view individual states by choosing from a drop-down list and seeing aggregated statewide aid totals, zooming in to a specific area, or typing in an address.

Schroeder and his team use ArcGIS for Server to manage the geospatial aspects of US and international inventory that is tracked by the organization in SAP. Microsoft SQL Server is a bridge to inventory files that are exported from SAP in Microsoft Excel and DBF format files and imported into ArcGIS for Server applications via a multiuser geodatabase. Multiple mapping applications created with ArcGIS API for Flex are available to the general public (like the Haiti and United States clinic maps), and others are used internally at DRI. These solutions were built with the assistance of researchers in the Department of Geography at the University of California, Santa Barbara.

In addition to showing donors where their money is being spent, DRI must constantly find new donors. Fund-raising is a necessary part of DRI's operations. The organization received more than $341 million in total public support, including cash and in-kind donations. DRI spent less than one-half of 1 percent of this total on its fund-raising →

Business Sense

Simon Thompson
Director, Commercial Industry, Esri

The Power of Place—Location Analysis for Retail

Technology and the great recession have changed retailing forever. Gone is Clonetown, USA, with its repetitive retail landscape—now replaced and redesigned to engage customers on their own terms. Today, it's all about doing business locally, bringing your store to the customer rather than thinking the customer is inclined to seek you and your products out. AppFire caused a major media buzz when it announced in January 2011 that the average smartphone user spends just over three quarters of their 84 minutes a day on the phone using maps, socially networking, and participating in other activities immersed in the web. The least important thing we now do with our phones is talk!

Retailers realize that they need to keep on top of these trends and that place matters. Many companies now differentiate merchandise assortments so they are tailored to local tastes and market potential. However, in 2012 every retailer understands that their bricks-and-mortar strategy has got to be about fulfilling customers' needs in every store, in every market, everywhere.

Yet this shift to local, store-specific awareness also means an explosion in the size and types of data that need to be tracked, stored, analyzed, cross-tabulated, and made sense of. That's where location analysis and GIS come in to shift the power back to the retailer. It enables you to identify, track, and understand every customer shopping at that particular store and get actionable intelligence about why they are doing it. Location analysis uses the same tools that are in the palm of your smartphone consumer's hand but on the enterprise scale. The back-end systems that are optimizing the competitive landscape are the very ones that can enable savvy retailers to shift focus and understand their customers better.

Location analysis is a proven technology that delivers market strategies that not only enhance customer satisfaction but also drive incremental sales and margin. If you want to know how to deliver what customers want (stores in the right markets, with the right products for their demographic mix) and what you want (enough sales opportunity to overcome competition and changing consumer tastes), you've got to get into location analysis.

Transparent Communication Keeps Contributions Coming

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→ efforts. DRI's efficiency and expense ratings are consistently among the best in the United States, and it was rated as 100 percent efficient in fund-raising for the eighth time in 2010 by *Forbes* magazine. *[Fund-raising efficiency is based on charitable commitment and donor dependency.]* Maintaining this efficiency is important to the organization, and it is always looking for better ways of finding donors to bring necessary medical supplies to the people who need them around the world. "As a lean nonprofit, we can't spend a lot of money on a market research firm to help us find donors," said Schroeder, "so we need much better tools and intelligence internal to our organization."

DRI is looking forward to implementing Esri's Software as a Service (SaaS) product Community Analyst as a cost-efficient solution to help target potential donors in the United States. "Fund-raising is a tough nut to crack," said Schroeder. "By understanding our existing donors and finding more like them, we can attract a substantial and sustainable significant donor base. We'll be more able to think strategically about how to raise resources."

Community Analyst will allow staff at DRI to look at profiles of donors at smaller scales of geography, such as census block groups, and find out more specifically where new donors might be located. This helps target marketing and outreach campaigns, ensure that less money is spent on fund-raising, and allow more money to go toward serving the needs of vulnerable populations.

This solution may help DRI as it provides aid to people affected by other crisis situations such as the drought and resultant famine spreading across the Horn of Africa. Coordinating with a group of Kenya-based nongovernmental organizations and the Kenyan Red Cross, DRI is working to fill the gap in essential medical supplies for people in northern and eastern Kenya, including tens of thousands of famished Somalis who have been pouring across the border in search of food. While the amount of food aid being brought into the area is increasing rapidly, there is a persistent gap in essential medical services that DRI is working to fill.

There is also a significant gap in financial contributions for this crisis, so DRI is allocating an initial $50,000 from reserve funds to obtain and distribute essential medications and supplies in response to specific needs identified in the camps and settlements in and around Turkana, in northwestern Kenya near the Ethiopian border. With a little luck, and the right map, DRI may find the people needed to bring medical supplies to this desperate community.

DRI works hard to bring health to vulnerable populations around the world. Being healthy is the first building block of breaking the cycle of poverty. If children are sick, they don't attend school and can't learn skills. If adults are sick, they can't work for a living and provide for their families. While eradicating poverty is an extremely complex challenge, better access to reliable health services is necessary to create a positive change and increase livelihoods and enhance economic development.

DRI continues to look at the next generation of information technology to bring better understanding of information in the organization. Creating a community for providers, donors, and the public through mapping applications is one powerful way it has found to bring assistance to those who need it.

↑ collects and distributes medical supplies and pharmaceuticals to 72 countries and partners with licensed health care providers to deliver reliable medical services throughout the world. (Photos courtesy of DRI)

Storm Chaser

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→ exactly which policies were in the path of the event and generate reports for claims adjusters quickly. "Simply by viewing and exploring the data in ArcGIS, I simplified and improved the accurate identification of customers in Hurricane Irene's impact area," said Kostecki.

For insurers, knowing precisely where damage has occurred is paramount in developing a timely and appropriate response. The quicker an insurer can respond to claims, the faster people can rebuild and continue on with their lives. Being able to determine exposures in different areas, as well as knowing the likely severity of the damage, allowed the Amica claims department to proactively plan for potential claims volume. "Once Irene passed, we plotted claims as they were reported," said Kostecki. "Waiting days for first-responder reports, damage models, or even postevent aerial imagery just isn't an option anymore when responding to catastrophes."

Knowing how many policyholders might be affected helped Amica better determine how many adjusters were needed and where they should be sent after Hurricane Irene passed. From the information gathered in ArcGIS, the staff was able to generate a quick summary and export the information into a report. This information provided a better picture of how many claims Amica might need to respond to in a certain geographic area.

"We had a much better idea of what our claim potential was going to be after this event," said Kostecki. "And even better, we had this information ready to go hours after the storm."

Amica implemented the use of GIS in claims about five years ago, to better estimate the company's exposure after a catastrophic event such as a hurricane, earthquake, wildfire, or tornado. Knowing this information helps Amica ensure that it is appropriately staffed to handle the volume of claims that might be reported. Since implementing GIS technology, Amica has realized that pushing this technology to the front lines could have a profound impact on the way it services its policyholders. Kostecki explained, "It's a technology that our staff embraces—because it makes their jobs easier, and it allows them to be more efficient."

For more information on how ArcGIS is used in the insurance industry, visit esri.com/insurance.

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Progira Brings Ground Truth to Broadcasting

ArcGIS Provides Foundation as DTTV Catches on Around the World

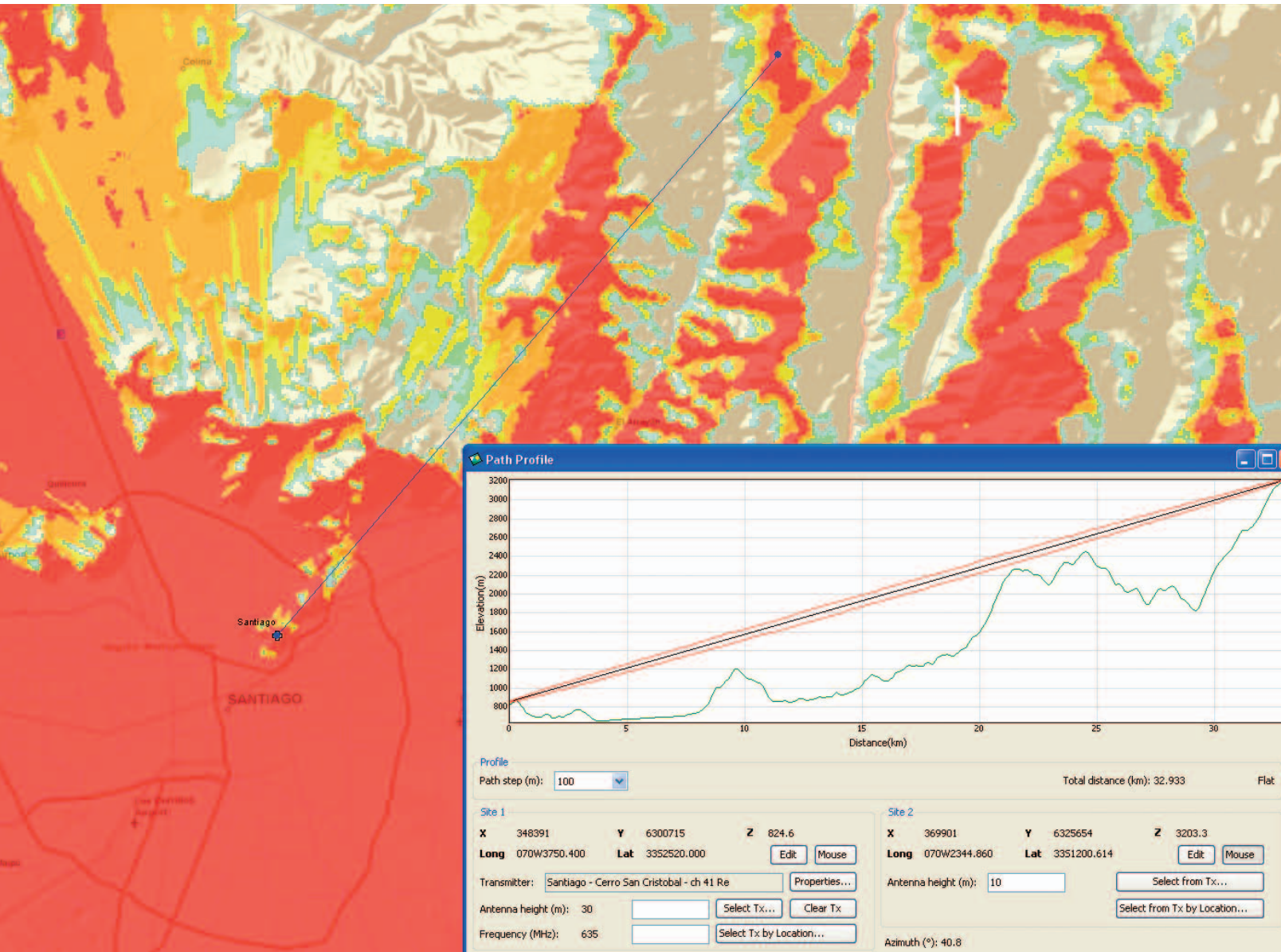
"We chose Esri's ArcGIS, as it is an open and widely used GIS platform that makes geographic presentations more user-friendly."

Patrik Engstedt, Progira Chief Executive Officer

Broadcasting is moving from analog to digital terrestrial television (DTTV), driven by international agreements. In 2006, the International Telecommunications Union (ITU) developed the Digital Terrestrial Broadcasting Plan in Geneva, Switzerland. The agreement developed digital terrestrial broadcasting for countries in Europe, Africa, and the Middle East. According to this agreement, all countries party to the agreement are required to migrate from analog to digital broadcasting by June 2015.

DTTV offers more capacity than analog, a better-quality picture, and lower operating costs for broadcast and transmission after the initial upgrade. Digital television technology broadcasts to a conventional antenna instead of a satellite dish or cable connection. DTTV can also use digital radio transmission, so handheld devices such as mobile phones can receive TV signals, and it also delivers TV over Internet Protocol Television (IPTV).

↓ Progira's GiraPlan software is based on ArcGIS and helps network operations model, plan, and verify their broadcast networks.



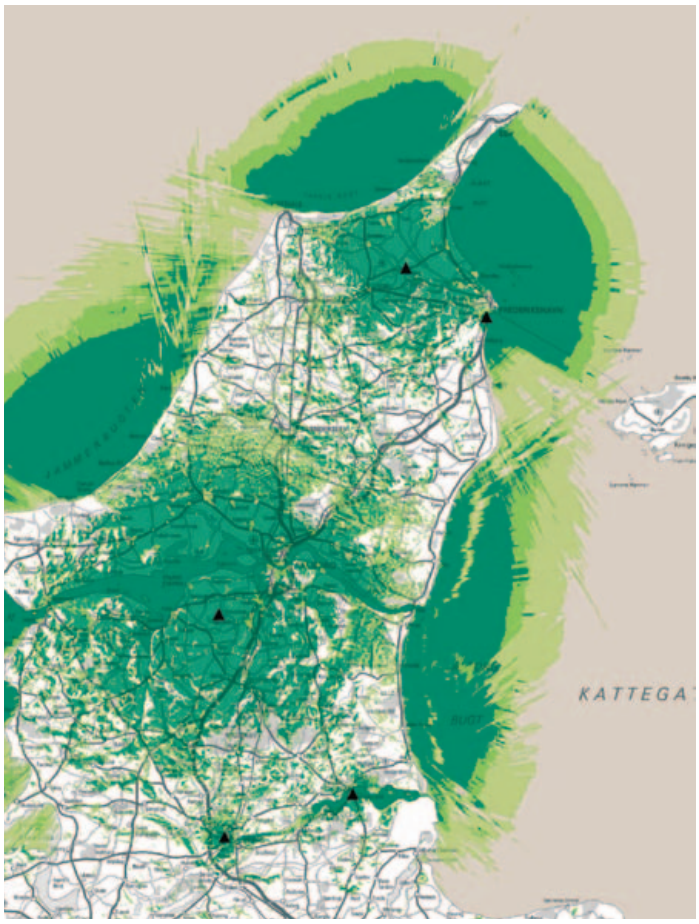
Because of these benefits, all countries in Europe, Africa, and the Middle East are committed to upgrading to DTTV before the end of 2015. These digital networks will require new infrastructure. Planning tools are needed to minimize transition costs. Progira Radio Communication AB, based in Sweden, is using ArcGIS technology to make this transition as efficient as possible for clients in these countries that need assistance.

Entering the Digital Broadcasting Age

The company began as a management buyout from Teracom, the terrestrial broadcast service company owned by the Swedish government. Teracom is a long-standing Esri user, so management team members at Progira had experience with the software and couldn't see any other software fulfilling their needs.

Progira not only helps network operators model, plan, and verify their broadcast networks from given business requirements but also provides tools and help for frequency planning for the authorities in charge of giving frequency concessions to network operators. To do this efficiently, Progira created a software product called GiraPlan, which is used by network operators, broadcasters, and regulators globally.

"You have to be able to accommodate many different data types and formats when you work internationally," said Patrik Engstedt, Progira chief executive officer. "Using GiraPlan, we are able to handle this need with ease."



↑ GiraPlan can help operators model coverage.

ArcGIS Provides Basis for Planning and Verification

GiraPlan is made up of three modules: Frequency Planning Module, Network Planning Module, and Network Verification Module. All modules are extensions to ArcGIS.

The basic functionality of GiraPlan includes transmitter handling (import and export of transmitter data and an antenna diagram viewer), field strength prediction calculations (using a great variety of propagation models), and analysis functions (such as population coverage, area coverage, coverage comparison, and a path profile viewer).

"We chose Esri's ArcGIS, as it is an open and widely used GIS platform that makes geographic presentations more user-friendly and eases the addition of new presentation formats and GIS applications," said Engstedt. "There are also very good tools for different network calculations."

Progira's Network Planning Module offers a complete planning environment for broadcast networks such as DAB/T-DMB, DVB-T, FM, or analog TV. This tool can use several models to estimate the field strengths on terrestrial paths. Planning can be conducted for rooftop, indoor, mobile, and portable reception.

The Frequency Planning Module optimizes the use of frequencies, which—because the broadcast spectrum is inherently limited—makes the most of a scarce resource. Regulators planning for optimal use of the spectrum, as well as operators planning for rollout of digital broadcasting networks, are given the means to efficiently coordinate and optimize the use of frequencies while complying with international regulations and bilateral agreements.

In the Network Verification Module, field measurements such as signal power, which is the field strength of the frequency, and the quality of the service can be presented and statistically analyzed but also used for fine-tuning of radio propagation models, which measure the function of frequency, distance, and other conditions. The Network Verification Module can also provide an estimate of reception quality for rooftop, mobile, indoor, or portable use.

Getting the World Ready for Digital

With GiraPlan, Progira pioneered the successful switchover from analog to digital terrestrial broadcasting in Sweden. This opened the door for similar projects all over the world. The company has been very successful in many countries in assisting with the planning and rollout of DTTV networks.

In South America, for example, the interest in GiraPlan has increased during the last year as a result of the intensified plans for DTTV rollout and the definite decision about DTTV standards that has been taken. In Brazil specifically, many operators and broadcasters use GiraPlan for planning ISDB-T/SBTVD-T networks. Customers in Brazil using GiraPlan include Rede Vida, TV Bandeirantes, and TV Gazeta.

Clients use the GiraPlan solution for a wide spectrum of broadcast planning purposes, such as providing indoor reception for handheld →

Progira Brings Ground Truth to Broadcasting

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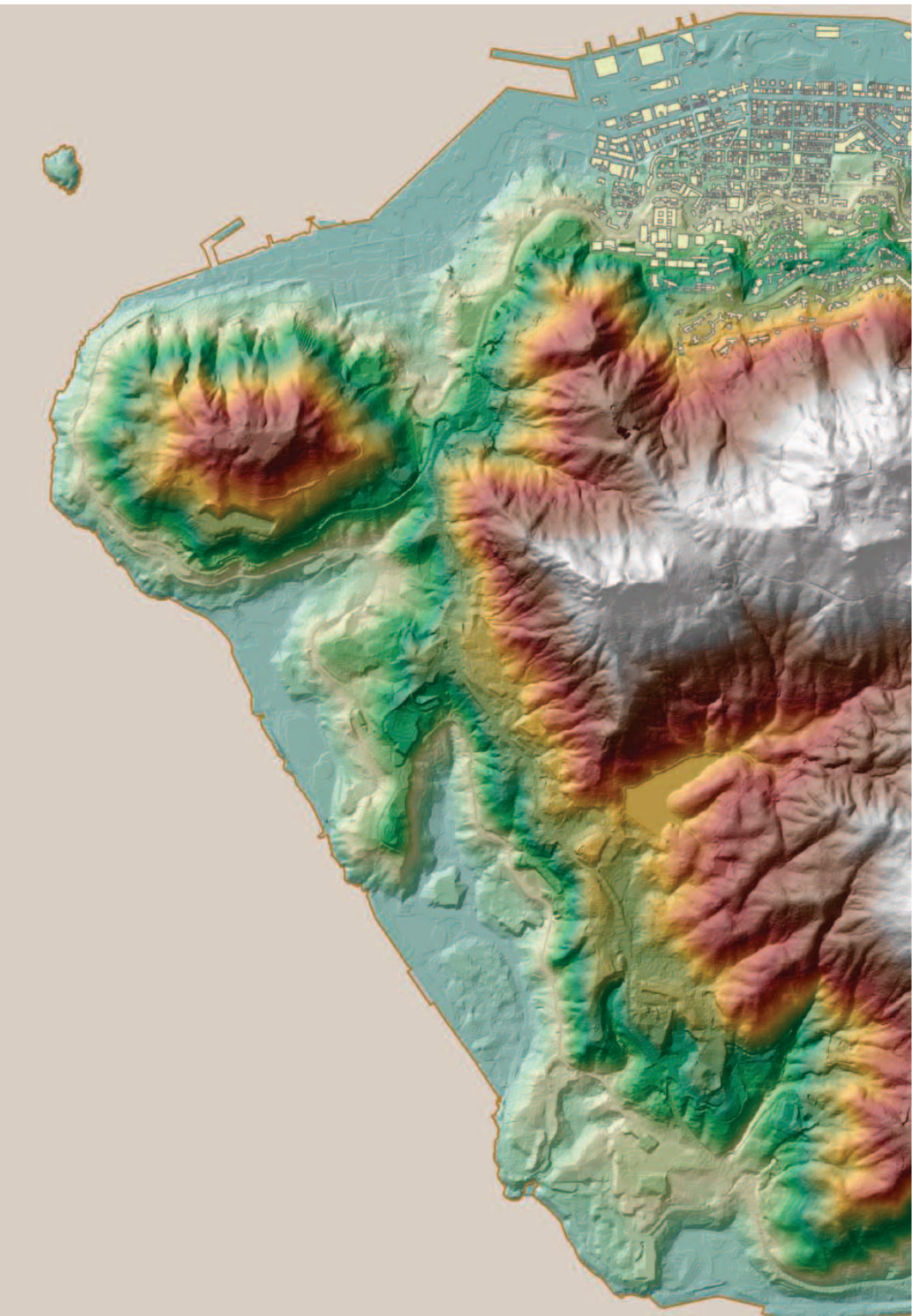
→ devices using Network Module. This module creates detailed coverage calculations and fine-tuned prediction models for complete analysis of the network including accurate full cost estimates.

GiraPlan also includes gap filler planning, which is as it sounds: it fills in any holes left in the network so a signal is evenly broadcast. Digital receiver modeling to optimize placement of the network components is also provided, as well as coverage analysis and prediction model tuning.

To accelerate Progira's expansion, the company is offering the opportunity for Esri distributors to also become Progira distributors.

"There are many business opportunities around GiraPlan, as there is an ever-increasing need for accurate ground data to plan for broadcast networks," said Engstedt.

For more information on how businesses use Esri technology and data, visit esri.com/business.



"You have to be able to accommodate many different data types and formats when you work internationally. Using GiraPlan, we are able to handle this need with ease."

Patrik Engstedt

← Being able to visualize terrain and the urban landscape helps operators design the best network possible.

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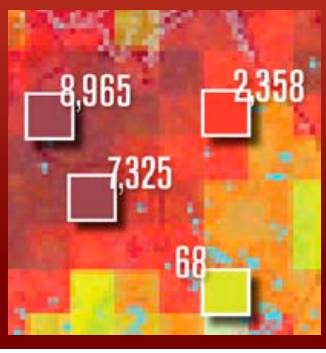

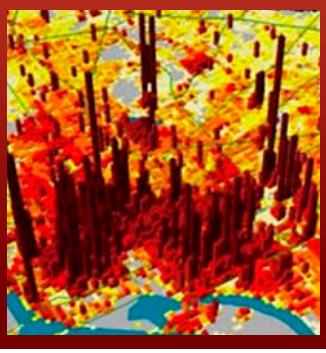

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Grabbing Hurricane Irene by the Tail

Insurers around the World Use Interactive Mapping and Modeling

Because of the millions of people in its path along the East Coast of the United States, the wrath of Hurricane Irene turned into a major news story this past August.

The 2011 Atlantic Ocean hurricane season in the United States, which was more active than normal, also churned up Arlene, Bret, Cindy, Don, Emily, Franklin, Gert, Harvey, Katia, and 10 other storms.

Hurricanes and other natural disasters caused more than $265 billion in damage globally during the first half of 2011. While emergency response and government organizations play important roles in responding to these disasters, in many cases, it is insurance companies that cover the costs of rebuilding people's houses and businesses. Insurers must understand the risk associated with the policies they cover and ensure that they can pay claims when submitted.

Esri writer Karen Richardson interviewed Mark McCoy, the global insurance industry solutions manager for Esri, about how GIS data and mapping technology is being used to plan for events like hurricanes to help people rebuild their lives after a catastrophe occurs.

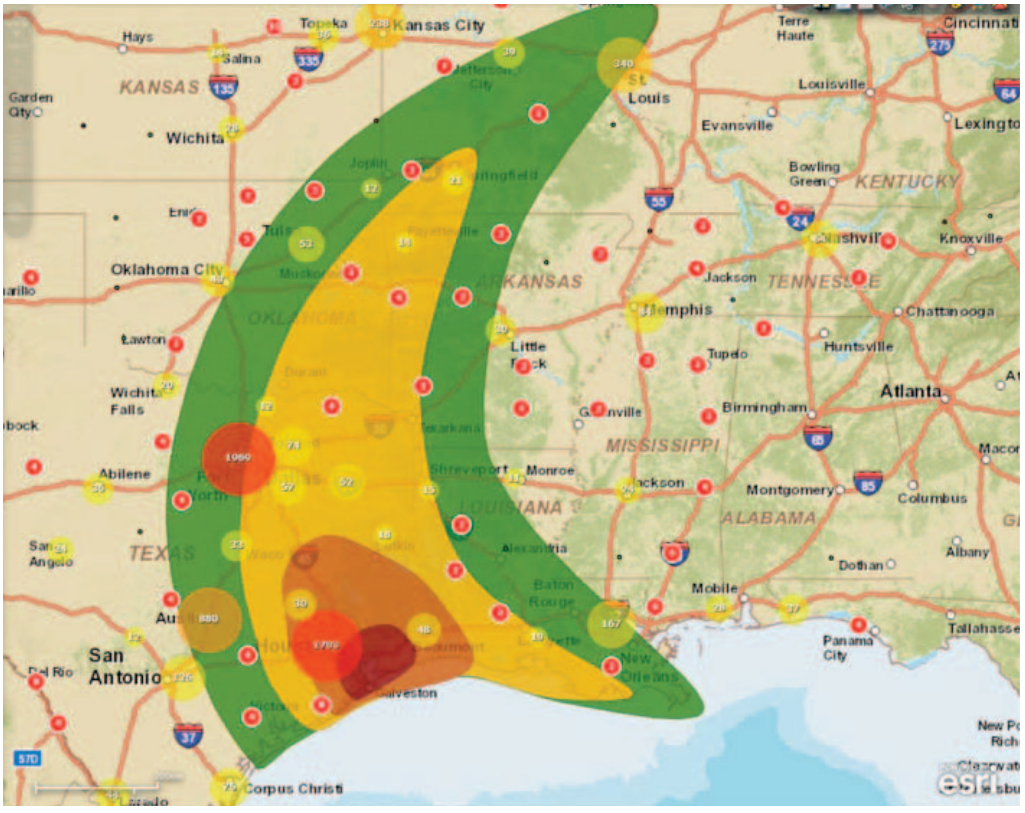
← Esri's Mark McCoy explains how ArcGIS helps insurers monitor catastrophic events such as hurricanes, floods, and wildfires.

Richardson: Why is location intelligence so important in the insurance industry?

McCoy: Understanding the likelihood—or, as they say in the insurance business, the risk—that an event such as a hurricane, flood, or earthquake could occur and damage property or harm people is at the heart of what insurers do.

Understanding risk at a given location has two primary benefits. First, insurers can use this information to make certain their customers are as safe as possible (think about trimming brush and trees around houses and other structures in burn areas) and that they carry the appropriate coverages for any catastrophe that might affect that location. Second, insurers can accurately rate the risk to ensure they are collecting appropriate premiums for the losses that are likely to be incurred.

Location intelligence helps insurers better understand how to respond to customers by tracking, ahead of time, the severity of an event such as a hurricane. They can view information about the storm conditions, along with policyholder concentrations in the affected areas. This allows carriers to make timely decisions to ensure they have adequate resources available to service their policyholders at a time when they are needed most. Hurricane Irene, which caused severe flooding and wind damage in states such as New Jersey, New York, and Connecticut last August, exemplifies why it is important to know the exact location



↑ Viewing wind speed on a map helps insurers monitor how much they must pay based on the intensity of the storm at each location.

of both insured properties and storm intensity. The insured loss for that natural disaster will likely be more than US$2 billion. That means there will likely be hundreds of thousands of claims to process. Knowing where policyholders are located and the specific path of the hurricane, insurers can accurately identify customers in the areas that were impacted by Irene. This is important, because claim severity—the monetary amount of the claim—can vary significantly depending on the intensity of the storm at the location of each claim.

Irene is a great case study. The hurricane's intensity varied as it progressed across the northeastern United States, dissipating from a category 1 hurricane when it made landfall near Cape Lookout, North Carolina, to a tropical storm as it moved inland to New York, New Jersey, and Connecticut. In North Carolina and Virginia, winds were strong enough to cause significant structural damage to homes. In parts of the Northeast, including New Jersey, New York, and Vermont, winds were relatively weak but flooding caused substantial damage. In states like Rhode Island, Massachusetts, and Connecticut, there were significant volumes of minor claims from food spoilage and tree debris removal. Being able to determine exposures in different areas as well as knowing the likely severity of the damage allows insurers to proactively plan for potential claims volume and ensure they have resources with adequate training available to assist with the influx of claims.

↑ Viewing claims on a map allows insurers to proactively plan for the volume of potential claims and ensure they have staff with adequate training and other resources available to assist with an influx of claims.

Richardson: What is the best way for insurers to integrate location information into their claims workflows?

McCoy: Many insurers use ArcGIS Online, a cloud-based geospatial content management system from Esri that anyone can use to create and share geographic content and build applications, then share them at no cost.

ArcGIS is also used on servers, desktops, and mobile devices at insurance companies to create applications that staff can use throughout their organizations. Tracking real-time events like Hurricane Irene and viewing geocoded policy locations simplifies and improves the accurate identification of customers in impacted areas. Insurers use this information to call on policyholders that may have experienced losses, provide immediate assistance including hotel vouchers and rental cars, and calculate what their exposed loss may be in real time.

Richardson: How do insurance agencies incorporate mapping of real-time events such as hurricanes into their claims management process?

McCoy: Amica Mutual Insurance, an insurer headquartered on the East Coast, uses real-time weather warnings brought in as a service to ArcGIS. These weather warnings include radar loops that display the strongest parts of the storm. This allows claims managers to see, as the event is happening, which policy locations the storm has affected. By viewing this on a map, the path of destruction becomes very clear, very quickly.

Once the storm has passed, the insurer's staff plots claims on a map, as they are reported, using ArcGIS. This immediately gives claims managers the precise areas of damage to decide what resources they need to help their policyholders and quickly start the claims process.

Richardson: In many instances, catastrophic events that cause so much insured loss are insured by reinsurers. Do they use location and GIS to help with their claims management process as well?

McCoy: Absolutely. Reinsurers provide insurance to insurance companies. Using ArcGIS Online for cloud-based mapping and analysis, it is easy to connect with clients around the world and share data and analysis.

Willis Re, one of the largest reinsurers in the world, uses ArcGIS to do exactly this. Willis Re's clients, insurance companies, log on to its system, called eNCOMPASS Online, to visualize all policies that were →

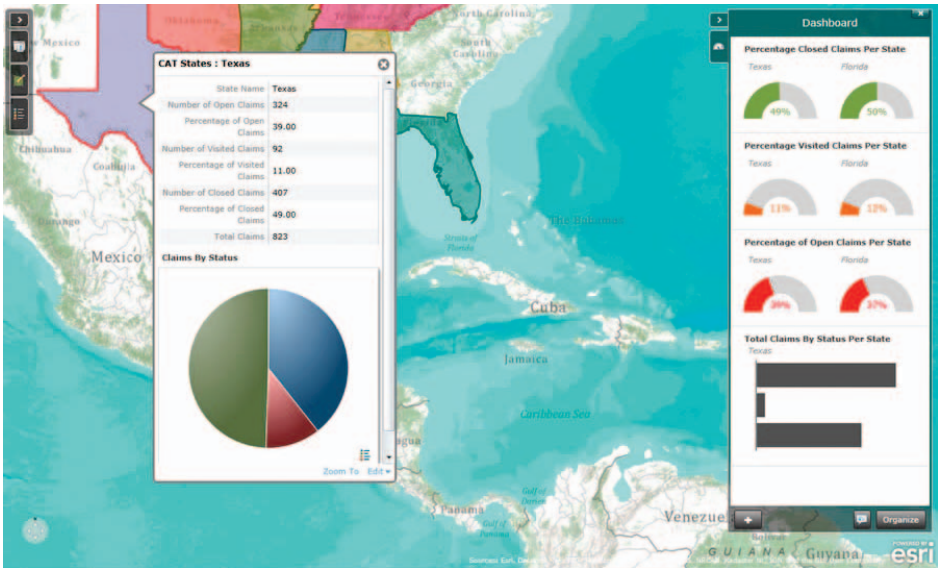
Grabbing Hurricane Irene by the Tail continued from page 13

→ affected by a catastrophe such as Hurricane Irene. After Willis Re's clients find and select those polices, descriptive information, such as the property owner and the value of the policy, can be viewed and analyzed further if necessary.

Richardson: The use of social media during disasters like Hurricane Irene has received a lot of media attention lately. Do insurers use social media to assist with their catastrophe response?

McCoy: We are living in a time of unprecedented information availability. Insurers used online interactive maps provided by Esri or created their own on ArcGIS Online during Hurricane Irene. Willis Re is again a great example. They have been pioneers in mapping social media and making crowdsourced data actionable.

ArcGIS allowed them to view social media posts in conjunction with frequently updated storm tracking information from weather services and earthquake activity from the USGS. Alongside detailed local street and topographic maps, this provided a new way to assess local conditions in the wake of major tropical storms and earthquakes across the globe during 2011. By turning on the geolocation feature of social media platforms like Facebook, Twitter, Flickr, and YouTube, people can annotate their posts with exact locations. While one or two of these posts may not be alert worthy, a large number coming from one location can indicate that there is a severe problem or many people are affected. A scattering of many posts distributed across a vast location can be analyzed by creating a heat map in ArcGIS of those posts, which can more easily display clusters of information for quicker analysis. Using this information, insurers might better prepare field crews to respond to situations such as impassible roads, power failures, or other issues that may affect their service to clients.

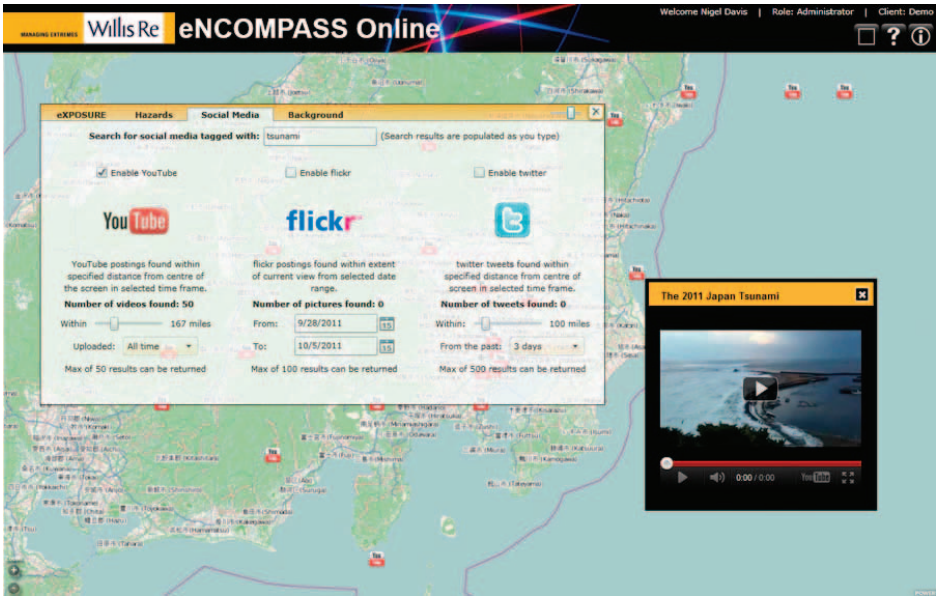


↑ GIS provides analysis and oversight for insurers. Using this custom-built dashboard, they could view the status of claims after the Texas wildfires.

Richardson: Do you expect that the trend of using mapped information to more quickly and accurately process claims will continue?

McCoy: Yes, I do. Applications like ArcGIS Online provide an analysis and oversight solution for insurers. ArcGIS Online combines authoritative data from storm track modeling and weather services with social media to provide a complete picture of the widespread impacts of natural disasters. The insurance industry can use the most up-to-date information, historical data, and what-if analyses to understand and manage exposure while providing better service to its clients.

Visit esri.com/insurance to learn more about GIS for insurance.

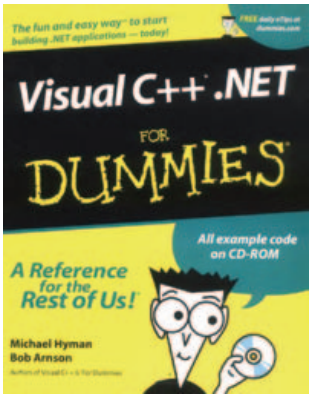


↑ Willis Re's eNCOMPASS Online allows clients to map social media, making crowdsourced data available for quick analysis of what is happening near their policyholders.

GIS for Everyone, by Anyone

By Bern Szukalski, Esri Product Strategist and Technical Evangelist

Earlier this week I was meeting with one of the directors of a large state agency. Among other topics we discussed, he told me that his organization was adopting a policy to move away from custom application development. Whenever possible, it would serve internal and public needs with off-the-shelf applications or, better yet, with those that can be easily custom configured without the need for programming.



↑ What color is your parachute?

When asked why, he explained the last custom application it had deployed had to be abandoned—the programmer had left for another job and had taken knowledge of its internal workings with him, and the agency was unable to hire (because of budget constraints) the programming expertise needed to make the necessary updates to the application.

This same sentiment was echoed while I was visiting a user in Florida earlier this year. That firm had also been stung when several programmers left, leaving behind a key public application that it could no longer maintain.

But before I incur the wrath of developers everywhere, it's often the case that a totally custom application is the only way to provide a finely tuned user experience or bring into play additional capabilities and components that are essential to the target user. You can only go so far with a configurable application. Nevertheless, configurable applications are easy to maintain and deploy; can be created more quickly and easily than ever before; and, perhaps most importantly, can be built by just about anyone.

↑ A custom-configured application being authored with an ArcGIS Online map.

For example, using ArcGIS Online, I can assemble a map and configure how the user interacts with it, including choosing from a variety of basemaps, adding my operational layers, adjusting layer transparency, setting display scales, and configuring what the user sees and experiences in the pop-up window when clicking a map feature.

This easily authored web map is now a building block that can be used in configurable templates that can be published directly from ArcGIS Online, providing the ability to build a custom-configured application and deploy it literally in a matter of minutes.

In the past, doing all the above and lifting something by coding from the ground up would have taken a long time and a lot of skill.

For more customized and extensible solutions, ArcGIS Viewer for Flex has been popular among Esri users since its introduction, and there is also a configurable ArcGIS Viewer for Silverlight, currently in beta, that leverages the same web maps and offers the same ease of configuration; both allow you to build custom applications with little or no programming skill.

While visiting a local government user a few months ago, I spoke with one of the GIS staff members who had been building a custom application using ArcGIS Viewer for Flex. He said he had chosen it not because he was particularly interested in Flex but because he found it very easy to create a custom application even though he was not a programmer himself.

"Esri has always built great developer tools for programmers and software for the GIS professional," he told me. "My problem is I want to reach non-GIS users in my organization and post some public-facing apps. Now for the first time, I feel empowered. Even I can build custom applications."

It's clear that it's easier than ever for anyone to build simple custom applications, and all you need is a browser or a text editor. "This isn't just GIS for everyone," he went on to say.

"It's GIS by anyone."

I couldn't agree more.

← The ArcGIS Viewer for Silverlight application builder even lets you plug in geoprocessing tools to extend the application's capabilities.

Accuracy and Currency Matter to Retailers

Updated Demographics Data Provides Analysis Accuracy

In today's fierce struggle to capture consumer dollars, retailers need every advantage to increase revenue and beat the competition. Therefore, performing analyses with the most accurate data in the most current geography is imperative for making strategic, location-based business decisions.

Why Accuracy Matters in Data

Census 2010 revealed interesting new demographic trends for the United States. Dramatic changes such as increased population diversity; the post-Katrina migrations; and effects of the Great Recession, including reduced household incomes and the housing market crash, occurred in the United States between 2000 and 2010. Census 2010 data captured these changes. Why is this so important? If an analyst uses data from Census 2000, data noting these events and others, such as the growth of the Hispanic population, increased home vacancy rates, and the loss of income, would be omitted. Data built on Census 2000 counts ignores all the documented changes collected in Census 2010. Obsolete data may lead to inaccurate analysis results and poor decisions.

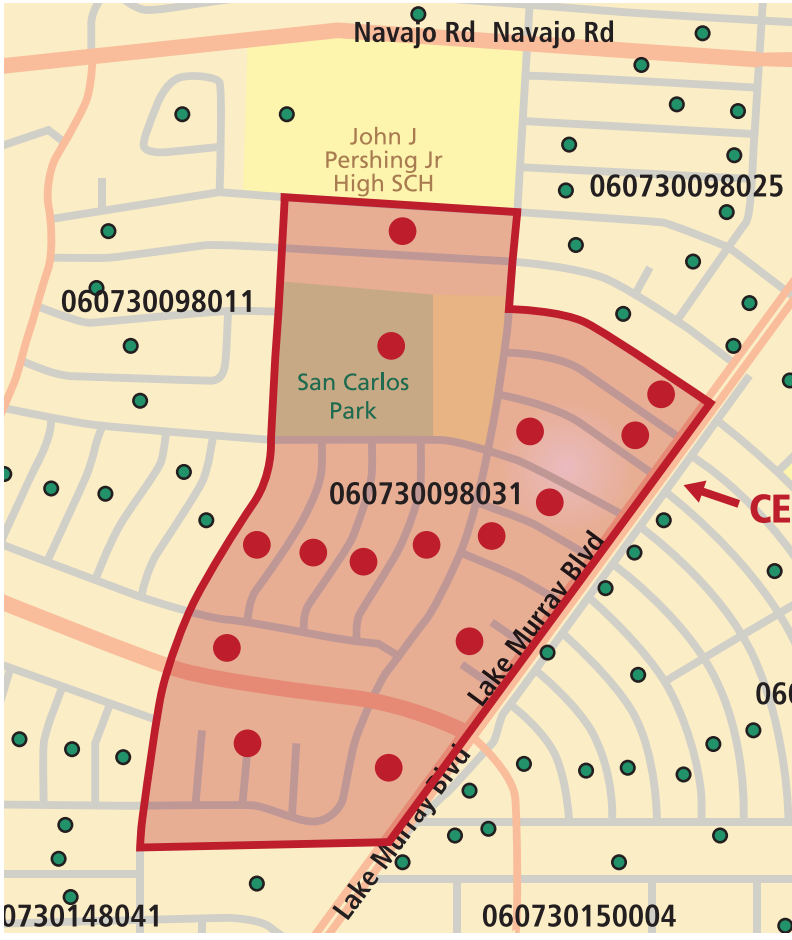
Why Currency Matters in Geography

Data is only as accurate as the geography it rests on. Currency in geography matters as much as accuracy in data. Each decennial census includes updated standard geographic boundaries and dramatic changes in the geographic inventory, particularly at smaller levels such as census tracts, block groups, and blocks. These changes affect not only data at standard levels of geography but also user-defined areas such as rings, drive times, and hand-drawn areas that are calculated based on census blocks. Geographic changes recently released with 2010 data are not included with Census 2000 data.

	2000	2010	Difference
Counties	3,141	3,143	2
Census Tracts	65,321	73,057	7,736
Block Groups	208,668	217,740	9,072
Blocks	8,205,099	11,078,297	2,873,198
County Subdivisions	35,317	35,703	386
Places (Cities & Towns)	25,150	29,261	4,111

↑ The table illustrates the dramatic changes that occurred between Census 2000 and Census 2010 in the inventories of smaller geographies.

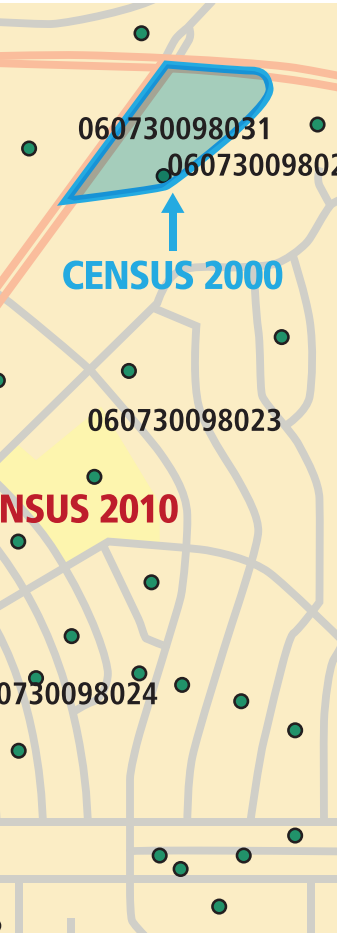
How does geographic currency impact data analysts? Using data in old geography can negatively impact the accuracy of analyses and decisions, especially at the census tract and block group geography levels. Analyzing information in 2000 geographic boundaries could fail to identify annexations, or simple geographic updates could be mistaken for changes in an area's populations or demographics.



↑ The Census Bureau can add new block groups to the inventory and also change the locations and boundaries of existing block groups. This map illustrates the importance of using accurate geography with current data. Here, the boundaries and location of Block Group 060730098.021 in Census 2000 are highlighted in blue. Rust highlights its location in Census 2010 geography. Note that the geocode is identical, but the boundary is completely different. Therefore, analyses of population or housing units performed with current data or projections but in Census 2000 geography would yield completely inaccurate results.

For example, areas undeveloped in 2000 might have grown into vibrant communities by 2010. A retailer analyzing new locations with old geography might ignore areas that could support a new shopping option for consumers. Using updated geography from Census 2010 ensures a higher level of analysis accuracy.

Where can retailers find the best data in current geography? Esri's Census 2010 and 2011/2016 Updated Demographics data provide the perfect tools to help retailers make solid business location decisions.



About Esri's Census 2010 Data

Esri's Census 2010 data includes the PL94-171 Redistricting file and variables from Summary File 1 (SF-1). In addition to standard census geographies such as states, counties, census tracts, and block groups, Esri also offers the Census 2010 data in a variety of nonstandard geographies such as user-defined polygons, including drive times, rings, hand-drawn trade areas, and ZIP Codes from the USPS. Demographic categories of population, age, race/Hispanic origin, household type, tenure and mortgage status, group quarters, families, average household size, and much more, are available.

About Esri's 2011/2016 Updated Demographics Data

To give users the most accurate and useful data in the most current geographic boundaries, Esri built its 2011/2016 Updated Demographics data based on Census 2010 counts in 2010 geography. The Updated Demographics data includes current-year estimates and five-year projections for population, households, housing, age, income, race/ethnicity, and more. The data is offered in a variety of geography levels (including United States, state, county, census tract, and block group and other areas such as place, Core-Based Statistical Area [CBSA], and census subdivision [CSD]). Formats include shapefile, geodatabase, and Microsoft Excel.

How Esri's Data Can Help Retailers

Esri's Census 2010 and 2011/2016 Updated Demographics data can help retailers analyze recent demographic changes in their trade areas. For example, if more families with children moved into the area, retailers that sell children's clothes and toys can decide whether the community could support a new store. They could also divide the market by age and race/ethnicity for a more comprehensive look at the population. If new types of consumers have moved into the area, different marketing and product promotions may be required. Maps can quickly confirm that the right stores are in the best locations to reach the most consumers.

Retailers will find Esri's Census 2010 and Esri's Updated Demographics information invaluable when expanding or relocating. After analyzing the population demographically, mapping the trade area by drive times can determine whether a current or proposed location will be convenient for consumers.

Retailers that sell to seniors can determine if an area has an adequate population to support a new location. Further analysis can reveal racially and ethnically diverse populations that may require different types of marketing. Mapping the area by hand-drawn shapes can show the relationship of public transportation routes to populations and store locations.

Diverse populations offer opportunities for retailers. Minority consumers are influencing the marketplace with their purchasing power, product and service preferences, and different responses to messaging. Savvy retailers will see this change as an ongoing opportunity to expand into more markets and gain revenue share.

Conversely, the rise in home vacancy rates due to unemployment and foreclosures continues to reduce consumers' disposable income. These cash-strapped shoppers are extremely budget conscious and careful with their dollars. To encourage shoppers, retailers can offer discounts, loyal customer promotions, coupons, new product campaigns, and other buying incentives.

Retailers can thrive in this difficult business environment if they recognize and adapt to marketplace changes. Using the best data for analysis is essential to meet these ongoing challenges. Esri's Census 2010 and 2011/2016 Updated Demographics databases provide this information.

How to Access Esri Census 2010 and 2011/2016 Updated Demographics Data

Esri provides a number of ways to access its Census 2010 and 2011/2016 Updated Demographics data. For data users, the databases are available in a variety of formats and geographies. The data is also available in the Esri Business Analyst product suite and in Community Analyst.

To learn more about Census 2010 data, visit esri.com/census2010data or call 1-800-447-9778. To learn more about 2011/2016 Updated Demographics data, visit esri.com/demographicdata or call 1-800-447-9778.

ArcGIS Available on the Android Platform

New App and SDK Put GIS Capabilities into More People's Hands

Google Android users can now access data and mapping capabilities on their smartphones using the new ArcGIS for Android application from Esri. ArcGIS for Android lets users find and share maps as well as deploy GIS data and functionality on their Android devices.

Download the free application directly from Google Play Amazon Appstore.

David Cardella, product manager for Esri mobile technologies, says that ArcGIS technology now runs on multiple mobile platforms and devices including iPhone, iPad, Windows Phone, and Android.

"The Android smartphone and tablet market has really exploded," Cardella said. "We see these devices increasingly being implemented within organizations that want to extend their enterprise GIS from the office to the field. They want to replace their paper-based workflows and improve the currency and the accuracy of their data—all in an effort to make more timely and accurate decisions."

You can use the ArcGIS for Android app to

- Display and navigate maps
- Search, query, and identify locations and GIS features
- Measure lines and areas
- Find and share maps from ArcGIS Online and ArcGIS for Server
- Access dynamic, tiled, and feature map services
- Collect and edit GIS data directly from Android smartphones and tablet devices
- Add attachments such as images, movies, PDFs, and Microsoft Word documents

ArcGIS for Android is a native application that serves as a mobile gateway into the ArcGIS system. It provides an intuitive user experience for querying map layers and data. People can also use the app to edit features and attribute information on the fly while collecting field data and performing inspections. The application also includes a legend and a Favorites feature.

ArcGIS for Android is built on Esri's ArcGIS Runtime Software Development Kit (SDK). This SDK lets developers create custom spatially enabled applications for Android devices and is designed to use web services available from ArcGIS.

It includes a plug-in to the Eclipse integrated development environment (IDE), which provides tools, documentation, and samples to help developers create custom applications.

ArcGIS Runtime SDK for Android lets users go beyond basic map viewing capabilities. For example, users can

- Develop applications that use their own authoritative data
- Display data on an ArcGIS Online or Google Maps basemap
- Interactively add graphics and markups to a map
- Search for features or attributes within GIS data and display the results
- Execute a GIS model using ArcGIS for Server and display the results

Developers and Esri partners can easily build applications that work with their own published web services and use the SDK to create applications that can be deployed within their enterprise or to the public via Android Market. The beta version of this SDK is publicly available to all developers.

Visit the ArcGIS for Android Resource Center for more information.

Introduction to ArcGIS Runtime SDK for Android

Presented by Daudi Husbands

Seminar Overview

ArcGIS for Android extends the reach of your GIS from the office to the mobile web. It includes a free downloadable app that adds basic mapping functionality to your Android device, as well as an API for developing custom applications.

Using ArcGIS API for Android, you can quickly build engaging applications that deliver GIS maps and analytic functionality, such as mashing up your data with basemaps from ArcGIS Online, querying map features, executing geoprocessing models, and exploring the results. In this seminar, the presenter will demonstrate how to get started building an Android mapping application that employs common smartphone behaviors like pinching, swiping, and tapping to control interaction with features on live maps.

Key Points

The presenter will discuss

- Workflows for developing applications using ArcGIS API for Android
- Incorporating maps and data into an Android app
- Creating map interaction capabilities

Intended Audience

Developers and Android device users who want to build and support native Android apps with integrated ArcGIS capabilities

ArcGIS for iOS App Improves Users' Experience

New Version Includes Support for Pop-up Windows and Basemap Galleries

Version 2.0 of the ArcGIS for iOS application includes support for pop-up windows, the ability to switch between ArcGIS Online basemaps inside the application, and new collaboration features. Significant changes have also been made in designing a native iPad experience.

Pop-up Windows and Map Notes

The updated app now fully supports layer pop-up windows, which let users view additional information in their maps by tapping the map. Text, photos, pie charts, and website links can be accessed via the pop-up feature. Users can also sketch and annotate maps using Map Notes. Spreadsheets (.csv), text files (.txt), shapefiles (.shp), and GPS eXchange Format (.gpx) files can also be imported into maps as Map Notes.

Basemap Gallery

ArcGIS for iOS users can now access a variety of ArcGIS Online basemaps for viewing data. The basemap gallery contains topographic, aerial, and satellite coverages. The topographic map that is included is a community basemap that users have contributed to, ensuring that the data is authoritative.

Sharing Maps

ArcGIS for iOS also promotes collaboration and information sharing between multiple users and within the online community. Maps in ArcGIS can now be shared via text message (SMS), Twitter, Facebook, and e-mail. Users can instantly send their custom maps via text message or post them on social media sites to inform coworkers and friends and collaborate with others in the GIS community.

Productivity Tools

Esri has added an intelligent dynamic legend to ArcGIS for iOS. Unlike static legends, which do not change when the map scale changes, dynamic legends define symbols as they are shown on the map. Locations on the map can also be bookmarked, making it easier to access and switch between areas of interest. Users can navigate to map bookmarks within the Contacts application of their iOS device. Users can also create new bookmarks by tapping the map and using their current location or a GIS feature.

New User Experience

The application user experience has changed. Menu icons and tab bars in ArcGIS for iOS have been streamlined to create more map space. The application now supports both panning and sketching across the dateline.

Available in 10 Languages

The ArcGIS for iOS application is now available in 10 different languages: English, French, German, Italian, Spanish, Japanese, simplified Chinese, Brazilian Portuguese, Korean, and Russian.

Download the latest version of the ArcGIS for iOS application at no cost from the Apple App Store.

← iPhone and iPad users can access a variety of basemaps for viewing GIS information.

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