



Case Study – ESRI

Getac Rugged PCs and ESRI Software Help Map California Wildfires

Company Profiles

Based in Redlands, California, ESRI designs and develops the world's leading geographic information system (GIS) technology.

Getac, Inc. manufactures premier Fully Rugged, Rugged and Semi-Rugged notebook, tablet and handheld computing solutions.

Key Benefits

- Faster response by federal, state and local emergency agencies
- Improved collaboration between geographically dispersed emergency teams
- More effective application of emergency personnel and resources
- Better public communication

Industry

Public Safety

Customer Challenge – Fighting Fires with Computers

When you're battling a dangerous, wind-driven wildfire and people's lives are at stake, you want access to the toughest, most innovative tools and technology available. That's precisely what local, state and federal emergency response crews got throughout the summer and fall of 2007 when Southern California was ravaged by a series of wildfires that blackened hundreds of thousands of acres across more than half a dozen counties.

Fire and emergency officials knew they needed to deploy crews, equipment, and water and fire retardant to key strategic locations as quickly as possible and constantly monitor the fires' status. To develop a plan of attack against the firestorm, emergency responders called on wildfire strategists

armed with Getac Rugged notebook PCs and geographical information system (GIS) software from ESRI, the world's leading developer of GIS applications. Using military-grade Getac M230 Rugged laptop PCs with daylight viewable screens and built-in GPS and wireless radio transmission capabilities, ESRI wildfire specialists operating behind the fire lines with local, state and federal emergency responders. They employed the company's ArcGIS software to integrate, manage and analyze large amounts of real-time geographic and other fire and terrain conditions and instantly generate and share detailed maps, charts and other information.

The Solution – Mapping Out a Firefighting Strategy

ESRI Wildland Fire Specialist Tom Patterson remembers when mapping out a strategy for fighting a wildfire meant unfolding a topographic map on the hood of a truck, covering it with a sheet of Mylar and penciling in fire boundaries and other information. "You'd have one guy saying 'The fire's over on this ridge' and another guy saying, 'You're wrong, it's over here,'" recalls Patterson, who spent 30 years in emergency management before joining ESRI two years ago.

These days, Patterson opens his Getac Rugged M230 notebook PC with sunlight viewable screen and uses ESRI's ArcGIS software to help fire commanders generate two- and three-dimensional maps of fire perimeters and progression, analyze vegetation and other physical features, allocate resources and equipment, and perform property and community damage assessments. The maps and other information are then distributed via the M230's wireless radio connection to other command locations and centralized emergency response centers. "It's so much faster and you make smarter decisions," says the retired National Park Service and former deputy chief of the U.S. Bureau of Land Management's California Desert District.

"For the first time in our county's history, we were able to deploy maps that allowed all of the agencies involved to see the problem from the same point of view," says Santa Barbara County Geographic Information Officer Zacarias Hunt, who spent more than two months tracking the huge

Zaca fire, which burned almost 250,000 acres. As the fire moved from wilderness toward populated areas, Hunt and two other technicians used the ESRI-powered Getac notebooks to generate detailed plans that mapped out evacuation routes, Red Cross shelters, historic sites, schools and other infrastructure that might have to be defended – even the location of people with disabilities who might need help during an evacuation. Officials knew that if the fire destroyed major power lines, evacuating nearby Santa Barbara and surrounding communities would be more difficult.

"Using the maps, we were able to determine decision points where evacuation warnings and then full evacuation plans would be put into action," says Hunt. "We were even prepared to go out [to the community] with a series of eleven-by-seventeen maps to make it happen." Until the ESRI-powered Getac units arrived "we had been struggling with computer muscle," says Hunt. "The Getac laptops were high-end as far as processing, memory and speed needed to accommodate intense GIS data sets. Anything less than that wouldn't have been feasible."

Rugged Technology Solves an Old Problem

ESRI's Tom Patterson first began experimenting with computer-generated maps almost a decade ago using a commercial-grade notebook PC. "I used to have a Toshiba Tecra that had one of those glare guards you attached with Velcro, and even then I had to shade it with my hand to be able to read it," he recalls with a chuckle. "And I had to replace the display two or three times because some of the circuitry wasn't heat-resistant."

Protection from heat was important out in the desert, where it can get up to 140 degrees Fahrenheit inside a vehicle if you leave the windows up, Patterson explains. His solution at the time: Buy a flexible beer cooler, turn it inside-out and use it to cover the unit. "One time I put a thermometer inside the cooler and one on the dash-board and there was a 42-degree difference," he recalls. "They told me to stop sending it in for service because I was doing things it was not designed to do."

With the advent of rugged notebooks that offer various degrees of protection against physical and



environmental conditions, Patterson upgraded to a Panasonic CF29, which had some, but not all, of the rugged features he wanted – like a display he could read while working outdoors or in a vehicle.

“When I was with the Bureau of Land Management I used to give briefings from the front seat of my car, but people would have to be looking over my right shoulder to see what I was talking about,” he says. That all changed when he tested a Fully Rugged Getac M230 notebook outfitted with a sunlight readable touchscreen display that delivers the image quality in bright sunlight he’d always been seeking from a rugged notebook. “It was like love at first sight,” says Patterson, who introduced his colleagues to Getac Rugged products in the summer of 2007. “I put the M230 up against the CF29 and they fell in love with it, too.

“It [the Panasonic] just doesn’t have the clarity of the M230 and you have to be standing right in front of it. With the M230, you can stand off to the side and still be able to read it.”

Fully Rugged Features Make Getac the Right Choice for Emergency Services

These and other features make the Getac M230 the ideal Rugged PC for Patterson, his ESRI

colleagues, and the public safety and emergency personnel who are ESRI customers. Getac designs and builds its M230 and other Rugged PCs with extreme outdoor computing in mind. The M230 is MIL-STD-810F and IP54 compliant, which means it has undergone a series of rigorous tests designed by the U.S. Army as the standard for rugged performance. Getac is the only Rugged PC manufacturer with its own in-house testing facility, where units are subjected to the kinds of abuse users may experience in performing their jobs: shocks to the hard drive, drops, repeated blows from heavy objects, vibration, and water and dust. “If it can be broken, a firefighter can break it,” says Patterson. “And if you give a firefighter anything that isn’t mounted, they’ll just toss it in the back of the truck. The M230 is one of the few [rugged PCs] out there that can claim to be ‘firefighter-proof.’ You can stand on it and it supports your weight and more.”

Power is another important feature for emergency services personnel in the field. “We typically get three-and-a-half to four hours on a battery, depending on whether or not we are using GPS,” states Patterson. “And I like the fact that the battery has a power indicator that tells me how much power I have left so I can decide whether to throw an extra one on a helicopter before I head out on a recon flight.”

Other features are designed to allow users to work the way they need to work. For example, operating ESRI's ArcGIS software requires a sentinel key that plugs into a parallel port. "A lot of manufacturers are doing away with parallel and serial ports," Patterson points out. "But if you don't have a parallel port, you have to have a USB key, which is easy to break off when you are out in the field."

He uses the M230's serial port to plug in a digital radio for real-time mapping of wildfires or search and rescue operations from the back seat of a helicopter. The Getac M230's built-in GPS and antenna at the top center of the display eliminate the need for an external antenna or an external GPS receiver. "I have been thoroughly impressed with how I could get a 3-D fix on something while sitting inside a metal vehicle," he comments.

Security is a common concern for anyone working with government agencies, Patterson adds. The Getac M230 includes a swappable hard drive bay.

"We can go into any command post, log into any agency's net, and swap out the hard drive later, which allows us to do our job and also comply with government security policies. It's like having two separate computers." ESRI officials were so impressed with the features and performance of the Getac M230 that they showcased it at their annual International User Conference in June 2007.

Shortly after, ESRI selected the Getac M230 Fully Rugged PC as its hardware solution of choice for users of ESRI ArcView® or ArcEditor® software. The hardware-software package is available through ESRI with either 14-inch or 15-inch display and optional internal GPS with either 10-meter or 5-meter accuracy and comes with a three-year warranty.

Having the right combination of tools made fast work of mapping out emergency response strategies during the Southern California wildfires, Patterson concludes. "Some days, we were at three or four different fires. The combination of the Getac M230 and ArcGIS software made all the difference."



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