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Sky's the limit for SpecTIR

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Chasing the sun caused Icarus' tragic demise in Greek mythology. But for Mark Landers, following the sun has led to a thriving small business.

As president of SpecTIR LLC, a company that specializes in technology known as "hyperspectral imaging," Landers has grown his operation in the past few years from one with a primarily local clientele to a business that spreads its wings on a global scale.

From shooting aerial images of the entire Washoe Valley for geologists to gathering scientific data about the Red Sea's coral reefs, the sky -- and weather -- literally have been the limit for Landers and his crew.

"Our technology requires fair weather, so we're always chasing the sun," Landers said. "We're flying to Morocco and Tunisia for the entire month of July, then we have a mission in August in northern Quebec. Then, we'll go south in the winter, so we've got missions planned for Peru, Chile, Argentina and Bolivia. It's really exciting work."

A unique view

To produce its images, SpecTIR builds high-performance imaging sensors to collect hyperspectral data. Regular cameras take images that show basic, principal colors, Landers said. But SpecTIR's sensors capture images that include data from about 300 wavelengths, including infrared, short-wave infrared and other wavelengths not visible to the naked eye.

To cover the most ground in a short amount of time, SpecTIR mounts its sensors on airplanes when it collects its data. The company uses its own Cessna 320 for regional jobs and contracts with airplane providers for jobs outside the area. The data is prized by researchers and corporations because of its myriad applications.

"Most things in nature have a unique spectral signature," Landers said. "So a geologist trained in this field can look at the data and say with some reasonable expectation that there's some precious mineral like gold or silver in the area. We also do a lot of work for oil and gas exploration."

The benefits of SpecTIR's hyperspectral technology, however, are not limited to finding minerals and fuel sources. Next to companies that do mineral, oil and gas exploration, SpecTIR's other biggest client is the U.S. Department of Agriculture. In the next week, for example, SpecTIR is scheduled to map special plots in Iowa and Indiana to gather soil and vegetation data for the USDA. SpecTIR has also done work for other agencies, including mapping the Lake Tahoe area to help determine its water quality and determine the amount of biomass in its forests that could potentially fuel a fire.

Just recently, SpecTIR returned from Saudi Arabia to gather coral reef data for Saudi Prince Khaled bin Sultan's Living Oceans Foundation. Spectral data was used to determine the health of the corals and identify potential pollutants that could cause reef degradation. The technology can also have military applications. Hyperspectral imaging can be used to identify camouflage used in the field or find disturbances in the soil that may indicate the presence of land mines.

But for all its advantages, the technology has its limits as well.

"It can't penetrate the earth -- it can only see information reflected off the earth," Landers said. "That's why it requires fair weather."

Right place, right time

SpecTIR's competition is limited to two companies, Landers said. One is a Canadian company, Itres. The other is an Australian company, HyVista.

As a U.S. Navy veteran with 27 years of service, one advantage Landers has is that his company gets special consideration for federal contracts as a service-disabled, veteran-owned, small business. The benefit accounted for about $300,000 of the $2 million in gross revenues SpecTIR made last year. Gross revenue for this year is projected to surpass $6 million. Landers expects to be able to keep using the benefit for the next two to three years, after which SpecTIR's growth will likely exceed the program's limits.

Seeing SpecTIR's growth and success has been satisfying for Landers. The opportunity arose after he received an unexpected phone call in 2002, while he was working at U.S. Central Command in Tampa, Fla.

"It was just out of the blue -- I got a call from a friend of mine who owned the company," Landers said. "I haven't seen the guy in eight years and he just calls me one day and says, 'Hey, I've got a great opportunity for you.' He basically retired and had me take over."

Landers' experience played a pivotal role in the offer; he served as program manager in the '90s for the military's Hyperspectral Digital Imagery Collection Experiment. Landers received a waiver to retire from the military so he could head the company. The first thing he did was expand the company's role from a "little engineering shop" that just manufactured sensors to adding active operations for actual data collection. In 2004, Landers moved the company from Long Beach to Sparks to be closer to their biggest customers at the time -- the University of Nevada, Reno and the Desert Research Institute. Landers was then given majority ownership of SpecTIR after turning it into a limited liability company in 2006.

Fueled by its growth, the company is scheduled to move to its new Reno headquarters in June from its facility in Sparks. The company's calendar is also booked with several jobs throughout the year, which has Landers spirits soaring.

"I've had a lot of luck in my life," Landers said. "I really enjoy working with the people we have, including some really incredible scientists. We're probably one of the leaders in the world in this technology. Who would've thought it would be a little 30-person company headquartered in Reno? I guess you can say we're the biggest little company in the world."

SpecTIR mission specialists Rob Cushing, left, and A.J. Markow, director of collection operations, work with a sensor that is used for hyperspectral data collection services at their office in Reno.