



Flight Tracking Plays Key Role in World Speed Record

When “The Grand Adventure” shattered the existing helicopter speed record for circumnavigating the globe, the team relied on an integrated satellite flight tracking and voice communication system developed by Latitude Technologies, and powered by Iridium Short Burst Data service from Stratos. The solution ensured precise logistical support, safety, and peace of mind even in inhospitable regions far beyond the range of conventional communications.

Exploring Satellite Flight Tracking Options

After checking out the sophisticated AgustaWestland 109S Grand at a major helicopter exhibition, Scott Kasprovicz, a veteran aviator, decided

it was time to fly more challenging missions, which included seeking a new around-the-world record. The Grand, known for its unparalleled speed and range, gave him the perfect opportunity.

Kasprovicz formed a Virginia company called Rotor1US, began organizing a team for the endeavor—dubbed “The Grand Adventure”—and hired Steve Sheik, another experienced pilot, as Director of Flight Operations. Waiting for fuselage assembly, they began investigating state-of-the-art satellite communication systems for essential cockpit voice and flight tracking capabilities.

“We would never have considered flying 20,000 nautical miles around the world without real-time flight tracking,”

Sheik explains. “At upwards of 200 miles per hour—especially over oceans and inhospitable areas like Siberia—being five minutes off could mean life or death, if we had to go down. We needed to be located in real time, anywhere on earth.”

The factory offered only one option, however, from a major aviation communications provider. “It required two separate boxes—one for the satphone, one for flight tracking,” he says. “It was heavy and took up extra space. And the cost was exorbitant.” So they did some in-depth research, which led them to Latitude Technologies, a Stratos business partner whose leading-edge flight following solution depends primarily on Iridium Short Burst Data (SBD) service from Stratos.



Latitude's founder and president Mark Insley with SkyNode S200 components.

Photo: Darren Stone, Times Colonist.



Finding a Light, Compact, Cost-Effective Solution

Latitude's SkyNode S200 system and Stratos SBD service provided The Grand Adventure's helicopter, the N1US, with an affordable, integrated satellite voice and flight tracking system. "For us, the big selling points," Sheik notes, "were that both were contained in a single unit; it was lighter than the competition, and very well-priced. Latitude is a small company with huge market share, a one-stop shop for these kinds of avionics."

According to Mark Insley, Latitude's founder and president, the Canadian company has developed unique tracking applications since the mid-1990s—beginning with marine animals for Smithsonian scientists, and firefighting trucks for government agencies in British

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Columbia. He and former partners created the first web-based system to track aircraft, which eventually became the U.S. Forest Service's Automated Flight Following (AFF) system, widely used by Canadian and U.S. agencies. "We were the first company to do flight tracking and voice with low-earth orbiting satellites," he says. "When the dominant provider started suffering voice channel degradation in 2005, the most practical alternative was Iridium."

Today, Latitude relies dominantly on Iridium Short Burst Data from Stratos. "SBD is the most reliable and cost-effective solution for flight following," says Insley. Latitude formed a strategic relationship with Stratos to provide SBD service. "Stratos has a lot to offer—not only extensive knowledge of networks and global reach, but a high level of integrity. They have earned our trust and respect."

Steve Sheik explains how SBD works. "Although voice and flight tracking both use Iridium, the short data bursts that send our heading, altitude and air speed are smaller bits than voice communications, requiring less signal strength. So flight tracking is largely impervious to atmospheric conditions that sometimes

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impact voice transmission. For our flight around the world, it worked flawlessly."

Prior to departure, Latitude's S200 equipment and LWS Sentinel web-based data management system onboard the N1US were sanctioned and sealed by the National Aeronautic Association (NAA), to authenticate information required to prove any new speed records. Flight tracking data enabled family, friends and the NAA to monitor the helicopter's location and The Grand Adventure's ground team—run by TracPlus out of Atlanta—to schedule fuel stops and other logistics every second of the epic journey. "It's miraculous technology," says Sheik. "Latitude has a very user-friendly web site that allows authorized users to follow the aircraft 24/7 on any kind of mapping system"—from satellite photos and street maps to Google Earth.



"What's unique about Latitude," adds Sheik, "is that they can customize alerts for people not sitting at a computer—for example, a text message sent to someone's cell phone whenever you take off and land, or your altitude, speed or heading changes. Latitude also wired the system so everyone could tell when we were using the satphone, which interrupts live flight tracking, and would otherwise be a cause for concern."

Setting a New World Speed Record

In a factory-standard helicopter with no special add-ons, Scott Kasprovicz and Steve Sheik flew over 23,000 statute miles through 20 countries, 24 time zones, and 49 states, making 75 fuel stops along the way. They did it in exactly eleven days, seven hours and

two minutes, smashing the previous world record by almost six full days. A stunning achievement. "Our goal wasn't just to beat the existing record," Sheik confesses, "but to beat it by so much that, hopefully, nobody else would even want to try!"

"We could never have done this through voice reports over the radio or radar-based flight tracking," he concludes. Powered by Iridium Short Burst Data from Stratos, "Latitude's system solved all those problems very nicely."

"For us, the [Latitude S200's] big selling points were that both [voice and flight tracking] were contained in a single unit; it was lighter than the competition, and very well-priced." — Steve Sheik, Director of Flight Operations, Rotor 1 US



The Grand Adventure's Steve Sheik (left) and Scott Kasprovicz with the N1US.
Photo: Douglas Sonders.



View from the cockpit of the N1US over the North Atlantic.

The Stratos Advantage

Iridium from Stratos features industry-leading Stratos Value Adds such as:

- Stratos Dashboard™ for Iridium
- AmosConnect™
- StratosNet®

Stratos Dashboard for Iridium is free of charge and allows customers to:

- Control and monitor usage
- Limit credit risk with credit control functionalities
- Provision and service accounts online, in real-time
- Export data to Excel or .txt formats

Iridium from Stratos also comes with access to AmosConnect which is the leading satellite messaging service offering up to 85% data reduction of messages sent.

Stratos customers can also choose to use StratosNet Accelerator which reduces standard IP access satellite communications costs by up to 90%.

Iridium SBD

Iridium Short Burst Data (SBD) from Stratos uses a proprietary network protocol to transfer data messages to and from a remote terminal. Iridium SBD from Stratos is:

- An economical and efficient network protocol for shorter sized data messages that can be sent via Iridium Circuit Switched Data Services.
- Designed to serve a range of applications that need to send data messages that are on average less than 300 bytes.
- Ideally suited for vessel tracking (aeronautical and maritime) as well as for remote monitoring of equipment for a wide range of industries.



About Latitude

Latitude Technologies Corporation, based in Victoria, British Columbia, is a leading supplier of remote voice and data avionics and services. One of the originators of Automated Flight Following (AFF) technology, Latitude serves customers who live on or fly to every continent in the world, including government agencies and large aviation businesses, as well as Mom-and-Pop operations with just one or two aircraft. Its state-of-the-art equipment is approved for use on all types of jets, turboprops, helicopters and commercial airliners. For more information, visit www.latitudetech.com.

About Stratos

Stratos is the world's trusted leader for vital communications. With more than a century of service, Stratos offers the most powerful and extensive portfolio of remote communications solutions including mobile and fixed satellite and microwave services. More than 20,000 customers use Stratos products and industry-leading value-added services to optimize communications performance. Stratos serves U.S. and international government, military, first responder, NGO, oil and gas, industrial, maritime, aeronautical, enterprise, and media users on seven continents and across the world's oceans. For more information visit www.stratosglobal.com.



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