Connecting Scientists in Remote Mongolia

Mobile Broadband Satellite Service Assists Search for Genghis Khan's Tomb

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Many of today's archaeological expeditions are dramatically different than those of the past. Instead of starting with picks and shovels, they use exotic tools such as digital imagery, ultrasound, and unmanned aerial vehicles (UAVs) to locate their prize. For vital field communications, they use the latest mobile broadband satellite systems.

That is the profile of the Valley of the Khans (VOTK), one of the world's most advanced digital archaeological surveys that is attempting to locate the tomb of the legendary Mongolian leader Genghis Khan. The VOTK project (www.valleyofthekhans.org), led by University of California San Diego (UCSD) scientist Albert Lin, is searching northern Mongolia's "Forbidden Zone" for the tomb. The project is supported by the National Geographic Society and the Mongolian Academy of Science.

The 90-square-mile Forbidden Zone is one of the Earth's most remote places, hundreds of miles from the nearest village. It remained off-limits to the world until the 1990s. Only a small number of scientists have visited the region since then.

During the first phase of the project last summer, the VOTK project team – consisting of 19 men, eight horses and two trucks – spent nearly a month roaming the wilderness of the Forbidden Zone.

They spent much of that time in an 11-square mile region conducting a non-destructive archaeological search. The search seeks to locate the tomb without disturbing it, thus maintaining respect for local customs.

This meant flying two GPS-guided UAVs, which recorded extensive infrared and full-color images over large swaths of barren land. Along with high-resolution satellite imagery, the team used the UAVs to scout for anomalies in the landscape. The data analysis is now underway in UCSD's high-tech Visualization Lab.

While in the field, a special ruggedized ViaSat VRT100 BGAN terminal, with airtime from Stratos,

provided the researchers with critical broadband connectivity. The BGAN service ensured safety and facilitated vital voice and data communications with the outside world.

The summer of 2009 featured the region's worst rain storms in 40 years. BGAN enabled the project team to secure real-time weather updates to help accurately plan daily expeditions.

In this type of expedition, instant communications with colleagues is critical. BGAN enabled scientists to transmit rich content, in a variety of media formats, to officials at the Mongolian Academy of Science and the UCSD Visualization Lab for fast analysis. BGAN also enabled project leader Albert Lin to provide daily updates to team members and supporters via daily blog postings.

Finally, BGAN enabled the project team to conduct several community-outreach video conferences with public-school students in Southern California, enabling the students to appreciate the latest advances in archaeology first hand.

Stratos is one of the world's largest distributors of Inmarsat's BGAN (Broadband Global Area Network) service, a mobile satellite offering that uses portable, lightweight terminals to provide video (guaranteed up to 384 kbps streaming), high-speed data (up to 492 kbps) and voice connectivity anywhere in the world. Stratos now boasts more than 12,500 BGAN activations by media organizations, military agencies, first responders and other professionals in 185 countries.

Stratos customers fully utilize The Stratos Advantage, a suite of value-added services that help keep costs within budget by monitoring airtime and restricting unauthorized usage. The services provide users with cost control, firewall management, full traffic information, pre-paid facilities, high security options, easy VPN access, messaging services and full IP range.

In June 2010, the VOTK project team will return to the most promising locations in the search area and examine each one using non-invasive imaging technologies. If they can identify the tomb's location with some degree of certainty, they will turn it over to the Mongolian government to undertake an archaeological excavation.

At this point, no one knows if the project will reach its goal. But, it has certainly captured the world's imagination. The VOTK project has appeared repeatedly in print, on television and the Internet. National Geographic's Adventure magazine nominated it as one of 2010's "Adventures of the Year."

Stratos' successful contribution of BGAN service for this important project showcases the service's portability and high performance. We are also grateful for the opportunity to demonstrate the durability of the VRT-100 terminal and its suitability for use in a variety of harsh outdoor environments.

This innovative archaeological project is the most recent example of how BGAN is providing reliable broadband connectivity anywhere, anytime. <

From Singapore, **Gerbrand Schalkwijk** manages Stratos sales, marketing and channel partner relationships in the Asia Pacific region. With 14 years of international satcom experience, he ensures the continued adoption of Stratos remote communications solutions in the region. Prior to joining Stratos, he held senior executive positions serving all global regions for Xantic and Station 12, both now Stratos companies.