

MILITARYSPACE

Pentagon Eyes High-Altitude Balloons For Emergency Communications System

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A recent U.S. Defense Department exercise has helped increase awareness in the military about the value of using high-altitude balloons operating near the edge of space to set up emergency communications networks on short notice, according to an Air National Guard official.

The balloons played a significant role in the exercise, which featured a scenario in which Air National Guard units responded to a fictional earthquake in Hilo, Hawaii, from June 18 to 20, according to Lt. Col. Patty Tuttle, commander of the Arizona Air National Guard's Second Detachment.

The exercise was part of the California Air National Guard's regular training, but the Arizona unit, which is dedicated to operating high-altitude platforms, was brought in to supply communications in the initial phases of the scenario, in which the earthquake wiped out existing communications infrastructure, Tuttle said in a July 10 interview.

Tuttle's unit is the only military organization today that is trained and equipped to operate the high-altitude platforms, and would be the organization the Department of Defense turned to if that capability were needed in an operational deployment, she said.

The Pentagon previously had referred to these types of platforms as "near space" vehicles, but now refers to them as "high-altitude" vehicles in an effort to avoid defining where space begins, Tuttle said.

The Arizona unit is currently

working with a system called Combat SkySat, which is built by Space Data Corp. of Chandler, Ariz. Jerry Quenneville, Space Data Corp. vice president for government programs business development, said that the vehicle operates at an altitude of roughly 20,000 meters to nearly 31,000 meters. Space Data Corp. currently markets its services commercially to relay information from oil fields.

The Air Force awarded an indefinite delivery/indefinite quantity contract to Space Data Corp. in August 2006 with a total possible value of \$49 million. Quenneville said the company has booked roughly \$6 million in orders so far under that contract.

Each vehicle costs about \$10,000, though the price could be driven down over time through larger production runs, Quenneville said. While the company leases services to the oil industry, it sells the hardware to the Pentagon, he said.

Combat SkySat, which features a disposable balloon and UHF communications payload, could be used today to set up an emergency communications network in a domestic disaster response operation, Tuttle said. If the Pentagon chose to deploy the system as part of military operations overseas, it would likely need several months to purchase a stockpile of platforms to maintain operations over an extended period, she said.

Following the June exercise, members of the California and Hawaii guard units that participated expressed interest in having their own high-altitude platforms, Tuttle said.

A military unit would need two

or three troops to launch the balloons, and three more to operate and maintain the high-altitude vehicles, Tuttle said. If other military units are going to begin using the vehicles, they will need to find the additional manpower to handle the task because it requires dedicated personnel, she said.

Combat SkySat is capable of connecting users with handheld communications devices spread out over an area with a radius of about 480 kilometers, Tuttle said. The system could be useful for troops operating in an urban setting or mountainous terrain who would not normally be able to access line-of-sight communications signals, she said.

The system could be particularly useful to special operations personnel because it uses a low power signal that does not require troops to carry a lot of heavy batteries, Tuttle said.

The focus of the Combat SkySat experimentation to date has been on communications missions, but the balloon also could be used as a platform for surveillance payloads, Tuttle said.

While Combat SkySat is the only high-altitude balloon ready for disaster response operations inside the United States today, and overseas deployments within a matter of months, other concepts on the horizon include a vehicle built by Near Space Corp. of Tillamook, Ore., that offers users the ability to safely return payloads to troops on the ground. That capability could be particularly attractive to the military if it opts to deploy classified payloads on high-altitude platforms, as those payloads cannot be aban-



PHOTO BY SUE ANGELO WALKER

▲ Air National Guard personnel (above) attach the payload and prepare to release a near-space high-altitude balloon in Hawaii.

done, Tuttle said.

Quenneville said Space Data Corp. has sold training versions of Combat SkySat to the Air Force that feature beacons to assist with recovery, but said that the operational versions that it has built so far for the military have not been designed to be recovered.

Near Space Corp., which was formerly known as GSSL Inc., has been focused to date on working with civil agencies like NASA, where it developed its technology while working on various potential Mars exploration vehicles, according to Tim Lachenmeier, Near Space Corp. president.

Lachenmeier said in a July 9 interview that the company received an Air Force contract that ran from April 2005 through March 2006 worth several million dollars that covered a feasibility study and a demonstration of the launch of its vehicle, operation of a communications payload, and the return of the payload at the Yakima Training Center, a U.S. Army facility in Yakima, Wash.

Near Space Corp. received a follow-on contract worth around \$1 million from the Air Force in June that runs through the end of 2007 to improve the robustness and simplify the operations of the vehicle, he said.

The company could have a Near Space Shuttle System geared towards the needs of mili-

tary users within a year to 18 months, Lachenmeier said. Such tactical users require the ability to launch in conditions with significant wind. Near Space could supply that capability if the company receives a follow-on contract from the Defense Department with a value of \$10 million or less, he said.

If it is tapped to deliver operational vehicles to the military, Near Space likely would partner with a company that would serve as an integrator for the vehicle's payload and connect the system with the Pentagon's information networks, Lachenmeier said. Near Space currently is talking with General Dynamics Advanced Information Systems about serving in that role, he said.

In addition to the return capability, the Near Space vehicle could carry much more capable payloads than Combat SkySat. Tuttle said Combat SkySat carries payloads weighing less than 3 kilograms, and Lachenmeier said his company's vehicle could be able to carry more than 45 kilograms.

Lachenmeier said the Near Space Shuttle System could play an important role in supplying communications to bandwidth-consuming unmanned aerial vehicles that the Pentagon is deploying in increasing numbers.

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INSIDE

Cost, Risk Concerns Prompted USAF To Buy 3rd SBIRS Satellite

While the U.S. Air Force will spend more for a third satellite in a new missile warning constellation, the cost of buying that spacecraft likely will be less than the cost of purchasing a satellite with a brand new design. See page A4



SBIRS



Predator UAV

Senate Committee Calls for NGA To Use Wider Range of Imagery

The U.S. National Geospatial-Intelligence Agency is in the early stage of incorporating more video imagery - gathered by Predator UAVs and other sources - into its database, but a Senate Committee believes the agency is moving too slowly. See page A6