STATEMENT OF JERRY KNOBLACH
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BEFORE THE FEDERAL COMMUNICATIONS COMMISSION'S INDEPENDENT
PANEL REVIEWING THE IMPACT OF
HURRICANE KATRINA ON COMMUNICATIONS NETWORKS
MARCH 7, 2006

Good morning, Madam Chairperson and members of the Panel. My name is Jerry

Knoblach, and I am the Chairman and CEO of Space Data Corporation. Thank you for the

opportunity to present testimony on how Space Data's technology could help overcome

problems like those produced by Hurricane Katrina's devastation.

Space Data has an inexpensive, proven wireless solution that solves three primary

communications problems during disasters – availability, range of communications, and radio

interoperability. This innovative solution can provide communications to first responders when

terrestrial networks cannot.

Space Data Background

Space Data was founded nearly nine years ago with a simple idea – to provide wireless

communications by flying base stations high above the earth using free-floating weather

balloons. Our solution builds upon nearly a century of successful weather balloon launches by

the National Weather Service. Today Space Data has a commercial data network covering

100% of Texas and Oklahoma and we are moving into cellular voice and broadband offerings.
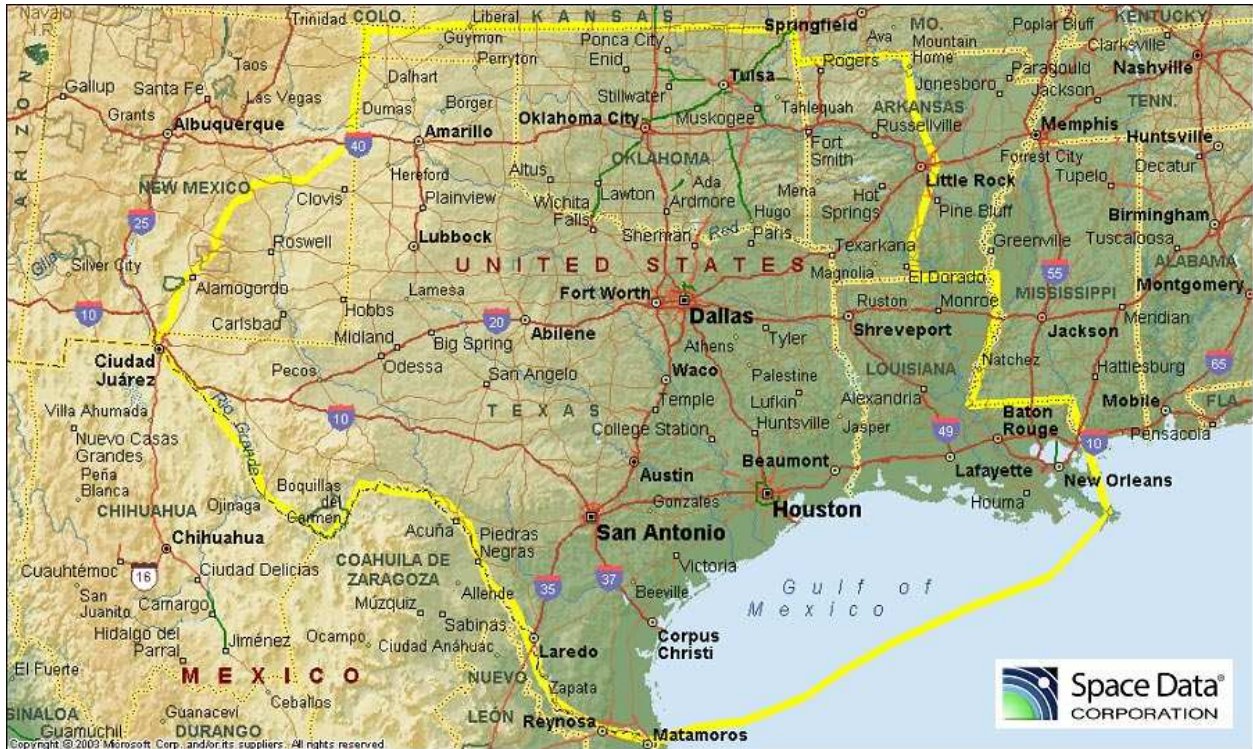
Figure 1. Current Coverage of Space Data's Commercial Network

We made this system work by developing special radio payloads, called *SkySite*® Platforms. Each *SkySite* Platform functions as a standard wireless base station but weighs less than six pounds. One person can launch a *SkySite* Platform and have it on station at 65,000 feet or higher in less than two hours, effectively creating a tower over 12 miles high. Each payload provides 12 to 24 hours of coverage before parachuting safely back to earth for recovery. To date we have completed over 7,000 flights as part of our commercial operation. In total our *SkySite* design has accumulated over 8 flight-years of operation in the stratosphere.

Work with the US Air Force

Over the past two years, Air Force Space Command has become interested in what it calls "Near Space" – the area of the atmosphere between 65,000 and 325,000 feet. This altitude is too high for most aircraft and too low for satellites, but ideal for Space Data's *SkySite* Platforms. Space Command asked us to participate in their Combat SkySat program to prove the merits of Near Space. Our flight of a radio platform at 70,000 feet was an eye-opening experience for the military participants. Suddenly, a handheld radio with a normal range of five to ten miles could transmit secure voice communications more than 400 miles. This extended range was achieved using one-fifth of the normal power, significantly extending the battery life of the handheld radios.
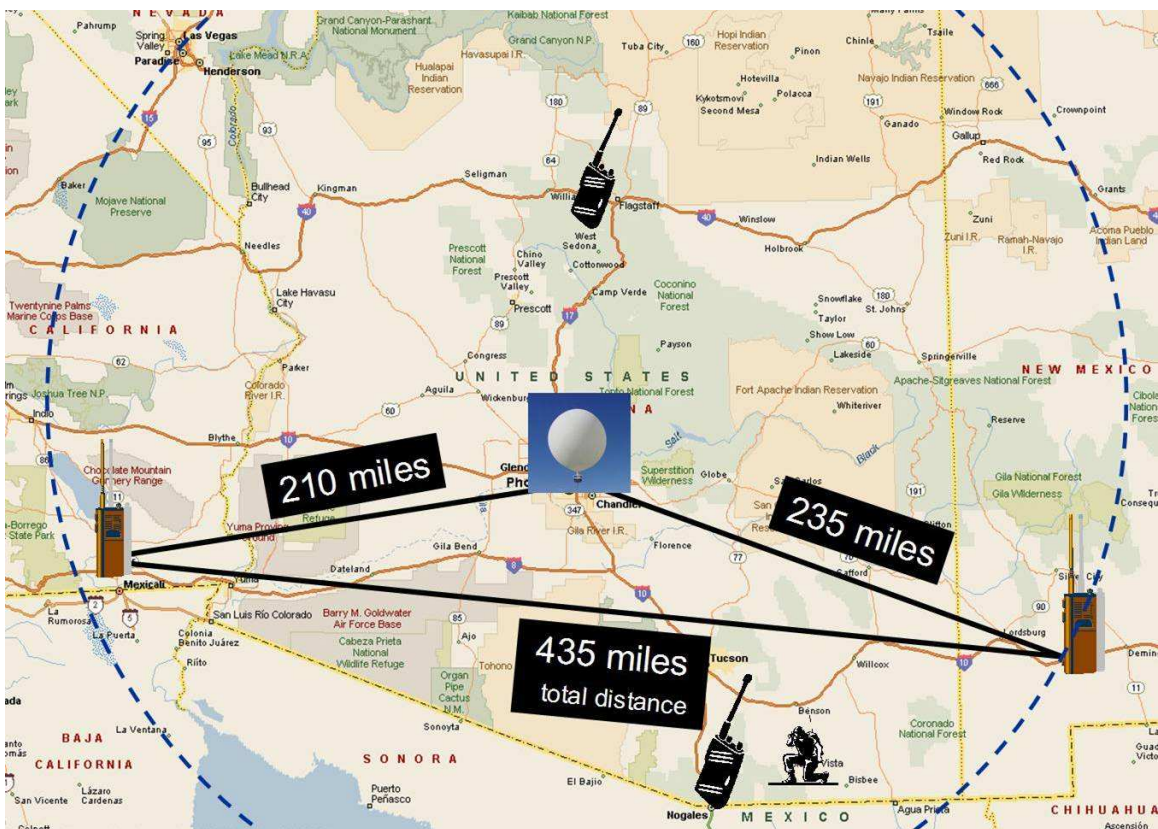

Figure 2. Results from Combat SkySat testing with the US Air Force

Building on that success, Space Command sponsored Space Data's participation in JEFX 2006. This multi-service exercise brings newly available technology directly to the warfighter for first-hand evaluation. Traditionally, participation in this exercise is a precursor to deployment in operational theaters.

Figure 3. Launch of a Combat SkySat Platform

Support for Domestic Operations

Last year, we spoke with a soldier who had been supporting supply convoys in Iraq and had just returned stateside. He said: "There's nothing scarier than being in the middle of the desert without any way to communicate." Tragically, there were echoes of that battlefield assessment in news reports quoting first responders after Hurricane Katrina. They were faced

with no way to call for medical assistance, police or fire support, or even to communicate among themselves.

Terrestrial networks do not usually survive major disasters intact, as was seen after Hurricane Katrina.   Space Data has a solution. With their large coverage footprint, our *SkySite* Platforms can be launched from well outside the affected area. Since they fly much higher than storms and fires, they can provide communications during the disaster itself. This gives first responders the ability to be more effective in rescue operations, since our *SkySite* link supports equipment they already use every day.
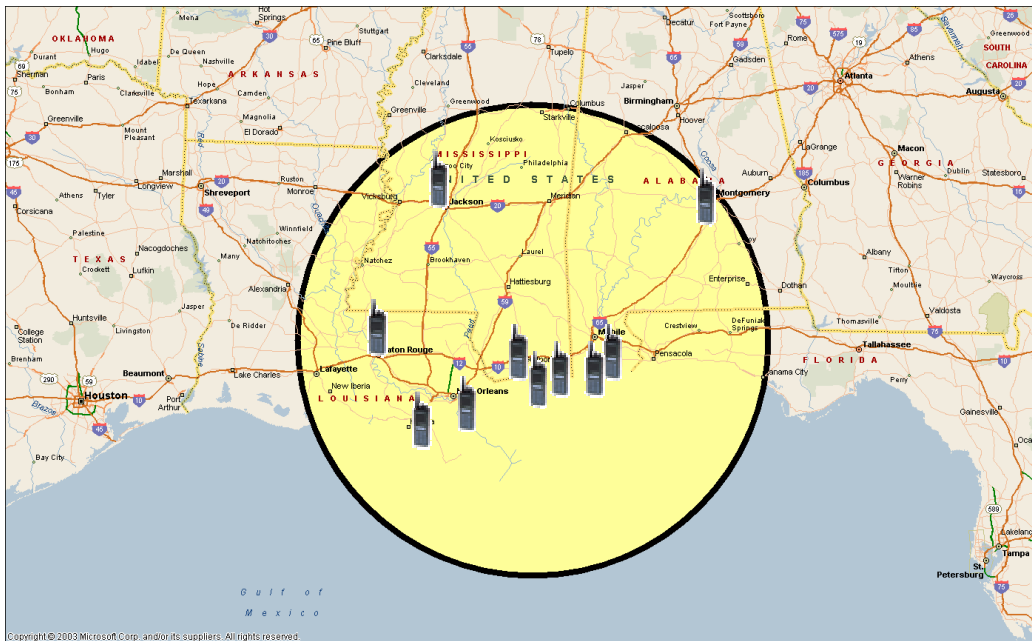

Figure 4. Potential coverage of a single SkySite Repeater along the Gulf Coast

Space Data's *SkySite* system can be held in reserve, then deployed on short notice wherever needed. For example, National Guard units could deploy the system when they are moving in to support post-disaster relief efforts, no matter where that disaster might be. In fact, ground station equipment and enough *SkySite* Platforms for 24-hours can literally fit in carry-on

luggage. All that is needed at the launch site is an open field and a cylinder of helium or hydrogen. If the area of operation shifts, the communications network can easily shift with it.

The *SkySite* system can also expand quickly to meet additional capacity. Adding more communications channels is as simple as launching more payloads. It is noteworthy to mention that taking advantage of miniaturization and an additional nine months of engineering, our current payload has six times the capacity of the original Combat SkySat proof-of-concept payload at a fraction of the cost, and extends communications ranges to over 600 miles.

Hurricane Katrina

During Hurricane Katrina, Space Data's network operated without interruption over our entire coverage area, including much of Louisiana. Even launch operations in Opelousas, Louisiana, continued with only a slight launch schedule adjustment when Katrina's effects were most severe. Our balloon technology is designed to be resistant to stormy conditions. Our communication system continued through the worst of the hurricane and on into the aftermath when traditional networks were taken out of operation. With rampant news reports of communication outages, Space Data tried to support the Katrina recovery efforts with our still operational data system. However, we found no takers for our offer.
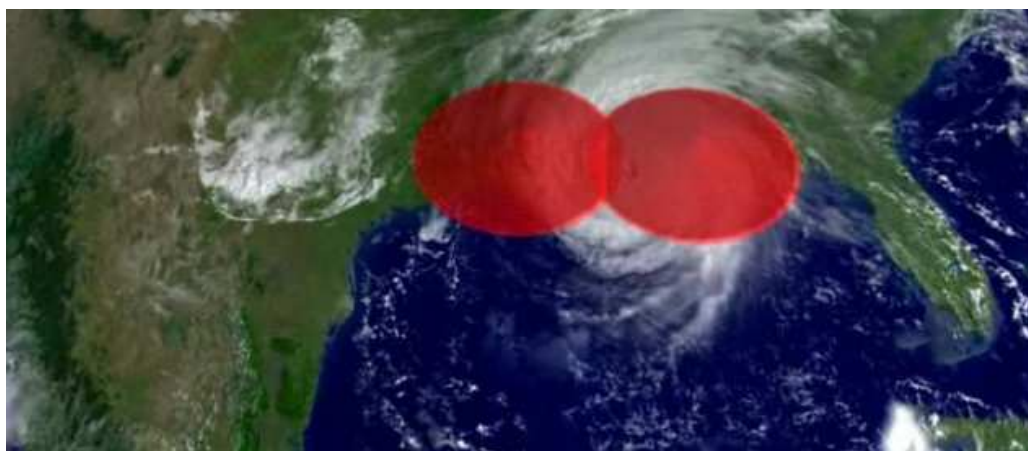

Figure 5. Simulated *SkySite*[®] Platform coverage during Hurricane Katrina

"Bridging" Networks

In addition to near-immediate communications coverage in an emergency, there is another urgent and compelling problem that Space Data's *SkySite* Platforms can solve—ensuring the interoperability of incompatible radio networks. A conventional radio repeater re-broadcasts transmissions on a single network so users such as police, firefighters and federal authorities can communicate with others in their own organization. However, these different groups are unable to talk and coordinate relief efforts with each other during a disaster because their radio equipment is not compatible. A paramedic and a National Guardsman could be 100 yards away from each other, yet unable to communicate.

A second type of *SkySite* payload, called a bridging repeater, provides a solution. It carries two or more radio transceivers with different protocols or frequencies to "bridge" radio communications networks. With this payload launched, different groups on the ground could tune to a channel already on their radios and have their communications re-broadcast on the other network. This could allow police to talk to firefighters, or FEMA to talk to local law enforcement.

This Bridging Repeater concept was demonstrated to the US Air Force as part of the Combat SkySat Program, allowing ground troops using handheld tactical radios to communicate directly with pilots in A-10 and F-16 aircraft.

White House Katrina report

We read with great interest the recently-released White House report on the Federal response to Hurricane Katrina and, in particular, its recommendation for a rapidly deployable communication system for DHS. Space Data's technology is ideally suited for such a system with its provisions for launching quickly from virtually any location and within 90 minutes

covering an area more than 400 miles wide. We can provide the "'reach-back' to large headquarters units" and "connectivity among Federal, State, and local authorities" cited in the report.

Cost

Space Data's *SkySite* system is also an extraordinarily cost-effective means of providing wireless communications during a disaster. The radio repeaters can be fitted with GPS tracking and be recovered and reused multiple times. One *SkySite* Platform can cover hundreds of miles and is easily deployed. Moreover, first responders will no longer be required to build and maintain expensive terrestrial systems with extra capacity for emergencies that may never occur. Since the *SkySite* Platforms are compatible with the existing user equipment, all cost associated with purchasing, distributing, maintaining and training personnel related to new user equipment is eliminated.

Summary

In summary, Space Data can solve the three major communications problems faced by first responders – availability, range, and interoperability. We do this by offering responders a simple, cost-effective solution that can be quickly deployed when and where it is needed, removing the need to maintain expensive wireless infrastructure in remote areas. No new equipment is required for users on the ground – they keep the same radios that they have always used – but now those radios are significantly more effective.

Like most Americans, we at Space Data want to see government agencies at all levels have the best tools available to respond to crises such as Hurricane Katrina. We offer a solution that can fill in coverage gaps created by a storm's destruction.

By considering <u>now</u> how to apply this technology, DHS and FEMA can be prepared <u>before</u> the next disaster so that effective communications systems can be put in place immediately.   As was evident with Hurricane Katrina, lives will be lost if there is no immediate way to communicate and respond. We all know that other national emergencies or natural disasters are inevitable, and it is essential that all levels of government be prepared to support first responders.

I ask the Panel to encourage the FCC to support the advancement and use of technologies such as Space Data's *SkySite* Platforms before the next emergency occurs. Specifically, the FCC should have an automatic waiver process for public safety spectrum that is triggered by Presidential declaration so a solution like Space Data's can be rapidly deployed in the event of an emergency. In addition to solving these spectrum issues, the Commission can help by pressing the Department of Homeland Security to examine balloon-borne solutions and have the necessary inventory and emergency service plans in place for federal agencies in advance of the next hurricane season. Finally, commercial wireless service is the most universal form of communications used by public safety and citizens. Therefore, it is imperative that the commercial networks are up and running as quickly as possible. Space Data *SkySite* Platforms can provide the commercial carriers with an immediate solution that will allow existing handsets to operate. Carriers should be encouraged by the FCC to examine solutions such as ours and be prepared to deploy them in the event of a disaster.

Madam Chairperson, members of the Panel, thank you for allowing me to speak with you today. We take a great deal of pride in our work at Space Data and look forward to playing a key role in helping save lives through better communications in any future emergencies our country may face. We would be happy to provide you with any information you need to further your work.