

LOCKHEED MARTIN AWARDED \$10 MILLION TO DEVELOP DARPA'S STRATOSPHERIC AIRSHIP FABRIC

AKRON, OH, September 26, 2006

AKRON, OH, September 26, 2006 -- Lockheed Martin [NYSE: LMT] has received a contract for approximately \$10 million to further develop advanced material technology and next-generation hull material for stratospheric airships under the Defense Advanced Research Projects Agency (DARPA)'s Integrated Sensor Is Structure (ISIS) program.
more >>>

<http://www.lockheedmartin.com/wms/findPage.do?dsp=fec&ci=17907&rsbci=16&fti=129&tj=.&sc=400>

ISIS-and-HAA-Near-Space-Airships

Aug 10, 2006

Humans have been flying in hot air balloons and dirigibles far longer than there have been airplanes and space shuttles. So it's not surprising that the US military is looking at airships (such as stratospheric floaters) as the perfect surveillance platforms. After all, airships seem to be [becoming more popular these days](#).

Several companies have started work on a prototype airship that will hover in the stratosphere. It's basically a blimp with very large antennas and dishes. This autonomous unmanned sensor platform will track air and ground targets for the military. The goal is for it to track even the most advanced cruise missiles and enemy soldiers from hundreds of miles away. The sensor structure is called "Integrated Sensor is Structure" (funny name, right?) or "ISIS" for short. more >>> <http://www.qj.net/ISIS-and-HAA-Near-Space-Airships/pg/49/aid/61319>

Fund for poor country IT projects eyes high tech airship

March 20, 2007

GENEVA (AFP) - A solar-powered airship that replaces communications satellites is one of a series of high tech projects that can help bridge the "digital divide," the organisers of an Information Technology fund for poor countries said Tuesday.

The Digital Solidarity Fund was launched by African leaders and European public authorities at a UN summit two years ago to bring modern communications to an estimated 80 percent of the world population in poor countries that are unconnected.

The Fund said at a board meeting that a dozen community-based projects in Africa and one in Asia had got off the ground.

They mainly involve teleconferencing facilities for medicine and education.

However, the Fund is facing further financing requests for projects worth 26 million euros, officials told a board meeting.

More political support is also needed for nascent technology that can save huge amounts of money if deployed in developing nations in the next decade, they added.

Swiss researchers unveiled the X-Station at the Fund's board meeting, a solar-powered, pilotless airship stationed at an altitude of 21 kilometres that can bring high speed telecoms services to an area 1,000 kilometres in diameter.

The project developed by a joint venture of universities and companies is due to be tested later this year.

"It will be cheap, affordable and fast. You don't have to spend millions of dollars to launch communications satellites," said founder Kamel Alavi.

US technology giant Sun Microsystems also presented a centralised Internet-based server that can effectively do away with 10,000 personal computers and equips the end users with just a screen and keyboard.

"It is five percent the size of its father, it consumes a fraction of the energy, it is deployable in a tenth of the time, and it is mobile," said Mary Smaragdi, director of Sun's Foundation.

Members of the Fund -- currently 24 countries, eight local authorities, and private companies -- make a one-off contribution.

Another key, though still voluntary, source of funding is a one percent charge on information technology (IT) purchases made by members.

However, more public authorities that would like to join face legal constraints with rules on public tenders, especially in the [European Union](#). An international convention might be needed to overcome the problem, officials said.

http://news.yahoo.com/s/afp/20070320/tc_afp/worldtelecomfund_070320193820

29 September 2006

New airship 'X station' could revolutionize wireless

- A new airship "X station" which could revolutionize wireless communication, broadcast and surveillance infrastructure worldwide was unveiled this week.

The "X station" will go to an altitude of 21 kilometers nine more than civilian aircraft are permitted. This height is needed to place the antenna stations above the jet stream where winds are moderate.

Thanks to a GPS steering system developed by the Swiss Federal Institute of Technology, the 60-meter long helium-filled airship will remain stationary at 21 kilometers above the earth.

A small-unmanned aircraft outfitted with a mobile phone antenna and other devices for transmitting digital data will be attached to the airship. The "X station" has been equipped with giant propellers to help counter the almost constant buffeting from the wind.

A Swiss of Iranian extraction, Kamal Alavi works together with a team of 50 scientists to realize this project. The team is preparing a 2007 test run of the airship.

<http://cnews.canoe.ca/CNEWS/Science/2006/09/29/1918060-ap.html>

13 July 2006

New "Paint-On Antenna" Flies Successfully on Sierra Nevada Corporation Techsphere Airship

Technology for Next Generation Communications and Remote Sensing Systems

The National Aeronautics and Space Administration (NASA) Langley Research Center, RTI International, Applied EM, Inc., International Communications Group, Unitech, Sierra Nevada Corporation (Sierra Nevada), and Techsphere Systems International, Inc. (Techsphere), a wholly owned subsidiary of Cyber Defense Systems, Inc., announced today that the test flights of the new generation "paint-on" antenna technology on board the SA-60 Spherical Airship were successful June 21, 2006 in the Nevada desert.

This was a worldwide exclusive to test the lightweight "paint-on antenna" technology on Sierra Nevada and Techsphere airship technology for communications and other applications. As part of an effort to develop new high-altitude communications and surveillance platforms, Applied EM, Inc. and Unitech, LLC are developing conformal "paint-on" antenna technology under an Air Force Small Business Innovative Research (SBIR) Program (Air Force Research Laboratory, Hanscom AFB). "Paint-on" antenna designs were used in the Airship flight test for Iridium Global satellite communications from several locations on the Airship. These antennas transmitted and received voice and data links via the global Iridium satellite system and overall radio frequency performance was outstanding. Iridium bit error rate data transmission and receptions were tested and voice communications to and from the Airship with teleconferencing were tested successfully.

In addition, the Airship flight experiment included NASA's GPS Reflectance Experiment, which was flown to evaluate Airship applications for soil moisture remote sensing missions. The NASA Langley Research Center (LaRC) is developing remote sensing applications of the Global Positioning System (GPS). While originally designed to relay navigation data, the satellite-transmitted GPS signal itself may be used to obtain a number of useful scientific measurements of both the earth's surface and of the atmosphere. This new technique utilizes the reflection of GPS signals from water, wet ground, or artificial conducting (metal) bodies. Researchers at Langley, in concert with their colleagues around the world, are developing theory, designing instrumentation, and conducting experiments to better understand the properties of the surface reflected GPS signal. The goal of the project is to apply the knowledge gained toward the development of low-cost, easily deployed, and widely applicable remote sensing systems.

Soil moisture is a relatively small component of the global hydrological cycle, but of great importance, nonetheless, in the development of it. Soil moisture is water in the ground and, as such, it plays a critical role in many biological and hydrological processes such as plant health, nutrient cycles, and cloud formation. The accurate and timely measurement of soil moisture content and its fluctuation is of paramount importance in the monitoring of natural hazards such as flooding and drought. The amount of water in the soil affects the transfer of energy between the surface of the Earth and the atmosphere by creating weather systems that can affect large populated areas. A highly water-saturated soil, for example, cannot absorb as much water as dry soil and can easily create runoff or flooding. The existence of an accurate map of soil moisture would provide information for agricultural efficiency, water management, disaster planning, and many other indirect applications.

Nonetheless, despite the fact that soil moisture measurements have been recognized as a priority in Earth science, continuous and far-reaching measurements are all but nonexistent. Present methods of measuring soil moisture, though accurate, are insufficient for use in forecast models to prevent disaster or to complement the understanding of the water cycle. However, the monitoring of soil moisture by means of remote sensing remains a topic of research and development rather than an operational capability. The recent launch of the satellite Aqua and the current development of new Earth looking systems, like the GPS reflectometer presented in this site, promise to provide better measurements of soil moisture to improve the understanding of nature and the quality of life on Earth. <http://centauri.larc.nasa.gov/gps/index.htm>.

RTI brought the team together as part of NASA's Innovative Partnership Program (IPP) to demonstrate the overall capabilities of high altitude airships for numerous NASA research applications. "The successful airship test flights demonstrate exciting possibilities for 'paint-on' antenna technologies," said David Myers, vice president of RTI's Engineering and Technology Unit. "This new technology can be used to assist with hurricane disaster relief, provide enhanced security of ports and borders, perform science observation missions and improve military communications."

"Our goal is to provide the most innovative low cost communication platform on the planet for government and commercial end users," stated Mike Lawson, chief marketing officer of Techsphere.

"This application shows the benefits of using our airship technology for communication, protecting our warfighters and implementing true border protection now," stated Billy Robinson, chief executive officer of Cyber Defense. [more>>>](#)

<http://www.spaceref.com/news/viewpr.html?pid=20226>

Cyber Defense System's Techsphere Subsidiary Leases Two Airships for \$2.2 Million to Fortune 100 Corporation June. 12, 2006

ST. PETERSBURG, FL and ATLANTA, GA -- (MARKET WIRE) -- 6/12/06 -- Cyber Defense Systems, Inc. (OTCBB: CYDF), a designer and developer of next-generation unmanned aerial vehicles (UAVs), is pleased to announce that its wholly owned subsidiary, Techsphere Systems International, Inc., has executed a lease contract for two of its SA-1A Spherical Airships to a Fortune 100 company at an estimated initial contract value of approximately \$2.2 million. >>> [more](#)

Sanswire YA Technology Demonstrator Testing Moves Outside

October 19, 2006

9:20 AM Eastern Time

PALMDALE, Calif.--(BUSINESS WIRE)--Sanswire Networks LLC, subsidiary of GlobeTel Communications Corp. (OTC:GTEM) today announced that its Sanswire YA technology demonstrator completed its first outdoor, low altitude, float test. During the first float, the structural integrity and overall balance of the airship were tested in uncontrolled atmospheric conditions. [more >>>](#)

<http://www.sanswire.com/>

November 18, 2006

SwRI News: Airship Reaches Near-space Altitude During Flight

A team led by Southwest Research Institute® (SwRI®) successfully demonstrated powered flight of the HiSentinel stratospheric airship at an altitude of 72,000 feet. The development team of Aerostar International, the Air Force Research Laboratory (AFRL) and SwRI launched the airship on November 18 from Roswell, N.M., for a five-hour technology demonstration flight. The 146-foot-long airship carried a 600-pound equipment pod and propulsion system. Sponsored by the U.S. Army Space and Missile Defense Command, the flight was the culmination of a six-month preparation effort.

"There are a number of stratospheric airship programs being promoted around the world, but this is the first of these programs to successfully fly a real airship in near-space," says William Perry, assistant director of Space Systems in the SwRI Space Science and Engineering Division.

SwRI designed the airship and provided the telemetry, flight control, power and propulsion systems. Aerostar International fabricated the hull and participated in the integration and test flight. AFRL developed the innovative launch system, provided facilities, and supported the launch and recovery. Each of the four organizations contributed funding, manpower, equipment and facilities for the collaborative effort.

HiSentinel is the first airship developed under the Composite Hull High Altitude Powered Platform (CHHAPP) program. CHHAPP is a spiral development program for a family of long-endurance autonomous solar-electric, stratospheric airships. These low-cost systems will be capable of lifting small-to medium-payloads (20 to 200 pounds) to near-space altitudes for durations of longer than 30 days for communications, military and science applications.

Designed for launch from remote sites, these airships will not require large hangars or special facilities. Unlike most stratospheric airship concepts, HiSentinel is launched flaccid with the hull only partially inflated with helium. As the airship rises, the helium expands until it completely inflates the hull to the rigid aerodynamic shape required for operation.

Editors: An image to accompany this story is available at <http://www.swri.org/press/HiSentinel.htm>.

SwRI is an independent, nonprofit, applied research and development organization based in San Antonio, with more than 3,000 employees and an annual research volume of more than \$399 million. For more information about Southwest Research Institute, please visit www.swri.org.

www.swri.org

<http://www.spaceref.com/news/viewpr.html?pid=18343>

Hi-tech mission for airships Wednesday, 22 February, 2007

Airships could provide a cheap and quick way of bringing mobile phone networks and fast internet connections to remote parts of the world.

Engineers at Britain's Advanced Technologies Group (ATG) are working on developing airships that could provide the telecoms networks of the future.

Their StratSat programme applies modern technology advances to the old principles of airships to offer what they believe is a cheap and flexible alternative to unsightly mobile phone masts across the countryside.

"It's bringing airships out of the thing that you see over sports stadium just doing a bit of camera work or advertising and making them part of the 21st Century and data communication," Mike Durham, senior technical consultant at ATG. <http://news.bbc.co.uk/1/hi/science/nature/1840936.stm>

The CAPANINA project will develop broadband capability from aerial platforms to deliver cost effective solutions providing a viable alternative to cable and satellite.

<http://www.capanina.org/>

Balloon beams broadband internet from stratosphere 19 October 2000

A blisteringly fast data downlink provided by a stratospheric balloon floating 24,000 metres above the Earth has been tested for the first time.

The untethered, 12,000-cubic-metre helium balloon was tested on 31 August for several hours. Analysis now shows the test was a success and sent data to the ground at 1.2 gigabits per second. That is thousands of times the capacity of a home broadband internet connection and the first time such a link has been tested from the stratosphere.

The test craft was developed by the Capanina Consortium – 14 European academic and industry partners funded mainly by the European Union. They hope the craft may be able to provide communications in disaster zones or low-cost internet access in the developing world.

David Grace, one of the project scientists behind the test, from the University of York, UK, says stratospheric communications balloons provide wireless alternatives to fixed internet infrastructure. "You could rapidly put communications infrastructure where it doesn't exist," he told New Scientist. "In developing countries it could be a cheaper way to roll out, and you could do it incrementally."

Sky-high Wi-Fi

The main concern with such floating communications hubs is ensuring they do not interfere with commercial aircraft. Controllers on the ground are able to alter the altitude of the balloon but not steer it.

The stratospheric craft was equipped with two communication systems: a high power radio antenna developed at the University of York, and an ultra-high-speed optical communications system built by the German Aerospace Centre (DRL).

The balloon's radio link was based on the 802.11b protocol. This is normally employed in Wi-Fi computer networks that extend a hundred metres or so. For the balloon test, powerful millimetre-frequency radio antennas were used, to send the signal up to 60 km. This link was used to transmit data rates of up to 11 Mb/s.

The optical communications link developed by DRL was only tested from the balloon to the ground. It transmitted data around 100 times more rapidly. In future it should be possible to develop a bi-directional link based on this technology.

Remote tracking

Both communications systems rely on pointing a directional instrument at the balloon. "Tracking is a key issue in stratospheric broadband," says Alan Gobbi, also at the University of York. At the high altitude of the test, Gobbi says the balloon drifts about a kilometre over a few hours, depending on conditions. In the future, larger balloons could float for weeks or months at a time, providing a quick and simple communication link.

The York team used Global Positioning System (GPS) data and a modified telescope to track the balloon as it drifted. [Video footage](#) (24MB Mpeg) recorded at the test site – the Swedish Space Corporation's

space centre at Esrange, 200 kilometres below the Arctic Circle – shows the University of York researchers testing the optical tracking system on the balloon.
 The Capanina group is also investigating other types of high-altitude communications craft. Large airships could perhaps carry heavier communications equipment into the skies, while fleets of solar-powered aircraft could circle at high altitude for long periods <http://www.newscientist.com/article/dn11111.html>

Surfez en ballon dirigeable ! 10/07/2004

Un projet européen nous permettra peut-être de surfer sur Internet à haut débit en utilisant des ballons situés dans la stratosphère.

On avait les câbles, les satellites, les ondes... bientôt on aura les ballons et les dirigeables. C'est tout à fait sérieux : un projet européen teste actuellement la possibilité d'utiliser des plates-formes aériennes à base de ballons et dirigeables pour fournir du haut débit. 120 Mb/s ! De quoi faire de la vidéo à la demande, de la vidéoconférence, des jeux en réseaux, de la simple navigation sur Internet... tout cela sans polluer notre brave planète. Non seulement les ballons et dirigeables n'utilisent pas de carburant mais en plus leurs dispositifs seront alimentés par énergie solaire. Situés dans la stratosphère, c'est-à-dire à une vingtaine de kilomètres d'altitude où les nuages ne sont pas à craindre, ces aéronefs tourneraient autour d'un point central fixe et couvriraient une soixantaine de kilomètres de diamètre au sol.

Pas de risque de collision avec nos bons vieux avions, les ballons et dirigeables "se situent bien au dessus de nos avions et bien en dessous des satellites", précise-t-on chez Capanina, consortium à l'origine du projet qui réunit treize partenaires européens et un en provenance du Japon. En plus, contrairement aux satellites qui, une fois consommés, sont bons à jeter à la poubelle (en fait ils se désagrègent plus ou moins dans l'univers), les ballons pourront être récupérés pour maintenance et relancés. Bref, de quoi se payer une belle tranche de surf "propre" sur la toile sauf qu'il faudra encore attendre un minimum de cinq ans pour voir les premières applications grand public... [h](#)

Low Altitude Stationary Flight Test Started - Studies on the Stratospheric Platform **What is Stratospheric Platform (SPF)?**

The "stratospheric platform" we aim is a network of huge unmanned airships that stays afloat in the stratosphere at an altitude around 20 km where the weather is rather calm. The SPF loaded with communications/broadcasting equipment and observation sensors will serve as a platform for communications /broadcasting and earth observation/disaster monitoring.

The SPF will stay in the stratosphere, where atmospheric density is extremely low; approximately 1/10 to 1/20 that at sea level. This will require several substantially new, highly advanced technologies, such as an ultra low-weight membrane structure and a power supply system consisting of fuel cells and solar cells.

Low Altitude Stationary Flight Test

The SPF is required not only to reach the stratosphere but also to have the capability of staying afloat geo-stationary. To show this capability, a powered airship system was developed by JAXA jointly with the National Institute of Information and Communications Technology (NICT). An airship hangar and a flight control building were also constructed adjacent to the Multipurpose Aviation Park in Taiki-cho in Hokkaido for the Low Altitude Stationary Flight Test.

The objectives of this test include verifying the flight control technology, operation technology, and tracking/control technology throughout the entire process from takeoff to landing, and conducting tests of the communications /broadcasting mission and the earth observation mission under geo-stationary flight conditions. The test vehicle is a 20 meter-long, non-rigid airship equipped with electric motor powered propellers. The vehicle flies afloat mainly with the buoyancy of its hull filled with helium, and stays geo-stationary at an altitude of 2 kilometers resisting the wind with the help of propellers installed on both sides. The buoyancy and attitude are adjusted by filling air or discharging the air in the ballonets inside the

hull, and the hull is made of a lightweight and high-strength membrane material called Vectran. A demonstration test of the liftoff capability required for an airship was conducted in March 2004. Following the subsequent ground testing, and prior to the free flight test, a tethered vertical takeoff/landing test was conducted on August 7, 2004 to ensure that the airship functioned satisfactorily and to identify any problems that might potentially occur in flight (Fig. 2). At present, efforts are focusing on the final goal of geo-stationary flight test at an altitude of 8 kilometers.

<http://www.iat.jaxa.jp/info/prm/2004/001/04.html>

Berkut is a high flying eagle that lives in Carpathian Mountains. Our High Altitude Airship (HAA) Berkut is a unique combination of lighter - than - air and space technologies, a cost effective alternative to geostationary satellites. This project will open a new era in communication and earth observation.

The HAA Berkut is a solar powered airship capable to keep its position over a certain place on a 20 - 23 km altitude.

<http://www.rosaerosystems.pbo.ru/pdf/HAA%20Berkut.pdf>

<http://www.rosaerosystems.pbo.ru/english/projects.html>