

HEARD ISLAND

The 2016 Cordell Expedition

VKØEK

Discovering Life and Links in the Extremes

MAIN CAMPSITE WILL BE BUILT USING AIRBEAM TENTS

AirBeams should not have been surprising. After all, we drive in cars that run on air-filled tires. But it still seems surprising that a simple arc-shaped tube about a foot in diameter can support a full-sized vehicle (right).

Capitalizing on this remarkable structure, HDT Global has built a multi-million dollar business developing, manufacturing, and supplying shelters (=tents) held up by AirBeams to military units worldwide. Now they are looking to expand their market, and the Heard Island project is the beneficiary of this development. HDT Global has agreed to partner with Cordell Expeditions, supplying shelters that would otherwise be financially out of reach to the project. The company will



provide two complete 20 ft. x 21 ft. 3-beam tents, plus another framed 10 ft. x 15 ft. tent, providing a comprehensive and extremely valuable solution to several challenges that will be faced on Heard Island. Among other advantages, the airbeam tents erect using an air compressor in 15 minutes. They have a semi-rigid plastic floor, ducts for electrical and other utilities, and an external diesel-fired heater. In addition, the company will fabricate a hallway that links two end-facing tents through double-zipper doors, and provides access to the outside. Each tent has outside doors at opposite ends, and various windows that can be closed or opened.

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AirBeams can be thought of as a (half) inner tube upside down. The load-capacity of the tube is the product of the air pressure in the tube and the area under the load. The HDT Global tubes are about 1 ft. in diameter, and are inflated to 60 psi. With a contact area of just 400 sq. in., the tube could hold up 6000 lbs. This principle makes it possible to build shelters that are extremely strong: the Heard Island shelters will withstand winds to 80 mph.



A tentative design for the VKØEK main campsite, using two 20x21 ft. AirBeam tents.

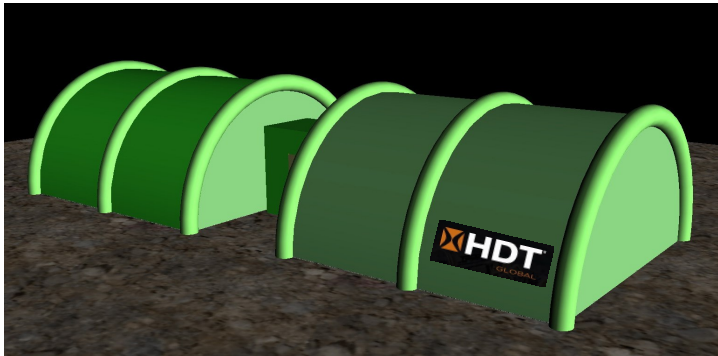
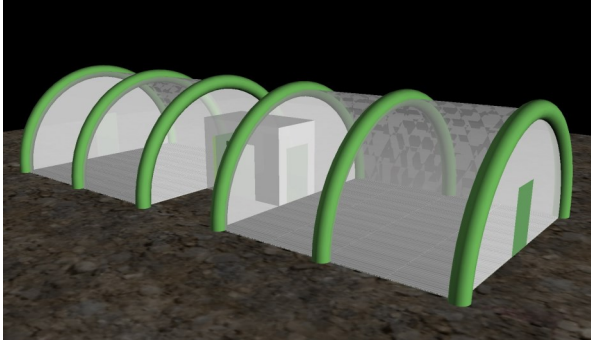




CONCEPTUAL VKØEK CAMPSITE DESIGN USES TWO HDT AIRBEAM SHELTERS

The HDT Global AirBeam tents are held up with four single-point anchors: two on each end. The tethers act to pull the beams apart longitudinally, while the beams hold it up vertically. The strength and rigidity of the beams is surprising: It is virtually impossible to damage the beams without a major tool and deliberate action, hence the tents are safe and reliable, which is why military organizations prefer them.

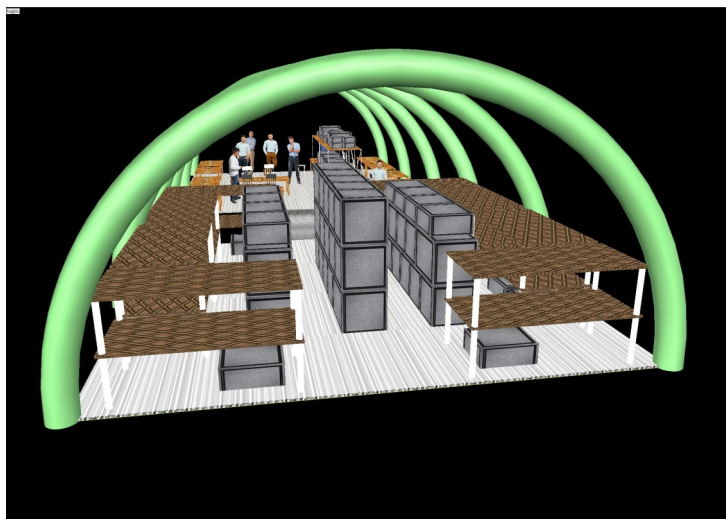
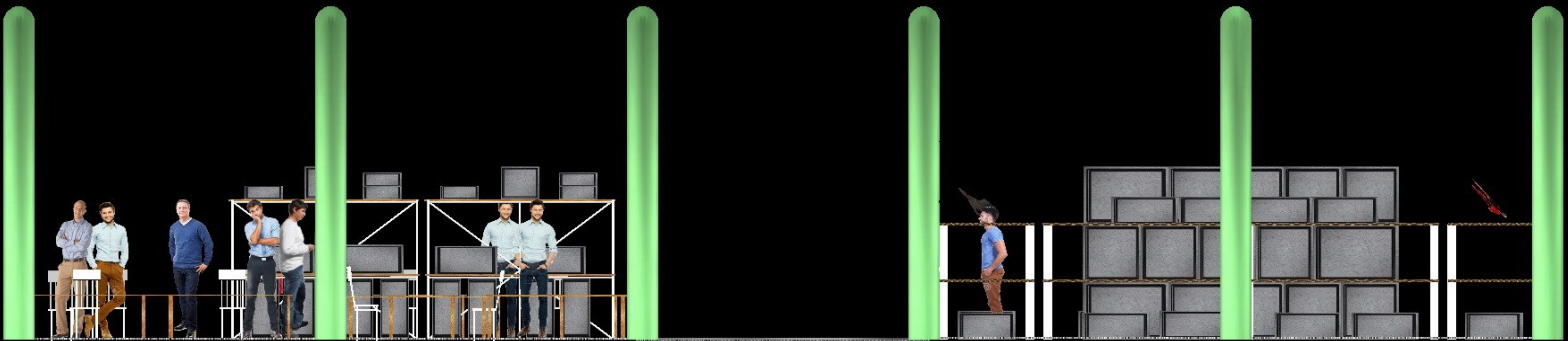
AirBeam tents would be the right choice, we obtained one of these tents from a surplus dealer and went through the process of erecting (inflating!) it and evaluating it's appropriateness. The result was convincing: it is superior to any other shelter we know about. Our portrait with this tent is shown below.



With the agreement to provide two tents, we designed the main site for Atlas Cove as shown in these pages. The entire facility (the tents, hallway, and flooring), can be erected in less than an hour by two men, even in high wind and rain. To convince ourselves that the

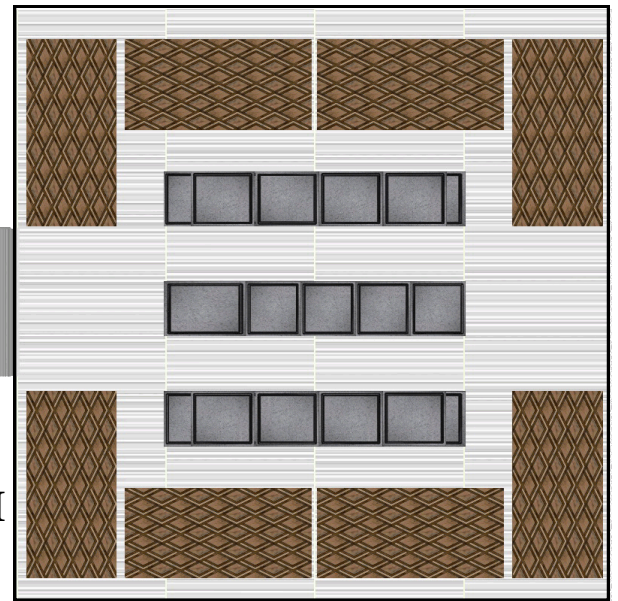
NOTE: The images shown in this Newsletter are working drawings, not final designs. In particular, the campsite may have additional shelters not shown here.

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GEM

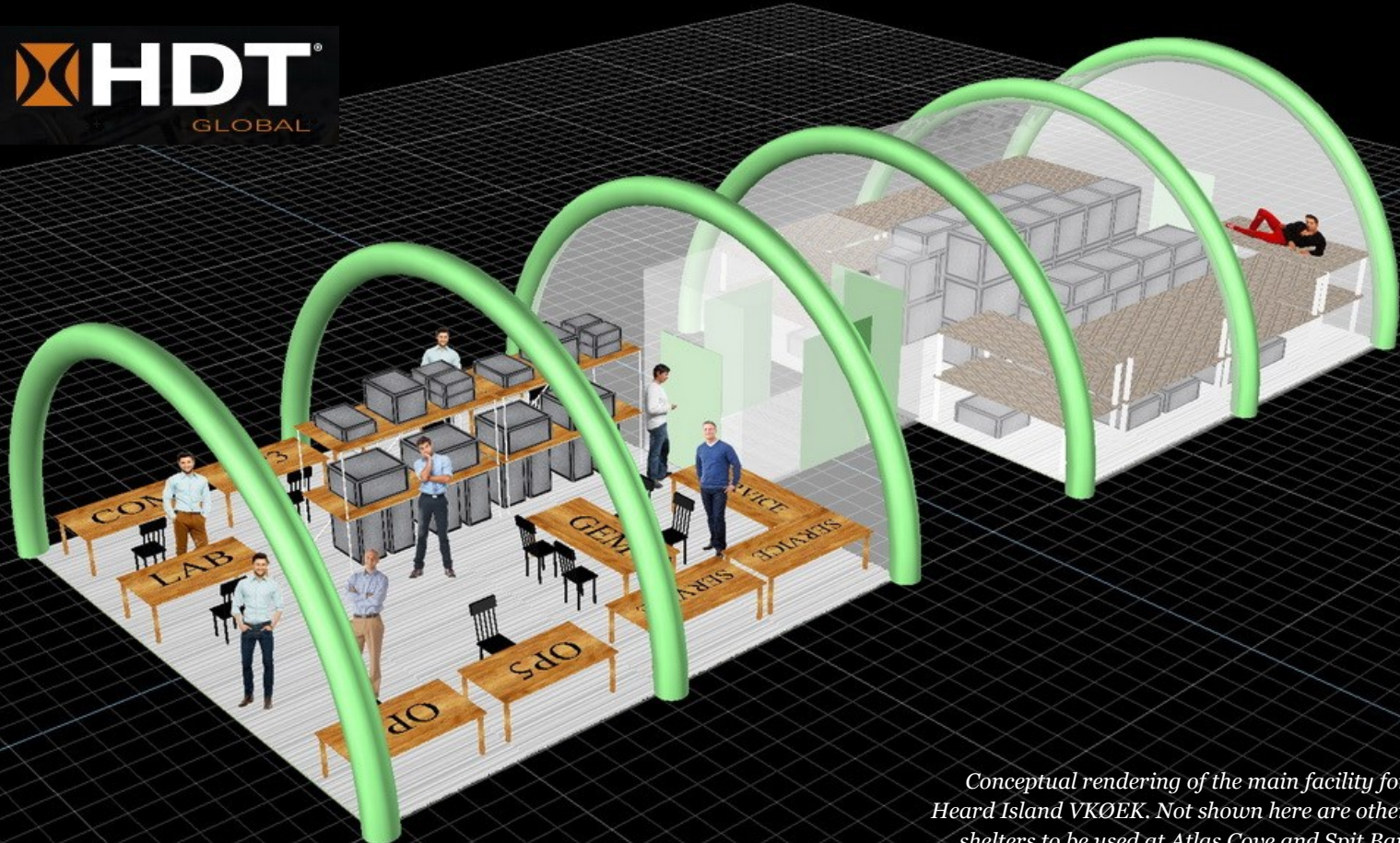


DORM

The dual shelters provide for a highly functional floorplan (above). One tent (left) is the worksite, usually called the GEM (Greeting-Eating-Meeting) tent. This is where the radio stations, scientific lab, food preparation, dining, and storage facilities are located. There will be work tables with computers, chemical equipment and supplies, specimen processing and storage, and communications through the satellite terminal. The GEM tent is connected to the DORM

tent through a covered walkway that has a third door to the outside. Plastic flooring provides for strength and cleanliness. The DORM tent (right) contains 16 bunks (8 doubles), plus a large volume for open storage. The tent is more than 10 ft. from the GEM tent, separated by double outside walls and four zipper doors, ensuring this area will be relatively quiet for the team members who are sleeping. There is extensive area and volume for personal and expedition gear stow-

age. We provide two bunks for members of the vessel crew or for additional space in case of illness. *All these floor layouts are tentative, and will be revised as the requirements for the operation develop.* As noted on page 4, we invite you to experiment with these designs and contribute to developing these site simulations.



Conceptual rendering of the main facility for Heard Island VKØEK. Not shown here are other shelters to be used at Atlas Cove and Spit Bay



THE HEARD ISLAND PROJECT

The Heard Island Project is centered around an expedition to Heard Island, lying at 53°S 73°E in the Southern Ocean. The island is extremely isolated, and very seldom visited.

The project will include an ambitious amateur radio operation using the callsign VKØEK, and a variety of scientific investigations under the title “Discovering Life and Innovative Communications in the Extremes.”

The expedition team of 14 will sail on or around March 8, 2016, from Cape Town, South Africa, spend up to 21 days on Heard Island, and end the voyage at Fremantle, Western Australia.

HDT GLOBAL – OUR CORPORATE PARTNER



We are extremely proud to have HDT Global as our major partner for the Heard Island expedition. The company designs and manufactures shelters, generators, heaters, air filtration devices, robotics, and other engineered technologies. It offers military tent shelter systems, command and control systems, expeditionary energy products, environmental control units, Nordic industrial products, military power generators, flight line equipment, specialty vehicles, and accessories, as well as military chemical, biological, radiological, and nuclear (CBRN) air filtration systems and protection systems. Its products are used to meet the specific needs of command posts, hospitals, military barracks, emergency medical treatment units, CBRN decontamination facilities for first responders, and command and



Expedition Leader Robert Schmieder meets with Ronnie Simmons at the HDT Global manufacturing facility. Behind them are some of the demo units of the same kind that they will provide for the Heard Island expedition.

control operation centers. Its products are used by the U.S. and allied military units, homeland security, civilian government, contractors, and commercial customers. The company was founded in 1937 and is based in Solon, Ohio. The website is www.hdtglobal.com.

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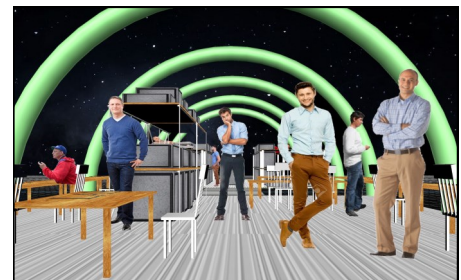
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YOU CAN EDIT OUR CAMPSITE DESIGN...

The images you see in this Newsletter were generated from a VRML (Virtual Reality Markup Language) file. You may have some experience with such files (they are plain text files with the extension .wrl), and you may have the ability to view, and even edit, such files. If so, we invite you to download our VRML file and explore your own personal preferences. You can rotate the image in 3D, zoom in and out, move the furniture around, add or remove items of furniture, hide items or make them partially transparent, change the sky from night to day, add



lights, and many other functions. You can even add javascript to animate the scene. To get the VRML files, click [here](#). If you develop something you would like to share with us, we will welcome hearing from you.

BACK ISSUES ARE AVAILABLE FOR DOWNLOAD

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