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WHAT HELPS GIVE CANADA'S DAVE WILLIAMS A STEADY HAND IN SPACE?

Montreal's micro-miniaturization technology enabling National Aeronautics & Space Administration



Montreal, August 21, 2007—As Canadian astronaut Dave Williams wraps up his STS-118 shuttle mission repairing & constructing the International Space Station, years of training and technology developed in Montreal have helped him soar to great heights.

For decades, NASA has been studying astronaut's physiological responses to zero gravity, to living in outer space and to staying in a space vehicles and space stations for extended periods of time. NASA recently conducted under water research since the environment provides some useful similarities to working in space. Using off the shelf technology, developed by THOUGHT TECHNOLOGY LTD of Montreal. The device is a wearable outfit that records multiple physiological measurements simultaneously. The technology is ultra miniaturized, using a standard FlexComp Infiniti(tm) physiological encoder, storing the data using flash memory cards. The astronauts, Commander Dave Williams, a Canadian Physician, and Ron Garin, an American, wore the "gear" throughout the day while living in an NOAA (National Oceanic and Atmospheric Administration) undersea habitat, off the shore of Key Largo Florida, 65 feet down, below the surface. NASA researcher William Toscano described the mission,

"Our project was called Nemo Nine. It was 22 days long, with 2 astronauts participating. They wore the **FlexComp Infiniti(tm)** system for three of the mission days. What we were looking was the effect of isolation, workload and fatigue on the individuals. We're using the Nemo Nine environment as an analog of a space station. "



Astronaut Ron Garin wearing the FlexComp Infiniti™ photographed by Canada's Dave Williams during the NEMO NINE undersea mission.

It was all stored on flash memory cards, " We recorded five measurements-- heart rate and electrocardiogram, respiration, skin conductance, hand temperature and finger pulse volume. Throughout the day they had activities and tasks to do."

New, micro-miniaturization technologies have enabled NASA researchers to use commercially produced biomedical devices like the **FlexComp Infiniti(tm)** to do what used to take a wall full of equipment easily weighing over 1000 pounds. Now, the device, manufactured by **Thought Technology** a company that is the world's largest provider of medical and consumer biofeedback instrumentation, weighs less than a pound and has built-in data storage using flash memory cards.

NASA's Toscano commented on the extreme research environment and on the air pressure, "at 65 feet is about 2.65 (atmospheres) -- different from at the surface. There were questions of whether the instrument would function, would it work? And it did, with flying colours! "

Contact:

Lawrence Klein

Vice President

Thought Technology Ltd.

2180 Belgrave Avenue

Montreal, Quebec, Canada H4A 2L8

Tel: 514-489-8251 x 122

Fax: 514-489-8255

Lawrence@thoughttechnology.com

www.thoughttechnology.com