News Release

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FUTURE POLAR SCIENTISTS PRACTICE ONLINE
HYDROBOT SIMULATOR TO BRING FIELD RESEARCH HOME

You cannot reasonably ask a diver to sink to the depths of the Antarctic Ocean and spend hours collecting scientific data. You can, however, ask a hydrobot.

Hydrobots are growing into incredibly valuable tools for scientists studying portions of the world too dangerous for human beings to venture – specifically, the deepest and coldest parts of the ocean. A new project, led by the Space Science Institute, is using computer technology to teach the scientists of the future how to operate and design these seafaring robots without having to leave the comfort of their homes.

“A hydrobot is basically a submersible robot, able to collect a ton of different scientific data,” said Brad McLain, principle investigator of the IPY Polar Hydrobot Simulator.

Hydrobots are used for a variety of purposes but perhaps their most useful application involves deploying them under the sea ice at the Poles, McLain said. Data collected there is very valuable because these are fragile regions, extremely sensitive to global climate change.

To aid in this venture, an annual competition is held – sponsored by the NSF – which pits different hydrobot design teams against one another to accomplish certain tasks using their technological creations. This international hydrobot competition is operated by the MATE center (Marine Advanced Technologies Education center), one of McLain’s project partners.

“Sometimes you get high school kids against MIT students,” he said. “And sometimes the kids win.”

There is a steep learning curve for these projects, however, McLain said. There can be a lot involved in designing and perfecting the operation of these underwater robots.

McLain and the Space Science Institute are developing an online simulator allowing anyone to learn the fundamentals of hydrobot design and operation before ever having to

tackle the myriad of problems associated with physically constructing such devices. This simulator will be launched into production later this month.

“It’ll be available to anyone with access to the Internet,” he said. “Kids, as well as any member of the public, should be able to gain the tools needed to work the hydrobot.”

The Polar Hydrobot Simulator is being developed as a part of the International Polar Year – a two-year international and interdisciplinary effort to focus scientific resources on the Earth’s poles.

Hydrobots are playing a crucial role in uncovering some of the unknowns of global climate change by giving researchers access to the frigid waters covered by sea ice, McLain said. “We are also using the exploratio of these regions to teach us how to search for life on other worlds. IN essence, these are terrestrial analogs for our search for alien life.”

“Kids today might find themselves operating real hydrobots and conducting real polar research one day,” he said. “The hope is to make the transition from simulator to actual practice as smooth as possible.”

Paving the way for this easy-learning transition involves techniques such as using video-game controllers – which most children are already very familiar with – to operate and control the hydrobots.

“We hope to be able to put together and field a U.S. team in the upcoming hydrobot competition using this program as its base,” McLain said. “We’re looking for highschool student volunteers right now.”

The IPY Polar Hydrobot Simulator is scheduled to run for the next two years. And, if successful, it could help shape many young thinkers into future polar scientists.

For more information contact the Space Science Institute or visit the IPY Polar Hydrobot Simulator’s Web site at http://www.hydrobot.org/.

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