Radio Club contacts International Space Station

Tech alum Bill McArthur fields student questions about space expeditions and research

By Trevor Stittlbargh
Staff Writer

“NAISS, this is W4AQL. NAISS, this is W4AQL.”

For a few nervous moments of silence a small group of Aerospace Engineering students and the Tech Amateur Radio Club stood cramped inside a small room on the fifth floor of the Van Leer building, waiting for a reply as they attempted to make contact with the International Space Station (ISS). At approximately 10:05 a.m., the connection was made and a response came through: “What do they say, I’m rambling a week from Georgia Tech and a helluva engineer?”

The emotions of everyone were apparent, as tense expressions turned to smiles of relief, though no one clapped aloud and waste a second of the ten-minute window that the group now had to talk to Commander Bill McArthur aboard the International Space Station.

Soaring above at approximately 28,000 kilometers per hour, at a height of a few hundred kilometers, the ISS would travel from Mexico to Greenland in the time that the students asked their eight prepared questions, each of which had already been sent to McArthur, a Tech graduate, weeks ago.

McArthur found Meryl Mims’ question particularly interesting, and it is no doubt an important one as public doubts about the significance of manned spacecraft expeditions and research are on the rise.

“What are some of the scientific benefits of continuing the ISS program, and how does the ISS bring us closer to our goals of revisiting the moon and reaching Mars?” said Mims, a Biology major.

“Meryl, I really like that question. The absolute greatest benefit, and the target of the research we’re doing on ISS, especially in the U.S., is in understanding how to make people productive and maintain their health while in the fairly hostile environment of space. Right now, we can develop the technology to go to Mars, but the physical and psychological stress is something we need to understand better, and that’s what we’re researching on the space station primarily.” McArthur said.

The most exciting part of the event was “just the fact that they were so far above us and how far they went in such a short amount of time and being able to make that connection from here,” Mims said.

“I learned that EVAs (extra-vehicular activities) are pretty fun. I’m going to try to get my Ham radio license, so maybe I’ll join the [Amateur Radio Club]. This was really, really cool. [The Mars Society] is sending a crew to an analogue Mars environment over spring break and the week after,” said Jonathan Sharma, an Aerospace Engineering major and member of the Mars Society.

The questions the group asked McArthur were a mix of technical inquiries and less formal queries into life aboard the ISS, ranging from “How do you ground electrical systems and interior surfaces of a spacecraft?” to “What kinds of entertainment do you have?” (to which McArthur responded, “The American side has a common ground like an automobile, and the Russian side has a separate ground wire,” and “We use our laptops for watching movies, though the greatest entertainment is talking on the amateur radio.”)

“I thought [this] was an excellent experience. I was just blown away. My first semester at Tech is when they started this, and they told us about it, and...to have this opportunity was amazing for a Tech Amateur Radio Engineer major.

I’m glad I got into it, I got picked.”

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Expert talks about Iranian nuclear program

By Melissa Cataldo
Senior Staff Writer

Former Special Assistant to President Clinton, Gary Samore, an expert on non-proliferation policy in South Asia, the Middle East and East Asia gave a discussion on the Iranian Nuclear Weapons Program on Monday, Jan. 23 the Wardlaw Building.

Samore’s presentation titled ‘Iran’s Nuclear Weapons Program, A Challenge to the Global Non-proliferation System’ was part of the Southeast Roundtable on Defense (SEROJD) luncheon and lecture series. The lecture series is housed under the Center for International Strategy, Technology and Policy (CISTP).

Samore is the Vice President of the Program on Global Security and Sustainability at the MacArthur Foundation. He was also the Senior Director for Non-Proliferation and Export Control at the National Security Council from 1996 to 2000.

According to Samore, Iran has strategic reasons for pursuing its nuclear program.

“From Iran’s standpoint, with the Americans tied down by the insurgency in Iraq and with the likely emergence of a more friendly pro-Shia government in Baghdad, Tehran calculates that it has a window of opportunity to move forward with its nuclear program while Washington is distracted,” Samore said.

“Even though Iran is still years away from being able to build and operate facilities which produce large amounts of weapons-grade uranium…they’re pretty close to mastering the basic technology for gas-centrifuge machines.”

“Once they have crossed that technological threshold, it will be much more difficult to stop or even seriously set back the program...diplomatically and even through military action,” he said.

The oil market adds to Iran’s confidence despite widespread dissent from the international community.

“In addition to the mess in Iraq, Tehran calculates that the tight international oil market protects them from serious economic sanctions because they can always threaten to retaliate by limiting oil production which would cause oil prices to rise dramatically in the price of oil,” Samore said.

Iranian President Mahmoud Ahmadinejad, who was elected in summer 2005 has invited controversy multiple times, from commenting that the Holocaust is a “myth” to the most exciting part of the event was “just the fact that they were so far above us and how far they went in such a short amount of time and being able to make that connection from here,” Mims said.

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pursuing the uranium enrichment program.

"According to many Iranian experts, the hard-liners around [Ahmadinejad] might actually welcome a competition among international coalitions over the Iran nuclear issue because that will allow them to rally national support for the program, and it will allow them to shift Iran away from an orientation toward better relations with the European countries, toward the West, toward closer ties with the East," Samore said.

Samore argued that the best way to counter the Iranian threat of pursuing its nuclear program is to build a strong opposing international coalition composed of the great powers.

So far, the Bush Administration has raised three objections to entering multi-lateral negotiations with Iran.

The officials argued that any engagement with Iran will help to legitimize the current government and therefore undercut US efforts to try to encourage democratic reform in Iran.

Also, Samore said officials claimed that the US using some of its inducements to seal a nuclear deal would undercut US leverage to pressure Iran on [other] issues, like Iran’s support for terrorism.

"Finally, people from the Bush Administration argue that Iran is not really serious about making any nuclear deal that would require it to give up its nuclear weapons option and that Iran is likely to cheat on any deal in the future," Samore said.

Samore does not agree that the US should not be involved in talks with Iran.

According to Samore, Washington made the fatal mistake of agreeing to negotiate with North Korea without insisting that Kim Jong Il remove the suspension on the production of plutonium.

He believes that as a consequence of this error, the North Koreans have great incentive to drag their feet while they strengthen their nuclear weapons capabilities.

"In the case of Iran I think it’s essential that Washington condition any willingness to negotiate with Iran in a multi-lateral context on the restoration of the [nuclear] suspension. That has to be the essential basic condition for the US talking to Iran."

"There was a question and answer session after Samore’s presentation, and faculty, students, and others in the community raised a variety of issues. One student asked about the potential role of Israel in stopping the Iranian threat, while another asked more about President Ahmadinejad’s role.

An Iranian-American man in the crowd raised concerns of Iranian nationalism as central to the issue for Iranians, and he questioned why the US continued to build its nuclear arsenal despite its opposition to nuclear proliferation in other countries.

"The Iranian government has...Iran is not really serious about making any nuclear deal that would require it to give up its nuclear weapons option and...is likely to cheat on any deal in the future."

Gary Samore
Vice President, MacArthur Foundation

FOCUS

I’m particularly interested in the Iran situation because for the last year and a half I’ve been monitoring in international affairs and focusing my studies on the Iranian situation...since President Ahmadinejad got elected, I’ve been trying to find out more...because...it’s very hard to find anything published about Ah-
madinejad," said Shelby Highsmith, a Mechanical Engineering graduate student.

"I really appreciated getting [Samore’s] take on...how important [Ahmadinejad] is in the nuclear program considering he does seem to be a kind of a wack-job," she said.

"It was a really interesting semi-
nar. We need more scientists and engineers in the government who know what they’re doing...within the international diplomatic context," Highsmith said.

Samore seemed to have enjoyed visiting Tech.

"My trip has gone very well. I’ve really had a great opportunity to meet people...and this talk was terrific, I’m very happy with the attendance; I got a lot of very good questions; I wish it could have gone on a little longer," Samore said.

The next SEROD lecture is on Feb. 2 titled The European-China Engagement: Implications for the United States by David Shambaugh, a professor of Political Science at George Washington University.

For more information on SEROD and CISTP visit their website at http://www.cistp.gatech.edu.
H.E.R.O. for children opens doors on campus

By Jane Wong Contributing Writer

A growing organization in Georgia that helps those affected by HIV and AIDS has made its way to Tech.

Hearts Everywhere Reaching Our for children or H.E.R.O. is a non-profit organization dedicated to improving the lives of children in Georgia affected by HIV or AIDS. Two UGA Honors Business graduates, Ryan Gembala and Garrett Gravesen, started the organization in 2003.

Tech students who attended Mock Rock during Homecoming week may remember H.E.R.O.’s attendance and the children that danced on stage.

The Tech chapter of H.E.R.O. held a meeting on Jan. 19 for students interested in getting involved. Speaking at the meeting, along with Gembala and Gravesen, were the co-directors of the Tech chapter of H.E.R.O., Elicia Skelton, a second-year Biochemistry major, and Jon Bonus, a 2004 Tech alumnus.

At the meeting, Gembala and Gravesen presented to students the organization’s history, past activities and events and the importance and need for H.E.R.O. in Georgia.

Skelton and Bonus explained how the Tech chapter would be set up and how students could get involved now.

Student organizations and Greek organizations have the opportunity to get involved with H.E.R.O. by having their members sign up to raise fifty dollars. Organizations will compete to have the most people sign up to pledge the money. The organization with the most people signed up by Feb. 17 will be honored on the day of the Georgia Tech vs. Duke basketball game on Feb. 22.

Students who pledge do not have to raise the money immediately. Everyone will have until the end of fall semester 2006 to raise the fifty dollars that they have pledged.

Skelton and Bonus will contact organizations through email with fundraising ideas and information concerning future events.

“...AIDS can take everything away from a child, including any chance they have to enjoy what all kids should—and that’s a childhood.”

Ryan Gembala H.E.R.O. organization co-founder

“[Tech has a] student body that helps out these other great causes. I hope we get H.E.R.O. up there. We want to have a total campus effort,” Bonus said.

“I just want people to feel passionate about it and get their friends to join and help grow,” Skelton said. H.E.R.O. plans to hold events on campus for Tech students to partake in with the H.E.R.O. children.

One event was a fall festival at Tech’s Yellow Jacket Park last October where H.E.R.O. children and volunteers participated in various activities, including inflatable playgrounds, a rock climbing wall and painting pumpkins.

“The best part is you can see where the money goes. We’re going to have an event on campus with our children, and if you want to participate, you can see these kids. A whole group of kids come to Georgia Tech, and we do an event here with the kids for people to participate,” Gravesen said.

During the meeting, Gravesen and Gembala brought out a special guest, a little boy in the H.E.R.O. program. He told the audience that through H.E.R.O., he had had the opportunity to go to the zoo with Miss Universe and meet Chris Tucker at a Hawks game. His favorite H.E.R.O. activities were playing on inflatable playgrounds, skating and “going places with Garrett and Ryan.”

Gravesen and Gembala founded H.E.R.O. in 2003 after coming home from separate but similar experiences abroad, volunteering in orphanages for children infected with HIV and AIDS in Africa and Brazil.

“It made me realize that AIDS can take everything away from a child, including any chance they have to enjoy what all kids should and that’s a childhood,” Gembala said.

After coming back to Georgia, they both saw that there were children in their own home state that were suffering from the same disease as the children they saw abroad.

“You hear a lot about Africa, but...
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to come ask them here today. It was a good experience.

Craft said this event made him more interested in amateur radio. "I did a little bit of [amateur radio] in boy scouts, but this is the first time I've ever communicated this far," Craft said.

Craft also said he "would like to ask [McArthur] a little more about the metal alloy experiment" that the commander spoke about in response to his question about experimentation on the ISS.

"McArthur actually requested to talk to [the Aerospace Engineering department]," said Alex Carver, the president of the Amateur Radio Club, which facilitated the contract.

"Otherwise, normally the schools would submit an application and they get on a waiting list that is up to two years long total to the ISS. This one is unusual because we've got all the media coming in," he said.

Both FOX News and CBS covered the event. "We went all out for this one. But it's a Georgia Tech alum so we've got to give him a good showing," Carver said.

Carver explained that the club only had one shot at the communication because of the orbit. "As the orbit progresses around the earth, and it doesn't cross the same point every day. If [the contact] wasn't today it would have been late February or early March before we could have got the same pass again, so it's a big deal," he said.

"It's been about four months of climbing attenuate towers, calibrating meters and taking measurements of the [efficiency of] analog to digital," said Matt Balaun, one of WA4QL's operators.

McArthur didn't seem to have lost his sense of humor during his incredible mission.

"What I miss most about life in gravity is driving my Corvette," he said.

A full recording of the contact can be found at WA4QL's website, http://cyberbuzz.gatech.edu/wa4ql/.

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but it's right here in our own home," Gravesen said.

Although there were over 500 AIDS organizations in Georgia, only 12, two and half percent of the total organizations provided any kind of attention to children.

Together, Gembala and Gravesen created H.E.R.O. with the purpose of enriching these children's lives by providing opportunities for fun and growth and a chance at a childhood with large, all-day festivals and chances to meet celebrities and athletes.

H.E.R.O. has an established chapter at UGA and a mentoring program in Atlanta. They have had tremendous support from politicians, businesses, celebrities, athletes, volunteers and students.

Gembala and Gravesen are very excited to expand H.E.R.O. to Tech.

"Tech is in the heart of Atlanta, and it's where our kids [affected by HIV and AIDS] live," Gravesen said.

Paul Hewitt, coach of the Tech men's basketball team, has signed on to be on the board of directors for H.E.R.O.

"Coach Hewitt is such an amazing man, and he's let his heart reach out to help these kids. He's said, 'Anything I can do to help, let me know,' and we're excited to have him involved with the events we [will] have on campus...He's a really great man, we're happy to have his support," Gembala said.

Hewitt also expressed his enthusiasm to be a part of the organization.

"I was impressed by the work the two young men are doing. I've always said that sports gives us a platform to make our communities better. It's not about wins and losses, but making our community better. If my involvement in this can make for some happy moments for these young kids, then the decision to be involved is easy," Hewitt said.

Students who attended the meeting were eager to get involved.

"I actually just heard about H.E.R.O. around campus, and coming to the meeting tonight," Gembala and Gravesen present a really good presentation about it. "It's a really good group. It's something I really think ADP would really want to get in touch with and one of the kids was just really touching," said Sammarr Rajoub, Philanthropy chair of the sorority ADPi.

Kim Roush, a first-year Biomedical Engineering major, heard about H.E.R.O. when she received an email to volunteer at the fall festival in October.

"I got this little seven-year-old girl, the most adorable kid I've ever seen in my life, and her little brother was there, too...We go do all these really fun games with them. I still have my pumpkin [that we painted] in my room, and it was just a lot of fun," Roush said that she was actually starting it here at Tech...I wanted to get more involved with it and be able to meet some more really cool kids like the ones I met last fall.

Gravesen said that H.E.R.O. is aiming to get college students and young professionals involved.

He hopes that they will be able to create a "youth movement" across the state and expand what had originally started in Athens, Ga.

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