

## **SAREX Working Group (Amateur Radio on the International Space Station)**

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**Document 22**

## **REPORT: ARISS Activity for July - December 2005**

### **Highlights:**

- SuitSat was successfully launched and is waiting deployment in February.
- Rosalie and Frank Bauer were named the US points of contact for the ARISS International committee that is planning ARISS' involvement in President Bush's *Moon, Mars and Beyond* initiative for NASA.
- The ARISS Team worked to expand its media efforts to the general public and within NASA; successes are listed below. Proof of progress was when Bill Gerstenmaier, NASA Hq Assoc Administrator of Space Operations Mission, stopped team member Frank Bauer in the NASA hallways, asking about SuitSat.
- Astronaut Bill McArthur is working on 2-meter and 70-cm WAC and DXCC from space. In the first 4 months of his 6-month ISS stint, he's made over 700 QSOs!

### **ARISS Hardware**

**SuitSat:** The SuitSat hardware and the SSTV system passed NASA and Russian safety reviews, and was delivered on a Russian *Progress* rocket to the ISS in September. The ARISS Team prepared procedures for assembly and deployment (for a February spacewalk) that the ISS crew will follow.

**PCSat:** NASA had some interference issues from Bob Bruninga's PCSat-2 payload, and the ARISS Team answered to those problems.

**SSTV:** ARISS team member Lou McFadin, W5DID, built and tested RF cables for the SSTV hardware.

**European Columbus Module:** ARISS Europe built and successfully tested the first flat-model S-band antenna for their *Columbus* module that will be part of the ISS in 2006. They formed a team to study what equipment should be onboard *Columbus*, and at an

IARU Region 1 conference, a Space Working Group was formed. The team met in ESA's clean room to view the feedthroughs that were installed for antennas.

### Training

The ARISS Team taught these astronauts to prepare them for taking ham exams: Sandy Magnus, KE5FYE; Nicole Stott, KE5GJN; Bob Behnken, KE5GGX; and Michael Lopez-Alegria, KE5GTK (Expedition 14 Commander).

Cosmonaut Pavel Vinogradov, RN3FI, and Expedition 13 Commander Jeff Williams, KD5TVQ, were trained by the ARISS team to operate the ARISS radios, in particular, the new SSTV equipment.

### ARISS' Effect on Schools

At one ARISS school, no teacher or student was a ham. The local ham club has been asked, now, to help integrate ham radio into the school science curriculum and offer a license class.

A Central Park Middle School (NY) teacher reported that her students were more excited about science related to ARISS than anything she's ever seen in her school.

An ARISS school's students are studying ham radio, propagation, and space.

A Chicago ARISS teacher networks with teachers around the US, sending them transcripts she recorded of ARISS QSOs.

A teacher who submitted a 2004 application said the school "most assuredly remains interested," and has sponsored ham HF and satellite demos to teach students to talk on the radio. The school has a web site about its ARISS education activities.

The ham rigs used for the Mt. Carmel HS (SDgo) ARISS QSO will be left at the school for their new ham club. The teacher reported that one student who is now a ham, hopes to work at Jet Propulsion Lab. Also, the student who pushed the school to apply for an ARISS QSO, is now a University of Colorado EE major.

A Carman Park (MI) elementary teacher wrote that pupils learned about radio propagation from their NASA education specialist.

Italian astronaut Roberto Vittori, IZ6ERU, attended an education conference, meeting with students who won the ESA's ARISS school competition.

### Crew Enthusiasm

Astronaut Bill McArthur, KC5ACR, wowed scouts and hams with JOTA QSOs.

McArthur told the ARISS Team he really enjoyed school QSOs, and wanted to talk with more than one school per week. This results in a lot more work for ARISS volunteers, but they willing do it. McArthur also makes many general QSOs, thrilling hams.

ISS crewmember Valery Tokarev and many of the cosmonauts in Russia got on the air for the Russian Space Patrol holiday event, which some US hams enjoyed.

### PR

The Discovery Channel produced an ISS documentary that includes footage taken at an ARISS QSO; the program airs in January.

MSNBC carried the Mt Carmel HS (SDgo); newspapers writing stories were: *North County Times*, *Union Tribune*, and *Corridor News*. MSNBC aired the Hermann Middle School (MO) QSO while two area TV stations ran newscasts with video clips.

The BBC covered the Furtherwick Park School (UK) ARISS QSO.

Boston Museum of Science posted "Postcards from the Very Edge" on its Web site about the Kuss Middle School's (MA) QSO.

PR from the ARISS QSO at a CERN (the world's largest particle physics lab) conference hosting 400 scientists, teachers and students, reached 10,000 newspaper readers and 1,000,000 TV and radio broadcast audiences. The QSO was part of a six-country student competition with winners interviewing Bill McArthur.

Seven New Hampshire reporters ran stories on Hawthorne Brook Middle School's QSO where 100 people, including the district superintendent, watched.

Rosalie was interviewed by *TechWeb.com* who did an ARISS story.

*Space Times* carried a short item about ARISS.

The *New York Daily News* ran a story covering a Greg Olsen ARISS QSO.

*Space.com* wrote about Greg Olsen's QSOs, quoting him on the importance of exciting students' imaginations.

The ARISS Team compiled details about SuitSat, and NASA Hq saw our work, turning it into a NASA Web story, "Hearing Voices from Space."

Rosalie edited a QST article from an ARISS volunteer, and wrote the sidebar.

The Central Park (NY) School QSO was covered by 4 TV stations and 1 newspaper; the school posted a story on its website. The audio was fed to Echolink and EDU\_NET conference room servers with 31 connections (and 5 repeater nodes).

NASA TV aired several information pieces about SuitSat and mentioned ARRL as a sponsor of ARISS.

The Sanderson HS (TX) QSO was covered by the *Terrell County News Leader*, *Davis Mountain Times*, *Big Bend Sentinel* and *Alpine Avalanche* newspapers.

The Carman Park Elementary School (MI) QSO was webcast on EchoLink and EDU\_Net, and was audio-streamed on the IRLP Discovery Reflector.

Radio Netherlands aired a 52-minute interview of Andre Kuipers, PI9ISS, who described his ISS experiences, twice referring to ARISS school QSOs.

Over 300 people watched the Flint (MI) QSO; the *Flint Journal* carried the story and NASA-TV ran live coverage.

### International

Rosalie coordinated the design, layout and text of the updated ARISS QSL card. She worked with AMSAT, and they will now share QSL print costs for the US. ARRL will no longer subsidize Russia's QSL supply. No work by ARRL's graphics department was required, further saving money.

ARISS international partners listened to early thoughts on new ARISS projects to be funded by others, such as the Department of Defense.

Since August, Rosalie took part in ARISS-International School Mentor weekly teleconferences. She joined in 6 ARISS-International monthly teleconferences. She participated in 13 Russian-USA teleconferences. She prepared the agenda and moderated 3 teleconferences for the ARISS international education team. She worked with international school mentors to ensure their teachers submitted NASA evaluations.

AMSAT-Italia is working with ESA on a potential future project called "Ionospheria;" they've set up a Web page describing it as cooperative use of ARISS capability to predict HF K and A indices.

Japan's CQ magazine ran an article on SuitSat.

Two TV stations, including NHK (Japan Brdcstg Corp) and three newspapers aired the Takatsuki Ed Center QSO, boasting 400 students, parents and townsfolk.

Instituto Comprensivo Francesco Negri (Italy) posted on the Web a video clip and photos of their ARISS event.

Ralph McCall School, Alberta, saw an audience at their QSO of 920 students, plus 140 from a neighbor school. Visiting dignitaries included Parliament Member Myron Thompson, the superintendent and associate superintendent of schools, school board trustee, 4 city councilors, and several area high school principals. Media reps were from: CBC TV & radio, Reuters, *Newsworld*, CTV news, City TV, Global TV, *Calgary Sun*, *Calgary Herald*, and 3 small newspapers.

### *NASA Business Dealt with by the ARISS Team*

Rosalie and three other US ARISS leaders held teleconferences every Monday and Wednesday morning.

The grant proposal submitted to NASA by the ARISS Team in July was approved, giving us funds for the rest of 2005.

NASA Hq asked Frank Bauer and Rosalie to deal with a Congressional Inquiry sent to NASA's Legislative Affairs Office regarding ARISS.

The ARISS US Team developed/submitted a long presentation to NASA Hq Division Directors who reviewed all NASA Education programs for funding purposes.

Rosalie archived statistics from the year into the 2005 NASA Program Inventory Report and the 2005 NASA ARISS Final Report. She worked with ARISS teachers who had difficulty inputting information to the NASA evaluation form.

Rosalie coordinated with ARRL clubs and Field Appointees to become club mentors for 3 QSOs done by Russian Space Explorer Greg Olsen, where US Congressional reps and local city officials were visiting.

The ARISS Team prepared questions (such as how our hardware is working) for NASA and Russian debriefings of Greg Olsen, Sergei Krikalev and John Phillips. The latter reported the radios were used a great deal, and that the radios functioned well.

Rosalie contacted the last six 2003 ARISS schools to update their apps.

The ARISS Team prepared a NASA quarterly ARISS report.

Johnson Space Center (JSC) powered down Mission Control for Hurricane Rita evacuation; ISS control was given to the Russian Space Agency. An ARISS School Mentor asked Rosalie to handle duties while he evacuated after working at the EOC.

The ARISS Team began studying a proposed NASA charter on who provides what resources; the charter is to be completed in early 2006.

Respectfully submitted,  
Rosalie White, K1STO  
ARRL ARISS Program Manager