



# SIGNAL



de N1NC

February 2002 Volume 11 Number 2

## This Month's Meeting

This month's program will be EHF datalink systems by David Russell.

We are going to run an emergency communications course so there will be a discussion at the meeting on what format people would work best for them

We gather at Tiny's for breakfast Saturday mornings at 8:00 AM. We sit in the back dining area.

Bring your short Shows-and-Tell to the meetings. They are always welcome. Its always interesting to see the variety of things people are working on.

## ARES, RACES, SKYWARN Communications Drill

Massachusetts ARES, RACES, and SKYWARN will conduct a state-wide Simulated Emergency Test (SET) March 23<sup>rd</sup>. This will be a communications exercise and will be based on a hurricane scenario. Participating communities need to contact Tom Kinahan in advance as the message traffic is predetermined in the form of hourly envelopes to open and enter into the nets. The messages are designed to support the scenario. All stations are encouraged to find and check into their local net.

## Volunteers Still Needed For Marathon

In a change from past years all ham radio volunteers are being coordinated only through the Crocker Public Service Group (<http://cpsg.amateur-radio.net/>).

## Last Month's Meeting

The January meeting started with a short business session and treasurer's report by Ralph KD1SM as

printed in last month's newsletter. Erik KA1RV reminded everyone that elections were coming up in April and that two board member positions were open and needed to be filled. He also said that while nominees are identified for the other positions there may be opportunities if you express an interest in serving the club.

Earl WRIY brought his laminator and several people took advantage of it to get their licenses protected. Earl will bring it to the next couple of meetings in case you didn't have what you wanted laminated with you in January.

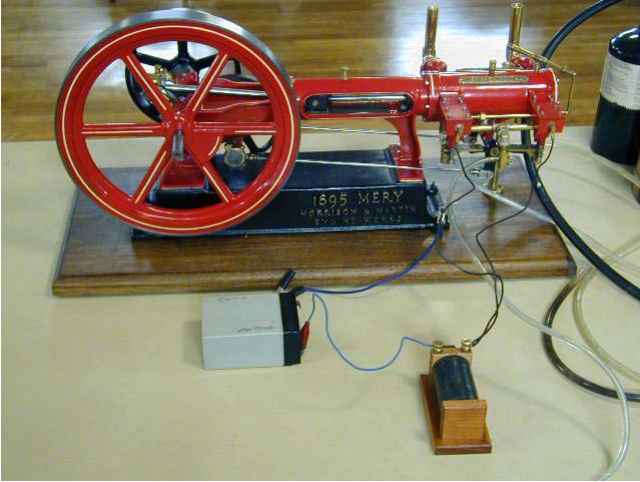
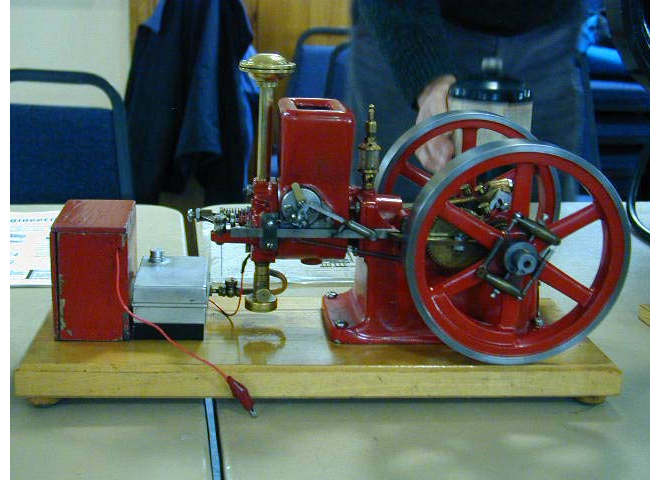


Bob W1XP presented certificates to those completing the antenna measurement course.

The main program was a talk by Norm Jones on miniature engines. Norm brought four beautiful engines he had crafted. All of them were functional and he ran them to prove it.



Above Norm is tending to a Sterling Engine which runs a water pump to supply cooling water to the double acting cylinder engine on the left and below.



The third engine displayed (top right) was a skip engine and the fourth (lower right) was a demonstration Sterling engine that ran on a small difference in temperature.



Demonstration Sterling engine which ran on a difference in temperature. During the meeting it ran on snow which was placed in the base. This was a cooler than the room temperature plate on top. Later it was run from the heat from being held in two hands which were warmer than the room.



After the presentation everyone got to see up close the beautiful workmanship in these engines.

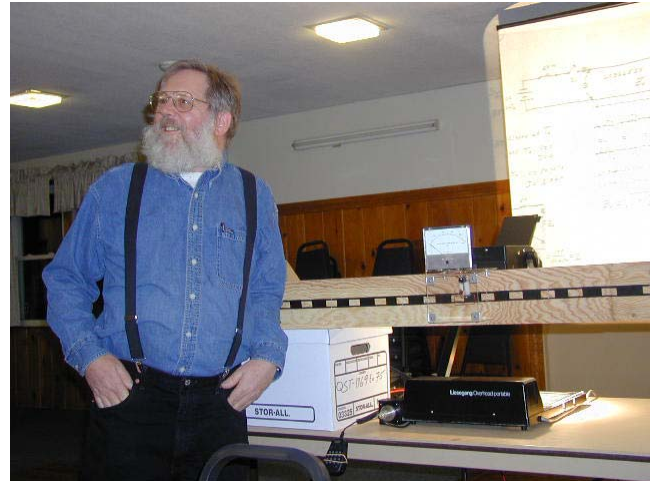


Here Erik KA1RV and Sam admire the Sterling demonstration engine which is running on the heat from Sam's hands.

### Antenna Measurement-Analyzer Course

Bob W1XP built a one-wavelength (at 2 meters) balanced slotted line to illustrate the course material.

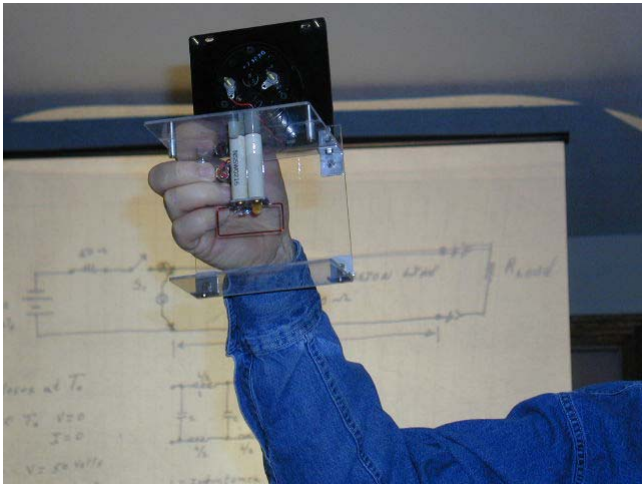
The large panel meter slides along the open wire line and displays the current magnitude at each location.



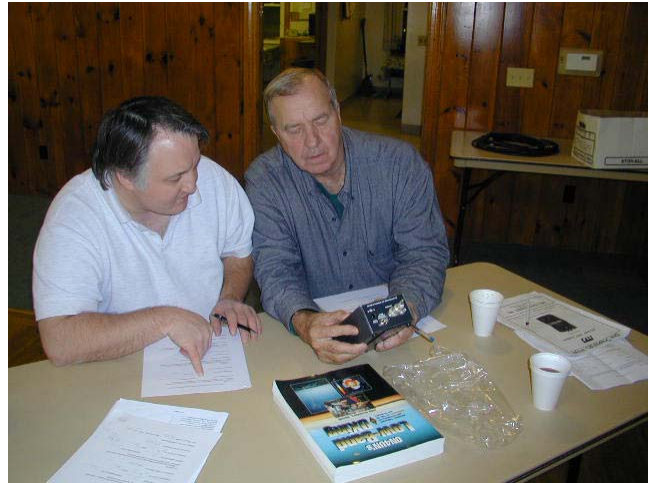
The Antenna Measurement Class met January 3<sup>rd</sup> and January 10<sup>th</sup> at the Pepperell Community Center. The class was developed and conducted by Bob W1XP. The course was intended to familiarize the user with the MFJ 259/269 series of antenna analyzers. The course covered basic (no math) antenna and feedline theory. It discussed the parameters we could measure and what they might mean. There was a lab period for each session where the class took actual measurements of a variety of 'antennas' and cables. Measurements were taken using the MFJ 259B and 269 Antenna Analyzers. The following attended the First class; Dave N1MNX, Bruce K1BG, Dennis K1LGQ, Stan KD1LE, Ben KB1FJ, Ralph KD1SM, Den KD2S, Jim N8VIM, Les N1SV, Erik W1ZBT, Jack KB1HRC. The second class was attended by Les N1SV, Erik W1ZBT, Stan KD1LE, Ben KB1FJ, Ralph KD1SM, Den KD2S, Jim N8VIM.



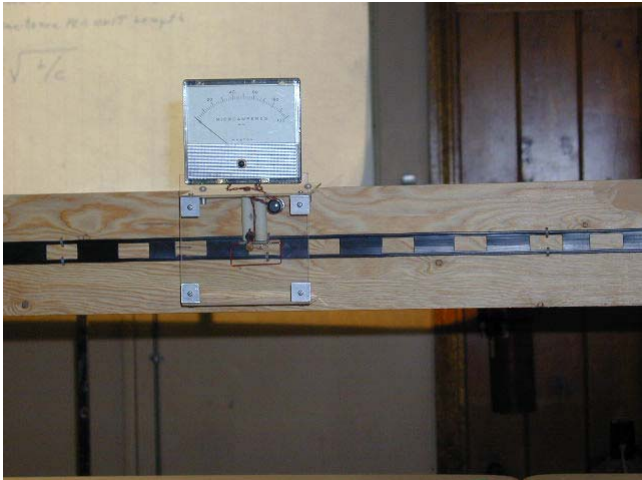
Above is the open wire transmission line used with the current pickup and meter (held by Bob) below to display the current standing waves on the line.



Den KD2S and Jim N8VIM complete the resonant frequency measurement of a large sized inductor.



Les N1SV and Erik W1ZBT ponder one of the measurements in the lab portion of the class.



A closer view of the sliding meter assembly with its current sensing loop suspended below.

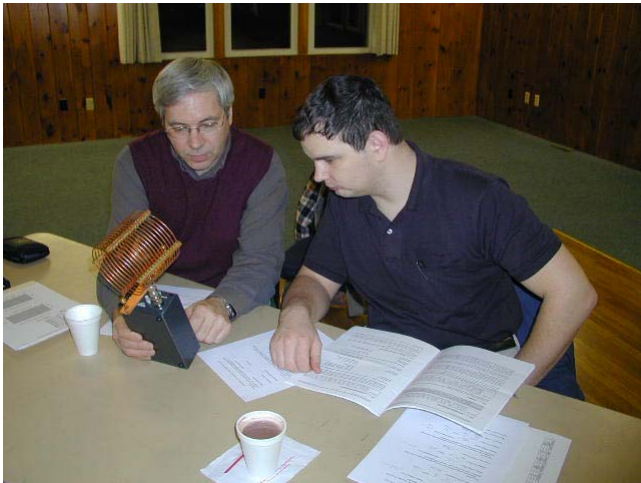


Dave N1MNX measuring a large coil of wire with termination at the other end.

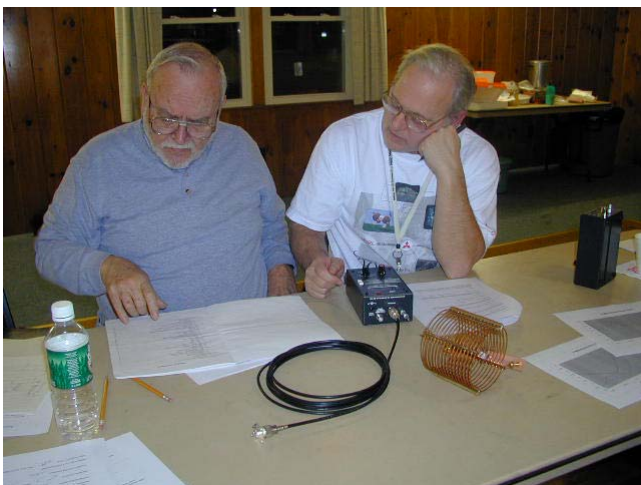




Above Ben KB1FJ records data while Stan takes a measurement on one of the test “antennas”.



Above Den and Jim measure a 160 meter antenna (coil).



Here (bottom left) Ben determines the requirements of this portion of the lab. The class included feed lines and measurements of “antennas” directly connected to the test instruments and connected by lengths of coax.

Students were required to take measurements of an antenna at home and plot it for the next class. Several plots can be seen on the table to the right.

### Adopt-A-Highway

April will be our first road cleanup of 2002 hope to see a few new faces...Stan

### April Elections

Elections are coming up in April. If you would like to try a position as a club officer or board member let one of the current officers know of your interest.

### Board of Directors Meeting

The February Board of Directors meeting was held at the KA1RV QTH. The Board approved the purchase of 6 sets of the ARRL Emergency Communications course books. Also approved was a purchase of FoxFinder PC boards that will be brought to the meeting for approval. The Treasurers report was submitted by email and is printed in newsletter. There was a report on the Emergency Communications Seminar that was held in Peabody. There was a discussion on the what might be the best format for running our own emergency communications course and the board is looking for members input.

### Emergency Communications Course

Den KD2S coordinated NVARC participation in an Emergency Communications Workshop held February 2<sup>nd</sup> from 9 AM-4:00 PM at the Jordan Masonic Lodge in Peabody, Massachusetts. The session was put on by the ARES Section Staff and Peabody Emergency Mangement through the efforts of Jeff Arnold, N1FWV, Peabody Emergency Management Communications Officer.

The Emergency Communications Workshop provided the background and information to serve Amateur Radio Operators when they need to respond to a communications emergency. It featured an Introduction and Conclusion to Emergency Communications, and five 1-hour training sessions on topics including: Introduction, Net Operations I, (Tactical Message

Handling for ARES/RACES/SKYWARN Nets) , Net Operations II, NTS Traffic Message Handling, Basic ICS, Go Kits

Besides Den KD2S the following attended the session; Ralph KD1SM, Jim N8VIM, Stan KD1LE, Bob W1XP, Karen KA1JVU, and Ron KB1GID. That's great participation by NVARC members and shows our commitment to being prepared for an emergency. Thanks to Den for coordinating this activity.

## From The ARRL Letter

### ARRL UNVEILS ANTENNA MODELING COURSE

The ARRL Certification and Continuing Education Program soon will offer its first technical course--Antenna Modeling. Written by the well-known author and historian L.B. Cebik, W4RNL, and edited by ARRL Senior Assistant Technical Editor--and antenna guru--Dean Straw, N6BV, the course offers students a hands-on tutorial. Registration for Antenna Modeling (EC-004) will open Monday, February 11.

The course has been through extensive beta testing during the past several weeks, and even the experts found they'd picked up some new knowledge on the subject. "I've been modeling antennas using a computer for about 15 years, and I certainly learned a great many things in this course," Straw commented.

ARRL Certification and Continuing Education Program Coordinator Dan Miller, K3UFG, said the experts agreed that the best method to master the art and science of antenna design and analysis was to become familiar with the basic concepts of computerized antenna modeling and modeling software. "Using computer simulations--models--you will study the performance of a wide variety of antennas, without having to invest in a test range or a room full of test equipment," he said. "In this course, students will learn to master the basic techniques of constructing good models."

Several excellent and affordable antenna modeling software packages are available. The course will illustrate the elements of modeling antennas using two of the most popular packages based on the NEC-2 core--EZNEC 3.0 by Roy Lewallen, W7EL <<http://www.eznec.com/>> and NEC-Win Plus by Nittany-Scientific <<http://www.nittany-scientific.com/>>.

Beta testers offered positive feedback after completing the course. "What a gold mine of information!" said Dan Maguire, AC6LA. "I found myself looking forward to taking the next lesson just to see what

new things I could learn." Former ARRL staff member Chuck Hutchinson, K8CH, also took a crack at the program. "Wow, I sure learned a lot about antenna modeling!" was his reaction.

Students will have up to 12 weeks to complete the course material. "There are 31 lessons, and you should plan to spend one to two hours per lesson," Miller advised. The inaugural class begins Tuesday, February 26 and wraps up Tuesday, May 21.

A sample lesson based on the actual Antenna Modeling course is available on the ARRL Web site <<http://www.arrl.org/cce/sample-lesson/>>. Registration for the new Antenna Modeling course opens Monday, February 11, at 4 PM Eastern Time on the ARRL Course Registration page <<https://www.arrl.org/forms/cce/>>.

The registration fee is \$80 for ARRL members and \$110 for nonmembers. Continuing Education Units (CEUs) are available for all ARRL C-CE courses.

Answers to most questions are available on the ARRL Certification and Continuing Education home page <<http://www.arrl.org/cce>> and the associated C-CE links. To learn more, contact ARRL Certification and Continuing Education Coordinator Dan Miller, K3UFG, [cce@arrl.org](mailto:cce@arrl.org).

### HAMS ASSIST AILING SAILBOAT PASSENGERS

Amateur Radio operators have once again been instrumental in getting prompt assistance to sailboat passengers needing emergency medical attention.

On January 30, Marsha Stone, XE2/KF6TIQ, was scuba diving at 77 feet off Mexico when she encountered problems while surfacing. It's believed that she developed a pulmonary embolism as a result of the dive. She also was exhibiting possible neurological symptoms. Stone was aboard her sailboat She Wolf with three other passengers at the time, including her sister. Other amateurs sailing in the vicinity came to Stone's aid.

Members of the Intercontinental Net on 20 meters learned of the situation and offered to help. Bob Botik, K5SIV, in Austin, Texas, phone-patched Stone to her personal physician, who advised that she needed to get to facilities in Cabo San Lucas as soon as possible.

Meanwhile, aboard the sailing vessel Spirit Quest, Kathy Brownell, W6ATM, and her physician-husband Doug rendezvoused with Stone's vessel, and the couple was able to provide oxygen and comfort to the

victim as well as transport to the Naval Landing Station at Socorro Island, Mexico, for an airlift.

Also rendering aid was Barb Campbell, XE2/KBORIZ, a registered nurse aboard the sailing vessel Blue Chablis. Campbell's vessel reportedly stayed alongside Spirit Quest throughout the night to lend assistance when the victim's boat arrived at Socorro. The She Wolf and Spirit Quest maintained contact on marine VHF frequencies.

"This was a wonderful group effort of humans who had ham radio," Botik said.

Stone was transported to Cabo San Lucas the following day. Botik reported this week that he'd spoken to Stone and that her spirits were high. He said she had undergone treatment in a hyperbaric chamber, and, as of February 5, was able to stand and walk without assistance. "She continues her recovery," he said.

On February 4 a woman identified as Miranda Middleton--an Australian national in her mid-20s--became seriously ill while aboard the sailing vessel Baggywrinkle in the Caribbean. Skipper Benjamin Shaw, KG4OAO, got on 20 meters to seek assistance on the Intercontinental Net. Unable to copy Shaw well, Dave Franke, WA5EZW, alerted Ed Petzolt, K1LNC, in South Florida by telephone.

No stranger to dealing with maritime emergencies via ham radio, Petzolt contacted the US Coast Guard in Miami, which patched him through to its San Juan, Puerto Rico, station. The US Coast Guard in turn contacted Coast Guard officials in St Vincent and the Grenadines. Coast Guard detachments in the US and in the Grenadines came up on frequency, and Petzolt was able to relay information between the Coast Guard and Shaw's vessel as necessary.

Middleton was picked up by the St Vincent Coast Guard and was taken to Kingstown for treatment. "Score another one for ham radio!" Petzolt said. He noted that KG4BVR, W8LK and W3JMU and other stations stood by in case of problems.

Shaw said that when Middleton arrived at the hospital, she was experiencing numbness and partial paralysis. He added that she was doing much better following treatment.

Shaw expressed his gratitude to the amateurs who aided in Middleton's medical evacuation to St Vincent, and especially to Petzolt. "Miranda and I would like to extend a special thanks to Ed for his excellent help throughout the ordeal," Shaw said. "Not only did he assess and take control of the situation in a rapid

and professional manner, but he also kept our spirits up as we communicated.

Shaw expressed the hope that he and Middleton could be back on their way to Trinidad "in a week or so." Shaw maintains a Web site <<http://www.baggywrinkle.com>> and uses HF to access his e-mail while under way.

## **PRESIDENT BUSH ADDRESSES FLORIDA ARES NET**

President George W. Bush spoke January 31 via Amateur Radio to members of the Northern Florida Amateur Radio Emergency Service Net (NFAN). The president was in Florida to spotlight five volunteer groups for their value to the new Office of Homeland Security--among them the Volusia County Amateur Radio Emergency Service (ARES).

"I want to thank all the volunteers who help make sure that Florida is prepared for any kind of emergency," the president said in part, after checking in around 9:15 AM to a regular session of the 75-meter ARES net. "I want to thank you all for helping your communities be prepared."

Northern Florida ARRL Section Manager Rudy Hubbard, WA4PUP, said Bush spoke from a portable station set up at a Daytona Beach-area fire station. At the request of ARES Volusia County Emergency Coordinator Joette Barnett, KG4HPN, John Schmidt, AF4PU, and Clifford Fraser, KE4HIY, arranged to have the station ready as a demonstration of Amateur Radio's role in emergency preparedness and in the hope that Bush would be willing to address the 75-meter net. Hearing the president check into the net was a pleasant surprise, Hubbard said.

ARRL President Jim Haynie, W5JBP, said he was "extremely gratified" that President Bush recognized the valuable service Amateur Radio operators provide in times of emergencies. "I know that all hams in the United States stand ready to do their part in America's Homeland Security Program," Haynie commented. Haynie has said that defining Amateur Radio's role in homeland security would top his list of initiatives for his second term.

Hubbard said a copy of proposed expanded Amateur Radio antenna (PRB-1) legislation was given to the President and to the president's brother, Florida Gov Jeb Bush, for possible introduction in next year's Florida legislative session. "We Amateur Radio operators will volunteer however we're needed, and maybe it will be seen that we can greatly help the nation if we have the antennas we need," Hubbard

commented. The proposed bill would seek to extend Florida's PRB-1 law to include private deed covenants, conditions and restrictions.

Bush's stop in Florida was part of a swing through the southeastern US, which also included stops in North Carolina and Georgia. The Daytona Beach event marked a rare appearance on ham radio by a sitting president. Former President Gerald Ford spoke via a ham radio satellite hookup in 1986.

### **ARRL GOING TO THE MAT ON 70-CM THREAT**

ARRL officials met recently with FCC staff members as part of the League's effort to stave off a band threat on 70 cm. ARRL General Counsel Chris Imlay, W3KD, and Technical Relations Manager Paul Rinaldo, W4RI, delivered an ex parte presentation to FCC Office of Engineering and Technology staffers on January 14. At issue was SAVI Technology's plan—already tentatively agreed to by the FCC—to deploy unlicensed transient RF identification devices between 425 and 435 MHz at much higher field strengths and duty cycles than Part 15 rules now permit for such devices. RFID tags are used to track and inventory parcel shipments.

"We told them that this was the worst possible choice of bands for these RFIDs," Imlay said. "Besides, there's no technical justification for that choice of frequencies." The request to use 70 cm has more to do with economics than technology, he said, because SAVI needs to bring down the cost of RFIDs in order to make a profit.

Imlay added that the ARRL would "do whatever it takes" to stave off the threat, including further direct appeals to FCC staff. The ARRL plans to file "strongly worded" comments on the SAVI petition by the February 12 comment deadline. Reply comments are due by March 12, 2002. Imlay said he was assured that SAVI's request "was not a done deal."

The FCC acted on the SAVI request last October in an FCC Notice of Proposed Rule Making and Order (ET Docket 01-278). The ARRL argued in comments filed last March that the field strengths and duty cycles SAVI proposed for its RFID tags as Part 15 "periodic radiators" were unreasonable and "would undoubtedly seriously disrupt amateur communications in one of the most popular of the Amateur Service allocations," particularly for weak-signal enthusiasts.

The League also believes the FCC lacks the statutory authority to permit the RFID tags under its Part 15 rules in the configuration SAVI has requested. The ARRL argues that under the Communications

Act of 1934, such devices with substantial interference potential must be licensed. The ARRL also has suggested that SAVI pick one of the Industrial, Scientific and Medical (ISM) bands instead of 425-435 MHz.

The ARRL's January 14 ex parte presentation was complemented by an interference study prepared by ARRL Lab Supervisor Ed Hare, W1RFI, and ARRL Senior Engineer Zack Lau, W1VT. A copy of the interference study and more information is available on the ARRL Web site "Band Threats" page <<http://www.arrl.org/announce/regulatory/rm-1005/SaviExParte.pdf>>.

### **NEW HF AMATEUR RADIO ANTENNA ON ISS**

Amateur Radio on the International Space Station gained a new HF antenna January 25—although there's no HF gear aboard the ISS as yet. The antenna—the second of four slated for installation aboard the Service Module—was put into place during a spacewalk—or EVA—conducted by Expedition 4 Crew Commander Yuri Onufrienko, RK3DUO, and astronaut Dan Bursch, KD5PNU.

The antenna is a flexible-tape design—similar to, but longer than, a VHF-UHF antenna installed during a January 14 EVA by Onufrienko and astronaut Carl Walz, KC5TIE. ARISS Board Chairman Frank Bauer, KA3HDO, said the antenna would be installed at the end of the Service Module in the 2 o'clock position (6 o'clock is pointing toward Earth).

The HF antenna is a 2.5-meter (8.2-foot) long flexible tape. Bauer thinks it will definitely work on 10 meters and speculated that it might work on 15 or 20 too. Bauer added that he did not know when HF gear would be transported to the ISS nor when it might be made available for use by a future crew.

The EVA lasted several hours and also involved attaching six thruster plume deflectors on the ISS as well as the ham antenna work. Installation involved not only the mechanical deployment of the antenna but routing cables, establishing the RF connection and even photographic documentation.

A paper entitled "2001: an Amateur Radio Space Odyssey on the International Space Station," which details the development of ARISS and discusses the four new ARISS antennas is available via the ARISS Web site <<http://ariss.gsfc.nasa.gov/EVAs/amsat01.pdf>>.

The Expedition 4 crew is tentatively scheduled to speak with students at Butte High School in Montana



the week of January 28. The contact was being arranged either via Tony Hutchison, VK5ZAI, in South Australia or via WH6PN at Sacred Hearts Academy in Honolulu.

### **PENNSYLVANIA RACES MEMBERS ACTIVATE FOR NURSING HOME FIRE**

Hams responded December 15, 2001, after fire broke out at Cedarbrook County Home in South Whitehall Township and soon was upgraded to a four-alarm fire.

Emergency Management Agency Coordinator James Kelly, KA3UQP, began opening temporary shelters in anticipation of the evacuation of the 515 residents. He notified the South Whitehall EMA team that included Jeff Kelly, N3MFT, who is the Township EMA Communications Officer, Lehigh County Emergency Coordinator and RACES Radio Officer. It was agreed that RACES would be activated to staff the shelters and provide additional support.

A net was established, and Deputy RACES Officer Bruce Bobo, KB3FIH, directed operations from the county's mobile command center at the fire scene. RACES members were deployed to the scene as well as at shelter locations and the local trauma center. Over the next 24 hours, more than two dozen RACES members helped to provide communications until temporary shelters had shut down and residents transported to appropriate care.

On December 17, Lehigh County EMA contacted Kelly for RACES to assist in coordinating the return of patients to the facility, which received smoke and water damage. Bobo said RACES was called back in to help because it was determined that the amateur system had the best communications coverage over the four-county area where patients had been sheltered temporarily. More than 20 RACES members from Lehigh and Northampton counties provided support for the safe return of all 515 residents. Authorities expressed appreciation to the RACES teams and for use of the W3OI 146.94, W3OK 146.70 and N3MFT 448.775 MHz repeaters.--Jeff Kelly, N3MFT

### **January Treasurer Report\$**

Income for January was \$45 from membership renewals, \$9.68 net from FoxFinder sales, \$36.24 in savings interest, and \$9.43 net from club patch purchases (less postage).

Expenses were \$22.60 for newsletter and other postage, \$20 for Postal Box annual fee, and \$200 for

ARRL books for the book raffle, leaving a net expense for January of \$142.25.

Fund balances as of February 12 are:

General Fund:	\$4989.84
Community Fund:	\$1717.55

73,  
-Ralph KD1SM



### **Nashoba Valley Amateur Radio Club**

PO Box # 900  
Pepperell Mass 01463-0900

mailto:[nvarc\\_n1nc@arrl.net](mailto:nvarc_n1nc@arrl.net)  
<http://purl.org/hamradio/club/nvarc/>

Pres.: Erik Piip KA1RV  
V Pres.: Earl Russell WR1Y  
Secretary: Ian Norrish NZ1B  
Treasurer: Ralph Swick KD1SM  
Editor: Stan Pozerski KD1LE  
Photographer Ralph Swick KD1SM  
PIO: open

#### **Board Members**

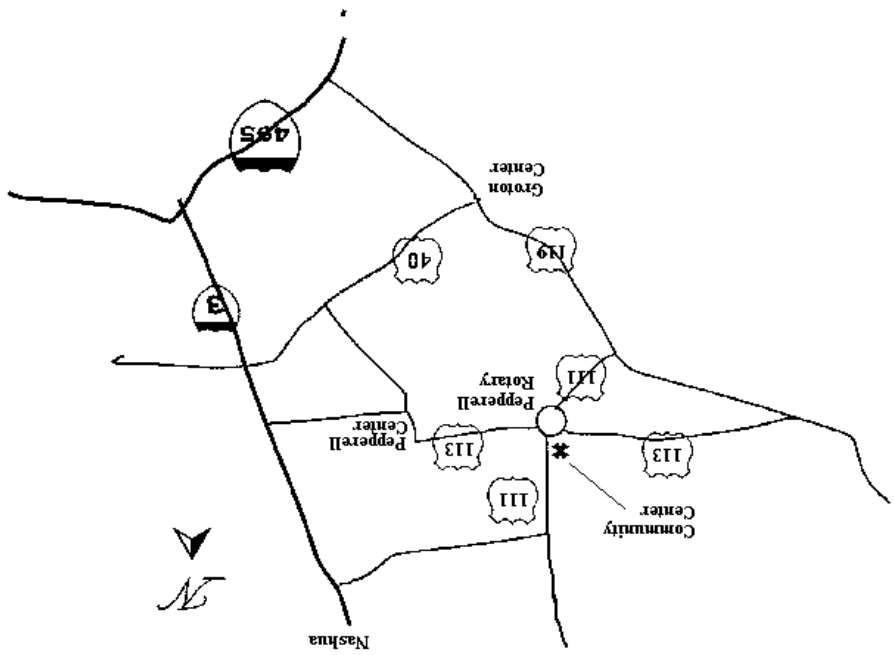
Bob Reif 1999-2002  
Den Connors 2000-2003  
Craig Kalley 2001-2004

Meetings are held on the 3rd Thursday of the month -  
7:30 p.m. - Pepperell Community Ctr. Talk-in 146.490  
simplex

442.90 + 100Hz Repeater  
53.890 - 100Hz Repeater

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[pozerski@net1plus.com](mailto:pozerski@net1plus.com)  
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**Nashoba Valley Amateur Radio Club**  
 PO Box 900  
 Pepperell, MA 01463-0900