NVARC
Nashoba Valley
Amateur Radio Club

SIGNAL

SPECIAL SERVICE CLUB
ARRL

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This Months Meeting

Don't forget that the December meeting is home-brew Nite. I hope everyone picked a nice project to show off. Let's have a good project turn out. No project too small and big is only limited by the size of the Community Center and the parking lot.

Next Month's Meeting

George W1ME will be the speaker for the January meeting and the topic will be AMSAT and Amateur Satellites in the US>

Last Month's Meeting

Unfortunately our speaker for last month got stuck at work. So we did the necessary business and then had a round table discussion that covered just about every subject. We are scheduling George W1ME again to talk about AMSAT and he promised to take the day off from work so he would not get hung up this time.

NVARC Field Day 1998

NVARC Field Day 1998 (a participants view)

The results for Field Day were published in the November QST. I have summarized them below. So how did we do? It depends on how you look at it. Compared to the Nashua Club who ran 26A just to be different, we were obviously a modest operation. In the 2A Class there were 606 entries this year compared to 594 in 1997. In terms of the positional standings in Massachusetts we dropped from first position in 1997 to third position in 1998. What changed? The total point scores of the top entries went up slightly this year. The top scores of the Massachusetts clubs went up more while our total point score dropped. This resulted in our overall performance dropping from 25th to 64th when all the entries are considered.

Standings of 2A clubs in Massachusetts (out of the top 200)

1997		1998
1st NVARC 6,656	Falmouth	8,598
2nd Falmouth 6,474	Norwood	6,344
3rd HP Andover 5,176	NVARC	5,428
4th NSRA 3,958	Billerica	5,172
5th	HP Andover	4,414

NVARC
24th overall in 2A (594) 64th overall in 2A(606)

6,656 5,428

Overall the scores in 2A seem to have climbed slightly. But only two of the top five this year were there last year. So whether that's an overall change or just different competitors isn't clear.

Point scores of the top 2A entries

1997		1998
1st	12,706	13,036
2nd	10,140	10,992
3rd	9,102	10,748
4th	8,808	9,590
5th	8,714	8,968

There were several easy to identify problems in our operation. First we had less operators this year while we were trying to support more. We

took on more antenna installations, more serious support of the six meter (VHF/UHF) station, and a Novice/Tech station in addition to the two HF stations. We also had some problems with the logging computers.

If the intent is to be competitive in the 2A class you must run the VHF/UHF and Novice stations continuously in addition to the HF stations. That means a minimum of four operators at all times plus some support crew for power and such. Realistically that means having fourteen to sixteen people who want to operate. We only had ten total operators this year. That's just slightly better than two shifts to staff an around the clock operation which just isn't enough. The lack of operators probably had the biggest negative impact on the Novice/Tech station which had only one operator and ran only five or six hours out of twenty-four while ten meters was open.

Since it is so much work to set up and take down all of the equipment it only makes sense that you take full advantage of everything you set up. On the other hand it is nice to have enough stations that everyone can operate a reasonable amount of time. So you shoot for some middle ground. The problem we had is that with ten operators we were at the far end of too much equipment and set up and not enough people to operate. We can't expect to run 2A and support a Novice/Tech and VHF/UHF station with ten ops. To be competitive in 2A you have to run all four stations that are permitted. The other choice then is to run in Class 1A that only allows us to run one HF station and no Novice/Tech or VHF/UHF station. That eliminates three quarters of the possible operating time. The benefit gained by the loss of three quarters of the operating opportunity is only slightly less effort in terms of shelters and no difference in the power system both of which require significant effort. Unfortunately there is nothing in between.

So with almost half the time from last Field Day to next gone, or for the optimists among us, more than half the time to prepare still remaining, we have to start thinking about the size of the operation we would like and how or if we can get enough people to run it.

Stan

Twas The Night Before Christmas

With apologies to Clement Clark Moore.

By W1XP

It was the night before Christmas, well almost, and he had been all through the house and not found them yet. If he didn't find them soon it would be dark. He was beginning to have second thoughts about this anyway so he better get it done before he changed his mind. Maybe they were in the garage he thought. As he stepped out into the late afternoon sunlight, the light on the snow hurt his eyes. The few inches of snow several nights ago had assured a white Christmas this year. It was easy to get into the Christmas spirit which he needed if he was going to go through with this. The garage had not seen a car in years. It was full of all the things that a pack rat family, including one pack rat ham, can not throw away. Frank worked his way across the floor stacked with cardboard boxes of this and that. Most was his treasures of old radios, antenna parts and other things that had been moved out of the basement when the XYL ordered a clean up. She had given up on the garage years ago. He worked his way around the old radios he had accumulated over the years as a source of parts. After another ten minutes of searching he decided they couldn't be here either. Damn!

It had all started simply enough hadn't it? It must have been about four years ago now. It was one of those miserable weather weekends that come in late fall and early winter. He had been catching up on QSL cards with the local repeater running in the background. There had been a group on most of the afternoon talking about everything. A real bull session! Well the conversation had turned to contesting. This had turned up the heat a bit. Frank didn't consider himself a contester but he usually tried to get on and work a few hours in the various contests. It sure helped his operating skills he knew. He remembered how the sweepstakes a few years ago had finished up his WAS, and the DX contests were always good for a few new countries. He remembered how the comments of one of the older operators had caught his interest. He was saying how he thought one of the best contests was the 160 meter contest in late January. This had caught Frank's interest and he had decided then and there to give the 160 meter contest the old timer mentioned a try. Was that a MISTAKE?

Frank closed the door to the garage, after going back and moving the remains of the 10 meter beam that had been shifted in his search and now blocked the door. The only place left was the garden shed. If they weren't in there where could they be? He would have to use a hacksaw. Then

he realized he hadn't seen the hacksaw in his search either. As he walked through the snow in the lengthening shadows his thoughts went back to that first year. How he had put up a simple antenna and got on 160 for the contest. He had made a real effort for the first time in a contest and he came away with a feeling of accomplishment if not a big score. And what's more the 'Bug had Bitten'. The next year he was armed with a new amplifier he had managed to build out of some of the garage, and a better antenna. He was really competitive this year and it was then that he decided his goal was to see what he could really do in this contest. He didn't know how well he could do with the limits of a small lot but he decided to see how far he could go. Last year with a lot of work on antennas for both transmitting and receiving he had managed to break into the top ten. He might have been happy there but he had run into a fellow late one night on 160 that seemed to know a lot about antennas. In fact he later learned that he was a professor at an engineering school in the area. They met many nights late on 160 and talked about how to build a really effective antenna for topband. His friend told him that as a result of the end of the cold war he had learned the Russians had developed a really effective antenna for the lower HF bands. This design had been held as a military secret by the Russian government up until now. His friend was not sure it would work, but it was a most unusual design that required a lot of wire in the air. He could see where the design had merit and was eager to give it a try. Frank had seen this as a way to achieve his goal of winning the 160 meter contest. He and his professor friend began meeting on weekends to discuss and plan how he might be able to put up one of these antennas. It looked as if he might be able to fit it in on his lot. The beauty of the design was that it needed only one central support, a modest tower. Fortunately, Frank had that, so the planning started in earnest.

Damn, the garden shed was locked and he didn't have the key. He had locked the shed so his wife wouldn't discover he had hidden the wire reels in it rather that taken them to the dump as he had promised her. As he trudged off to the house to get the key, he thought at least she was off doing some last minute shopping with Heather so maybe his secret was safe for a while longer. He should have the chance to take the reels to the dump over the holidays. As he trudged across the snow, to the house he thought he better get a heavier coat as the wind was picking up and it would be cold on the tower. He thought back to the hot hours in the sun on weekends and the evenings after dinner feeding the mosquitoes working on the antenna. They had decided to build a model of the antenna for 10 meters first. This had been a good idea as they learned a lot about the antenna, that was not in the information the professor had on the antenna. Some things had been lost in translation he supposed. They had just about given up on it when the professor had a breakthrough that allowed them to get the design to work. It did mean they got a late start building the 160 meter version. It was probably a good thing. It really did look like their house was in a bird cage. But it did work! He and the professor had spent the last month making tests on the antenna. Although he had never put more than 10 watts into the antenna on the air, everyone said how much better his signal sounded. It seemed the claims for the antenna were completely valid. It was a real world beater. Contest winner! They had spent the last two weeks writing an article describing the design, and it had already been accepted by QST. He figured by next year, the antenna would be copied by many hams on the low bands.

Frank got the key and his heavy coat. He might as well get the climbing belt and gloves at the same time. One way or another he was going through with this. As he stepped out into the back yard again he realized he was loosing daylight fast. As he opened the garden shed he was relieved to find the bolt cutters laying on the top of the pile of wire reels. As he picked them up he had a real lump in his stomach. He locked the shed, put the bolt cutters on the lanyard on his belt, and checked the tool pouch one last time. Then he headed to the base of the tower.

As he started climbing he thought back over the last few days, and to the many arguments with Heather. Heather was his six year old daughter. She could be very strong willed when she made up her mind about something. And she had on this. It had been a quality he had long noted in his wife, and maybe it was why they got along so well. They both realized they could be stubborn. Mary had not taken sides, at least not openly. He wondered what she felt, but he did not ask her. Heather was convinced that one little old man, eight flying reindeer, and a sleigh full of toys, could never find their way through the cloud of copper that represented his one chance at winning the 160 meter contest. She had started before breakfast and not given up till she and Mary had left to go shopping. He had thought several times that he wished he had not taken the day off work. He realized it was the gloom on her face as

the car backed out the driveway that had convinced him that he had only one thing he could do.

As he reached the top of the tower he saw that some of the neighborhood Christmas lights were coming on. Then he realized the Christmas star at the top of the tower would have to be moved. Oh well, he started cutting the tape. He got the star relocated above the antenna, and took the bolt cutters into his hands. The handles seem especially cold through the heavy gloves. The coax was easy. One firm push and kurchunk. Now for the support cable. It seemed like for ever and he struggled with the handles on the heavy cable. He took a second bite with the jaws of the bolt cutters, clenched his teeth, closed his eyes and pulled till his arms trembled. He was beginning to think it would not do it, when he felt the cable part. He opened his eyes and looked down into the gathering darkness at the base of he tower. KERRWHAAPP!!!!! as thousands of feet of copper met the layer of snow at the bottom of the tower. He hung there on the side of the tower, frozen in time and space. And then he realized he better start breathing. As Frank climbed down the tower he was numb, both from the cold and from what he had done. He was just finishing dragging the wire out of the driveway when the family car turned off the street. He was really unaware of it till a 46 pound six year caught him around the knees. Heather had jumped out of the car before it had hardly stopped, and now was hugging her father and crying. Choking back the sobs she said, "OH thank you Daddy, now Santa can come to our house tonight." Frank bent down and gave her a big hug and a kiss as he picked her up in his arms. He looked at Mary who was looking at him strangely. She came up and gave him a peck on the cheek and said," why don't you come in and I'll make you a cup of hot chocolate. You must be frozen." And then she added, "I 'm proud of you! It's going to be a wonderful Christmas!"

Frank as sitting in front of the fire with the empty cup in his hand watching the flames in the fireplace go up the chimney. It had been an eventful day, to say the least. He would throw some kind of antenna up and get into the contest, but it would not be the same. He was thinking that he could use some of the copper wire for radials on the tower and have a respectable but not contest winning signal again. Mary had joked as she had handed him his cup of hot chocolate that at least he had the reels to roll the wire back up on. Hmmm? Then he had over heard her in the bedroom on the phone ordering the new transceiver he had been dreaming of for months. At least he would have a new transceiver to play with in the contest. Yes, as he thought back on the day, it was a good day all in all. He admitted he felt pretty good on this 'Night before Christmas.' He admitted he felt proud of himself. A lot prouder then he would have felt winning some contest. At least that is what he told himself.

{Note Frank might be proud tonight, but it would pale to 15 years later when the first published work of a budding young author would be the story of how a six year old girl came to really know how much her father loved her.}
...Happy Christmas to All, and to All a good Night!

Public Service

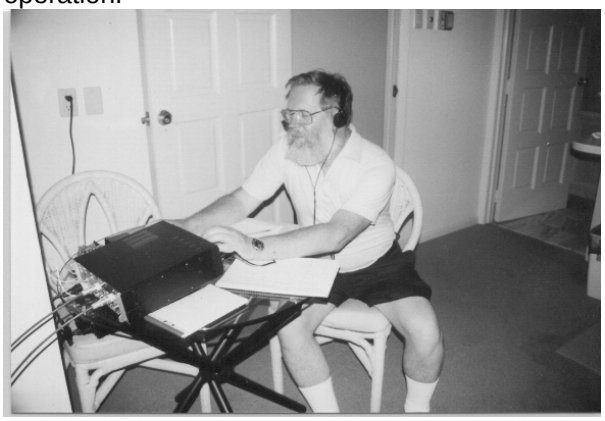
November 22nd we completed the last road cleanup for this year. We had a smaller than usual turnout but managed. The schedule resumes again in the Spring with an April cleanup. The following members participated in the last cleanup; Bob W1XP, Don N1HVA, Pat N1VAW, and Stan KD1LE.

Satellite Fun In The Sun

My wife Karen and I went to the Island of Aruba in the Caribbean last June for two weeks. I have enjoyed operating HF and 6 meters from the islands in the past, but had never operated the amateur satellites from the islands. I recently obtained the new Yaesu FT 847 radio that provides full duplex satellite coverage on 146 and 435 MHz. It also provides HF and 6 meter coverage in one package. I decided to see if it was possible to make satellite contacts with a small, lightweight, portable setup. The following is a description of this operation last June.

Aruba is about 30 miles off the coast of South America. The main business of Aruba is tourism and oil refining. An interesting combination. The island is about 30 miles long and 5 miles wide. The weather is tropical tempered by the ever present trade winds. Sunshine is the order of the day, every day. Rainfall on the island is low with only brief showers. There are miles of beautiful white sand beaches, and all kinds of outdoor activities. In addition there are many other activities available when you tire of the beach. With all this other activity available, you might ask why bring a radio. Well, it isn't a typical DXpedition with around the clock operating. I typically spend only a few hours in the morning

and evening on the air. It is fun to give out DX contacts to other amateurs around the world. That is why I decided to give satellite operation from the island a try. A reciprocal amateur radio license can be obtained by a request to the Aruba licensing authority. Our stay on the island is in a very nice resort, but it does present some challenges to radio operation and especially to satellite operation. I'll have more on this aspect of the operation.



As mentioned earlier, the transceiver used is an FT 847. This radio provides 100 watts on 160 through 6 meters and 50 watts on 2 meters and 70 cm. The 2 meter and 70 cm coverage are possible in full duplex operation. For satellite operating it is best if you can listen on the down link frequency while transmitting on the up link frequency. With the above coverage there are currently three active satellites that are available for the mode of operation that I prefer, CW. They are FO 20, FO 23, and AO 10. FO 20 and 23 are low orbit satellites and move through the sky rapidly. With a manual tracking antenna, operation on these satellites was considered, but it was felt would be limited to times when the satellite was low on the horizon. In addition the passes are short although there are several a day. AO 10 is an old bird and has its share of operational problems. It is only available at times when the sun is illuminating the solar panels enough to provide adequate power for the transponder since the batteries have failed. It was predicted that the satellite would be available during the period of our visit to Aruba. The orbit AO 10 is very elliptical. This means that at times during the orbit it is almost stationary in the sky and provides satellite contacts around the world. This near stationary part of the orbit is ideal for a simple setup where the antenna is pointed by manual methods. So with this satellite available, we still had a question if we could make contacts with a small portable antenna. I originally planned to build a portable beam for 2 m and 70 cm on a common boom. A friend mentioned that such an antenna is made by a company called Arrow Antenna in Cheyenne, WY and that Amsat was going to be selling the antenna at the Dayton Hamfest. I have another friend that was going to Dayton, so I asked him to take a look at the antenna. He had instructions if it looked good to buy one for me, which he did. So now we had an antenna and a radio. I reworked the antenna so it would mount on a camera tripod. It was also necessary to cut the boom and provide for splicing it back together so that it would fit into the suitcase. The next thing was to test the system to see if we could really make contacts through AO 10 with the 50 watts and small antennas. Since AO 10 is in such a high orbit the path loss is high. I set the antenna up in the backyard and tried the setup out on AO 10. It pleased me to see I could make satisfactory contacts with other stations with the 50 watts and the small antenna, so we packed it all up for the trip. I also had a whip antenna mounted on a second camera tripod, and an antenna coupler that tuned the antenna on the higher HF bands and 6 meters. A switching mode power supply and key made up the rest of the equipment. Except for the 2 meter and 70 cm antenna and tripods it all fits in a suit case that goes under the seat of the airplane.

Upon arrival on the island I was disappointed to learn we were not in the room we wanted. Since we had made last minute changes to our plans we had to accept the available room. It did not provide for convenient satellite operation because the balcony faced the wrong way. We had a beautiful view of the ocean, but not of the satellite. So the early satellite operation had to take place from the doorway of the room and satellite coverage was limited by a roof overhang. This limited the time available but I was able to work into Europe and the US proving that the system was capable of making QSO's through AO 10.

The second week we moved into a room with better satellite coverage. The balcony had a view of the building across the street and not the water, but it provided a better shot at the satellite. I am not sure the desk clerk totally understood why we didn't want an ocean view. We now had a better view of the satellite but the satellite window was not as good as it had been. At least that is my recollection. The location was not noise free and the street lights kicked up a fuss on all bands. In addition a satellite TV antenna across the street seemed to be radiating weak wide band signals on 145 MHz, the downlink frequency of AO 10. This made hearing a bit more difficult. In spite of these limitations and problems we managed to make 25 QSO's. All on AO 10 CW. Most were in Europe as this is where the coverage was greatest during the times I was operating. All things considered, I think this was a good showing.

One additional problem was the gentle trade winds kept blowing over the antenna. I finally taped the tripod to a couple of balcony chairs. This meant my wife didn't have to stand antenna guard while I was operating.

There are some photos included showing the antenna setup and the operating position. We plan to give this a go again on our next trip. Look for you on the satellites.

73 Bob W1XP

NVARC FoxBox Report

The KD1SM/KD1LE FoxBox has been out seven days a week. Recently it could have been found at the Nissitissit Meadow Conservation Area in north east Pepperell where it spent two weeks. Then the Fisheries and Wildlife Area along the Nashua River near the Rt. 119 bridge. The following week it was at the Harry Rich State Forest in Groton. The N1OMM/N1PQV Team of Scott and Charlie have been regular entries in the Fox log as has Barry W1HFN from the MARA Club. Barry was the first to find the fox at the Nissitissit Meadow location while Scott and Charlie (along with Christine) were the first to find it at the Harry Rich State Forest. The last two weeks (Nov 29-Dec 13) it was located at the Cawdry Wildlife Area in Lunenburg. Barry W1HFN was again the first to find it on Saturday morning (Dec 5) with W1XP Bob and KD1LE Stan hot in pursuit and locating it just after noon. WN1E Charlie and N1MGO Gordon, from the MARA Club found it Sunday afternoon.

Due to limited daylight and fox tender availability the fox is generally being moved to a new location late on Sundays. This means that the weekday hunters are getting first crack at finding it.

As always the frequency is 145.63 and it transmits between the hours of 8 AM and 9 PM. If you find it please sign the log and take a fox badge.

Have fun while the weather lasts. Stan

ARRL Newsletter

New England Division Director Tom Frenaye, K1KI, of West Suffield, Connecticut was reelected for a two-year term. Michael Raisbeck, K1TWF was elected for a two-year term to continue as ARRL Vice Director for the New England Division.

STORM OR SHOWER, LEONIDS PROVIDE THRILL OF A LIFETIME

Hours of lost sleep were a small sacrifice to the many VHF and UHF enthusiasts who got the thrill of a lifetime working meteor scatter during the Leonid shower November 16-18. "For nearly all radio operators, it was spectacular," enthused Shelby Ennis, W8WN, of Elizabethtown, Kentucky. "This was the year of the fireballs." Leonids get their name from the constellation Leo, which appears to be their source in the sky. The meteors originate from debris and dust in the wake of the comet Tempel-Tuttle, showing up each November. Approximately every 33 years—the length of time it takes for Tempel-Tuttle to orbit the sun—the shower can reach storm proportions.

Ennis and others also seem to agree that this was the year for long-distance contacts, possibly a few record-setting ones. “My biggest thrill was working Vermont on 2 meters, which is over 1400 miles,” said Larry Lambert, N0LL, who lives in northern Kansas. He said he encountered one “burn”—or trail—that lasted nine minutes, during which he was able to work 11 stations.

Most, if not all, agree that the Leonids showed up a bit earlier than predicted, and that this year’s event was a shower, not a storm. Some predicted that next year will be “the big one” that some had thought might happen this time around. Even so, all reports indicate gratifying results for those who participated. “I came home from work between 1800 and 1900 UTC on the 16th, and things were wild,” Lambert said. His skeds at the predicted peak of 1900 UTC on the 17th failed for the most part, he said.

While high-speed CW has been the preferred mode for meteor scatter contacts, Ennis said that as a result of the numerous long-burning fireballs this time, SSB turned out to be “much more effective than HSCW.” Ennis said HSCW worked best for times prior to the shower’s peak, but SSB was “far more effective” once long bursts begin to appear.

Some stations were able to put several new grid squares, states and even countries into their logbooks, thanks to the Leonids. During the two days he operated, Bill Mitchell, K0WLU, in Minnesota, logged 124 stations in 99 grid squares on 2 meters, using both SSB and CW and running just 90 W into a Cushcraft 17B2 antenna. Not only that but he operated for several hours on emergency power after he lost electricity at his house. He used a marine battery to power his rig and amp, and an inverter to run his rotator!

Arliss Thompson, W7XU, in South Dakota, reported “exceptionally good” conditions on the morning of November 16. “I hope I’m around in another 33 years!” he said. Thompson worked several new grids and states on the bands from 50 MHz to 432 MHz, including his first-ever 432 meteor-scatter QSO with N6RMJ in California—possibly a record at 2036 km (for his part, N6RMJ reported dozens of MS contacts on 6 meters through 70 cm). The 144.200 MHz gathering spot on 2 meters had “so many signals that we couldn’t copy anyone,” Thompson said, expressing appreciation to those who moved off the calling channel to clear the congestion.

For those whose visibility was not obscured, the view from the ground also was spectacular in some US locations, although the peak viewing was in Asia. Ron Dunbar, W0PN/3, in Maryland, stepped outside to check the sky early on the morning of November 17. “Only five seconds after I stepped onto the deck, a brilliant Leonid streaked by from due east to due west,” he said. “As it arched down to the western horizon, it exploded!” Dunbar said the resulting light was so intense it lit up his backyard.

Dunbar concluded that this year’s Leonids shower was “definitely not normal, to say the least” because of an apparently greater numbers of larger particles generating more impressive burns. “Every trail I saw during the 15 minutes I was out there was most likely created by pieces of cometary debris of a size between a marble and a chicken’s egg,” Dunbar said in a posting to the Meteor-Scatter reflector, “and the fireball had to be considerably larger.”

The Russian Mir space station and apparently all communication satellites came through the Leonid shower unscathed. The two cosmonauts aboard Mir took temporary refuge in the Soyuz escape spacecraft during the peak of the meteor shower. During an earlier spacewalk, they had installed a meteorite trap to possibly catch some of the debris.

SATERN ENDS EMERGENCY OPERATION

After 19 days in emergency mode, SATERN—the Salvation Army Team Emergency Radio Network—discontinued its daylong operation on 14.265 MHz on November 16. The net had operated the all-day sessions since late October to support the Hurricane Mitch flood relief effort in Central America.

SATERN Director and Salvation Army Maj Pat McPherson, WW9E, says the net has gone back to its once-daily nets (1500 UTC weekdays; 1530 UTC Saturdays) on the same frequency. “Any traffic from the affected area will be accepted then,” he said. “If the need presents itself, we will go back to the emergency format of the daylong net.” Many stations in the US have been participating in the net to relay health and welfare traffic to and from relatives, to aid in assessing damage and the emergency needs of victims, and to assist other relief agencies in the region. Ham radio continues to be one of the primary means of communication in Honduras. McPherson said SATERN handled more than 500 pieces of health-and-welfare traffic in the days immediately following the disaster activation, plus an untold amount of emergency, logistical and strategic traffic. “The value of Amateur Radio’s use during disasters has again been demonstrated,” McPherson said. The FCC had accommodated the SATERN op-

eration by declaring a communications emergency on 14.265 MHz. The emergency declaration was rescinded November 17 after the net returned to its regular schedule. SATERN continues to accept health and welfare inquiries via its Web site, http://www.angelfire.com/il/satern411/satframe.html. The Salvation Army is calling Mitch "the worst Atlantic hurricane in two centuries." The death toll has risen above 10,000 people. Damage to the region has been estimated at $4 billion.

US SIGNS TAMPERE DISASTER MITIGATION CONVENTION

The US joined other governments November 18 at UN Headquarters in signing the Tampere Convention. The international agreement calls on the signing parties to cooperate among themselves and with other organizations "to facilitate the use of telecommunication resources for disaster mitigation and relief." Thirty-three other countries already have signed the Convention, negotiated in June in Tampere, Finland, at the urging of the humanitarian relief community.

The Tampere Convention will help expedite the movement of telecommunications personnel and equipment into disaster-stricken areas such Honduras and Sudan. US National Coordinator for Tampere Larry Roeder called the accord "a practical instrument for the provision of emergency telecommunications resources." Roeder, a US State Department policy advisor, was chief of the US delegation to the June Intergovernmental Conference on Emergency Telecommunications, which hammered out the Convention. Signatories to the Tampere Convention agree to end excessive import duties and to minimize administrative and political barriers that could prevent or delay the swift provision across national borders of emergency telecommunications used to locate disaster victims or assisting in transporting food, medicine and supplies. For the first time, signatories also agree to protect relief workers engaging in emergency telecommunications, and their equipment. For more information and a complete copy of the Convention, see the US government's Tampere Web site, http://www.state.gov/www/issues/relief/tpere1.html.

SAREX MARKS 15th ANNIVERSARY

The Space Amateur Radio EXperiment—or SAREX—program marked its 15th anniversary November 28. On that day in 1983, US astronaut Owen Garriott, W5LFL, was launched into space aboard the shuttle Columbia during the STS-9 mission. "He brought along the first Amateur Radio station on a crew-tended space vehicle," said NASA's Frank H. Bauer, KA3HDO. Bauer is the AMSAT-NA vice president for human spaceflight programs and a member of the SAREX Working Group. Thousands of hams heard W5LFL on 2 meters, and hundreds worked him. Among those who heard Garriott's Amateur Radio transmissions from space were youngsters at Avery Street School in South Windsor, Connecticut. Lance Collister, WA1JXN (now W7GJ), of Montana is credited with being the first amateur to work an astronaut in orbit. In addition to random contacts, SAREX has permitted youngsters and youth in classrooms around the world to speak directly with astronauts in space for the first time. Since the inception of SAREX in 1983, Amateur Radio has flown aboard 23 NASA shuttle missions as well as aboard the Russian Mir space station. Students were able to talk directly with astronauts on many of those space flights. The next scheduled SAREX mission is expected to take place next spring. SAREX is a joint venture of the ARRL, AMSAT-NA, and NASA. ARRL Educational Activities Department Manager Rosalie White, WA1STO, coordinates the SAREX school QSO schedule at ARRL HQ. "SAREX is a very bright star in the Amateur Radio horizon—for schoolchildren, for individual hams and for communities," she said. "It is an activity that the astronauts tremendously enjoy, because it sparks children's interest in exciting scientific fields, including our great hobby, Amateur Radio."

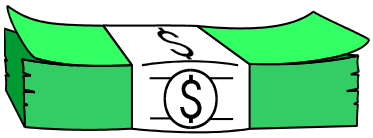
For more information on the SAREX program, contact Jean Wolfgang, WB3IOS, at ARRL HQ, jwolfgang@arrl.org.

FCC issues warning on tower lighting: The Federal Communications Commission has warned owners of antenna structures to comply strictly with FCC antenna tower lighting and marking

rules. The warning followed a recent nighttime incident in Texas where a helicopter ambulance nearly hit an unlighted radio tower. The FCC notes that tenant licensees, such as repeater owners, are secondarily responsible for tower lighting.

$The December Treasurer's Report $

For the month of December we received 40$ in membership renewals, $4.25 in bank interest and $0.50 while cleaning the highway. Expenses were $8.00 for postage.



Current fund balances:

General Fund: $414.36
Community Fund: $440.92

CW Practice Nets

The NVARC slow speed net has been inactive as far as I know. It only makes sense to run it if there are people who need it. It had been running Tuesday and Thursday at 7:30 p.m. on 28.123 MHz. Except the third Thursday of the month. That being the club meeting night. If there is anyone who would like to get some slow speed CW practice and would like to have the net start up again let us know.

Calendar of Events

December
ARRL 160M Contest 4-6
ARRL 10M Contest 12-13

January
Straight Key Night 1
ARRL RTTY Roundup 2-3
ARRL Jan VHF Sweeps 23-25

February
Algonquin ARC Flea (Marlborough) 13
ARRL Intl DX Contest CW 20-21
Vermont State Convention 27

March
ARRL Intl DX Contest Ph 6-7
Maine State Convention 19-20

April
MIT starts again 18

May
Hosstraders, Rochester, NH 7-8
Dayton 14-16

Did You Know?

The average number of people airborne over the US at any given hour? 61,000
The average life span of a major league baseball? 7 pitches.
Only two people signed the Declaration of Independence on July 4th, John Hancock and Charles Thompson. Most of the rest signed on August 2nd, but the last signature wasn't added until 5 years later.

NVARC
Nashoba Valley
Amateur Radio Club
PO Box # 900
Pepperell Mass 01463-0900

Pres.: Erik Piip KA1RV
V Pres.: Den Connors KD2S
Secretary: Ian Norrish NZ1B
Treasurer: Ralph Swick, KD1SM
Editor: Stan Pozerski KD1LE
PIO: Jon Kinney N1JGA
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
This newsletter is published monthly. Submissions, corrections and inquiries should be directed to the newsletter editor. Articles and graphics in most IBM-PC formats are OK. You can leave items on PEPMBX, at Packet address: KD1LE@N1FT.NH or pozerski@net1plus.com