

# The CVFMA Newsletter



Volume 2 Issue 2

March 1997

## Cabin Fever Blues Dinner: KA1III Dances

**T**he annual Cabin Fever Blues dinner was held on January 25 at the Homestead Inn in Walpole, NH. As always, it was delightful to see all of the members and guests at this gala event. In particular, the following were present:

NIJRA - Carl and Barbara Snyder  
WB1EAE - Leigh Damren  
KA1QCH - Eunice Damren  
W1DGC - Gregg Stephenson  
K2DGW - Betty Stephenson  
WB1GXM - Conrad Ekstrom  
KA1OAR - Carolyn Ekstrom  
N1CIR - Bob Boyd  
N1DRE - Claire Boyd  
W1US - Robert Kelesmen w/  
friend Elizabeth  
NU1A - Frank & Kay Finger  
N1WDW - Joe & Fran Gardner  
AA1PK - Laura Lyman  
KE1CT - David Benjamin  
N0JSR - James Dean  
KD4PIE - Sally Dean  
N1SKK - Norm Cobb  
KA1IIIJ - Ed Ellis  
KA1III - Polly Ellis

Balloon decorations were made and donated by NU1A. Dancing and evening entertainment were provided by KA1III. As anticipated, Polly brought her bicycle and did some incredible tabletop gyrations to the amazement and amusement of the group. Hi Hi Hi.

## BIG NEWS: YOUR DUES!

**A**s you know, the 1997 CVFMA dues are due. If you haven't sent your dues in, and plan to, then do it. CVFMA activities for the year are based, in part, on the financial response of the membership.

The CVFMA Treasurer, WB1GXM, established March 1 as the cut-off date for getting our dues in. After that, if your dues are not paid then you will not be eligible to receive this newsletter and partake in other Association opportunities.

The December/January newsletter contained two membership forms on a single sheet. If you didn't receive a form or would like another, please feel free to contact Conrad, WB1GXM, and he will send you more forms.

In addition, let Conrad know if you know of any others that would like to join the CVFMA.

## Editorial

**W**e are often called upon to assist in times of emergencies, to provide health and welfare communications; this is one of the great attributes of amateur radio. There are members of this Association, and opera-

tors who would like to be members of this Association, who would like to participate more in CVFMA, ARES and, perhaps, RACES activities but are hampered by lack of proper equipment or the training to use fully that equipment.

As an Association, as a group, we have a great opportunity to share our personal skills, time and even our unused or dated equipment to help others participate in our activities and our avocation. We may do this already on an individual level, such involvement is commended, but we haven't provided this support as a group.

What should we do?

Equipment, in working order, can be donated to the CVFMA so that it can be loaned out to members, and non-members, for their personal use. Whether such donations have tax deduction opportunities needs to be investigated.

The CVFMA should keep a tally of the available equipment and of those persons requesting equipment and support. The Association should organize events to provide training in the use of equipment for all members and non-members; this would be hands-on training of individuals in the use of their own equipment. The Association should organize work efforts to visit individual's homes and improve antennas, installations, etc. Sort of reminiscent of barn building—we get further along when more people pitch in together.

Finally, we, as individuals, can commit our support and time to improving our amateur radio community and to encouraging others to join in.

- editor

## News from Your CVFMA VEC (est. 1984)

**A**t present, the team numbers over 20, with most being Extras and some General or Advanced licensees.

The current exam cost is \$6.25 which covers the cost of the paperwork used in the exam process.

**The CVFMA exam schedule for 1997 is: March 15, June 14, September 20 and December 6.**

Our team contact person is Leigh, WB1EAE. He can be reached at 603.543.4906 for additional information. <sup>542</sup>

The results of the January 25 testing were one Novice, three Technicians w/ HF, two Technicians, one General and one Advanced with Element 1c passed.

The winner of the January 25 raffle held at the CVFMA Flea Market was, still is, K2DDE, Anthony Traina of Middleton Springs, VT.

The next Flea Market is planned for June 14. Contact Conrad, WB1GXM, if you would like to help plan the fleas.

### G.E.A.R.S. (EST. 1989)

This year's GEARS class has been busy. Starting in September 1996, the kids began studying the Novice and Technician sections of Riding the Airwaves with Alpha Zulu. For those not familiar with the book, it is set up in a less

technical format than other books yet covers all the Element 2 and 3A questions. The kids used this text, and computer software to generate practice tests, as they studied. On January 23 and 25, Jim passed Element 3A for his Technician license. Justin, Robby and Robby's dad passed their first Novice elements. Julie passed her Element 1A for her Novice license. All were treated to pizza by WB1GXM.

Josephine Hollis, KA1BYQ, has donated a Kenwood TS-830S and other equipment from WIHY's estate to the GEARS group. Ed, W1YT, located a microphone for the TS-830S. The rig is now operating on 80-10 meters with a 5-band vertical antenna.

GEARS thanks all who have provided time, effort and donations to make GEARS a continued success.

*Have you noticed that the days are noticeably longer? KA1III says that bicycling days are just around the corner and we should pump up!*

## CVFMA TEST SESSION de WB1GXM (contact: 603.543.1389)

**T**he Association will be sponsoring a test session on Saturday, March 15, in the Sugar River Savings Bank Community Room (on Main Street, Newport, NH). Doors open at 8 a.m. and close at 8:45 a.m. when testing for all levels starts. Please remember to bring the following items with you:

- original FCC-issued license (if already licensed)
- Copy of original license (if already licensed)
- Original CSCEs you are claiming
- Copies of original CSCEs you are claiming
- one photo ID, or two non-photo IDs (one with an address)
- at least one pen, two pencils and a non-programmable calculator
- \$6.25 for the 1997 license fee for all test above Novice

The 5 wpm Novice (element 1A) Morse Code and theory tests (element 2) are free. The present test fee is \$6.25 covering all tests from Technician through Extra. To re-take a particular exam will cost an additional \$6.25.

Re-takes are encouraged but will be allowed based on time of day and availability of test materials.

There is no preregistration.

All applicants are expected to have materials that they need and have all paperwork organized; this will help all concerned.

If you are licensed and you upgrade, you may begin using your new privileges immediately. If you are not licensed, it will take about two weeks for your license to arrive in the mail. If you inquire on the FCC license information line, you will probably find it busy. PLEASE WAIT AT LEAST TEN (10) DAYS AND THEN CALL THE ARRL AT: 860.594.0300 (a toll call).

Another way: check in the World Wide Web at: <http://www.uair.edu/doc/hamuar1/callsign.html/>

This is how the ARRL does it. Calling after only 2-3 days only delays the needed information from being disseminated quickly.

Next Sessions: June 14, September 20 and December 6.

## Flash: de W1AW

**U**S ham-Astronaut Jerry Linenger, KC5HBR, has been granted permission for general QSOs and scheduled school radio contacts with unlicensed students and a control operator.

Getting permission involved approval by authorities in the US, Russia and Germany. Miles Mann, WF1F, Director of Educational Services for the Mir International Amateur Radio Experiment (MIREX), and Dave Larsen, N6CO, director of the MIREX Board, signed an agreement on behalf of MIREX, while Sergei Samburov, RV3DR, Chief of the Cosmonaut Amateur Radio Department, signed for the Mir Amateur Radio Experiment (MAREX), and Joerg Hahn, DL3LUM, international coordinator, signed for the German Space Amateur Funk Experiment (SAFEX), which provided the ham equipment aboard Mir.

The FCC also has given approval for Linenger (and for Astronaut Colin "Michael" Foale, KC5UAC—who will take Linenger's place in May) for general QSOs and third-party traffic with schools, family and friends. Linenger recently arrived on Mir via STS-81.

According to Mann, applications for US school QSOs with cosmonauts are approved by MIREX, based on specific guidelines, before being sent on to Samburov and SAFEX. "The Mir crews have busy work schedules but our guidelines allow us to arrange—months in advance—school QSOs during crew off hours" he explained. The Cosmonaut Amateur radio Department gives final approval for all QSOs and reserves the right to cancel at any time. Mir's daily experiments always have first priority over ham radio.

Because Mir crews now include a US astronaut, SAREX and MIREX have begun to work together. Currently the SAREX program has about 80 schools

on its waiting list. To get a Mir school QSO application, send a self-addressed, stamped envelope to: Educational Activities Department, ARRL, 225 North Main St., Newington, CT 06111.

A word on random QSOs with the Mir space station: Mir crews make random QSOs only during off hours. Do not ask the crews to schedule QSOs, as they do not have the long-term calendar. The 2-meter frequencies recently were changed: the uplink frequency is 145.200 MHz and the downlink is 145.800 MHz. This change resulted from a recommendation from IARU Region 1 (Europe). Please do not ask the crew about it, as the crew does not set policy on frequencies.

from:

QST de W1AW  
Space Bulletin 003 ARLS003  
From ARRL Headquarters  
Newington, CT January 31, 1997

Extracts from:

The ARRL Letter Online  
Volume 16, Number 6 (Feb. 7, 1997)

### *Amateur Radio Gains Ground in Little LEOS Battle*

As the fight continues to prevent hams from having to share 2 meters and 70 cm with the Low-Earth-Orbiting satellite industry, changes favorable to Amateur Radio have been incorporated in a draft report that will eventually go to the FCC. While the Little LEO industry persists in its efforts to secure a foothold on both bands, it seems to have turned its sights away from 144 to 146 MHz in favor of 146 to 148-MHz, which is not an amateur allocation in Region 1. But, most significant was the addition of eight words—at the ARRL's request—to a draft report section dealing with sharing with the Amateur Radio: "Any consideration of sharing would require further study." AM-SAT supported the League in requesting the changes.

The latest draft also now states, "The diverse nature of the Amateur Service characteristics makes sharing difficult, but it has not yet been demonstrated to be impossible." The Informal Working Group-2A (IWG-2A) approved the changes at its January 21 meeting in Washington, DC. An earlier draft of the same section had called sharing "difficult, if not impossible" and claimed that studies had not considered certain sharing techniques discussed elsewhere in the report. The ARRL objected on the grounds that its study had taken some of the sharing techniques into account.

In this section of the report, the Little LEO industry also backed away from references that cited Resolution 640 (an ITU radio regulation that involves the use of specific bands on an emergency basis) as a way to leverage access to 430 to 440 MHz and 146 to 148 MHz in Regions 2 and 3, where that 2-meter band segment is an exclusive amateur allocation.

It's expected that when the FCC's WRC-97 Industry Advisory Committee (IAC) meets March 5, it will adopt the sharing section of the report (Section 4.12) as part of its report.

With the possible exception of 144 to 146 MHz, Amateur Radio still is not out of the woods, however. Another paper still under consideration in IWG-2A—submitted by a Little LEO consultant at the January 21 meeting—proposes little LEO sharing in several bands, including 146 to 148 and 430 to 450 MHz in those parts of the world where the Amateur service is not primary (which, in the case of 430 to 450 MHz, includes the US), with provisions for emergency use elsewhere.

The ARRL objects to these proposals, noting that they are inconsistent with the report language that's already agreed upon. The US Department of Defense objects to little LEO allocations at 430 to 450 MHz, where radi-

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olocation (radar) is primary. Military radar and Amateur Radio operations have a long record of coexistence that would be upset by the introduction of a new satellite service.

Two Little LEO representatives on IWG-2A declined to lend their names to the most recent proposals, which were submitted in the names of CTA, E-SAT, Final Analysis, GE Starsys and VITA—all players in the Little LEO effort.

Any papers on which agreement cannot be reached within IWG-2A will not be included in the body of its report, but will be included in an annex along with opposing comments. At future IWG-2A meetings, the ARRL will continue to protest the inclusion in this paper if the 146 to 148 and 430 to 450 MHz bands continue to be sought.

#### *Vanity Call Sign Process Still on Hold*

Vanity call sign processing apparently will remain on hold for a while longer as the FCC's Gettysburg, Pennsylvania, office continues to deal with a backlog of vanity applications that required special handling—the so-called WIPS (work in progress) stack. As of February 6, WIPS was backlogged to mid-November. An FCC spokesman said the FCC will process vanity applications received in December, January and February—in parts or all at once—after it has completed work on the WIPS backlog. The FCC has not processed any vanity call sign applications since mid-December, but some new call signs have trickled out over the past several weeks as the FCC resolved issues on WIPS applications. The last applications processed were received by the FCC prior to December 1, 1996.

Although vanity Gate 2 opened in late September, the program remains popular, and vanity call sign applications continue to pour into Gettysburg office. During January, Gettysburg got 945 applications, 479 on paper and 466 filed

electronically.

The FCC has not said when Gate 3 will open but look for March 28.

#### *Tuscaloosa Tornado*

Ham radio was a vital link when a tornado hit Tuscaloosa, Alabama, on January 24. The National Weather Service put out a call for radio amateurs to help relay storm reports. From the Mississippi border on the west to Georgia on the east, spotter groups throughout the state activated and fill various frequencies with emergency information. In central Alabama, large hail was widespread. Amateurs relayed dozens of reports of hail, up to golf-ball size. In West Alabama, a tornado slammed into Tuscaloosa shortly after 5 PM, killing one person and causing extensive damage. Hams stayed on the job from mid-afternoon until nearly midnight, running Skywarn nets and assisting with damage reports. Other hams helped with Red Cross disaster relief and emergency management operations. At one point, more than half a dozen Alabama counties were under tornado or severe thunderstorm warnings at the same time. Hams stayed on alert overnight to provide important information on the severe weather in the area. —Amateur Radio Newslines

#### *Solar Activity Up a Bit*

Solar forecaster Tad Cook, KT7H, in Seattle, Washington, reports: Solar activity rose a bit this week, but only slightly, with the solar flux about the 90 day average of 77 for three days. Average sunspot numbers were almost three times the average of the previous week.

Geomagnetic activity was slightly lower. The geomagnetic field became disturbed a couple of days before this reporting period (on January 28) because of a high-speed solar windstream from a coronal hole on the Sun. This caused a geomagnetic storm, more pronounced at higher latitudes, which re-

sulted in the usual absorption of signals and poor conditions. There is a possibility for some slightly unsettled geomagnetic conditions over the next few days, and again, but a bit more severe around February 22-24. Solar flux is expected to drop down to the lower to mid-70s until February 21, when it is expected to rise again, going above 80 after March 1.

Sunspot numbers for January 30 through February 5 were 15, 13, 14, 36, 45, 44 and 33, respectively, with a mean of 28.6. The 10.7-cm flux was 73.6, 72.4, 71.3, 78.4, 79.6, 80.7, and 75.3, respectively, with a mean of 75.9. Estimated planetary A indices for the same period were 11, 8, 6, 10, 7, 5 and 7, respectively, with a mean of 7.7.

Here are a couple of path projections for this week, from California to Japan and from Ohio to Europe. From California to Japan, check 80 meters from 0730 to 1530 UTC, 40 meters from 0630 to 1700 UTC, 30 meters around 0430, 1230, and 1600 to 1900 UTC, and 20 meters from 2200 to 0130 UTC. The 17-meter band should be good from 2230 to 0030 UTC and 15 meters around 2300 UTC. From Ohio to Europe, check 80 meters from 2200 to 0800 UTC, 40 meters from 2100 to 0100 UTC and from 0530 to 0900 UTC, 30 meters from 1400 to 1830 UTC and around 2000 UTC, and 20 meters from 1530 to 1730 UTC.

Au revoir, CW! French maritime radio authorities phased out the use of Morse code on January 31, after 93 years, in favor of newer technology.

The US Coast Guard abandoned CW two years ago.

—Press reports (tnx to George Chaet, WIRGH)

The ARRL Letter is published by the American Radio Relay League, 225 Main St., Newington, CT 06111.

## Little LEO News

Commercial satellite interests seeking access to bands below 1GHz--including amateur allocations at 146 and 430 MHz--now have added 220 MHz to their "wish list." For the first time, Little LEO (low-earth-orbiting satellite) interests have proposed including 219-225 MHz in their list of desired allocations for the non-voice, non-geostationary (NVNG) mobile-satellite service (MSS). The move was contained in the industry's so-called "flexible allocation proposal," delivered at the February 13, 1997, meeting of FCC Informal Working Group (IWG) 2A. Little LEO targets now include 146 to 148, 219 to 225 and 430 to 450 MHz. The ARRL and AMSAT were among those objecting to the concept, and the League is urging those who agree with their position to comment to the FCC by March 4. IWG-2A has been preparing draft proposals for the 1997 World Radiocommunication Conference (WRC-97). These will be reviewed during a March 5 meeting of the FCC's WRC-97 Industry Advisory Committee that is preparing draft proposals for consideration by the United States as it gets ready for WRC-97.

The ARRL and AMSAT statement said the latest proposal affecting amateur allocations in the 219 to 225 MHz segment came "at the last possible moment" and "without any technical support whatsoever." The League and AMSAT pointed out that the little LEO proponents have had more than a year to complete a technical study of the possibilities of sharing with the amateur services in the 144 to 148 MHz and 420 to 450 MHz bands. "They have not demonstrated compatibility for sharing these amateur bands but over the evolution of their document have proposed various 'new ideas' for use of these bands."

The little LEO flexible allocation strategy for WRC-97--submitted as IWG-

2A/86 (Rev. 6)--is to propose broad allocations. The apparent theory is that most administrations would find reasons to oppose little LEO use of specific bands in the crowded spectrum below 1 GHz, but that a broad allocation would permit different implementations in different countries depending on local circumstances.

At the February 13 meeting, a coalition of spectrum interests--including land mobile, amateur, broadcasting, and military--opposed the flexible allocation concept on three grounds: that the concept is simply an invention to avoid performing technical sharing studies that would demonstrate the unfeasibility of sharing; that it is inconsistent with decades of ITU allocations practices; and that, if adopted, the concept would be counter to US interests.

The coalition document is identified as IWG-2A/107.

The ARRL and AMSAT submitted a further statement of opposition, citing the absence of any technical studies that might support sharing with the amateur service or the amateur-satellite service and pointing out that the little LEOS have completely mischaracterized the nature of ITU Resolution 640 regarding the use of certain amateur bands in the event of natural disasters. The ARRL/AMSAT paper, revised to reflect opposition to the late proposal to include 219-225 MHz, is identified as IWG-2A/108 (Rev. 1).

Amateurs also might find interesting the comments of the Department of Defense, identified as IWG-2A/101 (Rev. 1). These address the 430 to 450 MHz segment the Little LEOS seek to share.

Anyone wishing to register support for the ARRL/AMSAT submission should send a brief e-mail message to [wrc97fcc.gov](mailto:wrc97fcc.gov). The Subject line should say "Reference No. ISP-96-005 IWG-2A." A simple statement to this effect, "I support the ARRL/AMSAT opposition to the NVNG MSS flexible alloca-

tion proposal," will be included in the public record and will help to drive home the point that there is broad-based opposition to poorly conceived sharing proposals.

Please note. The proposals the League opposes are not FCC proposals, nor are they endorsed by any other branch of the government. They are industry proposals. The League's objective is to demonstrate there is broad citizen opposition to the industry proposals, so the government will not adopt them as US proposals. So, please don't "flame" the FCC if you comment.

Additional arguments or evidence also is welcome. Important. Comments should reach the FCC no later than March 4, 1997.

The complete ARRL/AMSAT opposition statement and other comments will be posted by February 15 on the ARRL Web page, <http://www.arrrl.org/> under Band Threat News.

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### *Where's the Learjet?*

Since the Learjet disappeared on December 24, many search parties have combed the areas around the Lebanon, NH airport and in various areas that seemed most likely given the course and airspeed of the aircraft. As most of us know, the search has come up empty.

Excerpt of FAA preliminary report:

"Descr: LEAR COMMENCED THE ILS APPROACH AT LEBANON AT 1447Z. AT 1451Z THE PILOT ADVISED HE HAD LOST THE LOC SIGNAL AND STARTED A MISSED APPROACH. AT THE PILOT'S REQUEST BOSTON CENTER CLEARED FOR THE VOR 25 APPROACH. THE PILOT RESPONDED BACK ON LEBANON FREQ. AT 1457Z AND CALLED VOR OUTBOUND AT 1500Z. THIS WAS THE LAST KNOWN CONTACT. LOC UNKNOWN"

Additional information about the status of the search can be found on the internet at: <http://www.serve.com/cb/learjet/>

## STS-83 SAREX

### SHUTTLE ASTRONAUTS TO SPEAK WITH STUDENTS VIA AM- ATEUR RADIO (SAREX MISSION STS-83 FACT SHEET)

The next space shuttle mission will again include Amateur Radio. Amateur (or "ham") radio operators and students will attempt to make radio contacts with the orbiting shuttle as part of a project called SAREX, or the Shuttle Amateur Radio EXperiment. Amateur Radio has been flying aboard the shuttles since 1983, providing the public with a unique vantage point of space.

Amateur (or "ham") Radio operators from around the world will point their antennas at the Space Shuttle Columbia, hoping to find the astronauts are on-the-air. Some of these amateurs have volunteered to assist student groups that have prepared questions to ask the astronauts during specially scheduled contact times.

To make their radio contacts, the astronauts will use a radio aboard the shuttle, on frequencies used by ham radio operators. The contacts will demonstrate to young people, teachers, parents and communities how Amateur Radio and space energize students about science, technology, and learning. For the students that participate in SAREX, the contact is the culmination of months of hard work. Many of the students have studied space science, communication, and have trained to use ham radio equipment and shuttle-tracking computer software.

To operate Amateur Radio from the space shuttle, one or more of the astronauts needs to have an Amateur Radio license. The STS-83 crew members who are licensed Amateur Radio operators include Commander James D. Halsell, Payload Commander Janice E. Voss, and Mission Specialist Donald A.

Thomas.

**WHEN:** Launch is scheduled for April 3, 1997 from the Kennedy Space Center, Cape Canaveral, Florida. Mission duration: Scheduled as a 16 day mission.

**WHERE:** The launch will place the shuttle into Earth orbit at an altitude of 196 statute miles and an inclination of 28.45 degrees.

**WHY:** NASA's intent in making astronauts available for SAREX operations is to involve the largest possible numbers of people, particularly students, in technology and the US space program with the help of Amateur Radio.

During SAREX missions, the astronauts will typically make the following types of Amateur Radio contacts:

- Scheduled radio contacts with schools.
- Random radio contacts with the Amateur Radio community.
- Personal contacts with the astronauts' families.

**CREW MEMBERS** (titles and Amateur Radio call signs):

James D. Halsell, Commander, KC5RNI  
Susan L. Still, Pilot  
Janice E. Voss, Payload Commander, KC5BTK  
Donald A. Thomas, Mission Specialist, KC5FVF  
Michael L. Gerhardt, Mission Specialist  
Roger Crouch, Payload Specialist  
Greg Linteris, Payload Specialist

**PAYLOAD:** On board STS-83, the payload bay will house the first Microgravity Science Laboratory (MSL-1). The Microgravity Science Laboratory is a key component of the bridge between present Spacelab and future Space Station operations. Additional MSL-1 information can be obtained from NASA at this World Wide Web page: <http://liftoff.msfc.nasa.gov/spacelab/msl/welcome.html>. Additional STS-83 mission information can also be ob-

tained from NASA at:

- NASA Shuttle World Wide Web Home Page: <http://shuttle.nasa.gov>
- NASA Spacelink computer information system (look under Spacelink.Hot.Topics)

BBS: (205) 895-0028 [VT-100, 8-N-1], Telnet, FTP, and Gopher: [spacelink.msfc.nasa.gov](mailto:spacelink.msfc.nasa.gov)

World Wide Web: <http://spacelink.msfc.nasa.gov>  
Internet TCP/IP address: 192.149.89.61

**SAREX SPONSORS:** The Shuttle Amateur Radio EXperiment (SAREX) is sponsored by the American Radio Relay League (ARRL), The Radio Amateur Satellite Corporation (AMSAT) and The National Aeronautics and Space Administration (NASA). SAREX is supported by the Federal Communications Commission (FCC).

**PARTICIPATING SCHOOLS:** Schools are selected from around the world to make contact with the shuttle during most SAREX missions. These contacts are prearranged, giving the schools a greater chance at making a successful contact. A few students at each of the selected schools ask questions of the astronauts during the contact. The nature of these contacts embodies the primary goal of SAREX--to excite students' interest in learning.

**ADDITIONAL INFORMATION FOR AMATEUR RADIO OPERATORS-**

**SAREX RADIO FREQUENCIES:** During most SAREX missions, many of the crew members will make random contacts with earth-bound hams. They make these contacts during their breaks, before and after meal time, and during their pre-sleep time. In fact, over the past years the astronauts have contacted thousands of amateurs around the world. On many missions, they have even carried a 2-meter packet radio station. Innovative computer software allows the crew to operate the packet gear

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in an "unattended" mode, allowing amateurs to make contacts with the ROBOT station when the astronauts are working or sleeping.

The SAREX Working Group has designated the following frequencies during this mission.

FM Voice Downlink: (Worldwide)  
145.55 MHz

FM Voice Uplink: 144.91, 144.93,  
144.95, 144.97, and 144.99 MHz

FM Voice Uplink: (Europe only)  
144.70, 144.75, and 144.80 MHz

FM Packet Downlink: 145.55 MHz

FM Packet Uplink: 144.49 MHz

The crew will use separate receive and transmit frequencies. PLEASE do not transmit on the shuttle's DOWNLINK frequency. The DOWNLINK is your receiving frequency. The UPLINK is your transmitting frequency.

The crew will not favor either uplink frequency, so your ability to communicate with SAREX will be the "luck of the draw." Transmit only when the shuttle is within range of your station, and when the shuttle's station is on-the-air.

#### CALL SIGNS:

FM voice call signs: KC5RNI,  
KC5BTK and KC5FVF

FM packet call sign: W5RRR-1

QSL VIA: Send reports and QSLs to ARRL EAD, STS-83 QSL, 225 Main Street, Newington, CT 06111-1494, USA. Include the following information in your QSL or report: STS-83, date, time in UTC, frequency and mode (FM, voice or packet). In addition, you must also include a SASE using a large, business-sized envelope if you wish to receive a card.

## Amateur Radio aboard Mir

From the January 10, 1997 (Volume 16, Number 2) edition of the ARRL Letter:

"Mir frequency swap: The Mir crew announced that, as of January 1, 1997, the 2-meter voice and packet frequencies for the Mir space station would change (from 145.800 MHz uplink and 145.200-MHz downlink) to 145.800-MHz downlink and 145.200 MHz uplink for ground stations. These frequencies are for both FM voice and packet operations.

--AMSAT News Service "

From an earlier edition of the ARRL Letter:

#### "SAFEX A SUCCESS

Many hams around the world are discovering the new 70-cm repeater, SAFEX II, the Space Amateur Funk EXperiment (Funk--literally "spark"--is the German word for radio). SAFEX was recently activated aboard the Russian Mir space station complex. The equipment has been powered on since July 12, 1996. The first hardware tests involved the station's digital speech recorder. Many ground stations on 437.925 MHz--including some using simple 70 cm hand-helds--were able to copy the prerecorded messages from the Mir crew!

SAFEX International Coordinator Joerg Hahn, DL3LUM, reports the repeater became operational on July 19. Using W5RRR at the NASA Johnson Space Center Amateur Radio Club, Matt Bordelon, KC5BTL, snagged the first contact with one of the Mir cosmonauts. The first use of the repeater to establish a ground-to-ground QSO involved DF0VR, IV3WLQ, and LY3BH. Dave Larsen, N6CO, managed the first ground-to-ground QSO in North America with Scott Avery, WA6LIE.

SAFEX II is a project of the German Amateur Radio Club (DARC), and is managed by the Ham Radio Group, DF0VR, at the German Aerospace Research Establishment (DLR) in Oberpfaffenhofen. Support for the project comes from DARC, DLR, NPO Energia (Russia's equivalent of NASA) and Russian radio amateurs. SAFEX Principal Investigator, Thomas Kieselbach, DL2MDE, built the equipment.

Installation on Mir began during the EuroMir 95 mission. That crew included German astronaut Thomas Reiter, DF4TR, and Russians Sergei Avdeev and Yuri Gidzenko. The three arrived on Mir on September 5, 1995, and remained aboard for 180 days. Reiter operated as DP0MIR throughout his stay, but SAFEX equipment problems and a power supply failure kept the repeater off the air. The SAFEX team installed new equipment in the Priroda module, which was launched to become part of the Mir complex on April 23, 1996.

The Mir-21 crew powered up the new equipment. That crew included Shannon Lucid and cosmonauts Yuri Onufrienko and Yuri Usachev. The current (Mir-22) crew includes Valery Korzun (commander), Aleksandr Kaleri (flight engineer), and Jerry Linenger, KC5HBR, (NASA Mission Specialist).

SAFEX II expands the existing 2-meter operations that have taken place from Mir for the past couple of years. SAFEX II is primarily a FM repeater with 70-cm uplinks and downlinks. The 30-kg payload is supported by three external antennas. The new capabilities address the busy work schedule of the cosmonauts by permitting Amateur Radio activity from Mir without active crew operation. SAFEX II also addresses the team's commitment to future technologies. There are plans to improve the station by adding a 23-cm to 13-cm transponder capable of broadbandwidth modes such as amateur television.

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(Continued from page 7)

The repeater operates under the call sign RR0DL. CTCSS tones are required. Once the repeater has been activated by someone with CTCSS, other stations without CTCSS can also work through the repeater. It is even possible to use the repeater to contact the Mir crew if one of them is at the microphone.

In order to involve the largest number of amateurs, SAFEX contacts should be kept as short as possible. Operators should adjust their frequency to account for the 10-KHz Doppler shift.

The SAFEX II team is very interested in reception reports, and any technical measurements or oscilloscope plots of the repeater's signals. Send reports to Joerg, DL3LUM, e-mail joerg.hahn@dlr.de.

#### SAFEX and Mir Frequencies

The following are the SAFEX 70-cm frequencies for the three SAFEX operating Modes.

+ Mode 1: FM repeater with CTCSS sub-tone 141.3 Hz. Downlink 437.950 MHz; uplink 435.750 MHz.

+ Mode 2: 9600 Baud (G3RUH-compatible) packet operation. Downlink 437.975 MHz; uplink 435.775 MHz. No CTCSS tone is required.

+ Mode 3: Pre-recorded digital voice beacon, and may be used for contacts with the Mir crew. Downlink 437.925; Uplink 435.725. CTCSS required.

The 2-meter frequencies used by ground stations to contact Mir (preferably in split-mode operation) are: 145.200 MHz uplink, and 145.800 MHz downlink.

Please note: Hams on earth should not call R0MIR or [KC5HBR] if the packet is on. If the Mir crew comes on FM and calls CQ, then try them on voice, and only on voice. The packet station also is running, but when the crew is near and hears stations calling CQ, they will try to answer.

#### Mir QSL Cards

Dave Larsen, N6CO, is the US Mir QSL manager for contacts made with Mir crew members. QSL cards must include date, time, and mode of contact. He does not handle cards for SWL reports. To confirm contacts with the Mir packet radio personal message system (PMS), include the message number issued by the PMS on your QSL.

Send QSLs along with a business-sized, self-addressed, stamped envelope to:

David G. Larsen, N6CO, Box 1501, Pine Grove, CA 95665 USA. For further details, get in touch with Larsen via e-mail, doc@volcano.net."

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From the ARRL Letter -- Vol. 16, No. 4 -- January 24, 1997

#### "MISSION MIR 97: GERMAN-RUSSIAN MIR SPACE MISSION SET FOR FEBRUARY

A second German-Russian space mission has been set for February, when German astronaut Reinhold Ewald, DL2MIR, and his Russian colleagues will fly to the Russian space station Mir in early February. Once there, Ewald plans an extensive experimental program. Ewald was a back-up crew member for the Mir '92 mission, in which Klaus Dieter Flade, DL1MIR, participated as the first German astronaut aboard Mir. On this mission, scheduled for February 4 through February 24, Hans Schlegel, DG1KIH--who served during the German-US Spacelab mission D-2--will be on the backup crew.

During this mission, the SAFEX (Space AmateurFunk EXperiment) equipment will be on the air, although, due to Ewald's heavy workload, hamming will take a back seat to his experimental work. Ewald plans to use the SAFEX digital voice to automatically transmit information about the mission.

## de Vermont....

From Bob McCorkle, WB1AJG, ARRL State Government Liaison:

House Bill H.150 is in the Transportation Committee of the Vermont Legislature. This Bill changes the fee for "Safety Organization Special Plates" for HAMS, Volunteer Firemen, and the National Guard from \$20.00/Year to a one-time fee of \$20.00. The Bill was introduced by the following Representatives:

McGrath of Ferrisburg  
Houston of Ferrisburg  
Dominick of Starksboro  
Nuovo of Middlebury  
Young of Orwell  
Barbieri of Wallingford  
Barney of Highgate  
Buchdahl of Georgia  
Darrow of Dummerston  
Dwyer of Thetford  
Edwards of Swanton  
Freed of Dorset  
Fyfe of Newport City  
Ginevan of Middlebury  
Grant of Groton  
Gretkowski of Burlington  
Helm of Castleton  
Hill of Milton  
Kendall of Woodstock  
Larrabee of Danville  
Mazur of South Burlington  
Metzger of Milton  
Moore of Rutland City  
Nelson of Ryegate  
Pike of Mendon  
Poirier of Barre City  
Ranney of Castleton  
Richardson of Weathersfield  
Sherman of St. Johnsbury  
Spaulding of Stowe  
Suchmann of Chester  
Westman of Cambridge  
Wisell of Bristol  
Woodward of Johnson

Members should call and ask their Representatives to support House Bill H.150. If your representative is listed above, please call with your thanks.



## News from Space

**Y**ou just can't imagine how the little things can make such a difference. Take for instance:

It took the European Space Agency (ESA) 10 years and \$7 billion to produce Ariane 5, a giant rocket capable of hurling a pair of 3-ton satellites into orbit with each launch and intended to give Europe overwhelming supremacy in the commercial space business.

All it took to explode that rocket less than a minute into its maiden voyage last June, scattering fiery rubble across the mangrove swamps of French Guiana, was a small computer program trying to stuff a 64-bit number into a 16-bit space.

At 39 seconds after launch, as the rocket reached an altitude of 2-1/2 miles, a self-destruct mechanism finished off Ariane 5, along with its payload of four expensive and uninsured scientific satellites. Self-destruction was triggered au-

tomatically because aerodynamic forces were ripping the boosters from the rocket. This disintegration had begun instantaneously when the rocket swerved off course under the pressure of the three powerful nozzles in the boosters and main engine. The rocket was making an abrupt course correction that was not needed, compensating for a wrong turn that had not taken place.

Steering was controlled by the on-board computer, which mistakenly thought the rocket needed a course change because of numbers coming from the inertial guidance system. That device uses gyroscopes and accelerometers to track motion. The numbers looked like flight data but were actually a diagnos-

tic error message. The guidance system had, in fact, shut down. This shutdown occurred 36.7 seconds after launch, when the guidance system's own computer tried to convert one piece of data—the sideways velocity of the rocket—from a 64-bit format to a 16-bit format. The number was too big and an overflow resulted. It passed control to an identical, redundant unit, which was there to provide backup in case of just such a failure. But the second unit had failed in the identical manner a few milliseconds earlier; it was using the same software.

"There is no life today without software", says Frank Lanza, an executive vice president of the American rocket maker Lockheed-Martin. "The world would probably just collapse." Fortunately, he points out, really important software has a reliability of 99.999999 percent. At least, until it doesn't.

Go figure.

### Trivia:

- 1) *Why is there an expiration date on the sour cream carton?*
- 2) *Why is there no ham in hamburger?*

*Ed.: I was going to enter the following in code to see if all could copy but thought the apples might rot first.*

From KA1III comes the following recipe:

### Impossible French Apple Pie

6 cups sliced pared tart apples	2 tbsp oleo, softened	1/2 cup milk
1-1/4 tsp ground cinnamon	1/3 cup Bisquick™ baking mix	2 eggs
1/4 tsp ground nutmeg	Streusel (see below)	1 cup sugar

Grease a microwave pie plate, 10" x 1-1/2". Mix apples, 1-1/4 tsp cinnamon and the nutmeg. Turn into the pie plate.

Beat remaining ingredients, except the Streusel and cinnamon, until smooth (15 seconds in blender on HIGH or 1 minute with hand beater). Pour into the pie plate.

Sprinkle with Streusel and cinnamon. Microwave on MEDIUM-HIGH (70%) for 24-28 minutes or until knife inserted in center comes out clean. Rotate the pie plate 1/4 turn every 8 minutes, while cooking, to ensure uniform heating. Cool on flat, heatproof surface (DO NOT COOL ON WIRE RACK).

Streusel: Mix 1 cup Bisquick™ baking mix, 1/2 cup of chopped nuts, 1/3 cup of packed brown sugar and 2 tbsp firm oleo until crumbly.

# CVFMA

An ARRL Affiliated Club

A quarterly publication of the Connecticut Valley FM Association

January 1997

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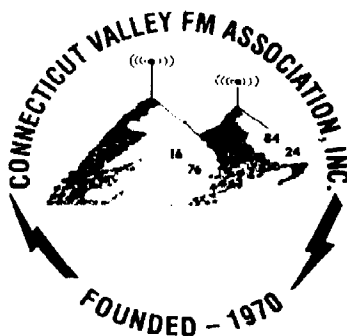
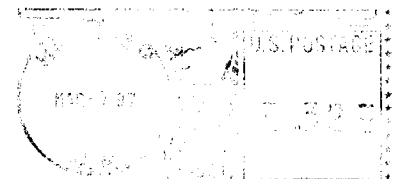
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*In the Kitchen with KA1III*

*de Vermont....*

**HAVE YOU SENT YOUR 1997 CVFMA  
MEMBERSHIP DUES IN YET?**