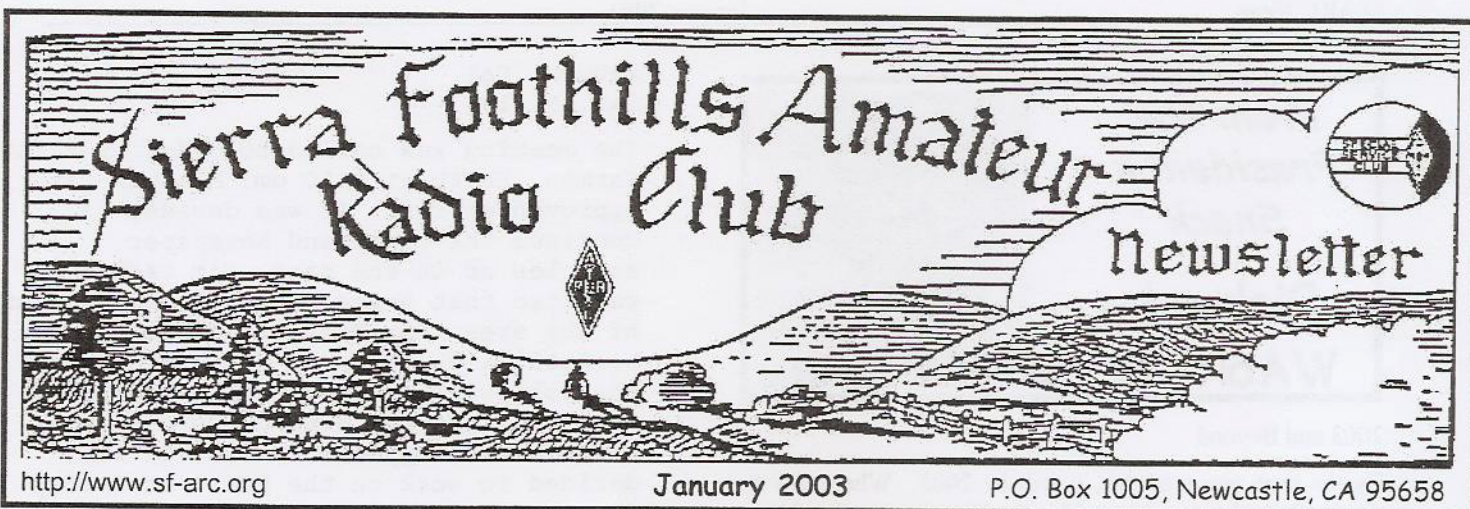




At the Key of S.F.A.R.C.



2003 Calendar of Events

(Operating Events in Italics)

PRESIDENT

Richard Kuepper, WA6RWS
530.878.6220
rkuepper@juno.com

VICE PRESIDENT

Rob Carpenter, WW6G
916.984.1892
ww6g@arrl.net

SECRETARY

(open)

TREASURER

Mike Hudson, KG6EFK
916.624.4714
mihudson@firstam.com

DIRECTORS

Debbie Cunningham, KF6LXN
916.663.4143
dmc@midtown.net
Bob Boeckman, WA6ULL
916.987.9910
wa6ull@aol.com
Casey McPartland, K6WJM
916.660.9680
k6wj@arrl.net

REPORTERS

Satellite Report

Greg Dolkas, KO6TH

40 Years Ago at the SFARC

Gary Cunningham, KQ6RT

REPEATERS

145.430 (-0.6 MHz/PL 162.2)
440.575 (+5.0 MHz/PL 94.8)
223.860 (-1.6 MHz/PL 100.0)

CLUB NET

All welcome to check in
Thursdays, 7:30PM, K6ARR/R
145.430

CLUB MEETINGS

Second Friday of the month,
7:30PM at the Auburn
Library, 350 Nevada St,
Auburn

CLUB BREAKFAST

Last Sat of the month at
Susie's Café, Cirby at
Riverside, Roseville - 8:00 AM

NET CONTROL OPS

Dave Jenkins, WB6RBE
Gary Cunningham, KQ6RT
Joe Sylvia, KF6OQY
Casey McPartland, K6WJM

WEBMASTER

Rob Carpenter, WW6G
ww6g@arrl.net

NEWSLETTER EDITOR

Fred Jensen, K6DGW
VOX: 530.885.8251
FAX: 530.745.9622
k6dgw@arrl.net

Jan 4-5	<i>RTTY Round Up</i>
Jan 10	<i>Regular Meeting</i>
Jan 11	<i>NAQP (CW)</i>
Jan 18	<i>NAQP (Phone)</i>
Jan 25	<i>Club Breakfast</i>
Jan 24-26	<i>CQ WW 160m Contest</i>
Feb 14	<i>Regular Meeting</i>

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Amateur Satellite Report

"Digital Musings"

SFARC Cumulative CD

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The SFARC Newsletter is published monthly by the Sierra Foothills Amateur Radio Club for the information of its members and friends. The newsletter is distributed via the US Mail and E-mail, and is posted to the SFARC Web Site. Permission is granted to non-profit amateur radio organizations to reproduce text verbatim with attribution. Use of images is prohibited without prior written approval of the SFARC, and of all individuals pictured in the images. All logos are the property of the represented organizations and may not be used without their permission.

From the President's Shack

Richard
WA6RWS



2003 and Beyond

By the time you read this, it will be 2003. Where did the time go? As I grow older within the ham community, I have stopped to assess what ham radio has done for me in the past 25 years.

I continue to make new friends and renew old friendships through ham radio.

Last Saturday on my way back from Southern California, I stopped in at the TRW swap meet in El Segundo. What a treat it was. Not only did I get some great bargains, but I also was able to renew old friendships. Some of my old radio friends did not recognize who I was until I gave them my call. I guess I look older than I am!

Ham radio has done a lot for me so what am I giving back to our hobby and what about you? What are you giving back to the hobby?

This coming year, why not get involved with some of the public service events that we do. Working these events helps to build your skills so when we have a real emergency that we will want to work, we will be able to provide the help that our hobby has been noted for.

Our club will only be as good as the participation of the members. Come on and get involved and ask what you can do to make our club better. We have a great club and I am proud to be your president for another year. Thanks for your confidence, and hope to see you at the January meeting.

73,
Richard, WA6RWS

20 & 40 Years Ago In SFARC

Gary
KQ6RT



(Gary reports that the minutes from 30 years ago are a bit sparse, so we'll investigate 1963 and 1983 for a few issues. Ed.)

Forty Years Ago at the SFARC

Auburn, Cal.
Jan. 9, 1963

The meeting was called to order by Frank Carman, K6TFD at 8:10 pm. Minutes were approved as read. It was decided to continue the Radio and Newspaper articles as in the past. Jim Carman reported that Bruce Witwer is moving out of the area. Bob Richier volunteered to be Activities Chairman for another year. The following visitors were present: Jack Crusinberry, WB6BPO, Vern Krakow, WB6AOI; Geno Epperle, K6SLB. It was decided to work on the BC610 on Friday Jan 11 and 18th. Ken Weger, Bob Richier, Jim Carman on the 11th. Frank Carman, Geno Epperle, Jim Carman on the 18th. It was decided to keep the Sunday net at 9:00AM on 3860 kc. A net will be started on 147.7 mc on Tuesday, Thursday and Saturday at 8:00 pm to see how it will work. Bob Richier will look into a trip to a TV station studio for the February meeting. Jack Crusinberry asked about our connection with CD. He told what was involved in putting the FM transmitters on 6 meters. He also invited us to the CB club meeting in the Supervisors room at 3:00pm the last Wednesday of the month. A discussion was had on code classes. It was thought that 2 could alternately conduct a class each week. One will be started if we can get enough students. The meeting was adjourned at 9:45 pm to a brief rag chew.

James Carman

Twenty Years Ago at SFARC

Minutes of January 14, 1983

Meeting called to order at 1930 hrs. by N6HJA, Mary Ann Pres.

Ivan Pike was the speaker of month. Slides were presented along with a very interesting speech about Air Force communications worldwide, based at McClellan AFB.

No minutes of last meeting were taken because of SFARC yearly Christmas Diner.

KA6PTL, Marge asked for ideas on what items to get for raffle prizes.

Jack, W6YHI brought up an idea to talk about and display the various projects which members are interested in.

John, KA6LNC moved to authorize a \$50 working Fund to be used by the board,

without authorization by the general membership. The motion was carried by floor majority vote.

Raffle prize winners were:

1st prize in drawing----- Bob WB6AHY
2nd prize ----- Chuck W6LOE
3rd prize ----- Dave K6KUT

Meeting was adjourned at 2100 hrs.

Bob, W6MEI
Secretary

73,
Gary, KQ6RT

*Amateur
Satellites*

**Greg
KO6TH**



Another New One

As I write this from our vacation spot in Washington State (visiting relatives for the Holidays), it is lightly raining and relatively calm. But, I see on the National Weather radar map that Auburn is getting dumped on. I hope all are having a happy and safe Holiday, and that it is dry wherever you lay your head at night.

Last month I reported on a new satellite launched by the Russians. It is now officially known as RS-20, and is an experimental (Ham) package bolted to a navigation and scientific satellite known as Mozhayets. The RS-20 portion transmits CW telemetry on the Amateur 2 meter and 70cm bands (145.828 and 435.319 MHz respectively). The latest news is that the telemetry is being heard on the 70cm downlink. Each "frame" of telemetry begins and ends with the satellite callsign "RS 20", and consists of letters identifying the particular telemetry element followed by numbers with that element's value. A detailed listing of all the telemetry components is too long to list here, but is available on the AMSAT's Website (www.amsat.org). The Ham payload's purpose is educational, with the telemetry to be used in classroom settings. There is no transponder on board, so two-way communication by digital or phone is not possible.

Since last month, the Ham community in Germany has launched a new satellite of their own. Known as SAFIR-M, the satellite was launched in a converted Russian missile on December 19th. It was one of a half-dozen satellites from around the world, all launched from the one rocket. Early reports indicate that the launch was successful, and that the

SAFIR-M payload has been located among the cluster of new satellites. It is also an educational satellite, intended to give students easy access to space communications. The uplink is on 435.275 in 1200 baud packet mode, with a downlink on 145.825 in 9600 baud packet mode. This will link it into the growing APRS system of satellites, ground stations, and Internet sites, allowing for monitoring of remote buoys and other scientific and educational tasks. There is also a provision for an optional voice message beacon that should be easy to hear; 9600 baud packet just sounds like noise, unlike 1200 baud packet which has a very distinctive buzz. The team has set up a Webpage at <http://amend.gmxhome.de>, but it is still mostly in German.

Coming up the week of January 11th will be the 100th anniversary of Marconi's first transatlantic transmission, complete with a special event station, KM1CC, near his original site. This is of note in a column on Satellites, as the crew of the International Space Station is scheduled to make contact with the event during the week. A complete article on the event, which will include a visit by Marconi's daughter Elettra, can be found on the ARRL news site at: <http://www.remote.arrl.org/news/stories/2002/12/23/1/?nc=1>

Finally, it should be noted that NASA had complete support facilities in place during Santa's Christmas delivery run, in the event he ran into difficulties. The NASA Space Flight Tracking website reported real-time the position of the sleigh all through the night, and the spaceport in Florida stood ready as an emergency landing site, with crews standing by. Fortunately, the yearly run of toys for good children of all ages went without incident.

Best wishes to all for a Happy New Year.

73,

Greg KO6TH

Swap Meets

Foothill Flea Market - 2nd Saturday of each month from March through October at Foothill College, Los Altos.

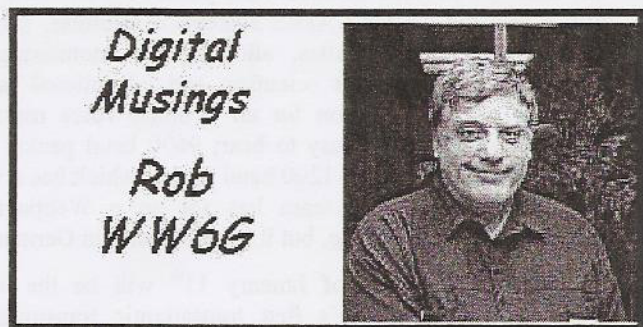
Livermore Swap Meet - 1st Sunday of each month at Las Positas College in Livermore, 7:00 AM to noon, all year. Talk in 147.045 from the west, 145.35 from the east. Contact Cliff Chiba, KF6EII, larkswap@usa.com

Annual SFARC CD

The annual SFARC CD will again be available at the January, 2003 meeting. This is a cumulative CD and will contain material from 2000 - 2002. Cost is \$1.00 each which covers the cost of the CD blank.

The CD contains all newsletters (both MS Word 97 and PDF) for the three years, all the photos in the archives from various club events, and a number of other goodies such as software, reference information, etc. This year, it will contain an index you can bring up in your browser to help find things and display/print pictures.

Burning the CD copies is a bit labor-intensive, so I'd like to hear in advance from those members who want one. Just email k6dgv@arrl.net or call me at 530.885.8251.



Digital Musings

Propagation & DX: Propagation has been pretty good again in December with good openings on 15 & 10 to Europe in the morning and to Asia and South America in the afternoons. The solar flux reached a high of 213 on the 17th and a low of 127 on the 26th [the day of this writing]. The K index [averaged magnetic disturbance] has bounced around a bit, but the bands have been surprisingly good.

Digital Mode of the Month – MFSK: So far we have discussed several digital modes and here is another one – MFSK. So the question is, why are there so many?

Digital modes fall into two rough categories – ARQ and non-ARQ. The former, ARQ [automatic repeat request], involve a dialog between the sender and receiver much like standard TCP/IP. This requires timing between sender and receiver and usually a dedicated TNC [terminal node controller]. Non-ARQ modes are simply communications on an open channel in the same way that one would converse with voice, CW, etc. But that still does not answer the question about why there are so many digital modes.

You will recall from the meeting presentation that there is a relationship between the amount of data that can be pushed over a channel and the bandwidth of that channel – at least if you want to maintain the same bit error rate – i.e. the same level of readability. PSK31 is the narrowest digital mode, even narrower than CW, and it relies on phase modulation; but phase is subject to change as signals bounce around off the ionosphere. This can make signals difficult to decode at times. As well, recall that PSK31 can, at times, be tricky to control to prevent overmodulation. Turning up the power can actually make a signal harder to read. So, there are tradeoffs. The tradeoffs are still pretty favorable and PSK31 is probably the most popular of the new digital modes, but what else can we do?

Hams have been experimenting with different ways of encoding their signals to create more reliable transmissions. See www.tapr.org for more information. MFSK attempts to increase throughput and reliability by:

- Increasing the amount of information sent from 1 bit [in-phase, 180° out of phase] to 4 bits at a time [16 tones].
- Use of frequency shift keying [FSK] rather than phase shift keying [PSK] which makes the signal less sensitive to non-linearity.
- Use of some of the bits for forward error correction [FEC] – i.e. send some extra bits so that, if a bit is lost, the receiving computer can reconstruct the lost bit.
- Interleaving the data bits. This spreads out the bits forming a character over time. By spreading out the bits forming a character, static and noise are more likely to clobber a bit rather than an entire character and FEC may be able to rebuild the lost bit and, thus, the character.

The result is that MFSK yields about 2x the PSK31 data rate, but at the cost of a wider signal. User reports support the advantages -- MFSK will often get through where PSK is entirely marginal.

Besides a wider signal, the MFSK signal requires careful tuning. It is less obvious on a waterfall how to track MFSK, i.e. where exactly to put the cursor, but here is an idea. Most MFSK software, such as MixW, allows the user to turn on "hairlines" or tracks showing the edges of the signal bandwidth being decoded. For MFSK, you get two railroad tracks trailing behind your cursor. Now comes the sending operator's task. When beginning to transmit, let the MFSK idle in transmit with no characters being sent for a few seconds. It will generate a single tone at the low edge of the signal's bandwidth. This will show up as a steady line on the receiver's waterfall. Now, all the receiving station needs to do is to put the left hand hairline on the single tone. This should tune in the signal !!! For this mode and for PSK, I often hit transmit and then wait a couple of seconds before transmitting any content to allow the receiving station to register on my signal. Remember, even good transmitters will drift a couple of hertz and, depending on how well the software's AFC is working, the time allows any small issues to be manually corrected.

The setup for MFSK is identical to the setup for PSK so if you have set it up, you are ready to go. Try listening around 14.080, 21.070 and see what you find. Sample of the waterfall print and the sound of MFSK are on the "PSK31 and Other Digital Modes" CD. Try MFSK and have some fun. If you like, call me and we will set up an MFSK QSO!

Contests: Contests are for contesters and for folks who just want a good opportunity to work a particular mode. Give these a try:

Jan 1 – ARRL Straight Key Night--see p 94 of Dec 2002 QST.

Jan 4-5 – ARRL RTTY Roundup--1800Z Jan 4-2400Z Jan 5, see p 94 of Dec 2002 QST.

Jan 18 - 070 PSKFest--sponsored by the Penn/OH DX Society (PODXS) from 0000Z-2400Z Jan 18.
<http://www.podxs.com/html/pskfest.html>.

Jan 25 - BARTG RTTY Sprint--sponsored by the British Amateur Radio Teletype Group from 1200Z Jan 25-1200Z Jan 26
<http://www.bartg.demon.co.uk/>

Hope to print you on my waterfall soon.

73,

Rob, WW6G

SFARC Digital Trivia

Answer to last months trivia question, "Why did hams on RTTY use 'RYRYRY...' as a test string and why isn't it as common today?"

In the days of mechanical teletype machines, the serial stream of bits for each character had to be decoded into a 5-bit combination. This was done with a "distributor," consisting of a copper disk broken into six segments. A brush, rotated by a motor, made contact with the segments. A clutch disengaged the brush from the motor shaft until a character began.

The start bit of the character caused the clutch to engage and the brush to make exactly one revolution. As the five data bits arrived, the brush "distributed" them to each of the five segments, and when the stop bit arrived, the brush came to rest again, waiting for the next start bit.

Each of the segments was connected to an electromagnet, and if there was a "1" bit for that position, would set the position of a notched bar. Thus, each bar was set to either "left" or "right" depending on it's corresponding bit in the character. The notched bars were set up with a set of cross levers resting on them and the notches in the bars were arranged such that, after all 5 bars had been set, the notches would line up for one (and only one) cross lever, which dropped into them.

Each cross lever was connected to a latch for a specific character. As the distributor finished it's revolution, the motor engaged a cam mechanism that attempted to print all the letters, but only the selected letter had been released by the latch, so that letter printed.

It turns out that "R" and "Y" in the 5-bit Baudot code are exactly opposite of each other, and thus provided the greatest amount of "exercise" for this array of mechanical linkages (i.e. "RYRYRY..." was the hardest combination of characters to print).

Today mechanical teletype machines are antiques, and we all use computers and solid state TNCs for digital modes. This is good ... teletypes were noisy, needed frequent maintenance, and used up a lot of paper. However, a solid state TNC and a computer don't recognize any character as being harder or easier to decode, so you generally don't see the RYRYRY, except from the real old-timers.

**Sac Valley
Section**

**Jetti Hill
W6RFF
SM**



Year End

Greetings from Roseville. As the year ends we should reflect back on the year and analyze what we did right and did wrong, and hope to improve for the year 2003. The section had fewer fires requiring ARES communication and no floods during the winter. But the weather department is predicting heavy rains this winter, so be prepared and contact your Emergency Coordinator to offer your help and be sure to get some training before it is needed! If you need to know who your EC is, then contact the Section Emergency Coordinator, K6SOJ. Dave can steer you to the right person.

Section Appointees: I want to thank all of the Section Staff and Appointees for their work for the ARRL and the SV section. Some of the positions require quite a bit of work and others very little, but they all count toward an efficient and effective section. There are many facets of amateur radio and hopefully we have some one to cover each area. Also there is always need for more appointees, such as Official Relay Station, Official Observer, Public Information Officer, Etc. The Section is for the members and each one should promote the ARRL to their fellow amateurs and clubs. Most of the clubs in the section are affiliated with the ARRL.

Section Net: The Sacramento Valley Section Net is held on the 2nd Wednesday of the month on 3987 KHz, at 7:30 PM PST. Please check into the net as we call roll. There will be time for questions, comments and announcements. There are also ARES on the other Wednesdays of the month at the same time and frequency. I am also hoping to start a Section net on the Yuba Sutter repeater - 146.085+ PL 127.3 - possibly at 7PM, just prior to the HF net. This repeater only gives coverage to South of Red Bluff, so it does not cover all of the section. There are also several ARES Net within the section, on VHF. Get acquainted with these nets in case there is an emergency and you need or are needed to help out.

Morse Code: There is a section "Know Your Code" net held each day and night. 1300PST (1PM) on 7111 KHz and 2000 (8PM) on 3711 KHz. K6SOJ is the net manager. This is a beginning CW net - 5wpm +. This is good practice talking to others who are learning or renewing their code. Get out that hand key or slow the keyer speed down and go at it. It has been shown that CW gets through many times when SSB or FM can't.

Christmas Parties: I want to thank those clubs that invited me to their Christmas parties. I did get to two and they were very enjoyable. I also have a couple of club meetings scheduled for the new year. Remember I am available most times on a short notice for speaking or just showing up at your meetings.

VE Exams: If your group gives exams, please send the schedule to me so I can refer inquiries to your team. I do get some calls wanting to know when and where there is an exam being held.

Miscellaneous: There is an ARES group in the planning stage in the Eastern Nevada and Placer counties. The Truckee/North Lake Tahoe and South Lake Tahoe can become completely isolated during a heavy snow storm and an ARES group could be a life saver! At South Lake Tahoe the Tahoe ARA has a communications van and they are well organized for emergencies.

The Emergency Coordinator for Placer County is Burton, N6UG. He has been doing an excellent job in organizing West Placer County.

Yuba Sutter ARC is in the process of reorganization and hopes to get back to monthly meetings with good attendance. They will be meeting at the Yuba County Library. Like many of the section clubs, the membership and meeting attendance has dropped considerably. Attend your clubs meetings and be active in their affairs – become an officer or work on a committee.

Several section hams did quite well in the ARRL 160 meter and 10 meter contests. Even I made over 100 contacts with 50 watts into my 80 meter dipole on 160 meters. If you have not contested – give it a try. The next ARRL tests are the CW DX test at the end of February and the ARRL Phone test, the first part of March. You do not have to be an ARRL member to participate in these contests. (Shame on you if you are not a member).

73,

Jettie, W6RFF

SFARC Has A New Web Site!

www.sf-arc.org

The club has a new web site and thanks to the efforts of Justin, KG6NYD, it has some really neat features.

When you go there, the first thing you will note is a set of news stories on the front page. These will be refreshed often, so please tune into the web site and check the news often. By the way, we are looking for authors, so if you have any news, interesting articles, etc., please do send them along to Rob, WW6G at ww6g@arrl.net.

There are some other interesting features which you might want to explore – in the **Modules** menu on the left. This is the basic navigation menu to get you around the site.

The **Calendar** feature on the **Modules** menu takes you to a calendar. There you can see club events displayed on a monthly calendar. You can move ahead in time, if you like, and explore individual items. As an example, pick the Club Breakfast on December 28th. Simply click on it and it will open and show the details of the event including a link to a map to Suzie's café. Future events will be coupled with maps where possible. Club meetings, director's meetings, club breakfasts, club nets, Placer County ARES nets, and special events will be there. Contests and other on-air events are an option – always looking for help with editing !

Classifieds allow users with accounts [and every club member can register and have an account] to list equipment for sale and look for available equipment. Equipment is limited to ham equipment.

Content contains more or less static information such as contact information, repeater etiquette, and past presidents.

Downloads has two basic categories at the moment: Newsletters and Presentations. Presentations includes those given at club meetings, if the author permits it, and others graciously contributed by other authors. An example of "Other" is George Rothbart's Pacificon 2002 presentation on a PSK31 meter.

FAQ will contain information about the site itself and is a work in progress at the moment.

Forums are a discussion place. We hope that members and others will communicate with each other here, share tips, and other interesting items. Casey, K6WJM has agreed to moderate the Elmer's forum where new hams can post questions and get some help. Please go to the forums from time to time and see if you can help someone or share a point of view.

Gallery is the place for pictures from club activities. There are several sets of pictures out there and, if you like, you can download them.

There are a number of features to be added as we go along including member's pages allowing you to have your own home page on the web – really neat.

Please explore the site and send your feedback – via the **Feedback** menu item, of course. Members wishing an account may get one by sending me an email requesting the same with name and call sign. You will receive an email back advising that your account is set up and it will include your password.

73,

Rob, WW6G

Ham News of the World

(Courtesy of the ARRL Letter and Bulletins)

"Marconi Day" Events

Special event station KM1CC will be on the air January 11-19, 2003, to mark the 100th anniversary of Guglielmo Marconi's inaugural wireless transmission between the US and Great Britain January 18, 1903.

Marconi used a 35 kW rotary spark transmitter and a massive antenna system to transmit a 54-word greeting from President Theodore Roosevelt to England's King Edward VII. The monarch promptly acknowledged receipt of the message via land line and cable.

The special event will take place at the former Coast Guard station at Coast Guard Beach in Eastham, Massachusetts, which is near the original Marconi site. Operation will include several amateur modes, including SSB, CW, FM, digital and satellite. The special event station will open to the public from 9 AM until 5 PM EST (1400-2200z), but operating will take place 24 hours a day.

An Amateur Radio on the International Space Station (ARISS) school contact is to be scheduled during the weeklong celebration. Selected students from three Cape Cod high schools will speak via KM1CC with a member of the new Expedition 6 ISS crew.

Marconi's daughter, Princess Elettra Marconi, is scheduled to attend the a reenactment of the groundbreaking wireless transmission on January 18, when KM1CC will transmit the text of Roosevelt's original message to King Edward VII.

Additional details are on the Marconi Radio Club Web site at <http://personal.tmlp.com/k1vv/w1aa>.

FCC Seeks Comments on Amateur Radio-Related Petitions

The FCC is inviting comments on two Amateur Radio-related petitions for rule making. Both have been put on public notice and are available for public review and comment. In his petition, designated RM-10620, Dale Reich, K8AD, has asked the Commission to automatically upgrade Novice and Advanced license holders to the "next" license class if the licensee has 20 or more years of operating experience. Reich has said such test-free upgrades would compensate for "the previous tougher exam that was past administered" and give credit for violation-free service records.

Among other proposed changes in his "merit and service upgrade" schedule, Reich asks that Novice phone privileges in the 2-meter band--rescinded in the 1970s--be reinstated for those still holding that license. In his petition, Reich asserts that Amateur Radio the proposed changes could augment public service abilities on the part of the affected licensees.

In another amateur-related petition, designated RM-10621, AMSAT-NA has asked the FCC to drop its presently required 27-month pre-space notification to the FCC's international branch for Amateur Satellite launches and substitute a pre-space notification within 30 days of a launch commitment.

The comment deadline for both petitions is January 17, 2003. Interested parties may view the Reich and AMSAT petitions and file comments via the FCC's website at www.fcc.gov/e-file/ecfs.html. Commenters should include full name, US Postal Service mailing address and the applicable rulemaking number--RM-10620 or RM-10621.

Sunspot Cycle Isn't Over Yet

In an apparent reminder from the Universe that the "Fat Lady Hasn't Sung" yet, Cycle 23, expected to have begun its slow decline a couple of years ago, is alive and well. Tad Cook, K7VVV, reports that the average daily sunspot number for 2002 (so far) is 178.3, compared to 170.3 (2001), 173.0 (2000) and 136.3 (1999).

The ARRL 10 Meter Contest this last December bore this out well ... the band was literally alive with stations worldwide. (*your editor managed 676 QSOs in 38 countries for a score of 336,380*). In fact, the band stayed open to the Far East several hours past sunset here on the Left Coast.

Ten is a truly astounding band around the sunspot cycle peak. It's been said that "a few watts loaded into the window screen" will get you a pile of DX QSOs. There are a number of slow speed CW beacons in the 28.200 - 28.300 segment to gauge propagation.

Additionally, the Northern California DX Foundation, in cooperation with the IARU runs a worldwide network of automatic beacons on 14.100, 18.220, 21.150, 24.930, and 28.200 - each one of 18 stations transmits a brief ID and long dashes at 100W, 10W, 1W, and 0.1W in sequence. More info can be found at the NCDXF/IARU website: www.ncdxf.org/beacon/beaconSchedule.htm



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Associate Name: _____ Call: _____ Class: _____

Phone Number: _____ Application: (Circle One) New Renewal

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Membership:	\$22.00	Name Badge:	\$6.50
Associate:	\$ 7.00	Repeater Donation:	\$ _____
Auto Patch Donation:	\$ _____	Newsletter Booster:	\$ _____
Miscellaneous Donation:	\$ _____	Christmas Donation:	\$ _____
Worldradio Renewal:	\$ _____	TOTAL:	\$ _____

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Date: _____ Treasurer: _____ Secretary: _____ Roster: _____

Payment: _____ Check Number: _____ Cash: _____

SIERRA FOOTHILLS AMATEUR RADIO CLUB

P.O. Box 1005

Newcastle, CA 95658

