

CROSSTALK -- Official Publication of the
 GLOUCESTER COUNTY AMATEUR RADIO CLUB, W2MMD
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Tony Starr, WA2FZB	Editor	John Fisher, K2JF	Circulation
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John Zaruba Jr, WB2VOH	Courier	Len Kravitz, KD2CR	Circulation

AREA NETS

GCARC RTTY NET:	Tuesday,	8:00 PM 147.78/18 Rptr
ARES NET:	Sunday,	8:00 PM 147.78/18 Rptr

Club Repeaters: 147.78/18, 223.06/224.66, 447.10/442.10

General Meeting: First Wednesday of each month at the V.F.W. Hall in Woodbury, NJ. Meetings begin at 8:00 pm sharp.

Contributions: CROSSTALK, Tony Starr,
 Deadline: Ten (10) days before each general meeting.

PRESIDENT'S MESSAGE -- AUGUST 1987

Well here it is, seven months into the year and what a year. Every club member is to be commended on their efforts in helping with all the club projects and special services with which we are involved. Not only in supporting and helping, but also with donations. Several hams have been very generous; Al Trueblood for the trailer, Ray Metzger for a generator, Bob Layton for supplying us with an alarm system and Milt Goldman for a 2 meter antenna to go on top of our 90 foot tower. This organization has come a long way since 1959.

The club roster in book form is now out, many received theirs at the last meeting, if you weren't there, they will be mailed. These booklets would not be possible if not for Charlie Sketchley and Sonny Gutin, another product of fine talent. Thanks guys!

Field Day is past history, but not forgotten. A great time was had by all and we still managed to break all kinds of records. I was really impressed with this years' participation. Many of our new members were out for the first time getting their feet wet. Although I was not quite as involved myself this year, I did manage to work a little 10 meters. With more ladies in the club, who knows what will happen next year. Move over guys.

Don't forget the Hamfest in August. I'm sure Harry Spiece, NJ2B, can use all the help he can get. Please don't forget to turn your ticket money in as soon as possible. This year we have a cause to work toward. The Scholarship Fund and our own contest site. So come on out and have some fun too.

Next meeting is August 5, 1987. This is our Beef and Beer night so those who usually come out and even those who don't, this one's for you.

73's-- Virginia Martin, N2FJM

HAMFEST UPDATE

Chairman Harry, NJ2B, reports that all is shaping up well as we come down to the wire. Remember, the 'Fest is on the 30th of THIS month (August), so sell those tickets and hand over the green to Ray, WB2LNR, immediately if not sooner. Also, we can use all the help we can get during and after the event, especially for the cleanup, so try to make it if at all possible. See you there. (Tnx NJ2B)

FIELD DAY "87" WRAP UP

Before getting into the heart of the Field Day results, we want to thank everyone who participated this year. Without your tireless

efforts, we would not have totaled up the scores that we did. There were a lot of "oldtimers" out there and a lot of new members, who we hope will be out again next year, maybe even as Band Chairmen. Regardless of how much time anyone spent at the site, everyone made a contribution.

But above all, a hearty thanks to: Irma (N2FNF) and her crew, for a job well done on the food and drink. To Ray (AI2B), who did his usual outstanding job on keeping us supplied with electric. Last but not least, Walt (WB2OYQ), who logged up a lot of miles on Friday night, trying to find out what happened to our "facilities".

SCORE RESULTS: 9A Class

Band	Total Contacts		Mult.	Total Score
80 CW	291	x	2	582
75 PH	657	x	1	657
40 CW	578	x	2	1,156
40 PH	257	x	1	257
20 CW	297	x	2	594
20 PH	104	x	1	104
15 CW	24	x	2	48
15 PH	141	x	1	141
10 PH	306	x	1	306
Subtotals				2,655
150 W. or less class: 2 x 3,845				7,690
Bonus points per trans. for generator power: 100 x 9				900
Overall score				8,590

There you have it, our unofficial score. The official ARRL score should be rather close, if not right on. We easily reached and exceeded our goal of 2300 contacts for this year.

To all Ops, Loggers, Dupers, Cooks, Supervisors, Helpers, Tower putter-uppers, etc, WELL DONE!!!!

73's Art, KA2DOT & Jerry, WB2CAK

CONTEST CORNER

As the contest list below indicates, there are contests that include many areas of interest. Perhaps you might like to try one or

more if you haven't been an active contestor. You might like it if you try!

Would anyone who gave me score sheets for the ARRL 1987 INTERNATIONAL DX CONTESTS, please check with me--either at the meeting, on our repeaters, or by phone (845-2667) by August 15.

The following is a short discussion of the Megapoint Awards given by the club. I think it deserves repeating for our new members and to encourage some of our older members to start working for this award too. As I noted last month--if you can show me credits after January 1, 1980, I will see that you are credited with them.

At first a million points sounds like a lot, but as you can see from the following table you receive more credit towards the award than your raw score...because the score is multiplied by a factor depending on the contest entered!

CONTESTS	MULTIPLIER
CQ WW DX CONTESTS (PHONE & CW)	X2
ARRL SWEEPSTAKES (PHONE & CW)	X5
ARRL VHF SWEEPSTAKES	X50
TWO-LAND QSO PARTY (WHEN HELD)	X3
ARRL INTERNATIONAL DX CONTEST (CW & PHONE)	X3
CQ WW WPX CONTEST (CW & PHONE)	X1

I'm sure that some of you have credits since 1980 in one or more of these contests and I know some of you have earlier credits also, so check your records and let me know if you find any. In addition, recognition is given for repeatedly reaching the landmark number. The contests listed are, of course, club competitions. The Megapoint Award was established to encourage the members to take part in these contests as part of the club effort. With the upcoming contest season I hope to be able to make club entries and also fill in those large open spaces in my Megapoint Scoresheet...which means more participation by our members.

A schedule of contests follows:

MONTH	DATES	CONTEST
AUGUST	1-3	SWOT QSO PARTY
	1-2	ARRL UHF CONTEST
	1-2	N Y State QSO Party
	8-9	European CW Contest
	15-17	N J QSO Party
SEPTEMBER	5	73 1st National CW Championship
	6	73 1st National SSB Championship
	12-14	ARRL VHF QSO PARTY
	12-13	European SSB Contest

	19-20	CRRL CAM-AM SSB Contest
	19-20	Scandinavian CW Contest
	26-28	Scandinavian Phone Contest
	26-27	CRRL CAM-AM CW Contest
	26-27	CQ WW RTTY Contest
OCTOBER	3-4	VK/ZL/Oceania SSB Contest
	10-11	VK/ZL/Oceania CW Contest
	14-16	YLRL Anniversary CW Party
	24-25	CQ WW DX CONTEST, PHONE
	28-30	YLRL Anniversary SSB Party
NOVEMBER	7-9	ARRL SWEEPSTAKES, CW
	21-23	ARRL SWEEPSTAKES, PHONE
	28-29	CQ WW DX CONTEST, CW
DECEMBER	4-6	ARRL 160 METER CONTEST
	12-13	ARRL 10 METER CONTEST

From the above list the CQ WW DX and ARRL Sweepstakes are club competitions and as noted above count toward the Megapoint Awards too! (TNX ARRL, CQ, QST, 73, WORLD RADIO)

de KB2GW

VEC'S TO REVISE WRITTEN HAM TESTS EVERY 3 YEARS

Volunteer Examiner Coordinators, meeting at the ARRL National Convention Atlanta weekend of July 1, voted to revise the various written examination question pools on a three year cycle. Tnx W5YI/K2JF

NOVICE RANKS EXPAND SHARPLY!

The number of applications seeking to enter ham radio has SKYROCKETED to 10,314 for the 60 day period ending May 31, 1987. There were 7,065 applications in May alone. The only conclusion you can come to is (1) the public wants to communicate with one another, and (2) the FCC Novice Enhancement proceeding is doing what was intended..that being to interest newcomers in pursuing the ham radio hobby.

Tnx W5YI/K2JF

USSR LAUNCHES AMATEUR SATELLITES

Amsat reports that the newest Soviet Amateur Radio satellites, RS-10 and RS-11 appear to be doing well after their first two weeks in orbit. The two new Russian "OSCARs" were launched from the Soviet

Union at 0724 UTC, June 23rd. RS-10 and RS-11 each uses 15 meter exclusively for uplinks, 10 meters exclusively for downlinks and 2 meters for both uplinks and downlinks. Various combinations yield up to five distinct modes of operation. If anyone is interested in the Modes, Uplinks and Downlinks frequencies call K2JF. Tnx W5YI/K2JF

The FCC has shut down the Pirate Radio Network, a club of some 300 outlaw CB operators who have interfered with radio and TV reception in the Los Angeles area for more than five years. The Pirate Radio Network used a sophisticated touch-tone accessed repeater-like relay station to boost their 27.275 MHz (CB Channel 27) narrowband FM signals--a mode not authorized for citizens band operation. The network also had crossband links to 49 MHz cordless telephone frequencies and GMRS (467 MHz) channels. Tnx W5YI/K2JF

POSTAL RATES TO INCREASE NEXT YEAR

You can expect a 13.6% increase in first class postal rates next year...to 25 cents, magazines will pay 9 to 19% more in second class rates, third-class bulk mailers up to 32% more. (How much is this going to cost CROSSTALK?) Tnx W5YI/K2JF

DX
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As announced at the club meeting, DX is all over the place. All you have to do is get off of 2 meters and try the lower bands. If you are interested in working into the Far East (JA, YB, V85, DU and BV) why not come on twenty (20 meters..that is 14 MHz) early in the AM; say 1100 to 1230 Z. Also if you would like to work into the Caribbean on 20, try the same time. The Solar Flux is on the move upward so listen to 15 and 10 meters for some good DX openings. When the K index is rising and there are openings on 10 make sure you turn on that 6 meter gear. The boys in the Caribbean and Europe are now looking for the U.S. Amateurs on 6 meters. I recommend that if you play the 6 meter game you first talk to Ray (WB2LNR) or myself and get a little education for that band.

ZL1AMO, Ron, (a great DXpedition amateur) has returned from his YJO mission and is now planning his next DXpedition. He is planning to go to Cocos-Keeling Island in Sept., Oct., or Nov., depending on his transportation. This is a fairly rare DX spot. In talking with Ron, he told me it is going to be a costly proposition and he could use some

help. Here is a chance to help the DX bunch in the club and do a worthwhile action for Ham radio.

SOME STATIONS WORKED		ALL TIMES ZULU		
ZL1AMO	14.185	0429	JULY 19	
VK9NS	14.220	0440	" "	
JA4KFA	14.165	1200	" "	
UA1OT	14.165	1214	" " FRANZ JOSEF ISLAND	
G4GUW/DU1	14180	1226	" "	
VKOGC	14220	0400	" 20 MACQUARIE ISLAND	
5W1FT	14220	04525	" "	
ZL1BWA	14.165	0450	" "	
A35CR	14205	0445	" "	
VK2VA	14209	0447	" "	
ZL1AH	14214	0455	" "	
JR1RCQ	14165	1126	" "	
JJ3RCJ	14165	1158	" "	
YB3CN	14165	1204	" "	
HEARD XU1SS VERY WEAK		14165	1210	JULY 20

C U IN THE PILE UPS JOHN K2JF

IONOSPHERE

This will be a series of articles on propagation starting with the "Ionosphere". If you want the articles to continue, please let me know; otherwise I will assume there is not sufficient interest to continue.

In the early days of radio, mathematical physicists reasoned that it would be impossible to receive radio signals at very great distances because of the attenuation resulting from the absorption of the energy by the earth. When it was found experimentally that signals could be received across the Atlantic Ocean, the work of the physicists was questioned. Their result was correct, of course, for a problem to which it applied, namely the propagation of ground waves around a curved earth surrounded by free space. Obviously, some other means of propagation had to exist. The experimental evidence of trans-atlantic communication proved only that the assumption of an earth surrounded by nothing but free space was unjustifiable in this connection. It was then suggested by both Heaviside and Kennelly, one an English scientist and the other an American, that the earth actually is surrounded by an electrified layer which acts as a reflector and prevents the escape of the waves into free space by bending it back toward the earth. Such a layer also could form the source of the electric currents in the upper atmosphere, which had been suggested as the cause of changes in the magnetic field of the earth during magnetic storms. Later, when it was shown that not only one, but several such layers actually did exist, and that these layers consisted of ionized gases of the atmosphere, the

name "Ionosphere" was suggested for the region in which the layers were found.

IONIZATION

It has been found that energy in the form of electromagnetic radiation is capable of dislodging some of the loosely bound electrons from their atoms, provided that the radiation is of the proper wave length and energy. When a number of such events happens in any gas, the gas is said to be "Ionized", since it has atoms lacking their normal quota of electrons, and free electrons unassociated with any atom.

SOURCE OF IONIZATION -- THE SUN

Although the sun is composed of the same elements that are to be found on the earth, these elements exist in such a violent state of solar activity as to remain constantly in a molten or gaseous state (plasma). Probably because of intense internal stresses and the play of atomic forces on a gigantic scale, the sun constantly emits huge amounts of energy in the form of heat, particles, and electromagnetic waves. Eruptions at the surface of the sun have been noted to shoot immense clouds of hot gases to distances of half a million miles above the surface. Another disturbance of the sun's surface is the appearance of sunspots, which have particular effects on the amount of ultraviolet radiation, and hence on the extent of ionization caused by this radiation.

EFFECTS OF SUNSPOTS

During periods of high sunspot activity, (we are just getting into cycle 22) the extent of ionization of the various layers is greater than the average. The sunspots are dark areas which appear on the disk of the sun, and although their relative darkness would seem to indicate lower temperatures and lower ultraviolet radiation, they have bright gaseous clouds about them, and the processes involved in the formation of the sunspots probably produce vast amounts of ultraviolet energy. The sunspots usually appear in groups, and follow a more or less definite cycle of activity with an average time interval of 11.1 years between the maxima of two consecutive cycles. Magnetic storms on the earth also are related to the presence of large sunspots.

DELLINGER FADE

Bright visible flares on the sun's disk instantaneously produce great effects on the ion density of the various ionosphere layers. This effect is known as the "Dellinger Fade", or sudden atmospheric disturbance. Great increases are noted in the ionization produced at low levels of the ionosphere as the result of these flares.

GLOSSARY OF TERMS

As you read the Propagation forecast and become more acquainted with propagation, there will be terms that are used, and it is most helpful to know their relationship to propagation.

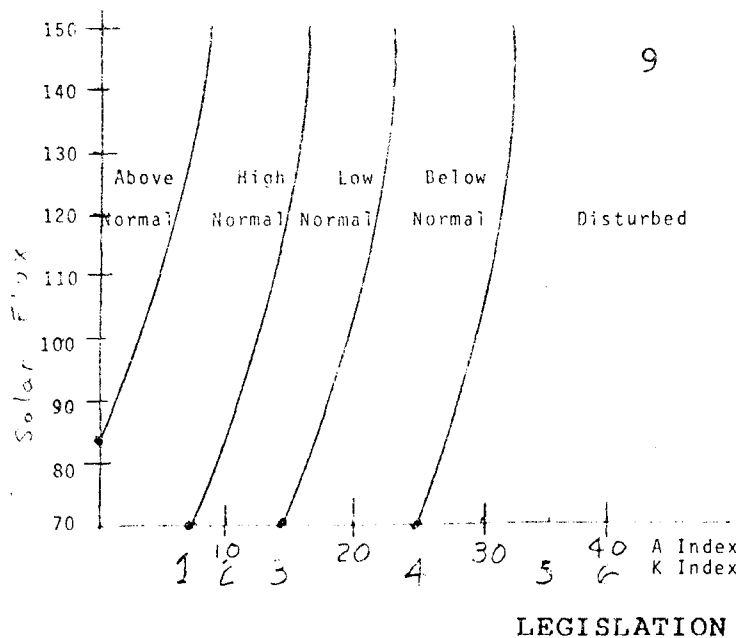
CRITICAL FREQUENCY: That frequency which beamed straight up will not be returned by the ionosphere. The last frequency that will be returned is "The Critical Frequency" and is the Maximum Usable Frequency (MUF). The Top Operational Frequency is measured on an angle 2 degrees from the vertical that will be returned. This is a very useful operational frequency since this is used to determine the depth of each layer of the ionosphere.

SPORADIC E: Is a little-understood phenomenon that effects the lower (E) level of the ionosphere and results in strong short-skip propagation. Highly ionized "clouds" seem to appear in the E layer, remaining in place for minutes, or even hours, producing strong but relatively "local" conditions of good propagation-particularly at the upper end of the hf spectrum and lower end of the vhf spectrum. Quite unpredictable, hence the term "sporadic".

SOLAR FLUX: It is a measurement of radiation from the sun at 2800 MHz and is used to determine solar flux. Values from about 70-150 are chosen to represent the flux level. In general, the higher the solar flux, the higher the degree of ionization. Essentially, a product of ultraviolet radiation.

GEOMAGNETIC ACTIVITY: Solar particle radiation from the sun directly affects the earth's magnetic field, and can cause the ionospheric activity to weaken or disappear entirely. It is responsible for fading, flutter, and increased noise levels.

The A INDEX is the daily (planetary) average of measurements taken at all participating observatories worldwide and, hence, is about 24 hours late when reported. The K INDEX is related to the A INDEX, but consists of measurements taken at the Fredricksburg, Virginia Observatory, and reported every three hours. In general, the lower A and K INDEXES, the better the ionosphere for radio propagation. For those who are already DXers WWV is no secret, but for the new ones an important source of information is the WWV's propagation information. WWV gives much information of value to the DXer at 18 minutes after each hour, on all frequencies they use: 2.5, 5.0, 10.0, 15.0, and 20 MHz. The information consists of Solar Flux data plus Geomagnetic Activity, using the A and K indexes. A chart here shows this information, and by transferring the WWV information to the chart, you can quickly plot the crossover point and directly "read" the condition of the ionosphere. Conditions from Low Normal through Above Normal are the ones to use for your DX hunting. K2JF



REVISION CYCLE FOR QUESTION POOLS

After discussion led by Fred Maia, W5YI, on the revision of question pools, it was decided by vote to revise the pools every three years. The three year proposal was introduced by Jim Georgias, W9JUG, of the DeVry VEC. It is anticipated that the Extra Class and Advanced pools will be the first to be revised since the Novice, Technician and General Class questions were the last worked on by the VECs.

PETITION TO BE FILED ON CODE TESTING

A Petition will be filed by Ray Adams, N4BAQ, on behalf of all VECs requesting that the Morse Code testing rules revert back to the previous wording which stated that telegraphy tests "may" and not necessarily "shall" contain all letters, numbers, and certain punctuation and operating procedure signs (Part 97.21b). The VECs will also ask that the "five minute" code test in Part 97.29c be amended to read a five minute MINIMUM.

LATEST ON THE 220 MHZ DISPUTE

Paul Rinaldo, W4RI, represented the ARRL at the meeting in Atlanta and gave a report on the status of the 220 matter. He said not to expect any FCC action until the January-February 1988 time frame. The reply comment period has been extended to July 31, 1987, and League has already filed over 45 pages of reply comments; and they will file some more based on new 220 MHz sporadic E propagation information.

Rinaldo also suggested that the Amateur Community continue to send letters and make phone calls to the FCC regarding the issue; and to initiate Congressional inquiries even though the comment period may be officially over.

73, Chuck, KB2AZW.

REPEATER NEWS

Two changes were recently implemented on the Club's Two Meter Repeater. One is a way for users to reset the repeater time-out timer if a weak carrier is holding up the repeater. The second change involves a change to the courtesy tones.

Time-out Timer Reset In the Spring and Summer months, when the 2 meter band is open, (usually in the morning) stations working other repeaters, (Ocean City, MD, White Oak, MD etc.) will sometimes also get into our repeater. When this happens, it prevents our repeater from resetting when a local user in QSO with a second station drops his carrier. If the second user fails to wait for the machine to reset before his transmission, the repeater will probably time-out before he's finished his transmission (the time-out timer is set for 2 min, 45 sec.). So that users won't have to wait until the distant station unkeys, I've programmed a User Command into the Controller that will force the time-out timer to reset.

The command is " 2 3 1 D ". When the command has been properly received and acted on, the Controller will respond " Timer Cancel ".

NOTE ! This will only work in the case where a strong local signal can capture the receiver from a weak signal. If you're on a handheld with a rubber duck in Franklinville, this probably won't work. . . Your tones have to be clear enough for the Controller to decode. My apologies to anyone who doesn't have a " D " on their touch-tone pad. The last digit of this command has to be a " D ". I can't change it.

Write this command on your green repeater command card so you'll have it handy when you need it.

Un-key Signal Lately, I've gotten some complaints that users were having trouble breaking into a QSO because those in QSO were keying up too fast. I agree that this is a problem, but I don't think it's caused by quick key-ups. It seems to be caused by the fact that the controller mutes the receiver squelch tail and the breaking station can't tell when the other station un-keyed. So he (she) waits to be sure it is clear, and usually ends up waiting too long - the courtesy tone sounds - another station keys-up . . . too late !!! To solve this I've added a short, higher pitched tone which occurs immediately after the user un-keys. The normal courtesy tones occur 1.5 seconds after this un-key signal. Now, the breaking station will know exactly when the user un-keyed and he has 1.5 seconds to break-in with his call.

I programmed these changes on 7/21 and as of this writing (7/22) I'm not 100% satisfied with how they're working. I may make some other changes in the weeks to come. If you have any comments on these changes positive or negative, please let me know and I'll be glad to discuss it with you. I welcome your feedback.