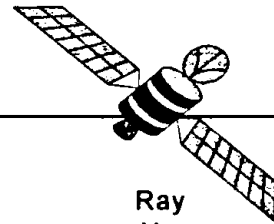




W2MMD



Gloucester County Amateur Radio Club

1997 Officers

President	Bob Krukowski	WA2UDO
Vice President	Jack Stauffer, Jr.	KA7LAX
Treasurer	Al Arison	KB2AYU
Recording Sec.	John Logan	KB2VSE
Corres. Sec.	Tony Scandurra	KA2FFS

Directors

John Lloyd	KA2EZN
John Zaruba, Jr.	AA2BN
Walt Seitz, Jr.	KB2JCG
Chuck Colabrese	WA2TML
Goldie Rosenberg	N2YNB

Trustees

Stu Cleveland	N2WUP
Barbara Bielecki	N2SBP
Chris Chamberlin	N2IVN
Charlie Olinda	N2SRQ

GCARC Meetings

General Membership:

8 p.m., 1st Wednesday every month,
Woodbury VFW, Woodbury-Glassboro Rd.
and Evergreen Ave., Woodbury Heights, NJ

Board of Directors:

8 p.m., 3rd Wednesday every month,
GCARC site, Harrison Twp. 4-H Grounds
(approximately one mile south of Mullica Hill
on Rt. 77).

Club Repeaters

147.780/180 Mhz 223.06/224.66 Mhz
447.100/442.100 Mhz (CTCSS 131.8)

1997 Committee Chairpersons

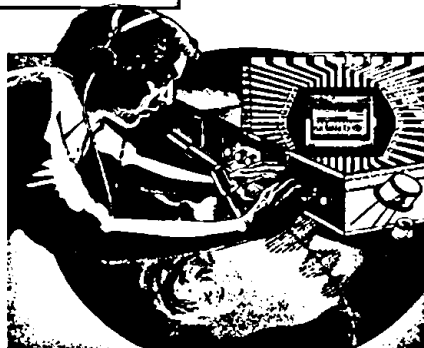
Advertising	Ray	N2WHL
Antennas	Al	KB2AYU
ARES/RACES	Chic	WA2USI
Awards	Jack	K2ZA
Banquet	Bob	WA2UDO
Budget *	Bob	WA2UDO
Callbook Info.	John	K2JF
Clubhouse Site *	Stu	N2WUP
Constitution *	Ken	KN2U
Crosstalk	Greg	WN2T
	Kyle	KB2RVY
Data Processing	Bob	KB2COB
DX	John	K2JF
Field Day *	Open	
Hamfest *	John	KA2EZN
Help	Ken	KN2U
Hospitality *	Glenn	N2YIO
Legislation	John	AA2BN
Membership *	Tony	KA2FFS
Nets	Dave	N2TVR
Nominations	Bob	WA2UDO
Publicity *	Ray	N2WHL
Repeaters *	Chuck	WA2TML
Scholarships	Greg	WN2T
Special Services	Open	
Special Events	Walt	WB2OYQ
Sunshine	Miriam	KB2EUA
Technical	Jack	KA7LAX
Training & Testing	Chic	WA2USI
TVI	John	K2JF
4-H Parking	Bob	WA2UDO

(* Standing Committee)

NETS

ARES/RACES - Sundays, 2200 Hrs
(147.780/180 & 223.06/224.66 Repeaters)

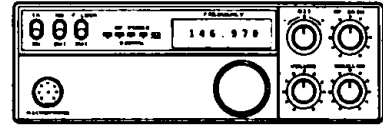
10 Meter - Sundays following the
ARES/RACES net (28.350 Mhz)



GCARC
Feb. 1997



CROSSTALK



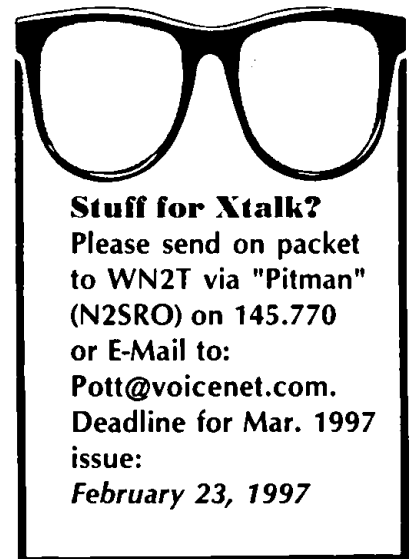
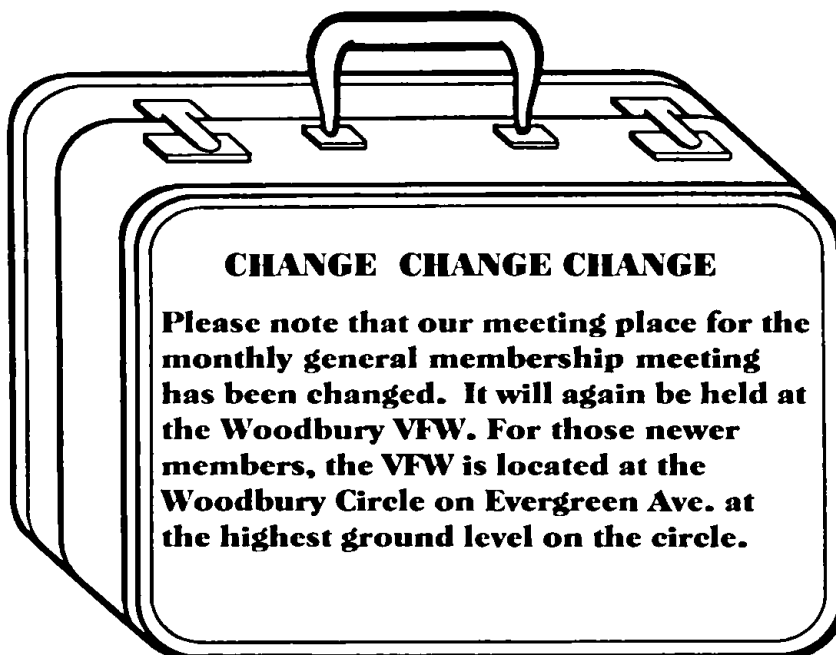
The GCARC BANQUET and INSTALLATION of OFFICERS is scheduled for **MARCH 15, 1997**. It will be held at the "WOODBURY VFW" beginning at 1830 (6:30 pm for the yl's & xyl's). The cost is set at \$20.00 per person, both for members and non-members. This price includes a buffet dinner, door prizes, music and dancing, and open bar (soda, beer, wine, and mixed drinks). It is most assuredly an economical night out, considering you will have no additional cost for refreshments even if you are extremely thirsty!

We have to commit to a head count no latter than 3/5/97. Therefore, all attendees must reply with **full payment** at or before the "March Meeting" (3/5/97) -- no exceptions. The food is being provided by an "off premises" caterer disallowing last minute changes. Ten days notice is very gracious on their part, so please cooperate. The dinner will include seafood, veal, chicken and beef, along with pasta and salads.

Final details, including a menu, will appear in the March issue of Crosstalk. Please MAIL your check (@ 20.00/person) to G.C.A.R.C. Banquet /PO Box 370 / Pitman NJ 08071, no later than 3/1/97; otherwise, bring it to the March meeting to insure your inclusion.

I still need assistance in obtaining door prizes and setting up prior to 1830. If you are able to help, please contact me either at home or via my e-mail address:
bobudo@juno.com. CU There, Bob, WA2UDO

GCARC Banquet



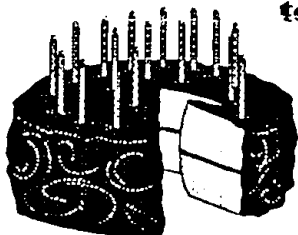
E-Mail Addresses

Since our hobby is based on communicating, anything we can do to improve communication among our members benefits both our club and our hobby. One fast growing means is e-mail. Therefore, I have contacted our database chairman and requested that a new column be added to our club directory: Your e-mail address.



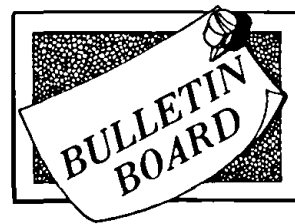
This will allow members to be more accessible. If you would like your e-mail address included in the club database and directory please submit it to: kb2cob@juno.com. Also if you care to copy me (bobudo@juno.com), it will simplify updating my address book. Thanks & 73, Bob WA2UDO

February Birthday Greetings to the following members of GCARC!



Call	First	Last	Day
N2PKF	John	Yeager, Jr.	1
N3RYO	Richard	Harkins	3
W2RCM	Richard	Munyan	4
KB2RKH	Paul	Lorey	5
K2HPV	Herbert	Schuler	10
KB2ZTK	Adolfo	Nicdao	11
KG2FC	Leslie	Glessner	16
KB2GW	George	Munns	17
KA7LAX	John	Stauffer, Jr.	18
N7NUA	Christine	West	19
N2SBP	Barbara	Bielecki	20
KZ2N	Alvin	Zipkin	25
WA2TML	Charles	Colabrese	27
N2DWR	Marla	Bozarth	28

Unfortunately, the Elks Club could no longer accommodate the GCARC because of a change in scheduling. I would like to extend my appreciation to the staff at the Elks for their accommodations over the past two years. This change will be effective as of the **FEBRUARY MEETING**.
BOB, WA2UDO



Hello, Hamfest!



As I'm sure you are aware, the GCARC hamfest is at the end of August. So, why am I writing about it now? I need people to step forward to volunteer to help me run the event. I can't do it by myself!

We need the hamfest to keep the costs of running the club down to a minimum, support the repeaters, the clubhouse, etc. **NOW** is the time to start planning this event. If you are interested in supporting the club, please get in touch with me. 73, John, KA2EZN

There Will Be a Quiz!

SPACE ENVIRONMENT: The region between the Sun and the planets has been termed the inter-planetary medium or the space environment. Of particular interest to us is the region of the space environment that extends from the Sun to the top of neutral atmosphere of the Earth, where a variety of electromagnetic, radiative, chemical and dynamic processes can affect advanced technology and human life.



SPACE WEATHER: Weather in space, like that on Earth, refers to disturbances to the environment that can have adverse effects on human activities. These disturbances are driven by solar activity and cause variations of electromagnetic field and energetic particles.

SOLAR ACTIVITY: Solar activity describes a variety of events on the Sun, including the occurrences of sunspots flares, filaments, coronal holes and coronal mass ejections.

Continued...

If you like this type of article let me know, and I will continue on with such items as SOLAR WIND; GEOMAGNETIC FIELD; IONOSPHERE; CORONAL HOLE; and CORONAL MASS EJECTION. If no response, I will crawl back into my little shack and shoot DX. (Hope you all got VK0IR under your belt.) C U in the-Pile-Ups. John, K2JF

President's Message

Respect for the property of one another is something most of us are taught when we are young. Unfortunately, some people are not aware that this courtesy extends to include club property and to those responsible for its upkeep and safekeeping.

Recently two of our club members went out to the club site with the intention of erecting a new dipole for 40 meters. Upon arrival they found themselves short on insulators. Brainstorming together they arrived at a solution: CANNIBALIZATION. They rationalized that since the delta-loop is transitory on the ground anyway, why not "borrow" an insulator. They proceeded to "cut" the delta-loop at the apex in order to slide the insulator off.



What is wrong with this picture? Several things, to be sure. There is never any justification in cannibalizing anything, unless for an emergency (working a new country does not qualify). No changes or additions (or deletions!) to any site property are permitted without the approval of the site chairman (Stu, N2WUP). If it pertains to an antenna, the antenna chairman (Al, KB2AYU), must in addition give his OK.

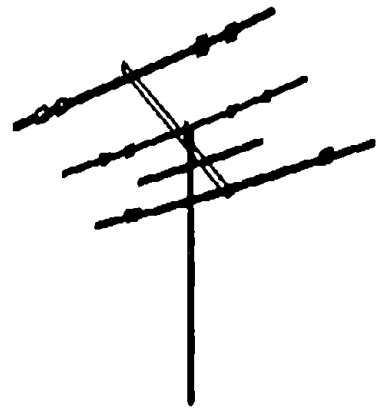
These are important and necessary safeguards to protect our club. Picture what could happen if a poorly erected antenna falls on a vehicle or a person, possibly a 4-H member or visitor. In this "lawsuit era" allow your imagination to anticipate our (GCARC's) nightmare. Lastly, this showed outright disrespect for two unselfish members (KB2AYU and KA7LAX) who have devoted hundreds of hours to ensuring that we have safe, reliable, and efficient antennae at our club site. Unbeknown to our 40 meter "tribal pair," Al and Jack were en-route to repair the support for the delta-loop. Upon arrival they found their task was just made considerably more difficult and time-consuming.

This is not the "picture" that should represent our club. My gratitude goes out to Al & Jack for making the best of this unpleasant situation.



73, Bob WA2UDO

VHF Club Activity



At W2MMD, we had considerable activity during the VHF sweepstakes this month, with Tony KA2FFS being the main operator. We were active on three bands: 2 meters, 6 meters, and 432. We worked all modes, but mainly side-band. Activity started on Saturday afternoon at 2pm. We had some gear on loan, including K2JF's Icom 736 (used for 6 meters), AA2BN's Icom 820 (used for 2 and 432), and KA7LAX's Astron power supply.

Needless to say, we had a potent signal on the bands. We were able to work as far west as Ohio on 2 SSB, and there was an opening to midwest on 6 meters on Sunday. Tony was able to work stations as far west as Iowa.

Members who came to visit on Saturday included KA2FFS, KA2EZN, N2YIO, WA2UDO, KB2AYU, N3XZG, AA2BN, KA7LAX, and KB2VXC. Members who visited Sunday were KB2VXC, KA2FFS, KA2EZN, and N2YIO.

Who operated the contest? KA2FFS, KA2EZN, N2YIO, and KB2VXC.

We managed to gather 10,760 points. While this was not in the league of WC2K, who had over 200,000 points (Rick was active on 9 bands), we certainly had a good time.

Those antennas that we put up last year are certainly competition class. Perhaps next year we can get some more gear, be active on more bands, and have a much higher score.

Hopefully, we will also have more member participation next year as well. 73, John, KA2EZN

FEBRUARY PROGRAM

John Zaruba (AA2BN) will again be presenting his APRS program. For those of you who don't know what APRS stands for, come to the meeting and you'll know at the end of the night. For you vets, he will be presenting much new material.

John also will be giving out presents to all who are interested. Come on out and see what it is!!

73, Jack KA7LAX

For Sale

Icom IC-25H Two-Meter Mobile Transceiver, with base antenna, manual, and schematic. 45 watts high output; 2 watts low. \$100.00. Call Rev. James E. Thompson, N2EDK, at 767-2231.



Your passport to Club fun and entertainment awaits you with the renewal of your dues!

Single Member - \$15.00
Family - \$15.00 + \$7.50 @
additional member
Associate - \$10.00
Junior - \$7.50

Please remit to Al Arrison, KB2AYU, Treasurer, by mail or at the next club meeting.

Deadline for dues: March 31, 1997!

FCC Examinations

The South Jersey Radio Association ham licensing class has scheduled FCC exams for Tuesday night, February 18, 1997. At that time, the Bellmawr VE's will be available to administer WRITTEN and MORSE CODE exams for ALL CLASSES of FCC ham radio licenses, not just for those in the club's ham radio licensing class.

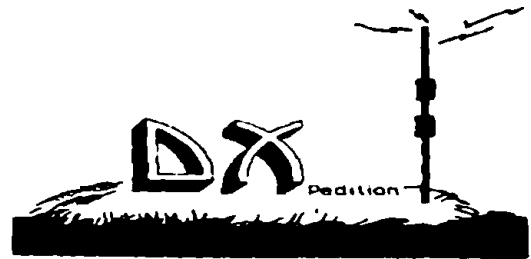
Anyone interested in taking FCC Exam Elements for any class of ham license may come to the testing session on February 18, 1997, at 7:00 PM EST. The tests will be given at Voorhees Middle School, Holly Oak Drive and Evesham Road, in Voorhees, NJ. There will be a fee of \$6.25 collected by the VEC at that time. All applicants for new licenses are made on an FCC Form 610, blank copies of which will be provided at the exams session. Two forms of identification must be provided, with at least one being a photo ID. If you are upgrading, bring your original license and a copy to the session. If you have a CSCE from a previous exam, bring the original and a copy with you.

If you have any questions on the test session, you can contact Jim Vecchiola, KR2T, E-mail: jimkr2t@waterw.com or John Buzby, N2VPN, E-mail: buzby@waterw.com

Good Luck! Jim KR2T (F.Y.I., Bob, WA2UDO)



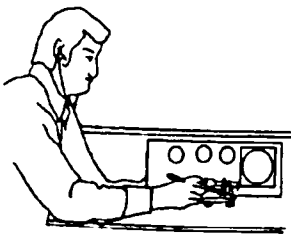
Just a reminder, the SPARC hamfest is March 1, 1997 in Absecon, NJ. I will be giving out flyers at the next monthly meeting. 73, John KA2EZN



As was expected the big one in January was the Heard Island DXpedition, VK0IR. It was one of the best planned and executed DXpeditions ever, breaking all records with 80,673 contacts! The operators were very good and the equipment was excellent and their antennas did a fabulous job. If you needed Heard Island here was your chance. I know that a number of Club members satisfied their requirement in getting VK0IR on many bands.

H44-SOLOMON ISLANDS..Look for H44MS beginning Feb. for 2 weeks, 160-10 including the WARC bands. Both SSB and CW. 7Q7-MALAWI... Karl (WF5A) will sign 7Q7KH 80-10 including the WARC bands. 7Q7RM (Ron) is quite active on 20 and 15 meters SSB. Watch the African Net on 21255 around 1700Z. 9G5-GHANA... 9G5BQ from Feb 1 to Mar 8. He will be on all bands including the WARC bands with emphasis on the low bands. V47-ST-KITTS... Joe, V47CA, 160-6 meters on CW and SSB. Joe will QRV from Feb 7-17. P29-PAPUA NEW GUINEA... JA3IG/P29 from Feb 8-11, 80-10 meters SSB & CW. V2-ANTIGUA...V26CW Feb 12-19, 160-10 meters, and WARC bands. VP5-TURKS & CAICOS... VP5JP, Joe (K8JP). If you work him tell you know me; we are old friends - Feb 12-24, 160-10 meters and WARC bands; SSB & CW. C6A-BAHAMAS... Gary, KR8V, will operate from Abco Is. Feb 13-17, 160-10, and will be in the contest.

That looks like some nice stuff for the deserving. Of course you can keep your ears open in the AM 0600-0830 EST for the Far East, and perhaps conditions will be good and 15, 12 & 10 might open up. C U in the Pile-Ups. 73 Tnx K2JF. Tks also to Ken, N2CQ, for the Ohio-Penn DX feed, the highlights of which are incorporated in this report - Ed.



CONTESTS

Let us take a look at the upcoming contests this month. There are some good ones! North American Sprint (phone), Feb 1-2,

0000-0400 Z (Feb 1 local time); QCWA Golden Anniversary QSO Party, Feb 8 to 10 (CW), 1400Z. Next month the phone.

ARRL DX Contest (CW), Feb 15-16. (See Dec QST pg 104.) Next month the phone. CQ WW 160 Meter Contest (phone), Feb 21-23. (See Jan QST pg 107.)

Next month winds up this year's major contests, so get ready for the final HF stuff and look forward to the Spring VHF/UHF contests. Tnx K2JF

LONG LIVE HEAVISIDE!

Solar Cycle 23 Prediction made by a NOAA-sponsored Conference

An international scientific task force was convened for two weeks in September by the Space Environment Center in Boulder, Colorado, to develop a forecast scenario for the amplitude and phasing of solar and geomagnetic activity during Solar Cycle 23. The panel of 12 members (from Australia, Scotland, Germany and the U.S.) was funded by NASA to achieve a consensus on a forecast, including uncertainty ranges.

The size of solar cycle is historically marked by the maximum monthly smoothed sunspot number of a cycle. The current cycle, Cycle 22, had a maximum monthly smoothed sunspot number of 159 in July 1989. The largest observed cycle, Cycle 19, had a maximum monthly smoothed sunspot number of 201 in November 1947. The consensus forecast is as follows: Smoothed Monthly sunspot number maximum of 160 with a range of 130 to 190. Smoothed monthly 10.7 cm solar radio flux maximum of 205 with a range of 175 to 235.

While this forecast is for a large cycle, the panel did not find direct evidence that the next cycle will exceed historical record levels. Therefore, estimates that the likelihood that Cycle 23 will exceed Cycle 19 are low.

We have not yet confirmed the minimum between Cycle 22 and Cycle. The prediction of Cycle 23 is directly tied to the anticipated minimum date, but in advance of confirmed date for Solar Cycle 22/23 minimum, the range in date of the maxi-

imum is Cycle 23 maximum in March 2000 with a range of January 1999 to June 2001.

After minimum is established, the range of reasonable dates for the maximum will narrow. JoAnn Joselyn.....Tnx K2JF

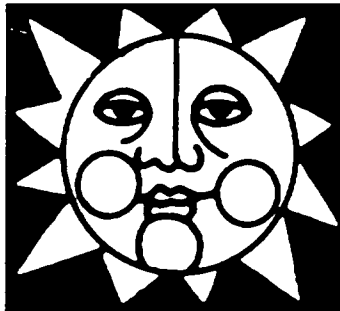
THE IONOSPHERE PART 8

Maximum Usable Frequency (MUF)

For any given ionized layer of fixed height and ion density, and for a transmitting antenna with fixed angle of radiation, there is a frequency (higher than any other) that will return to the earth a given distance. This frequency is the **MAXIMUM USABLE FREQUENCY FOR THAT DISTANCE**; moreover, it is always a frequency higher than the critical frequency because the angle of incidence is less than 90 degrees.

Thus, for any given great circle distance along the earth, there is a maximum usable frequency which is the highest frequency that will be reflected from a given layer of the ionosphere and that will return to the earth at the great circle distance. In other words, the greater the transmission distance, the higher the maximum usable frequency.

In selecting the proper operating frequency for sky waves which travel along a fixed radio path, the maximum usable frequency is perhaps the most important factor to be considered. If the operating frequency is above the maximum usable frequency, the wave is said to escape, since it then will not be reflected by the ionosphere layer but will pass on through. On the other hand, if the operating frequency is decreased below the maximum usable frequency in the daytime, the wave becomes increasingly attenuated, since in the high-frequency range, the lower the frequency, the more wave energy is lost through ionospheric absorption.



Hence, it is usually desirable for transmission to occur on a frequency as near to the maximum usable frequency as possible. A direct relationship exists between the maximum usable frequency, the condition of the ionosphere, time, and the angle of radiation. Thus, it is possible to predict mean values of maximum usable frequency for propagation over any path for any time in any future months. Since the method of problem solution entails the use of world-contour charts and the use of complicated procedures, it is beyond the scope of these write ups.

Continued next page...

Ionosphere, cont...

Lowest Useful Frequency (LUF)

Absorption. The presence of ions in the upper atmosphere not only causes bending and the return to earth of a radio wave of sufficiently low frequency, but also causes part of the wave energy to be absorbed. This absorption process is also of great importance in the practical use of ionospheric radio transmission. During the day, absorption takes place mainly in the D region of the ionosphere. However, there is some absorption for frequencies near the MUF of the F2 layer, because waves at such frequencies are retarded to such an extent that there is sufficient time for appreciable energy loss to take place in spite of the relatively small number of collisions. Such absorption is called **DEVIATIVE ABSORPTION**, because it occurs in conjunction with retardation, which causes bending of the waves. Absorption which takes place even though the wave is not appreciably retarded is called **NONDEVIATIVE** absorption. The absorption in the D region is largely nondeviative.

Lowest Useful High Frequency (LUHF)

At certain frequencies of transmission, radio waves penetrating into the ionosphere, primarily in the D region and in the lower portion of the E region, lose some of their energy by absorption. Absorption is at a maximum for frequencies of about 500 KHz to 2 MHz in the daytime, and decreases for both higher and lower frequencies at night. Finally a frequency will be reached for any given sky-wave path where the strength of the received signal just overrides the noise level. This frequency is called the LUF. Frequencies lower than the LUF are absorbed to such an extent as to render them too weak for useful communication. It should be noted, however, that the LUF depends on the power of the transmitter as well as on the distance concerned. Thus the term lowest useful frequency may apply to either day or night transmission.

Summary for Variable Frequency

Assuming constant ionospheric conditions a constant distance, and single-hop transmission, (dreamer aren't I) it can be said that:

(1) Frequencies considerably below the MUF will be attenuated greatly by nondeviative absorption. (2) Frequencies somewhat below the MUF will be reflected as ordinary and extraordinary waves, either or both of which may be attenuated greatly by deviative absorption. (3) Frequencies near the MUF will be reflected as ordinary and extraordinary waves, both of fair strength. (4) Frequencies at the MUF will be received in the greatest possible strength as one wave. (5) Frequencies above the MUF will escape and not be received except as scattered waves (see IONO 6). An important fact to be borne in mind is that radio waves of fixed radiation angle are receivable at distances greater than the skip dis-

tance, but that as the distance is increased appreciably, increased attenuation results.

Optimum Working Frequency

Ion density of the ionosphere layers occur from day to day, and from hour to hour. Predictions on which the MUF's are based are made by averaging long-range observations and do not take into account these day-by-day fluctuations. Therefore, the actual upper limiting frequency must be selected at a value which will insure against the probability of the operating frequency becoming greater than the MUF for any particular day. For the F2 layer, the optimum work frequency thus is selected at approximately 85 percent of the MUF for that particular transmission path. The optimum working frequency for the combined E-F1 layer may be taken as the MUF, since the day-by-day variations in E layer ionization are small. Of course, if the LUF is nearly equal to the MUF for a given transmission, the optimum working frequency must be selected at a value consistent with both. During moderate ionospheric storms, communication often can be assured by operating at frequencies slightly lower than normal, since critical frequencies are usually lower than normal during these periods.

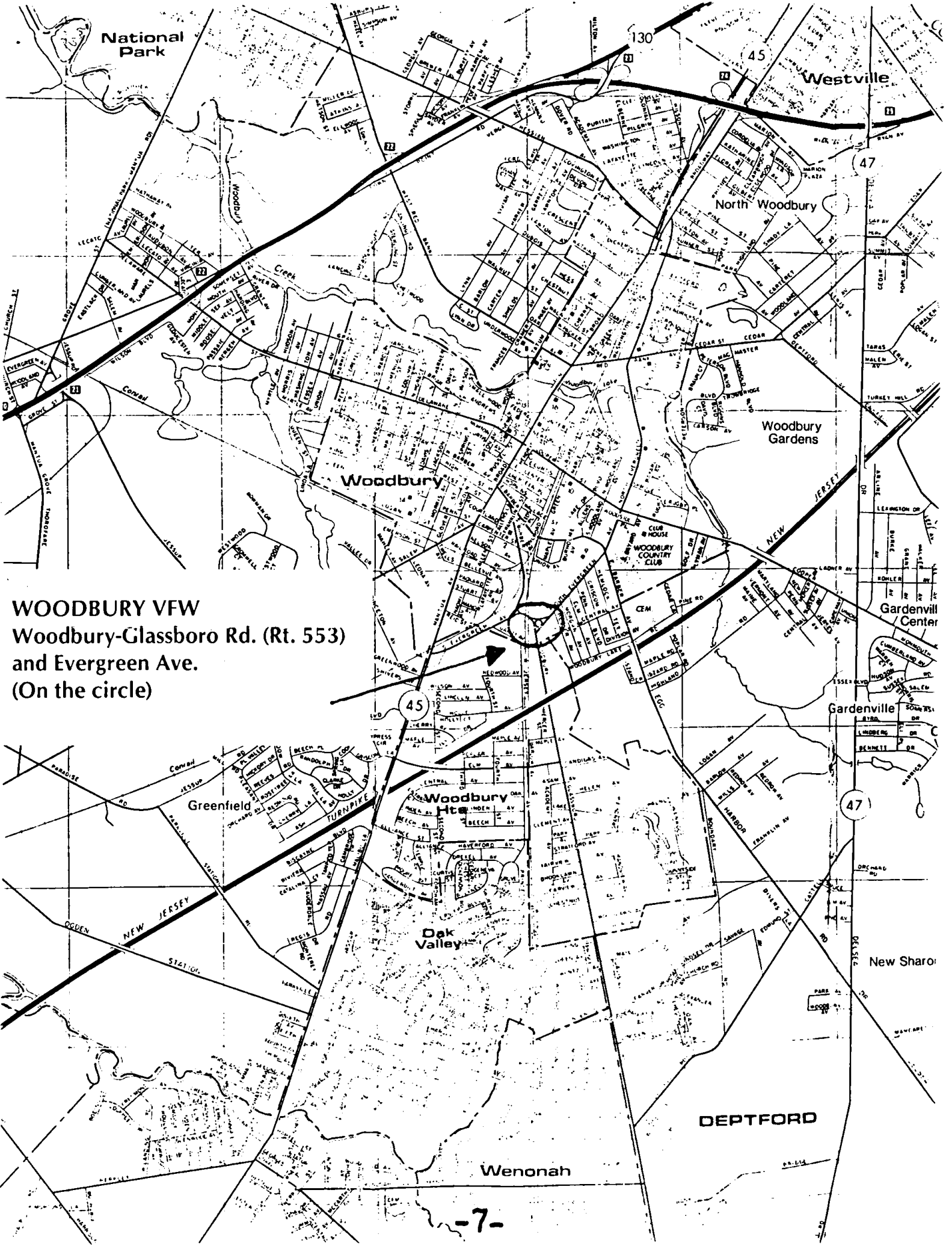
The next, IONO 9, will be on "Received Signal Strength."

C U in the Pile-Ups JOHN K2JF



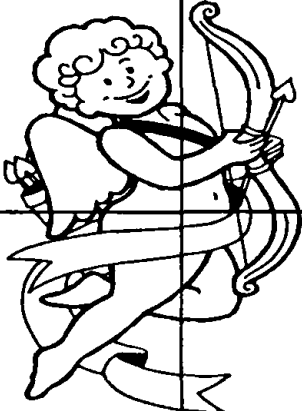
N2YIO Cookin' Up That Gourmet Blend
(Digital Foto courtesy N2SRO, Mike)

Would you like a monogrammed Club Jacket?
Call New Jersey Monogramming in Erial, NJ, at 784-2827. Ask about pricing and custom specifications.



WOODBURY VFW
Woodbury-Glassboro Rd. (Rt. 553)
and Evergreen Ave.
(On the circle)

February 1 - 28, 1997

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
						<p>Feb. 1 GCARC 10-mtr Net, 0800, 28.350 Delaware QSO Party; No. Amer. Sprint, phone; New Hampshire QSO Party; Vermont QSO Party</p>
<p>Feb. 2 20:00 ARES/RACES 20:30 10 mtr Net - 28.350 Mhz</p>	<p>Feb. 3</p>	<p>Feb. 4</p>	<p>Feb. 5 GCARC General Membership Meeting 20:00</p>	<p>Feb. 6</p>	<p>Feb. 7</p>	<p>Feb. 8 GCARC 10-mtr Net, 0800, 28.350 IDRA WW RTTY WPX Test; No. Amer. Sprint, CW; NW QRP Digital Test; PACC Test; QCWA QSO Party</p>
<p>Feb. 9 20:00 ARES/RACES 20:30 10 mtr Net - 28.350 Mhz; Fest-Latrobe, PA</p>	<p>Feb. 10 School Club Roundup</p>	<p>Feb. 11</p>	<p>Feb. 12</p>	<p>Feb. 13</p>	<p>Feb. 14 YL-OM Party, Phone</p>	<p>Feb. 15 GCARC 10-mtr Net, 0800, 28.350 ARRL DX Test, CW; Fest-Oberlin, PA</p>
<p>Feb. 16 20:00 ARES/RACES 20:30 10 mtr Net - 28.350 Mhz;</p>	<p>Feb. 17</p>	<p>Feb. 18</p>	<p>Feb. 19 20:00 GCARC Board of Directors Mtg</p>	<p>Feb. 20 VE Exams Bellmawr @ 7 p.m (Doors open 6:15 p.m.)</p>	<p>Feb. 21</p>	<p>Feb. 22 GCARC 10-mtr Net, 0800, 28.350 CQ WW 160-mtr DX Test; No. Carolina QSO Party; REF French Test; RSGB 7 mhz Test; CQC QRP Party; YL-OM Party, CW FYBO QRP Day</p>
<p>Feb. 23 20:00 ARES/RACE 20:30 10 mtr Net - 28.350 Mhz; Fest-Pittsburgh, PA</p>	<p>Feb. 24</p>	<p>Feb. 25</p>	<p>Feb. 26</p>	<p>Feb. 27</p>	<p>Feb. 28</p>	
<p>Deadline MARCH Crosstalk!</p>						

Happy Valentine's Day!