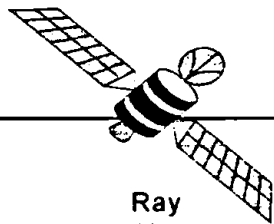




W2MMD



Gloucester County Amateur Radio Club

1997 Officers

President	Bob Krukowski	WA2UDO
Vice President	Jack Stauffer, Jr.	KA7LAX
Treasurer	Al Arison	KB2AYU
Recording Sec.	John Schumacher	KB2VXC
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

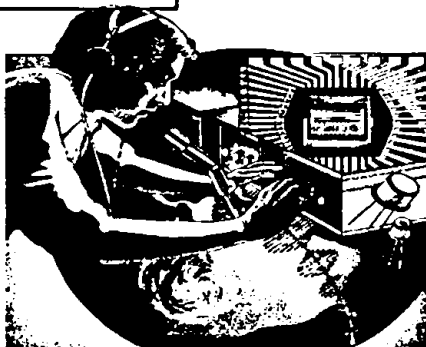
Advertising	Ray	N2WHL
Antennas	Al	KB2AYU
ARES/RACES	Chic	WA2USI
Awards	Jack	K2ZA
Banquet	Bob	WA2UDO
Budget *	Bob	WA2UDO
Callbook Info.	John	K2JF
Clubhouse Site *	Stu	N2WUP
Constitution *	Ken	KN2U
Crosstalk	Greg	WN2T
	Kyle	KB2RVY
Data Processing	Bob	KB2COB
DX	John	K2JF
Field Day *	Tony	KA2FFS
Hamfest *	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

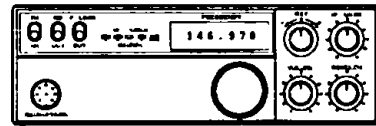
(* Standing Committee)

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)





President's Message

At the end of last month's meeting, an interesting subject came up -- the purchase of additional VHF/UHF for the clubhouse. To say the least, it stirred up some very interesting discussion. Summing up, most members would like to see more equipment at the clubhouse. Most members prefer not to dig too deeply into savings, and most members would like to **SAVE** their cake and eat it **ALSO!**

In order to accomplish these objectives, a plan to raffle a "computer system" was devised at the February B.C.D. meeting. The funds raised over the cost of the "prize/s" would go toward the purchase of equipment for the VHF/UHF room. A computer was selected because we felt it would have the broadest appeal.

This plan will be presented to the general membership for approval at the March meeting. If it is approved, your help in selling tickets would be greatly needed. This equipment will complement the already installed power, towers, rotor, antennas and feedlines. Hundreds of hours have already been volunteered by many members toward the making of a noteworthy station. Please volunteer just a few more in selling tickets so we can turn this dream into a reality.

Thanks & 73, Bob, WA2UDO

Remember!

Club dues are due by March 31! Don't miss out on the fun! Send a check, payable to GCARC, to Al Arrison, KB2AYU, Treasurer, via mail or in-person at the March meeting.



XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

CHANGE CHANGE CHANGE

Please note that our meeting place for the monthly general membership meeting has been changed. It will again be held at the Woodbury VFW. For those newer members, the VFW is located at the Woodbury Circle on Evergreen Ave. at the highest ground level on the circle.

Stuff for Xtalk?
Please send on packet to WN2T via "Pitman" (N2SRO) on 145.770 or E-Mail to: Pott@voicenet.com. Deadline for April 1997 issue:
March 23, 1997



MARCH PROGRAM

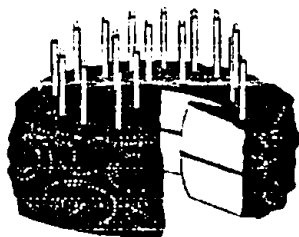
Unfortunately, John (AA2BN) was unable to present the APRS program last month. He decided to stay home and put his "extracted tooth" under his pillow and wait for "you know who" to replace it with money.

Fortunately for us, he received enough green stuff to buy lots of satellite equipment and will be telling us all about it this month (working satellites that is, not how to exchange teeth for money) .

Plan on sticking around after the meeting. It will be an "out of sight" program!

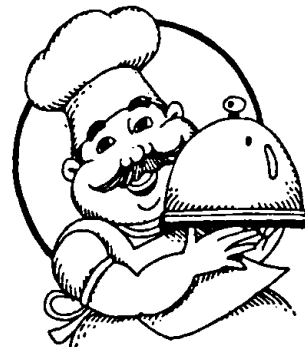
73, Jack, KA7LAX

March Birthday Greetings to the following members of GCARC!



Call	First	Last	Day
	Mark	Townsend	1
N2DJZ	James	DeForrest	3
KB2ZKI	Samuel	Zeola	5
N2IMH	James	Casto	5
W2YC	David	Stout, Sr.	7
KB2QXH	Edward	Bunn, Jr.	8
N2TXG	Daniel	Tremolini	8
WA2FGA	Milt	Marder	12
AA2BN	John	Zaruba, Jr.	13
WA2NPD	Doug	Gehring	13
WN2T	Greg	Potter	13
KB2BF	Paul	Munzenmayer	22
KB2ETT	John	Cronin, Sr.	25
N2WUP	Stuart	Cleveland	27
N2HYS	Janice	Gorman	27
KB2RXQ	John	Seaton	29

Banquet



I was hoping to write the final article detailing the menu, etc., this month. However, over the past two to three weeks several members have informed me of their desire to attend, but due to prior commitments on March 15, they would be unable to do so. After subtracting these "definite no's" from the predicted total (based on two previous years), it appears attendance would be down by approximately 35%.

In order for the maximum number of members to be able to attend, I will be rescheduling the banquet date. It will appear in *CROSSTALK* next month. To those of you who have already RSVP'd, we will "hold" your checks pending your approval of the new date.

I apologize to those of you I have inconvenienced by this change. Those members who would have otherwise been unable to attend, I'm sure, express their gratitude.

73, Bob, WA3UDO

SILENT KEYS

I need help in coming up with a list of "silent keys" who were members of GCARC. We will be updating the "Silent Key" plaque at the clubhouse soon. Information on deceased members from 1990 to the present would be most helpful.

If you could please search your memory banks and forward the information to me, it would be appreciated. You can telephone me @ 346-0927, or E-mail at this address: bobudo@juno.com, or see me before or after the next General Membership Meeting.

73, Bob, WA3UDO



Milt Goldman Award

What is it? How is it awarded? What is the criteria for the award? Who was Milton L. Goldman? All very good questions.

Since it was first initiated in 1981, a total of 17 members have received the award. The club gave the first award to Milt Goldman, K3WIL, for his outstanding service to the club. There was not any facet of the club's activities that Milt would not be a part of. If the club had need of an item, somehow Milt found it among his things. (I'd like to have the money he spent out of his own funds to suddenly "find" what the club needed.) How many times he made calls around the area and around the country to find information the club needed. His love for the club was tremendous. And the club recognized him for it by giving him a Certificate of Merit.

And what did Milt do? He created the Milton L. Goldman award. He had a plaque made up at his own expense for the club to award to an outstanding member yearly. He stipulated that the award recipient would be chosen by those members that had received the award and were paid up members. That has been a yearly event and the award has been presented at the Installation Banquet each year.

Last year the award was presented to Marla, N2DWR, for the previous year and to myself as the 1995 selection. I was never prouder in my life. I was as surprised as could be, but I was a happy camper, indeed. I could not sufficiently thank those that felt I was worthy enough to receive the award.

This year I was sent a ballot to vote for the 1996 candidate of my choice. I thought long and hard. I did come up with someone that has proven to me and to the club that he is deserving of it. He will be presented his Plaque at the Installation Banquet on March 15th. I hope all of you will be there to see and join in the festivities!

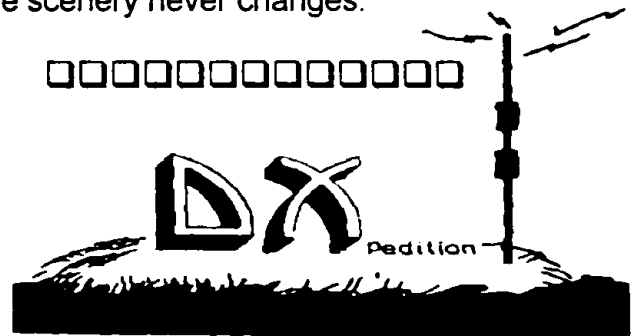
de Sonny Gutin, WB2DXB

For Sale: HF Vertical Antenna: GAP 'TITAN' Model. No ground radials required -- may even be mounted in the air at any height. Has its own ground plane. Less than 2 years old. New: \$300. \$200 and I will help you disassemble or will do it for you.



73, Herb, K2HPV

Herb Schuler, K2HPV ... "If you're not the lead dog, the scenery never changes."



QST de WIAW
DX Bulletin 10 ARLD010

From ARRL Headquarters
Newington, CT, February 20, 1997

This week's bulletin was made possible with info provided by The 599Rpt, Tedd, KB8NW, the OPDX Bulletin, the DXNS, Bill, WT4K, and Contest Corral from QST. Thanks to all.

KUWAIT, 9K. Amateurs in Kuwait will celebrate the National and Liberation Days by signing homecalls/NLD on February 25 to 28. The Club station 9K2RA will also be active.

NEPAL, 9N. Rich, 9N1RHM, is QRV on CW and RTTY on most HF bands. QSL via KV5V.

TAIWAN, BV. Chung, BV4ME, and Leo, BV7FC, have been QRV on 160 meters. Chung has been found often on 1828 kHz around 2000 to 2230z. QSL both to their CBA.

CANARY ISLANDS, EA8. Angel, EA3ALD, Manolo, EA8ZS, and Tony, EA5BY, will be QRV as EA8ZS in the CQ WW DX 160 Meter Phone Contest. Before and after the contest, they will sign EA8/homecalls. QSL information to be announced.

DJIBOUTI, J2. Dominique, F5RYC, is reported to be heading back here and will be QRV as J28YC. QSL via F6EJI.

DX, continued...

WAKE ISLAND, KH9. KC7FWZ/KH9 has been QRV on 10107 kHz at 0810 UTC. The length of his stay, and his QSL route, are unknown at this time.

BELIZE, V3. Members of the Cuba Libre Contest Club, John, W2NA, Vic, KI6IM, and Bill, WA9L, will be QRV as V31DX during the ARRL DX Phone Contest. Activity will be on 160 to 10 meters. QSL via AA6BB.

CHATHAM ISLANDS, ZL7. Lothar, DJ4ZB, has been QRV as ZL7ZB since February 4. He will stay here probably until March 13. He works SSB only on 80 through 6 meters. QSL to homecall.

QSL INFORMATION. Bill, WT4K, QSL Manager for KG4GC, KG4AU, KG4FD, and KG4AN, indicates that KG4AA and KG4US are pirates. These calls have not as yet been issued.

Tks to John, K2JF, and Ken, N2CW for Report



The Ionosphere

PART 10 (AND LAST ONE)

Radio Noise and Require Signal Strength

A. Required Signal Strength -- The minimum radio field intensity necessary to allow the satisfactory reception of an intelligible signal of a particular type in the presence of radio noise at the receiving station is called the required signal strength for this type of service. As a propagation factor, the required signal strength is subject to wide variation. It depends on the receiving set; the local noise or STATIC; the type of modulation of the radio wave, or, in other words the type of service; and the grade of service desired -- e.g., barely intelligible, high fidelity and so on.

B. Types of Radio Noise -- Radio noise may be defined as interference, the energy of which is not confined to a narrow band of frequencies. Two general types of noise may be distinguished -- (1) Impulse noise, which is interference resulting from a single elementary disturbance, or from an aggregate of elementary disturbances with systematic relative phase; and (2) Random, or fluctuation noise, which is the aggregate of a large number of elementary disturbances with random relative phases.

A distinction between impulse and random noise is not always easy to make. However, electrical, or man-made, noise caused by the operation of electrical equipment is usually of the impulse type, whereas atmospheric noise, originating in thunderstorms, or caused by other atmospheric conditions, ordinarily may be considered to have the bandwidth characteristics of random noise. The best example of random noise is the fluctuations noise originating in the resistance components of impedance elements in the receiver

or brought about by the fluctuations of electrons in the front end of the semiconductors or vacuum tubes. Another example is the noise generated by cosmic rays, which are sufficiently high in frequency to penetrate the atmosphere of the earth. This cosmic noise is noticeable only in receivers capable of detecting these frequencies.

(1) Atmospheric Noise.. As the frequencies under consideration in this series, atmospheric noise and precipitation noise are the most important types to be considered. Radio noise from electrical apparatus, such as the ignition systems of automobiles, may be very serious, but is, more or less, under the control of the observer, and can be largely eliminated if necessary. Atmospheric or precipitation noise, on the other hand, since it originates in thunderstorms, or in rain, snow, or dust storms, usually cannot be eliminated and thus sets the limit for radio reception. Most atmospheric noise is considered to originate in the lightning flashes associated with thunderstorms.

(2) Cosmic and Solar Radio Noise.. Between frequencies of about 10 and 100 MHz, cosmic radio noise originating in interstellar space is known to be the principal source of interference to reception under many circumstances. As stated, above cosmic noise has about the same characteristics as the fluctuations noise originating in components of a receiving set. The sources of cosmic noise are not distributed evenly over the sky but tend to be concentrated in several regions of the celestial sphere, the principal of these regions being near the center of the MILKY WAY. Consequently, when received on a directional antenna, the noise varies in characteristic manner from hour to hour and from day to day. The reason for the existence of cosmic noise is not well known.

Your author did some studies into noises from the MAGNETOSPHERE and found some very interesting results (this along with the study of the "LUXEMBOURG" effect). Some investigators believe it to be radio-frequency radiation from eruptions, similar to the spot eruptions on our sun, occurring on all the stars in the galaxy; others have considered it as originating in electron activity in the space between the stars. Recently, it has been found that the sun also acts as radiator of radio noise at frequencies from about 200 MHz up. Except at the time of large sunspot eruptions, solar noise is important only on very high frequencies and when highly directional antennas actually are pointed at the sun.

(3) Receiving Set Noise.. Noise generated internally in a receiving set is caused by the random motion of electrons in resistance components of impedance elements and in the fluctuations of the electrons in vacuum tubes and semiconductors. In the absence of all external noise, signals, to be intelligible, must be strong enough to override this internal noise. With only internal noise present, the ability of a receiver to receive a signal usually is expressed as the noise figure of the receiver. Experimental determination of the receiver input terminal voltage required to override the internal noise. The modern Amateur receivers have excellent noise figures.

C. Noise Figure.. For many years, radio engineers were faced with the problem of devising a system for rating a receiver or an ampli-

Continued next page...

Ionosphere, cont...

fier on its merits from the standpoint of noise. The problem was complicated by the fact that in addition to the useful output voltage of a generator (the generator, under operating conditions, being an antenna and the useful output voltage being the desired signal voltage) a certain noise voltage is always present. In an antenna, this noise voltage would include that caused by the thermal resistor noise, and atmospheric and cosmic noise; in a standard voltage generator, this voltage would include on resistor noise.

Because of the fluctuations of atmospheric and cosmic noise voltages with time, location, and construction and orientation of the antenna, these noise voltages do not offer constant standard for rating a receiver or an amplifier. However, thermal noise, presenting a readily computed voltage, offers a satisfactory standard against which the noise introduced by a receiver or an amplifier can be rated. Based on this principle, a system of rating a receiver in terms of the noise figure has been devised for this purpose. (1) In a receiving system, the total noise is the sum of the tube, or semiconductor noise, the thermal noise in the input circuit, the thermal output circuit, and the antenna noise. Antenna noise is the induced atmospheric and cosmic noise appearing at the receiver input. (2) The signal-to-noise ratio of an ideal receiving system can be expressed as: Signal-to-noise power = ratio of ideal system to ideal available noise power.

Where the ideal power is available, noise power is the power developed across the antenna resistance by the thermal noise voltage. The available signal power at the receiver input is the power that the signal will develop across the input resistance equivalent to the antenna resistance. Noise figures usually are expressed in terms of power ratios in DB. (3) The noise figure of an actual receiver is obtained from the following ratio: Signal-to-noise power ratio for an ideal receiver Noise figure= signal-to-noise power ration of an actual receiver.

(4) The required signal power at the input of an actual receiver is the required signal power for an ideal receiver multiplied by the receiver noise figure for the same signal-to-noise ratio.

(D) Types of Modulation and Service Gain.. Other factors upon which the required signal strength of a receiving system depends are known as type of modulation and type of service gain. Higher signal-to-noise ratios are required in commercial high-quality broadcast work than in many other types or service including the amateur service. On the other hand, in general code systems, such as automatic high-speed telegraphy or teletypewriter systems, the output signal-to-noise ratio need not be large, since the mechanism operates when the signal exceeds the noise by only a small margin. The gain required for a certain type of service is the relative signal strength required for the type of communication as compared with the signal required for a reference type. This reference type of service corresponds to 90 percent intelligibility of speech and is comparable to the grade of service known as "order wire" in telephone communications.

This is the last of the IONO series. I hope that you have enjoyed the series and perhaps found some helpful information. I am con-

sidering preparing a summary of the articles in paragraph form, for example:

"A. -- Ground-wave propagation refers to those types of radio mission which do not make use of ionospheric reflections."

If you would like a summary please let me know; otherwise, I will crawl back into my hole and not bother you anymore.

Good DX and C U in the PILE-UPS, K2JF, John Fisher



QST de W1AW

Special Bulletin 5 ARLX005
Newington, CT, February 21, 1997

The High Frequency Active Auroral Research Program (HAARP) facility in Gakona, Alaska, will transmit a test signal on March 8, 1997, seeking reports from hams and SWLs in Alaska and in the "Lower 48" to determine how well the HAARP transmissions can be heard to the south.

During this test, the HAARP facility will transmit on or near the frequencies 3.4 MHz and 6.99 MHz to give listeners the opportunity to listen for the HAARP facility and to claim a QSL card. The test will be conducted beginning at 0430 UTC on March 8 (2330 Eastern Time on March 7).

The format of the test will be to transmit a constant carrier (no modulation) signal followed by a CW message at 10 WPM, according to the following schedule:

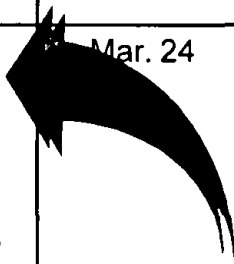
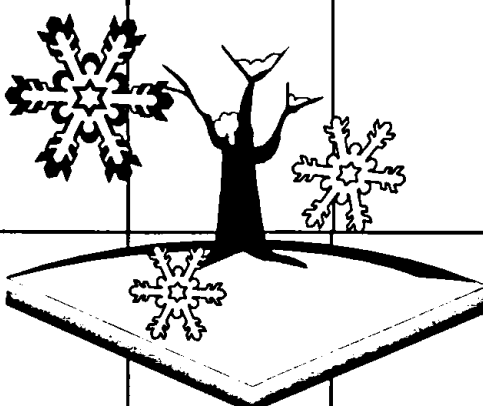
TIME	FREQ	SIGNAL	ANTENNA POSITION
0430	6.99 MHz	Carrier only	Pointed up
0435	6.99 MHz	CW message	Pointed up
0440	6.99 MHz	Carrier only	Pointed to SE
0445	6.99 MHz	CW message	Pointed to SE
0450	3.4 MHz	Carrier only	Pointed up
0455	3.4 MHz	CW message	Pointed up

The transmission beginning at 0450 is primarily for Alaskan hams. Reception reports should include signal strength during the constant carrier transmission period along with the text of the CW message. Complete details on this test and a QSL address will be listed on the HAARP home page at <http://server5550.itd.nrl.navy.mil/announce.html>.

The HAARP facility—now in the developmental prototype stage—has been undergoing testing since it was completed in late 1994. Multiple transmitters feed multiple antenna elements (there are 48 antenna elements on the site, arranged in eight rows of six columns; however, at this time, only 18 elements are active. The test will use 17 antennas with a net transmitter power of 340 kW). The final configuration could have 180 antenna elements and a combined transmitter power of 3.6 MW. (Articled edited to fit.)

(Tks Ken, N2CQ, for feed)

March 1-31, 1997

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
						Mar. 1 GCARC 10-mtr Net, 0800, 28.350 ARRL Intern. DX Test, Phone
Mar. 2 20:00 ARES/RACES 20:30 10 mtr Net - 28.350 Mhz	Mar. 3	Mar. 4	Mar. 5 GCARC General Membership Meeting 20:00	Mar. 6	Mar. 7	Mar. 8 GCARC 10-mtr Net, 0800, 28.350 Young Amateur's Test; Wisconsin QSO Party
Mar. 9 20:00 ARES/RACES 20:30 10 mtr Net - 28.350 Mhz	Mar. 10	Mar. 11	Mar. 12	Mar. 13	Mar. 14 CLARA and Family HF Test, Phone	Mar. 15 GCARC 10-mtr Net, 0800, 28.350 Bermuda Test; Virginia QSO Party
Mar. 16 20:00 ARES/RACES 20:30 10 mtr Net - 28.350 Mhz; Fest-York, PA	Mar. 17	Mar. 18	Mar. 19 20:00 GCARC Board of Directors Mtg	Mar. 20 VE Exams Bellmawr @ 7 p.m (Doors open 6:15 p.m.)	Mar. 21	Mar. GCARC 10-mtr Net, 0800, 28.350 Fest-West Orange, NJ; Alaska QSO Party; European EME Test
Mar. 23 20:00 ARES/RACES 20:30 10 mtr Net - 28.350 Mhz; Fest-Yonkers, NY; Fest-Trenton, NJ	Mar. 24 	Mar. 25	Mar. 26	Mar. 27 	Mar. 28	Mar. 29 GCARC 10-mtr Net, 0800, 28.350 CQ WW WPX Test, Phone
Mar. 30 20:00 ARES/RACES 20:30 10 mtr Net - 28.350 Mhz	Mar. 31 APRIL Crosstalk					