



# B-VARC BULLETIN

The Monthly Publication of the  
**BRAZOS VALLEY AMATEUR RADIO CLUB**  
Serving Fort Bend and Harris Counties

Editor in Chief: Vincent Orlando, WA5ETS 774-7651 (0800-2100 hrs)

About the Brazos Valley Amateur Radio Club . . .

Organized in 1977, the club has been growing steadily. It is a gathering place for HAM radio operators in Fort Bend and Southwest Harris Counties, and surrounding communities. It is a general-purpose type of HAM club offering a variety of activities open to all interested persons. Membership is open, not only to licensed HAM operators, but also to anyone interested in the hobby. In addition to regularly-scheduled membership meetings, the club each year conducts classes leading to amateur radio licenses, and each month sponsors a volunteer-examiner team that offers examinations in all levels of HAM licenses.

To obtain information about the club and its various activities, please call the Houston Amateur Radio Helpline (713) 488-4HAM (488-4426). For information about joining the club, contact Randy Pollard AK5G at (713) 667-5123.

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Volume: 16 Issue: 2

February 1993

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## ADDRESS CORRECTION REQUESTED

*From: Brazos Valley Amateur Radio Club, Inc.  
P. O. Box 1630  
Missouri City, Texas 77459*

### B-VARC MEETING SCHEDULE

**Thurs, Feb. 11**    **General Membership Meeting**  
**7:30 pm**       **Sugar Land Community Center**  
                     **Program: *Static Electricity* by**  
                     **Terry Onda, K15FO**

**Thurs, Mar. 4**    **Board Meeting**  
**7:30 pm**       **Sugar Land Community Center**

Sam Wilson N5CPA  
5931 Fontenelle  
Houston, TX 77035-5319

# February 1993

## B-Varc Calendar of Events

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
7:30pm South Texas ARES Net 3.873	1 6:30pm - 7:00 pm Code practice 146.51 simplex 7:30pm 34-94 Swap Net 146.94 8:00pm ARES 147.30 8:00pm Ft. Bend County RACES Net 145.49 9:00pm B-Varc Net 145. 47 & linked repeaters	2 8:00pm 10 X Shot 28.488 10:00pm AMSAT 147.10 7:30 PM ECHO INFO NET 147.32	3 8:00pm B-Varc Rag-Chew 3.960 (Busy? +3 Khz)	4 6:30pm RACES AMTOR Net 7.080 7:30pm Board Meeting: Sugar Land Community Center	5	6 7:30am B-Varc Breakfast 9:00am Hou Emergency Mgmt Net 146.84 (9:30 on 3.905) 8:30pm C.W. 147.32 8:00 PM TASK NET
7:30pm South Texas ARES Net 3.873	8 7:30pm 34-94 Swap Net 146.94 8:00pm ARES 147.30 8:00pm Ft. Bend County RACES Net 145.49 9:00pm B-Varc Net 145.47 & linked repeaters	9 7:00pm Amateur Exams (Strake Jesuit College Prep) 8:00pm 10 X Shot 28.488 10:00pm AMSAT 147.10 7:30PM ECHO 147.32	10 8:00pm B-Varc Rag-Chew 3.960 (Busy? +3 Khz)	11 7:30pm General Meeting: Sugar Land Community Center	12	13 7:30am B-Varc Breakfast 9:00am Hou Emergency Mgmt Net 146.84 (9:30 on 3.905) 8:30pm C.W. 147.32 8 PM TASK NET
14 1:30pm Texas State RACES Net 7.248 7:30pm South Texas ARES Net 3.873	15 6:30pm - 7:00 pm Code practice 146.51 simplex 7:30pm 34-94 Swap Net 146.94 8:00pm ARES 147.30 8:00pm Ft. Bend County RACES Net 145.49 9:00pm B-Varc Net 145. 47 & linked repeaters	16 8:00pm 10 X Shot 28.488 10:00pm AMSAT 147.10 7:30PM ECHO NET 147.32	17 8:00pm B-Varc Rag-Chew 3.960 (Busy? +3 Khz)	18	19	20 7:30am B-Varc Breakfast 8:00am Sidewalk Sale 9:00am Hou Emergency Mgmt Net 146.84 (9:30 on 3.905) 8:30pm C.W. 147.32 8 PM TASK NET
21 7:30pm South Texas ARES Net 3.873	22 7:30pm 34-94 Swap Net 146.94 8:00pm ARES 147.30 8:00pm Ft. Bend County RACES Net 145.49 9:00pm B-Varc Net 145.47 & linked repeaters	23 8:00pm 10 X Shot 28.488 10:00pm AMSAT 147.10 7:30PM ECHO NET 147.32	24 8:00pm B-Varc Rag-Chew 3.960 (Busy? +3 Khz)	25	26 7:30PM ECHO NTG @ HOU. EOC	27 7:30am B-Varc Breakfast 9:00am Hou Emergency Mgmt Net 146.84 (9:30 on 3.905) 8:30pm C.W. 147.32 8 PM TASK NET
28 1:30pm Texas State RACES Net 7.248 7:30pm South Texas ARES Net 3.873						

## Notes from the President . . .

by Betty Wicox, KAØTEN

The annual B-VARC banquet on January 14th was a tremendous success. Thanks go to Suzanne Borg, KB5BAY, for her help in setting up this festive affair. Everyone was so spiffed up for the occasion that we almost couldn't recognize ourselves. My mother always said we looked "fit-to-kill," whatever that meant. Special recognition goes to Steve Gottlieb, WA5OEN, for all his hard work in obtaining the many door prizes given away that night. I did not try to count them, but there must have been about fifteen. My congratulations to all of those who received awards. (See outgoing president Randy Pollard's article on the banquet in this issue.) The outgoing officers were recognized for a job well done, and the new officers were welcomed. We only hope to be able to do as good a job as the people who preceded us.

January's sidewalk sale brought out many people to buy and sell. Several of the members of the Houston Amateur Television Society (HATS) were there and introduced themselves and extended invitations to their January 20th meeting. This was their second official meeting with their primary goal being "the construction, maintenance and promotion of a first class amateur television repeater in the Greater Houston Metro and surrounding areas." We will be hearing more from these enthusiastic and knowledgeable people.

Elton Kytte, NO5C, expressed his willingness to print another batch of B-VARC shirts if at least a dozen people would be interested. I don't know why I'm keeping the list of names, but I am. Anyone interested in buying a shirt should let me know, and I'll put your name on the list.

I would like to express my appreciation to all of you who have helped in the blood platelet donations for Lhary Meyer, KE6KB, a patient at M. D. Anderson from California. Many others volunteered but could not donate; a BIG thank you goes out to each of you, too. It only confirms what we already know about hams being very giving people.

A special congratulations to Craig, KB5USL, on his recent upgrade to Extra Class. Way to go, Criag!

Terry Onda, KI5FO, is on the schedule for our February program. Terry gave his presentation on static electricity about two years ago. Because of the interest in this topic and the many new members

### B-VARC RAG CHEW CHECK-INS

3.960 MHz 8:00 pm Wednesdays

Compiled by Melvin Thatcher, KB5ION

*January 6, 1993*

KB5ION NCS, W5EFB, KE5SR, KB5USL, W5GHK, W5IHY, N5AFV, KI5SC, KB5DNT, WA9YNJ, N5PTO, N5KXU, KB5QYF, WA5OEN, N5UOG, KI5FO, W5DWI

*January 13, 1993*

KB5ION NCS, KG5KV, WN5A, W5EFB, W5IHY, KI5SC, N5AFV, WB5SRN, N5CPA, WA9YNJ, W5GLD, W5GHK, N5YKR, KK5W, KB5BDZ, KD5GM

*January 20, 1993*

W5IHY NCS, KG5KV, KI5SC, N5CPA, W5EFB, N5AFV, WB5SRN, KE5SR, N5KXU, N5OAC, WN5A, KD5GM, WD5DRB, N5UOG

*January 27, 1993*

KB5ION NCS, W5EFB, KG5KV, W5IHY, KB5USL, N5AFV, KE5SR, KI5SC, W5GHK, KB5LFU, N5KXU, WB5SRN, N5CPA

in our club, he has graciously agreed to give it again, so don't miss this one.

I regret that Steve Dunkelberger, N5JBL, our Public Service Event Chairperson has tendered his resignation. His job as father and husband calls him away. Steve is not an easy person to replace, and frankly, I didn't know where to start. So he did it for me. I am pleased that Claudia Kozinetz, N5VCZ, has agreed to fill this spot. I know she has worked very closely with Steve and will do a very good job for B-VARC.

I am still looking for an ambitious ham who wants to work very hard and is willing to try to fill KG5CB Bill Kemp's shoes for Field Day Chairperson. Bear Creek Park has already been reserved for B-VARC's 1993 Field Day activities; however, I need a coordinator.

I am looking forward to a challenging year as B-VARC's first lady president and hope that I am up to the challenge. Already having received much help and cooperation, I feel sure that it will continue. Thank you for your vote of confidence.

## The World of 10-10 International

by Al Mattis, N5AFV

For the last couple of months, we have been waiting for the official results of the 10-10 International 1992 Summer Phone QSO Party. The long-awaited January 1993 edition of the *10-10 International News* is finally out, and the Houston S.H.O.T. chapter won the QSO party with 29 logs turned in for a score of 5,661 points. The Suncoast chapter in Florida was second with 20 logs and 4,096 points. The S.H.O.T. chapter's long-time rival, The City of Lights chapter in Illinois, took third place with 22 logs and 3,594 points. The top individual score in the fifth call area was W5RAN of Houston with a score of 956 points. By the time you read this column, the 1993 Winter QSO Party on February 6-7th will be nearly history. I hope some of you joined the fun and helped the S.H.O.T. chapter in their effort to continue the record setting winning streak. The 10-10 QSO parties are not high pressure contests, but instead offer a more relaxed style of operation.

A new Chapter Coordinator has been appointed for 10-10 International. Dave Prichard, KA5OVO, of Houston has accepted the position. Prichard is currently the supply manager for 10-10 and will continue in that role. The Chapter Coordinator is responsible for providing guidance and direction to the more than 200 chapters of 10-10 located throughout the world. Prichard will also update and distribute the 10-10 Awards and Certificate Guide.

The 1993 10-10 International Convention will be held September 25-26 in Wichita, Kansas. The 10-10 event will be held in conjunction with the ARRL Kansas State Convention, but will have separate facilities for its activities. This will be the fourth convention held by 10-10 International. More complete details will appear in the next edition of *10-10 International News*.

The Houston S.H.O.T. net meets every Tuesday evening at 8:00 local time on 28.488 Mhz. All amateurs are welcome to check in, even if they do not have a 10-10 number. If you are not a member of 10-10 International and wish to join the organization, please check in to the net. There are a lot of exciting activities in 10-10, and many friendly people can be found on the 10-meter band, so please join us.

73 de N5AFV

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## B-VARC Board of Directors Meeting Minutes, January 7, 1993

by Bud King, N5UOG

A quorum of B-VARC Board of Directors met at the Sugar Land Community Center on January 7th. This was the first meeting of the Board for the 1993 calendar year. The meeting was called to order by President Betty Wilcox, KAØTEN, at 7:30 pm.

Minutes of the December 3rd meeting were submitted by Vincent Orlando, WA5ETS, and were unanimously approved.

The club treasurer, Sam Wilson, N5CPA, reported a balance of \$4,087.17 in the treasury as of the end of December, 1992. The treasurer's report was accepted unanimously.

Vice President Doug Holley, KE5SR, proposed having a novice code practice session on 2-meters simplex every other Monday evening at 6:30. The length of the session will be 30 minutes and will begin on March 1st. Doug himself will be responsible for the formation and the implementation of the program. This program is aimed at those who want to get their code license with 5 wpm as the first goal.

The Board enthusiastically accepted Doug's proposal by unanimously passing a motion made by Mel Thatcher, KB5ION, and seconded by Vic Richard, N5NAS, to make the program a B-VARC sponsored activity.

Mel Thatcher, KB5ION, Doug Holley, KE5SR, and Lou Kronberg, W5IHY, will see that the B-VARC Rag Chew Net will continue each Wednesday at 8:00 pm. The frequency will continue to be 3.960 khz (Busy? +3 KHz).

The Board authorized past president Randy Pollard, AK5G, to contact the management of Bear Creek Park in order to secure the site for our 1993 Field Day, which is scheduled to be held on Saturday,

June 26, and Sunday, June 27. A chairperson for the event will be announced at a later date.

The Board moved to sponsor the Tenneco Marathon on January 24th. Carl Hacker, KB5LDY, will chair the event.

B-VARC will also continue to sponsor and coordinate the MS-150 Bike Ride, April 17-18, 1993; the Sidewalk Sale held on the third Saturday of every month; and the bi-annual novice and technician classes. These classes are held at Strake Jesuit under the direction of Glenn Edwards, WB5LZG, and Gerry Borg, N5APW. This year's spring class will begin on March 22nd.

The President will appoint a committee to audit the 1992 Treasurer's books.

Vincent Orlando, WA5ETS, strongly urges that all articles to be published in the *Bulletin* be submitted as early as possible before the last Thursday of each month.

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### **Novice Code Practice**

by Doug Holley, KE5SR

Beginning in March, B-VARC will conduct code practice sessions for the novice class license. Later in the year, general class code practice will be added for hams that have mastered the novice 5 words per minute and want to upgrade to 13 wpm.

The 5 wpm codes sessions will begin on Monday, March 1st, from 6:30-7:00 pm. The sessions will be on two-meters on the frequency of 146.51 simplex. I will use a 45-watt 2-meter radio and a "J" pole antenna mounted 70 feet up on my tower. Everyone should be able to copy from the simplex frequency. I will have 5 wpm code practice sessions every two weeks thereafter at the same time and same frequency. So the next sessions will be on March 15th and March 29th. I will continue this schedule the rest of the calendar year. At some point in June or July of this year, I will add 13 wpm for the hams seeking general or higher class licenses.

Code sessions will be generated from code tapes so that you will not have to listen to my hit and miss code paddle.

All are invited to listen—ham or otherwise. Your suggestions will be appreciated. I look forward to working with you.

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### **Public Service**

by Stephen Dunkelberger, N5JBL

I would like to congratulate two B-VARC members for working the most number of public service events in 1992, as shown in the B-VARC Public Service Roster in last month's newsletter. Ralph Cheek, KB5DNT, and Bud King, N5UOF, were very busy this past year, each working seven out of the eight events in 1992. Congratulations Ralph and Bud!

As Public Service Chairman, I would like to send out a big thanks to all of the club members who have worked public service events in the last two years. Much of your work and efforts have made my job much easier. Thanks for your help.

This month, Klaudia Kozinetz, N5VCZ, will be taking over the role as Public Service Chairperson for B-VARC. She has been involved in many of our events in the past two years and is very interested in public service communications. If you are interested in volunteering, let her know. With your continued support, 1993 will be another great year for public service in B-VARC.

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### **B-VARC Annual Awards Banquet**

by Randy Pollard, AK5G

On the night of January 14, 1993, B-VARC held its annual awards banquet. This banquet celebrated the sixteenth year of the club's existence and its service to hams and the community. Sixty-two people attended. The social hour started at 6:30 pm and many people had the pleasure to unwind from a day's work with good conversation. Dinner was

served at 7:30 after Vincent Orlando, WA5ETS, gave the invocation. After dinner, some of the door prizes were given away in a drawing. In all there were about fifteen door prizes given out during the course of the evening.

At 8:30 the presentation of awards began. Randy Pollard recounted many of the accomplishments of the club over the past year. He also recognized last year's officers and committee chairpersons for a job well done. Randy also presented a patch to each of last year's officers recognizing their service to the club.

Next Allen Mattis, N5AFV, recognized the people that worked all of the marathon warm-up series of races this year. Harold Parker, ND5F awarded the Dr. Bill Award, for the outstanding VE Examiner, to Irene Gordon, N5AYX. Charles Prochaska, KG5KV, awarded the Loop and Zep Award to this year's winner, Allen Mattis, N5AFV. The Order of the Key award was presented to Glenn Edwards, WB5LZG, and Randy Pollard, AK5G. President Betty Wilcox, KAØTEN, introduced this year's officers and made some closing remarks. Congratulations to all award winners and thanks to Suzanne Borg, KB5BAY, for all the hotel arrangements.

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## Results of the January Amateur Exams

by Harold Parker, ND5F

B-VARC again sponsored and administered the ARRL's Amateur Radio Examinations that were held on Tuesday evening, January 12, 1993, at Strake Jesuit College Preparatory in Houston.

### The V.E. Team

Bill Kemp, KG5CB  
Harold Parker, ND5F  
Randy Pollard, AK5G

### Assistants

Carl Albrecht, AA5JW  
Cass Germany, KG5IT  
Michael Lay, N5PTN  
Don Schexnailder, AA5IV

A total of thirty-seven exams were administered during the evening to twenty-one applicants. Nine unlicensed candidates received their new licenses:

one Technician w/HF, seven "no-code" Technicians, and one General. Five others upgraded with a total of thirty elements passed. The overall "pass rate" for the evening was eighty-one percent.

Congratulations to all the following who upgraded and/or passed exams:

Brian Burton -- Technician  
John Burton -- Technician  
Donald Cassling, KB5SWH -- Advanced  
Cynthia Hinton -- Element 2  
Stephen Jones -- Technician  
Robert Kline, KG5PR -- Extra  
Jimmy Lewis -- Technician  
Herman McKinney, KB5WFY -- Element 4B  
Peter McLean -- Technician  
Baker Mitchell -- General  
Robert Peeler -- Technician  
Kevin Pickett, N5YTN -- Technician  
Gene Russell, N5XGT -- Element 4A  
Tom Sellers, K5CNU -- Advanced  
Randall Skelton -- Element 2  
Jason Tram -- Technician  
Andres Treveno -- Element 2  
John Wardlow -- Technician  
Jim Wilkerson, N5WMB -- Tech + Element 3B

Many thanks to all the Team Members and Assistants who volunteer their valuable time and effort each month.

All of us at B-VARC again thank Vincent, WA5ETS, and everyone at Strake Jesuit College Preparatory for making these excellent classroom facilities available to us for our exams each month.

73's ... ND5F

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### **The Conversion Research WR-3**

by Al Mattis, N5AFV

Last month I mentioned the WR-3 VLF "Natural Radio Receiver" manufactured by Conversion Research (P.O. Box 535, Descanso, CA 91916). Questions from a number of local amateur radio operators indicate a high degree of interest in this radio receiver. The unit sells for \$58 and receives whistlers, tweeks, sferics, and other related natural radio sounds.

The WR-3 is a broad band receiver covering 0.1 to 10 khz. It is broadband in the sense that it has no frequency tuning control and receives this entire band continuously. The radio measures 4.5 by 2.5 by 1.2 inches and weighs a mere 8 ounces with standard 9-volt battery. A 33-inch telescoping whip antenna is provided; the manufacturer offers replacement whip antennas for \$6. The WR-3 has no speaker so you must supply "Walkman" type headphones. The manufacturer recommends Radio Shack's Nova 34 (Cat. 33-1000A) headphones for \$5.95. Controls on the WR-3 consist of a single on-off volume control, a jack for the headphones, and a screw terminal for the antenna. It takes no time for the average amateur radio operator to figure out how to operate the unit. A somewhat detailed 6-page "Listening Guide and Operating Instructions" is provided with the WR-3.

The major problem with listening to natural radio in a metropolitan area is the presence of 60-cycle hum from AC power lines. It is recommended that you use the WR-3 at least ¼ mile from power lines. I have found a place near my house that is several hundred feet from power lines. At this location I have heard stronger tweeks and whistlers over the AC hum. In downtown Houston on the roof of my

parking garage, stronger sferics and tweeks are audible over moderate AC hum. On a trip to Galveston Island, I was able to test the WR-3 under ideal conditions. The unit performed well, and I heard tweeks and a spectacular dawn chorus. Unfortunately, there were no whistlers during the time I was listening. The selectivity of the WR-3 appears to be good; at a distance of ¾ mile from the Galveston Light Beacon (NDB G, 1000 watts, 296 khz), I was unable to detect any signal from the NDB.

The only drawback to the WR-3 that I have encountered so far is the AC hum. LF Engineering (17 Jeffry Road, East Haven, CT 06513) offers the only other commercially made natural radio receiver, their model L-500L for \$79. The L-500L is described as having "switchable highpass/lowpass filtering" which "greatly reduces 60 hz harmonics that can typically mask the sounds of natural radio." Due to the high level of 60-cycle hum in the metropolitan area, I suspect that it would be a problem with any receiver in this price range. I feel that the WR-3 is a good buy for anyone interested in learning about natural radio.

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### **H.F. Operations**

by Doug Holley, KE5SR

In each publication of the B-VARC newsletter I will write a story related to H.F. operations. The article may cover band conditions, new products, or noteworthy contacts.

I would like to hear your suggestions or your stories. Amateur radio is forever changing and an article that is old news for you may be new news to one of our new members. If you have a product of any type that relates to H.F. operations or equipment reviews, please let me know, and we will write a story or publish your views on H.F.

The March article will be a product review of the Palomar Tuner Tuner. It is a new gadget that will allow you to tune your H.F. radio up before you apply power to transmit. I think you will like the product review. Please let me know your thoughts on past articles or any of your views on any H.F. happening throughout the 1993 year.

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## Elf and Predicting Earthquakes

by Al Mattis, N5AFV

Some of the most exciting research on the long wave band concerns the prediction of earthquakes. Recently published data indicate that the 1990 Loma Prieta earthquake in California and the 1989 Spitak earthquake in the Georgian SSR were preceded by natural radio emissions in the frequency range of 0.01 to 100 hz. The Loma Prieta emissions began 12 days before the earthquake, while long wave emissions preceded the Spitak earthquake by 3 to 5 days. These emissions have been described as magnetic transients. One of the more prominent investigators of earthquake long-wave precursors is Dr. Anthony Fraser-Smith of STAR Labs at Stanford University. In case you want to begin monitoring the ELF frequencies for earthquake precursors, you should know that Fraser-Smith's pickup coil or antenna consists of 40,000 to 50,000 turns of wire on an 8-inch fiberglass core that is 6 feet long. Actually, the antennas often consist of 3 pickup coils mounted at right angles to each other so that a 3-dimensional measurement can be taken.

Not all earthquake long wave research is as sophisticated as Fraser-Smith's work. A number of amateur workers report hearing an increase in noise level, odd rumblings, and hissing sounds on Conversion Research WR-3 receivers (described in last month's *Bulletin*) prior to recent California earthquakes. As the WR-3 receives 0.1 to 10 khz, these reports suggest that earthquake precursors may extend much higher in frequency than documented by Fraser-Smith's work. As you would expect, the WR-3 is currently a very hot-selling item in California.

Different opinions exist about how strong an earthquake must be before long wave emissions occur. Fraser-Smith believes a seismic event of magnitude 5.5 or larger is necessary. Van Bise and Rauscher at Electromagnetic Research Labs in Reno, Nevada, are also actively conducting research and believe that a magnitude of 3.0 or larger is the cut off. The work of amateur investigators with WR-3 receivers suggests that even smaller earthquakes may sometimes generate long wave signals.

There is also research underway to examine the effect of earthquake signals on higher portions of the long wave band. Several projects are looking at the possible effects of earthquakes on propagation in the non-directional beacon (NDB) band from 200 to 500 khz. I am involved in the planning phase of this research, and the Houston area is one place where a project may be conducted. Much of the subsidence due to withdrawal of water from wells in the Houston area occurs along active faults. Even though we do not have significant earthquakes, maximum movement of as much as 4.7 inches per year has been reported in previous studies of these faults. If preliminary research indicates that Houston is a satisfactory place to conduct such a study, volunteers will be needed to monitor long wave frequencies. Watch future articles for more information about this possible research project.

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## March *Bulletin* Deadline

Articles and other material destined to be printed in the March issue of the B-VARC *Bulletin* should be submitted by no later than February 25th. Please send the material to Vincent Orlando, WA5ETS; 8900 Bellaire Boulevard; Houston, TX 77036-4699 or FAX (713) 774-6427.

**Mobile Hamfest**  
by Carl Hacker, KB5LDY

The Brazos Valley Amateur Radio Club and the Houston ECHO Society will jointly sponsor a Mobile Hamfest for all hams (members or not) interested in mobile HF operations. This event will be held on 20 March 1993 at Seabrook Sailing Club, which is on Galveston Bay near the Clear Lake outlet bridge. Between 1 pm and 6 pm, several hams with mobile HF rigs will demonstrate these rigs and discuss methods for outfitting a vehicle and operating mobile. Around 4:00 pm, spaghetti with a sauce from KB5LDY and N5VCZ's collection of recipes for feeding large crowds will be served at a cost of \$2.50 per adult and \$1.00 for children under nine. Bring your own beverage and a salad or dessert to pass around. A talk-in frequency and a map will be published in the next newsletter. For questions or reservations, call Carl Hacker at 977-9754.

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**1993 B-VARC PUBLIC SERVICE HONOR ROLL**

Compiled by Stephen Dunkelberger, N5JBL

A. Houston Marathon

Braunig, Bill	W5NRJ	A
Chambers, Marion	KB5PAJ	A
Chambers, Mike	KI5SC	A
Cheek, Ralph	KB5DNT	A
Conte, Frank	N5YKZ	A
Cox, Lawrence	N5OUZ	A
Culver, Craig	KB5USL	A
Cypert, Tony	N6UNE	A
Dessens, Bill	N6KXU	A
Dillard, Ray	WA5F	A
Dunkelberger, Steve	N5JBL	A
Edwards, Glenn	WB4LZG	A
Gordon, Irene	N5AYX	A
Hacker, Carl	KB5LDY	A
Hagerman, Dick	WB5SRN	A
Hardwick, Mike	N5VCX	A
Hughes, Kelley	N5ULZ	A
James, Mark	N5YKV	A
Kessler, Larry	WB8JEL	A
King, Bud	N5UOG	A
Kozinetz, Claudia	N5VCZ	A
Levy, Larry	WD5DRB	A

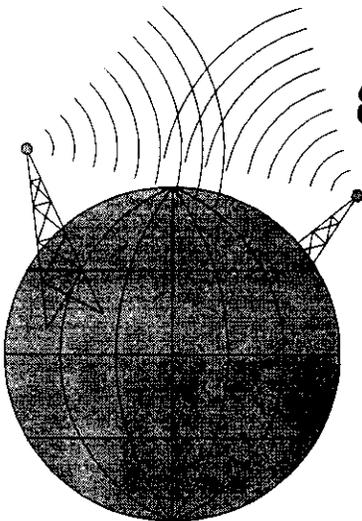
Libbers, Bob	WB5FII	A
Mattis, Allen	N5AFV	A
Morrison, Henry	W5RIY	A
North, Max	N5TBI	A
Onda, Terry	KI5FO	A
Orlando, Vincent	WA5ETS	A
Parker, Harold	ND5F	A
Pederson, Scott	KI5DR	A
Roberts, Jack	KB5TMY	A
Shirk, Stephen	N6SDL	A
Shorthose, Ron	N5PHL	A
Smith, Irv	KB5EXM	A
Starr, Oraida	N5WMA	A
Stevenson, Don	N5XWD	A
Stiver, Esther	KB5URT	A
Stiver, Frank	N5TGM	A
Wade, Don	WB5IBT	A
Warden, Mike	WB3HZP	A
Whitehead, Larry	KI5OT	A
Wilson, Bill	KA5GHI	A
Winford, Clem	WB5SHU	A

Please report corrections or additions to N5JBL

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(713) 498-7425**