ZerO Beat

Montgomery Amateur Radio Club Newsletter   Established 1938

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HAPPY NEW YEAR!

In this issue:

The new ZeroBeat Newsletter, the official publication of the Montgomery Amateur Radio Club published on the first day of each month. Contents: Articles about new products - antennas - techniques and ideas – items for sale – humor - announcements and upcoming events – letters to the editor – articles about old products – profiles of club members – event pictures. The ZeroBeat wants your contributions! Email articles to me at CASKYWARN@GMAIL.COM in Microsoft Word format or plain text. Comments and letters to the editor are welcome!

Your club needs you!

Help keep our repeaters on the air!
Support our mission!
Now with easy on-line renewal!
Go to w4ap.org click on JOIN/RENEW
Mobiles click top left menu button ☰

Join the Fun!

Help keep amateur radio flourishing in Central Alabama for education, discovery, public service, and great fellowship!

Winter Field Day!

Saturday, January 25, 2025.
Cooter's Pond Pavillion, Cooter's Pond Road.
From Hwy 31 (South Memorial Drive, Prattville, AL)
take Cooter's Pond Road to the dead end.
Turn left, ignoring the One-Way sign.
Go about 400 feet, turn left and enter
Cooter's Pond Park through the gate.
Go about 0.4 miles to the first pavilion
On the left on a meadow.

SCHEDULE (ALL TIMES CST):

0900	Coffee and donuts served
	Betting pool opens*
	Station set-up
0955	Betting pool closes*
1000	Operation starts
1200	Pizza served
1300	End of operation
	Betting pool prize awarded
	Breakdown and cleanup

* Grand prize: $ 50.00 gift certificate
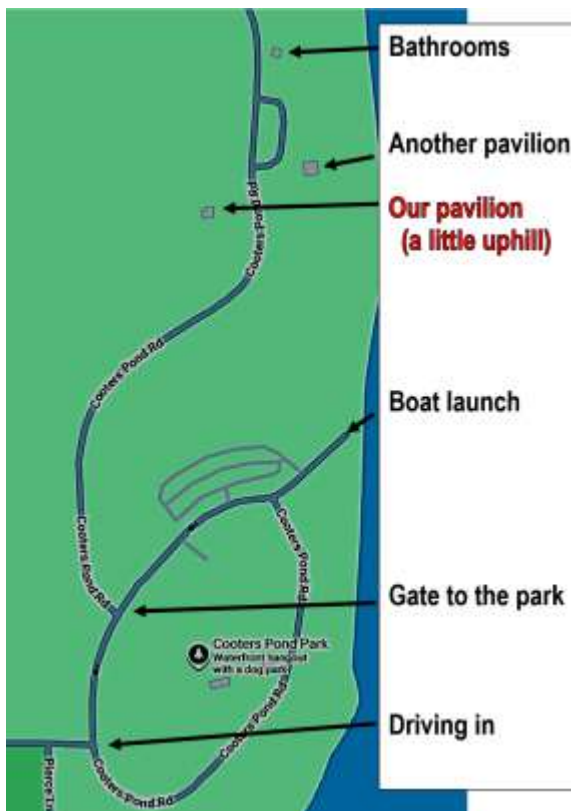   for hamfest shopping!

Bring your station or use our radios to operate Winter Field Day!

We will have

- ✓ Batteries (Anderson power pole connectors)
- ✓ One 40m dipole
- ✓ One 20m dipole
- ✓ One 40-10m endfed
- ✓ One random wire vertical 80-10
- ✓ Band filters to prevent stations from interfering with each other
- ✓ All necessary coax cables

WE WILL KEEP YOU WARM WITH HOT COFFEE AND HOT PIZZA!

This is the pavilion at Cooter's Pond Park. enter park through gate, first pavilion on the left. Two dipoles, one endfed, one random wire vertical. **UPDATE: KV4AC IS BRINGING BARBEQUE!**

Come by to do any of the following:

➤ See the radios, chew the fat with friends, and taste the food.
➤ Operate our radios for a while and make contacts.
➤ Or bring your radio and operate.

Since there is food involved, please register ahead of time so we know how much coffee and pizza to get! Email me at CASKYWARN@GMAIL.COM or answer the poll sent to the email list.

EMCOMM:

Real Lessons From Hurricane Helene

➢ **Hear from hams who were there!**
➢ **Learn what worked!**
➢ **Learn what did not work!**
➢ **Find out what was totally useless!**
➢ **Implications for preparedness**
  in Central Alabama.

Club Meeting Presentation
January 20, 2025, 7:00 PM CST
Red Cross Building Conference Room

Automatic Packet Reporting System:
APRS and VARA

By Stephen H. Smith, WA8LMF

A History: APRS was originally conceived of by the late WB4APR (Bob Bruninga - an EE professor at the US Naval Academy), as an all-purpose system for distributing information of interest to hams over the air.   Unlike most digi comms, APRS has no two-way hand-shaking logical "connection" between stations. It uses the "unconnected information" a.k.a. "UI-Frame" beacon mode of packet radio to send one-to-many broadcast-style messages. [APRS was patterned on the battlefield "situational awareness" messaging systems being developed by the Army and Navy at the time.]

In addition to the well-known position reports from vehicles, APRS is used to send reports from unattended weather stations, announcements of events like ham fests and swaps, coordinate search-and rescue efforts, etc. APRS can also exchange short one-liner cellphone-style-SMS text messages between specific callsigns, and even to/from internet email addresses.

For over 40 years, APRS has been conducted with 1200-baud VHF packet and 300-baud HF packet on HF.   The earliest use of APRS was to report positions of boats in U.S. Naval Academy yacht races on Chesapeake Bay in the 1970's.

Originally an exclusively RF-based activity, connections between RF and the Internet were added to APRS in the mid 1980s. APRS "igates" (Internet GATEways) can connect RF activities in areas far too distant from each other to communicate directly on RF alone. (This is similar to the Internet "worm holes" created by EchoLink, DMR, Yaesu C4FM, D-Star etc.) It can also connect people with radios to people with just an Internet connection, such as a smart phone).

VHF packet-based APRS is done all over North America on the same VHF channel -- 144.390 MHz. As a mobile, you drive into and out of the range of hundreds of base station "digipeaters" and "igates" as you travel, each of which will automatically retransmit your beacons and messages over the local area on RF -- and pass your beacons to the "APRS-IS (APRS Internet System). The APRS-IS is a inter-connected system of dozens of Internet servers and mapping websites world-wide. Traditionally, APRS was done with hardware radio modems a.k.a. "TNCs" - "Terminal Node Controller". These would be connected via an RS-232 serial port to a computer running APRS "client" software for messaging and mapping position reports. Today, APRS is overwhelmingly done with soundcard-based packet "soft modems" like the "UZ7HO Sound modem" or "DireWolf" linked via TCP/IP to APRS client applications like "UIview" or "PinPoint APRS". These "soft modems" use the same kind of "sound card interface" as most other digi modes. (Note that APRS DOES NOT use software like WinLink, VarAC or FLdigi -- APRS is a completely different activity that just happens to be able to exploit the KISS-over-IP connection present in the VARA modem software.)

HF packet-based APRS using 300 baud has been used for over 4 decades at the very top end of the 30-meter band for long-range APRS in locations without 2-meter APRS coverage. The actual RF frequencies of the two-tone 200-Hz-shift FSK transmissions are 10.149.200 MHz & 10.149.400 MHz. Typically, this is done by tuning the radio to 10.147.600 MHz USB "dial frequency" which will yield the 1600 / 1800 Hz audio tones most classic hardware packet devices respond to.

Classic AFSK-based 1200-baud packet radio works well on VHF-FM, but classic packet is a HORRIBLE mode for HF. It is absolutely intolerant to the QRM, noise, selective fading and multipath distortion common on HF. There is no forward-error-correction like most modern digimodes, often requiring transmissions to be repeated over and over again to get through.

In the last few years, far superior data-transmission modes for HF use have appeared. The VARA soundcard soft modem is orders of magnitude better at "getting through" than classic packet on HF. With data wrapped in two layers of forward error correction, it can provide error-free copy on signals so weak they literally cannot be heard in the radio speaker! On the other hand, with a strong noise-free signal, it can automatically increase speed to exceed the throughput of a 1200-baud VHF packet modem in a 500 Hz CW bandwidth on HF.

For about two years now, I have been advocating using VARA for APRS activity as a VASTLY superior replacement for classic packet on HF.

I have tested it for this purpose over tens of thousands of miles of mobile operating on 30 meters. I have even done three-way shoot-outs comparing 300-baud-packet vs VARA va FLdigi in MFSK16 mode on road trips. APRS-over-VARA is now beginning to take off -- about a dozen stations around North America are now active on the mode regularly. I am routinely hearing and being heard by G4HYG in Scotland on the APRS-over-VARA mode. Several stations are now running APRS-over-VARA igates 24/7.
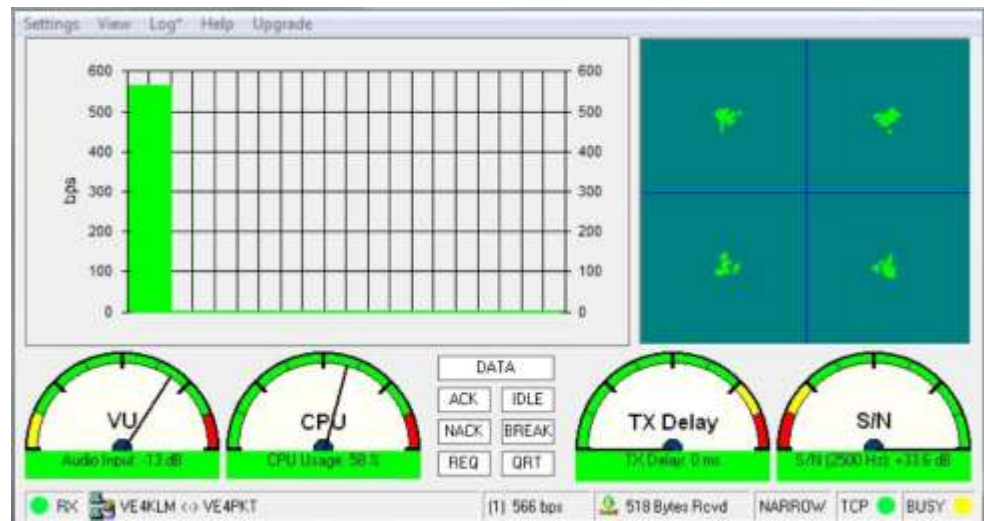
Because of VARA's incredible weak-signal capability, it is practical for a mobile or RVer to be tracked and to communicate almost anywhere with low power and modest antennas, i.e. Yaesu FT-818 "porta-luggie" and a 30M HamStick-type whip or random wire. During my 6300-mile round-trip from central Michigan to Los Angeles and back this October, my mobile was being heard and gated to the Internet almost constantly using a FT-891 transceiver with Quicksilver Radio "QuickStik" mobile whip connected to my mobile Panasonic Toughbook mobile laptop. I had numerous two-way messaging contacts over the same setup as well.

Stephen H. Smith, WA8LMF@aol.com.
Skype WA8LMF, EchoLink Node #14400,
Home Page: HTTP://WA8LMF.net/VARA/APRSoverVARA
"Studio B" Ham Shack on Wheels - HTTP://WA8LMF.net/Aliner
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Local Nets Are Inviting
Your Participation!

Otto N4UZZ

NOTE: Technicians can participate in the nets on 10m.

➢ The Cradle of the Confederacy Net and 10-10 International Chapter meet weekly on 28.350 MHz on Wednesdays at 7:00 PM CT on upper side band.

➢ The QCWA (Quarter Century Wireless Association) meets for a rag chew following the Cradle of the Confederacy Net on 28.350 MHz upper side band. Any amateur radio operator who has been licensed 25 years or longer is invited to join the QCWA by going to QCWA.org. We are Chapter 40.

➢ Monday nights at 8:00 PM CT the UHF Net meets for ragchew and to answer questions about antennas, coax cables, and various other equipment. New hams and experienced hams are invited. The net meets on the 444.500 W4AP Bald Knob repeater.

➢ Central Alabama Skywarn Net, 7:00 PM CT on the 146.84 repeater.

➢ Montgomery County ARES Net 7:30 PM CT on the 146.84 repeater.

➢ Sunday night at 8:00 PM local time the Central Alabama 2m Net meets on the 146.84 W4AP repeater. This is a get-together that should not be missed.

➢ The Alabama Emergency Net Mike meets daily at 6:00 PM on 3.965 MHz LSB for statewide traffic handling. (This net requires General Class privileges.)

Do you want to look up events or nets?
The club calendar on the front page of our website
https://w4ap.org
is always up-to-date with the latest details.
Just click on an event to get everything you need to know.

MARC Happenings for January 2025

The Lunchbunch meeting schedule: all meetings at 11:00 AM

Jan 8, 2025	San Marcos, 61 N Burbank Dr, Montgomery AL 36117
Jan 15, 2025	Sommer's Place, 7972 Vaughn Road near Vaughn & Taylor
Jan 22, 2025	Full Moon BBQ, 7660 Eastchase Pkwy, Montgomery, AL 36117
Jan 29, 2025	Feast Buffet, 5831 Atlanta Hwy, Montgomery, AL 36117

To join the club or Lunchbunch email list, send request to CASKYWARN@GMAIL.COM

The MARC 2m Net	meets every Sunday at 8:00 PM CT on 146.84 W4AP
Skywarn Training Net	meets every Thursday 7:00 PM CT on 146.84 W4AP
MGM-ARES Net	meets every Thursday 7:30 PM CT on 146.84 W4AP
Club Breakfast	Chappy's, Carmichael at Perry Hill Road, 7:00 AM Jan 18, 2025
Club Meeting	**Mon, Jan 20, 2025, 7:00 PM**
	Red Cross, 5015 Woods Crossing, Montgomery AL 36106
CAVEC Testing	Mon, Jan 13, 2025, 6:30 pm
	Community Room, Renfroe's Foodland,
	9168 East Chase Parkway Montgomery, AL 36117
ARRL-VE Testing	Sat, Jan 25, 2025, 9:00 AM, Renfroe Food Market Chantilly Corner
	Pre-registration required Lewin.nyman@gmail.com
Winter Field Day	**Sat, Jan 25, 2025, 9:00 AM – 1:00 PM CST**
	Cooter's Pond Park, Prattville, AL

For details on all events:	go to w4ap.org
	Scroll down to the club calendar

Facebook page: https://www.facebook.com/groups/1412939275643917/

Club Officers:

President:	**Otto Arnoscht N4UZZ**
Vice-President:	**Ken Brittin AK4KN**
Treasurer:	**Fidel Cintron KK4KGO**
Secretary:	**Dennis Egbert K4PDQ**
Public Information Officer:	**Jim Norris K4JLN**
Director 1:	**Philip Salley K4PO (2022 - 2026)**
Director 2:	**Fred Springall KR4YK (2023 - 2027)**
Director 3:	**Mac McWhorter KO4UWY (2025 – 2029)**
Director 4:	**Jerome Goddard II W4IJG (2025 – 2026)**