

# Zero Beat



Montgomery Amateur Radio Club Newsletter

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## ***BALLOONS!***



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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. No "Easter Egg" in this issue. The ZeroBeat wants your contributions! Email articles to me at [CASKYWARN@GMAIL.COM](mailto: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](http://w4ap.org) click on JOIN/RENEW**

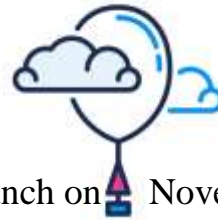
**Mobiles click top left menu button ☰**



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

## MARC Balloon Launches

N4UZZ



MARC has been asked to participate in a weather balloon launch on November 8, 2024 in Wetumpka. This date is the Friday before the Montgomery hamfest. The balloon launch is a major science project to get Elmore County school district students involved in hands-on scientific exploration and problem solving. The balloon will carry an APRS tracker. We will chase the balloon and hope to recover the payload. A club control operator will be present during the launch and flight, and the use of the W4AP-11 call has been authorized.

We are planning on a rehearsal balloon launch from the same site on Saturday, October 26, 2024 at 9:00 AM. The site is the Wetumpka sports complex on Hwy 14 just west of US Hwy 231. The site was chosen because it is in Elmore County and because it is more than five miles from any active airport. The school district wanted to use the balloon launch as an occasion to show off the new sports complex at 17Springs in Millbrook, but we had to advise them that this was only 4 miles from an active airport and was therefore against FAA rules.

We as a club have launched several balloons. W4SPA, Scott, spearheaded the project and developed a great deal of expertise in how to conduct successful launches and recoveries. His first rehearsal was a tethered launch at the home of N4SOJ in Mt. Meigs, which Scott combined with a fox hunt. He could not believe his eyes when ten minutes after launch Pete, KF4QOE (now K5KO) and I showed up at the launch site, having tracked the signal at high speed on I-85.



There are many factors that go into the inflation of balloons if you want them to rise into the stratosphere. As you can see from the picture, most balloons bound for the stratosphere look sadly wilted and under-inflated. There is a reason for that.

You want to inflate the balloon with just enough pressure to barely lift the payload. If you inflate the balloon more, it will burst at a lower altitude. This requires careful calculations of payload weight and balloon pressure.

As the balloon rises, it will expand because the atmospheric pressure is declining while the internal balloon pressure is staying the same. So, the same ballon that was wrinkled and folded and looked under-inflated at launch now is a highly pressured ball when it reaches higher altitudes.



This image shows a typical balloon as it passes through an altitude of 20,000 feet on the way up.

This balloon is probably a bit over-inflated and might burst by the time it reaches 35,000 feet.

We are aiming for our balloons to reach 80,000 feet or higher before they burst.

Scott, W4SPA, did several balloon launches. It was an exciting project. There were several balloons that we tracked and then recovered. I recall one such balloon was recovered from a water pit in a quarry in North Montgomery not far from the UPS Center near the Northern Bypass. We had a lot of fun and encountered all sorts of things we needed to learn about. For instance, we had programs that would show coordinates on a map. But the APRS tracker was sending coordinates in digital format while the mapping programs needed the coordinates in degrees, minutes, and seconds. So, we had to do some quick conversion right there by the side of the road. (This was many years ago. Now google maps does all of this for you.)



4th grade students working to launch a balloon. The experience is a wonderful way to introduce them to scientific concepts with hands-on applications. The balloon in this picture is probably somewhat over-inflated.

The last launch was spectacularly successful even though the balloon and the payload were ultimately lost. The balloon rose and drifted towards Tuskegee, then caught a current at 60,000 feet and headed to Selma. We were on Highway 80 on a hill near Lowndesboro when Scott alerted us to the fact the we had not received any beacons for several minutes. Indeed, the transmitter, a Yaesu VX-1, had given up the ghost. That radio was not designed for extreme conditions and it probably froze over in -56F temperatures. Our flight path prediction program suggested that the balloon probably drifted on to Louisiana where it burst and descended into some swamp.



The predicted path of a weather balloon if it had been launched on 8/31/2024 at 12:48 PM (at the time of the writing of this article). It shows the balloon catching a strong westward airflow, passing north of Demopolis, and – after bursting – landing in a forested area near Wahalak, MS. Predictions of maximum altitude and landing locations can be a fun competitive activity for students.

Besides careful calculations of inflation pressure and payload, Scott reminded me that there were other things to consider, such as notification of the FAA. Scott launched larger balloons than what we have in mind, and he switched from helium to hydrogen. I do not know whay that switch was made and am curious to

find out. For the smaller (350g) balloon that we have in mind for these launches, a small can of helium available at Walmart in the party supply department will suffice nicely.

So, between inflation and payload calculation, tracking via APRS, predicting the path, and tracking it down once it lands, there are many things for students to apply math, to learn geographic and orienteering concepts, and to familiarize themselves with basic meteorology. This is why this is an exciting project for STEM (science, technology, engineering, and mathematics) that is so vital for success in the modern world. MARC is proud to be a part of that effort.

*MARC is pleased to  
be part of  
STEM education  
in Central Alabama.*

## The 2024 SET Simulated Emergency Test



### Objectives

The 2024 Simulated Emergency Test (SET) conducted jointly in Montgomery County and Elmore County, Alabama, (the “Joint SET”) has the following objectives:

- test and enhance amateur radio operators’ preparedness for emergencies including
  - digital emergency traffic handling
  - voice net procedures and traffic handling
- increase awareness of amateur radio emergency communications capabilities among staff at public safety agencies;
- establish and refine protocols of cooperation with public safety agencies.

### Details

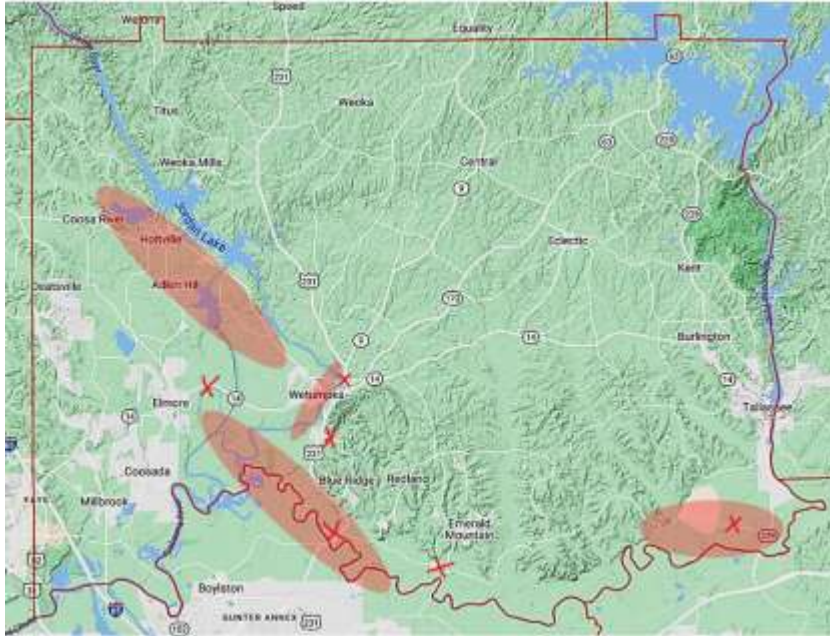
The Joint SET will be conducted Friday, Oct 4 through Sunday, Oct 6, 2024, starting at 6:00 AM CT and ending at 10:00 PM CT on each of these days..

On these days, using the SET Scenario, we will do the following:

- announce the SET on the Alabama Day Net and take check-ins
  - 3965 KHz LSB
- Announce the SET on local repeaters, take check-ins, and collect simulated emergency traffic
  - 146.84 W4AP repeater FM voice
  - 147.18 W4AP repeater FM voice
  - 146.67 Ft. Deposit repeater FM voice
  - 147.310 KC4EMG Seaman, Elmore County, repeater FM voice
- Establish communication circuits for local emergency traffic using the CAADCECS protocol of NBEMS digital emergency message handling on VHF Simplex frequencies and pass simulated emergency messages.
- Call SKYWARN NET into session and collect simulated emergency reports

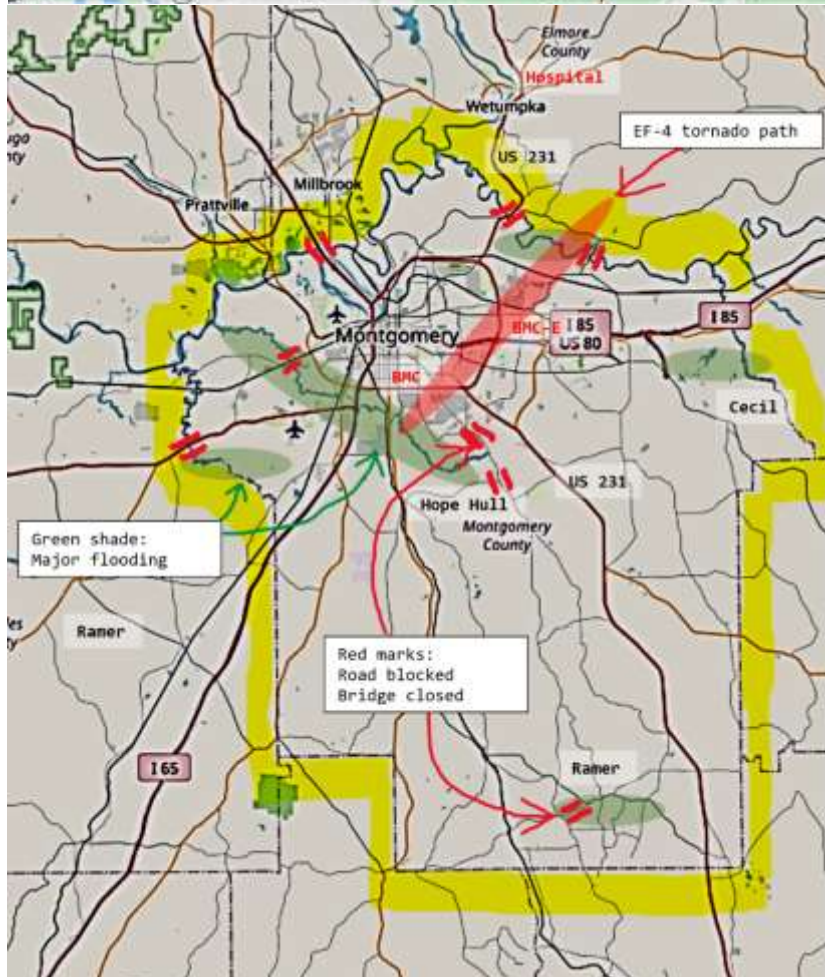
### Scenario

For the Joint SET, we have chosen the disaster with the highest probability of occurring in the next ten years: a severe hurricane moving into Central Alabama with widespread flooding and several spin-off tornadoes that disrupt normal communications infrastructure.



In the Elmore County map, red shaded areas depict major flooding with most roads impassable.

Red X marks show bridge or road closings.



In the Montgomery County map, green shading indicates major flooding.

Red marks show road closings.

The red shaded area shows the path of a tornado.

Detailed list of issues:

## GENERAL AREA-WIDE:

- All communications infrastructure (public safety agencies trunking system) is completely destroyed. All P25 systems are non-functional.
- Internet and cellular services are down. There is no electricity.

## ELMORE COUNTY:

- Roads closed and bridges out:
  - US 231 North from Montgomery County to Elmore County
  - Emerald Mountain Bridge between Wares Ferry Road and Rifle Range Road
  - Taylor Road approaching Hwy 229
  - Road leading to Harrow Springs
  - Hwy 14 east of Elmore
  - Intersection of Hwy 14 and US 231
- Major flooding:
  - Rifle Range Road
  - Taylor Road near Hwy 229
  - Downtown Wetumpka
  - US 231 near Redland Road
  - Holtville Road

## MONTGOMERY COUNTY:

- Roads blocked and bridges out:
  - US 231 North from Montgomery County to Elmore County
  - US 31 North from Montgomery County to Autauga County and Prattville
  - Woodley Road near Snowdown Chambers Road
  - Meriwether Trail between Grady and Ramer
  - Emerald Mountain Bridge between Wares Ferry Road and Rifle Range Road
  - OId Selma Road west of Hwy 31
- Major flooding
  - South of Ramer
  - Catoma Creek area from Snowdown to Selbrook
  - Milli Creek area near Cecil
  - Cook Station area at Wares Ferry Road
- Tornado EF-4
  - From Narrow Lane Road south of South Blvd extending to the northeast near McGhee Road and South Blvd, East Blvd, Bellwood, Halcyon, and crossing Wares Ferry Road to the west of the Emerald Mountain bridge.
  - Buildings and communications infrastructure are completely destroyed.

## Priority communication needs (both counties)

- Baptist East Hospital experienced major damage. Patients must be transferred to Baptist Medical Center South.
  - BMC must communicate capacity to BMC-E regarding beds and ICU
- Elmore Community Hospital needs to transfer patients to BMC-South
  - transports must use Hwy 14 East, 229 South, I-85 South
  - BMC-South needs to communicate acceptance of transfers
- Stranded persons need rescue from various flooded locations



## A New Net: The Montgomery County ARES Net

We are excited to announce a new net for the newly organized Montgomery County ARES group.

This net will be on every Thursday evening at 7:30 PM CT on the 146.84 W4AP repeater. In the event that this repeater is off the air, we will meet on the 147.18 W4AP repeater or (if needed) on 146.400 simplex.



The net will have the following:

- Check-ins
- Announcements of up-coming training events, amateur radio events, equipment availability, procedural changes, or ARES developments
- Presentation of an ARES training topic (usually around 5 minutes long)
  - may include passing of simulated traffic
  - may include testing of simplex capabilities
- Discussion of the training topic or any other ARES related issue that members want to discuss.

**On 8/29/2024 the ARES Net conducted a simplex communications test. KO4UWY manned the Red Cross station. It turned out that all stations in Montgomery County and southern Elmore County could communicate with the Red Cross station by simplex. We were even able to establish simplex communications with several stations in Autauga County. We also were able to have simplex communications with AK4NG who is located in Ramer, AL.**

## Local Nets You May Want to Know About

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](http://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 September 2024

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

Sept 4, 2024	Pizza Perfect, 428 Coliseum Blvd, Montgomery, AL 36109
Sept 11, 2024	San Marcos, 61 N Burbank Dr, Montgomery AL 36117
Sept 18, 2024	Sommer's Place, 7972 VSeptn Road near VSeptn & Taylor
Sept 25, 2024	Full Moon Bar-B-Que, 7660 Eastchase Pkwy, Montgomery, AL 36117

To join the club or Lunchbunch email list, send request to [CASKYWARN@GMAIL.COM](mailto:CASKYWARN@GMAIL.COM)

<b>The MARC 2m Net</b>	meets every Sunday at 8:00 PM CT on 146.84 W4AP
<b>Skywarn Training Net</b>	meets every Thursday 7:00 PM CT on 146.84 W4AP
<b>MGM-ARES Net</b>	meets every Thursday 7:30 PM CT on 146.84 W4AP
<b>Club Breakfast</b>	Chappy's, Carmichael at Perry Hill Road, 7:00 AM Sept 14, 2024
<b>Club Meeting</b>	<b>Mon, Sept 16, 2024, 7:00 PM, American Red Cross Building 5015 Woods Crossing, Montgomery, AL 36106</b>
<b>CAVEC Testing</b>	Mon, Sept 9, 2024, 6:30 pm Community Room, Renfroe's Foodland, 9168 East Chase Parkway Montgomery, AL 36117
<b>ARRL-VE Testing</b>	Sat, Sept 28, 2024 9:00 AM, Renfroe Food Market Chantilly Corner Pre-registration required <a href="mailto:Lewin.nyman@gmail.com">Lewin.nyman@gmail.com</a>
<b>Foxhunt</b>	No foxhunt this month

### Other regular club events:

Radio at the Park	No Radio at the Park in August
Club Station Operations	No club station operation in August
For details on all events:	go to <a href="http://w4ap.org">w4ap.org</a> Scroll down to the club calendar

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

### Club Officers:

<b>President:</b>	<b>Otto Arnoscht N4UZZ</b>
<b>Vice-President:</b>	<b>Ken Brittin AK4KN</b>
<b>Treasurer:</b>	<b>Fidel Cintron KK4KGO</b>
<b>Secretary:</b>	<b>Dennis Egbert K4PDQ</b>
<b>Public Information Officer:</b>	<b>Jim Norris K4JLN</b>
<b>Director 1:</b>	<b>Trent Davis KV4UZ (2024 - 2028)</b>
<b>Director 2:</b>	<b>Philip Salley K4PO (2022 - 2026)</b>
<b>Director 3:</b>	<b>Fred Springall KR4YK (2023 - 2027)</b>
<b>Director 4:</b>	<b>Mac McWhorter (2024 - 2025)</b>