



Montgomery County ARES
July 15, 2024

The leadership:

EC N4UZZ Otto Arnoscht

AEC AK4NG George Milligan

AEC K4DJL El Erby

AEC KK4IB Gene Simmons





The mission:

Our mission is to provide emergency communication and any other emergency services as requested by the Montgomery County/City Emergency Management Agency.

In short: We serve the EMA.

In Central Alabama we are at risk for

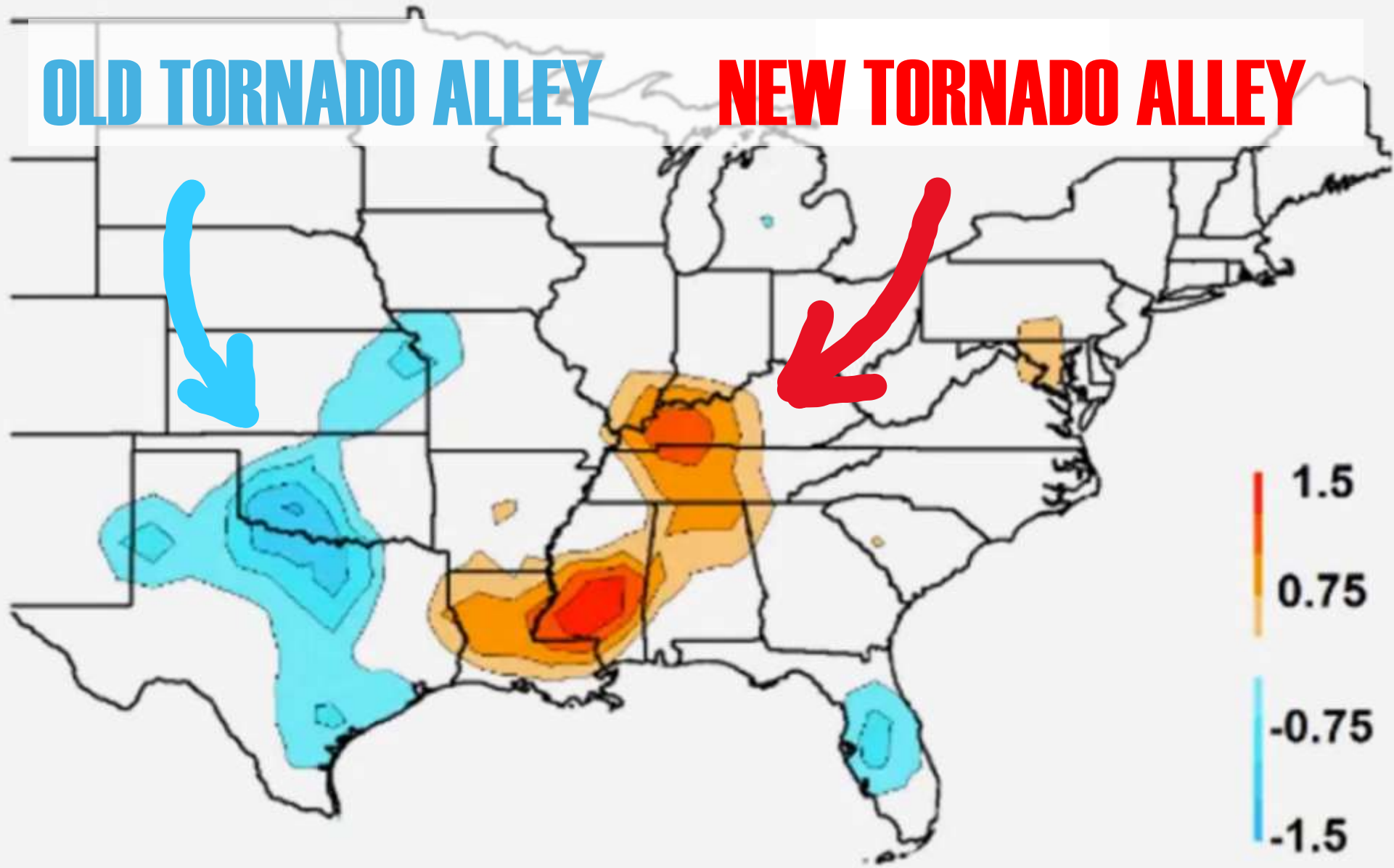
- **flash floods**
- **flooding**
- **tornadoes**
- **hurricanes**

**In recent decades
tornado alley
has shifted eastward.**

Tornadogenesis Events

OLD TORNADO ALLEY

NEW TORNADO ALLEY



How do we accomplish that mission?

- **Training**
- **Practicing**
- **Maintaining equipment**

Membership requirements

- ✓ **Licensed amateur radio operator**
 - **Minimum requirement: Technician Class**
- ✓ **Completed all tasks in the MGM-ARES Task Book**
 - **A member must sign off on completion**
- **Participate in two drills per year**

Areas of Training

- **Effective traffic handling**
- **Emergency net management**
- **Equipment management**
- **Location knowledge**
- **Onsite conduct**

Additional Areas of Training

- **Introduction to CAADECS The Central Alabama Digital Emergency Communications System**
 - **A communications system between area hospitals, the airport, the EMA, and shelters**
 - **Equipment**
 - **Protocols**
 - **Frequencies**

Scenario:

- **Internet is down**
- **Cellular service is down**
- **Electricity is unavailable**
- **Many roads are impassable**
- **Hospitals and public safety agencies need to communicate to coordinate**

The Mission

To enable important facilities in the greater Montgomery, Alabama area, to exchange ICS-213 messages **with no internet or cellular service available.**



FLMSG: 4.0.23

File Form Template Config AutoSend Utilities Help

ICS-213 report file: new.213


Originator Responder

Inc:


To Pos.

Fm Pos.

Sub.

Message: Date  ... Time ...

App'd Pos.

Comp  *

ARQ Send NOT CONNECTED

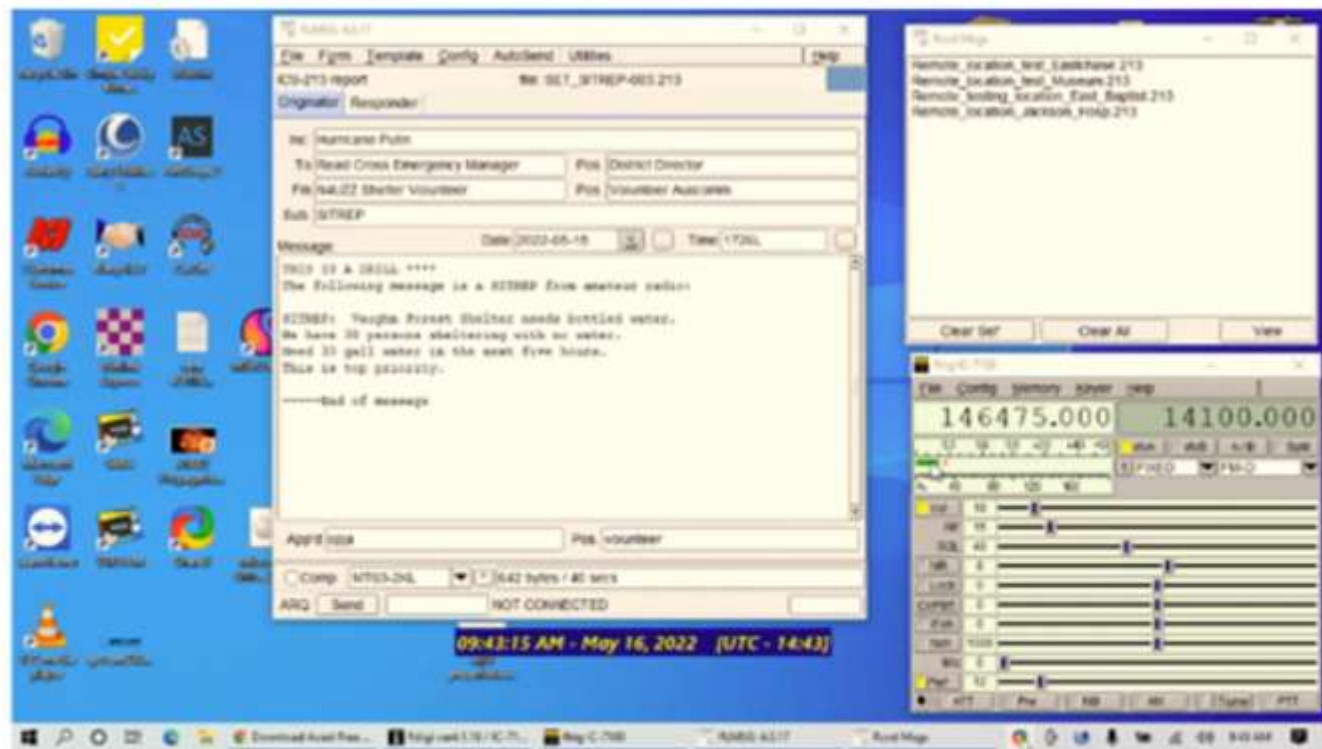
Why digital?

Digital comms are essential when there is a need to communicate

- **lists of persons, supplies, or locations**
- **multi-step instructions or directions**
- **with immediate documentation**

We use the Narrow Band Emergency Messaging System (NBEMS) over VHF frequencies.

All software is free.



Stations are simple.





We have demonstrated reliable digital communication links between all points on this map:

- > four hospitals**
- > City EOC**
- > airport**
- > Red Cross HQ**

Operation is automatic. Stations can collect messages even when unattended.

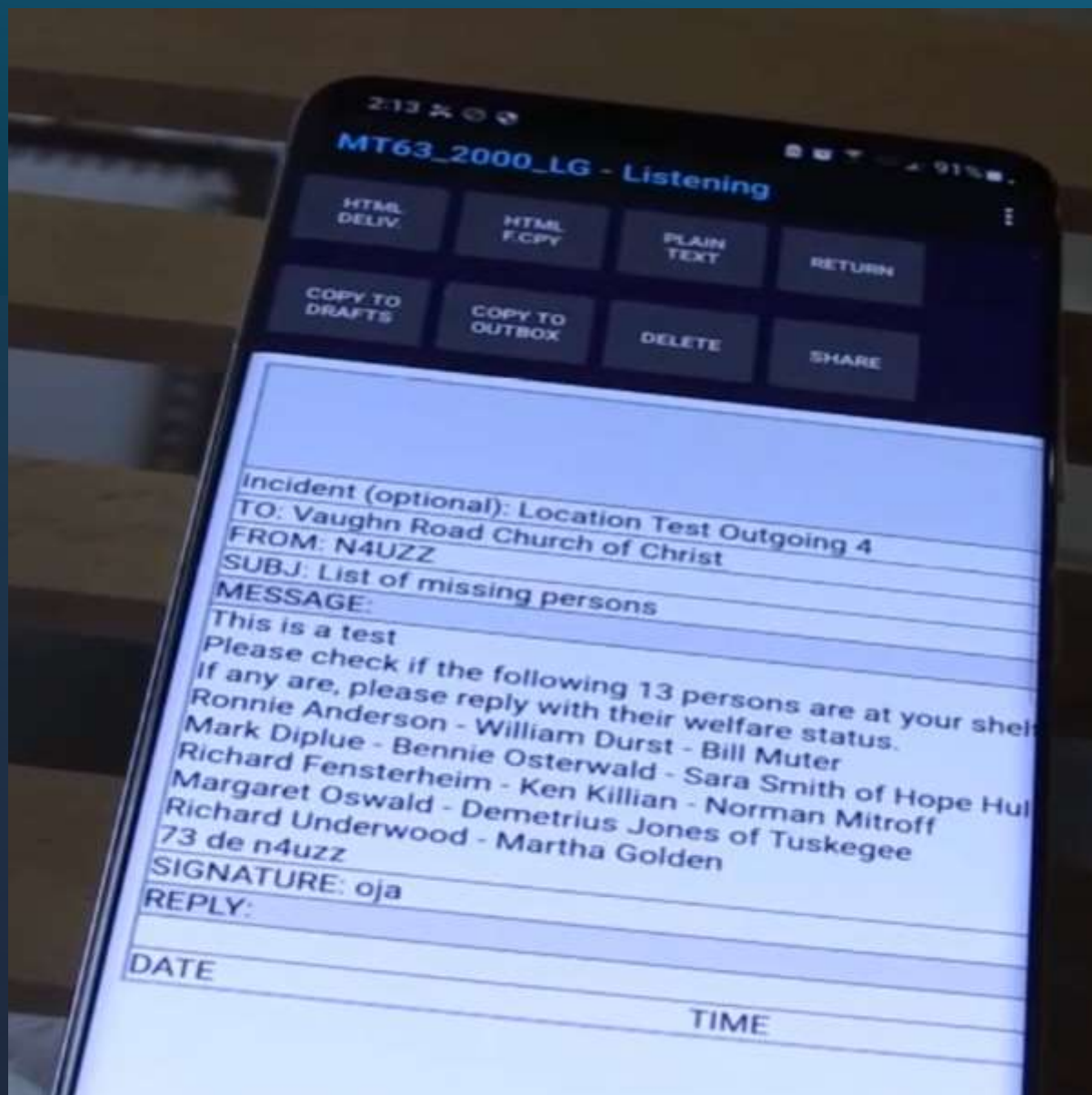
```
Remote_location_test_Eastchase.213  
Remote_location_test_Museum.213  
Remote_testing_location_East_Baptist.213  
Remote_location_Jackson_Hosp.213
```

Clear Sel'

Clear All

View





Without internet and without any cellular service!

The NBEMS System

FLMSG

- **This is your email program!**
- Formats ICS-213 forms
- Automatically receives messages
- Automatically calls FLWRAP

FLDIGI

- Handles the RF transmission and reception
- Can use any of several digital modes
- Modes are selected based on
speed, reliability, error correction, ARQ

FLRIG – handles the radio

Modes we have used

MT-63 2000S

S stands for “short” and means no error correction. This is a pretty fast mode.

MT-63 2000L

L stands for “long” and has error correction. This almost doubles the time it takes to transmit a message.

PSK-31

A very slow mode often used on HF

PSK-125R

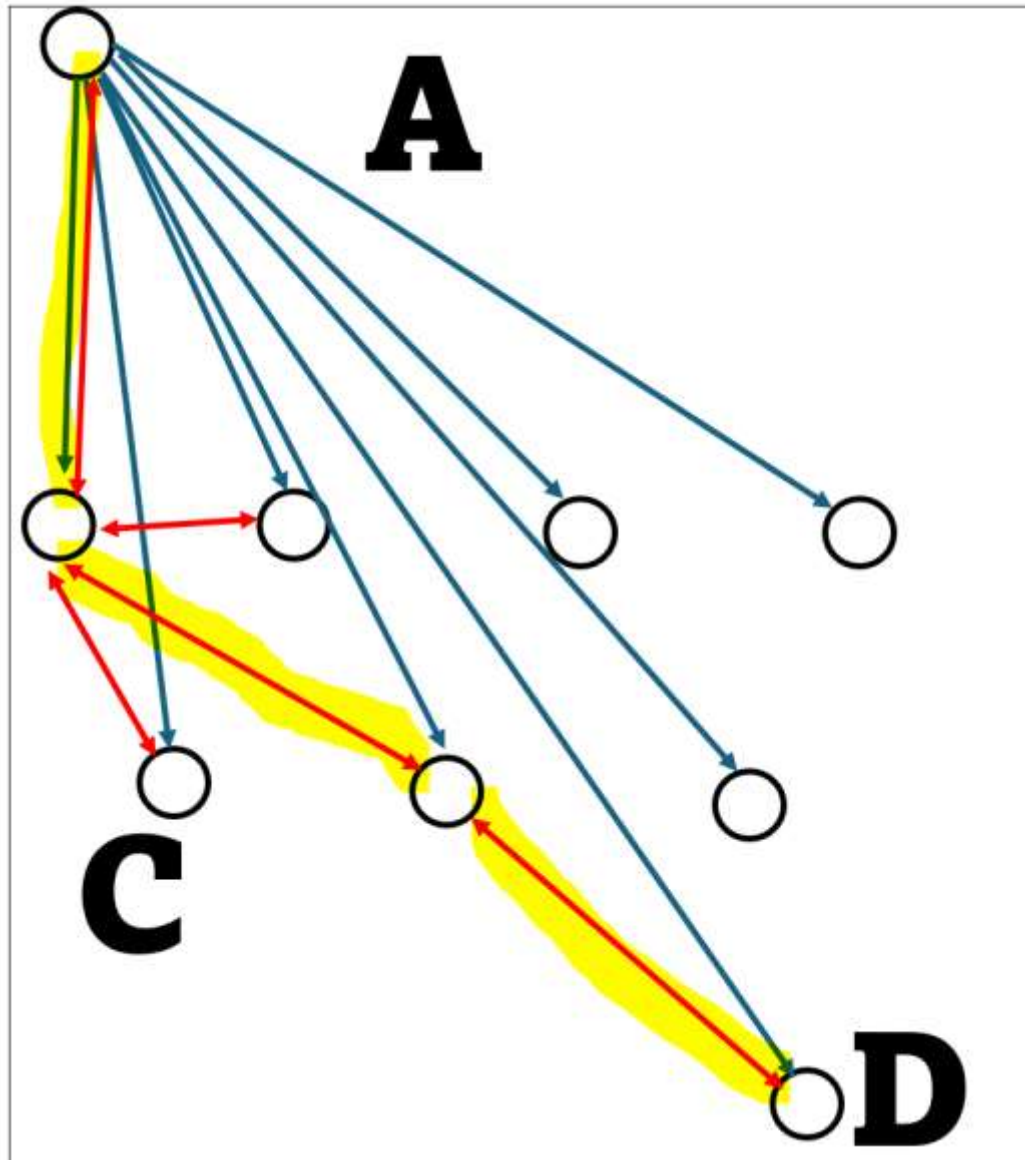
R stands for “robust” and includes error correction.

Olivia, Thor, RTTY, etc.

FSQ

- Members of the group send out beacons
- Stations keep a list of beacons they hear
- Any station can query another station to automatically
 - o Provide a signal report
 - o Provide the list of beacons they have heard
- Any station can then send a message to any station someone else heard. **Message is automatically relayed! The reply will be automatically relayed to you!**
- **This capability makes this an RF mesh network!**
- Fast keyboard to keyboard, just hit [Enter] and the line is sent!
- Works with FLMSG and FLDIGI
- Perfect for groups who want to keep an awareness of who is on, who can reach what other stations

**FSQ
MESH
NETWORK
FUNCTIONS
ALLOW
RELAYS**



fldigi ver3.23.22.16 - vk7ntk

File Op Mode Configure View Logbook Help

7104.000

Frq 7105.500 On Off 0529 In Out

Call Op Az

USB Qth St Pr Loc

Squelch open. Transmit timed out!
VK7BEN hi!
allcall I wonder if fldigi has an API. Still receiving you well at that speed OTC
VK7OTC: did I change speed?
VK7OTC sorry wrong callsign, I meant BEN
VK7OTC sorry wrong callsign, I meant BEN (may have reduce my modn too far)
VK7OTC: so there is a pyfldigi module that can control and get/set text from fldigi
vk7is how is it in this direction?
VK7BEN: Hello Ian!
VK7BEN: a jknGb
vk7is:eb

allcall
vk7is 05:29 -12 db
VK7BEN 05:28 -16 db
VK7OTC 05:24 5 db

FSQ-ON ACTIVE
MON QTH QTC CQ

CQ ANS QSO KN SK Me/Qth Brag T/R Tx Rx TX 1

WF -20 70 x1 NORM 1500 QSY Store Lk Rv T/R

FSQ-6 -3.0 AFC SQL

FLDIGI with FSQ running

What we have accomplished with FSQ so far:

- **automatic signal report from unattended station**
- **obtained list of stations that another station heard**
- **sent messages to a station by relay**
- **automatic message acknowledgement sent by relay**
- **sending ICS-213 messages to other stations**
- **development of a condensed operations guide**

Because of the importance of digital messaging to public safety agencies, we will have special training in digital communications in the next months.



Plans and Objectives

Montgomery County ARES

Weekly Net

Thursdays at 7:30 pm CT **starting August 1**

- EMCOMM training topic
- Check-ins
- Discussion

146.84 W4AP

Alternate repeater: 147.18 W4AP

Alternate frequency: 146.400 Sx

Monthly Meeting

First Thursday of each month.

Red Cross Building, 7:00 PM

Meetings will focus on training topics.

First meeting will be January 2, 2025

(Red Cross conference room is taken until then with the Technician licensing class and the follow-up meetings.)

ARES SERVICE MANUAL

I have carefully read the
ARES Service Manual

So you don't have to.

All 94 pages.



ARES TRAINING TOPICS

- **ARES Training**
- **ARES and RACES**
- **ARES Mutual Assistance Teams**

- **Messaging**
 - **ICS-213**
 - **Originating, passing, delivering messages**
- **Relations with served agencies**
- **The MGM-ARES Communications Plan**

MORE ARES TRAINING TOPICS

- **Safety**
- **Operations: nets, drills**
- **Equipment, the EMA Station**
- **Agencies, contacts, procedures**
- **Understanding the Incident Command Structure**
- **Mobilization procedures**
- **Demobilization procedures**

The SET

The annual Simulated Emergency Test

- ✓ Friday, October 4 through Sunday, October 6
- ✓ Announce and call several tactical nets
 - Pass voice messages
 - Pass digital messages
- ✓ **Scenario will be published August 1, 2024**
 - Hurricane that brings tornadoes and flooding
 - Total outage of internet, cellular service, public service radio systems, all repeaters
- ✓ Reporting of status of roads and bridges
- ✓ The EMA station will be manned

Current Immediate Objectives:

- Establish NBEMS capability at the EMA and Red Cross**
- Use SET as drill, maximize participation**
- Conduct practice nets and drills**
- Publish MGM-ARES Manual and Comm Plan**
- Conduct ARES Net, establish net control schedule**
- Register MGM-ARES Net with NTS**

Questions? Discussion?

