

# W5AC Special Topic Meeting

October 8th, 2025

Digital Communications



# Welcome!



# Meeting Agenda

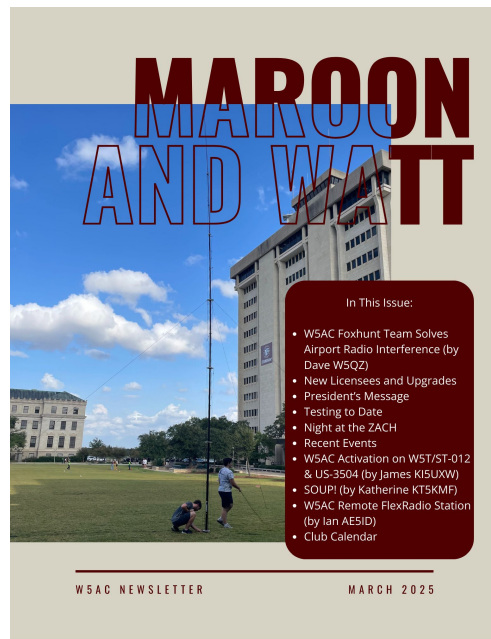
- **Leadership Updates**
- **Feature Presentation**
  - Using the Flex
  - Digital Communications
- **Semester Information**
  - Event Schedule
  - School Club Roundup
  - Where to find us
- **Closing**
  - Q&A
  - Group Dinner

# Officer and Director Updates



# President / Newsletter Editor: Katherine Forson (KT5KMF)

- If you've done anything cool with ham radio lately, and would like to share it with the club, let me know!
  - I can help with article writing
- If you paid dues last year and you're unsure about your current dues status, I will be sending out a list of anyone whose dues are expiring soon



# Vice President: Nayab Warach KI5YBE

Howdy!

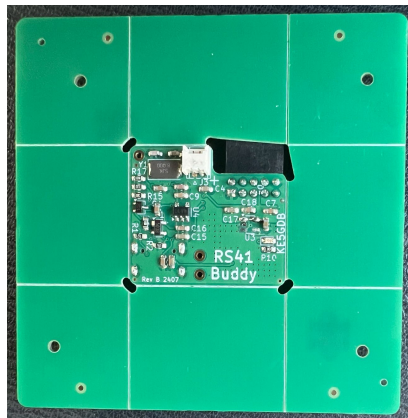
- Major: Electronic Systems Engineering Technology, Class of 2026
- Relevant Experience:
  - W5AC - Texas A&M University ARC
    - Treasurer, 2022-2024
    - Vice President, 2025-Present
  - KANM Student Radio (KAGZ 106.7)
    - LPFM Chair, 2023-2024
    - Station Manager, 2024-Present
- Interests in RF / Radio
  - FT8 (I will be on the air again soon)
  - DMR (Motorola Owner)
    - Owner of like 10 other HTs too
  - Broadcast FM (Not ham radio but it's cool)





# Secretary / Equipment Manager: Matthew Cadman (KJ5IIF)

- Weekly net still ongoing - Mondays at 9:00 PM
- Fox updates
  - Space and adventure cores getting new batteries
    - They should last very long now
  - Video will be coming out soon™ covering some basics to help new hunters or anyone inexperienced with CW foxes



# Senior Director of Operations: James Ervin, KI5UXW

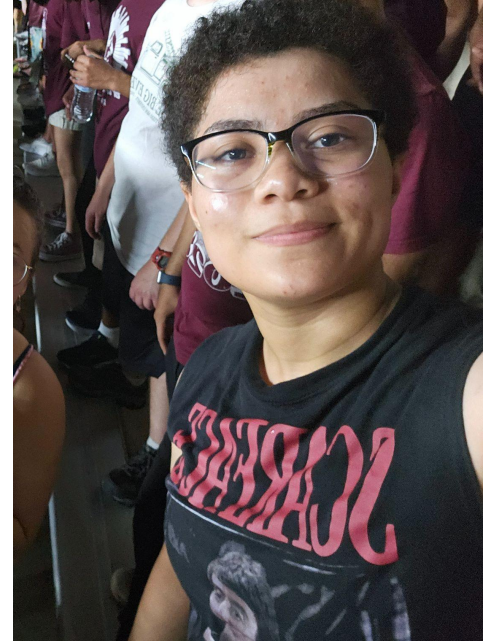
- Major: Electrical Engineering, Class of 2028
- Previous/Current Roles:
  - LASA High School ARC (K5LBJ)
    - President, 2022-2024
  - Texas A&M University ARC (W5AC)
    - Director of Operations, 2024-2025
    - Senior Director of Operations, 2025-Present
  - IEEE MTT-S TAMU
    - Officer (Technical Education Committee), 2025-Present
- Interests in RF and Ham Radio:
  - Education & Mentoring
  - Portable Operations in Ham Radio
  - “New” Stuff





# Junior Director of Operations: Alana Manzanares

- Major: Computer Science, Class of 2028
- Interests
  - Software Development
  - Ham radio operations
  - Building Electronics in general.
  - Learning how small parts work towards a greater picture.



# Repeater Administrator/Digital Infrastructure Director: Ian Duncan (AE5ID)

- 1.25m repeater is currently off
  - Not ID-ing
- 70cm is not transmitting tone
- Flex is back online and survived the window washers!



# Director of Inter-Club Relations: Cam Ellis (WX5CAM)

- Totally Sick Tailgate™ with TAMSCAMS look at my cool pictures (i totally took these idk what you're talking about)
- Texas Aggie Storm Chasers (TASC) has proposed another event to train their HAMS on using mobiles and handhelds as well as assembling mobiles.
  - Could be a good networking opportunity to catch new HAMS.
  - Introduce them to foxhunting?



# We're Looking for Directors!

*No previous experience necessary and training provided!*

## Open Roles:

- **Junior Equipment Manager**
  - Maintain, loan, train, and operate club equipment.
- **Junior PR/Social Media Director**
  - Share what W5AC does with A&M and the world on Social Media!
- **Junior Digital Infrastructure Director**
  - Manage and administrate W5AC's various digital assets like the website.
- **Junior Repeater Administrator**
  - Learn about and maintain W5AC's multiband, multimode repeater system.
- **Junior Director of Operations**
  - Organize events, operate equipment, and train members to operate the radio.
- **Junior Director of Inter-Club Relations**
  - Help W5AC work with other clubs at Texas A&M to help advance amateur radio!



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# Using the Flex

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# How do I use it?

- You must be a dues paying member
  - This is a general requirement to check out club equipment
  - Note: Dues paying members can check out equipment! We have quite the pile of (mostly old) radios available!
- Ask in the “Flex Coordination” channel in the Discord to ensure nobody else is using it
  - During a contest chances are the flex is in use
- You can access it with a PC in the shack, or your personal device
  - The shack PC is already set up to operate





# How do I use it on my personal computer?

- Install SmartSDR version 3.8.21
- You then need Ian's flex discovery script
  - Flex's software is stupid, this is a fix
  - Must be on the TAMU network (Tamu\_Wifi or VPN)
- ***DO NOT HIT THE "UPDATE" BUTTON!!!!!!!!!!!!!!***
  - It won't work
  - ***You'll break your SmartSDR install***
  - I will have to verify the radio still works
  - We will be mad at you

## Ok. I logged in. What now?

- Start out with low transmit power. Increase only as needed.
  - You rarely need all 100W to make a contact
  - Be mindful of other local operators - Where the antenna has low SWR it's very powerful
- The Flex has SWR foldback, but don't abuse it
  - SWR foldback limits transmit power into higher SWR.
  - But, it puts stress on the radio
  - Look at SWR plots to see where the antenna has low SWR and try to operate there - The antenna works better there!
- Demonstration

# Digital Communications



# Items Covered

- Sending Data via Non-Digital Modes
  - APRS
  - SSTV
- Digital
  - FT8
  - DMR, D-Star, Fusion
  - RTTY
  - Meshtastic
  - CW (Honorable Mention)

# APRS: Automatic Packet Reporting System



Sending data over the 2 meter band:

- 144.39 MHz FM
- Send Location, Text, Alerts, and more

APRS Provides a cheap way for HAMs to communicate with a larger network that is made of many receivers that offer a gateway to the internet (iGates) or repeats the APRS signal (digipeaters).

# APRS: Get Started

Since APRS uses 2m FM, many cheap radios are able to take advantage of it.

- 2 meter capable radio (UV-5R)
- Device capable of decoding / encoding APRS
  - Direwolf
  - APRSdroid

Some radios have APRS built in along with a GPS receiver.

UV-5Rs can utilize the AIOC adapter allowing you to connect your computer's audio in and out to the radio.





# SSTV (Slow Scan Television)

- Sending Images over radio!
  - Many use it to send QSL Cards
- Usage of tones to send each pixel at a time.
  - You're going to want to turn your volume down

SSTV was an early form of sending an image over radio, while impractical in today's world, Amateur Radio operators still use it as fun method of sharing information.



# SSTV: What Is Needed

## SSTV Software:

- IOS: SSTV Slow Scan TV (Costs money, gross)
- Android: SSTV Encoder
- Windows: Black Cat SSTV

Basic Handhelds like the UV-5R can be used.

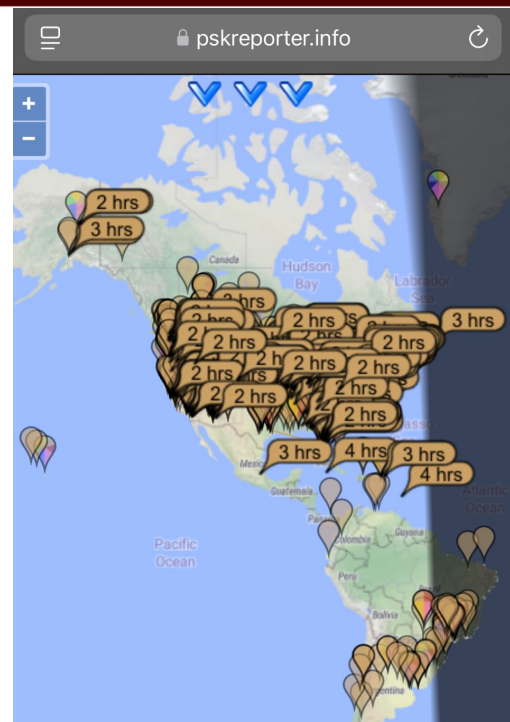


# SSTV: Few notes

- Be Considerate!
- Make sure to include your callsign!
  - Some software might include an option to play your callsign in morse code
  - Including your callsign in the image
- Listen to 14.230 MHz (Not with your ears)

# FT8 and other low-bandwidth sound card modes

- Typically seen at HF
  - Can be seen at VHF, UHF, and up
- Requires a computer, sound card interface, and usually an Upper-Sideband transmitter
  - FT8 uses USB, not FM!
- Typically operate with low signal to noise ratios
  - FT8 can even operate below the noise floor
- Great for easy DX
  - Just a bunch of computers talking to each other
  - Some may consider it “cheating”
  - SSB is harder but more rewarding and entertaining
- Also useful for testing propagation
  - PSKReporter, WSPR maps, etc





# DMR, D-Star, YSF, etc: Digital voice / datastream modes

- Extremely capable - effectively just a digital bitstream
- Send Location, Text, Images, Audio, and more
- Typically require special radio hardware
  - Icom for D-Star
  - Yaesu for YSF (Fusion)
  - Motorola for DMR
  - (This is a non exhaustive list)
- Despite being wide bandwidth like FM, these (digital) signals are more efficient than analog modes
- Talkgroups!
  - Typically need to register with the system
  - But you can directly call someone using a repeater without interfering with other transmissions
- Digital voice is either working or not - it's digital
  - As such, if it works the audio quality is very consistent



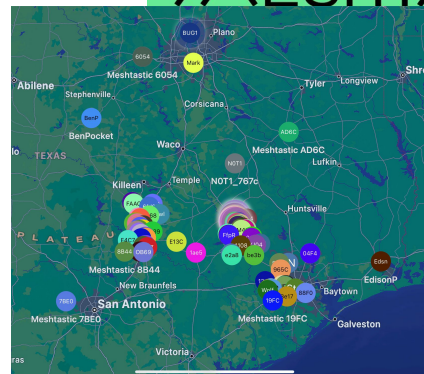
# RTTY: Radioteletype

- Used to send text over radio.
- Used during WW2
- Designed in 1874 to send text over landline
- Modern software to run this over radios
  - FL-DIGI



# Meshtastic

- Building a Mesh Network
  - Low overhead network that grows dynamically based on the amount of clients in the network
- Based on LoRa radios
  - Low power
  - Long range (Here to Austin Sometimes)
  - 915 MHz (Within Amateur Frequencies)
- No Callsign needed
- Get started with a \$20 device



# CW: Continuous Wave (Morse Code)

- The first “Digital” mode
- Able to make long distance contacts with little hardware
- Cheapest way to talk on HF
  - QMX Plus
  - QCX
  - (tr)uSDX





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# Semester Information

# Upcoming Events

- Lunch Social - Friday, October 17th
  - Meeting up at 12pm at Schlotzsky's near campus
- School Club Roundup (more info in a minute)
  - Monday, October 20th - Friday, October 24th
- **Next Meeting - Thursday, October 30th**
  - Meeting start at 7pm
  - License testing before at 6pm
  - **WEB 236C (same room as previous meetings)**

Join our calendars!

- Events - **[w5ac.tamu.edu/w5acevents](http://w5ac.tamu.edu/w5acevents)**
- Repeater/Nets - **[w5ac.tamu.edu/w5acrepeater](http://w5ac.tamu.edu/w5acrepeater)**



# School Club Roundup



- Sign up using this QR code:
- Monday, October 20th - Friday, October 24th
- Can operate 24 hours total, up to 6 hours per day
- Score = QSO points x Multiplier
  - QSO points = # phone contacts + 2x(# CW contacts + # digital contacts)
  - Multiplier = # states/provinces + # DX entities + 2x(# clubs) + 5x(# schools)
- Exchange
  - Must include signal report, entry class (I, C, or S), and state/province/country
- Best to operate in pairs
- Not sure where to start? Reach out to us!

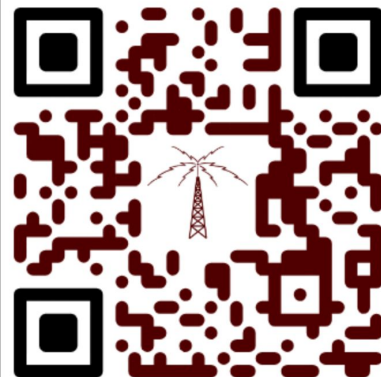


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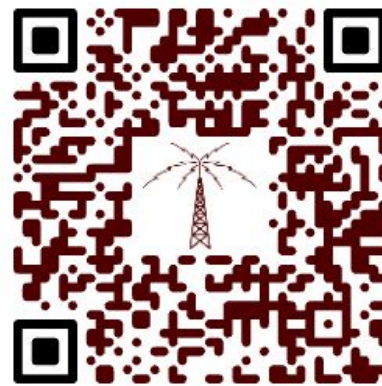


# Where to Find Us

- Linktree
  - Website
  - Social Media
  - Discord (we post all of our announcements here!)
- Flywire Store
  - Membership Dues
    - In person - talk to Josh
  - Merch coming soon... stay tuned!



<https://linktr.ee/w5ac>



[tx.ag/duesw5ac](https://tx.ag/duesw5ac)

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# Questions?



# Gig 'em and 73s!

*(Best Wishes)*



**Dinner Time**  
**See y'all at McDonald's!**