

## 2022 Huntsville Hamfest Forum Descriptions

### ARRL Forums

#### **ARRL Membership Town Hall**

Moderator: Mickey Baker, N4MB, ARRL Director -- Southeastern Division

Panelists: Rick Roderick, K5UR, ARRL President and David Minster, NA2AA, ARRL CEO.

ARRL is the national association for Amateur Radio.® Members help advance the art, science, and enjoyment of amateur radio. ARRL publishes four popular magazines including *QST* and *On the Air*, coordinates an extensive all-volunteer field organization, and serves members as amateur radio's representative voice in regulatory and legislative matters. At this session, you'll hear from ARRL representatives on key areas of membership interest. Find out how ARRL supports dozens of ways to get involved and get radio-active. Members and prospective members are all welcome!

#### **ARRL Alabama Section Forum**

Moderator: Roger Parsons, KK4UDU -- ARRL Alabama Section Manager

ARRL is the national association for Amateur Radio.® The centerpiece of membership involvement is ARRL's all-volunteer field organization. Hear from ARRL Alabama Section Manager Roger Parsons, KK4UDU, and other leaders about key areas of volunteer activity, including amateur radio public service, opportunities to participate in the Amateur Radio Emergency Service (ARES), and ham radio outreach across our radio clubs and communities.

#### **Youth Outreach - Steve Goodgame, K5ATA, ARRL Education and Learning Manager**

Most recently, Steve had close to 60 middle and high school students earn their ham radio licenses, and several have upgraded. Now Steve leads ARRL's Education and Learning programs. Join us in exploring ways to attract and engage today's students to ham radio: through technology; learning about how-radios-work and building things; communicating through satellites and talking with astronauts; competing in contests and winning awards; developing skills, career networking, and making new friends. Who should attend this forum? Club representatives, teachers, young hams, and anyone who wants GROW amateur radio. Sponsored by ARRL, The National Association for Amateur Radio®, and contributors to the ARRL Education and Technology Fund.

## **Education**

### **The Museum of Information Explosion – Dr. Marc Bendickson**

A new museum is about to launch in Huntsville, Alabama! Before long we will be able to visit this museum and trace the evolution of information technology at an ever-increasing pace from its beginnings in the nineteenth century through contributions of Edison, Armstrong, Heaviside, Shannon, and others up to our current digitized state-of-the-art. Over 900 restored telegraph, radio, phonograph, television, and computer items will be on display enhanced by immersive technology. The K4MIE ham station will feature antique, classic, and modern gear drawn from the museum's holdings. The museum's founder and director, Dr. Marc Bendickson will discuss the genesis of the museum, its current status and what we can expect to see in the near future.

### **Amateur Radio Digital Communication Foundation (ARDC)**

**- Dr. Robert W McGwier, Ph.D, N4HY**

The ARDC supports many types of grants from our large endowment. We will discuss some of the important technical projects and health of amateur radio grants we have supported.

### **EDUCOM: Education through Communication - Joe Fairclough, WB2JKJ**

Our EDUCOM forum will detail how you can take ham radio back to your school and introduce it as the most effective teaching tool ever

## **Public Service/EmComm**

### **Joint Services MARS Meeting (2 hours)**

**AL ARES – Roger Parsons, KK4UDU**

### **AuxComm & ComT - Amateur Radio's Place in Emergency Management - Michael A. Fiedler, PhD, KM4CRB**

Emergency management has become much more organized and has developed a unique structure in response to terrorist events and weather disasters. Amateur radio operators still have a place in this structure. That place is in the role of a credentialed Auxiliary Communicator or Communications Technician. These positions require training and commitment to the mission of the Emergency Management Agency. The days when we could show up with no preparation and say, "I'm here to help" are over.

## **Technical Forums**

### **Arduino: The Next Generation - Glen Popiel, KW5GP**

Join ARRL author and builder Glen Popiel, KW5GP, in an all-new, never-before-seen presentation, as he introduces exciting breakthroughs and discoveries in the world of Arduino, and demonstrates how you can take the Arduino to the next level.

### **Lightning Research at NASA/MSFC and UAH - Dr. Monte Bateman, WB5RZX, Thunderstorm Physicist**

NASA's Marshall Space Flight Center and The University of Alabama in Huntsville (UAH) are home to one of the top lightning research groups in the world. We study basic physics of the lightning process, its relationship to storm severity, and help with lightning protection for our nation's space program. In addition to basic and applied science, we also design and build cutting-edge instrumentation that allows us to make unique measurements to study thunderstorms. We now have 3 Geostationary Lightning Mappers (GLMs) in orbit. They are on GOES-16 (East), GOES-17 (Spare) and GOES-18 (West). This gives us lightning mapper coverage over more than half the Earth. The GLMs were developed here in Huntsville; they add lightning information to the GOES satellite cloud photo images and are now considered necessary in weather forecasting and warning. We also have the Lightning Imaging Sensor (LIS) aboard the ISS, and it has been working well now for over 6 years. Come see the state-of-the-art in lightning measurements and how much of it comes from Huntsville!

### **Lightning Protection for the Radio Amateur - Dr. Monte Bateman, WB5RZX, Thunderstorm Physicist, NASA/Marshall Space Flight Center**

Protect your shack and your tower! With a lot of anecdotal grounding discussions generating more heat than light, here's a solid approach to the best protection practices and the theory behind how and why they work. Learn how a lightning flash occurs and how to convince it to go elsewhere!

### **Elecraft K4 Update – Eric Swartz, WA6HHQ**

Here all about the Elecraft K4 transceiver, ongoing updates and good things to come. Eric will also take questions as time allows.

### **Energy Flow Streamlines for Radiating and Receiving Systems**

#### **Hans G. Schantz, PhD, KC5VLD**

This talk presents Numerical Electromagnetic Code (NEC) and Mathematica results for time-average energy flow streamlines from simple radiating and receiving systems. As energy emerges from an antenna feed, the flow and trajectory of energy is guided by the interactions of the fields with the radiating structure until the energy eventually decouples from the antenna and radiates away. As energy from an incident signal impinges upon a receive antenna, the receive antenna scatters and reradiates some of that incident signal so as to create a superposition of fields that guides energy to the receive antenna's feed point for capture. Understanding how the interactions of electric and magnetic fields guide electromagnetic energy flow yields valuable insights for antenna design and applications.

### **BalloonSat Forum - Bill Brown, WB8ELK**

Bill is one of the acknowledged experts in balloon launched ham radio. This forum will discuss how Bill accomplishes taking amateur radio to new heights on high altitude balloons.

### **Detecting Traveling Ionospheric Disturbances with Amateur Radio Data and Machine Learning - Bill Engelke, AB4EJ**

Density waves propagate through the ionosphere: these are called Traveling Ionospheric Disturbances (TIDs). These TIDs are responsible for QSB, fading, and other phenomena such as variations in GPS accuracy. We now have a way to detect these by using amateur radio data: aggregated spot data can be processed using a machine learning method, revealing TID occurrence and climatology. This is a NASA sponsored project

### **Grounding and Bonding - Ward Silver, N0AX**

Grounding and bonding are two of the most important things to consider when developing an amateur radio station. This forum will cover good practices for electrical safety, lightning protection, and RF management.

### **What's My Antenna Analyzer Really Telling Me? - Alan Hargrave, WD5FCA**

Modern antenna analyzers and vector network analyzers are now more common than the traditional SWR meter as a means to tune an antenna. These devices present a wealth of information that can be intimidating to make sense of. This session will review some basic antenna tuning concepts and how to decipher what these devices are telling us.

## **Operating Activities**

### **Fox Hunting 101 - Joe (KI4ASK) and Mary Catherine (KI4HHI) Domaleski**

Married ham radio operators Joe (KI4ASK) and Mary Catherine (KI4HHI) Domaleski are going to share some stories, tips, and suggestions on having fun with ham radio. Join them on a fox hunting adventure to leave your shack and get outside with ham radio.

### **Contesting Multi-Forums - Larry, K4AB**

This special three hour set of forums is hosted by the Alabama Contest Group. If you have interest in contesting and how to run up your scores this will be a great set of forums.

- *Getting Starting In Contesting* by Tim Winger, AB4B
- *From Alabama to The Rest of The World* by Steve Werner, AG4W
- *Field Day* by Laura Morgan, K4CNY

### **Microwave Multi-Forum - hosted Ben Lowe, K4QF**

This special two-hour multi-forum will cover interesting topics in microwave communications. This is in conjunction with the X-Factor 10 GHz and up operating event happening during Huntsville Hamfest.

- *An Introduction to 10 GHz Operating* by Jay Myers, K4NKT will cover how to configure a station (30 Min).
- *Microwave/VHF/UHF Portable Operation* by Tom Smith, W4RXR (30 min)
- *10 GHz Tower Re-radiation* by Ben Lowe, K4QF (30 min)
- *The X-Factor Operating Plan* by Ben Lowe, K4QF (30 min)

### **Meteor Scatter Communications: The Science Behind the Pings – Rob Suggs, PhD, NN4NT**

NASA astronomer Dr. Rob Suggs NN4NT will give an overview of meteors, their sources, and how they allow us to communicate. A brief description of the MSK144 communications mode and examples of meteor scatter QSOs will be provided.

### **Radio Astronomy from the Moon – Heidi Haviland, PHD**

This forum will discuss the science from upcoming Commercial Lunar Payload Services missions to the lunar surface with low frequency radio astronomy instruments.

### **AMSAT - Tim Cunningham, N8DEU, AMSAT Ambassador**

Ever been intrigued by working satellites? This forum will cover the basics of how to get started using satellites to talk with fellow hams.

### **YouTubers Panel Discussion – Hosted by Jason Johnston, KC5HWB of Ham Radio 2.0**

Come meet your favorite YouTubers in this special event. Multiple YouTubers will be visiting from all over the USA. Please take this opportunity to come say hello and meet your favorite YouTuber.

### **Kit Building Techniques for Success - Joe Eisenberg, K0NEB**

We will cover how to identify and test and sort parts and how to best assemble kits as well as go over techniques for dealing with things like toroids and suggestions of some great beginner's kits that are available as well as kits for more advanced builders. I am the Kit Building Editor for CQ Magazine as well as the current author of the Construction Techniques chapter of the ARRL Handbook.

### **Adult Soldering 101 - Matthew Sager, KI4AJZ, and Kevin Hibbs, KG4TEI**

Want to get into kit building, but don't know where to start? Then this class is for you. This class will cover more than which end of the soldering iron to hold and give you tips on how to be successful assembling kits. During the class the students will build a kit to take home with them. Two sessions of the same class will be offered. If interested please sign up at the stage on Saturday. This is a first come, first serve event with limited space and kits available.

### **An Introduction to Parks On The Air (POTA) - Jerry Mitchell, K04JVB**

Have you ever wondered what POTA is or how to get involved? This presentation is geared toward beginners and will provide the necessary information to establish a POTA account, hunt active POTA spots and successfully accomplish your own activation.

