



ROUNDTABLE

The Denver Radio Club Newsletter

February 2009

Since 1917

PRESIDENT'S MESSAGE

By Gerry Villhauer-W0GV

Hello DRC Members,

I hope you are all surviving these big weather swings we have been having. Welcome to Colorado—70 degrees one day then snow and 20 the next. Oh well, spring is coming down the road. We had a great turn out for our January meeting with over 50 in attendance. Bill, W6OAV did his usual outstanding job presenting the QUAGI antenna. I am going to put that on my list of things to do and build one. We also had a very productive planning meeting for our upcoming voting project. Thanks to all the tech committee members who devoted their Saturday morning to the meeting.

This was a great month for new members! I would like to welcome new DRC members: Richard Brocaw, K5VYT, Don Clair, KB0USF, Bradley Clark, KK5ZK, Roy Greunke, KB0PNM, Bill Hickey, WA3H, Dennis Kochevar, KD0GEH, Rocco Lardiere, N6KN, Pat Patterson, W6RYX, Dawn Patterson, KB6CJJ Please come to the meetings and activities and be an active member.

Our February program will be presented by Mike Higgins, K6AER. Mike is the principal engineer for a regional wireless provider. He holds a BSEE in microwave engineering, which he has been doing for 35 years. Part of his duties has been tower engineering & erection. Mike has constructed over 130 towers in the past 30 years and is also a certi-

fied tower climbing instructor. His other duties are in power, grounding and site construction. As you may have guessed by now; Mike's presentation will be on how to safely erect, climb and ground a tower. The program will include many interesting pictures along with his lecture. This is a program you won't want to miss. Mark February 18th on your calendar now!

See you all at the meeting February 18th at the St. Joseph's Episcopal Church, 11202 West Jewell Ave., Lakewood, CO. That is about two blocks West of Kipling on West Jewell. And remember to check our website, w0tx.org, for lots of important information about the DRC. The Elmer Session and Tech Meeting start at 6:30 pm. followed by the Regular Meeting and Program at 7:30 pm.

Gerry, W0GV
President

Happy Valentine's Day

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JANUARY MEETING - WHAT'D I MISS

By Bill - W6OAV

There were 50 attendees at this month's meeting! W0GV began the business meeting with introductions followed by several brief announcements. The meeting was then turned over to W6OAV. He gave a presentation which described the Quagi beam and how it utilizes the best features of the Yagi and Quad beams in terms of performance and construction. He ended the presentation with a short history of the development and construction methods of the Quagi. After the presentation, W6OAV displayed his homebrew 13.1 dBi gain eight element Quagi which he built from parts available at



any hardware store for \$9.

At the conclusion of the meeting, drawings were held for door prizes.

- pose of coverage, etc).
2. Based on 1 above, determine network configuration (locations, hardware, linking methods etc).
3. Determine equipment requirements (what we have (obsolete?) verses what we need).
4. Plan installation and testing phases (number of links at a time, testing methods, etc).
5. Assign responsibilities.
6. If necessary, assign research projects for items to be discussed at the planning meeting.

TSA Battery Backup Project

Goal: Automate the station battery backup system:

- The board has approved the purchase of two West Mountain Radio PowerGate modules and a spool of appropriate power wire.
- KB0A will order the equipment ASAP.

MEDIUM PRIORITY PROJECTS

TSA HF Antenna Project

Goal: Design and install an HF bi-directional wire antenna which will favor Chicago and San Diego:

- N1ETV is working on the design. K0HTX has the buckets for the antenna supports. When the design is completed, N1ETV will confer with K0HTX regarding requirements for the antenna supports.

TSA HF to HF Interference

Goal: Reduce interference between the Kenwood and Drake. Test to see if HF radio swap resolved the problem. If problem still present, add chokes on power cables:

- Will test when the bi-directional HF wire antenna is installed.

145.49/448.625 Command-able System Split

Goal: Implement a command which will allow remote control of the interconnection of the two systems using the club's 7330 controller:

- WA9TVH will flow chart the processes for the 7330.
- KB0A will investigate programming the 7330 based on the flow chart.

Special Courtesy Tone/Announcement for Repeaters in Emergency Mode

Goal: Configure the controllers for: 1).Command-able special courtesy tone (such as a double beep) which will indicate to users that the repeater is in the emer-

(Continued on page 3)

TECHNICAL COMMITTEE REPORT

By Bill - W6OAV

This report presents an overview of the main items discussed at the January Technical Committee meeting.

HIGH PRIORITY PROJECTS

147.33 Relocation Project

Goal: Fine-tune the Hudson repeater:

- Tinny audio is probably caused by a bad capacitor in the pre-emphasis circuit. WA9TVH will troubleshoot in the near future.
- KB0A reprogrammed the length of the squelch tails of both .33 repeaters so that they are each 1 second in length. He will investigate re-programming a double courtesy beep, or a different frequency courtesy beep, on the Hudson repeater.

Voting System

Goal: Develop design and implementation plans for the Voting system:

- A planning meeting has been scheduled for 1-24-09. The agenda will be to develop a planning meeting agenda based around the following outline:
 1. Define goals for the Voting system (1 transmitter, 2 transmitters, desired coverage, pur-

(Continued from page 2)

gency mode, 2). A command-able emergency mode broadcast message:

- WA9TVH will flow chart the processes. KBOA will investigate re-programming the S-COM controllers and the 7330 based on the flow chart.

LOW PRIORITY PROJECTS

Harris Radio

Goal: Find a home for the Harris radio:

- The tech committee discussed salvaging the more valuable parts from the radio and selling them.
- WA9TVH will take pictures of the Harris. He will start by putting system on eBay and Craig's List. If no takers, then we will part out the Harris and put on eBay and Craig's List.

Repair of Service Monitors (IFR)

Goal: Repair two broken service monitors:

- Both IFRs have bad inverters which are not repairable. The condition of the rest of the IFRs' functions is unknown. The IFRs will be stored for parts for the existing two IFRs.

WORK DX VIA SPORADIC E – PART 2

By Bill - W6OAV

Part 2 of this article discusses the characteristics of Sporadic E (Es), the causes of Es and the equipment required to work Es.

What are the characteristics of Es?

As mentioned in Part 1, Es clouds within the E Layer produce Es. These Es clouds have the following characteristics:

- Can exist for a few minutes to several hours which affect the length of an Es event.
- Occur mostly from May to August with minor occurrences in December.
- Are usually fairly small in size which produces small skip footprints. For example, a station in central Colorado may be able to work only stations in the southern part of Iowa and visa versa.
- They can be horizontal or tilted several degrees. The cloud angle determines the reflection angle, and hence the skip distance, of a particular signal.
- Often travel from their point of origination to the North or Northwest at speeds of up to several hundred miles per hour. This movement causes the skip footprints to move across the country during an Es event.
- Occur between 60 to 100 times a year on 10 and 6 meters and between 2 and 4 times a year on 2 meters.
- Produce Es events on 6 and 10 meters which are

normally much longer than Es events on 2 meters.

- Often violently fluctuate causing rapid "in and out" fading (QSB).
- Often instantly disappear, resulting in instant fade out.
- Often change electron density. This change can cause the reflection angle of a particular signal back to earth to change, either lengthening or shortening the skip distance.
- Reflect different frequency bands at different angles, with the lowest frequency band reflected the shortest distance. For example, if an Es cloud is supporting reflections on 10 and 6 meters, the 6 meter signals will be reflected further than the 10 meter signals.

What are the causes of Sporadic E?

After almost 70 years of study, the cause of Es is still unknown. There are several theories:

- **Sun activity** – Some theorize that the sun's activity causes Es. However, this theory appears not to be true. The intensity and frequency of Es events does not vary over the 11 year solar cycle period. Also, the same is true during periods of extreme solar flares.
- **Meteors** – Some studies show that concentrations of meteoric debris can cause Es. Evidence shows a correlation between the intensity of meteor showers and the frequency and intensity of Es events.
- **Wind shear** – Most evidence indicates that Es is caused by wind shear. Wind shear, in conjunction with the earth's geomagnetic field, compresses the ions into a dense cloud. This cloud becomes the Es cloud.
- **Thunderstorms** – Es often occurs in strong thunderstorms. The theory is that strong wind shear, as mentioned above, within the thunderstorm causes the highly ionized Es cloud. Note: As mentioned in Part 1 of this article, to be effective, an Es cloud must be over the horizon for each station in order for them to communicate. Therefore, don't get excited about working Es if you have a severe thunderstorm in your local area!

Many scientists believe that only the last three theories above contribute to the development of Es clouds.

What equipment is required for working Sporadic E?

For voice, SSB is the preferred mode. There are two reasons: 1). SSB has more punch than FM, 2). FM suffers severe phase distortion as the Es cloud fluctuates. This phase distortion will cause long periods of unintelligibility. As usual, CW will get through when all other modes fail!

Antenna and power requirements are not critical. Es

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propagation is very efficient. Thus, simple antennas and low power work well. Antenna polarization isn't important.

Part 3 will discuss using the tools available to determine when and where Es is occurring.

A DRC VOTING REPEATER IS IN THE EMBRYONIC STAGE

By Bill - W6OAV

Technical Committee members met on 1-24-09 to begin designing a voting repeater system. The goal is to provide HT coverage throughout the metro area with the Hudson site being the heart of the system. So, what is a voting repeater system?

Normally low power mobiles and HT's in a repeater's fringe area can hear the repeater but cannot get a signal into that repeater. Voting repeaters solve this problem. In a voting repeater system, remote receivers, tuned to the repeater input frequency, are placed at some distances from a high power repeater and linked to that repeater via UHF channels. A voting controller at the repeater compares the audio from each remote receiver and selects the one with the best signal to noise ratio. That signal is then retransmitted by the repeater.

Briefly, the Technical Committee's plan is to install a voting controller at the Station Four 147.33 repeater and two remote test receiver sites. Once this system is installed, tested, debugged and totally tuned, several more remote test receivers will be added. When all is working as desired, the Hudson site will be brought on line and become the heart of the system. Hudson's antenna will be upgraded and the transmitter's power will be increased to extend the coverage range. At this time, no time table can be developed as this project will require a LOT of work.



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WORLD RADIO GOES DIGITAL

By Bryan – KB0A

World Radio, which ceased publication in December 2008, is now available as an e-zine. Many of you have read at least one issue which had been published for almost 40 years in black & white. It will still be issued monthly but only online and is now in color. It is provided as an Adobe Acrobat PDF file and is printable either by the page or the whole issue. Go to <http://www.cq-amateur-radio.com/WorldRadio.html> to view the current issue.

WHERE ARE THE HAMS IN MY NEIGHBORHOOD?

By Bill - W6OAV

Want to know how many hams are in your area, their calls, their license classes and their locations? Want to know where a specific ham lives? Well, there are two WEB sites that can answer those questions.

KE6UZM provides a site titled "Where Are All the Hams". Access his site at <http://hams.mapmash.com/hammap.php>. Enter your ZIP code in the appropriate box and you will see a screen as shown below. Click on any of the calls shown on the right side of the screen and the ham's location, license class, address, etc will display.

Where Are All the Hams?

Brought to you by KE6UZM

Based on FCC Data From: 03/27/2008

Zip: 80012

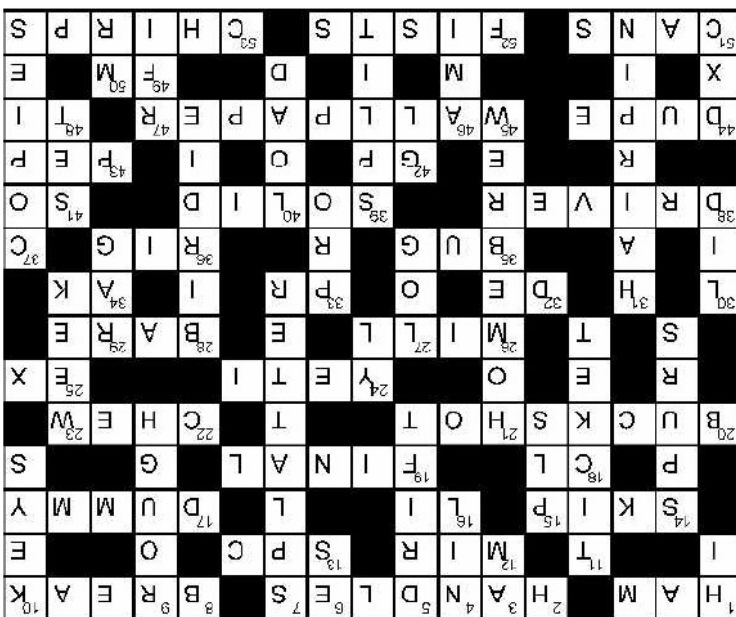
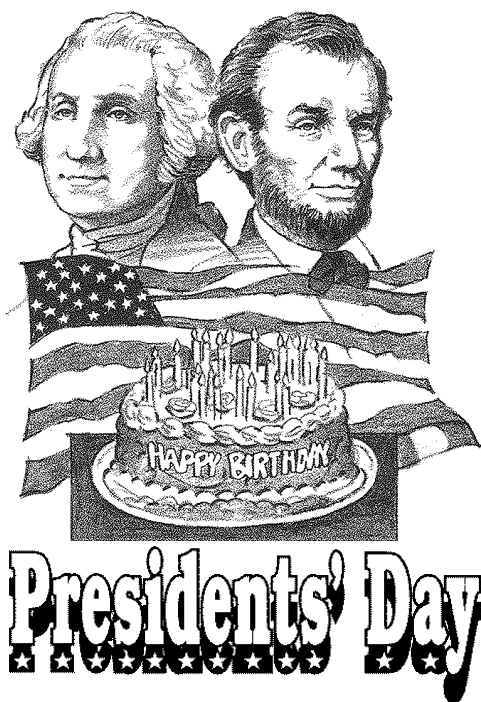
87 hams in zip 80112

Call Signs
AB0VC
AD0RN
AE0EA
AG0PAZ
AK0US
AK0UAR
AK0VGS
AK0VW
K0MMP
K0Y7E
K0RBAU
K0AUEM
K0SAGQ
K0W1G
K0B0CN
K0BLMQ
K0BLKT
K0BLJZ
K0B0ZK
K0W0PZ
K0W0B8
K0S0FE
K0B0CC
K0C0YF
K0S0L5
K0L0PV
K0W0T1
K0M0CT
K0G0EP
K0S0EG
K0R0BL
K0RTAV
K0R0MU
K0R0WQ
K0O0YD
K0R0YF
K0C0AG
K0S0SD
K0C0UP
K0H0GK
K0K0DK
K0S0FD
K0R0LJ
K0R0GJ
K0E0P
K0H0VE
K0H0V1
K0K0ZT
K0F0AP
K0H0P
K0L0FZ
K0B0CX
K0B0OU
K0B0L
K0P0V1
K0D0VA
K0S0GD
K0S0SV
K0S0V1
K0W0GT
K0V0CA
K0S0F1
K0Y0SU
K0Z0CC
K0H0OV
K0R0R8
K0K0AR
K0P0
K0P0TP
K0P0U
K0S0R1C
K0S0G1
K0W0VH
K0D0AV
K0R0GQ
K0A0CH1E
K0A0K0R
K0A0Y0M2
K0A0G0W
K0D0G0N
K0W0V0Z
K0S0FD
K0C0ALX

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N4MC provides a site titled "Vanity HQ". Access his site at <http://www.vanityhq.com>. On the main screen, click on "N4MC's Ham Locator" located on the left side of the screen. On the next screen, enter your ZIP code, map size and source data base. Choosing the "Latest FCC Data" will give more accurate information but will take longer to load.. Clicking on "Map Neighborhood" will provide a screen as shown below. Placing your cursor on any of the balloons will provide the information as shown for W6OAV.



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CLASSIFIEDS NOW ON LEARNING NET WEBPAGE

A "Classified Ads" page has been added to the Learning Net website.

Go to <http://hamlearningnet.org/classifieds.aspx> and take a look. For more information contact Becky at ham.new@gmail.com.

If you have something you need or want to sell, buy, or trade, you can run it in the RoundTable. Send an email to George at DRC_RT@comcast.net. Some formatting may be necessary to fit the ad in the space allotted.

UP COMING EVENTS

HAMCON COLORADO 2009

MAY 29, 30 & 31ST



The 2009 HamCon Colorado convention will feature both new and time-tested technologies. Although the technical sessions have not been finalized, topics you can expect will include D-Star, Satellite Operations, and a presentation on the Mars Phoenix Lander, ARES and the popular ARRL Forum.

Go to www.hamconcolorado.org for more information and current information.

PERSONAL HAM RADIO CALENDAR






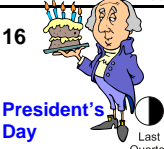


During the Elmer session of the January DRC Club meeting everyone was encouraged to create or update their personal ham radio activity calendar for 2009. The following are just some of the items they were encouraged to put into their calendar.

- February 8, 09 – ARA Swapfest, Adams County Fair Grounds
- April 4, 09 – Longmount ARC, LarcFest, Boulder County Fairgrounds
- May 29-31, 09 – Ham Con Colorado, Estes Park, CO.
- June 28-29, 09 – ARRL Field Day
- July 18, 09 – PPARA Megafest, Lewis-Palmer HS, Monument, CO
- August 16, 09 – DRC Hamfest, Jefferson County Fair grounds

You may wish to start a calendar of your own. Some other non-amateur radio dates you may want to remember are:

1. Your Anniversary (very important, if you want to live long)
2. Family member's birthdays (especially your mother-in-law)
3. Religious Holidays & Church events
4. Business Holidays
5. Special school events
6. Vacations (a personal favorite)

These are just a few dates which may be of importance to you. With out a doubt you will think of many more.

February 2009							<i>DRC Net Sunday 8:30pm Local</i>
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	
1 National Freedom Day 	2 Ground Hog Day  	3	4 <i>Learning Net</i> 7pm	5	6	7	
8 ARA Swapfest	9 	10	11 <i>Learning Net</i> 7pm	12	13	14  Valentine's Day	
15	16 President's Day  	17	18 <i>DRC Meeting</i> Elmer 6:30pm General 7:30pm	19	20	21 <i>ARRL Int'l CW DX Contest</i> Begins 0000U	
22 <i>ARRL Int'l CW DX Contest</i> Ends 2400U	23	24	25 <i>Learning Net</i> 7pm 	26	27	28	

Check www.ARRL.org for Contests and Rules!

DRC BOARD OF DIRECTORS

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DRC REPEATERS

BAND	Freq / Shift / PL Tone	Additional Information
10m	29.620mHz (-100kHz) FM	NOT IN SERVICE
6m	53.090mHz (-1mHz)	
Packet	145.05mHz<>14.105mHz	
2m	145.490mHz (-) 100Hz PL	Linked to the 70cm - 448.625mHz machine.
2m	147.330mHz (-) 100Hz PL	Local Area, Members Auto-Patch
2m	147.330mHz (-) 131.8Hz PL	NE Area Remote
1.25m	224.380mHz (-) 100Hz PL	
70cm	448.625mHz (-) 100Hz PL	Linked to the 2m - 145.490mHz machine.
70cm	449.350mHz (-) 100Hz PL	Wide area coverage with Echolink Node # 4140.

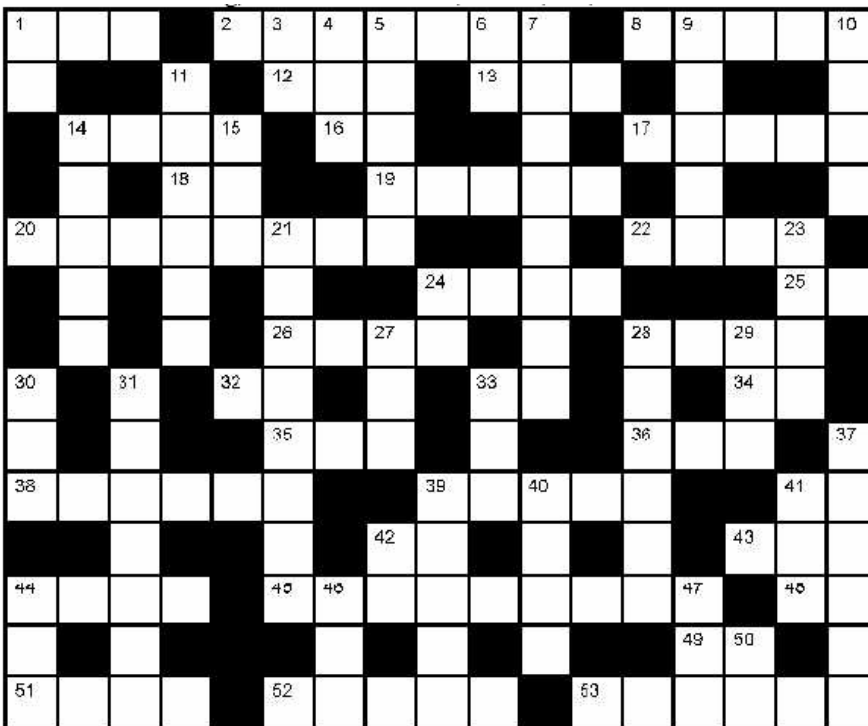
EDITOR'S NOTE

*DRC members - this is your newsletter. If there is something which is club or amateur radio related that you'd like to see as a regular feature, email suggestions to the editor. Members are the heart and sole of The Denver Radio Club, if you have an expertise or an interest in a particular segment of ham radio that you'd like to write about, you may email your submissions to DRC_RT@comcast.net. Submission deadline is the 25th of the Month. **Editor***

Jargon Hunters

Hams are make-do, use-it-up sorts of people, and that extends to the jargon of ham radio. A lot of regular English words have made their way into the Amateur Radio lexicon, only to have their original meaning unceremoniously dumped and replaced with a ham-brew concoction that only an etymologist would love. Jump right in and sling a little lingo!

NOTE: Puzzle solution on page 5.



Across

- 1. What we are
- 2. Names
- 8. Interrupt
- 12. Soviet space station
- 13. Opposite of "Mark" (abbr.)
- 14. Ionospheric hop
- 16. Lightest metal (symbol)
- 17. Simulated or passive replacement
- 18. Closing down (CW)
- 19. Output amplifier
- 20. Short, sharp audio interference
- 22. Combine with 29 Down to make a contact
- 24. Snowman from the Himalayas
- 25. Prefix meaning "no longer"
- 26. Typewriter
- 28. ___ foot means No amp
- 32. From (CW)
- 33. Abbreviation for KP4 QTH
- 34. Abbreviation for KL7 QTH
- 35. Semi-automatic manual key
- 36. Radio
- 38. Intermediate amplifier stage
- 39. Uninterrupted or perfect
- 41. Category for one operator (abbr.)
- 42. Ground plane (abbr.)
- 43. Maximum power (abbr.)
- 44. Make a second QSO
- 45. Certificates
- 48. Central American country (prefix)
- 49. Armstrong invented this mode (abbr.)
- 51. Headphones
- 52. Styles of sending CW
- 53. An unstable CW signal does this

Down

- 1. Telegrapher's laugh
- 3. Oldest voice mode (abbr.)
- 4. Failed to work the DX (abbr.)
- 5. Long-term frequency change
- 6. And (CW)
- 7. Interference from over modulation
- 9. Impure CW tone
- 10. Use these to send CW
- 11. License
- 14. Unwanted emissions
- 15. Please (CW)
- 21. Equipment you built yourself
- 23. More than a day, less than a month
- 24. Young lady (CW)
- 27. List of contacts
- 28. Spurious received signal
- 29. Combine with
- 22. Across to make a contact
- 30. Poor operator
- 31. Type of antenna match
- 33. Super Hammarlund receiver
- 37. Receives a message
- 39. Talk and listen on different frequencies
- 40. Output adjustment on tube amplifier
- 41. Emergency test
- 42. Good luck (CW)
- 44. DX'ers club (abbr.)
- 46. French friend
- 47. Interference from radiofrequency signals
- 50. Male salutation (abbr.)