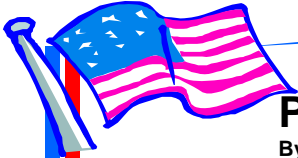


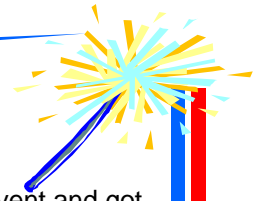


# ROUNDTABLE



### PRESIDENT'S MESSAGE

By Bryan Steinberg – KB0A



Well the big news is Field Day and the ARRL Rocky Mountain Region HamCon Colorado are both over. First, Field day was a great success although we were unable to get the Salvation Army canteen due to local fires. Despite that lose we managed to have a good time and keep everyone fed. Thanks go to Jason, AC0UA, for organization, Paul, KD0CXX, for food and drink, and Jason son Zack, KD0SGF, for his work in linking all the logging laptops via a wireless LAN. A special thanks goes to Daniel Grachev, son of Alek, AF0E, for this persistence in assuring all operators and visitors signed into the log sheet.

Unfortunately, I only had the opportunity to attend this year's ARRL Rocky Mountain Region convention for one day this year. The annual convention, was held in Estes Park, Colorado this year, the hosting rotates through the four state (Colorado, Utah, New Mexico and Wyoming) Rocky Mountain region. I had a chance to attend some of the interesting technical forums. One exciting forum discussed the growing use of the Raspberry Pi single board Linux computer being used more and more by hams. Steve, KF0RW, and Paul, WA2YZT, gave a reprise of the MotoTRBO presentation which drew a lot of attendees and received a lot of interest. I also attended the ARRL Open Forum which gave attendees a chance to pose questions to the ARRL Headquarters, Division and Section officials. Dave Sumner, K1ZZ, the ARRL CEO was part of the panel. Dave also presented the key note address at the dinner Saturday night.

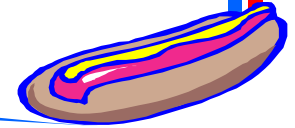
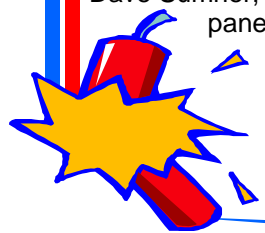
I met up with some DRC members at the event and got first hand input on one of the unique tours that took place on Friday morning. The one that seemed the most interesting was a visit to the WWVB transmitting site. Lots of photos and videos were take on this tour, so keep an eye open for a future meeting presentation that will feature these photos and details.

Our June meeting was a discussion and demo of the DMR digital technology which Steve, KF0RW didn't have a chance to complete in May. In this case the DMR technology discussed was that of Motorola's MotoTRBO. The club has one of these types of repeaters installed at Station 4 on Green Mountain.

Our July meeting will feature Lance, N1ETV, who will discuss the use of computer "dongles" to enhance your communication capabilities. Lance always does a great presentation and really investigates his topics, don't miss it!

Please, don't forget our annual Hamfest coming up on Sunday, August, the 18<sup>th</sup> at the Jeffco Fairgrounds in Golden. The reservations have been coming in and about 1/3 of the tables have been sold. The reservations really start ramping up from now until the event. So, if you want a table with a great location, or require power or have special requests, don't wait too much longer. All tables are assigned in the order the reservation was received. So check out the club hamfest web page now, print out the reservation form and send it in with your check.

Till next time...  
Bryan, KB0A



### INSIDE THE ROUND TABLE

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## JUNE MEETING - WHAT'D I MISS

By Bill – W6OAV

There were 41 attendees this month. KB0A began the meeting with introductions. Then W0GV gave an overview of Hamcon. KB0A followed with a tribute to Bud, KOHVA, a mover and shaker in the club, who passed away on June 16. He will be sorely missed. After a brief discussion about the upcoming Field Day activities, the meeting was turned over to the guest speaker, Steve, KFORW. Steve discussed MotoTRBO. His Power Point illustrated the following subjects:



- The advantages of DMR (Digital Mobile Radio):
  - Half dozen manufactures of DMR systems.
  - Superior voice quality (Forward error correction and CRC detection).
  - Longer battery life.
  - Multiple talk groups in a zone as well as multiple zones.
  - Supports GPS and texting.
  - Commercial specs: more rugged and better handling RF congestion.
  - Two voice channels per narrow band frequency (12.5 kHz).
- Use of “C-Bridge” to bind groups of 16 repeaters together to form networks.
- Description of various models and features.
- Rapid growth of networks and stations.
- Developing MotoTRBO to APRS-IS applications.

Steve finished his presentation by giving a demonstration of the MotoTRBO CPS programming software.

The meeting was then turned over to our field day coordinator, Jason, AC0UA, who demonstrated the new contest logging software to be used at Field Day. This software will definitely simplify logging and coordination between stations at the site.

## JULY MEETING ANNOUNCEMENT

Attend the July meeting and learn about dongles and their applications in ham radio. So, what is a dongle? A dongle is a small piece of hardware that attaches to a computer, TV, or other electronic device, and when attached enables additional functions such as copy protection, audio, video, games, data, or other services.



In July's monthly DRC meeting, Lance, N1ETV, will discuss and demonstrate two dongles of interest to Hams. One dongle converts over the air TV broadcasts to a laptop computer display. The second dongle operates as a Software Defined Radio using the laptop computer for control and demodulating radio signals.

## THE ROUNDTABLE ARCHIVE

Have you been looking for back issues of the RoundTable? Many are available on the DRC web site.



Scan the QR code or go to <http://www.w0tx.org/RoundtableAccessPage.htm>



## TECHNICAL COMMITTEE REPORT

By Bill – W6OAV

This report provides an overview of items discussed during the June Technical Committee meeting.

### Reconfigure the Station 4 MotoTRBO Internet link

Goal: Relocate the Internet access end of the micro-wave link to the Station 4 MotoTRBO repeater.

- **KF0RW, KB0A and WA2YZT working this issue.**

### Convert one of the DRC repeaters to narrow band FM.

Goal: Investigate the feasibility of converting the St Anthony repeater to narrow band FM.

- **KB0A will meet with the CCARC to determine the band plan for narrow band repeaters. Once the frequency is assigned, the repeater will be reprogrammed for narrow band operation. Most newer radios will operate narrow band mode.**

### Provide the TSA with an Emergency Power Re-charging System (EPRS).

Goal: Design and implement a TSA emergency cell/laptop charging station.

- **N1ETV and KA0BBQ drove a TSA canteen, and N1ETV's EPRS design, to Inter-Mountain Electric (IME). IME made measurements and ordered the required materials for the design. IME enlisted RK Mechanical to fabricate the hardware for a test EPRS. The IME then wired the system. The first EPRS was successfully fit tested to a canteen. IMS will build and donate additional EPRSs.**



### TS-940 Repair

Goal: Determine if re-soldering and cleaning connectors will fix radio.

- **K0TOR has found many cold solder joints and defective parts. He is repairing and modifying as time permits.**

### Voter System Redesign

Goal: Find a site east of Denver which will provide good coverage into the Denver Metro area and which will support the voter system

- **W0GV is still investigating possible sites.**

## Who's New In The DRC

The DRC is a very active club in the Denver metro area and we'd like to have all of our members listen for these new calls and personally to make them feel welcome.

Gene McGahey – AL7GQ

Ken Kyes – KD0VUS

Lynaire Reeh – KD0UDK

Judy Perkins – KE7ERI

Rodney Troch – K0PUF

Will Perkins – W1ZRVR

Lynaire Reeh – KD0UDK

Asa J Beck – KA0ASA

Kevin Scofield – KD0VHD

Don Clair – KB0USF

Pam Scofield – W8CZL

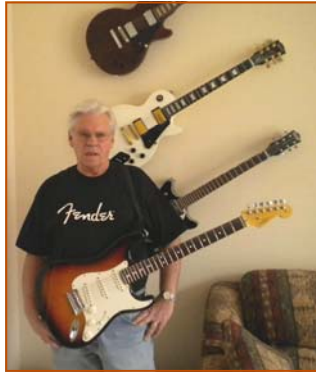
Welcome to our newest members. We have a number of activities throughout the year and we'd like very much for you to participate in serving your community. If you have questions please feel free to ask on any of the repeaters or see the contact information on the last page of this publication. Also please join us once a month at the regular club meeting on the 3rd Wednesday at 7pm. For new hams we have the Elmer session which starts at 6:30pm before the regular meeting.

More information can be found on the Denver Radio Club website at <http://www.w0tx.org>.

## THE DRC LOSES A VALUABLE MEMBER

On June 16<sup>th</sup>, the DRC lost a valuable asset. Bud Chick, K0HVA, became a silent key. Bud suffered a stroke in the afternoon from which he never recovered. Memorial services were held on June 20<sup>th</sup>.

While Bud was a relatively new ham and member of the club over the past two years he stepped up to support our many activities. Just a few months ago Bud volunteered to become our Education Coordinator and had been busy working on many other club projects. He was also very proud, as were a lot of us, of his latest accomplishment in obtaining his Amateur Extra Class license.



Bud was an accomplished musician. As with everything he did, Bud worked hard and became an expert. Bud will be missed.

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## HAMCON VE SESSION NEWS

By Tom – KC0CAG

At HamCon, the DRC VE Team, assisted by the Estes Valley Amateur Radio Club (EVARC), administered 14 tests to 13 applicants. All passed successfully. Licenses awarded were: 7 Technician, 3 General, and 3 Extra.

Included were three generations of the Elias family; Granddad James E Elias, Son Scott J Elias, and Grandson Scott J Elias II (9 years old). The elder Elias' passed the Extra exam, and the young man got his tech license.



Thanks to all the VE Team members who made the trek up to Estes Park to administer the tests:

Bill, AC0VC; Frank, N3PQ; Gerry, W0GV; Bob, KB0BS; Robert, K0RCW. Additionally, Paul, N0AH of the EVARC assisted us with the session.



## FACT OF THE MONTH

### Ultra-Flexible Antenna Wire

The 41-strand, 14 AWG, ultra-flexible antenna wire that is sold in short-lengths at high prices under various private-label brand names is PVC-insulated Machine Tool Wire (MTW). It is unusually flexible because it is composed of 41-strands of tinned, 30 AWG, soft-annealed, copper wire. Even though the copper is soft-annealed, it stretches very little, because there are so many small, twisted strands. It is manufactured for use as hookup-wire in industrial electronic equipment in accordance with U.S. National Electrical Code (NEC) specifications. It is available in 500-foot lengths from a variety of wire distributors throughout the world at prices that are significantly lower than the prices charged by antenna wire suppliers. Search for MTW 14 AWG 41/30 wire.

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## SOLAR CYCLES 24 AND 25 PREDICTIONS

By Bill – W6OAV

Solar Cycle 24, which should peak by the fall of 2013, is becoming a disappointing cycle for hams. On the average, HF propagation has been poor. So far its smoothed sunspot numbers have been less than those of past 20th Century solar cycles.

*(Continued on page 5)*

(Continued from page 4)

Present predictions indicate that Cycle 24 will be weak and propagation will be poor. Predictions are fairly reliable once a cycle is about 3 years old, where Cycle 24 is now. [Reference: Hathaway, Wilson, and Reichmann, *Solar Physics*].

Figure 1 shows the current NASA prediction for Cycle 24 and how it compares to Cycle 23.

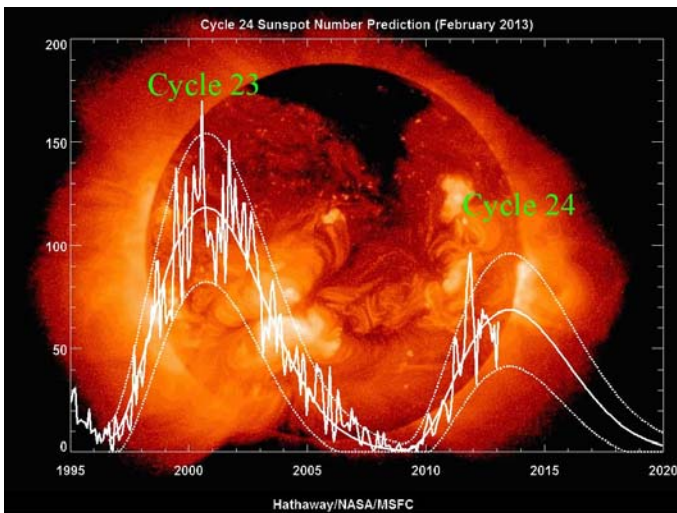


Figure 1 - Solar Cycle 24 Prediction

The predictions for Cycle 25, and the following cycles, indicate extremely weak cycles. Predictions by NASA and the University of Arizona, derived from magnetic-field measurements 120,000 miles beneath the sun's surface, suggests that Cycle 25's 2022 peak will, as shown in Figure 2, be much weaker than Cycle 24. Figure 2 also illustrates how the predicted Cycles 24 and 25 compare to past cycles.

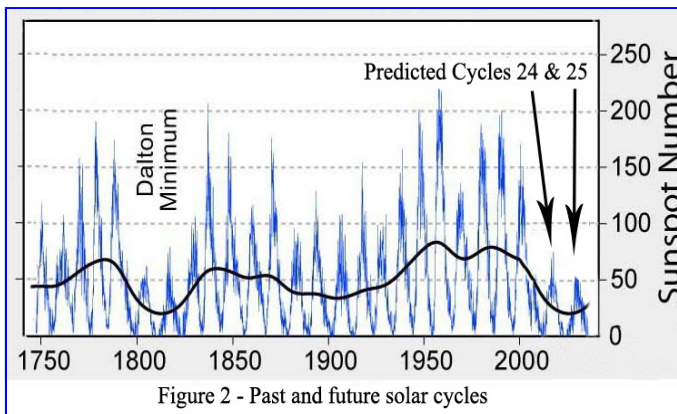


Figure 2 - Past and future solar cycles

According to a paper issued by the UK National Weather Service in January 2013, there is a 92% chance that Cycle 25 and following cycles will be as weak as the those of the 'Dalton Minimum' of 1790 to 1830. As shown in Figure 2, during that period two "mini" solar cycles with almost no sun spot activity peaked with an average of only 50 sunspots.

Based upon the various agencies' predictions, we may be in for another "Dalton Minimum" during the next few solar cycles! This means that HF propagation will be extremely poor. As with any cycle, there will be some days where a peak will occur and propagation will be good. Since these days may be few and far between, a good practice would be to monitor the various propagation web sites and "catch" those peaks.

As a side note, to read how the Dalton Minimum may adversely affect the earth's weather, Google "dalton minimum climate".

**References:**

- <http://solarscience.msfc.nasa.gov/predict.shtml>
- [http://science.nasa.gov/science-news/science-at-nasa/2006/10may\\_longrange/](http://science.nasa.gov/science-news/science-at-nasa/2006/10may_longrange/)
- <http://wattsupwiththat.com/2012/01/25/first-estimate-of-solar-cycle-25-amplitudes-smallest-in-over-300-years/>

**RUSTY TOWER BOLTS?**

"Machinist's Workshop" recently published information on various penetrating oils. The magazine reports they tested these products for "break out torque" on rusted nuts and bolts. A subjective test was made of popular penetrating oils, with the unit of merit being the torque required to remove the nut from a "scientifically rusted" bolt.

**Average torque load to loosen the nut:**

No Oil used .....	516 foot pounds
WD-40 .....	238 foot pounds
PB Blaster .....	214 foot pounds
Liquid Wrench .....	127 foot pounds
Kano Kroil .....	106 foot pounds
ATF/Acetone mix.....	53 foot pounds

The ATF/Acetone mix is a "home brew" mix of 50/50 automatic transmission fluid and acetone. Note this "home brew" released bolts better than any commercial product in this one particular test. Also, Liquid Wrench is almost as good as Kroil for 20% of the price.

## UP COMING EVENTS

### HAMFESTS & CONVENTIONS

The following are the HAMfests & Conventions which have been registered with the ARRL so far. More information can be found on [www.arrl.org/hamfests](http://www.arrl.org/hamfests).

**July 27 – PPRAA Megafest**  
 Lewis Palmer High School, Monument, CO  
<http://www.ppraa.org>

**August 18 – DRC HamFest**  
 Contact Bryan - KB0A for More info.  
<http://www.w0tx.org/hamfest.htm>

**November 2 – 2013 Fall TechFest**  
 285 TechConnect Radio Club  
 Lakewood, CO  
<http://na0tc.org>



The Denver Radio Club  
 Is an ARRL  
 Special Service Club  
 Support your hobby  
 Join the ARRL TODAY



Photos and Field Day  
 Report will be here in the  
 August Issue!

*Don't forget to join in Wednesday  
 nights at 7:30pm for the  
 DRC Learning Net!  
 145.49/448.625 machines*



**HAM RADIO OUTLET**  
 WORLDWIDE DISTRIBUTION

*HRO 12 STORE BUYING POWER WORKS FOR YOU!!*

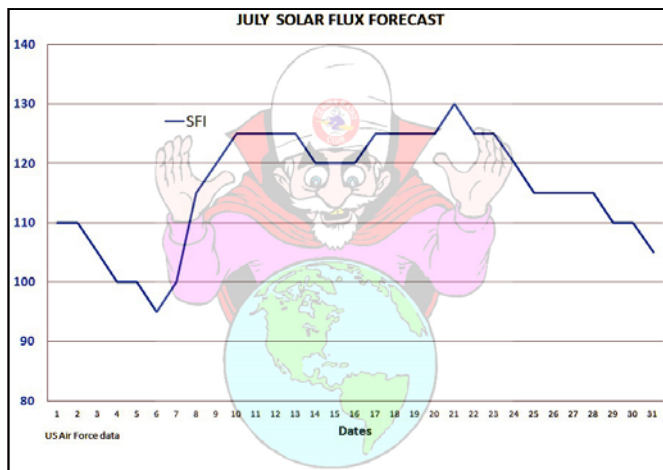
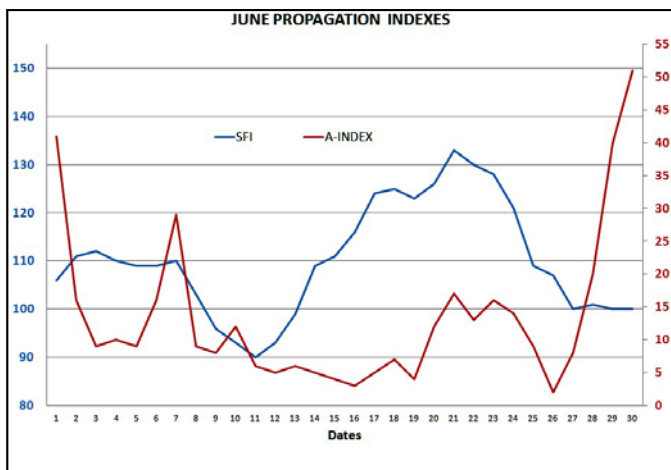
[www.hamradio.com](http://www.hamradio.com)  
 8400 E. Iliff Ave #9, Denver, CO 80231  
 303-745-7373 800-444-9476  
 24 HOUR FAX 303-745-7394  
 e-mail: denver@hamradio.com

## PAST & FUTURE PROPAGATION CONDITIONS

By Bill – W6OAV

The charts below show the Solar Flux and “A” indexes for last month and the forecast for this month’s Solar Flux index.

Refer to the September 2010 *Roundtable* for more complete information on interpreting these charts. Issues of the *Roundtable* are available at <http://www.w0tx.org/RoundtableAccessPage.htm>





# The BIG one is coming!







The Denver Radio Club Hamfest  
 Jefferson County Fair Grounds

When: Sunday August 18 - 8:30am to 1pm

## Food Fun

Lots of vendors with everything you need  
 Computers ~ Radios ~ Antennas  
 Parts + pieces  
 You name it and you'll see it here!!!

For more information!  
 contact Bryan-KBOA  
 Or visit [www.w0tx.org](http://www.w0tx.org)  
 Volunteers Needed  
[drcfest@w0tx.org](mailto:drcfest@w0tx.org)

JULY 2013						
DRC Net Sunday's at 8:30pm Local on 145.490 & 448.625 (No PL)						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2	3 <i>Learning Net</i> 7:30pm	4 	5	6
7	8 	9	10 <i>Learning Net</i> 7:30pm	11	12	13 <i>IARU</i> HF Championship Starts 1200U <i>PPRAA HAMfest</i>
14 <i>IARU</i> HF Championship Ends 1200U	15 	16	17 <i>DRC Meeting</i> Elmer 6:30pm General 7:00pm	18	19	20
21	22 	23	24 <i>Learning Net</i> 7:30pm	25	26	27
28  Parent's Day	29 	30	31 <i>Learning Net</i> 7:30pm			

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RT Assoc. Editor	W6OAV	Bill Rinker	Check Roster	
Education	OPEN	RIP Bud		
Web Master	N0LAJ	Bill Hester	Check Roster	

## DRC REPEATERS

BAND	Freq / Shift / PL Tone	Additional Information
6m	53.090MHz (-1MHz) 107.2Hz PL	
Packet	145.05MHz<>14.105MHz	
2m	145.490MHz (-) 100Hz PL	<a href="#">Linked to the 70cm - 448.625MHz machine.</a>
2m	147.330MHz (+) 100Hz PL	<b>Local Area, Members Auto-Patch Does Not TX a PL!</b>
2m	147.330MHz (+) 131.8Hz PL	<b>Not in service at this time!</b>
1.25m	224.380MHz (-) 100Hz PL	
70cm	447.825MHz (-) 100Hz PL	<a href="#">Saint Anthony's</a>
70cm	448.625MHz (-) 100Hz PL	<a href="#">Linked to the 2m - 145.490MHz machine.</a>
70cm	449.350MHz (-) 100Hz PL	<a href="#">Wide area coverage with Echolink Node # 4140.</a>
70cm	446.7875MHz (-)	<a href="#">MotoTRBO Repeater   Slot 1 – DMR-MARC WW, Slot 2 – Local</a>

## EDITOR'S NOTE

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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 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 AG0S@arrl.net. Submission deadline is the 25th of the Month. **Editor**