



ROUNDTABLE

PRESIDENT'S MESSAGE

By Bryan Steinberg – KBØA

My message a few months back asked what your ham radio plans were going to be this year. Our Technical committee has been very busy lately lining up new activities and projects for 2012. These include:

- Addressing an issue with the 147.33 repeater in Hudson, which will need to be scoped out and may require a team to help on repairs.
- The club has been offered some Digital Amateur TV transmitters and equipment. Lance, N1ETV, is leading this charge and he will need help getting this on the air.
- We will need a crew to go up Squaw mountain in the Spring to clean up some issues we are having with interference on our 449.350 repeater.
- We will also need help with Field Day at the end of June.
- We also have a continuing need for Elmer and General Meeting presentations and articles for the RoundTable.

Needless to say there are always opportunities to help out. And, you might also learn something new about this hobby while you're doing it. Don't just sit there, become active!

Thanks to Rod and Karin Thompson (KU4HP and KD4DXX) from RT Systems in Brookfield for the great presentation on their radio programming software at the February meeting.

Our March meeting will feature a presentation by Wayne Heinen, NØPOH. Wayne will discuss meteor scatter propagation. More info is in the pages of this issue of the RoundTable. Currently planned for April a presentation covering Software Defined Radio (SDR) which will include some live demos. Join us at our regular meeting location, the El Jebel Shrine in Denver. 7:30 PM for the membership meeting and 6:30 for the Elmer or Tech Committee meetings.

The 2012 club rosters are in, so if you did not pick up yours at one of the meetings look for it soon in your mailbox. Bob, KCØCZ, will be mailing them out in the next week of two.

Until next month...

Bryan – KBØA
President



*Happy
St. Patrick's
Day*

INSIDE THE ROUND TABLE

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FEBRUARY MEETING - WHAT'D I MISS

By Bill – W6OAV

There were 48 attendees at the meeting. After introductions the meeting was turned over to the guest speakers, Rod - KU4HP and Karin -KD4DXX. Rod and Karin gave a PowerPoint presentation covering their line of radio programming software produced by their company, RT Systems.

They covered the following:

- An overview of RT Systems.
- How to use the various programming screens.
- Tips when programming radios.
- Overview of the extensive help files.



There were lots of good questions from the audience.

Wayne's amateur activities have included being active with local groups including being past President of the Aurora Repeater Association, current trustee of the 224.74 (+) repeater and club Treasurer. Along with his wife Joan - KB0YRX, he published the Rocky Mountain VHF+ Newsletter and is active with that organization promoting Weak Signal activity on Colorado's Front Range as well as an avid VHF/UHF contester. He has a Two Meter VUCC and a Six Meter VUCC with over 450 grids confirmed and has over 400 grids worked towards the Fred Fish Memorial Award. Currently he also serves as Treasurer of the Colorado Council of Amateur Radio Clubs and is the Administrative and Finance Officer for Arapahoe County ARES.

FEBRUARY TECH COMMITTEE REPORT

By Bill – W6OAV

This report provides an overview of items discussed during the February Technical Committee meeting. Comments on items are red.

449.35 Interference

Goal: Identify intermittent interference:

The DRC is working with several other repeater groups to identify the problem. A project will be implemented this spring to clean up and possibly reconfigure the antenna systems.

ST. Anthony Repeater

Goal: Improve coverage if necessary:

- N0LAJ and W6OAV have profiled the theoretical coverage. Club members will take measurements to compare theoretical and actual coverage's.
- If actual coverage is worse than theoretical coverage, the following will be implemented:
 - Replace the present antenna with a X30 omni vertical.
 - WWOLF will make up a coax jumper for the new antenna.
 - K0HTX will supply the necessary ladder when the antenna is replaced.

Tech Committee members were again reminded to record measurements when they are in different locations. These measurements will be compared to the theoretical coverage.

(Continued on page 3)

MARCH MEETING ANNOUNCEMENT

By Bill – W6OAV

Interested in learning how to setup and use a soundcard application to communicate with other hams by bouncing signals off of ionized meteor tails? If so, plan to attend the March DRC meeting. Wayne - N0POH, will show how to setup and operate the WSJT application. He will also present a reenactment of an actual 6 meter contact using the FSK441 mode that is based on the saved audio files of that contact.

Wayne was licensed in 1991, after many years of activity as a Short Wave Listener, AM Broadcast Band DX'er and scanner enthusiast. He currently holds an Amateur Extra Class License. He has been an active member of the National Radio Club, the World's oldest and largest all AM Broadcast Band DX organization for over 40 years, and is currently the Chairman of the Board of Directors and editor of the National Radio Club AM Radio Log.

(Continued from page 2)

Club ATV

Goal: Investigate possibility of the DRC building a digital Amateur TV (ATV) system:

- N1ETV will make a presentation to the committee. N1ETV presented an overview of the transmitting system and the equipment required for reception of the video signal.

The tech committee discussed the various uses that can be made with the system.

The board will discuss the possibility of the DRC installing the system.

New MotoTRBO Repeater

Goal: Build a new MotoTRBO repeater:

- KB0A has submitted a Request for Coordination (RSC) to the CCARC for a pair of MotoTRBO frequencies to be used by the club. The RSC specifies the St. Anthony Hospital campus as the site.
- Develop a project plan.

KB0A has received the RSC approval.

TS-940 Failure

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

- K0TOR has re-soldered many bad connections and replaced several bad solid state devices. He is now troubleshooting the built in auto tuner.

K0TOR is making progress as he "wades" through several complex circuit boards that comprise the auto tuner.

Climate control at Station 4

Goal: Design and install a climate control system to prevent excessive heat buildup.

- KB0A and WW0LF have designed and accumulated equipment to be installed this spring.

KB0A described the climate control system to be installed this spring:

- Exhaust fans in the upper air vent.
- An input vent near the floor.
- Small thermostatically controlled fans on the back of the equipment racks.

Repair of the TS 430 power supply

Goal: Repair the TS430 power supply:

W9UW has ordered parts to replace the failed components and to add a crowbar circuit.

SAFE WI-FI COMPUTING

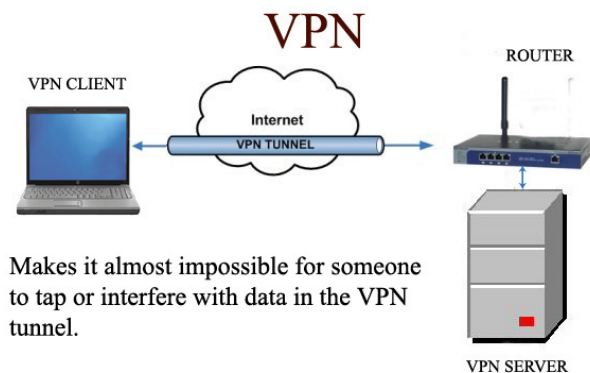
PART 6

By Bill – W6OAV

Part 6 discusses and illustrates the only really secure way to operate on a home or hotspot Wi-Fi. Part 6 ends with overall conclusions.

VIRTUAL PRIVATE NETWORK (VPN)

There is only one virtually hacker free method. The method uses a VPN.



A VPN is a highly encrypted logical channel, or tunnel, through the internet. The tunnel extends from the inside of the station to the inside of a VPN server. The station's data is encrypted before it is entered into the Wi-Fi network and decrypted once it arrives at the VPN server. The same is true from the VPN server to the station. It is as if the remote station is on the same local network as the VPN server. VPNs almost make it impossible for hackers to tap into the data stream.

There are free VPN services and fee based VPN services. The free VPN services are usually not as fast as the fee based VPN services and one must occasionally look at ads. Examples of free VPN services can be found at:

<http://hotspotshield.com> & <http://www.anchorfree.com>

When relying on the security of a VPN, one must insure that the station does not have a Rootkit installed.

(Continued on page 4)

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CONCLUSIONS – HOTSPOTS

1. Use a VPN.
2. Insure all station and password security settings discussed earlier in this document are implemented.
3. Insure that the operating system and the antivirus are up to date.
4. Assume someone is monitoring or attempting to hijack your station.
5. Verify the SSID of a hotspot Wi-Fi with the hotspot administrator, especially when several hotspot Wi-Fi's display on the station's "Networks Available" list.
6. If not using a VPN, NEVER transmit sensitive data such as passwords, Social Security Numbers, etc.
7. Make your email password is unique only to your email account. People often use their email password as passwords to other sensitive accounts. Hackers know this fact.
8. It is best to change your email password when you arrive home after accessing your email at a Wi-Fi hotspot.

CONCLUSIONS – HOME NETWORKS

1. Ensure all station and Wi-Fi security settings discussed earlier in this document are implemented.
2. Insure that the operating system and the antivirus are up to date.
3. Install AirSnare, a free application that looks for unexpected MAC addresses on your Wi-Fi network, monitors DHCP requests and notifies you accordingly.
4. Periodically open your router's administration page and access the DHCP Client table (Discussed in Part 2 of this document). Check for unauthorized wireless devices connected to your network.

FINAL COMMENT

I hope this document has helped Roundtable readers to safely use Wi-Fi systems. I've done a lot of research on this subject but by no means am I an expert. If any reader has more to add to this subject I would be very happy to receive a response.

RELIABILITY FOR "TECHIES"

Submitted By Bill – N0LAJ

Many of us "techies" have seen the number of "9s" rating, which refer to the long term operational reliability of some item of equipment - such as hard drives or UPS power supplies. But what do these "nines" really mean, in terms of continuous up-time of equipment service?

Here is a chart of the "9s" reliability and the expected down time (failure outage) per year:

| Reliability | OK For | Expected Outage/Yr. |
|-------------|-------------|---|
| THREE 9s | 99.9% | Homes 9 Hours per Year |
| FOUR 9s | 99.99% | Factories 59 Minutes/Year |
| FIVE 9s | 99.999% | Hospitals 5 Minutes/Year |
| SIX 9s | 99.9999% | Banks 32 Seconds/Year |
| NINE 9s | 99.9999999% | Digital Markets 30 Milliseconds/Year |

Thanks to STECH Inc. for this information.

SOLDERSMOKE PODCAST

By Bill – N0LAJ

If you like to "homebrew" your own circuits and rigs, then I recommend that you give a listen to Bill Meara's, (N2CQR, CU2JL, and M0HBR) "Solder Smoke" podcast.

In his career in the U.S. Foreign Service, Bill has traveled, lived, and operated ham radio in many different parts of the world. He loves to build his own rigs, computers, and telescopes. This combination of experience and interests provides Bill with a wealth of material for his interesting monthly "homebrewed" podcast.

You can download free "Solder Smoke" episodes, in .mp3 format, from his podcast archive website (<http://soldersmoke.com>), or from iTunes as well.

“If a cluttered desk is a sign of a cluttered mind, of what, then, is an empty desk a sign?”
Albert Einstein

Payroll Tax Bill Includes Provision for Amateur Radio Study

Submitted By Steve Cohan

Joint Communications Task Force Coordinator

02/17/2012

A bill that passed both the House and the Senate today includes a provision for a study of the uses and capabilities of Amateur Radio Service communications in emergencies and disaster relief.

If passed into law, Section 6414 (see below for text) of the *Middle Class Tax Relief and Job Creation Act of 2012* mandates the completion of the study, with a report of the findings to the House Committee on Energy and Commerce and the Senate Committee on Commerce, Science, and Transportation. This study would "use the expertise of stakeholder entities and organizations" to recommend how to best use radio amateurs in emergency communications and disaster relief efforts, and how to best utilize the Amateur Radio Service in coordination with the federal government in these efforts. In addition, the study would also discuss the effects of unreasonable or unnecessary private land use restrictions on residential antenna installations and recommend ways to remove such impediments.

The bill passed the House with a 293-132 victory. In the Senate, it passed by a 60-36 vote. According to the "[Los Angeles Times](#)", President Obama is expected to sign the bill "quickly."

Section 6414: Study on Emergency Communications by Amateur Radio and Impediments to Amateur Radio Communications

- (a) **In General:** Not later than 180 days after the date of the enactment of this Act, the Commission [FCC], in consultation with the Office of Emergency Communications in the Department of Homeland Security, shall:
 - (1) complete a study on the uses and capabilities of Amateur Radio Service communications in emergencies and disaster relief; and
 - (2) submit to the Committee on Energy and Commerce of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a report on the findings of such study.
- (b) **Contents:** The study required by subsection (a) shall include:
 - (1)(A) a review of the importance of emergency Amateur Radio Service communications relating to disasters, severe weather, and other threats to lives and property in the United States; and
 - (B) recommendations for:
 - (i) enhancements in the voluntary deployment of Amateur Radio operators in disaster and emergency communications and disaster relief efforts; and
 - (ii) improved integration of Amateur Radio operators in the planning and furtherance of initiatives of the Federal Government; and
 - (2)(A) an identification of impediments to enhanced Amateur Radio Service communications, such as the effects of unreasonable or unnecessary private land use restrictions on residential antenna installations; and
 - (B) recommendations regarding the removal of such impediments.
- (c) **Expertise:** In conducting the study required by subsection (a), the Commission shall use the expertise of stakeholder entities and organizations, including the Amateur Radio, emergency response, and disaster communications communities.

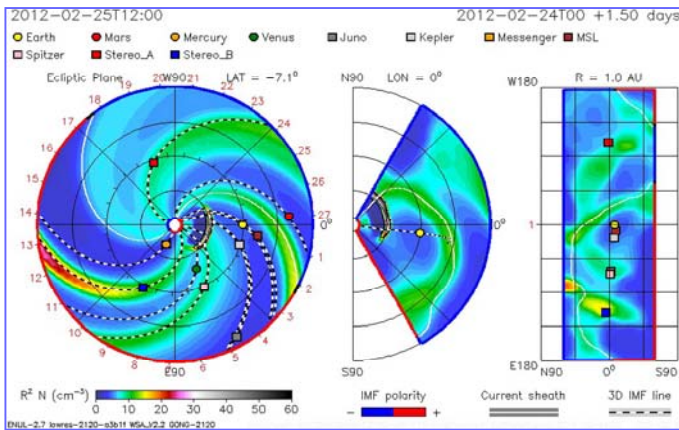
SOLAR UPDATE

CME TARGETS EARTH, MARS: A coronal mass ejection (CME) launched from the sun on Feb. 24th appears set to hit both Earth and Mars. According to analysts at the Goddard Space Weather Lab, the cloud should reach Earth today, Feb. 26th around 1330 UT, followed by Mars two days later.

The cloud's impact could spark a G2-class geomagnetic storm, so high latitude sky watchers should be alert for auroras. **Aurora alerts:** [text](#), [voice](#).

If the forecast is correct, the CME could also hit NASA's Mars rover Curiosity on Feb. 27th. The rover, en route to the red planet onboard the Mars Science Lab spacecraft, is equipped with a radiation sensor that could detect energetic particles accelerated by the CME's passage. Indeed, this has happened before.

The CME was hurled into space by a filament of magnetism, which rose up from the sun's north-eastern limb and erupted on Feb. 24th. Although much of the cloud headed north, out of the plane of the planets, the cloud's lower edge will dip down low enough to intersect Earth, Curiosity, and Mars.



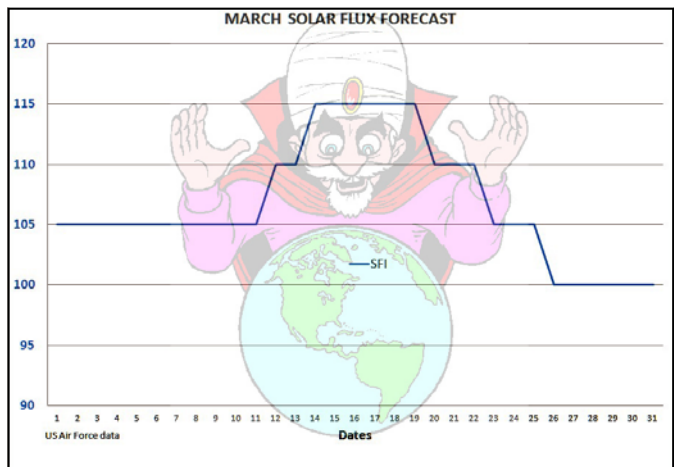
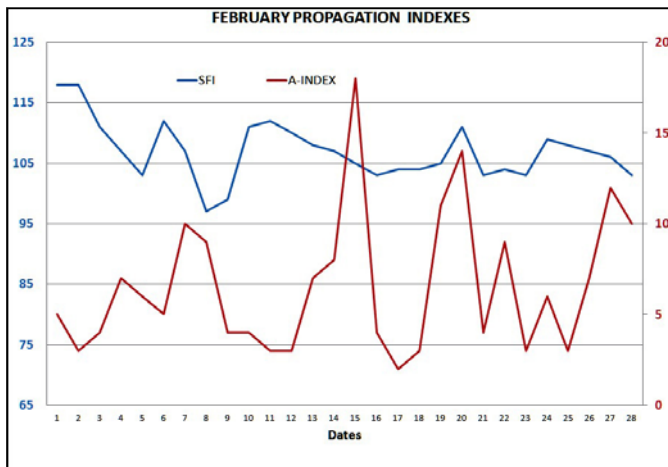
PAST & FUTURE PROPAGATION CONDITIONS

By Bill – W6OAV

This article provides two charts: the propagation conditions for last month and a forecast of next month's propagation conditions.

USING THE PROPAGATION INDEX CHART

Note two things on the chart: the trend of the SFI and A indexes and the date of largest SFI peak. The trend of the SFI shows the progress of the solar cycle during the past month. The SFI peak allows the rough forecasting of the recurrence of SFI peak in the next month. In order to "forecast" the next SFI peak, note the date when the SFI peak occurred and project out to about 28 days. Due to the sun's 28 day rotation, the SFI peak will often reoccur in about 28 days. The reason is because the sun spots causing the SFI peak move with the sun's rotation and face the earth every 28 days. This 28 day repetition will become more pronounced as the solar cycle improves. Refer to the September 2010 *Roundtable* for more complete information on the "SFI" and "A" indexes.



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UP COMING EVENTS

HAMFESTS & CONVENTIONS

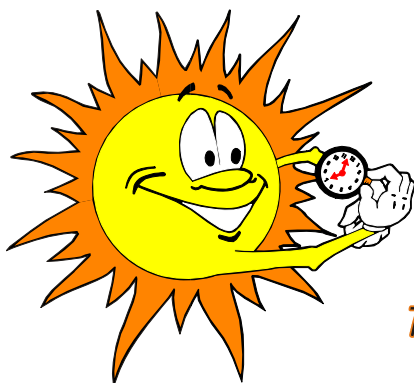
The following are the HamFests & Conventions which have been registered with the ARRL so far. More information can be found on www.arrl.org/hamfests.

April 7 – Longmont ARC, LarcFest
Boulder County Fairgrounds Longmont, CO

July 14 – PPRAA Megafest
Lewis Palmer High School Monument, CO

June 23-24 – ARRL Field Day
More information later.

August 19 – **DRC HAMfest**
More information later.



**DON'T FORGET
DAYLIGHT
SAVINGS TIME!
AND SPRING IS
JUST AROUND
THE CORNER TOO!**

DID YOU KNOW?

Roundtable Archive

- Past issues of the Roundtable in PDF format are available on the DRC's website, www.w0tx.org.
- If you own a Nook Tablet, Kindle Fire, or iPad you can download and read the RoundTable anywhere. Save the most recent RT and using your Wi-Fi connection download to your personal file. If you are on the move and using a Wi-Fi hotspot go to www.w0tx.org.

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| MARCH 2012 | | | | | | | <i>DRC Net Sunday's at 8:30pm Local on 145.490 & 448.625 (No PL)</i> | | | | | | |
|--|--------|-------------------------------------|---|----------|---------------------|--|--|--------|---------|-----------|----------|--------|----------|
| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday | Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
| | | | | 1 | 2Dr. Seuss Birthday | 3 ARRL Int'l DX Contest Phone Begins 0000U | | | | | | | |
| 4 ARRL Int'l DX Contest Phone Ends 2400U | 5 | 6 | 7 Learning Net 7:30pm | 8 | 9 | 10 | | | | | | | |
| 11 DAYLIGHT SAVINGS TIME | 12 | 13 | 14 Learning Net 7:30pm | 15 | 16 | 17 | | | | | | | |
| 18 | 19 | 20 FIRST DAY OF SPRING | 21 DRC Meeting Elmer 6:30pm General 7:30pm | 22 | 23 | 24 | | | | | | | |
| 25 | 26 | 27 | 28 Learning Net 7:30pm | 29 | 30 | 31 | | | | | | | |

DRC BOARD OF DIRECTORS

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| Web Master | N0LAJ | Bill Hester | Check Roster | |

DRC REPEATERS

| BAND | Freq / Shift / PL Tone | Additional Information |
|--------|---------------------------|---|
| 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 Does Not TX a PL! |
| 2m | 147.330mHz (-) 131.8Hz PL | NE Area Remote Does Not TX a PL! |
| 1.25m | 224.380mHz (-) 100Hz PL | |
| 70cm | 447.825mHz (-) 100Hz PL | Saint Anthony's |
| 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

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