



# ROUNDTABLE

### PRESIDENT'S MESSAGE

By Robert White – K0RCW

#### Greetings

As I write this, fall is fast approaching, the kids (or grandkids) are back in school, and the leaves are making subtle changes and will blossom into full color before too long. Indeed we are lucky to live in such a beautiful state.

The changing season also means that our annual election meeting will roll around again in just a few short weeks. We'll have a brief technical presentation, a brief acknowledgment presentation to recognize those members who have contributed so much to our club, and finally elections.

This will be my final president's column in the Roundtable. It has been an amazing and interesting year. We've installed a new repeater, made progress on our voter system, installed a new setup for the Salvation Army, and had a very successful field day and an extraordinary hamfest among many other things. It's been rewarding and challenging. The DRC works tirelessly to meet the needs of our served agencies as well as to provide quality programming for its members. I do not think I've ever worked with a more dedicated group of people.

That said, we have noticed that a lot of the usual suspects seem to be the ones who step up again and again to serve in office, on the board, or in the community. I hope, as you read this that you will consider running for an active, elected position so we can continue to bring new blood into the organization and help us to continue to grow and change.

I won't misrepresent it and tell you that it's easy work or that people won't make your life difficult some-times. At times I kept hoping they would double my pay. (Before you get on the horn, that number is \$0) However, I have found the experience rewarding, particularly getting to know several of you in greater depth. The experience has given me a great appreciation for our unique organization.

At our election meeting four board positions are up for election. We also have a great need to fill the shoes left by our retiring membership chair, Bob Proctor - KC0OUQ who is stepping down from that position. If you have strong organization skills, are responsible, and can attend our monthly meetings we really need you to make yourself known and we will assist you in an orderly transition.

There are many other ways you can help us throughout the year from helping to monitor the city of Lakewood's and Wheatridge's civil defense sirens to helping to plan for and set up field day and the hamfest. Our club is only as good as the effort and energy we put into it. It is encouraging to see the DRC club grown and thrive at a time when other clubs around the country are often folding up and going the way of the Edsel. I look forward to see you at future club events and thank you for your support during my tenure.,

Until then, 73 and good DX.

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## AUGUST MEETING - WHAT'D I MISS

By Bill – W6OAV

There were 52 attendees this month. After introductions, the meeting was turned over to Doug, N4ATA.

Doug gave a tutorial and then a live demonstration of Winlink 2000. He had previously setup a packet station in the meeting room for the demonstrations.



The Power Point presentation covered:

- Over view of Winlink 2000 which provides email via ham radio.
- Definition of the network components (CMS, RMS).
- Definition of Clients: Airmail, Winpack, Telnet.
- Methods of accessing the system.
- Obtaining a Winlink address.
- Accessing and using Winlink.

After the presentation, Doug demonstrated accessing Winlink 2000 using Winpack, Telnet and Airmail via his packet station. He sent and received several emails with several attendees who had Wi-Fi equipped laptops. Doug also covered setting up the various clients for Winlink operation.

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## SEPTEMBER MEETING PRESENTATION

This month's presentation will be short and informal due to the DRC officer elections taking place at the meeting. The presentation will be an antenna Q and A session. Bill, W6OAV, will chair the session. Bill has studied, designed and built many types of antennas since he became a ham back in the mid 50's. If he can't answer your question directly, he will research and get back to you. So, give the subject some thought and bring any questions you may have to the meeting.



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## TECHNICAL COMMITTEE REPORT

By Bill – W6OAV

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

### Voter System

Goal: Design, build and test a 147.33 MHz voter system consisting of a central voter site and one remote site (Phase 1):

There is a long noise burst at times when a station stops transmitting. Tests revealed that when a station brings up both the local and remote sites the hang time on the remote is longer and the carrier noise from the link is then transmitted by the local repeater. Time permitting, the remote link antenna will be adjusted for a stronger signal at the local site and the audio systems will be balanced.

### ST. Anthony Repeater

Goal: Investigate the poor transmit and receive coverage:

KB0A, WN0EHE, and WW0LF analyzed system performance. A high end antenna analyzer indicated an SWR of 1.2 to 1 on both sides of the duplexer. Power measurements showed 20 watts out of duplexer and less than a watt returned from the antenna. Receiver sensitivity checked good. All specs were met.

The problem appears to be with the antenna's location. The bottom two hairpins are very close to the roof metal which may be distorting the radiation pattern. The plan is to raise the antenna further from the roof. Extra coax will be needed. If that doesn't improve the coverage, a omni will be substituted for the present antenna.

All tech committee members were asked to make receive S Meter measurements over several days. These will be used as bench marks when the antenna work takes place.

### Noise at Station 4

Goal: Reduce the power line noise affecting all systems.

WW0LF is aware of the problem and will initiate contact with Xcel as he did several years ago when the problem existed then.

(Continued on page 3)

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### Upgrade 448.625 Repeater

**Goal:** Replace the FM transceiver with a MotoTRBO unit:

Plans are being made to replace the S Com 7K with the S Com 7330 also providing new digital communications technology to replace the existing UHF analog transceiver. The project will involve buying and installing a Motorola MotoTRBO unit and writing a program for the 7330. The two repeaters will still be linked via the S Com 7330 controller; however you will need a MotoTRBO transceiver to access the UHF side of the linked repeater.

### TS-940 Failure

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

K0TOR is troubleshooting as time permits.

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## IN THE REAR VIEW MIRROR LOOKING AT THE 2011 DRC HAMFEST

By Bryan – KB0A

Once again the DRC Hamfest was the talk of the town. If you didn't attend it was held on Sunday, August 21st this year and it was a great event. Participation from both vendors and attendees was up from previous years, allowing us to achieve an all-time attendance high of over 450 people. We also sold all 93 of our tables before the pre-registration deadline, over one week before the event.



With the orders that continued to come in after we sold out, the number of calls I received in the days before the event and the requests for tables at the hamfest we may be even bigger next year. We had some great door prizes including 2 Wouxam Dual Band HTs, a Yaesu VHF Mobile, along with the ARRL and Ham Radio Outlet provided goodies.

The VE testing, led by Robert – K0RCW saw 5 new Techs, 1 upgrade to General and an Amateur Extra upgrade. We didn't have as many technical forums as we had in the past, so we will need to work on this for next year. But, thanks go to Paul – WA2YZT, and Steve – KF0RW, who did a session on MotoTRBO which was very well attended and received.

Once again I received a lot of comments at this year's event from vendors and attendees. Thankfully, most were very favorable. I also received a few suggestions and recommendations for making the event work better. I will strive to incorporate all suggestions in the future events.

Finally, I want to thank the club members who showed up at 6:30 AM on Sunday morning to help us set up and those who stayed after the event to assist in the clean-up. While there were too many members assisting, and I really don't want to offend anyone by forgetting to mention them in an attempt to list them all. However, I would like to mention just a few special efforts by Gerry – W0GV, and his friend Cathy for taking care of buying everything for and running the kitchen; Robert – K0RCW, for organizing the VE Testing session and team; Bill – W6OAV, for assisting with the technical forum agenda; Jim – K0TOR, along with his wife, Doreen, and grandson; Chad – KC0WWW, for handling the door and the finances. And last, but not least, Dave – W0GN, for once again taking care of the vendor check-in logistics for me. Also, thanks for all those members who bought tables or attended the event making it another great one. Mark your calendar for next year's Denver Hamfest, which will be on Sunday, August 19th 2012 once again at the Jeffco Fairgrounds.

**We want to say a special THANK YOU to Bryan – KB0A for his outstanding effort in coordinating and running the DRC Hamfest. Not many members know that he is the one who has faithfully put the Hamfest together for a number of years now, so when you see Bryan tell him THANKS.**



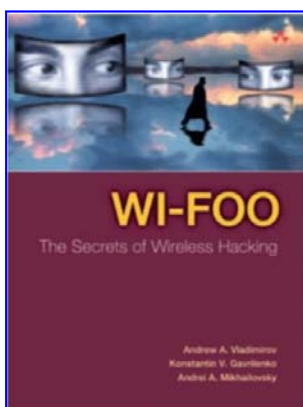
# SAFE WI-FI COMPUTING

By Bill – W6OAV

## Introduction

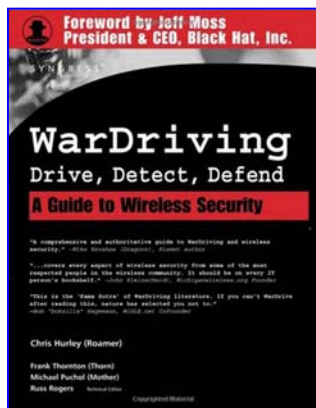
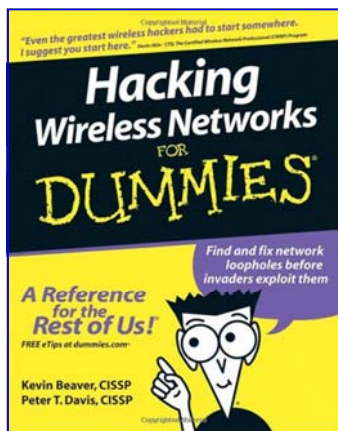
After I finished my “Safe Wi-Fi Computing” talk at our club meeting a couple of months ago, several attendees asked if I would document the talk. So...here goes.

Using Wi-Fi, both at home and in Wi-Fi hotspots, is a way of life these days. Unfortunately, Wi-Fi exposes users to identity theft and capture and control of the user’s computer, especially in Wi-Fi hotspots. There is only one way to completely protect one’s self. This article provides information which will help the reader understand how to configure and to operate securely over Wi-Fi.



So, why worry about Wi-Fi security? Well, not only does the Internet contain a wealth of Wi-Fi hacking information, there are many books out on this subject.

Hacking is so prevalent there is even a “Hacking for Dummies” publication!



Stop in Barnes & Noble or Borders and you will find a monthly hacker’s magazine called 2600. Then, there is War Driving. **Figure 3.**

So, what is War Driving? War Driving is a hacker activity where hackers drive around with very sophisticated hacking applications and high gain antennas that can detect Wi-Fi networks up to 25 miles distance. These hackers not only look for unsecured Wi-Fi networks but most also have the ability to hack into secured Wi-Fi networks as well. Then, there are the War Driving clubs where members gather to brag about how many secured Wi-Fi networks they had hacked!

To give an idea of how ramped Wi-Fi hacking is becoming, consider this. According to several computer magazines, a free hacking application called Firesheep has been downloaded over a million times. Think the downloaders are doing this for fun?

The purpose of this article is to provide information on how to secure a home Wi-Fi network and how to configure a computer for secure operation in Wi-Fi hotspots. The latter can be a very dangerous place to operate. This six part article will cover the following topics:

- Part 1 – How Wi-Fi works, giving a better understanding of how the security measures function.
- Part 2 – Configuring and monitoring home Wi-Fi networks for best security.
- Part 3 – User guide for configuring Win7 for secure operation in Wi-Fi hotspots.
- Part 4 – User guide for configuring WinXP for secure operation in Wi-Fi hotspots.
- Part 5 – Various ways hotspot hackers can attack your computer.
- Part 6 – Defeating hackers with the only secure Wi-Fi configuration.

## Definitions

Before we start, we need to define a few acronyms which will appear throughout this article. Make sure you understand them or keep this part of this publication as you read the upcoming parts.

**Wi-Fi** – A local area network that uses high frequency radio signals to transmit and receive data over distances of a few hundred feet. Uses Ethernet protocol.

**SSID** – The name of the Wi-Fi network.

**AP** – An access point (AP), usually a router, controls access between the Internet and Wi-Fi equipped stations (laptops, computer towers, etc).

**Station** – A Wi-Fi equipped device, usually a laptop that communicates with an AP.

**IP Address** – A unique number which identifies an AP or a station and its location on the network.

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**MAC Address** – A unique identity code built into an AP or a station's network interface card.

**DHCP** – A process where an AP dynamically assigns IP addresses to stations as they log onto a wired or a Wi-Fi network.

**Ad-Hoc** – A network with no AP. Stations communicate directly with each other in a peer-to-peer manner (P2P).

**Infrastructure** – A network where the stations communicate only to an AP.

**WPA / WEP** – Security protocols for wireless networks that encrypt transmitted data.

**Cookie** – A small text file which contains a unique ID tag, placed on your station by a website. The website saves a complimentary file with a matching ID tag. When you revisit the site days or weeks later, the site can recognize you by matching the cookie on your station with the counterpart in its database.

**Wi-Fi Profile** – A list of a particular network's parameters (SSID, encryption, password, speed, etc) from a previous connection saved in a Wi-Fi equipped station.

**Wi-Fi Profile list** – A list of network profiles from previous connections saved in a Wi-Fi equipped station.

## DISCOVERED: STARS AS COOL AS THE HUMAN BODY

By Dr. Tony Phillips/ Credit: Science@NASA

**August 24, 2011:** Scientists using data from NASA's Wide-field Infrared Survey Explorer (WISE) have discovered six "Y dwarfs"-- star-like bodies with temperatures as cool as the human body.



*This artist's conception illustrates what a Y dwarf might look like. Y dwarfs are the coldest star-like bodies known, with temperatures that can be even cooler than the human body.*

Astronomers hunted these dark orbs for more than a decade without success. When viewed with a visible-light telescope, they are nearly impossible to see. WISE's infrared vision allowed the telescope to finally spot the faint glow of a half dozen Y dwarfs relatively close to our sun, within a distance of about 40 light-years.

"WISE scanned the entire sky for these and other objects, and was able to spot their feeble light with its highly sensitive infrared vision," says Jon Morse, Astrophysics Division director at NASA Headquarters in Washington.

The Y's are the coldest members of the brown dwarf family. Brown dwarfs are sometimes referred to as "failed" stars. They are too low in mass to fuse atoms at their cores and thus don't burn with the fires that keep stars like our sun shining steadily for billions of years. Instead, these objects cool and fade with time, until what little light they do emit is at infrared wavelengths. The atmospheres of brown dwarfs are similar to those of gas giant planets like Jupiter, but they are easier to observe because they are alone in space, away from the blinding light of a parent star.

So far, WISE data have revealed 100 new brown dwarfs. Of these, six are classified as cool Y's. One of the Y dwarfs, called WISE 1828+2650, is the record holder for the coldest brown dwarf with an estimated atmospheric temperature cooler than room temperature, or less than 80 degrees Fahrenheit (25 degrees Celsius).



*WISE 1828+2650, the coldest brown dwarf known so far, is denoted by a green dot in very center of this infrared image. The chilly star-like body isn't even as warm as a human body, at less than about 80 degrees Fahrenheit.*

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"The brown dwarfs we were turning up before this discovery were more like the temperature of your oven," says Davy Kirkpatrick, a WISE science team member at the Infrared Processing and Analysis Center at Caltech. "With the discovery of Y dwarfs, we've moved out of the kitchen and into the cooler parts of the house."

The Y dwarfs are in our sun's neighborhood, from approximately nine to 40 light-years away. The Y dwarf approximately nine light-years away, WISE 1541-2250, may become the seventh closest star system, bumping Ross 154 back to eighth. By comparison, the star closest to our solar system, Proxima Centauri, is about four light-years away.

"Finding brown dwarfs near our sun is like discovering there's a hidden house on your block that you didn't know about," says Michael Cushing, a WISE team member at JPL. "It's thrilling to me to know we've got neighbors out there yet to be discovered. With WISE, we may even find a brown dwarf closer to us than our closest known star."

Once the WISE team identified brown dwarf candidates, they turned to NASA's Spitzer Space Telescope to narrow their list. To definitively confirm them, the WISE team used some of the most powerful telescopes and spectrometers on Earth to split apart the objects' light and look for telltale molecular signatures of water, methane and possibly ammonia. For the very coldest of the new Y dwarfs, the team used NASA's Hubble Space Telescope. The Y dwarfs were identified based on a change in these spectral features compared to other brown dwarfs, indicating they have a lower atmospheric temperature.

For more information about WISE, visit: <http://www.nasa.gov/wise>

*A man should look for what is,  
and not for what he thinks should be.*  
*Albert Einstein*

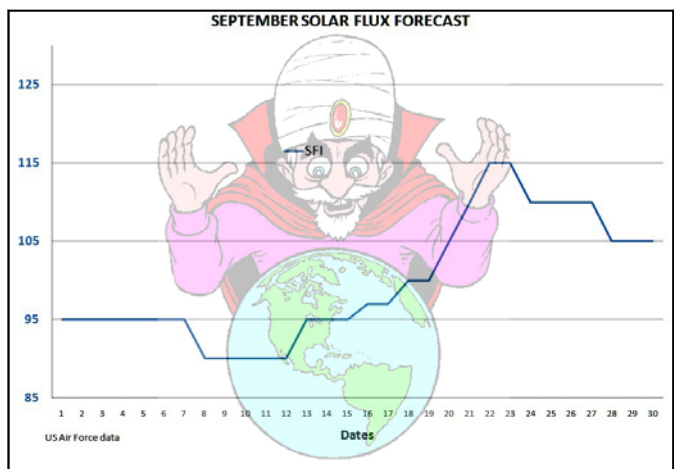
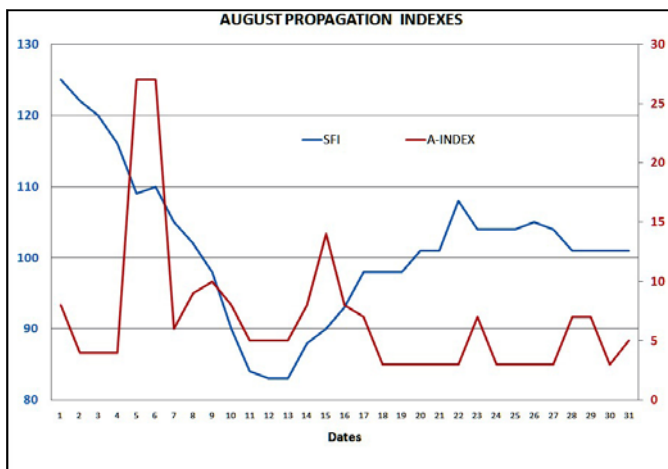
## PAST & FUTURE PROPAGATION CONDITIONS

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 reoccurrence 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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### Are you ready for WINTER Driving?

Here are some suggestions from FEMA you may want to follow before the first snow flies.

#### Prepare your car

- **Check or have a mechanic check the following items on your car:**
  - ◊ **Antifreeze levels** - ensure they are sufficient to avoid freezing.
  - ◊ **Battery and ignition system** - should be in top condition and battery terminals should be clean.
  - ◊ **Brakes** - check for wear and fluid levels.
  - ◊ **Exhaust system** - check for leaks and crimped pipes and repair or replace as necessary. *Carbon monoxide is deadly and usually gives no warning.*
  - ◊ **Fuel and air filters** - replace and keep water out of the system by using additives and maintaining a full tank of gas.
  - ◊ **Heater and defroster** - ensure they work properly.
  - ◊ **Lights and flashing hazard lights** - check for serviceability.
  - ◊ **Oil** - check for level and weight. Heavier oils congeal more at low temperatures and do not lubricate as well.
  - ◊ **Thermostat** - ensure it works properly.
  - ◊ **Windshield wiper equipment** - repair any problems and maintain proper washer fluid level.
- **Install good winter tires.** Make sure the tires have adequate tread. All-weather radials are usually adequate for most winter conditions. However, some jurisdictions require that to drive on their roads, vehicles must be equipped with chains or snow tires with studs.
- **Maintain at least a half tank of gas** during the winter season.

## UP COMING EVENTS







### SEPTEMBER 25 – BARCFEST

BOUNDER AMATEUR RADIO CLUB  
 Longmont, Colorado  
 Boulder County Fairgrounds  
 Contact: BARC70@arrl.net / Mike W3DIF 303.404.2161

**November 5** – 285TechConnect Radio Club, Fall TechFest — More information in future Newsletters



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September 2011							<i>DRC Net Sunday 8:30pm Local</i>
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	
				1	2	3	
4	5  Labor Day	6	7 <i>Learning Net</i> 7:30pm	8	9	10 <i>ARRL VHF QSO Party</i> Begins 1800U	
11 <i>Grandparent's Day</i> 	12 <i>ARRL VHF QSO Party</i> Ends 0300U 	13	14 <i>Learning Net</i> 7:30pm	15	16	17 <i>ARRL 10GHz &amp; Up Contest</i> Begins 0600L	
18 <i>ARRL 10GHz &amp; Up Contest</i> Ends Midnight	19	20 	21 <i>DRC Meeting</i> Elmer 6:30pm General 7:30pm	22 <i>First Day of Autumn</i>	23 <i>Native American Day</i> 	24 <i>ARRL EME 2.3GHz &amp; Up</i> Begins 0000U	
25 <i>ARRL EME 2.3GHz &amp; Up</i> Ends 2359U	26	27 	28 <i>Learning Net</i> 7:30pm	29	30		

### DRC BOARD OF DIRECTORS

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Benevolent		Carolyn Wolf	303-330-0721	
RT Editor	AG0S	George McCray	303-751-7246	AG0S@arrl.net
Education		TBD		
Salvation Army Liaison	KB0BZZ	Bob Zimprich	303-400-3400	bobzz@comcast.net

### DRC REPEATERS

BAND	Freq / Shift / PL Tone	Additional Information
6m	53.090mHz (-1mHz)	
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>NE Area Remote Does Not TX a PL!</b>
1.25m	224.380mHz (-) 100Hz PL	
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>

### 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**