



# ROUNDTABLE

## PRESIDENT'S MESSAGE

By Bryan Steinberg – KB0A

Well FALL has arrived and school is back in session. That includes ham radio school as well. Paul, KD0CXX, with assistance from Stu Turner, W0STU, of hamradioschool.com started a 5 week Technician license class at the end of September. And, Jim, K0TOR, is about to kick off a 14 week General License class on October 4<sup>th</sup>. We are hoping to hold Technician classes on a regular basis a few times a year. More information on both these classes can be found on our website (<http://www.w0tx.org>) Remember to tell anyone you know who is interested in ham radio that we are holding classes. They are always held at no charge to the attendees. The only costs are purchase of the appropriate license manual and the VE testing fee at the end of the class.

We had a great meeting in September. Thanks to Doug Talley, CEO of Pixel Technologies, who gave a great presentation on, and demonstration of the highly reviewed RF PRO-1B active broadband shielded magnetic loop which is manufactured here in Golden, Colorado.

The September meeting was also used for our annual elections. Four of the eight board positions were up for election. Of those four, three current board members were re-elected, and a new board member was elected to a two-year term. Orlen, WW0LF, Jim, K0TOR and Frank, N3PQ were re-elected and Doug, N4ATA was elected for the first time.

There were five candidates for the four board positions Bud, KD0PHG, was also nominated. Dave, WG0N, stepped down from the board and did not seek re-election to allow a new member onto the board. Dave has served the club as a board member and officer for as long as I can remember. We thank him for his long and distinguished service to the club and its members. After the board elections we needed to elect the officers. In addition, the club officer (President, Vice-President, Secretary and Treasurer) positions needed to be filled via election from among the eight board members. A motion was made from the floor to keep the current officers in their positions which was seconded and received a majority approval from the members.

Our October meeting will feature Steve Cohan, KF0RW, who will discuss ham radio's role in emergency communications and preparedness. Looking at this past year of the devastating fires in Colorado and the West it is important that we discuss this relevant topic and evaluate our own particular role in this area.

Until next month...

Bryan – KB0A  
President

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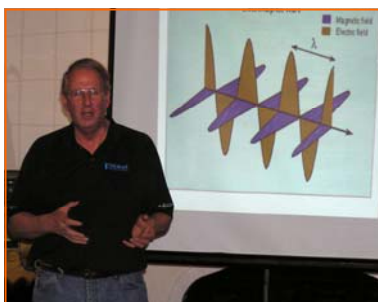
## SEPTEMBER MEETING - WHAT'D I MISS

By Bill – W6OAV

There were 40 attendees this month. KB0A started the meeting with introductions. He discussed the Wednesday mentor net for new hams. Next, K0TOR announced that he has set a schedule for his 14 week amateur General License course. See his article elsewhere in this issue.

Next the annual elections were held. The following officers were re-elected: KB0A, WW0LF, K0TOR and N3PQ. N4ATA was nominated and approved by acclamation as a new board member in place of WG0N. (THANK YOU all for the work you are doing and have done, on behalf of the club).

The meeting was then turned over to our guest speaker, Doug Talley, president of Pixel Technologies. *(Photo at Right)* Doug had a standard amplified vertical antenna and his RF PRO-1B amplified receiving magnetic loop setup in the meeting room.



The loop is 38" in diameter and covers 100 KHz to 30 MHz.

Doug covered the following topics:

- History of Pixel Technologies and their antenna development.
- The physical construction of the PRO-1B loop.
- Relationship of the RF electric and magnetic fields and how linear antennas and magnetic loops respond to them.
- Why magnetic loops don't respond to noise as much as linear antennas do.
- The figure 8 receive pattern of a magnetic loop and its response to low and high angle signals.
- How various hams have employed magnetic loops for noise and interfering station rejection.

Then Doug, using an SDR receiver, demonstrated the difference in noise response between the vertical antenna and the magnetic loop. A station was noise free on the loop and buried in the noise on the vertical. Next, Doug demonstrated eliminating an interfering station by using the null in the loop's figure 8 pattern.

For more information on the Pixel Technologies products, and specifically the RF PRO-1B, go to: <http://www.pixelsatradio.com/>

Also, there are reviews in the July 2012 QST and on <http://www.eHam.net> web site.

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## OCTOBER MEETING ANNOUNCEMENT

### Emergency Communications



On October 17<sup>th</sup>, the Denver Radio Club presents an introduction to emergency communications (EMCOMM)!

With an extensive background in many facets of public safety

and communications, Steve Cohan will present information on the requirements, duties, responsibilities, and technological knowledge required for those who might be interested in working in EMCOMM. Steve is the unit Coordinator and Supervisor for the Joint Communications Task Force for the City and County of Denver – Denver 911. Please join us for what will be an interesting and engaging seminar.

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

## SEPTEMBER TECH COMMITTEE REPORT

By Bill – W6OAV

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

### North Table Mountain (NTM) Repeater

Goal – Install a 147.33 MHz repeater on NTM as part of the voter system.

**Analysis of Radio Mobile coverage plots shows that NTM may not be suitable for the voter system. This project on is hold while several committee members look for a site east of Denver which will provide better coverage into the Denver Metro area and can support the voter system.**

### Existing Voter System “Tune up”

Goal – “Tune up” the existing test voter configuration consisting of the Station 4 central voter site and the N1ETV remote receiver site.

Tasks to be completed:

- Rewire link receiver to voter controller interface. KB0A to obtain configuration from WA2YZT.
- Adjust UHF link transmit antenna position - KB0A will use analyzer to check the receive antenna system.
- Sync the hang times of Station 4 and the remote.
- Calibrate the local and remote audio levels and responses - KB0A will use IFR to set levels.

**The above will be completed ASAP.**

### Centennial Repeaters

Goal Ground hard lines.

Task to be completed:

- Several tech committee members to go to the site to determine hardware and activities required. (DRC to ground Intermountain Repeater Association’s system).

**Tabled until spring.**

### Station 4 MotoTRBO Repeater

Goal – Finalize installation of MotoTRBO repeater at Station 4 site.

Tasks to be completed:

- Install new transmission line to top of tower (old line is bad)
- Re-install .70cM antenna
- Tune duplexer for optimum signal

**This work was completed on Monday morning, Sept 24th**

## 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.

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>.

Carrie O’Brien	W0ERN
Chris Kirby	WX0PIX
Thomas Loughlin	N8BG

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## QUESTION OF THE MONTH

### Question:

I just received my tech ham license. Now, what do I do to get active?

### Answer:

Congratulations on joining a fascinating hobby!

First, learn about ham radio activity in your area. If you know a ham radio operator (possibly the VE that gave you the test), ask the following questions:

- What are the recommended VHF/UHF repeaters in your area? (Information on repeaters and how to use them can be found at: <http://www.hamuniverse.com/repeater.html>).
- Which repeaters are accessible with a handheld from your area?
- Which repeaters have nets? (A net is a scheduled roll call and meeting on a repeater).
- Which repeaters are sponsored by clubs and do these clubs have meetings?
- Does the ham radio operator know anyone that has a used inexpensive VHF/UHF handheld or radio for sale?
- Would the ham radio operator demonstrate a contact on a local repeater and introduce you to that contact?

*(Continued on page 4)*

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If you can't locate any local ham radio operators, use Google to locate local ham clubs, VEs and VHF/UHF repeaters and nets in your area. For example, Google "Ham repeaters in Colorado" for Colorado listings. Many clubs have their own web sites. If possible, attend a club meeting to get acquainted with local hams and receive answers to the above questions from them. If no club meetings are listed, contact your local VE for more information.

Next, get on the air! Start by buying an inexpensive VHF/UHF handheld. Several choices for less than \$100 are the Wouxun KG-UV3D and the Baofeng UV5R VHF/UHF handhelds. These handhelds are more than adequate for starting out. If the local repeaters are not handheld accessible, purchase an SMA to BNC antenna adapter to allow using an external antenna, such as an inexpensive mag mount antenna, in place of the handheld's stock antenna. (These items are available at Ham Radio Outlet). This configuration will provide a much stronger signal to the repeaters.

If you are a bit reluctant to get on a repeater, there are three ways to start:

- ID with your call sign on a repeater and announce that you are a new ham looking for information about ham radio.
- Join in local repeater nets which usually ask for visitor check-ins.
- Monitor various repeaters and, when you hear a conversation about a subject in which you have an interest, ID yourself and ask to join the conversation. For example, if you hear a conversation about video editing and you have a background in the subject, join in and get to know the other hams in the conversation. Many friendships are developed between hams that have like interests in other hobbies or professions.

Once you do enough operating and meet other hams on the repeaters you will develop a better idea of what you want to do with the hobby. Then, you can buy more sophisticated equipment tailored to your operating preferences.

Finally, increase your ham radio knowledge. Join the Amateur Radio Relay League (ARRL). Their magazine (QST) is very informative and the ARRL, besides supporting ham radio with the FCC, provides many books offering information on all aspects of ham radio. As an ARRL member you can access all back issues of QST on the ARRL web site and the wealth of information contained therein.

Get on the repeaters and ask contacts to explain the different facets of ham radio; i.e. analog versus digital modes, satellite operation, contesting, operating procedures, events, etc. There are a lot of long time hams who have years of experience. Most are very willing to impart their knowledge to a new ham. After all, they were all in that "new ham" situation at one time!

Enjoy a great hobby,  
Bill – W6OAV



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



## WHAT IS IT?

By Bill – W6OAV

Most hams are interested in antennas. Antennas are one of the most important parts of a ham's station and one of the few things that hams can easily build these days. So, when most hams are around antennas they tend to inspect them.

Such was the case a while ago when I was touring the USS Mitscher, an Aegis class guided missile destroyer. As I was admiring the array of on board antennas, I came across a very strange antenna. It consisted of two crossed dipoles which were looped and positioned above a four element ground plane. I was mystified as to what it was. So, I had to take a picture of the antenna hoping to be able to later research it. See *Figure 1*.



Figure 1 - Shipboard Antenna

Research revealed that the antenna is a 240 to 315 MHz satellite fleet broadcast receiving antenna. The VSWR is less than 1.5:1 at 50 ohms across the entire bandwidth. The antenna provides a 0 degree horizontal to a 90 degree vertical receive pattern in all horizontal directions.

(Continued on page 5)

(Continued from page 4)

So, how does an antenna like this work? Well, hams have known for years that they can direct an antenna pattern straight up vertically by placing a dipole close to a ground plane. This process is called NVIS (Near Vertical Incidence Skywave). See Figure 2.

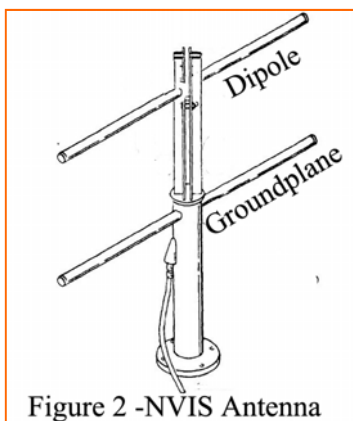


Figure 2 -NVIS Antenna

An HF NVIS is used to transmit a signal straight up and have it bounce back down to cover the area between the end of ground wave coverage and the beginning of sky wave coverage. A typical NVIS pattern is shown in Figure 3. (Note, there may be lobes depending upon the separation between the dipole and the ground plane). As Figure 3 shows, NVIS isn't good for receiving satellites when they are close to the horizon.

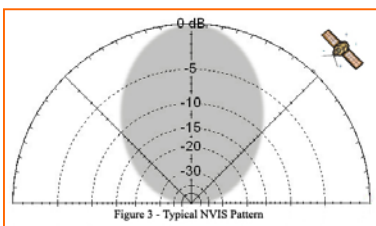


Figure 3 - Typical NVIS Pattern

The antenna designers used the NVIS principle to provide a vertical antenna pattern for overhead satellite reception by placing crossed dipoles very close to the four radial ground plane. However, as mentioned earlier, this configuration does not allow for good reception for satellites towards the horizon. So, to "distort" the NVIS pattern towards the horizon, the designers looped the dipoles.

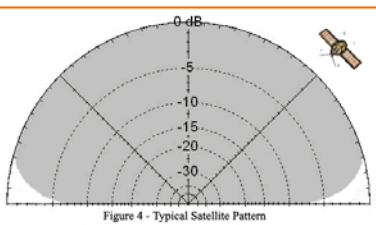


Figure 4 - Typical Satellite Pattern

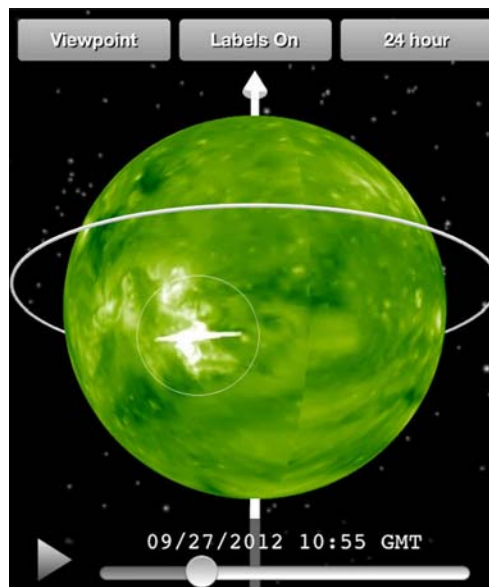
This provided coverage down to the horizon in all directions as shown in Figure 4. The entire receiving system usually consists of four of these antennas located at strategic locations on a ship allowing at least one antenna to "see" a fleet broadcast satellite no matter the orientation of the ship. The antennas are fed into a combiner and then fed to the receiving equipment below deck.

I guess a vhf/uhf adaptation of this antenna wouldn't do much for a ham unless that ham wanted to work base stations, mobiles, aircraft and satellites with one antenna! Maybe that's not a bad idea!

## IS THERE AN APP FOR THAT?

Excerpted from September 28, 2012 "spaceweather.com"

**FARSIDE EXPLOSION:** A sunspot on the farside of the sun exploded on Sept. 27th, sparking a bright flare of extreme ultraviolet radiation and hurling a massive CME into space. Although the explosion occurred on the other side of the sun, it was visible on cell phones around Earth. Here is a screenshot from NASA's 3D Sun app:



The 3D Sun is a great way to monitor events on the farside of the sun. It displays a realtime globe, which you can pinch, zoom and spin to examine explosions around the complete circumference of the star. Extreme UV images from NASA's twin STEREO probes and the Solar Dynamics Observatory (SDO) are combined to assemble the 360° view, now available on iPhones, iPads, and Android devices.

The active region could flare again. Download the app at [3dsun.org](http://3dsun.org) to track the blast site as it transits the farside en route to the Earthside late next week. Stay tuned for action.



## DRC at BARCfest

By Bryan – KB0A

If you recall we had a large collection of classic ham equipment, which had been donated to the club, up for sale at our hamfest in August. While we sold quite a bit, we still had a lot of items plus some



more that hadn't made it the DRC event. The club purchased two tables at the Boulder Amateur Radio Club (BARCfest) which was held on September 23rd in Longmont. Orlen, WW0LF and his wife Carolyn hauled the equipment to Longmont. I met Orlen there and helped unpack a pickup load of equipment onto the tables. We sold about half of what we brought, and thankfully it was a lot of the heavier pieces. We cleared a bit over \$1000, which was turned over to our club treasurer at the September board meeting. We still have some additional items and they will be appearing at future hamfests in Colorado.

**Please Note!**  
**The Denver Radio Club Meeting time has changed!**  
**General Meeting start time is changing to 7:00PM**

**The Elmer Session will still start at 6:30PM.**

*HRO 12 STORE BUYING POWER WORKS FOR YOU!*

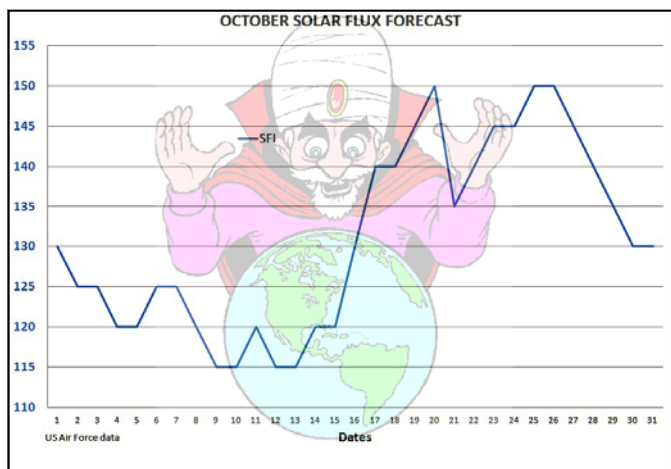
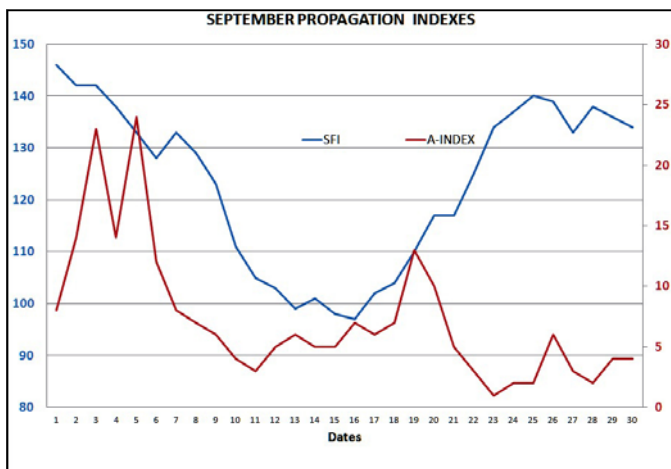
**www.hamradio.com**  
**8400 E. Iliff Ave #9, Denver, CO 80231**  
**303-745-7373 800-444-9476**  
**24 HOUR FAX 303-745-7394**  
**e-mail: denver@hamradio.com**

## PAST & FUTURE PROPAGATION CONDITIONS

By Bill – W6OAV

The charts below show the Solar Flux and “A” indexes for last month and a forecast of 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 [www.w0tx.org](http://www.w0tx.org).



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## UP COMING EVENTS

### NAØTC – 285 TechConnect Radio Club 2012 Fall TechFest

The 285 TechConnect Radio Club (NAØTC) is pleased to announce its 2012 Fall TechFest. This event will be held on Saturday, Nov. 3, 2012: 9:00am. - 4:00pm. Check-In: 8:00 - 8:45am at the Lakewood Elks Club, 1455 Newland Street, Lakewood, CO 80214 Pre-register is recommended by contacting k0nnc@arrl.net.

Topics include Homebrewing an HF Software Defined Radio, Doing a Lot with a Little (Low Power Contesting), Yagi Antennas and Antenna Design, D-Star Repeater Installation – Program Management Perspective, Using WSJT FSK441 for VHF Meteor Scatter, and Amateur Radio Emergency Services (ARES).

For more information go to: [www.na0tc.org](http://www.na0tc.org).







### 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).

**October 20 – Ski Country ARC’s 2012 Hamfest**  
Glenwood Springs, CO  
<http://www.k0rv.org>

**November 3 – 285TechConnect RC, Fall TechFest**  
Lakewood Elks (Club See information at left.)  
<http://www.na0tc.org>

**2013**  
**May 31 – Rocky Mountain Division Convention**  
Rocky Mountain Park Inn, Estes Park, Colorado  
<http://www.hamconcolorado.org>

OCTOBER 2012						
<i>DRC Net Sunday's at 8:30pm Local on 145.490 &amp; 448.625 (No PL)</i>						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2	3 <i>Learning Net</i> 7:30pm	4	5	6 <i>ARRL Int'l EME Competition</i> Begins 0000 UTC
7 <i>ARRL Int'l EME Competition</i> Ends 2359 UTC	8  COLUMBUS DAY  Last Quarter	9	10 <i>Learning Net</i> 7:30pm	11	12	13
14	15 <i>ARRL School Club Roundup</i> Begins  New Moon	16	17 <i>DRC Meeting</i> Elmer 6:30pm General 7:00pm	18	19 <i>ARRL School Club Roundup</i> Ends	20 <i>Ski Country ARC Hamfest</i>
21  First Quarter	22	23	24 <i>Learning Net</i> 7:30pm	25	26	27
28	29  Full Moon	30	31 <i>Learning Net</i> 7:30pm 			

## DRC BOARD OF DIRECTORS

President	KB0A	Bryan Steinberg	303-987-9596	kb0a@arrl.net
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Board Member	K0HTX	Dave Gillespie	303-880-1938	k0htx@comcast.net
Board Member	KD0CXX	Paul Meenach	720-746-1488	TBD
Board Member	N3PQ	Frank Ortega	303-452-0283	n3pq@hotmail.com

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Field Day	<b>OPEN for 2013</b>			
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Web Master	N0LAJ	Bill Hester	<i>Check Roster</i>	

## 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	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 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**