



# AARC COVER

## Keeping Austin Wireless for Over 90 Years!

Bulletin of Austin Amateur Radio Clubs

ISSN 1067-0262

April 2010

Spring is Here!!!

Issue 4-2010

### New Tone for the 146.940 Repeater

The 146.940 repeater in Austin has for many years been holding out from getting a PL tone placed on it. The time has come for the 94 repeater to jump in with the rest of the crowd! Starting April 1st there will be a tone of **107.2** placed on that repeater. Yes, April 1<sup>st</sup> and that's no joke!

When band conditions are right, or if you happen to be in the right place (like a tall hill) at the right time, you can hear the San Antonio repeater. San Antonio has tried to resolve this on their end by having the owners of the San Antonio repeater put a tone of 179.9 done on all of their local area repeaters. This choice, made back in the mid-nineties, wasn't done lightly, quickly, or without much controversy and discussion within the San Antonio Repeater Organization club. Now on our end, we plan on trying to put an end to mixed up conversations by putting a tone on our repeater. So be sure to program your radios, HT's and portables for the new tone of...

# 107.2

### Periodic Events

Sun	7:30 p.m.	Travis ARES net	147.36 MHz + (131.8)
Sun	8:00 p.m.	Travis ARES Packet	145.73 MHz -
Sun	8:00 p.m.	Williamson ARES net	146.64 MHz - (162.2)
Sun	9:00 p.m.	ARO Swapnet	146.94 MHz -
Sun	(After Swapnet)	Newsline	146.94 MHz -
Mon.	7:30 p.m.	STX ARES Net	3.873 MHz
Tues.	7:30 p.m.	Hays ARES net	444.150 + (114.8)
Tues.	8:00 p.m.	Bastrop ARES Net	443.750 + (114.8)
Wed	11:30 a.m.	Ham Social Luncheon, Jim's	146.94 MHz -
Thu	9:00 p.m.	2m SSB Net	144.250 (USB)
Thu	11:00 a.m.	Lunch, Pokey Joe's 183&Great Hills	444.1 MHz+
Fri	8:00 p.m.	6m SSB Net	50.230(texasvhf.org/)
Sat	7:00 - 8:30a.m.	Breakfast @ Waterloo Ice House	444.1 MHz +
Sat	9:00 a.m.	Chapter 67 QCWA QSO Net.	3.920 MHz LSB
Daily	6:30 p.m.	Central Texas Traffic Net	147.14MHz+

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## Ham Radio Exams Results

The following are the results of the ARRL VE Test Session held on March 6th, 2010 at Bethany United Methodist Church :

### Technician Class Licenses Processed

Randal S. Crist, KF5FJL                      Carroll W. Glover, KF5FJK                      Matthew M. McKee, KF5FJI  
David B. Sheldon, KF5FJH                      Jason C. Shumpert, KF5FJJ

### General Class Licenses Processed

Clyde G. Bible, KF5EXD                      William L. Collie, KF5EXB                      Thomas F. Eagan, KF5DMP  
Phillip R. Fisher III, KE5ZVE                      Richard E. Kirchhof IV, KD5YRF                      Walter J. Marusa Jr., KF5ESJ  
William C. Wrentmore, KG6IDS

### Extra Class License Processed

John P. Spearman, W5ZEF

### Examiners Participating in this Test Session

Milt Cram, W8NUE                      George Csahanin, W2DB                      Curt Goodson, W4QBU  
Larry Gunter, WB5BEK                      Joe Makeever, W5HS                      Tom Nevue, W2MN  
Joe Thiel, N5SMN

### Next ARRL VE Test Sessions

April 10th - Bethany United Methodist Church, Disciple Bldg. Room 213  
May 1st - Bethany United Methodist Church, Disciple Bldg. Room 213

TNX ES 73 DE W5HS  
Joe

2-20-2010

The South Austin W5YI VE team heartily congratulates all of the following people who earned new or upgraded amateur radio licenses at our March 20<sup>th</sup> session:

#### Extra Class –

Thomas R. Juergens, KF5DPU                      Florin Matei, W5ICU

#### General Class –

Henry C. Dugan, KF5FDB

#### Technician Class (all new) –

Claude E. Dotson                      Andrew J. Kay                      William King                      John W. Lee, IV  
Kevin C. McCoy                      Ricardo Ramirez                      Shirley D. Shirey                      Jonathan C. Stapp

Our administering volunteer examiners were:

Craig Bean, AC5KW                      Jim Greenwood, AB5EK  
Lloyd Goehring, Jr., N5TO                      Jimmy Mercer, N5WDH  
Gary Popp, AE5JR

Our next two amateur radio exam sessions will start at 2 PM on April 17<sup>th</sup>  
and May 15<sup>th</sup> in room 106 of Fleck Hall on the campus of  
St. Edward's University. The exam fee is \$14. For additional information regarding our amateur radio examination sessions,  
please contact Jim, AB5EK at (512) 327-6184 or by e-mail to  
**hamradioexams@hotmail.com or visit our web page at <http://texashams.org/w5yi-austin/>**

Austin Amateur Radio Club, Inc., PO BOX 4739, AUSTIN TX 78765-4739, Web site: <http://www.austinhams.org>

President	Paul Gilbert	KE5ZW		president@austinhams.org
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ARRL Travis Co. Emer. Coord.	Don Dudley	AC5YK		ac5yk@arrl.net
TC ARES PIO	Steven Polunsky	W5SMP		tcares-pio@gmail.net

Please contact a club officer, attend a meeting, mail us to join the organization, you can also join or renew online.

**The Austin Amateur Radio Club, Inc. (AARC)** has annual membership dues of \$20.00 per person or \$30.00 per family. AARC maintains the following repeaters:

FREQUENCY	AUTOPATCH	USE
146.780	Yes	General
146.880	Yes	General
146.940 107.2 PL Tone	No	Most popular, WX, Swapnet & Newslite
224.800	No	
444.100	No	
146.480/+1.0	No	2m D-Star Repeater [W5KA C]
1293.200/-20	No	23cm D-Star Repeater[W5KA A]
1248.200	No	23cm D-Star DD (data, simplex/reversible) [W5KA A]

Persons using the repeaters are asked to join the club to help support these valuable resources. To use the autopatch, announce your call sign, press \* and dial the phone number then release the PTT. When finished, press # to hang up the phone. Dial 911 (no \* needed) for emergency services.

**AARCOVER Information:** ISSN 1067-0262, CODEN AAOVE3. ©Austin Amateur Radio Club, Inc.

Published monthly by the Austin Amateur Radio Club, Inc.

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Material quoted from the ARRL Letter is supplied by the American Radio Relay League, Inc.

Members and other readers are encouraged to submit material for publication. Call Mitch London, if mailed submissions are required. Electronic files are encouraged! Submissions may be edited for publication. **Deadline is the 20th of the month.**

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**For Changes in your ADDRESS, PHONE NUMBER or CALL SIGN:**

**See Jay Hoffman, KA5OST (512) 388-4404 ka5ost@arrl.net**

**Jay handles all changes for membership information.**

### HSMM Meeting Temporary Location Change

Packet and HSMM meeting attendees:

Due to multiple Red Cross courses needing both class rooms of Building B at Red Cross Chapter Wednesday, we will meet in Building A, in the Conference Room.

We are expecting a prospective ham & new Red Cross Emergency Svcs. Director, Jose Dominguez, to join us.

Meeting at Red Cross Chapter, Bldg. A, (the one with antenna tower), come to end door on sidewalk to parking lot. 7 PM, Wed. March 24, 2010. Pershing Av. and E. M. Franklin Av. off Manor Rd and old Airport tower.

-Stuart Rohre  
AEC Red Cross



## Solar Effects on Ionospheric Propagation

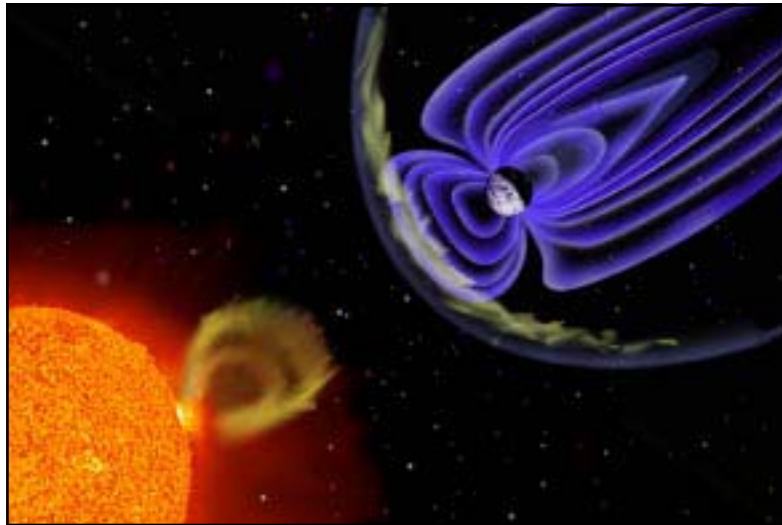
By Lew Thompson, W5IFQ

The sun has three effects on ionospheric propagation and two of these are detrimental. The sun's UV radiation directly influences the level of ionization in the ionosphere (good) but solar flares and coronal mass ejections can severely reduce propagation.

The ultraviolet (UV) radiation from the sun makes ionospheric propagation possible but direct measurement of the level of UV radiation is difficult. Both the solar flux index and the sunspot number are indirect indicators of the level of UV radiation from the sun. The solar flux index is a measure of the level of radio noise from the sun at 2800 MHz. The solar flux index has been found to be statistically related to the level of ionizing UV radiation reaching the ionosphere. Solar flux can vary from a low of about 65 to a high of 200. The number of sunspots, averaged in a special way, have also been found to be directly related to propagation conditions. This smoothed sunspot number can vary from 0 to greater than 200.

While UV radiation from the sun is beneficial, x-ray radiation, coronal mass ejections (CME) and high solar wind (coronal holes) can disturb or interrupt ionospheric propagation. The three types of disturbances the sun can cause are Geomagnetic and Ionospheric Storms, Solar Radiation Storms and Radio Blackouts.

**Geomagnetic and Ionospheric Storms** – CME's and to a lesser extent, coronal holes throw high-velocity charged particles into space. This cloud of charged particles leaves the sun with its own magnetic field. Figure 1 shows a CME striking the earth's geomagnetic field.



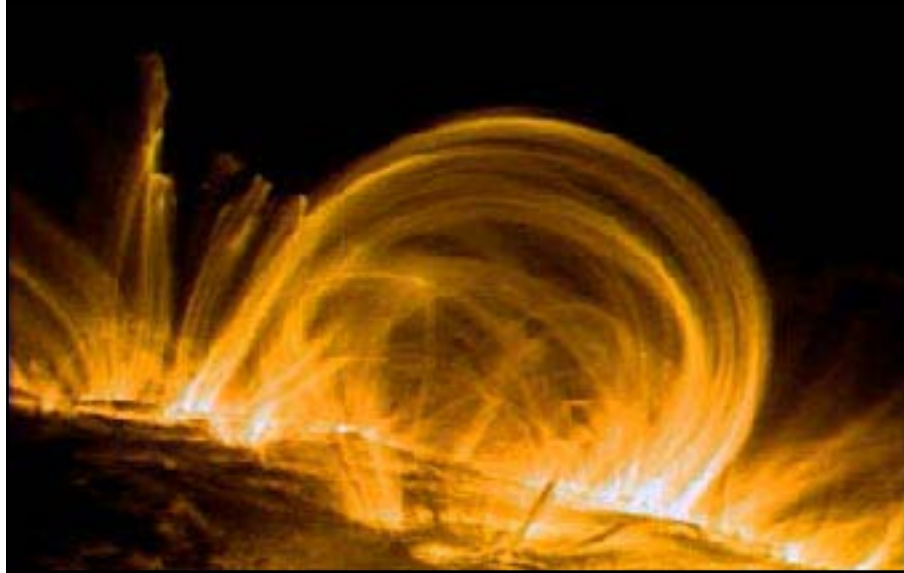
**Figure 1: CME Striking the Earth's Geomagnetic Field**

When this material with its magnetic field impacts the earth's geomagnetic field, it can cause turbulence and disruptions in the ionosphere. The travel time for this material is between 1 and 3 days and its effects include depression of the Critical Frequency and increased D-absorption. Several satellites either located between the earth and the Sun (SOHO – Solar and Heliospheric Observatory) or in a sun orbit on either side of the earth (STEREO - Solar TERrestrial RELations Observatory) watch for CME's and measure the solar wind. For solar wind velocity and other solar data See: <http://sohowww.nascom.nasa.gov/home.html>

There are two indices used to report the severity of the magnetic fluctuations in the earth's magnetic field. The K-index is a three hour measurement of the logarithmic variation of the magnetic field compared to that of a "quiet" day. Individual K-indices are measured around the world and an averaged, planetary (Kp) index, is reported. The Kp varies from 0 (very quiet) to 9 (major geomagnetic storm). The A-index is a linear number, derived from the K-index averaged over one day. The planetary A-index will vary from 0 (very quiet) to 400 (major storm).

**Solar Radiation Storms** – Solar disturbances may also eject vast quantities of high-energy protons. These typically take about four hours to reach the earth and will be directed by the earth's magnetic field into the polar regions. This will result in a Polar Cap Absorption event, a dramatic increase in D-absorption only in the polar regions. Unless very severe, only ionospheric propagation that passes through the polar regions will be affected.

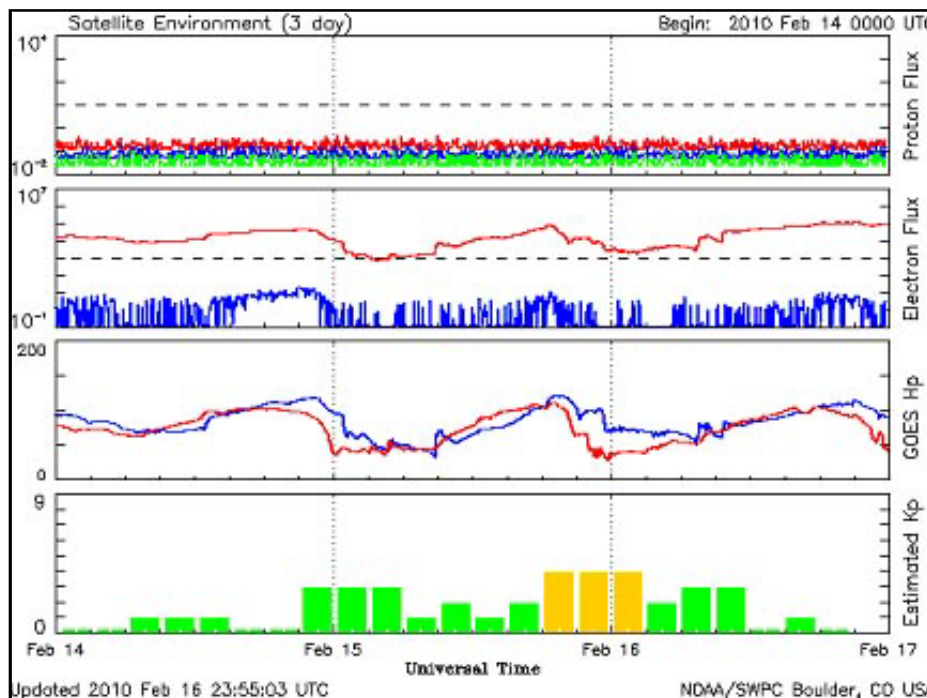
**Radio Blackouts** – A large M or X class solar flare will generate high levels of x-rays that will increase the D-layer absorption, producing a radio blackout called a Sudden Ionospheric Disturbance (SID). A picture of a large Solar Flare can be seen in Figure 2.



**Figure 2: Solar Flare**

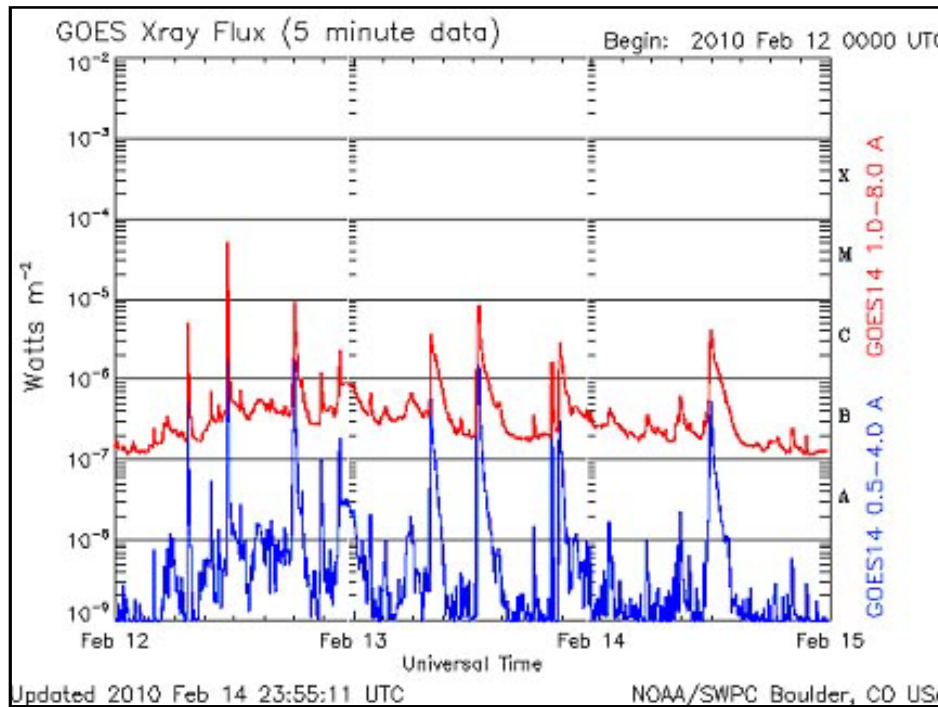
Since this radiation travels at the speed of light, there is no warning. This is a daylight affect and D-layer will quickly return to normal as soon the flare ends or the earth rotates away from the sun.

The daily solar flux index (SFI), Kp and Ap and any other solar disturbances are reported on WWV at 18 minutes past each hour. The NOAA Space Weather Prediction Center at <http://www.swpc.noaa.gov/today.html> and other agencies maintain web sites that report solar and geomagnetic conditions. Figure 3 from this NOAA site, show solar and geomagnetic conditions. The GOES Hp plot, shows a series of Coronal Mass Ejection impacts from Feb 15 to Feb 16. This was preceded and followed by normal magnetic field conditions characterized by a low amplitude, sinusoidal variance in the earth's magnetic field. The planetary K index (Kp) is shown in the bottom panel and can be seen to rise from Kp=0 to Kp=4 (unsettled conditions) and then slowly return to Kp=0 (quiet conditions).



**Figure 3: Solar and Geomagnetic Conditions**

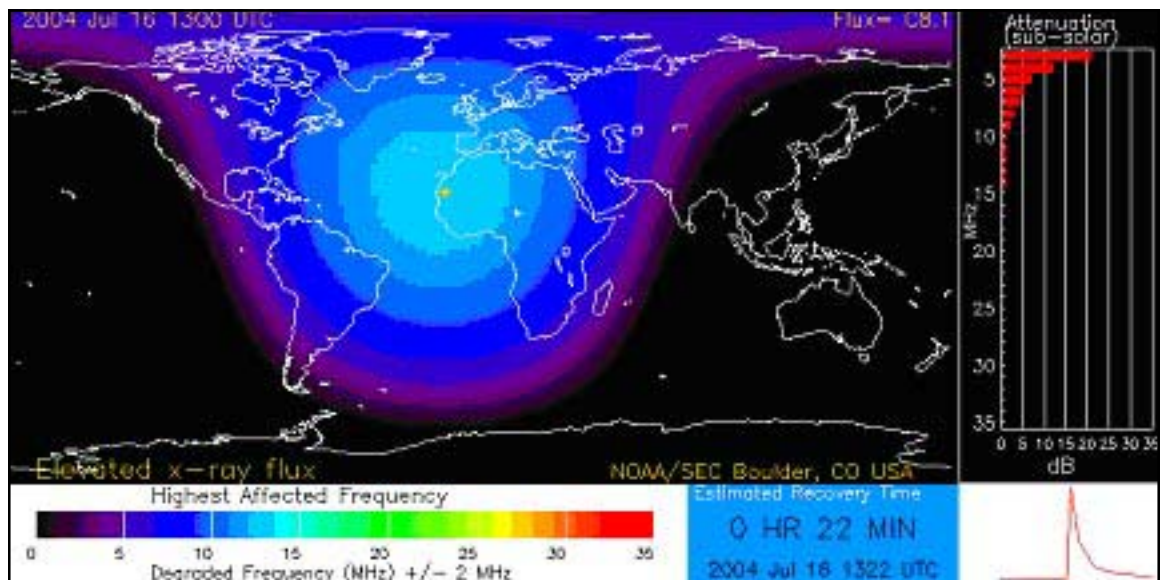
Figure 4, also from <http://www.swpc.noaa.gov/today.html>, shows the solar X-ray flux for a time period several days before the CME event. A large M5 solar flare event can be seen at 1200Z on Feb 12. While the intensity of this x-ray flare only produced very minor D-layer absorption increase, it was associated with a series of small CME's that impacted the earth's geomagnetic field some time between Feb 15 and Feb 16 as seen in Figure 3.



**Figure 4: Solar X-Ray Flux**

Another NOAA website: <http://www.swpc.noaa.gov/dregion/index.html>, shows the increased D-layer absorption following an X-ray solar flare event. An example of an extreme event can be seen in Figure 5 below.

**Figure 5: Global D-Region Absorption Prediction, July 16, 2004**



The attenuation versus frequency, directly under the center of this solar flare can be seen in the table to the right of the world map.

Attenuation levels of 12 dB at 4 MHz would certainly make NVIS propagation difficult in eastern Africa. Note that the attenuation versus frequency drops off rapidly, so going to

a distant HF RMS Winlink station at frequencies above 10 MHz would be a strategy to maintain communications. The increased solar activity of cycle 24 certainly brings improved propagation conditions, but with this improvement comes the increased likelihood of solar events that can temporarily disrupt ionospheric propagation. With careful attention to solar conditions we can be prepared to understand and compensate for these detrimental effects.

# Cap 10K Packet Stuffing Event!

This year, the Cap 10K packet stuffing event was a far smoother operation than in any years past, even though we had a near record amount of packets to stuff! Over 20,000 race packets needed to be filled. In years past, the club would line up all the various flyers; sometimes there were 20 or more! The club members would walk in a side step fashion picking up one of each of these flyers and place them in a larger folded paper which then in turn got placed into a large envelope. This was a tedious job which often required the back massager brought by Jeff Schmidt, N5MNMW.

However, this year was much different. All the flyers got combined and printed into single sheets 11"x17" and folded. Our task was to then pick up each of the pages and put that page into the next page, those pages into the next and so on. So in essence, our 20 plus piles of flyers of

various sizes and shapes were combined into 4 easy to handle flyers of all the same shape and size making for a very enduring packet stuffing event.

A huge thank you goes out to all our participants this year! There is still room on the list of volunteers needed during the actual race of the Capitol 10K. If you are willing to participate, contact Jeff Schmidt, n5mnw@arrl.net or see him at the next meeting.



**AARC Meeting Minutes:** March 2, 2010

**Meeting called to order:** 7:00pm by President Paul Gilbert, KE5ZW.

Meeting started with Dallas Mellichamp, KD4HNX, reporting on the highlights from the UT community service project held Feb. 27th, a welcome to all, and the agenda.

We had thirty-eight in attendance and no visitors. One upgrade was reported.

**Minutes:** last meeting's minutes approved as written in AARCOVER.

**OFFICER REPORTS**

**Treasurer:** Jay Hoffman, KA5OST, reported the totals of the club's bank accounts. He explained the 100<sup>th</sup> Anniversary Fund and it's standing so far. He is e-mailing people to encourage renewals and new membership.

**Editor:** Mitch London, KD5HCV, previewed upcoming articles, such as the 107.2 Hz tone being put on the .94 repeater April 1st. He also found real old Austin High School newspaper articles talking about ham radio activities at the school.

**Tech Committee:** Stuart Rohre, K5KVH, reminded everyone the .78 repeater was fixed and the .94 repeater will require a 107.2 Hz tone starting April 1<sup>st</sup>.

**ARES:** Don Dudley, AC5YK, requested an e-mail from the President regarding the toning of the .94 repeater.

**President:** Paul Gilbert promoted the Cap10K Packet Stuffing Party and reported the deadline has passed for Copeland Fund Scholarship Applications.

**Ham of the Month:** Mike Brumleve, KC8VSE.

No Old Business was brought up for discussion.

**New Business:** Stuart Rohre is looking for help in preparing for, and running, Field Day.

**Crossword Solution**

1	H	A	M	2	H	A	3	A	4	N	5	D	6	L	7	S	8	B	9	R	E	A	10	K																					
	I		11	T		12	M		13	I		R		14	S		15	P		16	C		17	O		E																			
		18	S		19	K		20	I		21	P		22	L		23	I		24	L		25	D		26	U		27	M		28	M		29	Y									
			P			30	C		31	L				32	F		33	I		34	N		35	A		36	L		37	G		38	S												
		39	B		40	U		41	C		42	K		43	S		44	H		45	O		46	T		47	T		48	C		49	H		50	E		51	W						
			R			E			O					52	Y		53	E		54	T		55	I		56			57	E		58	X												
			S			T			59	M		60	I		61	L		62	L		63	E		64	B		65	A		66	R		67	E											
		68	L		69	H		70	D		71	E		72	O		73	P		74	R		75	I		76	A		77	K															
			I			A			78	B		79	U		80	G		81	R		82	I		83	G		84	C																	
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						R			E					98	G		99	P		100	O		101	I		102	P		103	E		104	P												
		105	D		106	U		107	P		108	E		109	W		110	A		111	L		112	L		113	P		114	A		115	P		116	E		117	R		118	T		119	I
			X			I								120	M		121	I		122	D		123	F		124	M		125	E															
		126	C		127	A		128	N		129	S		130	F		131	I		132	S		133	T		134	S		135	C		136	H		137	I		138	R		139	P		140	S

**Items for the good of the club:** ARRL Membership Drive Contest, Cap10K Packet Stuffing Party, toning of the .94 repeater, club dues are due, and still looking for larger accommodations for club meetings and the Christmas Party. These items, other upcoming events, and scheduled presentations are listed in the AARC Swapnet newsletter, at [www.austinhams.org](http://www.austinhams.org), and on the Yahoo user group.

The door prize was a package of sheet protectors.

**Meeting Adjourned:** 7:31pm

**Presentation:** "PIO Presentation to Hams-What to Say if CNN Calls" by Steve Polunsky, W5SMP (AARC/TCARES PIO).

Extra: Stuart Rohre talked about the Ham effort following the Haiti & Chile earthquakes.

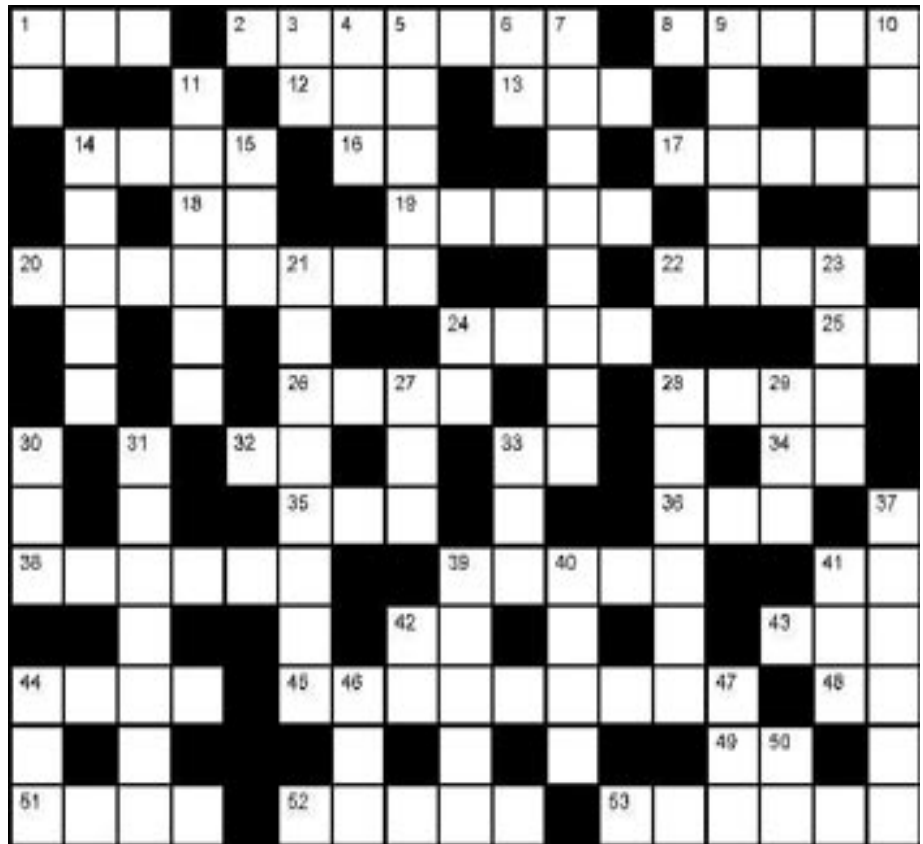
# Ham Radio Crossword

## 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 replacment
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. No amp means .... feet
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 overmodulation
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 radio-frequency signals
50. Male salutation (abbr.)

## **AARC Meeting Info.**

### **Waterloo Icehouse**

**8600 Burnet Rd. South of 183**

#### **Officers Meeting 7 pm**

**April 20th at The Lion & Rose at 701 S. Capital of Texas Hwy.**

#### **Business Meeting 7pm**

**April 6th - Eli Santiago of the Austin Fire Dept. discusses Fire Cadet Training.**

#### **2010 Upcoming Amateur Exams**

ARRL VEC-April 10th & May 1st 9a.m. at Bethany United Methodist Church. Contact Joe Makeever, W5HS (345-0800) or Joe Thiel, N5SMN (832-0450) for info. \$15 fee.

W5YI VEC- April 17th & May 15th 2p.m. in room 106, Fleck Hall, St. Edwards University. Contact Jim Greenwood, AB5EK arrl.net, (327-6184)

**<http://texasparadise.com/w5yi-austin>** for more info.

**\*\*\*\*\*2010 DUES ARE DUE!!!\*\*\*\*\***

Dues must be paid by April 15, to be included in the annual Roster. Contact Jay Hoffman, KA5OST (512) 388-4404 or [ka5ost@arrl.net](mailto:ka5ost@arrl.net) or you can pay dues online at... **[www.austinhams.org/join](http://www.austinhams.org/join)**

## **2010 Calendar of Events**

**Apr 11 33rd Annual Capitol 10K Race & Fun Run** Communications volunteers posted every half mile or so. You'll need a 2m HT (146.940/107.2Hz tone) w/gain antenna or portable station that can operate for 4-6 hours Ham Communications Volunteers contact Jeff N5MNW@arrl.net

**Apr 17 Belton Ham Expo Hamfest**

[www.tarc.org/hamexpo/](http://www.tarc.org/hamexpo/)

**Apr 17 American Heroes Airshow** Camp Mabry

**Apr 17-18 MS-150** (BikeMS BP150), Houston – La Grange - Austin biking event Benefits Multiple Sclerosis research Houston Hams contact- Mike SA Ham volunteer contact- Lee N5NTG [lee@besing.com](mailto:lee@besing.com) AustinHams volunteer contact- Roger W5WIA@arrl.net

**Apr 24 40th annual 7290 Net Picnic** Riverbend Park in Smithville, TX [www.7290trafficonet.org](http://www.7290trafficonet.org)

<b>Apr.</b>	<b>May</b>	<b>Austin Meetings/Happenings</b>	
6	4	AARC Meeting Waterloo Ice House*	7:00 p.m.
10	8	Austin QRP, Alvin's Sandwich Shop	11:00 a.m.
20	18	HSMM/Packet SIG at Red Cross	7:00 p.m.
17	15	QCWA IHOP 183 Near Duval	1:00 p.m.
20	18	ATV Club Mtg. Mangia Pizza	7:00 p.m.
27	25	ARES Training -CTECC	6:30 p.m.
26	24	Travis Co. REACT Jim's 183&Burnet	7:15 p.m.
27	25	Travis County A.R.E.S., ARL Aud.	7:00 p.m.
22	27	CERT Meeting CTECC	6:30 p.m.

*\*AARC Business Meeting is at Waterloo Ice House 8600 Burnet Come early and grab dinner before the meeting.*

**Return Service Requested**  
**April 2010**  
Austin, TX 78765-4739  
PO Box 4739  
Austin Amateur Radio Club  
AARCOVER