

AARC COVER

Keeping Austin Wireless
for Over 93 Years!

Bulletin of Austin Amateur Radio Clubs

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February 2013

Happy Groundhog Day!

Issue 2-2013

HSMM-MESH From Austin to Big Bend

By Mitch London, KD5HCV

A year ago after the 2012 Big Bend 50 Ultra Marathon, a plan started to be formed. As Alan Russell, KE5DTR and Mitch London, KD5HCV drove back from Big Bend country, they were discussing things that had gone well and not so well. They also thought a great addition to the race might be the addition of an HSMM MESH network to help with communications at the race. The big problem was...neither of them knew a thing about HSMM-MESH!

Shortly after they got back they attended one of the digital Wednesday meetings at the Red Cross, where they found out that the people there had also been discussing setting up a MESH network at the next Big Bend 50. The club had heard about an El Paso Ham-radio Club that had used MESH nodes during a race with great success. Alan and Mitch discussed with the club their ideas about what could be done, and before long a group dedicated to the idea of getting a working HSMM-MESH network started meeting.



Glen Currie, KD5MFW and Jeff Schmidt, N5MNV at the Decker Challenge HSMM-MESH setup.

(Continued on page 5)

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 January 5th at Bethany United Methodist Church:

Technician Class Licenses Processed

Philip E. Gardner KF5THR
Joseph C. Rowe KF5THP

Matthew R. Martin KF5THQ
David A. Troeger KF5THO

David D. Moore KF5THN

General Class Licenses Processed

Richard C. Patterson KF5OCU

Charlie L. White KF5SQG

Examiners Participating in this Test Session

Milt Cram W8NUE

Tony Davee KM5JH

Curt Goodson W4QBU

Larry Gunter WB5BEK

Gene Hinkle K5PA

Joe Makeever W5HS

Carol Thiel N5TLY

Joe Thiel N5SMN

Next ARRL VE Test Sessions

February 2nd - Bethany United Methodist Church, Disciple Bldg. Room 203/204

March 2nd - Bethany United Methodist Church, Disciple Bldg. Room 203/204

TNX ES 73 DE W5HS

Joe

1-19-2013

The South Austin W5YI VE team heartily congratulates all of the following people who earned new or upgraded amateur radio licenses at our January 19th session:

Extra Class –

William E. Johnson, K5WEJ

General Class –

Ralph L. Coffman, KL1XK

Raymond D. Hoyt, Jr. –new–

Technician Class - (new)

Margaret M. Coffman

Dustin M. Currin

Our administering volunteer examiners were:

Craig Bean, AC5KW

Sam Mihalik, KM5MY

Jim Greenwood, AB5EK

Gary Popp, AE5JR

Our next two amateur radio exam sessions will start at
2 PM on February 9th and March 16th in
room 118 of Fleck Hall on the campus of St. Edward's University.

All sessions are walk-in and 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	Lori Schmidt	KM5MQ	632-6789	president@austinhams.org
Vice President	Rich Kerschner	KC9VFT		vice-president@austinhams.org
Treasurer	Jay Hoffman	KA5OST		treasurer@austinhams.org
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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	No	
146.880	Yes	General
146.940 107.2 PL Tone	No	Most popular, WX, Swapnet & Newslite
224.800	No	
444.100	No	
440.650 +5	No	70cm D-Star Repeater [W5KA]
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.

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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.** Material may be used in a later issue. Unless otherwise noted, permission is granted to reprint AARCOVER articles, provided you credit the author and the AARCOVER.

“NOUJR and His Friends” is reprinted with permission by Greg Trook, Trook Enterprises. Cartoons may not be reprinted without written permission. For information: <http://incolor.inebraska.com/n0ujr>.

“XYL” is printed with permission by Carolyn Canfield, KE5DTS. Cartoons may not be reprinted without written permission.

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

See Jay Hoffman, KA5OST

ka5ost@arrl.net

Jay handles all changes for membership information .

Club Dues for 2013 are Due!

The new year is almost here and you might as well get a jump on things by paying your dues for the 2013 year.

Besides the admiration of your friends, you also get guilt free use of all club repeaters, access to club equipment, online help through the use of the Austin Hams Yahoo group and much more!

Be the first on your block to be a new member in 2013!

You can pay online at- <http://www.austinhams.org/join.htm>

Just fill out the .pdf form and mail to:

The Austin Amateur Radio Club
PO Box 4739
Austin, TX 78765-4739

AARC Meeting Minutes: January 1, 2013

Meeting called to order: 6:58 PM by President Lori Schmidt, KM5MQ.

Meeting started with a welcome to all.

We had 29 in attendance w/ 2 visitors & 0 new members. 1 upgrades reported.

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

Past Events:

Xmas party with commentary by Mitch KD5HCV

Decker Lake Challenge: Commentary by Mitch KD5HCV re: Moby Dick and VHF comms, HSSM-MESH was also deployed

Trail of Lights: TCREACT thanks all participating hams as per Stuart K5KVH

Upcoming Events/Announcements:

Jan 12 Shertz Hamfest

Jan 13 3M Half marathon

Jan 20 Big Bend Ultra: HSSM-MESH deployment. For participation, contact Carol Voss through the Big Bend Ultra 50 site, or check SWAPNET. Voice operators are needed to man checkpoint stations.

Jan 26 Skywarn Class @ McCallum HS by KE5BCK

Feb 2-March 2 Ham Class

March 9 Cap10K packet stuffing party – contact N5MNV

2013 club dues are now due

AARC T-Shirts still available, check aarc.org for details. QRCA (Quarter Century Radio Amateur Association) for operators in the hobby 25 years or more.

These items, other upcoming events, and scheduled presentations are listed in the AARC Swapnet newsletter, at www.austinhams.org, and on the Yahoo user group.

REPORTS:

President: None – happy to be present!

V-P: None by Rick Kershner KC9VFT

Treas: Jay KA5OST not present

Editor: N5OUJ donated several years of AARCOVER issues to AARC. Mitch welcomed articles, photos, etc for inclusion in future issues of AARCOVER.

Tech Committee: 146.940 sounds a little weak at certain locations. 146.880 off the air until current issues are fixed.

ARES: Glen Reid K5FX not present. ARES meetings resume on 4th Tuesdays, 7pm at ARL.

SIG/Other: TCARES website is currently down and under repair. Repeater reporting is not available.

Space Wx: by Lew W5IFQ. Cycle 24 seems to have peaked according to some experts and current data. Unusual sporadic E propagation recorded for TXARMY MARS net on Dec 31st at 0215 Zulu.

Old Business: None

New Business: Stuart K5KVH covered the W5TQ trust for AARC estate donation and scholarship. Explained about scholarship board members and motioned for Joe Fischer and Marie Vanderwheel to be re-elected for trustees. Motion was seconded by Mitch and approved unanimously by all present.

Ham-of-the Month: Steve Polunsky W5SMP

Door Prizes: Mug won by N5GV Rich, wire strippers won by KF5SZH Paul.

Adjourned: 8:02 pm

Presentation: TX Army Mars by Lew Thompson W5IFQ.

Throughout the year this group met up occasionally to discuss what would be the best way to set up a network, what all would be needed and how to get the equipment to Big Bend. A couple of months ago a meeting was held in which most of the details were hammered out. They figured out how many MESH nodes were likely to be needed, how many batteries, antennas of different sizes and different gain, antenna masts and anything that needed to be borrowed or bought.

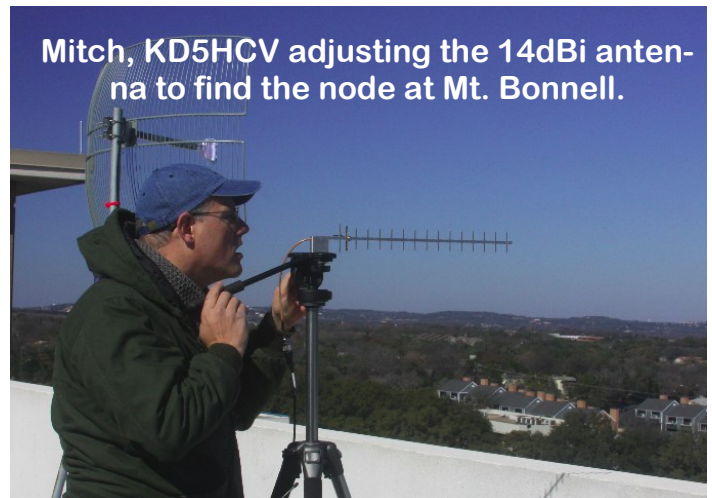
Pretty soon the Decker Challenge came around and that was a prime opportunity to test out some ideas and equipment. While many of the regular HSMM-MESH members knew what they were doing and set up the main base and some remote units up with out much problem, Mitch, KD5HCV being still a newcomer to HSMM-MESH deployed his own set up in hopes of linking into the main MESH network. Unfortunately a large hill was between him and his target.



Many things were learned that day, one of which was to research the area you are deploying to and make sure you can see your targets! This led to the use of a website called <http://www.heywhatsthat.com/profiler-0904.html> which allows you to find two points, type in a frequency and it would show you a graphic that could tell you whether or not you have a chance of making a connection between those two points. With this knowledge more research was done on the site for the race in Big Bend. Optimal targets were located using that site and some good old fashioned

topographical maps. It was determined that at least 3 nodes were needed to make a 10 mile run and a shorter 2 mile run. With these figures in mind a test was called for and a few weeks before the race Mitch, KD5HCV Glen Currie, KD5MFW, Joe Jelinsky, KC2KG and Paul Kinney, KD5VRU set out. They met up at Toney Burger Center Parking lot on a crisp morning to test some antennas to see what would be most appropriate for the task. After braving the cold for a few hours they came up with the needed equipment and the following week another test was done, this one being a more realistic test. One node was set up at the parking garage at St David's South which would act as a relay point for the other nodes. One was at another parking garage at MoPac and Steck and another node was at Mt. Bonnell viewing area.

They successfully linked all three nodes together and were able to get video from one node to all the others as well as test out a chat program. Bolstered by their success that day, and since the race was only a couple weeks away, they felt confident that all would be well come race day. Little did they know!



In Big Bend National Park, set up began by hauling up equipment to the relay site on top of Ernst Ridge. This would be a critical node as it needed to reach both the finish line and the race headquarters each

(Continued on page 6)

on opposite sides of the ridge! Over the course of 2 days equipment was hauled 400 feet up a steep incline. The first link tested was that to Rio Grande Village (RGV) which was just under 2 miles away. That link was made using a 12 dBi omni-directional antenna on the ridge and a 14dBi yagi at RGV. As for the link to the finish line a 24dBi BBQ grill type antenna was used. Using binoculars, they tried to find the finish line 9 miles away. Their best guess was made and the antenna locked down.

The next day Alan and Mitch drove out to the finish line while Joe went back up the mountain and Paul manned the station at RGV. After setting up the node at the finish line, the time had come to line up the other 24 dBi dish pointing back to the ridge. Again binoculars were used but trying to spot an individual on a mountain nine miles away is pretty much impossible. Luckily Alan had the presence of mind the day before to look from the ridge behind the antenna to see what the landscape looked like so that they could look for those features when setting up the finish line. On the mountain, Joe took out his signaling mirror and began to flash his

location. Luckily no planes came in for a strafing run and they were able to see a very bright flash from his mirror. The antenna was adjusted and they checked the link quality on the laptop and were very happy to see they had a 100% link quality to the ridge and could also see the remote node of RGV! Shortly after that they turned the IP camera on and plugged it into the network and soon RGV reported they could see the camera! Hurray! After a few screwy faces made into the camera for posterity, the network was shut down and they called it a day. Joe went back down the mountain and Paul closed up shop at RGV. Alan and Mitch however, stayed out in the backcountry so that they would not have to get up at 4am to drive an hour and half to get to their stations.



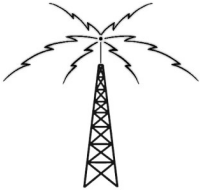
IP camera set up at the finish line



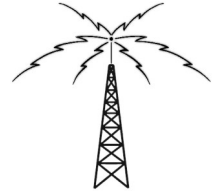
Alan, KE5DTR carrying an antenna tripod up the hill

Race day arrives! Due to a shortage of hams all pulled double duty and work both voice comms and MESH. At 7 am and Alan and Mitch are up and headed to the finish line to turn on the nodes and make sure spare batteries are available. Joe and Paul head to the start of the race as Joe will be sending the runners off and Paul will be at the 5 mile aid station. At 7:30 the 50K runners are off, and at 8:30 the 25K runners are set loose. Joe finished at the start line, heads back to Ernst ridge and goes back up the mountain to bring a fresh battery to the relay. As he is doing that the runners go past Paul at the 5 mile mark and he then makes his way back to RGV to turn on the node there and get the screen set up so people can watch the video from the finish line 10 miles away! By now Mitch and Alan are done and head back to Aid 6 and 7 to take their spots along the course. Joe is down from the mountain and heads back to help Paul. Alan drops Mitch off at Aid 7 and then heads to Aid 6, just before he gets there, he comes upon the first runner thereby letting them know that they were able to get the HSMM-MESH network up and running with video going back to the race headquarters all in time before the first runner crossed the finish line at a time of 3 hours and 40 minutes (which turned out to be a record)!

The last runner made his way across the line at a time of 9 hours and 30 minutes. During the whole race only one battery had to be replaced at the finish line and thanks to a spare battery at the node, it was back up and running within 5 minutes. A huge win for HSMM-MESH and a huge thank you to not only those that went to Big Bend for this project but to all those who contributed time and equipment to make it all happen. Who's ready for 2014?



Over the WWaves...



A Collection of useful and interesting Websites sent in by our readers

Forwarded By Rick Herndon, K5FNI

<http://blog.makezine.com/2012/11/25/jeri-talks-bridge-oscillators-and-flip-flops/>

Find out what a flip flop is.

<http://blog.makezine.com/2012/11/20/252117/>

Young maker wows M.I.T.

<http://www.circuits.io/>

Accelerating Electronics Innovation

Forwarded By Juanita Miyasaki, KD5OIE

BUAA-SAT is a university micro-satellite project developed by the students of Beihang University (Beijing University of Aeronautics and Astronautics). It carries an amateur radio

435/145 MHz FM voice transponder The satellite has a mass of 30kg, dimensions of 30cm*30cm*50cm and aims to go into a 600-800 km Sun Synchronous Orbit (SSO) from Taiyuan in late 2014.

The primary missions are:

- To study the application of COTS components used in the onboard electronic system
- To demonstrate the coilable mast deployment mechanism
- To carry out imaging using three CMOS cameras

Moreover, it provides a 27dBm U/V FM voice transponder for the use of radio hams world-wide as well as a 20dBm CW beacon and a 27dBm AX.25 beacon also in the 145 MHz band.

BUAA-SAT website <http://sat.buaa.edu.cn/>

BUAA-SAT Group in Google English <http://tinyurl.com/BUAA-SAT-Group>

The Austin Amateur Radio Club, Inc.

Membership Form for the year ending December 31, 20__

Application for: (check applicable box and enclose payment)

AARC Individual \$20

Family (all with same mailing address) \$30

Student rate (thru 12th grade, no mail) \$ 5

ARRL Individual ARRL (new or renewal) \$39

Senior ARRL (new or renewal) \$36

Family member ARRL (at same address) - \$8ea x ____ =

First time ARRL discount -\$15

TEXAS HAMPAC (Political Action Committee) \$

Total Enclosed _____

Mail this form with payment to:

AARC - P O Box 4739 - Austin, TX 78765-4739

Check One: -New member -Renew membership -Update Info

ARRL member **Y** **N** License class **E A G T+ T N** Year first licensed _____

Call sign _____ First Name _____ Last Name _____

Mail Address _____

City/Str/Zip _____

Hm Ph _____ Cel Ph _____ Wk Ph _____

Pager # _____ e-mail _____

Please list additional family members here and check the family member box above.

2nd Call _____ Name _____ ARRL mem **Y** **N**

3rd Call _____ Name _____ ARRL mem **Y** **N**

4th Call _____ Name _____ ARRL mem **Y** **N**

I/AWE have interest in the following:

- Monthly meetings Field Day Working Events Transmitter Hunts
- Talking on 2 mtrs DXing Newsletters Holding Office
- Presenting programs CW Net Control Emergency Comm's
- Holding ARRL office Education Public Awareness Working w/Youth
- Others _____

Rcvd ____ / ____ / ____ Amt \$ ____ Ck ____ Cash ____ Dep ____ Post ____
(for office use only)

JMH 20110315

[AARC Meeting Info.](#)

Waterloo Icehouse

**8600 Burnet Rd. South of 183
(Come early and have dinner!)**

Business Meeting 7:00 pm

February 5— The HSMM MESH group that went to Big Bend presents HSMM MESH in Big Bend National Park

Officers Meeting 7:00 pm

February 19 - Come by and watch the officer at work!

[2013 Upcoming Amateur Exams](#)

ARRL VEC— February 2nd & March 2nd 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- February 9th & March 16th 2p.m. in room 207, Fleck Hall, St. Edwards Univ. Contact Jim Greenwood, AB5EK@arrl.net, (327-6184) for more info.

<http://texashams.org/w5yi-austin>

2013 Calendar of Events

Feb 2 Hamfest & Computer Show
<http://www.tsarg.org>

Feb 9 Harris County CERT Rodeo
Humble, Texas

www.harriscountycitizencorps.com/news/certrodeo.asp To volunteer, please send an e-mail to: n5cas@earthlink.net

Feb 10-17 Ham Radio Cruise 2

Reservation deadline has passed, plan on contacting the ship on HF! (80-10m) Listen for "Carnival Magic- Maritime Mobile" on/near any of these:

3.873 7.285 7.290 14.300 18.160 21.280
24.960 28.400 (all in MHz)

For general information- Lori
KM5MQ@arrl.net

Feb 16 Helicopter Landing Zone Class

Shoreline 15201 Burnet Rd
www.mset-tx.org

Feb 23 Orange Hamfest

Orange, TX
<http://www.qsl.net/w5nd/>

Upcoming Meetings...

Feb	Mar	Austin Meetings/Happenings	Time	Address
5	5	AARC Meeting Waterloo Ice House*	7:00 p.m.	8600 Burnet Rd.
9	9	Austin QRP, Alvin's Sandwich Shop	11:00 a.m.	12200 Research Blvd.
18	18	ATV Club Meeting La Palapa %	7:00 p.m.	6640 Hwy 290 E
16	16	QCWA IHOP 183 Near Duval	1:30 p.m.	11654 Research Blvd.
27	27	Digital Wednesday at Red Cross	7:00 p.m.	2218 Pershing
25	25	Travis Co. REACT Jim's 183 & Burnet	7:30 p.m.	9091 Research Blvd.
26	26	Travis County A.R.E.S., ARL Auditorium	7:00 p.m.	10000 Burnet Rd.
28	28	CERT Meeting, CTECC	6:30 p.m.	5010 Old Manor Rd.
25	25	CTDXCC Meeting Old Quarry Library	6:30 p.m.	7051 Village Ctr Dr.

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

% New Meeting Location for ATV