

The Repeater



The Official Publication of the Twin Cities Repeater Club, Inc.

Mission Statement of the Twin Cities Repeater Club, as Adopted on September 20, 1993

The purpose of the TCRC is to facilitate the local communication needs of its members by owning and operating a state of the art wide area coverage two meter repeater system. The club will further involve itself in secondary activities intended to (1) promote the exchange of ideas and information related to amateur radio, (2) strengthen the fellowship and camaraderie among the members, (3) serve the local amateur radio community, and (4) increase local public safety.

TCRC Quarterly Membership Meeting Tuesday, March 28, 2006 7:30 PM until 10:00 PM

The next Quarterly membership meeting of the Twin Cities Repeater Club will be held on Tuesday, March 28th, at Burnsville City Hall, in one of the basement rooms. This is the location that we have used frequently in the past, but *not* where we have held the last couple of meetings.

As we usually do on the Tuesday evenings of the quarterly membership meeting, we will have an abbreviated version of the TCRC Information Exchange net, from 7:00 PM to about 7:30 PM, so the meeting can get started at that time. You are welcome to show up at Burnsville City Hall before 7:30 PM (as early as 6:45 PM is okay), so you can chat with the other folks who have come to the meeting, and enjoy the coffee and cookies that will be provided. We hope to see you there!



Update Your Info

From time to time, your email address, telephone number, mailing address or even your Amateur Radio callsign (remember the vanity callsign system) has a tendency to change. These changes make it very difficult for the TCRC to reach you and mail you a newsletter. There is an easy solution to this problem. Go to www.tcrc.org and look at the main menu in the upper left corner of the first page. About four lines up from the bottom is "Update Your Info." By clicking on this line and following the instructions, all of your personal data may be brought in line with reality. Please do this at your earliest convenience. You will need to know your PIN (Personal Identification Number), which should be on the mailing label of this newsletter. If you don't know about your PIN, click on the "PIN information" line.

Late Winter, 2006 Volume 29, Number 1

Inside this issue

Mission Statement	1
Quarterly Membership Meeting	1
Update Your Info	1
Field Day 2006 is Coming!	2
Welcome, New Members	3
Skywarn Update	3
Emergency Communications	3
Mind Control Morse Code.....	4
CSVHFS Annual Conference.....	4
November 2005 Meeting Highlights	5
Potluck Party.....	5
Gratuitous Plea for Newsletter Articles ..	5
SuitSat 1 - A Qualified Success!.....	5
Membership Application	6

*Please Join Us
for the TCRC
Quarterly
Membership
Meeting, on
Tuesday,
March 28th, at
the Burnsville
City Hall!*

The Repeater is published quarterly by the Twin Cities Repeater Club, Inc. (the TCRC). The TCRC is organized as a nonprofit corporation in the State of Minnesota, with Articles of Incorporation and Bylaws. The club elects officers annually. These officers are simultaneously elected for a two-year term on the Board of Directors. The Repeater Trustee is a permanent member of the Board of Directors. Unlike the other Officers and Board Members, the Trustee may select a proxy to serve in his place at meetings of the Board. Membership in the TCRC is \$25 per year. The TCRC is an official ARRL affiliated society.

TCRC Officers:

President: Phil Lefever, KBØNES
Vice President: Mark Neuman, KCØITP
Secretary: Tanna Morse, KCØURO
Treasurer: Craig Larsen, KCØDMF

Board Members:

All of the above Officers, plus...
Ivan Frantz, WØBU, **Repeater Trustee**
Ivan has currently appointed Mogens Dantoft, OZ9MD, as his proxy for Board Meetings.
Jim Rice, NØOA, **Past Secretary**
Jeff Goodnuff, WØKF
Larry Jenkins, KØLEJ
Artie Johnson, WBØJMG

Technical Committee (a/k/a Tech Team):

Kevin Uhlir, NØBEL, **Chair**
Phil Lefever, KBØNES, **Vice Chair**
Doug LaBore, NØBIS
Mike Ferguson, NØDGG
Rich Kenney, WØRFK
John Toscano, WØJT
John Phelps, KFØZM
Steve Filek, NØOWL
Kent Peterson, KCØDGY
John Laxson, KCØPZN

Field Day Committee:

Mark Neuman, KCØITP, **Chair**
Jim Rice, NØOA, **Vice-Chair**
Kevin Uhlir, NØBEL, **Site Setup Manager**
Monica Filek, KBØUWZ, **FOOD Station Manager**

Information Services Committee:

Kevin Uhlir, NØBEL, **Chair** and **Head Webmaster**
Phil Lefever, KBØNES, **Assistant Webmaster**
John Toscano, WØJT, **Assistant Webmaster**
Jeff Goodnuff, WØKF, **Web Calendar Maintainer**

Membership Committee:

Doug Ayers, NAØVY, **Chair**
Craig Larsen, KCØDMF
Tanna Morse, KCØURO

Newsletter Committee:

John Toscano, WØJT, **Editor**

Net Control Operators:

1st Tuesday: *Open*
2nd Tuesday & **Chair:** Larry Jenkins, KØLEJ
3rd Tuesday: *Open*
4th Tuesday: Phil Lefever, KBØNES
5th Tuesday: John Toscano, WØJT
Alternate #1: Jeff Goodnuff, WØKF
Alternate #2: Mark Newman, KCØITP

Metro Skywarn Liaison:

Jeff Goodnuff, WØKF

Minnesota Repeater Council Liaison:

Jeff Goodnuff, WØKF

Field Day 2006 is Coming!

By Mark Neuman (KCØITP)

Well, Field Day 2006 is fast approaching, even though it does not seem like it. This year, Field Day setup starts on June 23, and operations will occur on June 24th and June 25th. The TCRC is getting ready to party / contest / have a good time. Field Day was originally started by the ARRL in the name of training amateur radio operators to operate using temporary stations, in less than ideal conditions. The lessons learned by those folks that operate Field Day are invaluable, in the event that any large-scale disaster ever occurs. Within hours, we could have several stations on the air using temporary equipment to provide wide range communications. All this is accomplished without using any permanent equipment, and using only emergency power. Field Day helps us to keep our skills sharp, and teaches us how to pull together and work as a team.

The Field Day location will be the same as in past few years, about 1 mile south of County Road 46 on County Road 3 in Rosemount. Also, as in past years, the TCRC is looking for a number of hardy souls to help put up the antennas on Friday evening June 23, so plan to swing by and help pull the towers into the sky. In fact, setup can begin as early as 1 PM on Friday, but we usually save the tower erection for the early evening hours, so folks who are unable to leave work early can still come out to help. (It takes quite a few hands to pull up those towers safely!)

Mark (KCØITP) will again be the Field Day coordinator with Jim (NØOA) stepping in at the last minute, since I will be out of the country during Field Day itself (bummer). I hope to be operating as KCØITP/OE. As in past years, we will be operating as a 3A station, that is, 3 HF radios (CW, 20M voice, and general voice) along with a GOTA station (Get On The Air, to help encourage inactive hams and hams-to-be to do just that), and a VHF/UHF/Satellite station. All stations except GOTA will operate under the callsign of WØBU. Last year was a GREAT Field Day with the TCRC earning 8,444 points, which made us the leader in our operating class (3A) in the state of Minnesota, and in the nationwide view of things, we placed 10th in our operating class, which is quite an achievement. This year, I hope to take some lessons learned along with the fantastic help from the members of the TCRC and do even better.

I am now asking for volunteers for the following positions:

- Bonus points coordinator
- Station manager for the CW station.
- Station manager for the 20M voice station.
- Station manager for the general voice station.
- Station manager for the GOTA station.
- Station manager for the VHF/UHF/Satellite station.
- Facilities support (generators, gas, power lines, and network).
- Radios (acquiring loaner radios)
- Camper trailers for station shelters.

When broken out like this, each volunteer does not have a big task. So, please help us out, as many hands make light work. To that end, I will have a preliminary planning meeting later in March. Watch and listen for the announcement, with the real work starting in early May.

As always, the TCRC hosts a picnic on the Field Day site on Saturday starting at about 5:00 PM, so bring your family and friends on by (along with a dish to share) to meet and greet and put a face to those voices you have heard on the best repeaters in the Twin Cities area. As always, visitors are very welcome.

All Field Day questions, comments, offer to help should be directed Mark Neuman, kc0itp@tcrc.org.

Mark Neuman (KCØITP)

Welcome, New Members!

The following folks have recently joined the ranks of the Twin Cities Repeater Club, or have re-joined after a period of elapsed membership. Please welcome them the next time you hear them on one of our repeaters! The club thanks them for their willingness to participate.

WNØV	Kim Rawlinson
KCØTII	Joseph Sebastin
KCØVUY	Scott Palacheck
ABØXE	Steve Howard
KØDBK	Brad Kimble
KCØVBW	Andrew Palmquist



Skywarn Update by Jeff, WØKF, Skywarn Liaison

As I prepare this update in late February, the Skywarn Training Classes have not yet begun. Skywarn training is good for two years, so remember: if you didn't train last year, you need to do it this year if you intend to participate. The TCRC is again offering two opportunities to attend Skywarn classes. The first will be on March 4, 2006 at Burnsville City Hall from 9:00AM until 1:00 PM, and the second will be on June 10, 2006 at the same location and time. There are many other training opportunities available in the Twin Cities Metro area and they are all listed on:

www.skywarn.ampr.org/sked.html.

For those who are interested in more information than is available at a spotter training class, Metro Skywarn is offering the *2006 Skywarn Workshop*. This is a full day event, offered on April 29, 2006 at Concordia University (I94 & Hamline in St. Paul). It is free and additional information is available at:

www.skywarn.ampr.org/msw2006/index.html.

The spring 2006 Skywarn Newsletter is full of good information and may be seen at:

www.skywarn.ampr.org/images/06sprgswnl.pdf.

I would encourage everyone to download a copy and read it.

Anyone with questions about Metro Skywarn or storm spotter training is encouraged to call me at 952-927-0201. Remember, Metro Skywarn trains *spotters* not *chasers*! **BE SAFE.**

73, Jeff (WØKF)

Emergency Communications

by Steve Howard, ABØXE
Dakota County ARES EC

Ham radio is a great hobby. It opens up the world to new friends and activities. It opens a world to tinkering in electronics and communication techniques. It is also probably one of the few hobbies that can also be used to help people in times of distress. We've all heard about the great work the Ham Radio community did during the days of 9/11. Just recently, Hams came to the rescue during the hurricanes in the Southeastern U.S. They have helped in times of floods, tornadoes, and wildfires.

Dakota County may never see a Hurricane, but we may see a bad tornado some day. We could have the mighty Mississippi flood her banks. When such a scenario occurs, a lot of us will be more than eager to help. Unfortunately, you may not know where to go or what to do and your good intentions may go to waste. Good-intentioned Hams who do not have proper training or the proper credentials can be turned away from disaster sites.

One of the easiest ways to make sure that you can help in an emergency is to be part of an emergency group and Dakota County has such a group. It is called Dakota County Emergency Communication. This group is an ARES/RACES group that has been funded by Dakota County. The County has spent thousands of dollars setting up a Health and Welfare Station in the Northern Service Center in West St. Paul. It is fully equipped for VHF, UHF, and HF Ham Bands. The County has also opened this building to us for the purpose of training.

Presently, we have about a dozen people who meet and train every month. We have another 15 people who train on a less frequent basis. To insure the County that we can meet its needs in time of crisis, Dakota County Emergency Communications is looking for Hams who would like to join our group. Our ARES meetings combine emergency training with Ham activities, such as PSK31 training, antenna building, NTS Radiograms, and much more. We try to keep a balance between work and interesting Ham activities.

You are welcome to stop in and check us out, or stop by our net and say hello. If you do not want to join, but still would like to participate in some of our meetings, please do so. You are very welcome to participate with us on any level. Our Monday night VHF net is held at 8:00 PM, on the 147.39 repeater. You will need a 77 Hz PL tone. A 75 meter net, and a CW net, follow the VHF net.

Just remember the old saying "the time to train is not during an emergency."

For more information please contact:

Steve Howard, ABØXE, ab0xe@comcast.net, 651-455-0209

-or-

Brad Kimble, KØDBK, k0dbk@comcast.net

Mind Control Morse Code by Doug Ayers, NAØVY

Is it possible to send Morse code using only your mind? The answer is yes, but it isn't easy. But neither was learning to talk when you were a baby.

As a graduate student at the Naval Postgraduate School, I was enrolled in a number of bio-electronics classes. In these classes, we learned through class and lab experiments that it is possible to make something happen using only the electrical signals from an electroencephalograph (EEG). At the time, we were interested in investigating higher frequency brain waves in the 50-70 Hz region seen mixed with alpha waves. Alpha waves are generally 5-8 Hz. The plan was to measure the performance of a simulated pilot's task and while providing biofeedback of the amount of correlation between the area of the brain associated with hand movement and the area of the brain associated with vision. For example, a person trying to fly a simulator in simulated rough weather has a light that gets brighter when the brain waves closely match in the hand control and vision regions of the brain. Compare this to actual performance and you may be able to predict who would make a good pilot. In my case, I only ran one subject before I graduated and we thought everything went well until we asked him to give us one last run of a relaxed state. The room got brighter and brighter, and we couldn't figure out why. He later said he got bored and started playing mind games that got progressively harder. He thought of the alphabet going forward and then counting form 1 to 20 and then did it backwards. The room light hit a high when he started counting backwards from 500 by 7's. What that has to do with higher frequencies on the alpha waves over his hand and vision, I don't know. Maybe he was counting with his fingers!

I have read internet accounts of people being trained to control their alpha waves to send Morse code. Your alpha wave looks like a fully rectified sine wave on a scope. The more you can relax and not think of anything, the larger the waves get. The more you concentrate on something, the smaller they get and the more noise, i.e. higher frequencies, there is on the waveform. So, in theory, if you could just go from a relaxed state to a concentrated state for short or long periods of time, your alpha wave magnitude could be used to control Morse code. The problem as I see it from my personal experience is that it takes time to go from concentrating to being relaxed. Maybe if you practiced it for a long period of time, you could learn to go from a period of small alpha waves to large alpha waves in less than about 30 seconds. As it is, I would think it may take you a minute to send something other than an E or a T in Morse code.

The brain is a very complex computer, as we all know. The synapses fire, spreading from one to the next, and at the same time, spreading in 3 dimensions. If you compare it to a computer, they also don't stay locked in a high state. They fire and then rest. It would be nice to just think of a letter, and have a computer recognize what letter you are thinking of,

and then print it on a screen. Then you could use PSK31 or CW. I don't think we are there yet, but if I was completely incapacitated and I could use my alpha waves as the only way to communicate, I would definitely want to try to use it.



Central States VHF Society 2006 Annual Meeting by John P. Toscano, WØJT

Looking for something a little different in Amateur Radio?

The Central States VHF Society (CSVHFS) is a not-for-profit organization which was begun in the mid-1960s to foster Amateur Radio operation on the bands above 50 MHz. Membership currently numbers about 300, principally in the Midwest states. However, it has members in states from the Atlantic Coast to the Pacific Coast, as well as in Canada and several foreign countries.

The CSVHFS holds a Technical Conference once a year. The goal of the conference is to raise the technical level of Amateurs by providing a forum for presenting technical papers relating to VHF, UHF, and Microwave, to provide a focal point for discussions on operating practices and procedures, on exploration of modes such as EME, MS, FAI, E-skip, etc., and other topics that promote operation on Amateur bands above 50 MHz. The location of the conference changes each year. Conferences have been held at locations ranging from Colorado to Texas, Louisiana, Illinois, Manitoba, to Ontario. This year, for the first time in 10 years, it will be held in our backyard, in Bloomington, MN. So if these aspects of Amateur Radio are of interest to you, then this is the year that you have no excuse for missing the conference! No expensive plane flights or long cross-country car trips, or high-priced hotel accommodations will be needed. Just a quick trip to the 494 strip for the hours of the conference. Of course, there are many planned activities to go with the technical conference, and you might very well wish to partake of some of them in spite of being a "local".

This year marks the 40th Anniversary of the Central States VHF Society Conference. It is being hosted this year by the Northern Lights Radio Society, and will be held on July 28-29, 2006 at the Ramada Mall of America (formerly the Thunderbird Hotel) in Bloomington, MN.

You can find a lot more details at the CSVHF Society's web page, and in particular, at the following URL:
<http://www.csvhfs.org/CSVHFS2006.html>

You can also learn more about the host club, the Northern Lights Radio Society at their web page:
<http://www.nlrs.org>

I hope to see you there!

November, 2005 Quarterly Membership Meeting Highlights by John P. Toscano, WØJT

The final quarterly meeting of the Twin Cities Repeater Club for 2005 was held on November 29th, in the Galaxie branch of the Dakota County Library. At that meeting, we barely managed to elect club officers before being told that the library was closing for the night and we had to vacate the premises. Needless to say, this was pretty disruptive, and was totally unexpected by us, since prior meetings had been allowed to run well past library closing time. Given the new enforcement of this supposedly long-standing policy, it seems unlikely that we will be using that space for future meetings. We simply enjoy one another's company too much to guarantee that we will get out of the room by 9 PM!

The next quarterly meeting (the first meeting of 2006) is, not surprisingly, being held in a different location. We will be going back to Burnsville City Hall, where many meetings have been held in the past. So be sure to head to the correct location in a couple of weeks when you come to that meeting on Tuesday, March 28th.

At the November 2005 meeting, the current President (Phil, KBØNES), the current Vice-President (Mark, KCØITP), and the current Treasurer (Craig, KCØDMF) were re-elected to the same positions. Only the Secretary's position changed, as the prior Secretary (Jim, NØOA) felt compelled to decline running again, due to lack of time available. We thank Jim for his several years of service to the club in this position. In his place, the members present elected Tanna Morse, KCØURO, as the new Secretary. Welcome aboard, Tanna!

We also selected Pat Cain, KØPC, as this year's recipient of the Arnie Pung Award for Service to Amateur Radio. Congratulations, Pat!



Potluck Game Night by Tanna Morse, KCØURO

There will be a potluck game night on March 25, 2006. It will be held at the home of Tanna Morse, KCØURO, 1750 Marion Street, Apartment 9, Roseville, MN. The fun is scheduled to start at about 4 PM. Anyone interested in going who needs more information can contact Tanna at (651) 489-0053. Come on out and bring a dish to share.

Gratuitous Plea for Newsletter Articles By WØJT, your Newsletter Editor

This space reserved for YOUR article! Send your finished articles, rough drafts, outlines, or even just a topic idea to the newsletter editor, [WØJT at tcrc.org](mailto:WØJT@tcrc.org), and I will do my best to get it into the next issue of The Repeater. And, if you get two articles published, your TCRC membership will be extended by one year, free of charge! Not to mention, you get your own 3 months of fame (or until the next quarterly issue is published). Remember, the Twin Cities Repeater Club is an all-volunteer organization, and the more you contribute to the club, the more you (and all the club members) will get out of the club. 73 de WØJT, your newsletter editor



SuitSat 1 – A Qualified Success by John P. Toscano, WØJT

No, the picture below does not depict a Space Shuttle or International Space Station (ISS) Astronaut who accidentally “fell overboard” and floated away into space and to his death! It is actually a photo of the deployment of SuitSat 1, the first Amateur Radio Satellite designed around an obsolete Russian Orlon space suit!

This space suit was going to be discarded from the ISS, to burn up in the atmosphere on re-entry, because it was no longer considered usable. Some folks got the wild idea of attaching a Ham Radio transmitter and antenna to the suit, so it could beacon messages to the world on its way down, at least until the batteries ran out. And so, SuitSat 1 was born.

They used an off-the-shelf 2 meter handi-talkie, set to transmit at the 500 mW level. A tiny PIC-based microcontroller monitored elapsed time, suit temperature, and battery voltage, and these telemetry data were “spoken”, along with a variety of greetings in several different languages, and even a slow-scan TV image.

For the most part, the experiment worked well, with one significant exception. The signal strength received on the earth was extremely weak, which made it hard for the average person to hear it on a handheld scanner or amateur radio. It was best heard by stations who were well-equipped for satellite or EME operation. It remains to be determined if the problem was in the radio, feedline, or antenna, but it was estimated that the SuitSat net ERP was no more than only 5 milliwatts, or about 20 dB weaker than expected. In spite of this problem, a lot of folks followed the progress of SuitSat 1 eagerly, and had a lot of fun with it. No one knows when SuitSat 2 will follow, but the cosmonaut aboard the ISS did comment “we have a lot more spacesuits that need to be discarded”.





Twin Cities Repeater Club, Inc.
P.O. Box 11534
St. Paul, MN 55111-0534

**Place
Stamp
Here**

Your Membership Dues Have Expired.
 Please Renew your Membership Today!

Join the Twin Cities Repeater Club!

P.O. Box 11534, St. Paul, MN 55111-0534

<http://www.tcrc.org>

Fill out this Membership Application Form, and mail it with your check for \$25.00 payable to the Twin Cities Repeater Club, to the mailing address listed above. You can also fill out this form electronically at the web address listed above, and either send us a check, or pay online using the PayPal system.

Name _____ Callsign _____ License Class _____

Address _____ City _____ State _____ Zip _____

Home Phone _____ Work Phone _____ Computer Phone _____

Ok to list your address in club publications? ___No ___Yes

Ok to list your phone in club publications? ___No ___Yes

Are you available for Emergency Service? ___No ___Yes

Are you a member of the ARRL? ___No ___Yes

Are you a member of Metro Skywarn? ___No ___Yes, spotter ID: _____

Are you a member of ARES? ___No ___Yes

Would you like an autodial speed dial number? ___No ___Yes, to phone # _____

Would you like a club ID badge? ___No ___Yes (free to new members, otherwise \$5.00)

What is your internet e-mail address, if any? ___None

Would you like an e-mail alias set up, so that mail sent to **yourcallsign@tcrc.org** gets redirected to the e-mail address you listed above? This can be handy on the air! ___No ___Yes

Do you want a copy of the TCRC Handbook? ___No ___Yes (add \$9.50, which includes postage)

Do you want a TCRC binder to hold it? ___No ___Yes (Add \$5.50 to the above)

This is ___New Application ___Renewal ___Other Change ___Callsign update, old call was _____