

PRINTED CIRCUIT

DECEMBER 2002

Newsletter of the Joplin Amateur Radio Club

Vol. 12 Issue No. 6

JARC ELECTION RESULTS

This year the JARC elections were well attended with 19 members present. The nominating committee consisted of Andy Gabbert, and Mike Perry, both of whom did a remarkable job getting a slate of candidates as well as notifying the membership via mail of the upcoming election. The membership is to be commended as well, because of their renewed support and interest in the direction of the club. This year we had three candidates for president!

The meeting was held Tuesday November 26th at the usual place, the basement of City Hall. After some announcements the president turned the meeting over to the election committee and the balloting began. With so many running, a runoff for president was needed, and it took a second ballot to conclude the election.

On behalf of the membership, I personally wish to thank all of the candidates that offered to stand for election, whether you won or not, what was important was that you offered to do the job.

Your elected officers for the 2003 term are:

PRESIDENT:

DAVE FERGUSON, NØKMP

VICE PRESIDENT:

J C ALEXANDER, K5DMI

SECRETARY:

MARK MITCHELSON, NØZPD

TREASURER:

JIM JOHANNES, NØZSQ

The gavel will be turned over to the president elect at the Christmas Party at Ryan's December 10th.

CQ CQ CQ HAMFEST

By J C ALEXANDER, K5DMI

Your hamfest committee has spent over a dozen hours in intense preparation for next year's event. Our work, coupled with member and local ham support, will pay off come April.

Briefly, we have confirmed the following. First, Rod Stafford, W6ROD and ARRL International Affairs Vice President, will be our Keynote Luncheon Speaker. He will speak on the upcoming World Radio Conference 2003 and the threat to the 40 meter band. Second, Wade Walstrom, WØEJ and Midwest ARRL Director, will give both a Saturday breakfast and forum; Wade is the source for ARRL news. Third, Dale Bagley, KØKY and Missouri Section Manager, will offer a presentation concerning the status of amateur radio in Missouri. Fourth, Joe Lynch, N6CL, former Oklahoma Section Manager and current VHF Editor for CQ Magazine will offer a VHF forum. Fifth, we will have some other forums of interest, including one on antennas. Sixth, DXCC checking will definitely be offered on Saturday. Finally, please note that VE testing will be in the *afternoon*.

Next year, we will open Friday evening for early birds and resume all day Saturday. We will still have prize drawings (both hourly and grand). There will be activities for XYLS and a white elephant auction as well. Associated Radio, Clevenger Creations, D&L Antenna, QSLs by NØTT, and WBØW are confirmed as commercial vendors thus far.

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WRC-03 CONFERENCE PREPARATORY MEETING UNDER WAY

The Conference Preparatory Meeting (CPM) for next year's World Radio communication Conference (WRC-03) opened in Geneva, Switzerland November 18. Some 1000 delegates are attending the worldwide gathering.

"The objective of the CPM is to approve a 500-page CPM Report to WRC-03 that will provide a technical basis for consideration of administrations' proposals for changes in the international Radio Regulations," explained ARRL Chief Executive Officer David Sumner, K1ZZ. Sumner is attending in his role as International Amateur Radio Union (IARU) secretary. He says 174 "input documents" to the CPM offer comments on the existing draft CPM Report text and propose additions, deletions, and changes.

Chairing the CPM is Germany's Eberhard George, DL7IH. At the day-long opening plenary, George and the chairpersons of the various working groups provided an overview of the meeting's structure and the

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Don't miss the
JARC
Christmas
Banquet
Tues. Dec. 10th
6pm at Ryan's
7th & Rangeline
Joplin

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Annual Skywarn Recognition Day

A PRIMER ON TRANSMISSION LINES AND SWR

Reprinted from Vol. 8 Issue No. 7 July 1998

The fourth annual SKYWARN Recognition Day (SRD) is December 7 (UTC). That's when Amateur Radio operators set up stations at National Weather Service (NWS) offices and contact other operators around the world. The event is sponsored by the ARRL and the National Weather Service.

"The purpose of the event is to recognize the vital public service contribution that Amateur Radio operators make during National Weather Service severe weather warning operations," said David Floyd, N5DBZ, warning coordination meteorologist, at the NWS Goodland, Kansas, office. "It also strengthens the bond between Amateur Radio operators and the local National Weather Service office."

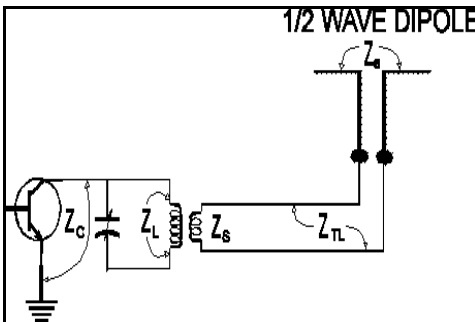
For several decades now, hams have assisted the NWS by providing real-time reports of severe weather and storm evolution. The information radio operators locate near a storm can provide plays a key role in aiding forecasters. SKYWARN operators in several states activated to spot and track an outbreak of severe thunderstorms and tornadoes November 10.

Scott Mentzer, N0QE--the meteorologist-in-charge of the NWS office in Goodland, Kansas, and the creator and annual organizer of SRD--says more than 90 stations are registered to participate, up from 80 last year. Most participating NWS stations will operate on 80, 40, 20, 15, 10, and 2 meters using SSB and FM. Mentzer says a number of NWS offices will be equipped to support Internet Radio Linking Project (IRLP) stations.

All contacts will be made utilizing the General or Novice portion of the bands. Stations will exchange signal report, location and a one-word description of the current weather at their respective locations ("sunny," "partly cloudy," "windy," etc). This is not a contest, so no
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the impedance will rise.

In electricity, whether power or RF, to maximize transfer of energy from one circuit to another, the impedance of both circuits **must** match. An example of impedance matching an RF circuit to produce maximum antenna current and radiation is illustrated below.



The impedance of the antenna Z_a (70 Ohms) must match the *surge impedance* of the two wire transmission line, Z_{TL} . The impedance of Z_{TL} must match the secondary of the output transformer, Z_s , which must couple tight enough to reflect an impedance across the primary, Z_L , that must match the collector impedance of the transistor Z_c . A variation of any part of this chain may prevent maximum output.

Our transmission line consists of two parallel wires which are indicated as having an impedance Z_{TL} . In fact, any two **parallel** wires held apart a **constant** distance will have a characteristic (or surge) impedance value. This impedance is a function of the series inductance and shunt capacitance of the parallel wires, created mainly by their diameter, and the separation distance.

$$Z = 276 \log d/r$$

Where:

Z = impedance in Ohms

d = center to center distance separation of the conductors

r = radius of the conductors (same units as d)

For example, if two #14 AWG wires are placed 2" apart (center to center) to form a transmission line, it will have an impedance of 496 Ohms (do the calculations). The formula above predicts correctly that as the separation increases,

If an infinitely long 500 Ohm transmission line is connected to a matched AC source, maximum power will be taken from the source and dissipated along the line **in the form of heat**. No energy will return. If the line is only several feet long and terminated with a load resistor having a value of 500 Ohms, essentially all of the power from the ac source will be transferred to the load resistor and dissipated as heat. Transmission lines are considered a very efficient method for transmitting energy from a source to a remote load, provided that the transmission line has the **proper impedance**. A 300 Ohm transmission line connected between a 500 Ohm source and a 500 Ohm load will present a mismatch, and the load will not draw maximum power. When the transmission line does not match the load impedance, some of the energy fed from the source to the load is reflected back, forming **standing waves** on the line. Every half wave along the line, a high voltage and low current point will appear, while halfway between these points just the opposite occurs. The ratio of a high voltage point to the low voltage point is known as the **voltage standing wave ratio**, or **VSWR**, while the term **SWR** is reserved for the ratio of the high current points to the low current points.

It is enough to say that when the load impedance matches the line impedance, there will be no standing waves, and the current at **all points** along the line will be the same. Since the current is the same everywhere, the SWR ratio (as defined above) will be 1:1, and the line is said to be **flat**. It should be noted that changing the length of a matched transmission line will have **no effect on SWR**.

Enough to digest for now. In part two, we will conclude with coaxial transmission lines, and I'll cite my sources..

73 for now. Jim WBØIYC

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But now we turn to club members and our local friends for assistance. It is impossible for the five of us, as a committee, to solely run a hamfest. Making your hamfest a success is a three-step process. First, plan to attend; bring your families as well. Second, volunteer for one or more teams as your schedule allows. Whether you can give only three hours for a one-time mailing, serve as a VE, or work on both Friday and Saturday, we need club members to volunteer. We should be proud of our club's effort to make this an Ozark Tradition; at the same time, please spread the word to other clubs and hams. We welcome all volunteers. Finally, talk up the hamfest. Whether checking in on an HF rag-chew net, chatting with buddies down Oklahoma way, or telling your friends out of town, please do advertise the hamfest. About six local hotels near the Convention Center have already agreed to offer a discount. Don't forget that Joplin is *central* to places that offer family fun: Harry S Truman birthplace, Geo. Washington Carver birthplace, Tri-State Mining Museum, and Precious Moments Chapel, to name a few *free* attractions.

In closing, here are the teams and team leaders. We'll post more information in the newsletter and on the Monday night net concerning dates. Contact the leaders if you can assist.

Mailing (basically one-time):

John Tudenham,
w0jrp@earthlink.com

Setup/Operations (help with tables, tickets, loading/unloading, communications, and talk-in):

Jim Johannes, jjohannes@joplin.com

Security (coordinating admission, assisting vendors):

J C Alexander,
westham62@hotmail.com

Guest (hosting Rod Stafford):

Jim Scott, wb0iyc@arrl.net

VE testing: David Hill,
ki0pp@joplin.com

VHF REPORT WHY 6 METERS IS THE MAGIC BAND!

BY JOHN TUDENHAM WØJRP

The longer you work the 6 meter band the more confused you will be about wave propagation. That's why they call it the magic band. Many know that during the peak years of the solar cycle we can communicate world wide via the F2 layer. The band performance predictions are made by watching the daily reports of solar flux, A-Index, and K-Index. One thing to remember is this, propagation is usually a minimum skip distance of 1750 miles, so it provides no direct stateside (48 states) contacts from our location in the Midwest. Since we are past the sunspot maximum which occurred last winter, we will have to wait another 11 years for the great DX conditions like we had last year. Unfortunately, some hams including myself may not be around! Usually it takes a solar flux of around 200 to provide F2 skip conditions. A year ago we were above 200 almost all the time, this last month we did hit 200 once but very little happened. This morning (NOV. 21) we had a big surprise. The solar flux was only 159, but we had a K-Index the night before as high as 6 and an aurora up north. This morning six meter ops woke up to a big F2 opening into both central and northern South America. S9 signals were heard all over the DX band, and also the CW band below 50.1MHz. KØETC and WØJRP worked stations in Panama, Venezuela, Galapagos and elsewhere. Most of the distances of this morning's skip was between 1800 and 2800 miles, a common distance for single hop F2 skip. No double hop skip was present and the opening only occurred to the southern latitudes. Well, we may be learning more about six meter F propagation, but we still call it the "magic band". There was also F2 back scatter propagation at that time, but I will cover that topic at another time.

Keep listening, because on the magic band you will get a pleasant surprise. ¶

ARES NEWS AND EVENT SCHEDULE

The next State-wide Tornado Drill is scheduled for March 12th, 2003.

The Jasper County/Tri-States ARES participates in drills regularly with other area agencies in order to supply a coordinated communications backbone in case of an emergency. All area hams are encouraged to join ARES and become familiar with procedures. Andy is asking that you contact him to "sign up" if you can participate. Generally, the only equipment required for ARES participants is a 2m radio. Certificates are often awarded for various activities and drills.

You can learn more about ARES by attending JARC meetings where ARES announcements are given. In addition, regular ARES announcements are also made weekly at 19:30 on the JARC Monday night net. Andy can be reached at 417-673-8371, on the air, or email at ka0tud@arrl.net ¶

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scoring will be computed.

SKYWARN Recognition Day will take place on December 7th, from 0000 UTC to 2400 UTC. Since SRD is being held on Pearl Harbor Day, each NWS office will transmit a special message from approximately 1800 to 1900 UTC--approximately the time of the Pearl Harbor, Hawaii, attack on December 7, 1941--to honor the World War II veterans.

The deadline to register an NWS site is December 1. Contact Mentzer to register: scott.mentzer@noaa.gov.

Complete information is available on the 2002 SKYWARN Recognition Day Web site.

<http://hamradio.noaa.gov/>

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major issues facing WRC-03.

"Several of the working group chairs were quite candid in their remarks," Sumner said. "Music to many ears including amateurs' was the assessment by New Zealand's Alan Jamieson regarding so-called little LEOs--mobile satellites operating below 1 GHz." According to Sumner, Jamieson said there was no congestion in their existing bands, and sharing studies had been unfavorable. Sumner predicted that the likely outcome at WRC-03 would be the suppression of an existing Resolution that invites sharing studies on the basis of an "urgent need" that no longer exists.

A thornier issue is 7-MHz "harmonization." The IARU backs a 300-kHz worldwide allocation in the vicinity of 7 MHz. "At this stage, we have six methods to address the agenda item," Sumner said--including no change in the status quo. The item is in Working Group 5 (WG5) "We can't say for sure that the six methods will be in the CPM Report until WG5 takes another pass at the revised draft text and it's approved in plenary. "That's not supposed to happen until next week.

Substantive work of the CPM will be wrapped up November 28--Thanksgiving in the US, but just another work day in Geneva.

In addition to Sumner, those representing the IARU at the CPM include President Larry Price, W4RA, and Region 1 Executive Committee member Wojciech Nietyksza, SP5FM. IARU Vice President David Wardlaw, VK3ADW, is on the Australian delegation and ARRL Technical Relations Manager Paul Rinaldo, W4RI, is on the US delegation.

Several other amateurs are on their national delegations, either to represent the amateur services or in professional capacities. ¶

CLUB COAX AT COST TO CLUB MEMBERS
RG8X - \$0.31/ft. LMR400 - \$0.71/ft.
Contact Jim NØZSQ at the meetings.

BUY - SELL - TRADE

NOTE: INDIVIDUAL LISTINGS ARE FREE TO THE AMATEUR COMMUNITY, AND SPACE IS ALLOCATED ON A FIRST COME BASIS. COMMERCIAL AD SPACE IS AVAILABLE AT A NOMINAL CHARGE.

For Sale - Kenwood TS-520 HF Transceiver
This was my personal 5 band 80-10m rig that I used for many years. Very Good Rcvr, modest 160W transmitter (6146 Finals). Includes Kenwood Desk Mic. & manual. Asking \$275. (417) 781-2211, email wb0iyc@arrl.net
12/2002

For Sale - 12V 4.5AH Sealed Batteries - NOS
Rechargeable Sealed Lead Acid batteries for use in alarm and lighting systems. Meas. 3-1/2"x2-5/8"x4", perfect for portable use. Warehouse fire stock, good undamaged batteries with at least 80% of their life left. \$6.00/ea. (417) 781-2211, email wb0iyc@arrl.net
11/2002

For Sale - SIGNAL 1404-S 4 BAY DIPOLE
Heavy Duty 21ft phased array. 140-160 MHz. Former club repeater antenna. Serious offers only. Contact: Martin WD6FIC (417) 623-6618 email wd6fic@arrl.net
10/2002

For Sale - Kenwood TS-660 All Mode four band transceiver. Cover 15, 12, 10, & 6 meters. 12VDC mobile 10W transmitter. Very good shape, complete w/orig. carton, OP & Service manuals. Asking \$450. Ray KBØSTN (417) 781-4967, email kb0stn@arrl.net
10/2002

For Sale - ALINCO DR-570 2/440 FM
12VDC mobile rig w/20 memories. Good shape w/orig OP manual, mt. bracket, and mic. Asking \$150. Ray KBØSTN (417) 781-4967 email kb0stn@arrl.net
10/2002

For Sale - ALINCO DRM-06H 6m 20W FM
rig w/100 memories. Will receive 40-60MHz. Very good shape w/orig OP manual, and mic. Asking \$150. Ray KBØSTN (417) 781-4967 email kb0stn@arrl.net
10/2002

For Sale - TEN-TEC 1209 2m-6m
Transverter. 10W in 10W out, 12VDC. Good Shape. Kit assembled and tested. Operates okay w/kit manual (incl schematics). Asking \$100. Ray KBØSTN (417) 781-4967 email kb0stn@arrl.net
10/2002

For Sale - KLM 2000A 2m All Mode Rig.
Dual power 120VAC/12VDC, 5W transmitter. Collector's Item, (my second radio). Good shape w/orig. manual and hand mic. Asking \$200. Ray KBØSTN (417) 781-4967 email kb0stn@arrl.net
10/2002

AREA HAMFEST SCHEDULE

NOTE: LISTINGS ARE PROVIDED FROM THE ARRL.ORG SITE AS THEY BECOME AVAILABLE. TO SUBMIT AN ENTRY, SEE BACK PAGE.

18 Jan 2003 - St. Joseph, MO Missouri Valley and Ray-Clay ARCs 13th NW Missouri Winter Hamfest at the Ramada Inn (I-29 and Frederick Ave, Exit 47 on I-29; special hamfest rates); Talk-In 146.85 and 444.925; 8a.m.-2p.m., \$3 admission or 2 for \$5. FCC exams, major exhibitors, flea market all indoors. For details, write Northwest Missouri Winter Hamfest, c/o Neal or Carlene Makawaski, WBØHNO/KAØIKS, 3704 Meadow Oak Lane, St Joseph, MO 64503, 816-279-3406; Email: nem3238@ccp.com

1 Feb 2003 - La Cygne, KS Mine Creek ARC presents the Mine Creek Hamfest. KS Community Bldg. on Broadway. 9:00 a.m. to 1 p.m. Free Adm., Tables - \$10, Hourly drawings. Contact: Ron Cowan, KBØDTI, PO Box 36, La Cygne, KS 66040, Phone: 913-757-4455 Email: kb0dti@arrl.net

8 Mar - Harrison, AR Harrison Hamfest 2003 Sponsored by North Arkansas ARS 8:00 a.m. to 2 p.m., North West Arkansas District Fairgrounds. Adm. \$5 (16 and under-free). Indoor Tables \$10, Outdoor Tailgating (requires admission ticket). Contact: Bill Carlton, KD5HBM, 7221 Hwy 62 East, Harrison, AR 72601, Ph: 870-743-6211 Email: kd5hbm@alltel.net <http://vistaeng.homeip.net/naars/hamfest/index.html>

4-5 April - Joplin, MO Joplin Hamfest 2003 *Don't miss this one!* John Q. Hammons Convention Center, Exit 8B & I-44 Fri. April 4th 6-9 pm., Sat. 8 a.m. - 3 pm. Have breakfast at 7 a.m. with Midwest Director Wade Walstrom, WØEJ. Keynote luncheon with ARRL Int'l Affairs VP Rod Stafford, W6ROD. Hourly forums and drawings, ARRL/VEC testing, XYL events, Grand Prize - a complete HF Station. Adm. \$5 adv., \$6 at the door. Tables \$10/\$20, see website for more information or contact J C Alexander K5DMI, 417-206-2339.

19 April - Kansas City, MO Ararat Shrine ARC presents Hambash 2003 5100 Ararat Drive, KCMO

DECEMBER 2002

Joplin Amateur Radio Club Meetings and Events

| <i>Sun</i> | <i>Mon</i> | <i>Tue</i> | <i>Wed</i> | <i>Thu</i> | <i>Fri</i> | <i>Sat</i> |
|-----------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|-------------------------------------------|------------|-----------------------------------|
| 1 14:30 -16:00 JARC SLOW SCAN NET | 2 19:30 JARC MON NITE NET NET CONTROL - WØJRP | 3 | 4 | 5 17:30 THURSDAY NITE OUT- | 6 | 7 09:00 BREAKFAST- |
| 8 14:30 -16:00 JARC SLOW SCAN NET | 9 19:30 JARC MON. NITE NET NET CONTROL - NØZPD | 10 18:00 JARC CHRISTMAS DINNER RYAN'S STEAKHOUSE 7TH & RANGELINE, JOPLIN | 11 | 12 17:30 THURSDAY NITE OUT- | 13 | 14 09:00 BREAKFAST- |
| 15 14:30 -16:00 JARC SLOW SCAN NET | 16 19:30 JARC MON NITE NET NET CONTROL - NØKMP | 17 | 18 | 19 17:30 THURSDAY NITE OUT- | 20 | 21 09:00 BREAKFAST- |
| 22 14:30 -16:00 JARC SLOW SCAN NET | 23 18:30 VE TESTING@ ST. PAULS METHODIST CHURCH 19:30 JARC MON NITE NET NET CONTROL - WD6FIC | 24 | 25 | 26 | 27 | 28 09:00 BREAKFAST- |
| 29 14:30 -16:00 JARC SLOW SCAN NET | 30 19:30 JARC MON NITE NET NET CONTROL - WD6FIC | 31 | <i>HUH HUH HUH... 73S AND VERY MERRY CHRISTMAS TO ALL!</i> | | | |

73 FROM THE STAFF AT THE JARC PRINTED CIRCUIT

Meeting Times, Testing, and other Club Information

The **Joplin Amateur Radio Club, Inc.**, a Missouri *not-for-profit* organization, meets on the second and fourth Tuesdays of each month at the Joplin Municipal Building, on the lower level, in the Civil Defense dining room at 7:30 PM. The facility is accessible to the handicapped.

The club supports and promotes annual operating events, assists area agencies with communications when requested, and offers training classes for advancement in amateur radio. It also sponsors the JARC Hamfest each year in April, and maintains a wide area coverage OPEN 2m repeater on 147.21 MHz (+).

Some club members can be found weekday mornings around 8:30 a.m. meeting for coffee at the Ramada Inn at 34th and Rangeline Road. On Saturday mornings, area Hams also

gather for breakfast around 9:00 a.m. at the restaurant next to Smitty's Grocery located at 1820 Maiden Lane in west Joplin.

For details contact Martin, WD6FIC at (417) 623-6618

2002 CLUB OFFICERS:

| | |
|-----------------------------|--------|
| President: Martin Matarazzo | WD6FIC |
| V. P. Dan Mouldin | KCØBBU |
| Treasurer: Jim Johannes | NØZSQ |
| Secretary: Mark Mitchelson | NØZPD |

Amateur Radio VE Testing

License testing by volunteer examiners takes place on the 3rd Monday of each month at the St. Paul's Methodist Church located at 2423 West 26th St. in Joplin. Sign up at 6:30 PM, testing begins promptly at 7 PM.

ABOUT THE NEWSLETTER

This club newsletter offers an open forum for the Four-State area amateur radio community, and **your** comments and contributions are always invited. Items for publication, including classified ads and amateur radio related articles, may be sent to the **JARC Printed Circuit**, P.O. Box 2983, Joplin, MO 64803-2983, or send email to: **wb0iyc@arrl.net**

Deadline for submissions is the 20th of the month preceding the month of publication. Non-Commercial Classified ads are free and will be run on a space available basis whenever requested. Submissions may be typed, handwritten, ASCII text files attached with email, or on disks formatted for IBM. *All items* are subject to editing for spelling, content, and space limitations as required.

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PRINTED CIRCUIT

Joplin Amateur Radio Club, Inc.
P.O. Box 2983
Joplin, Missouri 64803-2983