CROSSTALK

News Bulletin of the TRW Amateur Radio Club

MEMBER ARRL CLUB NO.1658; MEMBER LAACARC
W6TRW REPEATER: 145.320/-.6 (PL 114.8 HZ)
UHF: 447.000/-5 (PL 100.0 HZ)

CALENDAR FOR JUNE, 1990

Every	Mon	DCS Net on 145.32 machine	7 pm
Every	Tue	EOC project meeting in R3 EOC (meet on Wed. instead, on week of club meeting)	Noon
Every	Wed	Emergency Communications Team Net, 145.32 machine	Noon
Every	Fri	Club breakfast in Bldg. S cafeteria	7-8 am
Jun 5	Tue	EBM at Pizza Hut, El Segundo and Ocean Gate	5:30 pm
Jun 9-10		VHF Contest weekend	
Jun 13	Wed	TRW ARC Picnic, El Nido Park, 182nd and Inglewood	Noon
Jun 16	Sat	Crosstalk deadline	Noon
Jun 23-24		***** Field Day weekend *****	
Jun 26	Tue	Club meeting, E2/1200	Noon
Jun 30	Sat	TRW ARC Swap Meet: Aviation and Marine	7:30-11:30 am

TRW ARC News ... May/June, 1990

Club meeting: Tue June 26 at noon in E2/1200

Be there. Aloha.

May Club Picnic a big success! Next picnic at noon Wed June 13 at El Nido Park

We usually bring enough food for 25 people but in May, for the first time in recent memory, we ran out of food! Wow! For the next picnic, we will have enough food for 30 people, so come on out. Bill Dews K6AWO has agreed to bring the food this time, so if you have any suggestions (that are within the club's budget), please let him know. Talk in on the W6TRW 2m repeater (145.32 Mhz, -600, PL=114.8 hz).

Thanks

Thanks to Jerry Dean WA6GVO for volunteering to be our QSL Manager/Librarian. Welcome aboard! If you would like to see additions to the club library in 65, give Jerry a call at 812-0770.

Space shuttle launch postponed

The launch of shuttle mission STS-35 was postponed Tuesday May 29 due to a hydrogen leak in the fuel system. This mission is of special interest to ham radio operators because Dr. Ron Parise WA4SIR will be on board as a mission specialist and will be operating a ham station from the shuttle, known as SAREX (Shuttle Amateur Radio Experiment). The radio equipment will include a 2m HT and modified TNC which will be used as a robot packet station and - when the schedule permits - real time voice/packet. We plan to use the club's OSCAR station in Building 65 to try and work the shuttle, so it should be interesting. When the launch is rescheduled, there will be more info on the TRW/ARC BBS and on the club hotline. For more info on the SAREX mission, see the May,1990 issue of 73 (available at the club library in Building 65).

VHF Contest: June 9-10

The VHF contest is coming up the weekend of June 9-10, and a group from the TRW ARC will be operating the 440 Mhz station at N6CA on Mount Pinos. Club members are invited to work N6CA (and others) and help in their efforts to win the contest (N6CA was second in the country last year). There is a page of information elsewhere in this issue of Crosstalk, but in summary N6CA will be operating on 50.13 SSB, 144.18 SSB, 146.46 FM, 223.5 FM, 432.1 SSB, 446.0 FM, and higher frequencies up through 24 Ghz. All you need for a QSO is to exchange call signs and grid squares, so fire up your VHF/UHF gear and join the fun! For more information, call Bill Dews at 376-1433 or Rich Sauer at 813-5869.

CQ Field Day: June 23-24

By the time you read this, Field Day will only be a few weeks away! Don Renkowitz W6SQF is coordinating the club's FD effort this year, and we plan to operate 7A from Friendship Park in San Pedro. For those of you who haven't been before, this is a very scenic place to operate from, as it overlooks the Pacific Ocean. During the day you can see for miles up and down the coast, and can see Catalina Island off in the distance. At night you can see the lights of LA Harbor and Long Beach. The site is also in a low QRN, high elevation area, which makes for good DX'ing. The following people have been identified as the band captains for this year, so if you are interested in helping to set up and/or operate one of the stations, please let them know ASAP:

15m SSB: John Shepherd, Ken Edwards
15m CW : Dave Williams, Jeff Shields
20m SSB: Bill Shrec
20m CW : Bill Shanney
40m SSB: Don Renkowitz, Paul Lucas
40m CW : Bob Hume
VHF/UHF: Rich Sauer, Bill Dews
Novice : Jason Shanney, Bill Shanney
Power : Southern California Herbert

At the moment, we especially need CW operators and night shift people. Working the night shift is an attractive option for people with other weekend plans - you can spend the day with your family, then come on out and spend the evening at Field Day. Also this year, we plan to operate an OSCAR station at Field Day. According to current predictions, Oscar-13 will be visible from about 2:30 pm Saturday to 1:00 am Sunday, and will reach apogee at around 7:30 pm, so drop by and work the bird! Harold Price NK6K tells me that he hopes to have the PACSAT BBS code uploaded in time for Field Day, so it should be fun. Dinner is at 6pm Saturday evening, so come on out and join us. If you have any questions or would like to help out, please contact Don Renkowitz at 812-8829. 73 es CU @ FD!

Calling all RV'ers

Randy W6ZWS passed along a few articles on ham radio and RV'ing which appear in the June 1990 issue of "Highways". Randy says there are several TRW/ARC members who are also RV'ers, among them K6AWO, KE6LB, W6NHX, W6ZWX, and KG6CR. Any others? Let us hear from you - how about a good RV yarn for Crosstalk?

Training information from Bill KJ6GR

- Gordon West WB6NOA conducts a General Class code course every Tuesday evening at 7:00 pm on 28.333 Mhz (it's free).
- The TRW ARC will be sponsoring a novice class beginning in mid September and completing around Thanksgiving. If you would like to help by teaching a module on a favorite topic, or by bringing a live demo to the class, please contact Bill Shanney KJ6GR at 813-1108.

Ham Radio History (reprinted from HANDI-HAM World, Spring, 1990)

4 Billion B.C. - Earth is a swirling ball of flaming gasses. Propagation is extremely poor.

1 Billion B.C. - First dry land appears. It is divided up into squares. County Hunters Club formed.

500 Million B.C. - Second patch of dry land appears. First DXpedition. Credit disallowed because of questionable licensing agreement.

400 Million B.C. - Flowering plants and grasses evolve. Telrex invents first beam antenna but sales are slow because of lack of suitable structures.

300 Million B.C. - First tree appears. It is immediately cut down, stripped of branches, placed in a concrete base and named a telephone pole. Telrex sells first beam.

200 Million B.C. - Second beam sold by Telrex. Installer falls from top of pole. First safety belt sold.

100 Million B.C. - First mountain appears. Repeater invented.

50 Million B.C. - It is decided by WARC that "seek you" is too cumbersome to send on CW. So abbreviation "CQ" is adopted.

4 Million B.C. - Humans replace swine as dominant species. The name "Ham Operator" hangs on, however.

3 Million B.C. - Dugout canoe invented. Maritime Mobile net formed on 14.313 Mhz.

2 Million B.C. to 800 A.D. - Nothing much happens for a long time.

900 A.D. - Chinese invent gunpowder. BY1AA is first "Big Gun" DXer.

1790 A.D. - Ben Franklin invents long wire receiving antenna. Ground switch invented.

1961 A.D. - Second repeater erected. First repeater group refuses to change frequency. First frequency coordinator appointed.

1990 A.D. - Amateur radio humor sinks to a new low.

PREPARE FOR MORE RFI, by N6DMV

(Condensed from MICROWAVES & RF, May, 1990)

If you have missed the Moscow Woodpecker, don't get discouraged. We have substitutes for it right here, near our Little Moscow. Read on. As reported, after 15 years of building it, the OTH-B (Over The Horizon Backscatter) radar was accepted by the Air Force (US, sofar). The system's range, about 1800 miles, is almost 10 times the conventional radar's. It is called AN/FPS-118 at the tune of $680.10E6, is located in Maine and covers a 180 degree span from Greenland to Cuba. It operates by bouncing the signals off the ionosphere, like us hams. It consists of a 4980-ft receiver array with 246 monopole elements. The receivers at Columbia Falls, ME are located about 100 miles away from Moscow (ME!), where the transmitters are located. The 180 deg. coverage is divided into 3- 60 deg. segments, each segment is powered by 12- 100 kW (3.6 MW!!) units feeding 3- 3630-ft antenna arrays, varying from 35 to 135-ft high. The transmit array is divided into six subarrays to handle frequencies from 5 to 28 MHz - thanks a lot! The 28 digital computers control the emissions to assure the tracking of the rapidly changing atmospheric conditions - to keep the ionosphere sprayed with the maximum amount of power - thanks again! According to GE, the builder of these things, the transissions will include the following frequencies: Band A: 5 Mhz (how about WWV?, Band B: 6.74 to 9.09 Mhz (our 40 M band), Band C: 9.09 to 12.24 MHz (the 30 M band). During the day, the OTH-B operates in the higher frequency bands (of course!), Band D: 12.25 to 16.50 MHz - (can wipe out the 20 M band, may not be so bad), Band E: 16.50 to 22.25 MHz (the 18 and 15 M bands), and Band F: 22.25 to 28 MHz (quite possibly affecting the 24 and 10 M bands). I am happy that the 80 and 160 M bands are still available free of the megapulses. Now get this: **"The Maine system is one of four to be built."** Thanks more. The West Coast radar is about 90% complete - so we have a little more time. The transmitters are located near Christmas Valley, OR, and the receivers near Tulelake, Ca. The central coverage radar will be located at the Grand Forks AFB, ND. If this is not enough for you, the magazine reports that Japan and Australia are also interested setting up their OTH radars! Good DX-ing!

Help wanted

Paul Herbert will be retiring this month, and the club is looking for someone to fill his spot as SEA representative. The main responsibility is to represent TRW ARC at the monthly SEA board meetings, and discuss any relevant issues at the TRW ARC board meeting. For more info, contact Jeff n9cza at 812-5669.

Also, the TRW ARC swap meet is looking for someone to maintain the sellers' data base. The task involves updating the data base once a month (about a four hour task) and selling spots at the swap meet. Knowledge of DBASE is useful but not essential. For more info, contact Jeff n9cza at 812-5669.

DX HELPERS by Bill Shanney KJ6GR

We're just over the peak of what may prove to be a record sunspot cycle and there is still a year or two of great DXing ahead of us. There are many not too well publicized aids to the serious as well as casual DXer.

Customized Azimuthal projection maps centered on your QTH are available from several sources. I got mine from N5KR and it came with a detailed, by country, beam heading list as well as beam headings to many major cities in the U.S. I use it daily.

N6RJ's Second OP, available in a manual circular slide rule or for a PC, provides beam headings, zones, countries and airmail postage rates by DXCC prefix. It's available at HRO.

The DX edge, available in a slide rule format or for PC's, shows the regions of night and day and is very useful for predicting gray line propogation possibilities. (Xantek Inc., PO Box 834, Madison Square Station, New York, NY 10159.)

The W6GO QSL manager list, published monthly, contains a very accurate list of QSL routes for DX stations who don't or can't QSL direct. (P.O. Box 700, Rio Linda, CA 95673-0700)

There are several weekly DX newsletters published. I think the most useful is The DX Bulletin, edited by Ched Harris VP2ML (The DX Bulletin, P.O. Box 50, Fulton, CA 95439). A close second is QRZ DX published by Bob Winn W5KNE (QRZ DX, P.O. Box 832205, Richardson, TX 75083). They contain information on upcoming and ongoing DX activities, a band by band summary of recent contacts and QSL information.

Perhaps the most useful helper of all is a book "The Complete DXer" by Bob Locher, W9KNI. It contains a wealth of practical advice on all aspects of DXing including operating, QSLing and equipment. It's like taking a class from a master DXer. (Available at all local ham stores.)

Between 8 and 10 P.M. nightly on 20 meters the Russian stations are plentiful and easy to work. I have found a handy guide to locate them using calls. "The DXNS USSR Oblast Guide" is available for $3 from Goeff Watts, 62 Belmore Rd., Norwich, NR7 OPU, England.

DX HELPERS (Continued)

The Southern California DX Packet Cluster System presently operates 9 nodes in Southern California. Two local nodes operate on 145.680 MHz, W6PQS in El Segundo and NN6U in Fullerton. WB6EXC and K6EID operate on 145.66 MHz in the San Fernando Valley. Cluster users share DX information in real time and have access to other data of interest such as beam heading, oblast numbers, prefix ID, sunrise/sunset times, MUF and WWV propogation reports. There is also a mailbox to leave messages and read DX bulletins and other announcements of interest to DXers. Write to W6PQS for more information.

So if your country total is low or perhaps you don't have much time for DXing but would like to increase your country total, try some of these helpers. I use them all and I'm at 195 countries confirmed (164 CW) in only 2 years.
Good DXing.

EXECUTIVE BOARD MEETING

By Jim Wike (W6GPE)

The May EBM was held at the Pizza Hut on May 1st. The meeting was opened at 6:10 PM by Jeff Shields(N9CZA).

Don Renkowitz(W6SQF) provided an update on Field Day preparations. The 10 meter beam that was authorized last month has been obtained and is ready for use. SEA has not yet provided the liability insurance forms required by the site owners. The group discussed the desirability of purchasing portable generators for Field Day power instead of borrowing the large single unit from TRW. No decision was made.

More Band Captains are needed to complete this years Field Day Team. The equipment in Building 65 has been checked to see what is available for use on each band and determine if repair or replacement is needed. A Field Day survey form appeared in the April CROSSTALK. Volunteers should return the form or call Don as soon as possible so that plans can be completed.

Chris Wachs(WA2KDL) reported on repeater activities. The new antenna ordered for the repeater has arrived but has not been installed yet. The old repeater has been repaired and will be installed in the EOC. The offending signal problem has been elevated and action is being taken.

Dave Williams(KF6IB) provided the treasurers report. A revised March report was provided as well as the April report. Dave reported that the bank statement has not yet been sent to him via SEA.

The first Club picnic is scheduled for Wednesday, May 16th in El Nido Park. Come and enjoy!

The meeting adjourned at 7:15 PM.

73 de W6GPE

ANNOUNCING THE 1990 ARRL JUNE VHF QSO PARTY

by the members of the

Southern California VHF Society

UNQUESTIONABLY THE BIGGEST event each year on the VHF / UHF bands is the ARRL's June VHF QSO Party, being held this year on June 9 and 10. Recent years have seen some spectacular conditions and many operators and groups head out to mountaintops and rare locations, improving the chances for even the casual operator to complete some interesting contacts.

SOMETHING FOR EVERYONE! This information sheet - like the contest itself - has something for both the beginning VHF contester and the serious enthusiast. For the beginner, there are suggested operating procedures and frequency guides, equipment suggestions and grid-square maps. For the serious VHF'er there is rover and coordinating-frequency information.

FOR THE NEWCOMER TO VHF CONTESTING

YOU CAN TAKE PART! You don't need big beams and towers or KW-plus amplifiers. An FM mobile rig or even a handheld will work. If you have a "brick" amplifier or a yagi, so much the better. If you have a multi-mode transceiver or a transverter on six meters or above you can have even more fun. Operate from home or drive up to a nearby hilltop for greater coverage. Several friends can operate together on multiple bands as a team. There is even an entry category for 5-watt-or-less portable if you like to hike. Unlike HF contests you don't have to lose sleep or take off work; the contest runs from 11:00 a.m. Saturday through 8:00 p.m. Sunday, and there's virtually no one on during the wee hours so you're not missing anything if you get a reasonable night's sleep. Of course, you can just operate part-time if you wish; a Sunday afternoon can provide plenty of activity.

HOW DO YOU OPERATE THE CONTEST? All you need to know is your grid square (see map on reverse) which, along with your callsign, is what you'll send and receive. You can use the official log forms (available from the Southern Calif. VHF Society or ARRL) or make your own. Complete rules appear in the May issue of QST. So where do you look for contacts? On FM use the designated simplex frequencies for each band (no repeater contacts allowed); however, note that use of 146.52, the 2-meter national calling channel, is prohibited. Suggested frequencies appear in the chart on the next page. You can enter seriously on one band and still hand out contacts on other bands, which will be greatly appreciated by other contest entrants.

FOR THE SERIOUS VHF/UHF'ER

The 1990 contest will see an unprecedented number of expeditions to rare west-coast grids, with more bands than ever activated. The Southern Calif. VHF Society is promoting these activities by: 1) sending out our own expeditioners, 2) helping equip other expeditioners and 3) assisting with expedition liaison. Some of the travelling stations have ambitious itineraries requiring them to work quickly upon arrival at each destination, but all share the objective of working all comers while there. Some - but not all - will be equipped for long-haul contacts on several bands. Highlights of planned grid expeditions include the following:

Station	Grids Planned	Bands equipped
AF60	DM 15, 16, 24, 25, 26	6M through 10 GHz
NN6W	DM 03, 04, 13, 14	6M through 24 GHz
XE2/N6XQ	DM 12, 11, 10, 20; DL 29	6M through 24 GHz
N6SNA / \ N6RUB/ \	DM 05, 06, 07; CM 94, 95, CM 96, 97; (DM 08 or CM 98) DM 23, 22, 31, 32, 33, 34, DM 35, 36	6M through 24 GHz **

Others may be going into DL 38 & 39, into western Nevada, etc. Water grids from a maritime mobile also possible; stay tuned!

SERIOUS OR CASUAL, WE NEED YOUR HELP!

WE'D LIKE YOU TO WORK US! The Southern California VHF Society will mount a multi-operator effort using the call N6CA from Mt. Pinos, about eighty miles northwest of Los Angeles in grid square DM04. We were fifth in the country in the 1987 contest, third in 1988 and second last year; our 1990 goal is to take the top spot. To accomplish this we will need LOTS of contacts and we'd certainly appreciate working you on as many bands as you have available. We'll be checking the frequencies indicated on the accompanying frequency chart throughout the weekend.

SUGGESTED FREQUENCIES

Band	Ssb/cw frequencies	Fm frequencies	N6CA frequencies
50	50.090-120 dx only 50.120-200 domestic	52.525	50.130+/-
144	144.150-250	146/147 smplx *	144.18, 146.46
220	220.100	223.5	223.5
432	432.100-150	446.0	432.100, 446.0
902	902.100	927.00 (vert.)	902.100,927.00
1296	1296.100-150	1294.5	1296.100,1294.5
2.3G	2304.100 \		2304.100
3.4G	3456.100 \ horizontal polarization		3456.100
5.7G	5760.100 /		5760.100
10 G	10368.100 /	10250, 10280 wbfm	10368.100
23 G		24125, 24155 wbfm	24125, 24155

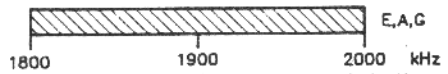
Stations wishing liaison assistance or rover status information should contact N6CA on 1294.5 fm or 1296.100 usb. We will also be monitoring 3.818 MHz ("dc bands").

* 2M. fm: 146.43, 46, 49, (NO 52!), 55, 58; 147.48, 51, 54

** mobile with whips & yagis through 1296 MHz between stops

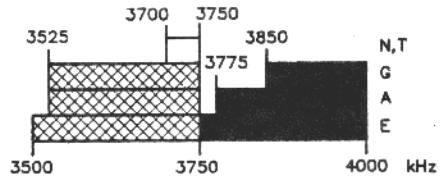
Frequency Allocation Chart

160 METERS



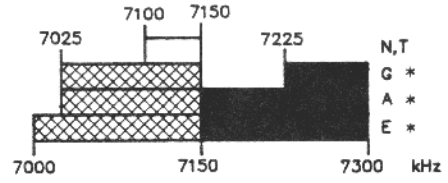
Amateur stations operating at 1900–2000 kHz must not cause harmful interference to the radiolocation service and are afforded no protection from radiolocation operations.

80 METERS



5167.5 kHz (SSB only): Alaska emergency use only.

40 METERS

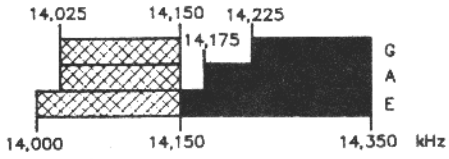


* Phone operation is allowed on 7075–7100 kHz in Puerto Rico, US Virgin Islands and areas of the Caribbean south of 20 degrees north latitude; and in Hawaii and areas near ITU Region 3, including Alaska.

30 METERS

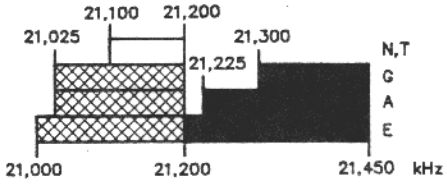
Maximum power on 30 meters is 200 watts PEP output. Amateurs must avoid interference to the fixed service outside the US.

20 METERS

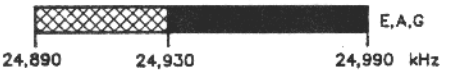


17 METERS

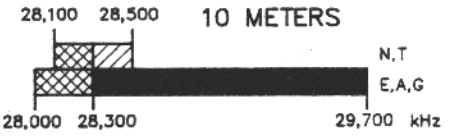
15 METERS



12 METERS

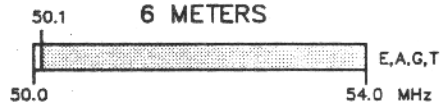


10 METERS

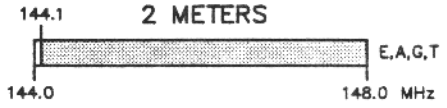


Novices and Technicians are limited to 200 watts PEP output on 10 meters.

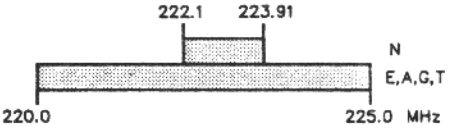
6 METERS



2 METERS

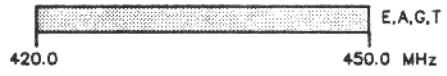


1.25 METERS

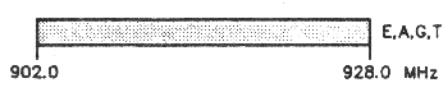


Novices are limited to 25 watts PEP output from 222.1 to 223.91 MHz.

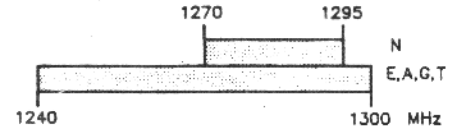
70 CENTIMETERS



33 CENTIMETERS



23 CENTIMETERS



Novices are limited to 5 watts PEP output from 1270 to 1295 MHz.

US AMATEUR BANDS

Revised November 15, 1989

US AMATEUR POWER LIMITS

At all times, transmitter power should be kept down to that necessary to carry out the desired communications. Power is rated in watts PEP output. Unless otherwise stated, the maximum power output is 1500 W. Power for all license classes is limited to 200 W in the 10,100–10,150 kHz band and in all Novice subbands below 28,100 kHz. Novices and Technicians are restricted to 200 W in the 28,100–28,500 kHz subbands in addition, Novices are restricted to 25 W in the 222.1–223.91 MHz subband and 5 W in the 1270–1295 MHz subband.

Operators with Technician class licenses and above may operate on all bands above 50 MHz. For more detailed information see The FCC Rule Book.

KEY

- = CW, RTTY and data
- = CW, RTTY, data, MCW, phone and image
- = CW, phone and image
- = CW and SSB
- = CW, RTTY, data, phone, and image
- = CW only

E =AMATEUR EXTRA
A =ADVANCED
G =GENERAL
T =TECHNICIAN
N =NOVICE