August 2018

Newsletter of the County of Orange Radio Amateur Civil Emergency Service

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Monday, August 6, 2018, at 1930 Hours

840 N. Eckhoff Street, Suite 104, Orange

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Orange County Sheriff's Department
Communications & Technology Division

Captain's Corner

by RACES Captain Ken Bourne, W6HK, Chief Radio Officer

RACES on 60 Meters

Approximately 20 county and city RACES and MOU members have been checking into our 40-meter ACS nets each Saturday at 10:00 AM on 7250 kHz. We also have check-ins from RACES members in northern California, Nevada, and Arizona, and non-RACES visitors are also welcome to check in. Propagation typically has been very poor throughout Orange County and southern California during our nets. Lately, after concluding our 40-meter net, we QSY to 60 meters (usually 5346.5 kHz USB "channel 2" dial frequency), and propagation is significantly better, with very strong signals from throughout southern California and especially throughout Orange County. For example, during the July 28th net, K6RBS in Mission Viejo was S6 at my house on 40 meters and S9 plus 40 dB on 60 meters. N6WIX in Ventura was S3 on 40 meters and S9 plus 20 dB on 60 meters.

Some of the participants who were on both bands expressed a desire to reverse the order of operation—that is, to start the Saturday nets on 60 meters and then go to 40 meters, and eventually to abandon 40 meters altogether. On the August 4th net, we will retain the current order of 40 meters first, but may change the order on subsequent nets and may eventually discontinue the 40-meter nets.

Most of the participants on the Saturday 40-meter nets do not have 60-meter capabilities, either because of old radios (60 meters was not a ham band in the United States before July 3, 2003) or because they do not have a 60-meter antenna. However, they need to "go with the times" and become familiar and capable with this band which was originally created for emergency communications and which commonly provides superior in-county NVIS (near vertical incidence skywave) propagation during the day, compared to 40 meters.

During the Saturday morning ACS nets, we are finding that propagation throughout Orange County and with other counties in Southern California is difficult to impossible most of the time. We tried 80 meters (at 3950 kHz), and that band was slightly better than 40 meters into some areas, and just as bad into other areas. In most cases, 60 meters (5 MHz) was far superior. The 60-meter band lies approximately halfway between 80 meters and 40 meters and forms a "communications bridge" when propagation within southern California is poor on 80 and 40 meters. The 60-meter band is less affected by D-Layer absorption than 80 meters.

Although we have noticed that 60 meters is superior for daytime propagation, propagation conditions do change due to varying ionospheric conditions. To accurately determine which band is most reliable for NVIS communications at a given time, the *critical frequency* of the ionosphere should be checked, which can be done online from ionograms produced by local ionosondes.

The critical frequency is the limiting frequency at or below which a radio wave component is reflected by, and above

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Captain's Corner *Continued from page 1*

which it penetrates through, an ionospheric layer. Another way to say this is that the critical frequency is the highest frequency above which the radio waves penetrate the ionosphere and below which the waves are reflected back from the ionosphere. This definition also pertains to NVIS propagation. The critical frequency changes with time of day, atmospheric conditions, and angle of radiation from the antenna. The critical frequency exists because of electron limitation—the inadequacy of the existing number of free electrons to support reflection at higher frequencies. That is, the critical frequency depends on the electron density of the ionosphere.

You will also run across the term *maximum usable frequency* (MUF), which is the highest frequency of a radio wave that is returned back to earth from the ionosphere at a given distance.

HF radio signals typically propagate longer distances on the 20-meter band during the day and often at night. The 17- and 15-meter bands are also effective for long-distance (DX) communications, and so are the 12- and 10 -meter bands at the peak of the 11-year sunspot cycle (we are now near the bottom of the current cycle). The 40-meter band is not effective during the day for DX, but the lower D layer of the ionosphere dissipates at night, allowing signals to propagate up to the higher F layer for long-distance reflection. The D layer is more effective on 60 meters for daytime local/NVIS reflections (no low-angle penetration but high-angle penetration up to the F layer for reflection back down at short distances, such as around southern California). The D layer is even more effective on 80 meters, but even absorbs much of the high-angle radiation, thus reducing the level of signal penetrating up to and down from the F layer.

With long-distance HF communications, such as on 20 meters and above during the day and on 40 meters (and sometimes 80 meters) at night, signals are obliquely incident on the F layer of the ionosphere. If the HF frequency is above the critical frequency, the signals pass through the D layer at an angle instead of head-on, and are reflected over longer distances by the higher F layer.

The FCC expanded amateur radio privileges on 60 meters on March 5, 2012. We are permitted to operate on five frequency channels, each having an effective bandwidth of 2.8 kHz. Do not overmodulate and create "splatter" that would fall outside the 2.8-kHz channel bandwidth. If your transceiver allows you to adjust your maximum SSB transmit bandwidth, setting it to 2.4 kHz should keep you well within the legal limit. See the chart on this page, and note that Channel 3 is different than the frequency designated in the original allocation in July 2003. (If you have an old radio that covers 60 meters, make sure Channel 3 has been updated.) Current radios, even though they cover 60 meters, might not show 60 meters on their band selection. Rather, the five frequencies need to be manually entered and stored in memory. Phone operation is on upper sideband (USB), and store the dial frequency as shown in the above chart. For other modes (CW and digital), store the center frequency (which is 1.5 kHz above the USB dial frequency).

60-Meter U.S. Allocations

Center Frequency	USB Dial Frequency	Channel Designation
5332.0 kHz	5330.5 kHz	Channel 1
5348.0 kHz	5346.5 kHz	Channel 2
5358.5 kHz	5357.0 kHz	Channel 3
5373.0 kHz	5371.5 kHz	Channel 4
5405.0 kHz	5403.5 kHz	Channel 5

These frequencies are available for stations having a control operator with a General, Advanced, or Amateur Extra class license.

The FCC permits digital modes that comply with emission designator 60H0J2B, which includes PSK31as well as any RTTY signal with a bandwidth of less than 60 Hz. The FCC also allows modes that comply with emission designator 2K80J2D, which includes any digital mode with a bandwidth of 2.8 kHz or less whose technical characteristics are publicly documented, including PACTOR I, II, or III, 300-baud packet, MFSK16, MT63, Contestia, Olivia, DominEX, etc.

Amateurs may transmit with a maximum effective radiated power (ERP) of 100 watts or less, relative to a half-wave dipole. If you're using a commercial directional antenna, FCC Rules require you to keep a copy of the manufacturer's gain specifications in your station records. If you homebrewed the directional antenna, you must calculate the gain and keep the results in your station records. If your antenna provides 3 dB gain, your maximum legal output power should be no more than 50 watts (50 W plus 3 dB gain equals 100 W ERP).

Keep in mind that we share 60 meters. It is not like our VHF and UHF repeaters, where we can request exclusive use during an activation. We even share 60 meters with non-amateur services. In fact, radio amateurs are only secondary users on 60 meters. We are required to yield to other services. If you hear a non-amateur transmission (including digital) on the channel, you must cease operation on that channel immediately.

Next OCRACES Meeting: August 6th

The next OCRACES meeting will be on Monday, August 6, 2018, at 7:30 PM, at OCSD Communications & Technology Division, 840 N. Eckhoff Street, Suite 104, in Orange. Robert Stoffel, KD6DAQ, will be our featured speaker, and he will conduct training on the new Motorola APX handheld radio now in use throughout Orange County.

OCRACES Braves the Heat at Ham Jam

It was very toasty (105 degrees) at HRO Ham Jam on Saturday, July 7, 2018. Fran Needham, KJ6UJS, brought a canopy to provide shade to the other OCRACES members who participated and promoted RACES to many visitors who dropped by our booth. Ken Bourne, W6HK, set up a portable 40-meter station and worked Newport Beach, Laguna Woods, and Ventura with 20 watts into a pair of MFJ Hamsticks up 9½ feet. Local propagation was unusually good on 40 meters. Scott Byington, KC6MMF, set up a 20 -meter station with an Elecraft KX3 and a three-element beam, and Tony Scalpi, N2VAJ, set up a 6-meter station. Also participating were Bob McFadden, KK6CUS, and Martin La Rocque, N6NTH. In spite of the heat, many visitors dropped by the booth and learned about OCRACES.

This was the 7th annual Ham Jam held by Ham Radio Outlet in Anaheim. It was a great opportunity to promote RACES and emergency communications to the many radio amateurs who attended the event, and to see the latest products on display at HRO.

Under the canopy provided by Fran Needham, KJ6UJS, are (left to right) Tony Scalpi, N2VAJ, Scott Byington, KC6MMF, Martin La Rocque, N6NTH, Bob McFadden, KK6CUS, and Ken Bourne, W6HK.

Earthquake Workshop: August 10th

The Earthquake Country Alliance, Southern California (ECA SoCal) will conduct a regional workshop on Friday, August 10, 2018, at Angel Stadium, 2000 Gene Autry Way, in Anaheim.

The meeting will focus on earthquake preparedness and mitigation efforts in Orange County. They will also discuss strategies for increasing participation of local communities in the 2018 Great California ShakeOut (10th Anniversary) and they will have presentations from their Mini Award winners.

The meeting is scheduled for 3:00 PM to 6:30 PM, followed by dinner, networking, and baseball (Angels vs. Athletics) at 6:30 PM, provided by Paradigm. Dinner and game tickets are only available to those who attend the meeting.

There is no cost to attend this workshop. The goals are to promote and improve preparedness, mitigation, and resilience.

Key Topics

- ECA SoCal Updates—Margaret Vinci (Caltech) and Heidi Rosofsky (Global Vision Consortium)—ECA SoCal Chairs
- Strategies for engaging your communities in the 2018 ShakeOut
- Presentations for the 2018 ECA SoCal Area Mini Award recipients
- "HayWired" earthquake scenario for the Bay Area—Ken Hudnut (U.S. Geological Survey)
- Orange County Hazard Mitigation—What has changed since the Northridge Earthquake?—Michelle Anderson (Orange County Sheriff's Department, Emergency Management Division)
- Sharing of attendee activities and announcements, and general discussion

To register, you may RSVP at https://www.earthquakecountry.org/socal/aug10workshop/.

FEMA Revises Two Basic ICS/NIMS Courses

OCRACES members are required to study and pass the FEMA ICS/NIMS ICS-100, 200, and 700 courses. FEMA released two revised online ICS/NIMS courses last month:

IS-100.c, ***An Introduction to the Incident Command System***

This course introduces the Incident Command System (ICS) and provides the foundation for higher level ICS training. The course describes the history, features and principles, and organizational structure of the Incident Command System. It also explains the relationship between ICS and the National Incident Management System (NIMS).

IS-700.b, ***An Introduction to the National Incident Management System***

This course provides an overview of NIMS, which defines the comprehensive approach guiding the whole community—all levels of government, nongovernmental organizations (NGOs), and the private sector—to work together seamlessly to prevent, protect against, mitigate, respond to, and recover from the effects of incidents. The course provides learners with a basic understanding of NIMS concepts, principles, and components.

Together, these two online courses form the foundation of ICS/NIMS training for all incident personnel. Note that IS -100.c and IS-700.b are updated versions of the IS-100.b and IS-700.a courses. If you have successfully completed a previous version of these courses there is no FEMA requirement to take the revised versions of the courses. However, because these courses contain new information based on the revised NIMS, October 2017, you may find it informative to review the new versions of these courses. The new courses will be available through FEMA's EMI website.

Dealing with Excessive Heat Warnings

Excessive heat warnings were issued in July for many Orange County communities. We can expect more excessive heat warnings in August and September, with an increased risk of heat-related illnesses such as heat exhaustion and heat stroke. The OCSD Field Training Bureau issued a memo to field personnel with regard to the warnings. Based on that memo, RACES members are reminded to take the following precautions during high heat conditions whenever possible to prevent these heat-related illnesses:

- Drink plenty of water; waiting until you are thirsty is too late, start hydrating as soon as possible and continue throughout any RACES deployment.
- Stay out of the sun whenever possible. When you must be in the sun, wear a hat and use sunscreen.
- Take frequent breaks in a cool, air-conditioned, or shady place.

Prolonged exposure to excessive temperatures may cause serious health conditions and can even be fatal. Deployed RACES members should be aware of the following symptoms of heat-related illnesses and the treatments for both:

Symptoms of Heat Exhaustion:

- Headaches
- Clumsiness/dizziness/lightheadedness/fainting
- Weakness/exhaustion
- Heavy sweating/clammy, moist skin
- Irritability/confusion
- Nausea/vomiting/paleness

Treatment of Heat Exhaustion:

If these symptoms are encountered in the field, seek medical attention immediately and treat by moving the person to a cooler place, loosen or remove heavy clothing, provide small amounts of water, fan the person, and apply cool water to the skin.

Symptoms of Heat Stroke:

- Sweating may or may not be present
- Red or flushed, hot dry skin
- Bizarre behavior/mental confusion
- Loss of consciousness
- Panting/rapid breathing
- Rapid/weak pulse
- Seizure or fits

Treatment of Heat Stroke:

If these symptoms are encountered in the field, seek medical attention immediately and treat by moving the person to a cooler place, cool the person rapidly, loosen or remove heavy clothing, fan the person, and apply cool water to the skin.

RACES members are reminded to take care of themselves and fellow members, and be mindful of those who are at a higher risk including the elderly, persons with heart or lung disease, and young children.

KR6AFT Hides in Newport Beach

Delia Kraft, KR6AFT, was the fox on the monthly cooperative T-Hunt on Monday, July 16, 2018. She hid with Randy Benicky, N6PRL, and Matt Luczko, KM6CAO, in a large parking lot at Balboa Pier on the peninsula in Newport Beach, but nobody found her! Hunters had to be talked in or gave up completely! She positioned the fox box less than 3 feet above ground, causing low signal strength in the vicinity. Some hot spots farther away, such as at Promontory Point, Balboa Island, and Corona del Mar State Beach, caused great confusion. The hunting teams included:

- Ron Allerdice, WA6CYY
- Jack Barth, AB6VC
- Ken Bourne, W6HK, Scott Byington, KC6MMF, and Don Poysa, KØVNJ
- Peter Gonzalez, KC6TWS, and Peter Bergstrom, K6PB
- Bob McFadden, KK6CUS
- Richard Saunders, K6RBS

The next hunt will be on Monday, August 20, 2018, immediately following the OCRACES 2-meter net (approximately 7:20 PM). Peter Gonzalez, KC6TWS, has volunteered to be the fox, but we are looking for a volunteer who has never been the fox before. A fox box will be provided. No fees will be required to drive directly to the fox. He will transmit on the input (146.295 MHz) of the 146.895 MHz repeater. Hunters will compare bearings via the 448.320 MHz repeater and are encouraged to beacon their positions via APRS throughout the hunt.

The cooperative T-hunts are usually held on the third Monday of each month. The hunts provide excellent practice in working together to find sources of interference quickly. The hunts are not official RACES events, so DSW (Disaster Service Worker) coverage does not apply. Please drive carefully!

Fox-hunt loops and beams are available from Arrow Antenna and HRO, including the Arrow Model FHL-VHF fox-hunt loop (covers 1 MHz to 600 MHz) and the Arrow Model 146-3 three-element portable hand-held yagi. The Arrow OFHA 4-MHz offset attenuator can be useful when close to the fox, to prevent receiver overload. For on-foot hunting, the BC-146.565 three-element, hand-held, foldup, yagi antenna is available from Bob Miller Enterprises (http://www.rdfantennas.com), along with the VK3YNG MK4 sniffer. An all-mode transceiver is quite useful, allowing hunters to switch to the SSB or CW mode for detecting extremely weak signals, or to switch in a built-in attenuator, reduce RF gain, or tune slightly off frequency when dealing with extremely strong signals.

UPS/FedEx/Mail Package Thefts

This editor is a proponent of purchasing amateur radio equipment from a local ham store, rather than trying to save a few bucks by purchasing online. Ham stores perform a service by allowing us to view new equipment in person, which gives us a better idea of how it looks and how it operates. Ham stores stock equipment and accessories for quick purchase, if we need them right away. They interface with the manufacturers, especially important if we have problems during the warrantee period. They also offer advice when we have questions about which equipment or accessories to purchase. We need to keep local amateur radio dealers in business, even if it costs us a few bucks more when purchasing new equipment. Furthermore, is it moral to look at equipment in a ham store, twist the knobs, and ask questions, and then turn around and purchase the products online, ignoring the high overhead that a ham store must pay while providing a valuable local service?

If, instead, you choose to purchase equipment online, take precautions against package theft. In a recent City of Orange Police Department bulletin, the agency reminds us that package delivery is an opportunity for criminals who frequently steal delivered packages left at front doors. Criminals will follow delivery vehicles and drive through neighborhoods looking for packages to steal. These crimes happen within seconds.

OPD suggests that we consider the following delivery alternatives:

- Track the delivery and be home when the package is delivered.
- Have the package delivered to a UPS Store or similar business for pickup.
- Add a signature confirmation for the delivery (additional fee possible).
- Upgrade your shipping account with a fee to control the delivery time of the package.
- Have the package delivered to a friend or relative who will be home.

Immediately report any suspicious activity including vehicles and pedestrians who are unknown to the area by calling your local police dispatch for any in-progress crime or emergency.

RACES/MOU News from Around the County

"RACES/MOU News" provides an opportunity to share information from all City & County RACES/ACS units and MOU organizations and supportive amateur radio clubs in Orange County.

Please send your news to *NetControl* Editor Ken Bourne, W6HK, at:

w6hk@ocraces.org

Fountain Valley RACES

Marco Avila is the new Fountain Valley RACES Program Coordinator.

Fountain Valley RACES served the community at the annual Summerfest festivities the weekend of June 21-24, 2018, at the Fountain Valley Recreation Park on Brookhurst and Heil. Games, rides, onstage great bands, community stage, Ferris wheels, and more were featured. Fountain Valley RACES assisted setting up a classic car show on Saturday on the lawns, starting at 5:30 AM. FVRACES manned their combination FV Police DUI trailer and RACES remote emergency station, complete with generator and major lights, radios, and an antenna farm. Power was tapped from the event, although preparations to go "full battery" (ready for anything) was possible. A 2-m/440-MHz, 220-MHz, 6-m station (as well as a demo CB for comparison) was set up along with literature promoting amateur radio. FVRACES was there to provide safety and public welfare, and to that end two minor lost children were discovered and found. Fountain Valley RACES is very active in the community and has future plans to create an exercise to map out simplex hot spots for the city, according to FVRACES Member Garry Jones, N6NQN.

Fountain Valley RACES trailer at Summerfest.

Laguna Woods RACES

Bruce Bonbright, NH7WG, is now the Laguna Woods RACES Radio Officer, as Ernie Senser, W6ETS, has retired from that position after many years of service. Jim Riedel, K6EEE, and Don Schwab, K6IAA, are the Assistant Radio Officers.

Hospital Disaster Support Communications System (HDSCS)

HDSCS participated in Ham Jam at Ham Radio Outlet in Anaheim on July 7, 2018, staffing their display throughout the morning and afternoon despite the exceedingly warm temperature. HDSCS leadership followed up with hospitals regarding some employee hams interested in how they can help HDSCS and disaster coordinators wanting further instruction on use of the paging system for activating HDSCS.

Amateur Radio License Exams

Aug. 4, 2018; 1:30 PM (walk-ins allowed)
Sponsor: Anaheim RACES
Contact: Richard Lewis, AF6TM
714-345-9547; af6tm.testing@yahoo.com
VEC: ARRL/VEC
Fire Training Center, 2400 E. Orangewood Ave., Anaheim

Aug. 16, 2018; 5:30 PM (walk-ins allowed)
Sponsor: West Coast ARC
Contact: Ken Simpson, W6KOS
714-651-6535; w6kos@arrl.ne
VEC: ARRL/VEC
Coastal Community Fellowship Church, 10460 Slater Ave., Fountain Valley

Aug. 16, 2018; 6:00 PM (walk-ins allowed)
Sponsor: Western ARA
Contact: George Jacob, N6VNI
562-544-7373; jac2247@gmail.com
VEC: ARRL/VEC
La Habra Community Center, 101 W. La Habra Blvd., La Habra

Aug. 25, 2018; 10:00 AM (no walk-ins; call ahead)
Sponsor: PAPA System Repeater Group
Contact: Jack Suchocki, W6VFR
954-816-8721; jack@w6vfr.com
VEC: Greater LA VEC
Mimi's Café, 1240 N. Euclid St., Anaheim

August 2018

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1	2	3	4 Weekly 40 m ACS Net
5	6 Weekly 2 m ACS Net & OCRACES Meeting	7	8	9	10	11 Weekly 40 m ACS Net
12	13 Weekly 2 m ACS Net	14	15	16	17 Orange County Amateur Radio Club Meeting	18 Weekly 40 m ACS Net
19	20 Weekly 2 m ACS Net & Cooperative T-Hunt	21	22	23	24	25 Weekly 40 m ACS Net
26	27 ACS Nets on Five Bands & Cal OES Nets	28	29	30	31	

Upcoming Events:

- **August 6:** OCRACES Meeting (Motorola APX training by Robert Stoffel, KD6DAQ), 840 N. Eckhoff Street, Suite 104, Orange, 1930-2130 hours
- **August 17:** Orange County Amateur Radio Club Meeting, American Red Cross (George M Chitty Building), 600 Parkcenter Drive, Santa Ana, 1900 hours
- **August 20:** Cooperative T-Hunt on input of 2-meter repeater, 1920 hours
- **September 3:** Labor Day, no meeting, no net
- **September 10:** Severe Fire Weather Patrol Training, 840 N. Eckhoff Street, Suite 104, Orange, 1930-2130 hours
- **October 1:** OCRACES Meeting, 840 N. Eckhoff Street, Suite 104, Orange
- **October 6:** City/County RACES & MOU ACS Exercise, 0900-1100 hours
- **October 15:** City/County RACES & MOU Meeting, 840 N. Eckhoff Street, Suite 104, Orange

www.ocraces.org

Mission Statement

County of Orange RACES has made a commitment to provide all Public Safety departments in Orange County with the most efficient response possible to supplement emergency/disaster and routine Public Safety communications events and activities. We will provide the highest level of service using Amateur and Public Safety radio resources coupled with technology, teamwork, safety, and excellence. We will do so in an efficient, professional, and courteous manner, accepting accountability for all actions. We dedicate ourselves to working in partnership with the Public Safety community to professionally excel in the ability to provide emergency communications resources and services.

County of Orange RACES Frequencies

60 m: 5346.5 kHz USB (dial) (Channel 2)
40 m: 7250 kHz LSB (City/County/MOU Net—Saturdays, 1000 hours)
10 m: 29.640 MHz output, 29.540 MHz input, 107.2 Hz PL
6 m: 52.620 MHz output, 52.120 MHz input, 103.5 Hz PL
2 m: 146.895 MHz output, 146.295 MHz input, 136.5 Hz PL*
2 m: 146.595 MHz simplex
1.25 m: 223.760 MHz output, 222.160 MHz input, 110.9 Hz PL
70 cm: 446.000 MHz simplex
70 cm: 448.320 MHz output, 443.320 MHz input, 141.3 Hz PL (private)
70 cm: 449.100 MHz output, 444.100 MHz input, 110.9 Hz PL (private)
70 cm: 449.180 MHz output, 444.180 MHz input, 107.2 Hz PL (private)
70 cm: 449.680 MHz output, 444.680 MHz input, 131.8 Hz PL (private)
23 cm: 1287.650 MHz, 1287.675 MHz, 1287.700 MHz, 1287.725 MHz, 1287.750 MHz, and 1287.775 MHz outputs, –12 MHz inputs, 88.5 Hz PL

*Primary Net—Mondays, 1900 hours

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714-997-0073

Radio Officer (Lieutenant)
Scott Byington, KC6MMF

Assistant Radio Officers (Sergeants)
Jack Barth, AB6VC
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It's Where It's @!

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"W6ACS ... Serving Orange County"

Meet Your County of Orange RACES Members!

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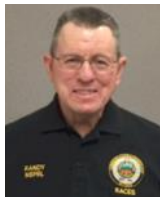

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