

May 2021



Newsletter of the County of Orange Radio Amateur Civil Emergency Service

CRO's Nest

by Ken Bourne, W6HK, OCRACES Chief Radio Officer

What Is a CRO's Nest?

Major changes are occurring with County of Orange RACES—and these are very good changes! OCRACES was formed in 1956, under Orange County Communications (OCC), subsequently within the General Services Agency (GSA). Later, GSA and OCC were absorbed by the Orange County Sheriff's Department (OCSD), Communications Division, which continued to coordinate and administer OCRACES. The Communications Division later became the Communications & Technology Division, and eventually the Technology Division, following a merger with the Information Technology Bureau of the Support Services Division. Recently, Emergency Communications Coordination was dropped from the Technology Division's responsibilities. As a result, the coordination and deployment of OCRACES was transferred on March 22, 2021, to the Emergency Management Division, and administration to the Mutual Aid / Reserve Bureau. This required all OCRACES to be Reserves—either sworn Deputies or, in most cases, Professional Services Responders (PSRs).

Because the RACES PSRs are now administered by the Reserve Bureau, and because only sworn Reserves hold rank, I offered to relinquish my rank of RACES Captain. From now on, the titled rank structure (Captain, Lieutenant, and Sergeant) is discontinued. Officer titles are retained. I continue to be the Chief Radio Officer, the former Lieutenant is the Radio Officer, and the former Sergeants are As-

sistant Radio Officers.

Since I relinquished the RACES Captain rank, my monthly newsletter column will no longer be called "Captain's Corner." To correspond with my Chief Radio Officer (CRO) title, my column is now called "CRO's Nest" (pardon the corn!)

As in the past, I will focus on sharing technical and procedural information in this column, which I hope will benefit county and city RACES and MOU members and other readers who are involved in emergency communications. I welcome suggestions on topics that you would like me to cover. I also invite any of you to submit technical or procedural articles for this newsletter.

Although we have been transferred to the Emergency Management Division, the Technology Division will continue to support us, by maintaining our repeaters and equipment in the EOC RACES Room, and giving us technical advice. We thank Supervising Communications Technician Pete Jimenez, KI6UTE, and Senior Telecommunications Engineer Erik Schull, KE6BVI, for their strong support and friendship over the years. Thanks also to Technology Division Director Dave Fontneau for his support and his excellent presentation at the April 5th Zoom meeting. Also at that meeting we received a warm welcome from Emergency Management Division Interim Director Michelle Anderson and Assistant Emergency Manager Lee Kaser, KK6VIV. We also appreciate the supportive words from OCSD Sergeant Ryan Anderson and PSR Executive Director Charlie Bayhi.

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**OCRACES
Online Meeting
on Zoom:
Monday,
May 3, 2021, at
7:30 PM**

Radio Amateur Helps SAR Locate Lost Hiker

As the administration of OCRACES PSRs continues to transition into the OCSD Mutual Aid / Reserve Bureau, it is quite likely that we will be assisting the Search & Rescue Reserve Unit during some training exercises and callouts. It behooves us, therefore, to enhance our tools, not only for RF voice communications but also for APRS and GPS. A fine example of GPS expertise was set Wednesday, April 12, 2021, by a radio amateur in Westlake Village, Los Angeles County, who assisted the Los Angeles County Sheriff's Department in locating and rescuing a lost hiker in the San Gabriel Mountains.

Ben Kuo, AI6YR, helped to guide rescuers to a hiker stranded on a mountainside. Hiker Rene Compean, 45, had spent the night in a remote region of the Angeles National Forest after getting in a tough spot. After a concerned friend reported Compean missing on Monday, the Los Angeles County Sheriff's Department dispatched search-and-rescue (SAR) teams. Although amateur radio played no direct role in the rescue, Kuo cited his enthusiasm for technology and ham radio satellites and for Summits on the Air (SOTA) for helping him to develop the skills he needed to guide searchers to the most appropriate area.

"This is actually very applicable to being a SOTA activator—map, navigation skills," Kuo told ARRL. "Also, understanding RF propagation was key to this. The SAR teams were searching the other side of the mountain, where there is no cell signal." Kuo knew that from having hiked there before. As Kuo described it, Compean was found between four SOTA peaks.

SAR teams were deployed in the Mount Waterman area of the San Gabriel Mountains to find the hiker. According to the LA Sheriff's Department, a low-flying helicopter team spotted him Tuesday afternoon between Triplet Rocks and the east bump of Twin Peaks in the San Gabriel Mountains, and he was airlifted to safety with no serious injuries. Kuo pointed the rescuers to the likely search area by matching satellite images with what Compean had transmitted over Twitter.

Kuo told the *Los Angeles Times* that he has an odd hobby of looking at photos and determining where they had been taken. He was able to employ his skill to determine the hiker's likely location using the tiny photo the hiker posted on Twitter that shows his legs and the valley below. As the newspaper reported on April 15, "When [Kuo] saw the photo posted by the Sheriff's Department, he set to work pulling publicly available satellite images and matching them to the vegetation and terrain below the hiker's legs."

Kuo's eye was good. He sent authorities the GPS coordinates of the most likely area, and the rescue team found Compean less than a mile from that location.

As the *LA Times* reported, the area where Compean was located on steep slopes and very difficult to access, requiring advanced climbing skills. The Sheriff's Department credited Kuo with saving them hours of fruitless searching. Kuo said this was the first time he'd been involved in a rescue like this one.

On his Twitter account, Kuo posted how to geolocate a hiker, given only a general location and grainy photo of their legs hanging off a cliff. First, identify the general area (if available) of where the hiker was known to be. In this case the location was near Mt. Waterman (a well-known area in the Los Angeles Crest, popular with hikers). If someone is lost along the Angeles Crest, you find they are either north of the Angeles Crest Highway or south of the Angeles Crest Freeway. How do we figure out which one here? This is important, because if a hiker is moving, they're likely moving downhill (not uphill), so they'll either keep drifting north or south into drainages or get hung up on a cliff, etc. Here's where recent satellite data is important. The EU has the Sentinel-2 satellite (via [@sentinal_hub](#) EO Browser), which shows high-resolution views of almost every place on earth, captured every few days. This is very important to see what something looks like now, not archived. Google Earth has archived data, so it's tough to use the photo of the legs for any idea of where the photo was taken. Sentinel-2, on the other hand, shows where the vegetation roughly matches the background of the legs (green in the bottom, but burnt/dry above). Zooming in south of Mt. Waterman, it's suddenly striking how similar this area looks to the same background. But it's not at the same angle. Fortunately, [@sentinal_hub](#) recently added 3D visualization tools and move-around. If you think you found what the lost hiker is looking at, you then go back into Google Earth 3D, which has some measurement tools, drawing tools, etc., which you can't get in EO Browser. If it looks like the location, we really need the time of day to be sure. Thanks to a few tips ([@engineco16](#) and [@OSV227Hex](#)), I figured out more info in the Nixle (but not Tweet) with time of day of the photo (approximately). Using the time/date feature of Google Earth (desktop)—bingo! This uncanny match was enough to convince the SAR folks.



Ben Kuo, AI6YR, in his ham shack.



Photo that hiker posted on Twitter.

Farewell to Bob McFadden, KK6CUS

Bob McFadden, KK6CUS, has left County of Orange RACES to focus on other pursuits. We thank Bob for being such a valued OCRACES member since September 2013 and sharing with us his extensive knowledge of computers and networks. He devoted his expertise in Winlink toward improving and maintaining our UHF and HF systems. We often referred to Bob as our “Winlink guru.” He also experimented with digital voice modes while in OCRACES, including D-STAR and DMR, and other technologies including microwave, satellite communications, and mesh networks. Although Bob is a computer networking professional, he is also an expert in other areas of electronics, especially RF, and conducts fascinating experiments

with advanced RF instrumentation. He has shared many discoveries with our members.

During his years with OCRACES as Assistant Radio Officer, Bob was active during our Field Day exercises, cooperative T-hunts, and setting up portable stations (such as during drills and RACES demonstrations at OCSD Reserve picnics). He also served as a PSR in the OCSD Aero Squadron and the Investigative Reserve Unit / High-Tech Services Reserve Squad.



Bob McFadden, KK6CUS, at OCRACES Holiday Dinner on December 2, 2019.



KK6CUS at Winlink position in EOC RACES Room during City/County RACES & MOU ACS Drill on October 3, 2015.



KK6CUS in OCRACES van at Field Day with Orange County Amateur Radio Club on June 25, 2016.



KK6CUS portable station in Dana Point during City/County RACES & MOU ACS Exercise on October 5, 2019.



KK6CUS operates fox box during OCRACES cooperative T-hunt on January 13, 2014.

Updated RF Exposure Rules Effective May 3rd

The FCC has announced that rule changes detailed in a lengthy 2019 *Report and Order* governing RF exposure standards go into effect on May 3, 2021. The new rules do not change existing RF exposure (RFE) limits but do require that stations in all services, including amateur radio, be evaluated against existing limits, unless they are exempted. For stations already in place, that evaluation must be completed by May 3, 2023. After May 3 of this year, any new station, or any existing station modified in a way that's likely to change its RFE profile—such as different antenna or placement or greater power—will need to conduct an evaluation by the date of activation or change.

“In the RF *Report and Order*, the Commission anticipated that few parties would have to conduct reevaluations under the new rules and that such evaluations will be relatively straightforward,” the FCC said in an April 2nd Public *Notice*. “It nevertheless adopted a 2-year period for parties to verify and ensure compliance under the new rules.”

The Amateur Service is no longer categorically excluded from certain aspects of the rules, as amended, and licensees can no longer avoid performing an exposure assessment simply because they are transmitting below a given power level.

“For most amateurs, the major difference is the removal of the categorical exclusion for amateur radio, which means that ham station owners must determine if they either qualify for an exemption or must perform a routine environmental evaluation,” said Greg Lapin, N9GL, chair of the ARRL RF Safety Committee and a member of the FCC Technological Advisory Council (TAC).

“Ham stations previously excluded from performing environmental evaluations will have until May 3, 2023, to perform these. After May 3, 2021, any new stations or those modified in a way that affects RF exposure must comply before being put into service,” Lapin said.

The December 2019 RF *Report and Order* changes the methods that many radio services use to determine and achieve compliance with FCC limits on human exposure to RF electromagnetic fields. The FCC also modified the process for determining whether a particular device or deployment is exempt from a more thorough analysis by replacing a service-specific list of transmitters, facilities, and operations for which evaluation is required with new streamlined formula-based criteria. The *R&O* also addressed how to perform evaluations where the exemption does not apply, and how to mitigate exposure.

Amateur radio licensees will have to determine whether any existing facilities previously excluded under the old rules now qualify for an exemption under the new rules. Most will, but some may not.

The ARRL Laboratory staff is available to help amateurs to make these determinations and, if needed, perform the necessary calculations to ensure their stations comply. ARRL Laboratory Manager Ed Hare, W1RFI, who helped prepare ARRL's *RF Exposure and You* book, explained it this way. “The FCC did not change any of the underlying rules applicable to amateur station evaluations,” he said. “The sections of the book on how to perform routine station evaluations are still valid and usable, especially the many charts of common antennas at different heights.” Hare said ARRL Lab staff also would be available to help amateurs understand the rules and evaluate their stations.”

RF Exposure and You is [available for free download](#) from ARRL. ARRL also has an [RF Safety page](#) on its website.

The ARRL RF Safety Committee is working with the FCC to update the FCC's aids for following human exposure rules—*OET Bulletin 65* and *OET Bulletin 65 Supplement B for Radio Amateurs*. In addition, ARRL is developing tools that all hams can use to perform exposure assessments.

Red Cross Nationwide Spring Drill: May 8th

The [Red Cross Emergency Communication Training Group](#) is holding its nationwide Spring Drill on World Red Cross Day, May 8, 2021. Individuals are invited to participate.

In February 2020, an organizing phone call was held with a dozen Red Cross-affiliated radio amateurs to consider creating a nationwide radio drill. By May, the group had more than 100 people on the team calls, and more than 1,000 participated in that first Spring Drill. Synthesizing lessons-learned from the first event, the managing group simplified and narrowed the focus for a Fall Drill last November, choosing to concentrate on Winlink involvement.

Red Cross forms are built in as templates in Winlink Express, and hams using Winlink can also send messages to non-hams. The group's goal for the Fall Drill was to attract as many hams as possible using Winlink at a basic level. Over 1700 participated from over 40 states and a few foreign countries.

For the May 8th Spring '21 Drill, the goal is the same, but now the bar will be raised in [Winlink Proficiency](#), and, being World Red Cross Day, more international participation will be solicited. The group has been holding regular Winlink training sessions, with the last one occurring April 8th. [Winlink Thursdays](#) have been attracting over 500 participants.

OCRACES May 3rd Meeting on Radio Rodeo

OCSD Emergency Communications Bureau (Control One) Supervising Communications Coordinator Derek Gard, KK6VGY, will be our featured speaker at the next OCRACES meeting on Monday, May 3, 2021, at 7:30 PM, which will once again be on Zoom. Derek will provide details about the Radio Rodeo exercise that will occur on Wednesday, May 19th. (See page 6 in this issue for some information about Radio Rodeo.) All OCRACES members and applicants, city RACES and MOU members, and other radio amateurs involved in emergency communications are invited to this meeting.

Joe Selikov, KB6EID, will once again be the Zoom meeting host. For security reasons, please use the latest version of Zoom, which currently is 5.6.3. The meeting link, ID, and passcode will be emailed to county and city RACES and other EmComm members and OCRACES applicants. This will be the last meeting using Zoom. Future meetings will be held on Microsoft Team, plus occasional meetings in person, once the pandemic eases.

City/County RACES & MOU Drill: May 1st

Most city RACES units have indicated they will participate with OCRACES in the City/County RACES & MOU ACS Exercise on Saturday, May 1, 2021, from 0900 to 1100 hours. This exercise will simulate repeater failure, and will be conducted only on 2 meters simplex and 60 meters. Most stations (except net control) will operate portable. Assistant Emergency Manager Lee Kaser, KK6VIV, announced that we can operate net control for the drill from the EOC RACES Room at Loma Ridge. This high location will provide good coverage for the 2-meter simplex portion of the exercise. It will also probably be good for the 60-meter portion, although the HF antenna is a vertical Hy-Gain DX-88.

Members will operate portable stations from their own property (such as their backyard) or from a “socially distant” open area, using battery power and portable antennas. During the first 15 minutes of the exercise, from 0900 to 0915 hours, OCRACES will call only its own members, on 146.595 MHz simplex, and each city RACES and MOU or other EmComm unit will call its members on their primary simplex frequency.

From 0915 to 0955 hours, OCRACES net control will call the roll of City RACES and MOU units on 146.595 MHz simplex. The Chief Radio Officer or Coordinator (or designated member) of each unit will respond, with a report of the number of stations that checked in on the unit’s primary simplex frequency. Relay stations will assist OCRACES net control in covering the entire county.

Beginning at 1000 hours, the Portable Drill will be conducted as part of the normal Saturday morning 60-meter OC-RACES ACS net on 5371.5 kHz upper sideband (“channel 4” dial frequency). After calling the regular Saturday roll call of Orange County City and County RACES stations, net control will then stand by for additional RACES and MOU stations in Orange County. Relay stations such as W6CAW in Campo and N6WIX in Ventura will assist net control for covering various areas of Orange County. Net control will then call the normal Saturday roll of RACES/ACS stations outside Orange County, followed by the non-EmComm stations. Home stations may check in, but portable operation is preferred (using battery power and portable antennas such as Hamsticks, end-fed wires, etc.). The 60-meter net and overall drill will conclude at 1100 hours.

Identify Locations with “what3words”

After Ben Kuo, AI6YR, posted on Twitter how he located a lost hiker by using GPS technology (see article on page 2 in this issue), a reader tweeted that the app “what3words” is a valuable tool for locating lost hikers or others who need to be found during an emergency. What3words is popular in the UK and elsewhere, but is not well-known in the US, and might be worth considering. It is a proprietary geocode system that identifies any location with a grid resolution of about 3 meters (9.8 feet). It encodes geographic coordinates into three dictionary words; the encoding is permanently fixed. For example, the center of Angel Stadium of Anaheim is identified by ///windy.host.mulled. What3words displays three words rather than strings of numbers or letters, to reduce transcription error. What3words has a website (<https://what3words.com>) and apps for iOS and Android. As the system relies on a fixed algorithm rather than a large database of every location on earth, it works on devices with limited storage and no Internet connection. The advantages of what3words are memorability, error-detection, unambiguous nature of words for most everyday and non-technical uses, and voice input.

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:

kbourne.ocsd@earthlink.net

Tri-Cities RACES

The Tri-Cities RACES website has been down for several months. They now have a new website with a new URL: <https://tri-citiesraces.org>.

Steve Foster is no longer the San Juan Capistrano Emergency Planning Coordinator, and has accepted a similar position with the City of Tustin. Steve was the SJC RACES Coordinator, and that position currently is vacant.

Radio Rodeo

Members of county and city RACES units and other radio amateurs involved in emergency communications are invited to attend the COMMEX2021 exercise, also known as Radio Rodeo, on Wednesday, May 19, 2021, in the parking area north of the Honda Center in Anaheim. OCRACES will participate in the RACES component of the exercise, primarily to communicate with Riverside County RACES at the Ben Clark Training Center near March Air Reserve Base and with Arizona (perhaps the Maricopa County Emergency Communications Group). Communications might be on the UHF Cactus Intertie system and on 60 meters and/or 40 meters. Further details will be provided by OCSO Emergency Communications Bureau (Control One) Supervising Communications Coordinator Derek Gard, KK6VGY, at the May 1st OCRACES meeting on Zoom. OCRACES will operate at the Honda Center and also at Loma Ridge.

Radio Rodeo is an interoperability training exercise conducted by the California Statewide Interoperability Executive Committee (CalSIEC) Southern Planning Area (SPA). The primary purpose of the Radio Rodeo is to conduct radio tests among Mobile Communication Vehicles within an Operational Area to verify agency interoperability.

Transmitter Hunt

By Joe Moell, K0OV

The first southern California on-foot transmitter hunt since 2019 will be Saturday, May 8, 2021, at Hillcrest Park in Fullerton. There will be simple 2-meter hidden transmitters for practice plus a five-

transmitter course that might take you to parts of the park you haven't visited before. There will also be a transmitter on the 80-meter band to find. Bring your 2-meter handi-talkie and any direction-finding gear you have.

If you don't have any DF gear, there will be some equipment to borrow, plus a chance to make some for yourself. At about 10 AM at the Izaak Walton Cabin, there will be a workshop for building measuring-tape antennas and offset attenuators, led by Marvin Johnston, KE6HTS. If you want to get a kit, please write to marvin@west.net in advance to inquire and make sure he brings the items for you. The transmitter hunts will begin about 10:30 AM.

For more on the transmitter hunts and DF gear, go to <http://www.homingin.com>.

There will be more such events this spring and summer in other sites. To be on a groups.io mailing list to receive announcements of these sessions, send a blank e-mail to ardf-socal+subscribe@groups.io.

Kenwood Repair Service

RACES members and other radio amateurs in Orange County using Kenwood amateur radio equipment have relied on FTH Group in City of Industry for servicing their amateur radio equipment. On April 14, 2021, JVCKENWOOD USA issued Service Bulletin ASB-1066 saying that a transition has occurred for amateur radio service. All service and repairs are to be sent to the new Kenwood Authorized Amateur Radio Service Center in New York, which is now United Radio. Radio amateurs are advised that they should no longer ship any amateur radio equipment to FTH Group Inc., as they will no longer service amateur radio equipment. United Radio will now be the only Kenwood Authorized Amateur Service Center. Kenwood owners are asked to forward all service for amateur radio equipment to the following location:

United Radio
Kenwood Authorized Service Center
Amateur Communications Division
5717 Enterprise Parkway
East Syracuse, NY 13057

May 2021

Sun	Mon	Tue	Wed	Thu	Fri	Sat
						1 City/County RACES & MOU ACS Exercise
2	3 Weekly 2 m ACS Net & OCRACES Zoom Meeting	4	5	6	7	8 Weekly 60 m ACS Net & On-Foot Transmitter Hunt
9	10 Weekly 2 m ACS Net	11	12	13 PSR Orientation	14	15 Weekly 60 m ACS Net
16	17 Weekly 2 m ACS Net	18	19 Radio Rodeo	20	21 Orange County Amateur Radio Club Zoom Meeting	22 PSR Prescreen & Weekly 60 m ACS Net
23	24 ACS Net on 4 Bands	25	26	27	28	29 Weekly 60 m ACS Net
30	31 Memorial Day (no net)					

Upcoming Events:

- **May 1:** City/County RACES & MOU ACS Exercise, 0900-1100 hours
- **May 3:** OCRACES Meeting on Zoom, 1930 hours
- **May 8:** On-Foot Transmitter Hunt, Hillcrest Park, Fullerton, 1030 hours
- **May 13:** Orientation for PSRs, Sheriff's Academy, 1830 hours
- **May 19:** Radio Rodeo, Honda Center in Anaheim and OC EOC, 0700 hours
- **May 21:** Orange County Amateur Radio Club Meeting on Zoom, 1900 hours
- **May 22:** Prescreen for PSRs, Sheriff's Academy, 0900 hours
- **May 31:** Memorial Day (no net)



<https://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: 5371.5 kHz USB (dial) (Channel 4) (OC ACS Net—Saturdays, 1000 hours)
 40 m: 7250 kHz LSB
 10 m: 29.640 MHz output, 29.540 MHz input, 107.2 Hz PL (out of service)
 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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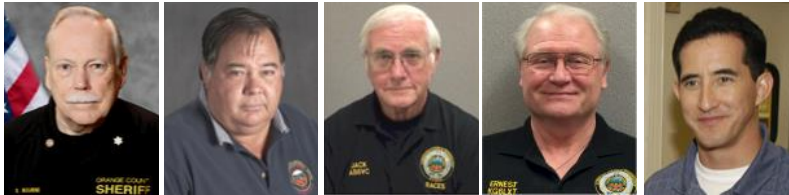
Questions or Comments?
Contact *NetControl* Editor Ken Bourne, W6HK
kbourne.ocsd@earthlink.net



**“W6ACS ...
Serving
Orange County”**

Meet Your County of Orange RACES Members!

Officers →



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Scott Byington
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Jack Barth
AB6VC

Ernest Fierheller
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Tom Tracey
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