November 2015

County of Orange RACES

NetControl

Newsletter of the County of Orange Radio Amateur Civil Emergency Service

The Next OCRACES Meeting Is

November 2, 2015 1930 Hours

840 N. Eckhoff Street, Suite 104, Orange

Reporting Emergencies Chris Storey, KA6WNK

Orange County Sheriff's Department
Communications & Technology Division

Captain's Corner
by RACES Captain Ken Bourne, W6HK, Chief Radio Officer

Multipath Is Not Your Friend

On Monday night, October 12, 2015, my son Don, KB6TVK, and I were in the parking lot of the Orange County Mining Company on the east side of Orange, preparing our direction-finding equipment for the cooperative T-hunt that would begin right after the 2-meter OCRACES net. The net control operator was a "no show," so I began running the net from my car. Received signals were highly distorted, so, after a few check-ins, I moved my car a few feet, and the distortion disappeared. What caused that distortion? *Multipath*!

Multipath propagation occurs when signals reflect off of objects such as hills, buildings, water towers, trucks, airplanes, etc., on their way from the transmitting antenna to the receiving antenna. This often results in multipath distortion, fading ("destructive interference"), and signal cancellation. It can also cause a vector addition of the direct and reflected signals, resulting in a signal that is stronger than the direct-only signal ("constructive interference").

The reflected signal has a longer distance to travel than the direct signal, which could cause a phase difference between the two signals. Thus, multipath distortion is often referred to as phase distortion. In some cases, a signal dropout might occur due to phase cancellation.

On the HF bands, phase or multipath distortion, fading, and dropouts occur due to changes in ionospheric reflection or refraction. Distortion is not so noticeable on SSB, but AM skip signals are particularly susceptible to distortion during fades. This is commonly called *selective fading*, and is also heard on FM skip signals at the high end of the 10-meter band.

You will even notice selective fading, multipath distortion, and dropouts on FM broadcast signals in the 88-108 MHz band, as well as on the VHF and UHF ham bands, and on cell-phone signals, due to local reflections. Moving your antenna just slightly will usually clear the problem.

Some systems use multipolarized antennas to reduce multipath problems. Other systems use diversity antenna systems, which detect and quickly select the antenna with the strongest signal. Other systems use two receivers with a common detector and audio amplifier, and with the front ends connected to different antennas (often with opposite polarity). In such a system, all RF circuits, especially the local-oscillator frequency, must be precisely the same. Elecraft has achieved a successful diversity scheme with its optional second receiver in its K3 and K3S transceivers. I used to work for a manufacturer of wireless microphones for the broadcast and entertainment industries, and we designed our true-dual-diversity receivers according to this principle, to avoid dropouts as an entertainer moved around.

Multipath creates challenges in direction-finding as well. During our cooperative T-hunts, we constantly battle erroneous bearings due to signal reflections. It's advisable to monitor a Doppler display for the more common average direct signal, in order to recognize an occasional reflected signal from a wrong direction.

City/County/MOU Drill Focuses on El Niño

County and City RACES and MOU members participated in the City/County RACES & MOU Drill on Saturday, October 3, 2015. The scenario for this drill was flooding and mudslides, due to intense El Niño conditions.

OCRACES members gathered at the Orange County EOC RACES Room at 8:30 AM for orientation. The drill lasted from 9:00 AM until 11:00 AM. Drill messages were signed by OCSD Communications & Technology Division Program Support Manager Delia Kraft, KR6AFT, who wrote the original drill plan.

Jon Schaffer, W6UFS, handled HDSCS traffic from Position 2.

OCRACES Chief Radio Officer Ken Bourne, W6HK, initiated the orientation and oversaw the drill, and Training Sergeant Tom Tracey, KC6FIC, commanded the operation. Enough members participated to allow scribes at all positions for efficient operating.

Handling outgoing traffic from Positions 1 and 4 were Roger Berchtold, WB6HMW, Joe Selikov KB6EID, Radio Officer Scott Byington, KC6MMF, Fran Needham, KJ6UJS, and Applicant Jack Clough, KK6VNB. Incoming traffic was handled at Positions 5 and 6 by Assistant Radio Officer Jack Barth, AB6VC, Bill Borg, KG6PEX, Radio Officer Harvey Packard, KM6BV, and Ken Tucker, WF6F. Assistant Radio Officer Bob McFadden, KK6CUS, conducted Winlink operations at Position 3. Randy Benicky, N6PRL, and Applicant Tony Scalpi,

Tom Tracey, KC6FIC, oversaw incoming-traffic operations at Positions 5 and 6 on the left, while Randy Benicky, N6PRL, and Tony Scalpi, N2VAJ, ran the HF net on 40 meters at Position 7 on the right.

Bob McFadden, KK6CUS, ran the Winlink station at Position 3. He communicated with American Red Cross, Orange County SKYWARN, and RACES units in Brea, Costa Mesa, Cypress, Fullerton, Huntington Beach, Laguna Woods, Los Alamitos, Mission Viejo, Orange, and Seal Beach.
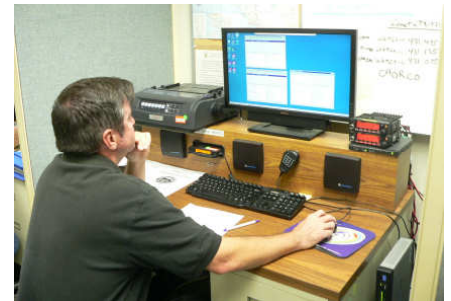

Handling outgoing messages at Positions 1 and 4 were (left to right) Fran Needham, KJ6UJS, Scott Byington, KC6MMF, Jack Clough, KK6VNB, Roger Berchtold, WB6HMW, and Joe Selikov, KB6EID.

Incoming messages were handled at Positions 5 and 6 by (left to right) Bill Borg, KG6PEX, Jack Barth, AB6VC, Harvey Packard, KM6BV, and Ken Tucker, WF6F.

N2VAJ, ran a successful 40-meter operation at Position 7. Hospital Disaster Support Communications System (HDSCS) Assistant Coordinator Jon Schaffer, W6UFS, ran "Hospital Group" traffic from Position 2.

Participating City RACES units included Brea, Buena Park, Costa Mesa, Cypress, Fullerton, Huntington Beach Laguna Beach, Laguna Woods, Los Alamitos, Mission Viejo, Newport Beach, Orange, Placentia, Seal Beach, and Westminster. MOUs included American Red Cross, HDSCS, and Orange County SKYWARN.

Next OCRACES Meeting: November 2nd

The next OCRACES meeting is on Monday, November 2, 2015, at 7:30 PM, at 840 N. Eckhoff Street, Suite 104, in Orange. At this meeting, Chris Storey, KA6WNK, will give a presentation on "Reporting Emergencies." You will learn how observant citizens and trained emergency communicators can become the vital first link in the public-safety chain when they witness an emergency event in the field or in the home. You will learn how to get the right information to the right public-safety agency in a timely and organized manner. Emphasis is placed on personnel safety when reporting hazardous situations or criminal activity. The presentation also discusses the various tools used to summon emergency assistance, and how best to use them.

Chris Storey, KA6WNK.

Chris is a 20-year veteran Public Response Dispatcher for the Los Angeles County Sheriff's Department. He has a wide range of emergency communications experience, including Navy-Marine Corps MARS (radio operator, Marine Corps Air Station El Toro Station Augmentation Team, Region Five Director for Emergency Communications, Region Five Director MARS Teletypewriter System, and the Southern California Area Coordinator for Emergency Communications and Net Operations), the federal SHAred RESources High Frequency radio program SHARES), the Radio Amateur Civil Emergency Service (former OCRACES member), CERT, and the U.S. Air Force Auxiliary Civil Air Patrol.

MARRITE: November 17th

The 2015 Multi-Agency Regional Radio Interoperability Training Exercise (MARRITE) will be held on November 17, 2015. Known in previous exercises as the "Radio Rodeo," this is an annual event hosted by the California Statewide Interoperability Executive Committee (CalSIEC) Southern Planning Area (SPA), consisting of the 12 counties comprising the southern section of the state. Representative agencies from four of these counties—Los Angeles, Orange, Riverside, and San Bernardino, as well as the State—will be participating in this exercise.

This year, the MARRITE site will be at the Huntington City Beach parking lot, located on PCH/Beach Blvd. Participant briefing will be at 0830, the Radio Roll Call will begin at 0900, and the event will conclude at approximately 1100. Viewing of participants' vehicles and equipment is scheduled for 11:00 AM-12:00 Noon.

As in previous years, the exercise is designed to provide an environment and opportunity for Responder Agencies to test their public-safety interoperable radio communications equipment and procedures in an environment simulating an actual incident. It is designed to test local agencies' ability to respond effectively to a local incident requiring the deployment, setup, and operation of mobile communications resources.

Last year we added an amateur radio component to include several RACES groups from Orange County and Riverside County. If your organization would like to attend, please contact Delia Kraft via email, delia.kraft@comm.ocgov.com, to reserve your spot.

OCRACES Shows Van at OCFA Open House

OCRACES exhibited its emergency communications response vehicle at the Orange County Fire Authority Open House on Saturday, October 24, 2015. The event was well attended, and included live fire demonstrations and displays of fire-fighting apparatus. We enjoyed introducing amateur radio and emergency communications to the many families who visited our van, and the children were thrilled to see our radio equipment.

OCRACES members at the event included Bill Borg, KG6PEX, Chief Radio Officer Ken Bourne, W6HK, Fran Needham, KJ6UJS, Tom Riley, K6TPR, and Brad Russo, KB6GPM. We were pleased that three OCRACES applicants also participated, including Jack Clough, KK6VNB, Ken Munsil, KJ6NYW, and Tony Scalpi, N2VAJ.

Some of the OCRACES members and applicants at the OCFA Open House included (left to right) Bill Borg, KG6PEX, Jack Clough, KK6VNB, Tom Riley, K6TPR, Fran Needham, KJ6UJS, Brad Russo, KB6GPM, and Tony Scalpi, N2VAJ,

KK6VNB Hides in Orange

OCRACES Applicant Jack Clough, KK6VNB, was the fox on Monday, October 12, 2015, on the monthly cooperative T-hunt. He turned on the fox box at about 7:20 PM, in Pitcher Park, at the southeast corner of Cambridge Street and Almond Avenue in Orange.

The MESAC team, consisting of Patrick Williams, KJ6PFW, and Eric Bowen, W6RTR, was the first to find the fox. Next was Richard Saunders, K6RBS, from Mission Viejo. Third was Bob McFadden, KK6CUS, followed by Ken and Don Bourne, W6HK and KB6TVK. Also hunting was Tony Scalpi, N2VAJ, using an Arrow fox hunt loop. He tracked the signal towards Chapman University and then towards the Orange Public Library on Chapman Avenue. He almost made it to the fox's den before the fox box was turned off at 8:30 PM. This is a reminder that all hunters should notify the fox via the coordinating frequency (449.100 MHz repeater) that they are hunting, so that the fox box is not turned off prematurely.

Gathered around the fox box at the fox's den were (left to right) Patrick Williams, KJ6PFW, Don Bourne, KB6TVK, Eric Bowen, W6RTR, Bob McFadden, KK6CUS, Jack Clough, KK6VNB (the fox), and Richard Saunders, K6RBS.

The next cooperative T-hunt will be held on Monday, November 9, 2015, immediately following the OCRACES 2-meter net (approximately 7:20 PM). The fox will transmit on the input (146.295 MHz) of the 146.895 MHz repeater. Hunters will compare bearings via the 449.100 MHz repeater, and are encouraged to beacon their positions via APRS throughout the hunt. Eric Bowen, W6RTR, will be the fox, and he will hide in Huntington Beach. The location will be on paved, publicly accessible property. No fees will be required to drive directly to the fox.

The cooperative T-hunts provide excellent practice in working together to find the source of interference. 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. A 4-MHz offset attenuator, also available from Arrow Antenna and HRO, can be useful when close to the fox, to prevent receiver overload. 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. Some hunters use the DF2020T radio direction finder kit, which is a Doppler system available from Global TSCM Group, Inc. (http://www.kn2c.us). A very similar system is the new MFJ-5005 Doppler direction finder. Other useful tools are the Foxhunt app for iPhones and the Triangulate app for Android phones. For some excellent information on T-hunting, see http://www.homingin.com.

Farewell to John Bedford, KF6PRN

John Bedford, KF6PRN, has resigned from OCRACES, to focus on spending more time volunteering to help our veterans. We admire John for this extremely worthwhile pursuit, and we thank him for his service in OCRACES. John is a Viet Nam veteran, and is dedicated to helping his fellow veterans who sacrificed so much in serving our nation.

Farewell to Brian Turner, KI6WZS

We wish Brian Turner, KI6WZS, the best of success in his new endeavors as he departs from OCRACES. We appreciate his prior activities in our unit, and admire the excellent operating capabilities he showed during drills and activations. Brian also got us started in D-STAR operations.

The Next Chapter
by OCSD/Communications & Technology Program Support Manager Delia Kraft, KF6UYW

Time flies when you're having fun! It's an old cliché, but very fitting. Three years ago I was assigned as the Emergency Communications Manager (ECM)/Program Coordinator for OCRACES, but, truthfully, it seems as if it's only a fraction of that time. I have been given another opportunity to fill the Program Support Manager position, so by the time this issue is released, I will be in the process of passing the OCRACES baton to the next ECM. My new assignment is bittersweet, since I've become attached to the members and concept of OCRACES. I can't and won't say this is "farewell" to OCRACES. A wise man once told me, "Being part of RACES is like being part of the Mob, and you can't ever get out completely." Who am I to argue with a wise guy?

Although my time with all of you will be limited, I take with me all that you've given to me, including an abundance of knowledge, friendships, and the proud feeling I have of all you have accomplished. The "Next Chapter" of OCRACES will be created by all of you, and, with your dedication, I have no doubt we will see a thriving organization in the years to come!

It's an understatement to say I like to mix work with shenanigans, and the RACES members gave me lots of opportunity to have a great time in doing both. I've included some of my favorite pics taken during the last three years.

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 in Orange County.

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

w6hk@ ocraces.org

Anaheim RACES

Jeff DuVall is the new Anaheim City RACES Coordinator. He also backs up CERT. Administrative Analyst Adriana Goodin is responsible for CERT, and she backs up RACES.

Costa Mesa RACES (MESAC)

Members of the Mesa Emergency Service Amateur Communications (MESAC) attended the RoadShow community car show on Friday, October 2, 2015, displaying ham radio communications equipment that may be used in a City emergency. Also, they displayed vintage police radio equipment, a classic communications RoadShow vehicle, plus state-of-the art digital radio equipment and ham radio mapping gear. The RoadShow was also held on September 4th and will be held on November 6th and December 4th.

MESAC had a booth at the Costa Mesa Scarecrow Festival on October 17 and 18, 2015, at Goat Hill Junction. Visitors to the booth found out more about how MESAC assists with emergency communications in times of need. Adjacent to their booth was a group of Scouts operating ham radios for the worldwide JOTA ("Jamboree on the Air"), an annual scouting event involving ham radio communications to connect with other scout groups. Scouts of all ages participated, from Cub Scouts to Boy Scouts and Venturers. Temporary ham radio stations were set up at Goat Hill Park, and the communications typically required scouts speaking into a microphone and listening on the station speakers. The exchanges included such information as name, location, Scout rank, age, and hobbies.

Mission Viejo RACES

Joe Ayers, AE6XE, of Mission Viejo RACES, reports that his RACES unit welcomes Laguna Woods RACES online to the Orange County Mesh Network. Joe says this critical path now enables high-speed data services for EmComm use from Tri-Cities RACES all the way out to Riverside and Los Angeles Counties. Data rates up to 54 Mb/s

are achievable and have been confirmed in spots across these locations. In the next several months, the network will be extended to link together with the Ventura County Mesh Network.

Don Hill, KE6BXT, in preparing to give an AREDN demonstration to the Emergency Communications Course EC-001 at Red Cross in Santa Ana, installed Mesh nodes on the Red Cross roof and connected into Pleasants Peak. This is a 2.4-GHz downlink point-to-point with 5-GHz omni local area coverage—both dual-polarity antenna channels.

Seal Beach RACES

Seal Beach has a new Emergency Coordinator, Cpl. Mike Ezroj.

Effective November 18, 2015, Seal Beach RACES will have a new Chief Radio Officer, Dale Murry, AG6SC, and a new Assistant Radio Officer, Don Kovell, WA6GVI. Mike Maronta, KC6YNQ, will move into a purely technical roll as Chief Technical Officer.

Hospital Disaster Support Communications System (HDSCS)

On Thursday, October 1, 2015, a power outage darkened the homes and business of over 22,000 Southern California Edison customers in Huntington Beach and Fountain Valley. As soon as HDSCS coordinators became aware of the outage, they made calls to hospitals in the areas affected, to determine if any phone problems existed. Both Fountain Valley Hospitals had no problems, but calls to three different numbers at Huntington Beach Hospital produced rapid busy signals. Following their established protocol, HDSCS members were activated to this facility to check for a phone outage. As the first-in operator drove into the hospital property, the phone system began to come back on line. Two other HDSCS operators were called off but continued to monitor the on-air net. Joe Orrico, WB6HRO, the first-in operator, made contact with hospital staff and then stayed on site for 30 minutes to make sure the system functioned under load.

November 2015

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2 *OCRACES Meeting* & *Weekly 2 m ACS Net*	3	4	5	6	7 *Weekly 40 m ACS Net*
8	9 *Weekly 2 m ACS Net* & *Cooperative T-Hunt*	10	11	12	13	14 *Weekly 40 m ACS Net*
15	16 *Weekly 2 m ACS Net*	17 *MARRITE*	18	19	20	21 *Weekly 40 m ACS Net*
22	23 *All-Band ACS Nets* & *SWACS Radio Test*	24	25	26 *Happy Thanksgiving!*	27	28 *Weekly 40 m ACS Net*
29	30 *Weekly 2 m ACS Net*					

Upcoming Events:

- **November 2:** OCRACES Meeting, 840 N. Eckhoff Street, Suite 104, Orange, 1930-2130
- **November 9:** Cooperative T-Hunt on input of 2-meter repeater
- **November 17:** Multi-Agency Regional Radio Interoperability Training Exercise (MARRITE)
- **November 23:** Southwest ACS Frequency/Radio test, 2030
- **November 26:** Thanksgiving
- **December 7:** OCRACES Holiday Dinner, 1830 (no net or regular meeting)

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

40 m: 7250 kHz SSB (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: 147.480 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: 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)
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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Ken Bourne, W6HK
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Radio Officers (Lieutenants)
Scott Byington, KC6MMF
Harvey Packard, KM6BV

Assistant Radio Officers (Sergeants)
Jack Barth, AB6VC
Ernest Fierheller, KG6LXT
Bob McFadden, KK6CUS
Tom Tracey, KC6FIC

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Questions or Comments?
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"W6ACS ...
Serving
Orange County"

Meet Your County of Orange RACES Members!

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