

January 2011



Newsletter of the County of Orange Radio Amateur Civil Emergency Service

**Inside this issue:**

Captain's Corner	1
December Storm	2
OCRACES Meeting	3
RACES Rules	3
Sharpen Operations	3
6-Meter Repeater	3
Holiday Dinner	4
Watching the Web	5
RACES/ACS News	6
Events Calendar	7

## Captain's Corner

*by RACES Capt. Ken Bourne, W6HK, Chief Radio Officer*

### Cell Phones Rule!

What am I saying? We in RACES keep touting that amateur radio, especially RACES, will come through when cell sites fail. Failure at cell sites is bound to occur when "the big one" hits, due either to structural damage at the sites or to overload because of everyone trying to use their cell phones at once. But during some emergencies cell phones work just fine, and we, as auxiliary emergency communicators, should consider them as part of our communications "bag of tricks."

For example, when we were requested to provide ATV coverage of the floods and mudslides in South County recently, and we didn't have adequate personnel or equipment at the time, County technicians were successfully deployed to provide images with cell-phone cameras, and to e-mail the images to the EOC. GPS-equipped cell-phones could provide precise location information with the images. Blue-tooth equipped cell phones could send those images to a dongle in a local laptop, which could be connected to the Internet or even to a radio to transfer the images via SSTV or live ATV to the EOC or other locations.

Cell phones have acquired many of the capabilities that our ham-shack computers have, and, in some ways, even more! Modern cell phones have a keyboard, touch-screen high-resolution color display, high data rates to the Internet, and decent audio. They are great communications tools by themselves, and even greater when combined with amateur radio.

"Smart" cell phones, such as the iPhone, Android, and Blackberry, are enhanced with applications ("apps") that are now available for radio amateurs. One useful (and free) app allows registered amateur radio users to connect to Echolink with their iPhone if it has a WiFi or 3G capability. A similar version is available for the Android.

Is an app available for tracking interference to our RACES repeaters? Yes! It's called "FoxHunt." With this free app, you can point your iPhone in the same direction as your direction-finding antenna, and press a button. Then do the same thing at other locations. The app will then display a map, showing the most likely position of the interference. This, of course, is possible because of the iPhone's built-in GPS. With iPhone 3GS or iPhone 4, you will also get driving directions to the interference!

iBCNU is an APRS GPS position reporting and text-messaging application for the iPhone. When position reporting is enabled, the app will periodically send out your iPhone's location using either the 3G or WiFi network and the built-in GPS receiver. Transmission rate is adjustable. Once the GPS information is in the APRS-IS system, it is shared between all users, and you can track yourself or track other radio amateurs using this or other APRS mapping sites. When used as a text-messaging tool, iBCNU lets you send and receive short messages (approximately 512 characters) using the APRS-IS system.

Many more amateur-radio-related apps are available free or at low cost.

**The Next  
OCRACES  
Meeting is**

**January 3, 2011  
1930 Hours  
840 N. Eckhoff St.,  
Suite 104, Orange**

Guest Speaker:  
Ken Mirabella, KM6YH,  
Powerwerx—Wouxun  
KG-UV3D and KG-833



Orange County Sheriff's Department  
Communications & Technology Division

## OCRACES Activates for December Storm

At 0400 Monday morning, December 20, 2010, the National Weather Service in San Diego issued a flash flood watch for Orange County, stating that a large Pacific plume of moisture ahead of an advancing trough of low pressure was expected to bring heavy rains and the potential for serious flooding between late that afternoon through Wednesday afternoon. That turned out to be an understatement! Later on Monday, OCRACES Chief Radio Officer Ken Bourne, W6HK, sent an e-mail to the ocsd-races Yahoo Group, which includes OCRACES members as well as City and MOU officers, to advise of the pending weather situation and to request members to advise him of their availability for a possible activation. Rain began to fall later on Monday into the evening. Mike McLaughlin, KJ6EQ, Orange County SKYWARN Coordinator, advised Bourne at 1410 that SKYWARN was activating for the entire weather event.

On Tuesday at 0813, OCSD/Communications & Technology Division Director Robert Stoffel, KD6DAQ, advised Bourne that the Orange County EOC had activated at a Level 1 (lowest activation level) to monitor the weather-related incidents impacting Orange County. No RACES assistance was requested yet. At 0950, Bourne relayed this information to OCRACES members by e-mail. Immediately afterwards, Stoffel advised Bourne that OCSD/Emergency Management indicated one RACES member was needed in the EOC RACES Room throughout the day and into the evening. At 1002, Bourne sent an e-mail to all members about the low-level activation. Chuck Dolan, KG6UJC, responded to the EOC at about 1100, and began to put together a RACES operations schedule. Kenan Reilly, KR6J, relieved Dolan at 1600 hours, and Brian Turner, KI6WZS, was scheduled to relieve Reilly at 2000. However, OCSD/Emergency Management went to minimal staff at 2000 and RACES was deactivated until the next day.

On Wednesday, just before 0800 hours, Stoffel sent a RACES Level 3 page to all OCRACES members, to call in on the 2-meter repeater. He advised Bourne that the EOC was at a Level 2 because of the heavy rains, and requested RACES activation. Bourne, Reilly, and Dolan responded to the EOC. Shortly thereafter, a request was issued for deploying ATV to South County, to send flood images back to the EOC. Martin La Rocque, N6NTH, responded to the EOC to work on getting the ATV station into operation, but the ATV receiver was unable to pick up the ATV repeater on Santiago Peak. A direct ATV path from South County to the EOC would not have been possible on UHF. Other ATV-equipped OCRACES members were either responding to work-related emergencies or were ill. SSTV might have been useful, but the few Kenwood VC-H1 SSTV communicators that we have are not compatible with the HTs currently used by members, due to connector changes. Stoffel then dispatched technicians from his Division staff to South County to send images via their cell phone cameras. One of them was David Corsiglia, WA6TWF, who advised Bourne of his location and that his cell-phone image transmissions appeared to be successful. Brian Turner, KI6WZS, responded to the EOC RACES Room before 1630. RACES operations were secured at 2000 until the next morning.

Bourne reported to the EOC RACES Room at 0700 on Thursday morning, along with Randy Benicky, N6PRL, to handle traffic regarding recovery operations in the canyons and in South County. The RACES Room was secured at about 1630, and the EOC went to duty-officer status at 1700 hours.

Most of the traffic handled during the emergency involved transmitting status updates on the OA1, OA2, WEROC, and County Admin frequencies, as well as on the 2-meter OCRACES repeater. Updates included road closures, EOC hotline information, evacuation areas, flooding and mudslide information, and weather conditions and predictions.



OCRACES Chief Radio Officer Ken Bourne, W6HK (left photo), Kenan Reilly, KR6J (center photo), and Brian Turner, KI6WZS (left), and Assistant Radio Officer Chuck Dolan, KG6UJC (right photo), in RACES Room at the Orange County EOC during storm activation

## Next OCRACES Meeting: January 3rd

The next OCRACES meeting is on Monday, January 3, 2011, at 7:30 PM, at OCSD/Communications & Technology Division, 840 N. Eckhoff Street, Suite 104, in Orange. Our guest speaker is Ken Mirabella, KM6YH, from Powerwerx, who will give a presentation on the low-cost Wouxun KG-UV3D and KG-833 HTs that he is importing from China. The KG-UV3D is available in 2-meter/440-MHz and 2-meter/222-MHz versions, and the KG-833 covers 400-470 MHz. All radios are FCC-certified for commercial use, and will comply with the FCC's narrowbanding mandate that goes into effect on January 1, 2013 (for commercial frequencies). Radio amateurs who are members of OCSD's Search & Rescue Reserve Unit, for example, might be interested in the KG-UV3D (2-meter/440-MHz version) or KG-833 for amateur use and for OCSD Blue Channel (as well as Maroon and Amber channels). American Red Cross—Orange County Chapter communicators might be interested in the same radios for amateur use and for use on Red Cross OPS-1.

## FCC RACES Rules Effective February 14th

In the December 2010 issue of NetControl, we reported that the Federal Communications Commission amended Part 97 of its Rules to remove references to RACES station licenses, since it decided in 2000 not to renew RACES station licenses. The amended Rules will become effective February 14, 2011.

## Let's Sharpen Our Net Operations

Some OCRACES members need to sharpen their operating procedures when running the weekly ACS net. We have mentioned these problems in past newsletters and at meetings, and even in one-on-one conversations, but old bad habits apparently are hard to break. The following procedures need to be followed:

- ◆ Pause at least one second after keying your transmitter before you speak, to allow for repeater activation delay. When calling cities, often only a portion of the city name is heard (such as when acknowledging a check-in by saying "Roger," often only "...ger" (or no acknowledgement at all!) is heard.
- ◆ When acknowledging visitor or late check-ins, say "Roger" and state the call sign (or at least the suffix) of the station you are acknowledging. Otherwise, the visitor does not know if you are acknowledging him/her or another station that transmitted at the same time.
- ◆ Always use the latest roll call, which is sent with the latest issue of *NetControl*. It's embarrassing that for several weeks Cypress RACES has not been called because the net control operator is using an old roll call.
- ◆ At the beginning of the net, when a station gives an announcement, ask if there are any more announcements. Ask again, if there is more than one announcing station.
- ◆ If a station checks in with a poor-quality signal (weak, broken, noisy, distorted, etc.), give a signal report to that station. One purpose of running a weekly net is to check our equipment. If someone checks in with a poor sounding signal, he/she needs to know about that.
- ◆ If a Tri-Cities RACES station checks in for Dana Point and says he/she is also checking in for San Clemente and San Luis Obispo, make a note of that and don't call San Clemente and San Luis Obispo again later.

## 6-Meter Repeater Is Back on the Air

The OCRACES 6-meter repeater is back in operation. The output of the repeater is on 52.62 MHz, and the input is 52.12 MHz. The input PL is 103.5 Hz. (There is no output PL.) The 70-cm remote function has been removed.

The repeater keys up from Loma Ridge, using the new Yaesu FT-8900 in the RACES Room, and also with a 5-watt HT from the EOC parking lot. However, a recent test with the 5-watt HT on a roof-mounted ground plane antenna at a home in Orange would not key the repeater. More tests are needed. Signal reports are requested from anyone in Orange County with a 6-meter mobile or base station.

Once we have verified that the 6-meter repeater is fully functional, it will once again be used for EOC-to-EOC RACES communications during nets and drills.



# OCRACES Celebrates at Holiday Dinner

OCSD Emergency Communications Manager Marten Miller, KF6ZLQ, announced at the OCRACES Holiday Dinner on December 6, 2010, that Randy Benicky, N6PRL, was elected Member of the Year, and Chuck Dolan, KG6UJC, was elected Officer of the Year. Congratulations to Randy and Chuck!

Besides Randy and Chuck, other members (and their wives or guests) attending the dinner, some pictured below, included Jack Barth, AB6VC, Bill Borg, KG6PEX (not pictured), Ken Bourne, W6HK (not pictured), Scott Byington, KC6MMF, Nancee Graff, N6ZRB, Ray Grimes, N8RG, Martin La Rocque, N6NTH, Harvey Packard, KM6BV, Kenan Reilly, KR6J, John Roberts, W6JOR, Tom Tracey, KC6FIC, and Brian Turner, KI6WZS. OCRACES Applicants attending included John Bedford, KF6PRN, and Jim Dorris, KC6RFC.

Members and their spouses and guests had a great time at the dinner, which was held for the first time at Coco's Bakery Restaurant in Tustin. The food was good and reasonably priced, and the service was excellent. Besides Marten, we were also pleased to have OCSD/Communications & Technology Division Director Robert Stoffel, KD6DAQ, and Secretary II Angela Strehle celebrating with us.



**OCSD Emergency Communications Manager Marten Miller, KF6ZLQ (white shirt), presents Officer of the Year plaque to RACES Sgt. Chuck Dolan, KG6UJC (left photo) and Member of the Year plaque to Randy Benicky, N6PRL**



# Watching The Web

**Web Sites of Interest to RACES Personnel  
by RACES Capt. Ken Bourne, W6HK, Chief Radio Officer**

Resources and Analysis for Electronics Engineers

<http://www.radio-electronics.com>



This Web site contains information about many radio-electronics topics, in an easy-to-understand format. Topics include antennas and propagation, broadcast technology, cellular telecommunications, circuits and modules, design principles, electronic components, electronics manufacture, formulas and data, radio receivers, RF, satellite technology, technology history, telecommunications and networks, test and measurement, wireless technology, news, bookshop, events and exhibitions, and jobs.

Home-page articles are posted in some of the topic categories, such as “Meeting Health Care Needs with Mobile Technology” under “Wireless Technology.” An “EMC Basics Tutorial” appears under “Design Principles,” with summaries of EMC basics, EMC design techniques, EMC filter techniques, and EMC compliance testing. An editorial on “Has Mobile Data Been Overhyped?” appears under “Cellular Telecommunications.” “AXIe, Advanced TCA Extensions for Instrumentation and Test,” appears under “Test and Measurement.” Under “Electronic Components” is an article on photodiode technology and a technology tutorial on laser diodes. An article on “Understanding Signal Path Loss and Link Budget” appears under “Antennas and Propagation,” explaining free-space path loss and link budget. “History of the Radio Receiver” is posted under “Technology History.”

The “Antennas and Propagation” page discusses electromagnetic wave and antenna basics (including polarization, antenna feed impedance, resonance and bandwidth, and directivity and gain), RF coaxial cable or feeder and associated elements (including RF diplexer, balanced feeder, coaxial feeder/coaxial cable, RF coaxial cable connectors, and waveguide basics), radio antenna types (including MIMO technology, dipole antennas, discones, distributed antenna systems, ferrite rod antenna, five-eighths-wavelength vertical, horn antenna, J-pole vertical antenna, log-periodic beam antenna, loop antenna overview, parabolic reflector, smart/adaptive antenna, quarter-wave vertical, yagi, and satellite antennas), radio-wave propagation (including signal-path loss and link budgets, multipath propagation, ground-wave propagation, tropospheric propagation, troposcatter, meteor-burst/meteor-scatter communications, electromagnetic waves and propagation, ionospheric propagation basics, satellite propagation, and areas of the atmosphere that affect propagation), and analysis (including cellular spectrum regulation and practical applications for distributed antenna systems).

A page on “Electronic Circuits and Circuit Design Information” covers resistor circuits, resistor-capacitor (RC) circuits (including a twin T notch filter), LC filter circuits (including low-pass, high-pass, and band-pass LC filters), diode circuits (including a simple PIN-diode RF switch, power-supply current limiter, diode voltage multiplier, single balanced diode mixer, and double balanced diode mixer), transistor circuits (including a two-transistor amplifier circuit with feedback, transistor active high-pass filter, transistor current limiter for power supplies, transistor crystal oscillator, and Darlington-pair transistor circuit configuration), SCR, diac, and triac circuits (including and SCR overvoltage crowbar circuit), operational amplifier circuits (including operational amplifier basics, inverting amplifier, summary of op-amp gain, non-inverting amplifier, high-pass filter, low-pass filter, band-pass filter, variable-gain amplifier, fixed-frequency notch filter, multivibrator oscillator, bistable multivibrator, comparator, and Schmitt trigger), and digital logic circuits (including logic truth table, hints and tips on designing and laying out digital or logic circuits, using inverters to create other functions, a divide-by-two frequency divider using a D-type flip-flop, an R S flip-flop using two logic gates, an edge triggered R S flip-flop using two D types, and an electronically controlled inverter using an exclusive OR gate).

A page on “Radio Receiver Technology” covers radio receiver types, specifications (such as selectivity—filter specifications and shape factor, image response and IF breakthrough, sensitivity—signal-to-noise, SINAD, and noise figure, reciprocal mixing, cross modulation, intermodulation distortion and intercept point, dynamic range, and FM reception—squelch, quieting, and capture ratio), circuit blocks, and technologies.



## RACES/ACS News from Around the County

**"RACES/ACS 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

Anaheim Fire / Office of Disaster Preparedness posted an excellent video on YouTube at [http://www.youtube.com/watch?v=VRQ3iuJ-\\_8o](http://www.youtube.com/watch?v=VRQ3iuJ-_8o) on the 2010 Emergency Service Volunteer Expo at The Grove of Anaheim. The OCRACES emergency communications response vehicle was displayed at this event (see page 3 of the November 2010 issue of *NetControl*). In the video, RACES Sgt. Chuck Dolan is featured with the OCRACES van. OCSD Communications & Technology Division Director was interviewed and gave an excellent explanation of the role of the volunteer and where they might be asked to respond. Anaheim RACES Chief Radio Officer Chris Peña, KE6GXA, gave an excellent explanation of the role of RACES members.

### Fullerton

Fullerton RACES Radio Officer Gene Thorpe, KB6CMO, is looking for amateur radio volunteers to provide communications for the city's Tennis Tournament on January 29-30, 2011. Contact Gene at [kb6cmo@arrl.net](mailto:kb6cmo@arrl.net) or 714-680-4258 for more information.

### Huntington Beach

See the "Public Service" column beginning on page 44 of the December 2010 issue of *CQ* magazine for an excellent article on Huntington Beach RACES. The article covers HBRACES' September drill that simulated a failure of the city's 800-MHz and computer-assisted fire dispatch system. (An article about this drill appeared on page 6 of the October 2010 issue of *NetControl*.) The *CQ* article mentions that HB's EmComm plan included RACES communicators stationed at the Police Department communications center to intercept 911 fire and medical calls and relay those to the Fire Department Operations Center using temporarily set-up amateur radio equipment. RACES members were dispatched to each of the city's eight fire stations to staff 15 pieces of

fire apparatus where an amateur base station was set up. Temporary amateur equipment was installed on a battalion chief command vehicle, eight paramedic engines, two trucks, and four emergency transport vehicles (fire ambulances). Four HBRACES members were sent to the Fire Department Operations Center to act as net-control operators for the 2-meter and 440-MHz dispatch nets. Auxiliary personnel assisted the fire command staff with visual equipment tracking and availability. Many excellent photos and detailed information about this drill appear in the article.

### La Palma

Members of La Palma RACES closed their 2010 calendar by conducting field operations following a simulated earthquake disaster. Members were deployed throughout the library/city-hall parking complex and coordinated their movements through a net control station. The purpose of the drill was to expose participants to rapid-fire communications on a single tactical (simplex) frequency. Radio operators were required to coordinate requests for limited airtime to transmit preliminary damage assessment reports as described in pre-scripted situations. Training is now planned for all meetings during 2011. Local area RACES/ACS members and amateur radio operators wishing to participate or obtain additional details should contact La Palma Police Department, Corporal Les Parsons via telephone at (714) 690-3385. (Thanks to Wayne Barringer, KB6UJW, for the above information.)

### Orange County

OCRACES Radio Officer Scott Byington, KC6MMF, will give a presentation on Winlink at the next Orange County Amateur Radio Club meeting on Friday, January 21, 2011, at 1900 hours. The club meets on the third Friday of each month (except December) at the American Red Cross—Orange County Chapter, George M. Chitty Building, 600 Parkcenter Drive, in Santa Ana. Enter at the west door.

# January 2011

Sun	Mon	Tue	Wed	Thu	Fri	Sat
						1
2	3 <i>OCRACES Meeting &amp; Weekly ACS Net</i>	4	5	6	7	8 <i>EmComm Breakfast</i>
9	10 <i>Weekly ACS Net</i>	11 <i>SONGS Training (SEMS/NIMS &amp; EOC)</i>	12	13 <i>SONGS Training (Logistics, etc.)</i>	14	15
16	17 <i>Weekly ACS Net</i>	18	19	20	21	22
23	24 <i>Weekly ACS Net &amp; SWACS Frequency/ Radio Test</i>	25	26	27	28	29 <i>Palm Springs Hamfest</i>
30	31 <i>Weekly ACS Net</i>					

## Upcoming Events:

- **Jan 3:** OCRACES Meeting (about Wouxun HTs), 1930, 840 N. Eckhoff St., Suite 104, Orange
- **Jan 8:** EmComm Breakfast, 0800, Katella Grill, 1325 W. Katella Ave., Orange
- **Jan 11:** SONGS Training (Introduction to SEMS/NIMS & EOC Orientation), 0900-1100, OC EOC,
- **Jan 13:** SONGS Training (Planning and Intelligence, Logistics, Finance), 1300-1600, OC EOC
- **Jan 24:** Southwest ACS frequency/radio test, 2015
- **Jan 29:** Palm Springs Hamfest



[www.ocraces.org](http://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

- 10 m: 29.640 MHz output, 29.540 MHz input, 107.2 Hz PL (disabled)
  - 6 m: 52.620 MHz output, 52.120 MHz input, 103.5 Hz PL (disabled)
  - 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: 1282.025 MHz output, 1270.025 MHz input, 88.5 Hz PL
- \*Primary Net—Mondays, 1900 hours

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**“W6ACS ...  
Serving  
Orange County”**

## Meet your County of Orange RACES Members!



Ken Bourne  
W6HK



Scott Byington  
KC6MMF



Harvey Packard  
KM6BV



Ralph Sbragia  
W6CSP



Marten Miller  
KF6ZLQ



Robert Stoffel  
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Jack Barth  
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Jim Carter  
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Chuck Dolan  
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Ernest Fierheller  
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Randy Benicky  
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Kenan Reilly  
KR6J



John Roberts  
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Joe Selikov  
KB6EID



Steve Sobodos  
KN6UX



Tom Tracey  
KC6FIC



Brian Turner  
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