

November 2010



Newsletter of the County of Orange Radio Amateur Civil Emergency Service

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Captain's Corner

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

NBEMS for File Transfer

An interesting item about Narrow Band Emergency Messaging System (NBEMS) appears in the "Public Service" column by Richard Fisher, KI6SN, in the October 2010 issue of *CQ Amateur Radio* magazine. Comments by Hall County (Georgia) ARES Emergency Coordinator Michael Crowder, AA4BA, in consultation with NBEMS co-developer Dave Freese, W1HKJ, begin on page 64 of this issue. I encourage all RACES members to read this article and consider experimenting with NBEMS for our applications. A couple of years ago, John Unrath, K6JHU, Los Alamitos RACES, mentioned NBEMS at a City/County RACES & MOU meeting.

NBEMS was primarily developed to provide a method of transferring data files over HF with 100-percent certainty that the received file was error free.

The current version of NBEMS is a suite of software consisting of fldigi, flwrap, flarq, and flmsg for all versions of Windows. It can be downloaded from Freese's highly informative Web site at <http://www.w1hkj.com/NBEMS/>.

NBEMS requires no specialized equipment and provides verification of received data. Flarq is a one-on-one data transfer, and cannot be copied by a station that is not connected. Flwrap allows a station to transmit a text, spreadsheet, or image file, verified by all receiving stations that they received the file error free.

The receiving station can automatically detect NBEMS transmissions and store the

messages to a file, for later reading and printing.

Flmsg provides the ability to send an ICS-213 message plus additional FEMA ICS forms and ARRL Radiograms.

NBEMS typically provides 100-percent successful data transfer under harsh conditions. Packet also typically provides 100-percent transfer using Outpost, but configuring a packet station is more complex than setting up NBEMS. D-RATS and D-STAR do not provide error correction on the data channel, which can be a problem under intermod conditions.

The MT63-2000 mode on VHF/UHF is fast and accurate with fldigi. When signals are extremely weak, the Domino or Olivia modes are effective. Crowder recommends PSK-500R on 80-meter NVIS.

Freese says that composing and sending emergency messages on NBEMS utilizes the same Outlook Express, Outlook, Windows Mail, or Thunderbird e-mail program used for Internet e-mail, and is no more difficult than sending an e-mail over the Internet.

The system is designed primarily for use on 2 meters SSB with horizontal antennas, or on HF with NVIS antennas and minimum fading conditions. VHF FM is not good for ARQ message transmissions, due to its reduced range, vertical polarization, and need for receiver capture before signal decoding can occur.

This point-to-point system does not utilize repeaters, or e-mail robots, for message forwarding. All forwarding is done by stations manned by live operators on both

**The Next
OCRACES
Meeting is**

**November 1, 2010
1930 Hours
840 N. Eckhoff St.,
Suite 104, Orange**

Agenda:
Training for Election
Ballot Communications



Orange County Sheriff's Department
Communications & Technology Division

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Captain's Corner *Continued from page 1*

ends, who can confirm that a frequency is clear locally and confirm delivery of a message by the intended recipient.

NBEMS is not intended for net communications, because only one station at a time can be connected and controlled by flarq. Nets can be conducted using fldigi alone, and net control can suggest that two stations move to an adjacent frequency, have one beacon, the other connect, and then pass traffic using the error-free ARQ protocol provided by flarq. If already connected to a station using flarq, net control can use "Plain Talk" to communicate with that station on a non-ARQ basis, without breaking the data transfer.

On 2-meter SSB, PSK63 digital modulation might be adequate. Under noisier conditions, DominoEx16, PSK125, or PSK250 might be preferable. DominoEx is best if drift is a problem, but has no picture mode. MFSK16 is good for weak signals if drift is not a problem. It can transfer pictures with or without ARQ (much faster without ARQ). If signals are strong, MFSK32 or

MFSK64 is faster for picture transfers.

On HF, MFSK16 and MFSK32 are recommended. DominoEx, PSK, Thor, and MFSK can be used with flarq for error-free file transfers, but Freese recommends only MFSK for use on 40 or 80 meters because of noise and static. MFSK32 is faster than MFSK16 but less robust, and can be used when signal levels are high with little static. MFSK8 is even more robust than MFSK16, but is too slow for practical file transfers. It occupies slightly more bandwidth and runs at half the speed of MFSK16.

If frequency stability and tuning accuracy are problems on HF, DominoEx and/or Thor may be used instead of MFSK. Thor features forward error correcting (FEC) with incremental multiple shift keyed tones. It is similar to DominoEx, but adds the robustness of FEC as found in MFSK.

To watch a YouTube video of NBEMS in action, go to http://www.youtube.com/watch?v=nF8_Xcg4ofc. Also go to the Hall County ARES Web site at <http://www.hallcountyares.com/> and click on "NBEMS Install."

RACES to Support November 2nd Election

OCS D Emergency Communications Manager Marten Miller, KF6ZLQ, is confirming participation in the ballot transportation team for the General Election on November 2, 2010. A communicator will be at each of the 23 Collection Centers in Orange County. Three OCRACES members are needed for traffic control, and another three for Net Control Operation, with another member on hand for relief and possibly running messages between the RACES van and the Samantha II command post (CP).

Communicators at the Collection Centers will record the precinct numbers of the boxes being loaded into the vans, and transmit those precinct numbers to Net Control when the van departs from the Collection Center enroute to the Vote Tally Center (VTC). The precinct-number data that RACES communicators provide to Net Control will be entered directly into the Registrar of Voters (ROV) Web site by CP staff for public interest.

This election will be conducted using electronic ballots with the addition of paper verification, so we will have multiple boxes to transport from each precinct. OCS D/Communications will manage the transportation of the ballots, supplies, and paper verification equipment to the VTC in Santa Ana. The Collection Center communicators will use the OCRACES 449.100-MHz, 449.180-MHz, and 146.895-MHz repeaters, with a different Net Control operator assigned to each repeater channel.

The Collection Centers include Anaheim (PD parking lot), Canyon Hills, Buena Park, Costa Mesa, Santa Ana, Fountain Valley, Fullerton, Garden Grove, Huntington Beach, Irvine, Laguna Beach, Laguna Woods, La Habra, Los Alamitos, Orange, Rancho Santa Margarita, Placentia, San Clemente, Saddleback, Tustin, Westminster, Laguna Niguel, and Aliso Viejo.

Collection Center activity for each election begins at 8:00 PM and most are closed around 11:00 PM, although a large turnout is expected for this election, which may mean a later night. VTC activity begins at 7:30 PM with setup, and ends around midnight. Communicators should arrive at the Collection Center location no later than 8:00 PM on election night. They should be in some form of uniform or jacket that identifies with their RACES or MOU organization.

The responsibilities of the communicator will be to transmit information to Net Control regarding the activities at the Collection Center, including the movement of the vans and the precinct numbers loaded into the vans. A Ballot Transportation Manual with all the necessary information has been e-mailed to confirmed participants. A briefing will be provided at the November 1st OCRACES meeting at 7:30 PM, at 840 N. Eckhoff Street, Suite 104, in Orange.

Next OCRACES Meeting: November 1st

The next County of Orange RACES meeting is on Monday, October 4, 2010, at 7:30 PM, at OCSD/Communications, 840 N. Eckhoff Street, Suite 104, in Orange. At this meeting, OCSD Emergency Communications Manager Marten Miller, KF6ZLQ, will provide training for ballot-collection communications the following evening (November 2nd) between Collection Centers and the Vote Tally Center.

OCRACES Displays Van at OCFA Open House

The OCRACES emergency communications response vehicle was displayed at the Orange County Fire Authority (OCFA) Open House on Saturday, October 9, 2010. At the event were Ken Bourne, W6HK, Scott Byington, KC6MMF, Chuck Dolan, KG6UJC, Harvey Packard, KM6BV, John Roberts, W6JOR, and Applicant John Bedford, KF6PRN.

Many visitors, especially children, toured our van and learned about its many radios. Scott set up his portable Winlink station outside the van, which was observed by several radio amateurs who dropped by, including Cal EMA Deputy State ACS Training Officer Jim Bloomquist, N6UIE.



Chuck Dolan, KG6UJC (left in left photo), John Roberts, W6JOR, John Bedford, KF6PRN (left in right photo), Scott Byington, KC6MMF, and Harvey Packard, KM6BV, at OCFA Open House

OCRACES Displays Van at Tabletop Exercise

OCRACES displayed its emergency communications response vehicle at the Citizen Preparedness Tabletop Exercise (TTX) on Wednesday, October 13, 2010, at The Grove of Anaheim. Participating members included Chief Radio Officer Ken Bourne, W6HK, Radio Officer Harvey Packard, KM6BV, Assistant Radio Officer Chuck Dolan, KG6UJC, and John Roberts, W6JOR.

Local and Operational Area volunteers gathered at the TTX to learn about the latest initiatives and capabilities of all ASUA/OCOA Citizen Corps programs and to advance the degree of mutual understanding to improve existing volunteer management and community preparedness capabilities.

John Roberts, W6JOR, Harvey Packard, KM6BV, Chuck Dolan, KG6UJC, and Ken Bourne, W6HK (left to right) at TTX in Anaheim



Powerpole Tester Checks Power Source

Manhattan Beach CERT Vice-President Paul Curry, K6PEC, has made a handy little Anderson Powerpole tester for checking the presence and polarity of the power source. He has written an article about it that appears on the W6TRW Radio Club Web site at http://w6trw.com/misc_documentation_articles/anderson_powerpole_tester/anderson_power_pole_tester.pdf. The tester is a simple red/green LED with current-limiting resistor mounted in Powerpole connectors. Full construction details are given in the article.



Powerpole tester

City/County RACES & MOU Units Hold Drill

OCRACES and most City RACES units, plus the Hospital Disaster Support Communications System (HDSCS) and American Red Cross—Orange County Chapter, participated in the City/County RACES & MOU Drill on Saturday, October 2, 2010. The scenario was wildland fires throughout the County.

OCRACES participants included Randy Benicky, N6PRL, Ken Bourne, W6HK, Scott Byington, KC6MMF, Jim Carter, WB6HAG, Chuck Dolan, KG6LXT, Ernest Fierheller, KG6LXT, Martin La Rocque, N6NTH, Harvey Packard, KM6BV, Kenan Reilly, KR6J, John Roberts, W6JOR, Brian Turner, KI6WZS, and Applicant John Bedford, KF6PRN. All activity was from the EOC RACES Room at Loma Ridge, or from just outside the EOC for the special simplex relay exercise (led by OCSD Emergency Communications Manager Marten Miller, KF6ZLQ) that was added to the drill. Because of new equipment recently installed in the RACES Room, but not all fully functional yet (because of programming and antenna routing to be done), not all positions were operational. Therefore, a position was not available for Tom Gaccione, WB2LRH, from HDSCS, but he was able to handle all HDSCS traffic with his HT outside the EOC building.

OCRACES and several cities participated in the ATV/SSTV portion of the exercise (see Jim Carter's article below). The City of Orange RACES unit was on digital ATV, not compatible with the rest of us on analog. COAR's Ken Konecky, W6HHC, reported the City's EOC received crystal-clear video pictures via DATV from the intersection of Santiago Canyon Road and Cannon Street during the drill. This is an important location in Orange for remote ATV transmissions, providing a panorama of the fire-hazard brush hills to the north and to the east.



OCRACES Member Kenan Reilly, KR6J (left), and Applicant John Bedford, KF6PRN, handle drill traffic at EOC RACES Room

ATV/SSTV Exercise Overview

by RACES Sgt. Jim Carter, WB6HAG, Assistant Radio Officer

The ATV/SSTV portion of the October 2, 2010, City/County RACES & MOU exercise posed interesting challenges to its participants this year.

This year's participants were Huntington Beach, Seal Beach, Mission Viejo, and Santa Ana. Santa Ana had only ATV receive capability and the other participants sent either ATV or SSTV video. OCRACES was Net Control with operators Martin La Rocque, N6NTH, and Jim Carter, WB6HAG, who were directing ATV/SSTV operations while receiving the video from the participants and feeding it to the OCRACES room main monitor.

This exercise demonstrated if ATV operations could co-exist between cities operating at the same time, allowing OCRACES to selectively receive each city's video using a beam, the ability to change ATV/SSTV voice control channel from 144.345 MHz to 449.180 MHz in a moment's notice, and the ability to send ATV/SSTV video to adjacent cities.

The ATV and SSTV signals were acceptable (ATV P2-P4+), with Huntington Beach having the more solid ATV signal at OCRACES operations. Mission Viejo used SSTV, and they had P5 pictures after re-syncing their SSTV transmissions. Seal Beach and Huntington Beach could see each other's video.

We learned OCRACES cannot selectively select with the beam ATV transmission from cities sending ATV signals simultaneously. Huntington Beach overpowered Seal Beach. Also, changing our ATV/SSTV voice frequency to 449.180 MHz caused some delays as participants reprogrammed radios. Also, the fastest means to re-sync an SSTV transmission is for OCRACES to transmit an SSTV picture to participating stations.

The education experienced during this exercise was rewarding. I thank each participant for their professional and technical talents demonstrated during this exercise.

In summary, it is far better to learn our limitations during a drill rather than during an actual event, so we can improve our skills.

You all did an outstanding job!



RACES Sgt. Jim Carter, WB6HAG, at ATV/SSTV position, with Martin La Rocque, N6NTH, at HF position next to him, observe images from city RACES units

Depictions for Orange County

by Wayne Barringer, KB6UJW, Volunteer Communications Network

The Depiction software <<http://www.Depiction.com>> is a powerful application included in the County of Orange RACES Winlink 2000 roll-out project. Despite its inexpensive price, the software is amazingly powerful and allows users to create a "Depiction" and download free "quick start" data from the Internet BEFORE a threat or hazard impacts the operational area. Once downloaded, the Depiction—and related "quick start" data—can be saved on a server or an individual's workstation and be available (even WITHOUT the Internet) AFTER the threat or hazard.

An Orange County Depiction reflector has been established on YahooGroups.com in order to coordinate efforts to implement the use of Depiction here in the operational area. File-naming conventions have been established and several files have already been created and saved on the reflector. Those files can be downloaded and saved on an individual's workstation, based on version ID, "quick start" data, and file names that indicate the date and time the file was last updated.

Coordinating all Depictions for the operational area (county) is important, because a standardized file becomes the "starting point" for all users AFTER a threat/hazard incident begins. A common Depiction file (based on date/time) is important if different users are going to use Depiction AFTER an incident. That file becomes a common denominator (starting point) for all information entered by any user REGARDING the incident.

Since the Internet may—or may not—be available, using common files with standardized "quick start" data will allow all users to share update information based on a common operating picture. If the Internet is available, a standardized starting point will minimize the "updating" process by all Depiction users. If the Internet is not available, all Depiction users begin with a common reference file and proceed to update from a common point.

Even if the Internet is available, coordinating standardized downloads may be a difficult process. It will be easier and faster and require less "setup" time if all Depiction users start with the same file. So, that file must be shared and downloaded—in advance—of any type of incident.

The reflector is also a collaborative tool for all Depiction users. Depiction has the ability to import information from a database via a "comma delimited" text file. However, all Depiction users must agree regarding what the file name will be, what "change management" strategy will be used to manage and identify information changes, and how that information will be communicated and shared.

The file size of some Depictions can be quite large, and present a huge problem when designated Depiction users do not have a standardized file set for different locations and critical infrastructure facilities within and across the operational area. Based on most of the current Depictions that are now stored on the reflector, it is impractical to depend on Winlink 2000 connectivity to download and transmit those files to users that are unprepared BEFORE the incident.

Depictions are now being created for every municipality within the OA, as well as popular venues where large numbers of people frequently gather or that are considered important as staging areas or other critical infrastructure facilities.

The Depiction software can be a viable, useful tool in helping incident commanders and emergency management agencies better understand dynamic changes as they are occurring ****IF**** Depiction users are able to coordinate and quickly communicate changes based on pre-planning and standardized file management structures. The reflector is helping all to be better prepared, collaborate within and across the OA, and provide a common operating picture based on a standardized file for rapid processing and identified "quick start" data.

The address of the Yahoo! Groups reflector is: <http://groups.yahoo.com/group/depiction-us-ca-co-orange>.

For more information, contact KB6UJW via electronic mail: [kb6ujw\(at\)arrl.net](mailto:kb6ujw(at)arrl.net).

Baker to Vegas Course Changes

A new stage will be added to the front part of the Baker to Las Vegas Challenge Cup Relay course in 2011. To keep the stages at 20, what has been called Stage 14 will be eliminated. This is to increase the safety of the runners and keep them from having to run the most difficult, longest stage during the heat of the day. The coordinates for the new stage will be N 35 degrees 41.363 minutes and W 116 degrees 18.138 minutes. The middle stages will be renumbered to adjust for the alterations. The distance from Stage 14 to 15 will be 10.6 miles. With the exception of the new Stage 3, locations will remain the same, only the numbers change up to Stage 14. What was Stage 3 is now Stage 4, Stage 13 is now Stage 14. New maps and locations will be posted soon.

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

Buena Park

Buena Park RACES is trying a new simplex frequency of 145.525 MHz, to be more in accordance with the TASMA 2-meter band plan.

La Palma

The new La Palma RACES tactical simplex frequency is 144.470 MHz. Nets are now conducted on the K6KBF repeater, 445.520 MHz (-), 85.4 Hz PL, shared with Buena Park RACES (which is the primary RACES user).

Laguna Niguel

Laguna Niguel ACS will conduct a disaster preparedness exercise in November. Members will be individually mobilized and use a "safety net" to and from the exercise site. Once they "check in" to Staging and receive their assignments, they will conduct field operations to provide preliminary damage assessment reports back to the net control station (NCS) at the Incident Command Post (ICP). Contact Chief Radio Officer Ray Nienburg, KJ6AOX, via e-mail at raynienburg_49@alum.mit.edu for details about the exercise.

Los Alamitos

Congratulations to Michael Peer, WD6CDN, who is the new Seal Beach RACES Chief Radio Officer. Michael replaces John Unrath, K6JHU, who has moved to Albuquerque, New Mexico.

Placentia

The Placentia RACES primary simplex frequency is now 147.525 MHz, and their secondary simplex frequency remains at 146.580 MHz.

Santa Ana

Ten members of the Santa Ana Response Team (SART) accompanied Captain Steve Snyder, KI6EYQ, to the Orange

County EOC on Loma Ridge to assist with the ALERT-OC testing on October 21, 2010, at 10:21 AM.

SART members staffed the phone bank, answering calls from Orange County citizens.

Since inside the Loma Ridge EOC is very difficult to get cell-phone calls or ham radio contacts (on HTs, unless using the local OCRACES 2-meter repeater), SART member Corky Elliott, WE6COP, set up a



SART Member Corky Elliott, WE6COP, working "portable" from Loma Ridge during the ALERT-OC test on October 21st

portable station in the Loma Ridge parking lot. Tom Mackay, W6WC, was inside the EOC with an HT, shadowing Captain Snyder. Message traffic was relayed in and out of the EOC to Gordon West, WB6NOA, who established a "drill" net on a local simplex 2-meter frequency. Many drill and information messages were handled in an easy and orderly manner. Real-time (actual earthquake) information was brought to the EOC via the net by Bobbie Guice, KG6MIF.

The "relay" system worked very well and should be a "standard" procedure when working within the Loma Ridge EOC and not using the RACES Room equipment.

It was found to work best to use one frequency to and from the EOC (car to HT) and to use another frequency to accept and deliver messages inbound/outbound from Orange County to the Loma Ridge EOC "via" the parking lot.

Tom Mackay, W6WC, who supplied the above information, said it was a great "test drill" and many lessons were learned.

November 2010

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1 <i>OCRACES Meeting & Weekly ACS Net</i>	2 <i>General Election Ballot Communications</i>	3	4	5	6
7	8 <i>Weekly ACS Net</i>	9	10 <i>HTSRU Tour of EOC and RACES Room</i>	11	12	13 <i>EmComm Breakfast</i>
14 <i>QuakeNet</i>	15 <i>Weekly ACS Net</i>	16	17	18	19	20
21	22 <i>Weekly ACS Net & SWACS Frequency Test</i>	23	24	25 <i>Thanksgiving</i>	26	27
28	29 <i>Weekly ACS Net</i>	30				

Upcoming Events:

- Nov 1: OCRACES Meeting, 1930, 840 N. Eckhoff St., Suite 104, Orange
- Nov 2: General Election Ballot-Collection Communications, 2000
- Nov 10: High Tech Services Reserve Unit Tour of EOC RACES Room and OCSD Communications Center, 1900
- Nov 13: EmComm Breakfast, Katella Grill, 1325 W. Katella Ave., Orange, 0800
- Nov 14: QuakeNet 2010, 1330-1500
- Nov 22: Southwest ACS Frequency/Radio Test, 2015
- Nov 25: Happy Thanksgiving!
- Dec 6: OCRACES Holiday Dinner, 1830



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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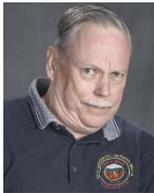
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Questions or Comments?
Contact *NetControl* Editor Ken Bourne, W6HK
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**“W6ACS ...
Serving
Orange County”**

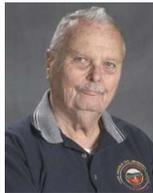
Meet your County of Orange RACES Members!



Ken Bourne
W6HK



Scott Byington
KC6MMF



Harvey Packard
KM6BV



Ralph Sbragia
W6CSP



Marten Miller
KF6ZLQ



Robert Stoffel
KD6DAQ



Jack Barth
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Ernest Fierheller
KG6LXT



Randy Benicky
N6PRL



Bill Borg
KG6PEX



Nancee Graff
N6ZRB



Ray Grimes
N8RG



Walter Kroy
KC6HAM



Martin La Rocque
N6NTH



Brian Lettieri
KI6VPF



Kenan Reilly
KR6J



John Roberts
W6JOR



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