County of Orange RACES
NET CONTROL
July 2000
Newsletter of the County of Orange Radio Amateur Civil Emergency Service

THE SUMMER IS HEATING UP FOR OCRACES
By Robert A. Stoffel, Emergency Communications Coordinator

As we enter the summer season, OCRACES is getting busy with plenty of activity. First, we are preparing for our next field exercise, Operation Boysenberry Part III in September. Several upcoming monthly meetings will feature training and guest speakers related to the upcoming drill. First, I'd like to thank Chris Storey and Mike Krueger for last month's presentation on radio procedures. Our August 7th meeting will feature training on map and compass reading as well as using your GPS. The September 11th meeting will provide an 800 MHz hands on training session. Both meetings are being conducted since these components will be utilized at Operation Boysenberry Part III. We have also just completed our first Field Day at Loma Ridge, providing all members an opportunity to train and/or re-familiarize their skills on the various radio equipment in our RACES room. Thanks to Ralph Sbragia for completing another year as Field Day coordinator.

Other upcoming activities include an interesting presentation on PSK31 at our July 10th meeting, an opportunity for OCRACES members to take a tour of the San Onofre Nuclear Generating Station on July 18th, and OCRACES providing SSTV and ATV for the Mass Casualty Incident drill on September 28th. Our annual City/County RACES drill is set for October 7, 2000. Additionally, our October OCRACES meeting will feature a special presentation on Verizon Wireless cellular telephone operations.

OCRACES has also assisted OCSD/Communications with several recent DF expeditions. One received recent media coverage when Jack Gerritsen was sentenced to a five-year jail term for transmitting on many public safety radio channels, including some used by Orange County. Several OCRACES members provided assistance in trying to DF the source of this interference last year. More recently several of our members assisted in locating several unauthorized 800 MHz transmitters that were on the air in several southern California areas causing harmful interference to Orange County public safety. Through the efforts of our members the sites were located and the transmitters disabled.

Finally, congratulations to Jack Barth on his appointment to Sergeant of Squad C.

July Meeting

The July 10 OCRACES General Meeting will feature a presentation on the new digital operating mode, PSK31. All radio amateurs are invited to attend. Due to the July 4th Holiday, the meeting will be July 10th at 840 North Eckoff. Orange, at 1930 hours.
Making the presentation will be Ralph G. Sbragia, KD6FYT. Ralph is preparing handbooks which will include CD-ROM's with software. In order to insure that we have an adequate supplies of materials, please RSVP to Ralph at KD6FYT@ocraces.org or 714-287-7475.

Upcoming Events

July 10	OCRACES monthly meeting - PSK31 Presentation 840 N. Eckhoff St. Orange - 1930 Hours
July 18	SONGS tour, 0900-1300 contact Robert Stoffel if interested
August 7	OCRACES monthly meeting - Map/Compass/GPS Training 840 N. Eckhoff St. Orange - 1930 Hours
September 11	OCRACES monthly meeting - 800 MHz Training 840 N. Eckhoff St. Orange - 1930 Hours
September 18	Operation Boysenberry Part III - Tentative 1900-2200 Hours

Captain's Corner

by: Ray Grimes, W6RYS
       Chief Radio Officer, OCRACES

I would like to begin this month's article by thanking the many of you who attended the special June OCRACES general meeting at Loma Ridge. That was a proper and respectful sendoff for our friend Al Baird, KC6TWI which was truly appreciated by the Baird family. A special thanks to Lt. Steve Sobodos for the outstanding short video he produced, highlighting Al's OCRACES career. If you hadn't seen the memorial plaque in the OCRACES room, be sure to do so next time you are there.

I would like to also thank everyone who participated in Field Day, and in particular to Ralph Sbragia, KD6FYT who as coordinator, made it all come together. This was also an excellent and rare opportunity to show off what we do for family members and OCSD Communciations employees, and to emphasize the value of Amateur Radio to the community.

I recently attended the APCO/CPRA monthly meeting at the L.A. County Emergency Operations Center. There was an outstanding presentation of airborne real-time public safety video by the L.A. County Sheriff's Department, the Los Angeles Police Department, and our own Orange County Sheriff's Air Support Division, with a live demonstration of airborne real-time video of a simulated freeway pursuit, presented by the L.A. County Sheriff's Department. This was very interesting from many perspectives, learning of the popularity and demand by public safety agencies for real-time, high quality video; an overview of the hardware and related complexities of building such systems; and an open discussion of the problems in obtaining suitable spectrum for video applications in Southern California. As we know, Amateur Radio frequencies are very attractive for which to operate shared services public safety video downlinks. This very topic has opened intense discussions between the Amateur Radio community and the FCC as to protections and alternatives to mitigate potential loss of spectrum. If we recall, the valuable microwave band allocations we now enjoy began as vacant, unusable territory in which Amateurs designed new equipment and proved to the world that this was indeed usable spectrum. Watch for more on this topic.

Field Day Recap

by: Ralph Sbragia, KD6FYT

Field Day 2000 was marked by a complete departure from our typical Field Day exercise. This year we activated the Loma Ridge EOC and performed a twenty-four hour shakedown test of the equipment and facilities. Set up began about 0900 local Saturday morning. Set up included preparing the logging computers and writing the band limits and call sign on the white boards at each operational station as well as setting up two of the tri-band Kenwood's for simplex operations.

A total of fourteen OCRACES members visited the EOC and participated in the Field Day activities. Participants included KD6DAQ, W6RYS, KM6YH, N6MIK, N6ZRB, KD6DAN, WB6HAG, N6DSB, KM6BV, K6RAG, AB6E, KC6FIC, KC6HAM and myself.

Did You Know?

What's In a Name?

by: Ray Grimes, W6RYS
    Chief Radio Officer, OCRACES

As we drive around our county, we encounter dozens of streets, places, and cities with unique names. Have you ever stopped to think about the origin of these names and how they may reflect our history?

The town of Orange was laid out in the 1870's by Glassell Chapman (we got two major street names out of one person's name here alone). The town of Orange was originally called Richland, but was later changed to Orange because of confusion with another Richland near Sacramento. There is speculation that the namesake of Orange either was a tribute to it's major industry, orange production, or to the place of origin of one of the founders who came from Virginia where another Orange County exists. By the 1880's there were at least six Orange counties in other states, as well as numerous towns and post offices so named. Our Orange County separated from Los Angeles County on March 11, 1889 and received its name, Orange County because, it unmistakably reflected the orange groves for which it was famous. The Orange county seal bearing an orange with a stem and three leaves was adopted on August 5, 1889. A design by Laura Shernaman embodying the present seal, surrounded by a flaming yellow sun on an orange background became the official County flag in 1968.

from:
The County of Orange official web site historical page at:www.oc.ca.gov/index.htm

Visual Communications

Coordinator: Jim Carter WB6HAG
Web Page: http://www.qsl.net/wb6hag/

Tri-Agency - The Tri-Agency program remains on hold because the FCC has licensed LA City to operate airborne video in our 2.4GHz amateur band. At this time, the LA County license is pending approval. In the meantime, the ARRL filed an exception with the FCC. Allegedly, complaints from local ATV operators were received regarding interference from LA City operations. This too was a major concern for the Tri-Agency operations.

Anaheim Drill - Anaheim requested ATV participation in their September exercise.   This will be a full scale chemical MCI exercise that should prove to be an interesting challenge to us.

Loma Ridge - Special thanks goes to the County for providing a dual band Kenwood radio for our ATV operating position. This will allows us to operate more efficiently. We truly appreciate their support!

SSTV Computer - The ATV Committee thanks Dave Wilson for providing surplus computer parts. Though his assistance, this is allowing us to construct an SSTV base station for Loma Ridge.

The Embedded Antenna

by: Ray Grimes, W6RYS
    Chief Radio Officer, OCRACES

Downsizing of portable two-way radios has progressed from the bulky, heavy, battery-hungry vacuum tube packsets of the 1950's to the small, high quality, full-featured solid-state radios we enjoy today. Three areas which limit further size reduction are the ergonomics, or practical size of the controls and readability of a frequency display; battery capacity and longevity; and antenna size. While ergonomics and battery life may be improved somewhat over time, this article focuses on the embedded portable antenna which may be one of the most significant changes in portable radio design in decades.

The embedded antenna has been used for many years in commercial and military aircraft where parasitic drag from conventional exterior antennas becomes significant, particularly at higher flying speeds. The embedded antenna is most practical for frequencies above 800 MHz where resonant wavelengths are small, making it possible to produce tiny antennas which offer reasonable performance and excellent pattern control.

Embedded antennas come in many forms. The slot antenna is widely used in aircraft systems and is most effective at microwave frequencies. The slot antenna can be little more than a resonant shape cut into the skin of an aircraft and attached to a transmission line via a matching stub. Multiple slot antennas cut into a metal sheet can produce a directional, high-gain antenna such as is used in radar systems. The embedded antenna is also found in the form of a patch antenna. The patch antenna can be found in use for GPS antennas, as it affords a broad bandwidth and pattern beamwidth. Some GPS patch antennas also include integrated GaAsFET RF amplifiers, making them highly sensitive when used on fixed or mobile GPS receivers. The patch antenna is also being used for celfones at 800/900 MHz, and 1.8/1.9 GHz, and on wireless LAN's (WLAN's), hearing impaired products, and for Blue Tooth (the interactive communication medium for home appliances and home office computer based systems) of the near future. A multi-purpose embedded antenna system for both PCS and GPS reception is being developed as cellular telephones with vehicle location becomes an industry standard.

As you might guess, there are some real challenges in making an embedded portable transceiver antenna, but also some definite benefits. As stated earlier, the embedded antenna is most practical at microwave frequencies, allowing very small antenna size. A cellular handset without visible antenna is fully practical these days, particularly for the 1.9 GHz PCS band. The embedded antenna is actually an integral part of the cellular handset design. The pattern and efficiency of the embedded antenna is very much dependent on the interaction of the entire handset and all of its circuitry, hardware, and battery. The embedded antenna can produce up to 15 db of front-to-back rejection, allowing such handsets the ability to radiate RF more effectively away from the handset, thereby markedly reducing RF energy in the direction of the human operator. To reduce interaction between the handset circuit board and the embedded antenna, the two are mounted at right angles to each other or perpendicular, with the antenna mounted at the edge of the circuit board. Embedded antennas require no matching devices, reducing manufacturing cost and passive RF losses. You may see passive antennas someday on 1.2 GHz ham radio equipment too.

It used to be easy to distinguish a cellular telephone from a palm sized computer or calculator because the celfone had an obvious antenna. As the technology evolves, I can envision many people making the mistake of trying to make a phone call while inadvertently holding their Palm Pilot up to their ear. Maybe there will be a marketing opportunity for dummy antennas to make your celfone look like a "radio"?

"RADIO TAGS" COULD HELP ARMED FORCES TRACK ASSETS

The same technology used in "EZ-Pass" toll booth tags could provide a means by which the nation's armed forces could keep track of everything from soldiers to supplies. Radio Frequency Tags respond to radio waves transmitted by a device called an interrogator, and can be "read" from distances of up to several hundred feet. (New York Times)

What's new in the OCRACES Weekly Net Script?

by: Lt. Mike Krueger, N6MIK, OCRACES Training Officer

At our June meeting, OCRACES members discussed some changes to the weekly format. After evaluating everyone's input, we and pleased to announce some changes for the better! We are excited about these changes, and are confident that they will lead to more efficient weekly RACES nets. These changes will go into effect Monday, July 17, 2000.

Announcements are now at the beginning of the net! Be sure to tune in at 1900 hours each Monday to get the latest information, and stick around for the check-ins.

Late/Missed Check-ins have been discontinued. This new format places OCRACES member and visitor check-ins near the end of the net, thus eliminating the need for late check-ins.

Text formatting: By popular demand, we have completely redesigned the layout of the Net Control Script. Check boxes on the left column can be used to mark sections of the net that have been completed.

Laguna Niguel RACES Unit Activated

Congratulations to the City of Laguna Niguel who has implemented a RACES program for the city. Effective July 1, 2000, Laguna Niguel RACES will be included in the weekly RACES roll call. The RACES organization is structured as follows: Mike Rodgers, City of Laguna Niguel Emergency Services Coordinator, Lou Parker   - Laguna Niguel RACES/ ACS Radio Officer, Paul Levey - Assistant Radio Officer - Operations, Mike Mullard - Assistant Radio Officer - Training, and Al Way - Assistant Radio Officer - Administration. The Laguna Niguel RACES 2-meter frequency is 147.645, 220 MHz is 224.640, 440 MHz is 447.050 and simplex frequency is 145.500.

MIKE KRUEGER RECOGNIZED BY COUNTY BOARD OF SUPERVISORS

For the past seven years, MIKE KRUEGER has been a volunteer member of the County of Orange Radio Amateur Civil Emergency Service (RACES). In 1998 Mike was appointed to the position of Training Officer, developing and providing all RACES related training. Since being appointed Training Officer he has provided well over 400 volunteer hours in support of the RACES program. His training sessions provide information related to either Public Safety or Amateur Radio emergency communications. Mike writes a monthly training column for our newsletter, and also provides training information on our RACES web page. Through his planning, field exercises are conducted each year, including one drill involving all 21 City RACES organizations. Mike spends a tremendous amount of time promoting the benefits of Amateur Radio and the RACES program through various on-going technical and operational projects and presentations.

Through Mike's achievements our program has contributed to increased public safety through the services provided by RACES volunteers. In recognition of the hundreds of hours of volunteer service and his outstanding contributions to the RACES program, Mike was nominated for the County of Orange Board of Supervisor's Fourth Annual Volunteer Recognition program. Along with other County volunteers, Mike participated in the special recognition at the Board meeting room on April 18, 2000 and was presented a special recognition plaque. Congratulations Mike!

Mike also recently passed the FCC Amateur Extra Exam.   Congratulations again!

We succeeded in our primary goal, which was to test out the EOC HF rig for an extended period of time and on multiple bands. The rig performed well on the Field Day bands that are compatible with the vertical antenna on the roof of the EOC (80 through 15 excluding the WARC bands). I would especially like to thank the members who took the time to operate radios. They include KM6BV, AB6E, KC6HAM and N6ZRB (who provided some very welcome relief Sunday morning). A special thanks goes to KC6HAM who assisted with set up Saturday, operated V/UHF Saturday and operated HF overnight into Sunday morning. A 'thank you' to Jim Carter for activating the ATV equipment and earning us one of the only bonuses for which we were eligible. I would also like to thank Eric White, NX6M who operated 20M CW with Mike Krueger Saturday evening.

Along with the primary HF radio, we also brought up and operated the HF transceiver normally stored at Eckhoff Street. This radio was operated on 10M utilizing the 10/6/2M tri-band antenna normally connected to the Position One HF/VHF FM radio. Band conditions were favorable and we made 152 phone contacts on 10M. No interference from operations on either of the HF radios or our 2 and .70 meter operations was reported by Control One staff. We did encounter some interference from several multichannel traffic advisories broadcast Sunday morning. The signal came through one of the tri-band V/UHF radios while it was tuned to 146.895. We also determined that a UPS located in the RACES room had failed and will need replacement. As far as our ARRL contest scoring went, we of course missed out on significant bonus points due to our location.

However, we did make a total of 589 contacts via three transceivers while working a total of 8 bands. This equates to almost 25 contacts an hour. In addition, we were able to contact almost every ARRL section. The missing sections were all on the East Coast and in the Caribbean. Of course band conditions also had an impact on this. Most importantly, on multiple HF bands (including 10M) we made repeated clear contacts with Sacramento Valley stations as well as several Maryland/DC stations, demonstrating our ability to communicate with governmental centers when necessary. At this time I calculate that our ARRL score should be 1426 after bonuses.

All in all it was a successful Field Day.