

April 2011



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

Japan Earthquake

After reporting in the March 2011 issue of *NetControl* about the amateur radio disaster relief operations following the February 22nd New Zealand earthquake (which are reported to be winding down as commercial services come back online in and around Christchurch), here we go again—this time involving the 9.0-magnitude earthquake and devastating tsunami in Japan on March 11, 2011, and an expanding nuclear crisis. Thanks to the ARRL and *CQ Newsroom* (from *CQ Amateur Radio* magazine) for the following information.

With the failure of nuclear reactors in Japan, power outages are a major situation. IARU Region 3 Secretary Ken Yamamoto, JA1CJP, told the ARRL that “several radio amateurs were able to activate their stations with car batteries or small engine generators, despite the electric power outages. They transmitted rescue requests and information on the disaster situation—including refugee centers and their needs—and the availability of basic infrastructures, such as electricity, water, and gas supplies.” Besides the power outages, water and gas service are not available in many areas.

Yamamoto also told the ARRL that the Japan Amateur Radio League (JARL) quickly activated JA1RL, its headquarters station in Tokyo, to assist in the rescue effort. With the help of many other amateurs, JARL also activated its regional headquarters station JA3RL in Osaka to communicate with amateurs in the areas devastated by the tsunami, including its Tohoku head-

quarters station JA7RL in Sendai. Yamamoto said, “The communications were mostly on the 7-MHz band in daytime and the 3.5-MHz band at night. Short-range communications were also made on the 144 - and 430-MHz bands. The information gathered through amateur radio communications was reported to the rescue and disaster relief organizations for their appropriate deployment. Some other amateurs accepted health-and-welfare inquiries from the [impacted] areas and then posted the information on the Internet.”

Japan's Ministry of Internal Affairs and Communications (FCC equivalent) approved the use of an additional 300 UHF/VHF transceivers in the affected areas.

Yamamoto said that the fuel shortage (gasoline and natural gas) was “a very serious problem in the cold climate. Calls for fuel were received over radio from many disaster areas, but delivery remained very difficult at least for the first week as the access roads were hacked up everywhere. Several days later, some amateur radio clubs reached the affected areas with their radio equipment and established communications for supporting disaster relief.”

Yamamoto told the ARRL that several radio equipment manufacturers offered “hundreds of VHF/UHF transceivers to JARL for the use at refugee centers and local disaster relief centers. These transceivers should help to establish mutual communications between refugee and disaster relief centers, and to facilitate smooth and appropriate delivery of disaster and relief goods.”

**The Next
OCRACES
Meeting is**

**April 4, 2011
1930 Hours
Orange County EOC
Loma Ridge**

Training for Members and
Applicants on FT-8900
and Centracom Console in
RACES Room



Orange County Sheriff's Department
Communications & Technology Division

Captain's Corner *Continued from page 1*

JARL has asked radio amateurs worldwide to keep 7.030 MHz and surrounding frequencies clear for disaster communications. The operation is primarily between 2100 and 1100 UTC daily, but JARL asks hams to keep this frequency clear around the clock until further notice. It is the JARL emergency communications frequency and is in use by JA7RL (JARL regional HQ station). 7.043 MHz is being used by JR3QHQ, the Osaka branch manager of JARL, gathering information on radio and forwarding it to the Internet. 7.075 MHz is occasionally operated by JL3YSP in Wakayama.

The International Space Station (ISS) amateur radio station digipeater has been operational on 145.825 MHz to handle APRS traffic in the disaster area. Because of the power outage in the northeast region (JA7) region of Japan, APRS mobile activity in this area, such as the Wakayama Red Cross JA3FRI-12, cannot be seen. Following a request from Japan, Bob Bruninga, WB4APR, posted the following to the AMSAT Bulletin Board regarding the availability of the ISS AX.25 packet digipeater for APRS use: "We have advised Toyo san that ARISS APRS digipeater can be used over Japan for this purpose. Any APRS operators in the affected area can switch to ISS digipeater by simply changing frequency to 145.825 MHz. ISS is coming over Japan about six times a day in the afternoon. The terrestrial path VIA WIDE?-? should work fine. But is better to change path VIA ARISS so that the packets will be marked as having been digipeated by RSOISS-4 each time. We hope the astronauts can be sure to keep APRS digipeater operating over Japan on 145.825. We hope that stations NOT in the disaster area monitor the ISS downlink for emergency traffic and can GATE the downlink into the APRS Internet system."

Yamamoto says power is being gradually restored in less-damaged areas and local radio amateurs are starting to establish stations at shelters. Most of these operations are on UHF repeaters. "According to reports from the shelters, said Yamamoto, there are "shortages of food, drinking water, fuel, and medical goods. This is mainly due to difficulty of transportation because of road situation and staff shortage."

Japanese amateur radio manufacturers are responding to inquiries about their operations during this disaster. On March 14th, Junji Kobayashi, president of Kenwood USA Corporation, said, "Thankfully, our staff in Japan is safe due to earthquake preparedness and the special construction of our buildings. Power outages and interruption of mass transit have kept most of Kenwood's staff at home since the earthquake; however, we expect the infrastructure to improve in the coming week and our operations to

fully resume accordingly." Kenwood's primary office facilities in Yokohama and Hachioji were not damaged due to their proximity further south and west of the quake's epicenter. Primary manufacturing is in Malaysia.

Icom America says the company's facilities in Japan suffered only minor damage, but there may be interruptions in its supply chain from vendors in the quake/tsunami zone that other issues, such as rolling power blackouts, may slow production. Ray Novak, N9JA, Icom America's Division Manager for Amateur and Receiver Products, released a statement reporting that no one on the company staff is known to have been injured as a result of the earthquake or tsunami. "There are no damages reported at Icom's headquarters in Osaka or at either of our two main factories in Wakayama," the statement says. "Both Osaka and Wakayama are located far south of the most severely affected areas. Icom did suffer some minor damage at our Tokyo and Sendai branch offices. Most of Icom's facilities and systems are ready to get back to normal business. However, supplier logistics, commuting issues, and future power disruptions will affect our company. It is too soon to tell how big an impact the earthquake and its aftermath will have on Icom." The statement concluded with a request for donations to help with disaster relief efforts. "We are fortunate that most of the Icom family has so far survived this crisis intact. Other families have not been so fortunate, and many lives have been lost. Crisis relief donations are requested through the American Red Cross at <http://www.redcross.org>. Google has also posted a helpful crisis response page at <http://www.google.com/crisisresponse/japanquake2011.html> on how to get involved."

Production of Yaesu radios at Vertex Standard's factory in Fukushima, Japan, has been temporarily halted due to earthquake damage. In an open letter to the amateur radio community, Vertex Standard CEO and president Jun Hasegawa expressed his gratitude for the many "kind words and thoughts about us during this difficult time." He reports that all Vertex Standard employees and their families are OK, although the company has not been able to reach its many dealers and subcontractors located near the coast. "We just hope that they are alive," he writes. Hasegawa also reports that the Yaesu factory in Fukushima suffered "minimal" damage from the earthquake but has been shut down nonetheless. He says he expects it to be back in normal operation within one to two weeks and asks for everyone's understanding and cooperation. Dennis Motschenbacher, K7BV, executive vice president of Yaesu Amateur Radio Sales, said some production of Yaesu amateur radio equipment continues in China.

Next OCRACES Meeting: April 4th, Loma Ridge

The next County of Orange RACES meeting is on Monday, April 4, 2011, at 7:30 PM, at the Orange County EOC on Loma Ridge. This will be a closed training meeting for OCRACES members and applicants on the Yaesu FT-8900 quad-band (10 meters, 6 meters, 2 meters, and 440 MHz) transceiver (presented by Tom Tracey, KC6FIC) and on the Motorola Centracom console (presented by OCSD Emergency Communications Manager Marten Miller, KF6ZLQ). We will begin our meeting in the Support Center and then move to the RACES Room for our training. OCRACES officers will report to the EOC at 6:30 PM for an applicant interview. The net control operator will report to the RACES Room at 7:00 PM to run the OCRACES 2-meter net.

SONGS Evaluated Exercise: April 12th

The 2011 SONGS Plume Phase Dress Rehearsal went smoothly on March 8, 2011, and now the FEMA-graded SONGS Plume Phase Evaluated Exercise will occur on April 12, 2011. Participants will arrive at the EOC no later than 7:30 AM and will be permitted to park at the EOC rather than at Irvine Park (as was required during the dress rehearsal). Only primary participants will attend, and not alternates as in the dress rehearsal. Ken Bourne, W6HK, is the primary RACES participant. If he is unable to attend, Harvey Packard, KM6BV, or Brian Turner, KI6WZS (the alternates), would take his place. Due to the situation in Fukushima, Japan, it is possible that the evaluation of this exercise will be intense.

Hams Needed for Rebuilding Together OC

OCSD Emergency Communications Manager Marten Miller, KF6ZLQ, wrote a detailed article for the March 2011 NetControl about Rebuilding Together Orange County (RTOC), an annual event that will occur on Saturday, April 30, 2011. Although this is not an official RACES event, OCRACES, City RACES, and MOU members are urged to participate, to support teams who generously donate their time to rebuild owner-occupied homes, shelters, and nonprofit facilities for low-income residents. Services are provided particularly for the elderly and those with disabilities, so that they may live independently in warmth and safety. You won't need to bring a paintbrush or other tools (unless you want to), but showing up with a dual-band handheld and/or mobile radio for a shift would help. Communications activities are usually not heavy during RTOC, but we need to be prepared to provide contact between the various teams and the main office (where net control will be) to handle emergency or safety issues or questions about resources or staffing. At least 20 volunteers are needed in order to reduce the shift time at each job site to four hours. Volunteers may work longer shifts, if they desire. The event will probably begin around 0800 and run as late as 1700 hours at some sites. So far, we have only four volunteers, so please contact Marten if you are available for this very important service that we can provide. Marten's e-mail address is Marten.Miller@comm.ocgov.com.

FCC Adopts Spread Spectrum Rule Changes

In a *Report and Order* adopted February 22 and released March 4, 2011, the Federal Communications Commission amended the Amateur Radio Service rules to facilitate the use of spread spectrum (SS) communications technologies. Specifically, the Commission eliminated the requirement that an amateur station use automatic power control (APC) to reduce transmitter power when the station transmits an SS emission, and reduced the maximum allowed transmitter output power for an amateur station transmitting an SS emission from 100 watts to 10 watts PEP. The FCC said these rule changes "will afford amateur radio operators greater flexibility to experiment with SS communications, while limiting the potential for interference to other stations." The Commission believes "that these rule changes will (1) encourage individuals who can contribute to the advancement of the radio art to more fully utilize SS technologies in experimentation, and (2) balance the interests of all users in mixed-mode and mixed-service frequency bands until sharing protocols are sufficiently developed to avoid interference."

Baker to Vegas 2011

By RACES Lt. Ralph Sbragia, W6CSP, Radio Officer

Spring has returned (despite what the weather may have been telling us) and that means another rite of spring is upon us: The Baker to Vegas Challenge Cup Relay. The 27th Annual Baker to Vegas will be held between April 16th and 17th, 2011, and will make the 21st year of support by OCRACES of the OCS D running teams. By the time you read this you will have received the duty roster for the weekend by e-mail to confirm this year's participants.

Our Pahrump command post will again also serve as a monitor for one of the UHF repeater systems that cover the course in the event of emergency traffic as well as communications with the OCS D follow vehicles when needed. In order to fulfill this mission, we will need at least four operators at Pahrump.

Our Communications and Deployment plan will be similar to our last few years. We will be completing vehicle wiring installs on the Thursday before the race at the OCS D Communications facility on Eckhoff Street. Both the Pahrump and Baker OCRACES teams will arrive Friday evening at their duty sites to rise fresh and early Saturday Morning for initial site setups. Team start times were published on Friday, March 26th, so this information will be factored into when our Baker and Pahrump operations need to begin operations and published with the duty roster. Operations will continue at Pahrump throughout Saturday and into Sunday morning until the Baker Team (who have then moved to Vegas for equipment recovery) take over.

We will also be reviewing the details of our communications plan at the April OCRACES monthly meeting in the Support Center at the Orange County EOC on Loma Ridge, at 7:30 PM.

City/County RACES & MOU Drill: May 21st

The Golden Guardian 2011 Full Scale Exercise on May 17-19, 2011, will be based on a major California flood. This theme will involve the Inland Region, with participation from Operational Areas, the Inland Region Emergency Operations Center, State of California agencies, the State Operations Center, federal agencies, non-government organizations, and private-sector partners. This theme will allow all to prepare for, respond to, and recover from this common theme during the exercise. Orange County (Orange Operational Area), which is in the Southern Region, will participate, but, since it is during the week, our City/County RACES & MOU Drill, which will be based on the GG scenario, will not be held until the following Saturday, May 21, 2011. Our drill will run from 0900 to 1100. We hope to deploy the OCRACES emergency communications response vehicle for this drill, primarily to train our newer members on how to set it up and run the generators and radio equipment.

FCC Seeks Comments on ARRL TDMA Petition

On Tuesday, March 15, 2011, the ARRL filed a *Petition for Rulemaking* and a *Request for Temporary Waiver* with the Federal Communications Commission, seeking authorization of the use of single-time-slot Time Division Multiple Access (TDMA) emissions in the amateur bands at and above 50 MHz, wherever multiple-time-slot TDMA is authorized. The FCC has designated the Petition as RM-11625 and is soliciting comments on it. Comments may be filed electronically and will be accepted until April 22.

Through this rulemaking, the ARRL seeks to facilitate the use of and experimentation by radio amateurs with existing narrowband spectrum-efficient digital voice and data technology. "Such technology is now in regular and increasing use in the private land mobile radio services, but its use in the Amateur Radio Service is now apparently unintentionally precluded by two specific Commission rules," the ARRL's Petition stated. The Petition asks the FCC to allow those amateurs who are presently using a Motorola narrowband (12.5 kHz) digital land mobile system—commercially marketed as MotoTRBO—to be used legally. Because of some restrictions in the Part 97 rules, the TDMA repeaters (which are multiple-time-slot devices) are legal, but the mobiles and portables are not because the emissions used (single-time-slot TDMA) are not authorized anywhere, due to the emission designator.

The use of TDMA digital emissions in certain frequency bands in the Amateur Service is on the increase, the ARRL noted. There are numerous UHF repeater facilities now operating that use multiple slot TDMA repeaters and single slot TDMA handheld digital transceivers, principally in the 70-cm band.

Watching the Web

Web Sites of Interest to RACES Personnel

K1TTT Technical Reference
<http://www.k1ttt.net/technote/techref.html>

K1TTT Technical Reference

This Web site at <http://www.k1ttt.net/technote/techref.html> provides links to useful technical articles and notes. Technical note topics include:

- ◆ **Accessories:** voice keys; CW paddles; remote antenna switches; headsets (names Heil headsets); SWR analyzers; time-domain reflectometer (TDR) on the cheap; and MFJ 249/259 calibration.
- ◆ **Amplifiers:** capacitor arc-over quick fix; Alpha 87a; and increase amp relay speed.
- ◆ **Antennas:** how to use a tram to raise antennas; use of tripods to assemble and balance big antennas; tuning gamma matches; 80-m wire yagi analysis; 80-m wire yagi AO model; W3LPL YO antenna model; W8JI measures radials; K3MM on the KT34XA; NEC archives and other antenna analysis software; AC6LA “MultiNEC” and other stuff; AC6V (lots of antenna references); I4JMY collection of AO6 model files; R5 and R7 maintenance and repair; low-band receiving antenna info (eight links); and antenna materials.
- ◆ **Cable and connectors:** how to solder PL-259s; coax cable loss figures; SWR vs cable loss; connector loss measurements; Kellem’s grips for supporting cables; 50 ohm vs 75 ohm; plumbing-fixture hardline connectors.
- ◆ **Computers:** software; hardware; network hardware/software; collection of “calculators”; conversion program; communications glossary; and slashed zero fonts.
- ◆ **Feeding and matching networks:** K1XX nonsynchronous balun; feeding 160-m inverted-L; phasing tribanders; 1/6 wave matching transformers; air-core balun design and actual measurements; and tuner simulator.
- ◆ **Filters:** general notes on stubs; K2TR coax stub design; W3LPL receiver bandpass filters; single coax stub analysis; coax stub pair analysis; auto switching stubs; AK6R stub lengths for all bands; and K3NA stub design.
- ◆ **Geography:** terrain analysis for antenna; tiger map server with census data; Geoclock; and Terraserver images.
- ◆ **Grounding and lightning:** single-point ground; grounding hardline; spiny balls vs rods; cadweld; concrete conductivity; Lem Instruments ground resistance principles and testing; lightning inductance, capacitance, and resistance; soil conductivity; and lightning links.
- ◆ **Gunk:** RTV; doping ground rods; anti-oxidation stuff; breaking free rusted joints (the USCG way); anti-rust paints (POR-15, Zero Rust, and Rust Bullet); and K1VR rust tales.
- ◆ **Projects:** cheap Doppler direction finder; Micro-g2b rotor control; and Metzler’s laws of signals.
- ◆ **Propagation:** 10-m beacon list; time broadcast stations; aviation WX and other possible beacon stations; Great Circle Map sources; HAARP info; RSGB propagation studies committee; KN4LF Web info; and general information, WWV numbers, and forecasts; prediction software.
- ◆ **Radios:** band edges and FCC rules; and specific radios (FT-1000mp, FT-1000mp mk V; TS-870; and TS-930).
- ◆ **RFI/EMI:** general info; ferrite bead info; eliminating computer birdies; bypassing rotor control lines; measuring torroid properties; and RF noise identification.
- ◆ **Ropes, knots, etc.:** miscellaneous notes; ropers knot page; knots on the Web; knot knowledge; more knots; and <http://www.chockstone.org/TechTips/BunnyEars.htm>.
- ◆ **Rotors:** prop-pitch motors; synchro/selsyn wiring; bypassing rotor control lines; Yaesu Gxxxx series problems; and pot replacement for TIC 1022 ring.
- ◆ **Sources:** AF4K mega list for hardware sources; K1TTT hardware sources; and K1TTT software sources.
- ◆ **Station setup:** new (2002) query on SO2R equipment off the shelf; old notes (1995) on two radio setup techniques; K8ND SO2R setup page; and K5TR SO2R schematic.
- ◆ **Towers:** will your safety harness kill you?; more on safety harness problems; earth anchors; guy wire (swaged fittings, Loos tension gauge, K5NA collection of alternatives, geometry for rotating antennas under guy wires, and breaking up guy wires discussion); assembly (using pulleys and gin poles); how to use a tram to raise antennas; shipping; welding re-bar; and nuts and bolts (big reference on materials and use).

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

Fullerton

Fullerton RACES Radio Officer Gene Thorpe, KB6CMO, says the DonateLIFE 5K/1K FunRun on Saturday, April 30, 2011, from 0700 to 1000 hours or so at CSUF, requires 35 or more amateur radio operators. "We still need approximately 20 or more amateur radio operators to run this event," says Thorpe. Send your name, call sign, and telephone number to Gene at kb6cmo@arrl.net.

Hospital Disaster Support Communications System (HDSCS)

A power surge, probably from lightning, caused failure of computer hardware in the telephone and data switch at Children's Hospital of Orange County (CHOC) on Monday, March 21, 2011. All internal phones on the units went down, as well as lines to the outside. At 5:33 AM, April and Joe Moell, WA6OPS and KØOV, received a call from a switchboard operator who was using an emergency tie-line. April and Joe immediately established an on-air net and began a "first wave" callout of members who live close to that facility to respond with their go-kits and to establish communications for the hospital. April called the Control One Supervisor at Orange County Communications to notify that CHOC could not receive incoming calls and offered her number for incoming call relay. This resulted in several calls, including one regarding transport of a young patient coming in for an urgent appendectomy. As they arrived at CHOC, HDSCS members set up internal communications from the most important units including the Emergency Department, Neonatal Intensive Care, Pediatric Intensive Care, and Pharmacy. Our Command Center and internal Net Control was near the telephone switchboard in the basement. Message handling continued through the morning, with some of the first-to-arrive operators being replaced by other HDSCS members when they had to leave for work or other commitments. By 10:45 AM, some of the phones were working but additional repair compo-

nents were being awaited from a supplier. HDSCS continued to provide unit-to-unit and hospital-to-community messaging as needed, including coordina-



tion of patient treatments and a request for blood. At 1:02 PM, the repair crew announced that the phone system was back to normal except for some voicemail functions. HDSCS members remained on station for 30 more minutes as they always do to insure that phone systems are stable. Then they secured the operation. Ken Simpson, W6KOS, and Clay Stearns, KE6TZR, were the first operators to arrive at CHOC and to establish outside communications. Later arrivals for internal communications and relief were (in alphabetical order) Paul Broden, K6MHD, (pictured above), Tom Hall, N6DGK, Bill Hegardt, K6WIL, Rebecca Katzen, KI6OEM, Dale Petes, KI6ANS, Sam Stratton, W5AGX, and Fred Wagner, KQ6Q.

Westminster

Al Toll, W6JNU (SK)

We are deeply saddened to report that former Westminster RACES Radio Officer Al Toll, W6JNU, passed away on February 28, 2011. Our sincere condolences go to his wife Edna, KC6TXB, and family. The Toll family has requested that, in lieu of flowers, please make a financial contribution to Seasons Hospice at Seasonshospice.org, which helped them immensely in their time of need.

April 2011

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2
3	4 <i>OCRACES Meeting & Weekly ACS Net</i>	5	6	7	8	9 <i>EmComm Breakfast</i>
10	11 <i>Weekly ACS Net</i>	12 <i>SONGS Graded Exercise</i>	13	14 <i>B2V Installations at Eckhoff</i>	15	16 <i>Baker to Vegas</i>
17 <i>Baker to Vegas</i>	18 <i>Weekly ACS Net</i>	19	20	21	22	23
24	25 <i>Weekly ACS Net & SWACS Radio Test</i>	26	27	28	29	30 <i>Rebuilding Together Orange County</i>

Upcoming Events:

- **Apr 4:** OCRACES Meeting, FT-8900 and Centracom training, OC EOC, Loma Ridge, 1930
- **Apr 9:** EmComm Breakfast, 0800, Katella Grill, 1325 W. Katella Ave., Orange
- **Apr 12:** SONGS Evaluated Exercise, Orange County EOC
- **Apr 14:** B2V Vehicle Wiring Installs at OCSD/Communications, Eckhoff
- **Apr 16-17:** Baker to Las Vegas Challenge Cup Relay
- **Apr 25:** Southwest ACS frequency/radio test, 2015
- **Apr 30:** Rebuilding Together Orange County
- **Apr 30:** Southwest ACS Meeting, 0900, Ben Clark Training Center, Riverside
- **May 21:** City/County RACES & MOU Drill, 0900-1100



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
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Marten Miller
KF6ZLQ



Robert Stoffel
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