

October Meeting

Date: Friday, October 24, 2003.

Time: Socializing at 7 pm, meeting at 7:30 pm

Place: Covington School, 205 Covington Road, Los Altos

Speaker: Donn Lee

Topic: IRLP, Internet Radio Linking Project

IRLP allows amateur radio operators to remotely operate an amateur radio station over the Internet. Come and hear the latest on IRLP!

Be sure to bring your questions to submit to Dr. Know-It-All!

September Meeting Report

At the September meeting, we held the Home Brew Contest. Club members presented six projects. Steve, K6OIK, presented backpacking gear and a lightweight solar panel. Dave, AE6EO, presented a QRP, CW Transceiver for 20 and 40 meters. Sig, KG6HRU, displayed a mobile rig mount to easily move the rig between home and vehicle. Arv, WA6UUT, showed us a Hamstick dipole that can be set up anywhere. Howard, KG6HRO, presented a twin-lead J-pole antenna in foldable PVC. Hans, KE6TGA, presented an antenna tuner that he had built from scratch with just a few dollars of equipment.

First place prize of \$40 went to **Hans, KE6TGA** (see below).

Second place prize of \$30 went to **Dave, AE6EO**.

Third place prize of \$20 went to **Arv, WA6UUT**.

Check later in this newsletter for more pictures and information.

The number for Herb Davidson, KF6BKL, was chosen for the "Wish you were here" prize. Unfortunately, Herb was not present. Wayne Johnson, W6WOH, took away the ICOM T2H prize.



Hans, KE6TGA



Wayne, W6WOH

January 23, 2004 – FARS/PAARA Winter Banquet

Plan to attend the Winter Banquet

Presidents Column

Elections. November is fast approaching and time for FARS to elect 1/3 of its directors. The following directors seats are up for re-election: Mikel Lechner, KN6QI; Steve Stearns, K6OIK; Omri Serlin, AA6TA; Howard Califf, KE6PWH; David Cooper, KE6PFF. Each of these Board seats has a three-year term and serves through 2006. Stefan Goette has informed the Board that he will not be able to serve the rest of his term on the Board, so this adds a sixth open seat on the Board. The person who replaces Stefan will serve out the rest of his term through 2005. In addition Omri Serlin, AA6TA and Howard Califf, KE6PWH have each indicated that they wish to retire from the Board. I wish to thank all the retiring directors for their service to FARS and especially Omri who has served many years with FARS in different capacities. The board has nominated the following for election to the Board of directors: Mikel Lechner, KN6QI; Steve Stearns, K6OIK; David Cooper, KE6PFF; Phil Hawkins, KA6MZE; and Robert Flemate, KE6TFU. The membership will have an opportunity to make direct nominations at the October meeting. We need one more nomination to fill the board, so please attend this month's meeting.

Programs. I hear that this month's program should be excellent. Donn Lee is talking about a growing new facet of Amateur Radio, IRLP (Internet Radio Link Protocol). IRLP allows remote control of a radio station via the Internet. Don't forget to bring your Amateur Radio questions for "Doctor Know-it-all".

- deMikel, kn6qi

Secretary's Report

The FARS Board held its monthly meeting on the evening of October 7, 2003. Present were Frank, K6FCW; Mark, KG6GRR; Dick, N6ATD; Howard, KG6GRO; Stefan, KG6MAO; Omri, AA6TA; Dave, KE6PFF; Mike, KG6GUE; Herb, KF6BKL; and Martin, KD6WJW. Because both the president and vice-president were absent, a resolution was passed to make KD6WJW acting chairman for the meeting. Two resolutions were passed to approve payments for expenses. One was for some miscellaneous expenses, while the other authorized the treasurer to pay Howard, KE6PWH, an amount not to exceed \$100 for the raffle prize at last month's club meeting. A resolution was also approved to sell the winter banquet raffle tickets as optional donations separate from the banquet (meal) tickets. These could be purchased with the banquet tickets or at the banquet. There would be no limit on the number of raffle tickets that a banquet attendee might purchase. Other issues that were discussed included the upcoming election of club officers and board members and additional banquet items.

- Martin, KD6WJW

Upcoming Events

Oct 24	7:00 PM	Club meeting, Covington School
Nov 4	7:30 PM	Board Meeting, Los Altos Town Crier
Nov 21	7:00 PM	Club meeting, Covington School
Jan 23, '04		Winter Banquet – Set aside this date
Thursdays	8:00 PM,	FARS net, 145.230(-), 100 Hz PL

See more events, [FARS Calendar](http://www.fars.k6ya.org/events/calendar)

<<http://www.fars.k6ya.org/events/calendar.shtml>>

CLUB INFORMATION

President: Mikel Lechner, KN6QI
Vice President: Steve Stearns, K6OIK
Treasurer: Frank Weiss, K6FCW
Secretary: Martin Liberman, KD6WJW
Radio Officer: Omri Serlin, AA6TA
Training Officer: Mike Zensius, KG6GUE
Relay Editor: Mark Hardy KG6GRR

FARS Board: Dick Baldwinson N6ATD, Herb Davidson KF6BKL, David Cooper KE6PFF, Howard Califf KE6PWH, Howard Takaoka KG6GRO, Stefan Goette KG6MAO.

Station Trustee: Stan Kuhl, K6MA
FARS Web Page: <http://www.fars.k6ya.org>
Download Relay: <http://www.fars.k6ya.org/relay>

Club members and non-members are encouraged to subscribe to the FARS Announcement list by browsing www.fars.k6ya.org/mail, clicking on Subscribe/Unsubscribe and following the instructions under "Subscribing to fars-announce."

You may also submit an announcement to the FARS Announcement at fars-announce@svpal.org. The list is moderated and messages will be posted as approved by the list moderator.

The FARS board of directors may be reached at fars-board@svpal.org

Club meetings are held at 7 PM on the fourth Friday of each month except January (Winter Banquet); and sometimes there are changes for June (for field day) and Nov. & Dec (for holidays).

Annual club membership \$20. Club badges are \$6. Visitors are always welcome! Directions on the back page. Talk-in: N6NFI (145.23-, 100 Hz) or W6ASH repeater (145.27 or 224.36).

The FARS *Relay* is the official monthly newsletter of the Foothills Amateur Radio Society. Contributions to the newsletter from members, family, and guests are earnestly solicited! Contributions subject to editing and/or compression. ASCII files via Internet or diskettes preferred; but all readable forms welcome.

Here is how to reach the editor:

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Voice: 408-243-0701 (Before 9 PM, preferred)
Fax: 408-243-0701
Email: kg6grr@arrl.net, At FARS meetings.

HAM Radio News

Ham radio news is as close as your cell phone: With many major cellular telephone calling plans largely eliminating roaming charges and offering "free nights and weekends," ARRL Audio News dial-up Amateur Radio news service now is more available than ever. Using your cell phone, you can keep up with Amateur Radio news even if you're someplace where you don't have Internet or e-mail access. Amateur Radio news is as close as your cell phone! Have a few minutes while you're waiting for the train, bus car pool or connecting flight too? Just call 860-594-0384 to stay informed. ARRL Audio News remains available on the ARRL Web site <<http://www.arrl.org/arrlletter/audio/>>.

Electronics Museum History

Jack Eddy, WA6YJR, the past President of FARS is writing a history of the Electronics Museum. We plan to include excerpts from the history in the Relay. Below is Part of Chapter 1, with more to come in future issues. This month's installment is a continuation from last month.

Chapter 1, The First Year (continued)

Just one month after the museum opened, EMARC was born on March 19, 1973 with Jack Eddy, museum curator, chairing the meeting...

Following are brief profiles from the first Relays of the officers who were to guide the club at its start and prepare it for service in the years to come...

Jack Eddy, WA6YJR

Jack was born in 1928 in Waterloo, Iowa. After graduation from the local high school, he entered college at Tarkio, Missouri where he studied for one year and joined the ranks of the employed. In 1947-1949, he worked for Western Electric installing Central Office equipment and was involved with the laying of the first coax cable south of Chicago for TV. In 1949 he went to the Rath Packing Company in Waterloo, where he installed and cared for IBM equipment.

The Korean war came along and he entered the Navy in 1950 and served as a personnel man on Guam for two years, at which time he was transferred to Treasure Island, California with the 12th Naval District. There, he once again was involved with running IBM equipment in the accounting department. He was discharged in 1954 and returned to college.

Jack entered Sterling College, Sterling, Kansas in the fall of 1954 and graduated with his Bachelor's Degree in Social Science, History and Physics in 1956.

Jack became curator of the Electronics Museum in 1971 to organize the museum collection and present it to the public.

Ross Forbes, WB6GFT

Ross was born in Cleveland, Ohio on March 23, 1949. He moved to Los Altos Hills, California in 1959. He was licensed as WN6GFJ in 1963. He became WB6GFJ in 1964. Ross operated as KL7FFT while visiting KL7EKB in Anchorage Alaska. He spent the summer touring Alaska and chasing DX. Leaving the cool of Alaska, he attended the University of Hawaii for one year in 1967-1968.

Ross tried Oceanography as a career, but soon decided it wasn't for him and returned to the mainland in 1968. He attended Foothill College and switched his career goals to Radio/TV Broadcasting. While at Foothill, he was program director and station manager of KFJC-FM. At this time, he was also a DJ for KTAO. In 1970, he was studio supervisor at KBRG, San Francisco. In September 1972, he became an engineer at KARA, Santa Clara.

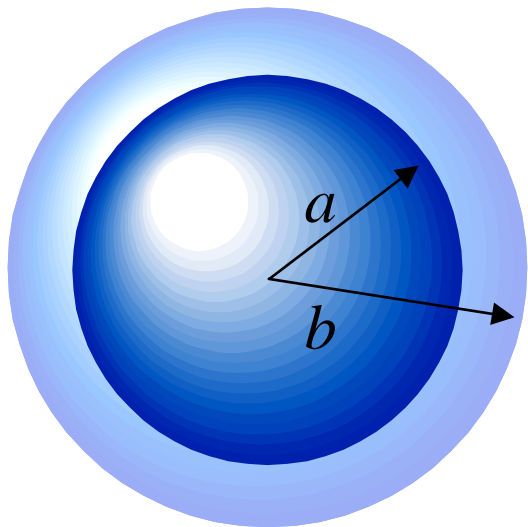
Dr. Know-It-All

October 2003

Every question deserves an answer.

Question: What is the capacitance between the earth and the ionosphere? Asked by Natasha, KG6OSP, at a FARS meeting.

Answer: The hardest part of this problem is choosing a suitable model for thinking about the problem. Our model will be two concentric conducting spheres. A capacitor is a "lumped-element," and in this case the lumped-element is rather big. A few assumptions are required. First, we shall limit our consideration to the electrostatic case, or at least to frequencies for which the earth is small compared to a wavelength. Second, we make the assumption that the earth is a perfectly conducting sphere, and the ionosphere consists of a single spherical conducting layer that surrounds the entire planet. The F layer will do for this purpose. The height of the F layer can vary considerably. It generally is between 160 km and 500 km. We'll use an average height of 250 km. The radius of the earth ranges from 6,357 km at the poles to 6,378 km at the equator. We'll use a mean radius of 6367 km. Therefore the mean radius of our assumed ionosphere is 6,617 km.



The next part is easy. The formula for the capacitance between two concentric conducting spheres, inner radius a and outer radius b , is

$$C = \frac{4\pi\epsilon}{1/a - 1/b}$$

where ϵ is the permittivity of the dielectric in farads/meter. We assume air as the dielectric, which has the same permittivity as free space

$$\epsilon_0 = \frac{1}{c^2 \mu_0} = 8.854 \text{ pF/m (picofarads per meter)}$$

where c is the speed of light in free space, 299,792,458 m/s (meters per second), and μ_0 is the magnetic permeability of free space, $4\pi \times 10^{-7}$ H/m (henrys per meter). The numerical permittivity 8.854 is the same if its units are changed to nF/km (nanofarads per kilometer), convenient for the calculation that follows.

Making numbers into the capacitance formula, we find that the capacitance between the earth and ionosphere is

$$C = \frac{4\pi \times 8.854}{1/6,367 - 1/6,617} \text{ nF} \\ = 18,750 \mu\text{F}$$

or about 19 millifarads. Are you surprised that the capacitance is so small? That 1 farad, 12 volt Monster capacitor in the car audio system has more than 50 times the capacity between the planet and the ionosphere!

That's it for this month. You can send your comments or questions about any aspect of Amateur Radio to Dr. Know-It-All. Comments and questions in writing are accepted at the monthly meetings of the Foothills Amateur Radio Society, by email to FARS officers and board members, or through the FARS web site at <http://www.fars.k6ya.org>.

Antennas

I am frequently asked about the *best* antenna for HF operating. This summer, however, I discovered the *least* antenna needed for HF operating. I was sitting in the shack one evening with the Icom IC-756ProII HF rig and Drake R-8B shortwave receiver turned on. At the conclusion of operating the Icom, I switched the HF antenna to the Drake and continued to listen for a while. The Alpha Delta antenna switch puts shorts across unused ports, so the Icom's antenna input was shorted. The Icom and Drake were tuned to the same frequency, 3975 kHz LSB. After listening to the Drake, I turned its volume control to zero but left the rigs on.

That night, at around 10 pm, I was surprised to hear a voice coming from the speaker. Something seemed strange. I wondered how the sound could come from the speaker with the volume control at zero. I recognized the other station as Ray, KG6JWC, in Sparks, Nevada. I suddenly realized the sound was coming from the Icom's speaker - its S meter was registering S1. I turned the DSP off and switched the antenna to the Icom. The S meter pegged at 50+ dB over S9.

Evidently, I can receive Ray's signal from Sparks, Nevada, with no antenna and with the Icom receiver's antenna terminals shorted provided the DSP is on. That's what I call a great DSP! BTW, Ray had his linear on.

- Steve, K6OIK

Ham Radio in Politics

HR 713, Amateur Radio Spectrum Protection Act, has been referred to the Subcommittee on Telecommunications and the Internet. In June, Haynie testified before that panel, telling lawmakers that that hams have lost more than 100 MHz of VHF and UHF spectrum over the past 15 years and that another nearly 360 MHz of VHF and UHF spectrum "has been substantially compromised." S 537 (Senate Version) has been referred to the Committee on Commerce, Science, and Transportation.

Please write your Representative and Senators in support of these bills. See "Communicating with Congress," on the ARRL Web site <<http://www.arrl.org/news/bandthreat/0304046.pdf>> or in the April 2003 issue of QST (p 46).

Home Brew Night (Sep 03)



Steve, K6OIK

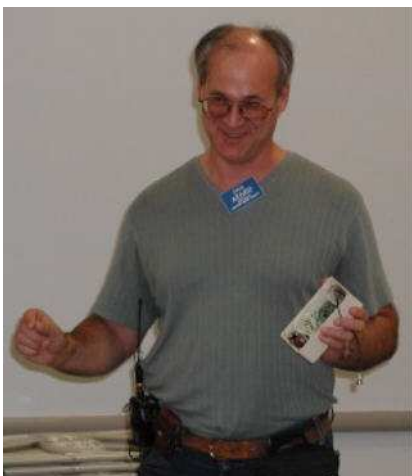
Steve presented backpacking gear for Ham radio while on a hike. He showed how he uses the radio and how to charge the batteries with a lightweight solar panel



3rd Place

Arv, WA6UUT

Arv took home the prize for 3rd Place. Arv built a Hamstick dipole that can be set up in tight places, like an apartment.



2nd Place

Dave, AE6EO

Dave took home the 2nd Place award with a QRP transceiver for 20 and 40 meters. He built the transceiver in a small package and used "Rockmites" (sp?).



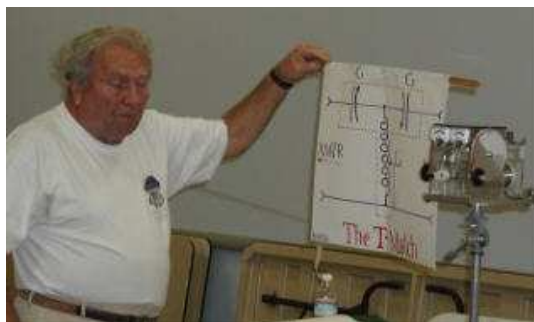
Howard, KG6GRO

Howard presented a Twin-lead foldable J-pole antenna – easy to carry. He used C-PVC (?).



Sig, KG6HRU

Sig showed us a mobile rig mount that can be used to move the radio from automobile to home very easily.



1st Place

Hans, KE6TGA

The 1st Place prize went to Hans. Unsatisfied with other antenna

tuners, he decided to build his own from scratch. With an investment of \$7 in parts, he has a great tuner and \$40 1st prize. Good return on investment!

Repeaters

A friend will be coming for a visit from out of state. What repeater(s) do you recommend for use in San Francisco? It's a little far for coverage by the 145.230 and 145.270 machines we use around here.

tnx,

- 73, Paul AA6PZ

Actually the 145.230 machine reaches many parts of SF quite well. It should be tried.

Some wide-area machines that I like:

1. The N6ICW repeater system on Mt. Vaca 147.195 (+) PL123 covers the Bay Area and I-80 corridor to Sacramento and beyond. It is linked to South Lake Tahoe 145.150 (-) no PL.
2. The W6CX repeater on Mt. Diablo 147.060 (+) PL100. This is MDARC's machine, used for Pacificon talk-in.

- Steve, K6OIK



How to get to meetings:

(Visitors always welcome)

Our meetings will be held at the Covington Elementary School (directions below) on the fourth Friday. Socializing at 7 PM with the regular meeting at 7:30 PM. There may be changes in the meeting dates for January, June, November, and December.

DIRECTIONS:

From Interstate 280. take the El Monte exit (same as for the Flea Market) but go Northeast (rather than West to the college). Cross Foothill Expressway. (A) At the first traffic light turn right on Covington. (B) Immediately at the fork take the left street (Covington). Go about 1/10th of a mile. Turn left into the parking lot. The gym is the tall building to your right with red and white stripes.

From Foothill Expwy. From Foothill Expressway, take the El Monte exit and go Northeast; then follow directions as above at point (A).

From US101 or El Camino: take San Antonio Road west (to Foothill Expressway). Then follow directions as above at point (A).

TALK-IN via the [N6NFI](#) (145.230-; 100Hz PL) repeater or the [W6ASH](#) 145.27- (100Hz PL) repeater.