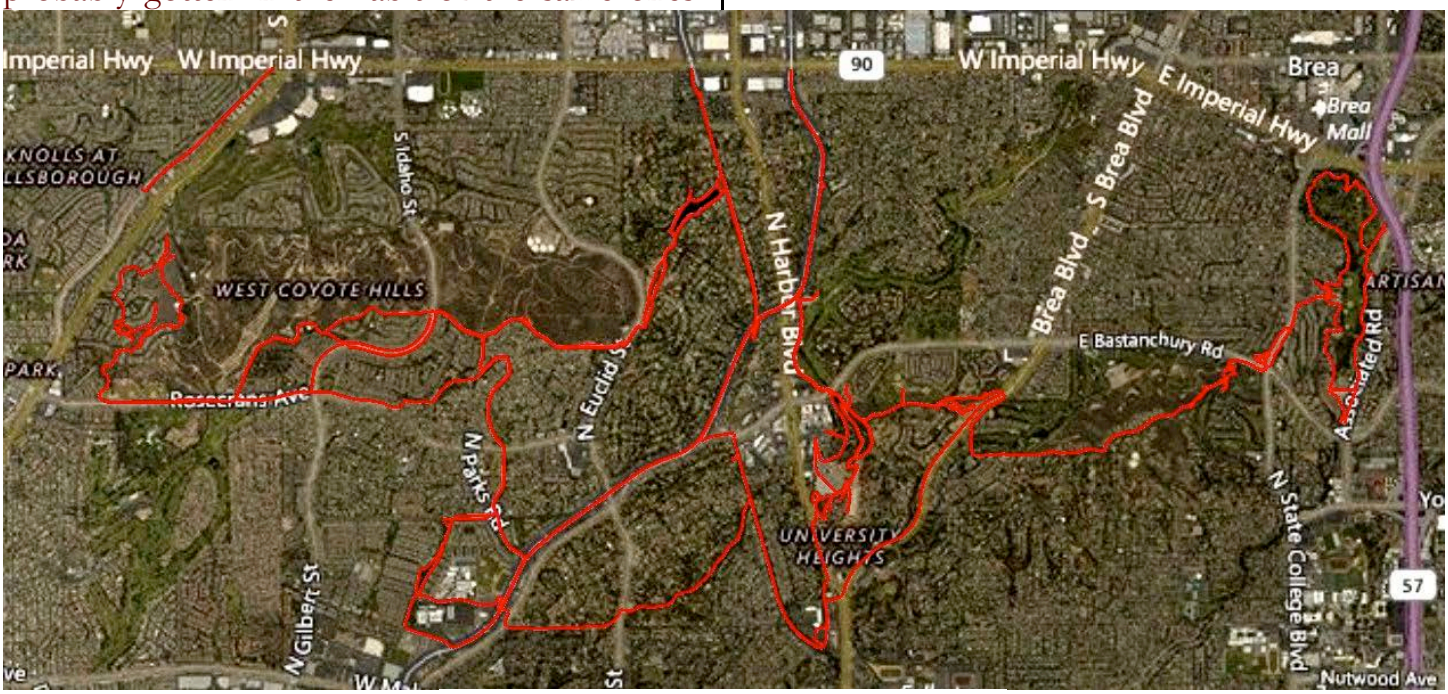
Smoke Signals

Newsletter of Fullerton Radio Club

August 2019

August Club Meeting Presentation

Walter has prepared a generic talk about his website that illustrates the 28 miles of trails in Fullerton. There's history involved as well as descriptions of what's there, that should inspire you to walk these trails [ed. Pedestrian mobile radio?]. If you now walk the trails, you have probably gotten in the habit of the same ones. This website, and the short examples in the slide show, are intended to inspire you to try others trails. That's the generic part. It will be customized for FRC by showing photographs of antennas that occupy the high places in Fullerton and other things of interest to those with an interest in engineering.



Hiking trails in Fullerton marked in red

August 2019 FRC MEETING

Wednesday, August 21, 2019

Chapman Activity Center
2515 San Carlos Drive, Fullerton
(Second street east of State College Boulevard off Commonwealth)

Meeting time – 7:00 PM

Visitors are always welcome
Dinner before the Meeting:
Black Bear Diner
5:00 PM

Fullerton Radio Club
P.O. Box 545, Fullerton, CA 92836-0545

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Show –and–Tell
Bring something of interest to the meeting to show and share your story.
Something old, new, or just of interest to hams.

Web site: www.FullertonRadioClub.org

August Board Meeting Minutes

The August 2019 FRC Board meeting was called to order at 7:30pm by President Larry McDavid W6FUB. Others present: Treasurer Gene Thorpe; KB6CMO; Secretary Linda Endsley KJ6IHB., Paul Broden K6MHD; Richard Belansky KG6UDD, Bob Houghton AD6QF, Tom Gaccione WB2LRH, Walter Clark, Robert Gimbel KG6WTQ; Member: Cheryl Thorpe KE6TZU

Minutes were approved.

Treasurer's report: Savings - $3,929.42; Checking - $2,2608.10

Old Business:

Bi-laws are posted on web site.

New Business:

Received 1 new membership.

Have 30 paid members.

Due to Marie Callender's Placentia location closing, the monthly Board meeting will be at the Black Bear on Harbor. Also, the Christmas dinner will be at the Black Bear.

Annual Budget shows need to reduce expenditures.

Discussed possible tours: Lane Victory, OCSD Sewer Treatment, Radio Tower

The August general meeting speaker will be Walter Clark, topics Trails

Next board meeting: 4 SEPT 2019

Adjourned at 8:00 pm

Submitted by Linda Endsley KJ6IHB

New Board Meeting and Holiday Dinner Location

As you all may already know, the Marie Callender's Restaurant we use for board meetings and our annual Christmas dinner has closed. Fortunately, Gene Thorpe has arranged with the Black Bear Diner on Harbor Boulevard at Brea Boulevard for both our board meetings and the Christmas dinner. Black Bear Diner has an extensive menu and we will order and pay individually off their regular menu for our Christmas dinner. The diner does have a back room with ample table space to accommodate us. Some of us meet there for dinner before our regular club meetings; this is the same Black Bear Diner so most of you already know its location across from Hillcrest Park. But, we had to move the date of our Christmas dinner; changing Christmas dinner reservations this late in the year is tough! So, we will hold our December Christmas dinner meeting on our regular meeting night, December 18, 2019 at 6:30 pm instead of our customary third Friday night. We have had extremely good and cordial table service for our before-meeting dinners and the last board meeting we held at Black Bear Diner. Thanks to Gene Thorpe for making this possible! --

Best wishes, Larry McDavid W6FUB

You saw what?

Being an old radar guy, I found this press release very interesting...

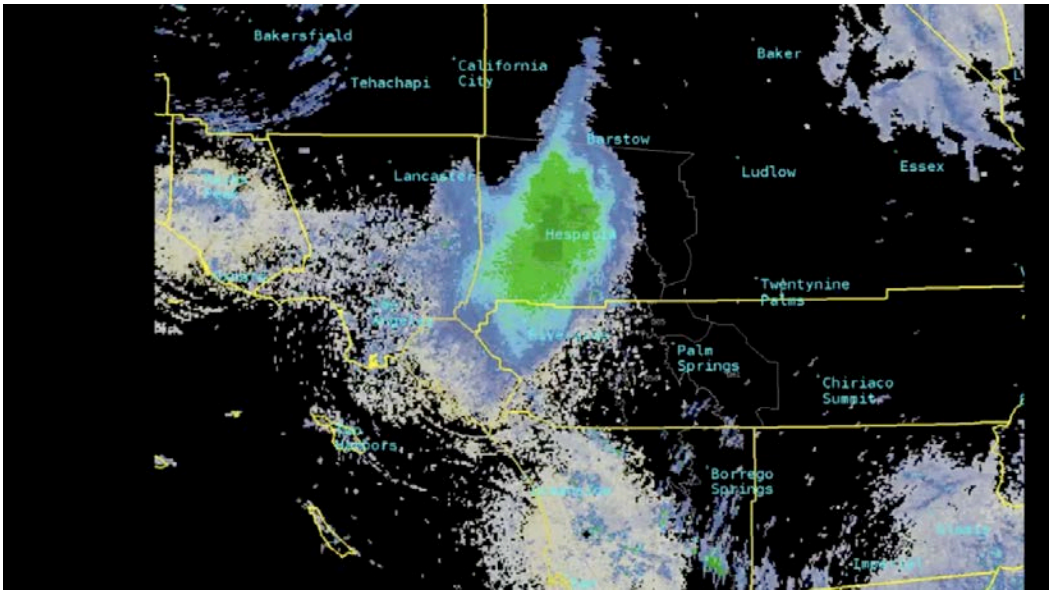
In early June, the National Weather Service radar on Pleasant's Peak (above Irvine Lake, east of Orange) was receiving large returns over far western Riverside County and Southwestern San Bernardino County. As there was no rain predicted or occurring at the time, the returns, a "blob" of about 80 miles by 80 miles, couldn't be rain....

Using a tried and true ultra high tech method (developed by Raytheon) to confirm the phenomenon, the NWS sent a spotter out on his front porch in Wrightwood....

In the early spring, after temperatures reach 65 degrees, adult lady bugs mate and migrate from the Sierra Nevada to valley areas where they eat aphids and lay eggs. In the early summer, as the aphid numbers decline, beetles become hungry and migrate back to the higher elevations.

With over 200 species of ladybugs in California, it wasn't immediately known what type of ladybug was causing the phenomenon.

Tom, WB2LRH

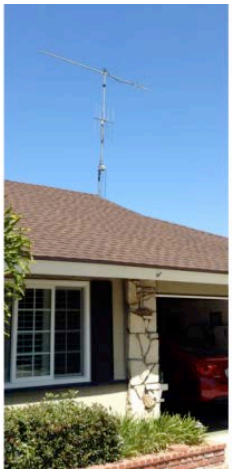


Activity Reports of the Fullerton Radio Club (Technical Advisory Group) for August 2019

Standing room only at Walt's at last Wednesday's TAG meeting.

Tom Fiske brought his friend Don Lawver WB6OZZ who used to be a member of FRC. (More from Don shortly.) Tom has been very active with one other ham; Ron Brooks W6QUI in Atascadero. They've been very consistent –every morning— because of how special that link is. It is the great distance involved on 2 meters; 200 miles and the fact that there were several mountain ranges that were in the way, or reflecting or something. Tom's rig is an IC 706MKIIg. Tom said he's running about 120 watts, horizontal polarized, upper side band. They each have beams of about 11 elements.

Walter Clark (the host) talked about the physics of elastic tubing used to tow an R/C glider into the air. The segments of tubing were held together by a 1" length of ¼" dowel that was a tight fit. But it failed and that failure reminded him of the turnbuckle failure at the KFI tower. It seems that if you pull on a turnbuckle hard enough, the failure mode is quite surprising. The threaded rod stretches and gets thinner at the upper end and pulls away from the first female thread. That moves the stretched part closer in until that second thread pulls away. It unzips itself without breaking anywhere. It looks like somebody unwound it. The pictures below are of a turnbuckle that failed on the KFI tower in 2008. Notice where it gets thinner.



The failure of the elastic tubing to get the plane up very high inspired Walter buy a good sized drone to get the plane aloft. The release mechanism is seen behind the loop in the tail of the glider. The drone arrived the day of the TAG meeting and hasn't flown yet. The FAA has just released new rules for the recreation flyer and he's studying them.

Don Lawver (Tom's guest) said that 40 or 50 years ago he was playing with a 2-meter beam and found a repeater on Mt. Wilson that was blocked by local hills but was able to secure a very good connection by bouncing off the mountains around Mt. Baldy. What we got the biggest kick out of though was Don's story about pulling the antenna's coax under the full length of the house to get to his radio room. It was his wife that volunteered to crawl under the house. Wow. We thought we should giver her some kind of award "most wifely support" but this was many years ago.

Joe Moell talked about a recent product in the ADF world. He brought his to show us, see below. It is a familiar Doppler type but integrates the GPS data stream from an external GPS module with a computer. He is holding the interface to the computer which is actually Bluetooth link. The RS-232-to-Bluetooth interface is a commercial product from a ham in Georgia. There's another dongle involved that interfaces to the GPS unit. The picture of the map shows the output of the computer. Headings from various locations are the red lines and where the lines cross is a possible source. When lots of sources end up on top of each other, that's probably where the fox really is.

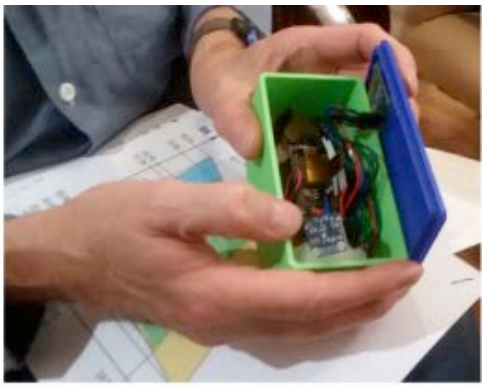


He also talked about a new technology; new to ADF anyway. The new RDF technology involves a pair of SDR receivers driven by a common clock. Direction is determined using four antennas and correlative interferometer techniques. It only resembles a Doppler RDF by the four antennas, but it isn't.

Dave Rugh told us about his tennis ball retriever robot project. His goal is to use an ESP-32 (Bill Webb is our expert on that) to direct an R/C car which will herd the ball to the fence. He will take it in stages. At first the robot will be radio controlled and not be autonomous at all. This stage will allow him to learn about cameras and the vehicle itself. He will then study the R/C transmitter to insert left-right, stop-go signals from the microcontroller into the encoder section of the transmitter. Next he will learn about image processing and hopefully direct the car to some round green object. The final goal will be to put that program in the ESP-32 in the robot so it can find the balls on its own. This is the PCB from inside the controller/ transmitter. He will be attaching an ESP32 or ESP8266 to the wires on the top

Bill Webb is presently learning his way around the newly introduced digital modulation mode, FT-4. This is an improved version of the FT-8. It is twice as fast and has twice the bandwidth. (The smaller number only makes sense, and if you ask me the 8 in FT-8 was arbitrarily chosen.) It uses an

upgrade to the WS-JT software he is already familiar with. His latest ESP-8266 project is a cute little box to display the local weather in terms of comfort to be outside. The 3-D printed box was customized to fit his components. It has several detectors; humidity, barometric temperature etc, but does not take into account the history of weather at that location. Eliminating that saved a lot of work. The output is shown on the right. It is text where the important fact is the words at the top right. Other phrases are “too cold” “hot muggy”, “stay inside”.



Bob Houghton is about to take a road trip pulling a travel trailer clear across the country so he’s learning a lot about the electrical connection between trailer and towing vehicle. In the effort to get every last mpg out of a car, modern cars don’t leave the output of the alternator at a voltage that is high enough to top off the trailer’s battery. One needs tens of amps or several hours at slightly less current and that is hard to get any more. He is working with voltage boosters and is in contact with others on the internet who have this concern. Someone suggested that if he does solve it, such a controller might be a good product to sell. Joe Moell suggested that MFJ makes a voltage booster that might be helpful for this problem.

Dick Bremer brought a rubidium ten-megahertz frequency source. If it ran a counter in a clock it would be accurate to one second in the lifetime of the universe, or something like that. It is surplus from a cellphone tower and it is indeed what was called in the 60s an atomic clock. Such accuracies are necessary when you multiply the standard frequency up a dozen times to do ham radio in the gigahertz. He also uses it as a frequency standard for his VHF rigs. It is unnecessarily accurate for that purpose, but fun to brag about, I guess. He’s had it a while and his latest modification is a better box, huge heatsink and fan that he made run quieter.

Tom Gaccione, as usual, brought the pizza making him everyone's best friend. He didn't bring any hardware to photograph but did give us the latest scientific news; like the blooming of the corpse flower at the Orange Coast College Planetarium.

He attended the first Costa Mesa city council meeting where 5G was talked about and of course the main fear is being irradiated by 5G photons.

He also shared with us some electronic invention that should be important to astronomers. It's a "microwave kinetic induction detector", *a sensor that could be used for discovery of exoplanets*. Sounds scientific; it must be fir reel.

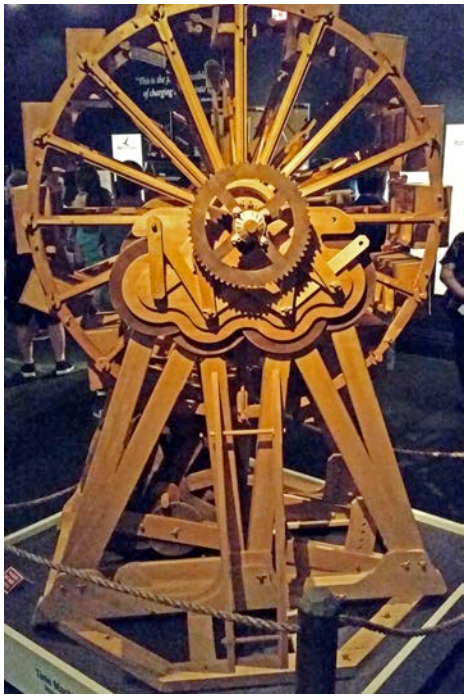
Of most interest and something that began a long discussion is announcement of a salt cavern near a coal fired steam generator that the Los Angeles Department of Water and Power is about to shut down in Utah. This cavern is so large that compressed air can store as much energy as a reservoir of water high in the mountains.

Dick (the QRP man) Palmer brought yet another, I think that's his 67th QRP radio. (Upper right photo above.) Once again all hambands 160 meters to 30 M. He wasn't sure of the maker (do you blame him… 67 of them) The silkscreen on the circuit board said Multus Omni Proficio. He's not sure if that's the board maker or the designer. He says it is as good as the KX3, the ultimate SDR QRP at $1,800. This one is only $250. He soldered it up himself which was quite a chore since there was a bazillion SMD parts.

Larry McDavid didn't bring much this time; only a 100 kilocycle crystal in a can reminiscent of the 40s and 50s. I think it was Dick Palmer who said that he may need a kilocycle to kilohertz converter for that. (A little ham humor there.) Larry shared with us his experience with the KFI tower collapse. He was actually there. He watched the progress until the workers went for lunch at which time he left. It was shortly after that that the tower collapse and quite near where he was parked. Larry was very pleased with his Sam's Club purchase of a work bench. That started a discussion comparing Costco with Sam's Club.

Local Tour

I recently visited the Reagan Presidential Library in Semi Valley to see the da Vinci notebook and invention model exhibit. The library itself is excellent and the da Vinci exhibit is very interesting. The exhibit has four rooms full of over three-dozen large-scale models of his inventions as described and sketched in his notebooks. Da Vinci was a master artist (the Last Supper painting is shown full-size in two views in the exhibit) and inventor of planes, boats, pedal organs, warcraft machines and much more. The models are full or large-size and very well made. I made the drive and viewing in one day and was home by 4:00 pm. And, I enjoyed some Reagan White House chili for lunch! The da Vinci exhibit is there only through September 8 and is worth the trip.
Larry W6FUB



September Board Meeting

Open to all Club members

Black Bear Restaurant

(New Location)

1011 N. Harbor Boulevard, Fullerton
First Wednesday of each month.

Next Board Meeting

Wednesday, September 4, 2019

QSO and dinner; 6:30 PM
Meeting: 7:30 PM