



Smoke Signals

Newsletter of Fullerton Radio Club

August 2018

President's Column - August 2018

As some of you know, I like to go camping. Once away from towns and major highways, it still surprises me how frequently I find myself camping in a location that has no cellular service, and thus no email or SMS access.

Recently, I spent four days camped at Singlepine Campground in the Dixie National Forest in Utah. Singlepine Campground is in a Ponderosa pine forest, so I can't explain the name. Rather than Singlepine, maybe it should have been named "not a single bar" campground, as there was no cell service. I did discover that I could reach a linked repeater system and I was also in range of an APRS digipeater and iGate.

Using the APRS iGate, I was able to beacon my location and a status message, but I started wondering if I could use my APRS capability to accomplish anything more useful.

Once I was back in a location with internet access, I did a little research and discovered that it is possible to use the messaging feature of APRS to send an APRS message to an email address. This might be interesting.

The solution comes from Keith Sproul - WU2Z, who is half of the Sproul Brothers who are well known for writing APRS clients MacAPRS and WinAPRS in the late 1990s. Keith has set up an APRS-to-email server. When an individual sends an APRS message to the SSID "EMAIL," the iGate forwards the message to Keith's EMAIL server which, in turn, creates an email message that gets sent to your recipient. The APRS message is addressed to "EMAIL" and the recipient's email address is the first "word" of the message. Everything after the recipient's email address becomes the actual message.

So to summarize, it is possible to use a 2 meter handheld or mobile radio with APRS capability to send a message to email without having a cell signal or access to the internet.

It should be noted that there are some (fairly severe) limitations. The total length of the message, including the recipient's email address and spaces, cannot exceed 67 characters. This is a limitation inherent to

APRS messages and is a manifestation of the way that characters are commutated in the encoding and compression of an APRS packet. This still allows me to send messages such as: "I've arrived at the campground," or "Help, we are running low on marshmallows." Part 97 regulations require that the message be sent in the clear, without encryption. Also, no business emails. (Probably not a problem with fewer than 67 characters.)

Another limitation to Keith Sproul's implementation of APRS-to-email, is that it is a one-way system; it is not possible for the recipient to reply back to you.

Hams like to improve on the work of others, so there is a newer system called javAPRSSrvr that works similarly, but allows replies. The replies require strict formatting (probably as a security measure of sorts) so your recipient can't just hit "reply," but must compose a new email to you following the required formatting. You can also register a list of "shortcuts" for email addresses you are likely to use. Think of this as a speed-dial list that shortens the email addresses, leaving more of the 67 precious available characters for ordering marshmallows. More about javAPRSSrvr another time.

In case you can't tell, I am still figuring out how all this works. If you are interested in joining me in learning more about APRS-to-email, I could use a partner or two to exchange test messages with. To be on the email end, you just need ... well, email. If you want to be on the APRS end of these messages, you either need a computer, TNC, and a 2 meter radio, or a radio with built-in APRS capability. Radios with such capability that come to mind are Yaesu FT-1DR, FT-2DR, FTM-400, Kenwood TH-d72, TH-d74, TM-d700, and TM-d710. There may be others.

73 for now,
Bob - AD6QF, AD6QF-7, AD6QF-9

August Presentation

FISH, STEAM AND HYDROELECTRIC POWER

Larry McDavid traveled to Shaver Lake just northeast of Fresno in June to share some camping fun with his family but discovered the Central Sierra Museum at the entrance to the Edison Campground at Shaver Lake. Always interested in museums, Larry could not resist visiting and learning about the history of the area. Once a great logging area, the Sierra watershed still powers extensive hydroelectric generating stations providing us low-cost electrical power. Larry previously toured the Knight Foundry in Sutter Creek, near Sacramento, and saw another form of water-derived power there and will compare the two. Logging required power also but that was provided by steam and the museum showcases much of that equipment. Along the way, fish were caught and eaten and a good time had by all. Larry took many pictures and will entertain us with part travelog, part fish story and part history lesson.

Larry McDavid W6FUB

August MEETING

Wednesday, August 15, 2018

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

1011 N. Harbor Blvd., Fullerton (at Berkeley)

FRC Mobile Transmitter Hunts

In what ham radio activity do you start out in your vehicle, not knowing where you'll end up, how long it will take, and what you'll find there. Hidden transmitter hunters have this experience every time they go on a mobile "T-hunt." Fullerton Radio Club's mobile T-hunt takes place on the third Saturday of each month, starting from the top of Acacia Avenue in Fullerton at 8 PM. In June, the hiders were Steve Wallis WA6PYE and Deryl Crawford N6AIN. They weren't too far away, on Northwood near Coyote Crossing in La Habra. Still, it took over an hour for all the teams to find them.

FRC mobile T-hunts are scored by odometer mileage, with the shortest mileage being the winner. Time is not a factor. Here are the results of the June hunt:

Team Calls	Odo Miles
AB6PA/KG6EEK/Alexis	16.6
N6ZHZ	24.2
WA6CYY	25.7

For winning, Glenn Tobey AB6PA and Bill Greganti KG6EEK got the responsibility to hide the transmitter in July. They put it on the Balboa peninsula at the west end of Bay Avenue where it meets 15th Street. This time it took over two hours for all of the teams to arrive. Mileages were much greater, too.

Team Calls	Odo Miles
KA6UDZ	32.0
N6ZHZ	42.1
N6AIN/WA6PYE	46.7
WA6CYY	52.2

Scot Barth KA6UDZ will hide the next FRC T-hunt on August 18, starting at 8 PM on 146.565 MHz. All are welcome.

73, Joe Moell K0OV

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

President

Bob Houghton AD6QF
Phone: (714) 446-0520
E-mail: bobhoughton@mac.com

Vice President

OPEN
(This could be YOU)

Secretary

Linda Endsley, KJ6IHB
Phone: (714) 992-4645
E-mail: lindieend@sbcglobal.net

Treasurer, Public Service, Membership

Gene Thorpe, KB6CMO
Phone: (714) 680-4258
E-mail: kb6cmo@juno.com

HDSCS

April Moell, WA6OPS
Phone: (714) 879-6895
Emergency Coordinator, HDSCS
E-mail: emcom4hosp@aol.com
www.hdscs.org

T-Hunt

Joe Moell, K0OV
http://www.homingin.com
E-mail: homingin@aol.com

License Trustee

Albert Solomon, AG6OF
Phone: (714) 476-9638
E-mail: albertsolomon18@gmail.com

Directors

Richard Belansky, KG6UDD
Phone: (714) 970-6385

Walter Clark
Phone: (714)-882-9647
E-mail: walterclark@roadrunner.com

Robert Gimbel, KG6WTQ
Phone: (714) 657-2862

Larry McDavid, W6FUB
Phone: (714) 630-5672

Albert Solomon, AG6OF
Phone: (714) 476-9638

Director & Newsletter Editor

Paul Broden, K6MHD
Phone: (714) 871-9478
E-mail: pbroden@sbcglobal.net

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 2018 FRC Board meeting was called to order at 7:30pm by Walter Clark.

Others present: Treasurer Gene Thorpe; KB6CMO; Secretary Linda Endsley KJ6IHB. Directors; Paul Broden K6MHD; Richard Belansky KG6UDD; Member: Cheryl Thorpe KE6TZU; Visitor Irene Broden.

June minutes were approved.

Treasurer's report: Checking \$4,088.62, Savings \$2,607.58

Old Business:

The Christmas dinner will be on December 14 at Marie Callender's.

New Business:

No memberships were received.

Next meeting bi-laws/responsibilities for Secretary/Treasurer/Vice President will be discussed.

Next board meeting: 5 SEPT 2018

Adjourned at 7:36 pm

Submitted by Linda Endsley KJ6IHB

Activity Reports of the Fullerton Radio Club (Technical Advisory Group) for August 2018

Tom Fiske corrected something he claimed last month about the Joe Taylor digital modulation techniques he has been playing with. The FT-8 mode turns out wasn't working right. John Klewer and Tom Curlee came over to look over his shoulder at what he's doing and revealed the facts of life to Tom. After they left, Tom figured out that the computer had too many programs open. This effort is on 20 meters where Tom was using 60 watts to get DX contacts. With FT-8 finally working he realized that JT 65 is more his style. Tom (and others) pointed out that the newer FT-8 is designed for EME and for people who like to complete a contact quickly. The JT-65 is a leisurely 60 seconds per contact. He felt honored to have Tom and John come over.

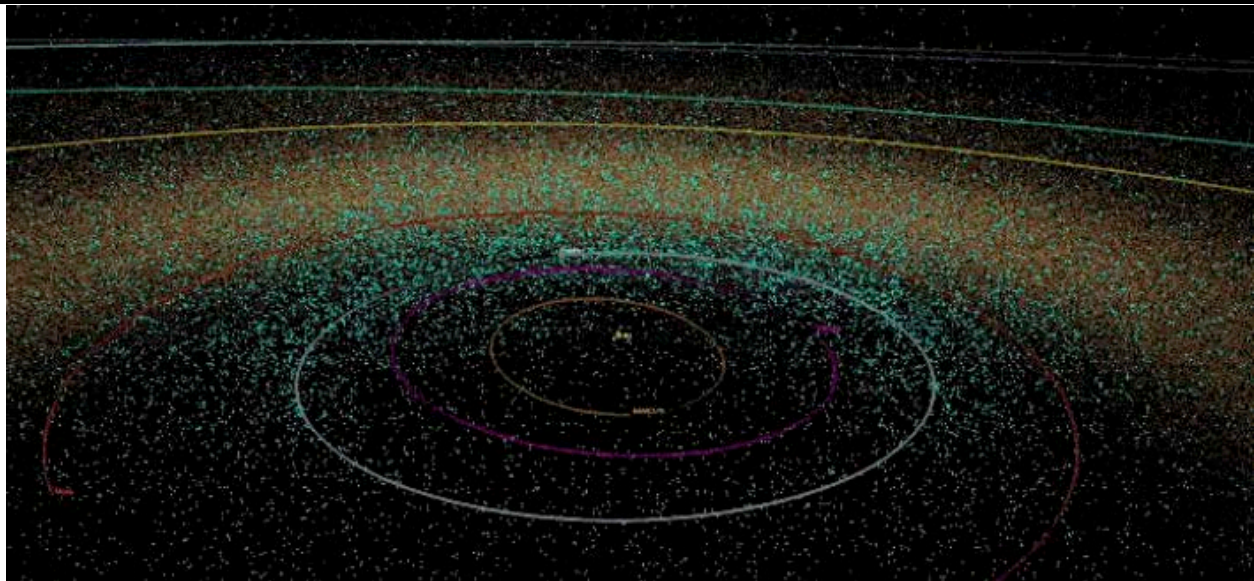
Rich Belansky started his activity report with a comment about needing an antenna like over Raytheon. And mentioned that 15 meter band is dead. That led to a discussion about the ionosphere and the sun. Apparently the 15 meter band is most sensitive to the health of the ionosphere and that's why that band is so much fun. Sometimes it can be a hot line to the world. Most of Rich's activity however, was on gathering modules for his nuclear particle detection project. It turns out that there's so much equipment that is unique to pulse detection that during the cold war nuclear research, a standard bus was invented and multiple companies sold instrumentation in the form of modules to go into the various slots. The name of the bus is Nuclear Instrumentation Module or NIM. He's gathering these used from eBay. They mostly have to do with processing pulses from Geiger tubes, ionization gauges and photomultipliers. Larry McDavid mentioned that similar bus is a Tektronix standard. This form of instrumentation might be a future topic as a tech talk at the FRC meeting.

Walter Clark demonstrated one of his vertical takeoff R/C planes. It crashed into Dick Bremer's leg but the plane was all right. The blood was easily wiped off. I talked about the modulation standard used by the R/C flyers today. I also demonstrated a modification of a motion sensor I built several years ago. An audio amplifier a power supply and a speaker was moved into the round tube that was the main structure of the unit. It is thus self-contained instead of being bound to a table that held some standard test equipment. The table of equipment was actually more sophisticated than what is now self-contained but it is more fun wondering about outside pointing it at moving things. It reveals a moving car by a tone which is higher pitched with higher speeds. It has a beam width of about 2 degrees and a range of about 100 to 200 feet for cars. I'm rather hoping I can "hear" the return for an airplane landing at Fullerton.



Tom Gaccione gave us a report on the latest exciting stuff from NASA. Here's a picture of the 18,000 asteroids NASA tracks. Each one of these specs has its exact orbital parameters stored somewhere in NASA. Tom provided a gif file which is also available on this link which plots all those orbits in a brief video:

<https://www.jpl.nasa.gov/news/news.php?feature=7194>



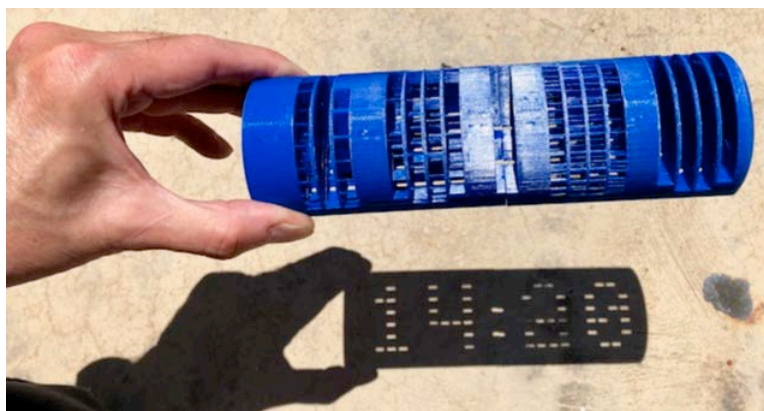
Tom said that NASA is something of a consultancy for the Forest Service on the subject of fire behavior given the terrain, local wind and long term climate. There was some discussion led by Tom on a dangerous fire condition called a firenado (rhymes with tornado). NASA IR imagery plays an important part too. Of most interest (to the TAG members) was his discussion on Bose Einstein Condensate which NASA can make with temperature only 100 nano kelvin above absolute zero. NASA's interest is that zero G as host to these strange object should make their observation more valuable. Here's more on Bose Einstein Condensate:

https://en.wikipedia.org/wiki/Bose%E2%80%93Einstein_condensate

Brooks Kachner reported that his hard disk crashed and with it much of the long term data he's been gathering on AA battery performance. That is, which batteries are best for the money. What make his research unique and why it is taking so long is that he's evaluating very low current discharge rates. Most battery studies discharge the batteries far faster than how they are normally used. We have to wait several more months to get what might be very valuable information.

There was quite a long discussion on battery leakage and means to prevent it and how to recover from it. Both Walter and Larry store batteries next to those gadgets which are seldom used such as an anemometer. His garage is finally starting to be back to normal. He will be buying new shelving and he will be buying a new lathe and milling machine since the insurance declared them to be a total loss.

Bill Webb continues his exploring 3D printing. He brought as an example of an extremely complex structure; a sundial which reveals digital numbers. There's many combinations of hours and minutes with a resolution of 20 minutes. He pointed out that most people, especially the press, miss the important fact that 3D printers are slow machines and the plastic isn't cheap. Making molds is appropriate but molds for production are metal, not plastic. Bill pointed out that structures like the digital sundial is the more appropriate application for 3D printing the making of exceeding complex structures.



Bill also showed off a program he has for his 3D printer that makes lithophanes. An image is formed by inscribing a structure on material that is somewhat absorbent of light. The thicker the material, the darker. He pointed out that it is an old process which was of course done by hand originally.



Larry McDavid began his activity report with more on the subject of 3D printing. Some members of the Southern California Home-shop Machinists are getting involved with rather expensive 3D printers. He followed up Rich Belansky's discussion on buses and Brooks' discussion on batteries. He brought an inventory of his battery usage: 57 AA cells are in use by some gadget or other. Only 14 AAA cells and 11 9V batteries. He has only 8 C and D cells. He also shared with us his latest experience with cataract surgery. This is his second.

Ben Yu KK6RMX has been absent for more than a year. He's been renting a place in Brooklyn while paying the mortgage on a house in Fullerton. In New York he's a principle in a software company that has to do with fitness. There was a fascinating discussion on housing costs there vs here and transportation, there vs here. Apparently Tom Gaccione has experience in New York and contributed a lot to the discussion. Ben didn't have a car while in New York and talked about how different it is when your entertainment and even eating is connected to you by a subway instead of a car. It is a different lifestyle, a different culture even.

Ben talked about his professional use of Google's "the cloud." The discussion was a bit technical but Walter was impressed by how much he knew about the subject and asked if that subject would be appropriate as a talk for the Fullerton Radio Club someday.

On ham radio as a hobby, he mentioned that you can indeed wander around on the sidewalks between sky scrapers with your two meter handy-talky and make some real contacts. Apparently there are plenty of amateur repeaters on tall buildings. He's getting very interested in both mesh networking and repeaters. (2 meters and 440) He's on the look out for Ubiquity brand wireless routers because he heard they can be converted to the ham bands. The discussion that followed from the more experienced hams in the group was about how many, perhaps too many repeaters there are. This may discourage further interest on Ben's part.

Steve Borchert is a friend of Walter's from where they worked together up until about 2011. Steven carried on the discussion about "the cloud" and said it is of most use to the average computer user as a form of back up. He led a discussion on various versions of Microsoft Word as well as others that are somewhat compatible. Walter's biggest complaint was how hard it is to work with pictures. He said that's hard in all word processors. He and Larry McDavid suggested that Power Point is the only thing that easily handles pictures and text.

Dick Bremer was involved with National Night Out where policemen, and firemen show off their equipment and of course, the man-eating police dog is the highlight there. His involvement was with CERT and he and a radio

oriented fellow CERT member made some ham contacts to demonstrate to the audience there how amateur radio can support emergency situations.

Dick also brought up a problem the FCC is having with Baofeng brand radios. Apparently non-hams have discovered they can program them to change frequencies to put them in the ham bands.

Batteries, Batteries, Batteries!

I have just replaced all the power cells and batteries used throughout my house and was surprised to find one smoke alarm that simply does not work. I can't get it to self-test or react to smoke. The 9-volt battery was replaced first before the testing. It was an old, perhaps my oldest, smoke alarm but it gave no warning that it had failed.

These alarms sit quietly on the ceiling and you expect them to work. I replace the 9-volt batteries once a year and expect that to be sufficient. This failure was unexpected so I recommend you test your smoke alarms.

When I went looking for a replacement, I discovered that California warehouse stores no longer sell smoke alarms with replaceable 9-volt batteries; all the current units seem to have a "ten year" Li cell that cannot be replaced. All my smoke alarms are ionization type, except for the ones powered by my home burglary/fire alarm system, which are dual ionization/photoelectric detectors.

I looked at Amazon and found a dual-detector smoke alarm that uses two AA cells:

https://www.amazon.com/gp/product/B00O8MVW0S/ref=oh_aui_detailpage_o00_s00?ie=UTF8&xpsc=1

Confusingly, "Frustr Free" means "frustration free." I still don't know what that implies! This is my first smoke alarm that does not use a 9-volt battery; those batteries have become quite expensive. I'll try one of these new smoke alarms and see how I like it.

Anyway, it would be wise to actually test your smoke alarms!

Finally, if you make a list of cells and batteries used around your home, you will be surprised how many are used! I have 50 AA cells, 14 AAA cells, 8 C cells, 8 D cells (not counting flashlights) and 12 9-volt batteries in use.

Remember to take your used cells and batteries to your HHWCC! My nearby HHWCC provides residents a free used-battery storage bucket; I bring it in, they dump it and return the bucket. Old cells and batteries are toxic and should not be sent to landfill waste.

Larry McDavid W6FUB

September BOARD MEETING

Open to all Club members

Marie Callender's Restaurant

126 Yorba Linda Blvd., Placentia

First Wednesday of each month.

Next Board Meeting

September 5, 2018

QSO and dinner; 6:30 PM

Meeting: 7:30 PM