

Pleasant Valley Amateur Radio Club Update

July 30, 2021

Hello All!

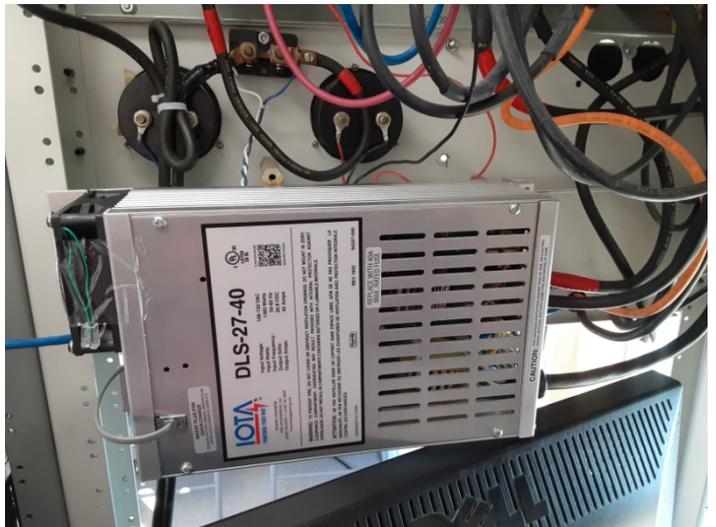
We have had some great system updates I would like to share with you.

Sulphur Mountain

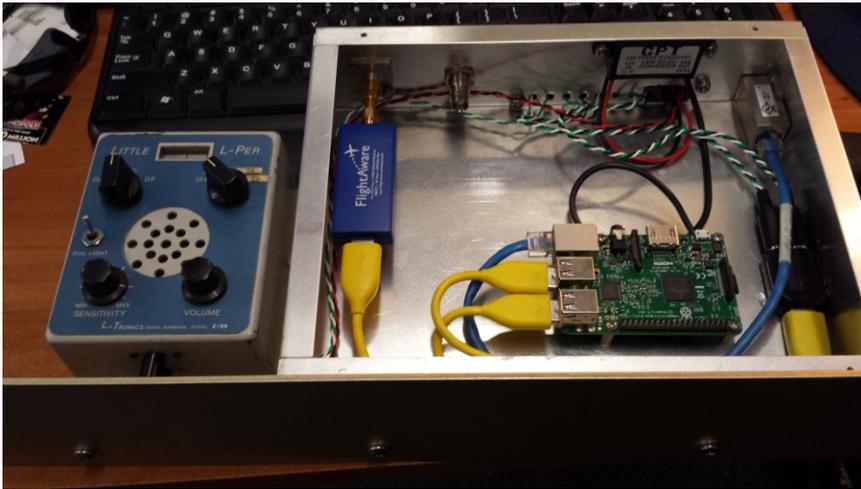
The new battery backup was installed earlier this year and is performing very well. We have had a few Edison outages since the new batteries were installed and the system has maintained uninterrupted operations. The only indication I had of these outages was the status emails I received from the radio site monitor.

The battery bank is maintained from two independent charge systems, a 1 KW solar system and a 1 KW AC power system. I spoke with the engineers from Morning Star Solar and IOTA Engineering, they both agreed that having these two parallel charging sources would not present a problem.

After monitoring the voltage rates for some time I found a slight charge variation that I could not account for. I have come to understand each of these 3-stage charging systems have slightly different charging set points and at times would not charge in unison. To correct this slight charge differential, I isolated the two charging systems using two poles of an industrial 100 amp Alan Bradley relay. During an Edison outage the battery bank will remain charged from the 1KW Solar system. This site monitor will alert me should both charging systems fail. Monitoring the battery terminal voltage these past weeks shows a more stable battery stable float voltage. The battery system will maintain system operations in excess of 36 hours without a charge.

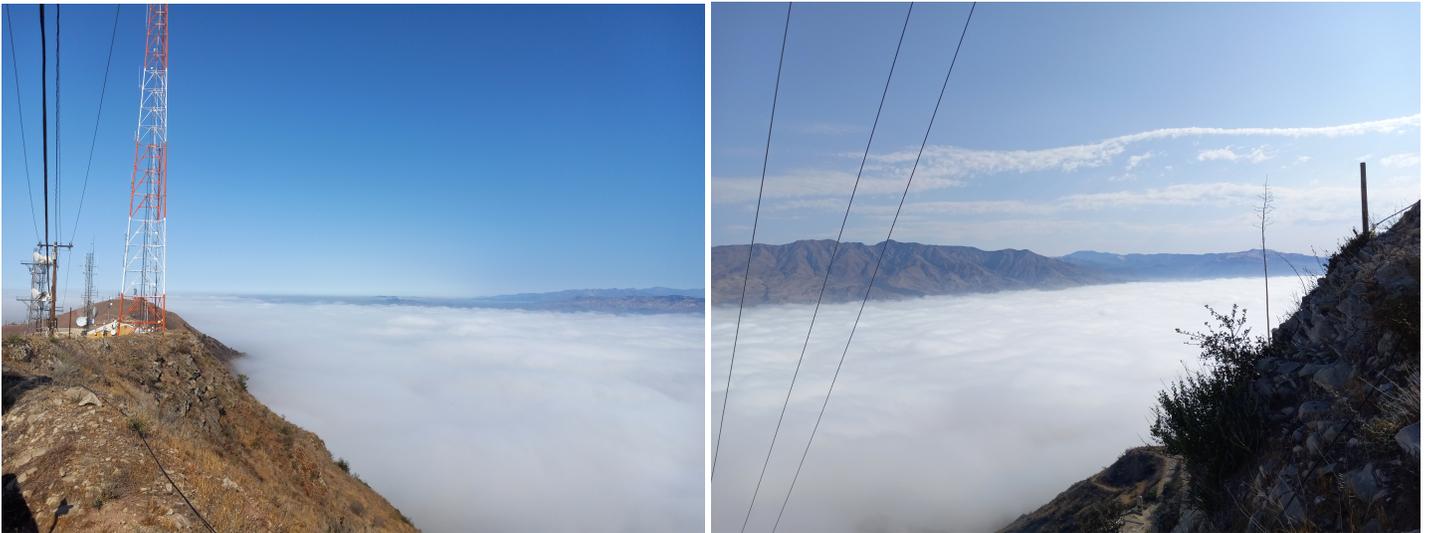


The Sulphur Mtn ADS-B Aircraft transponder tracking system is down. The SD memory card of the Raspberry Pi used for this receiver has again failed. This is the third such failure of the memory in 3 years. We believe it's the constant writing to the SD card that causes these failures. It's like walking on the same piece of carpet all the time and that spot wears out. Even though the newer SD card technology provides a longer life to the card they are still not infallible. In this rebuild we be installing a Solid State USB drive to take on the task of the constant data writing and leaving the SD card to the task of the initial program load only. Hopefully we will not have to address this issue again.



South Mountain

On Friday July 16th the team made a visit to South Mountain to install new mesh network hardware and make a frequency change for the PVARC VHF repeater. As we were going through Santa Paula and going up the mountain we were in scattered rain and heavy clouds until we reached the mountain top. From the top you could imagine you were on an island overlooking a vast sea.



The mesh network portion of the project was not just an upgrade but rather an addition to the network. Two new access points were installed plus two backbone links to fully integrate these network nodes into the system. The new north mesh access point provides coverage into Santa Paula, Fillmore and parts of Piru while the new southeast access point provides improved coverage into Moorpark and Thousand Oaks.

The team laid, trimmed and glued over 150 ft of PVC conduit to the network node location literally over a goat trail. Laying this PVC conduit was a major task. With the PVC conduit laid the pull string was vacuumed through and four 200 foot lengths of network cable were spooled out and prepped to be pulled through. It took some time and a lot of coordination and a lot of cable lube but the team got the cables through the PVC conduit leaving about 25 feet at each end for terminations.



The network connectors were installed at the remote network location and plugged into the network lightning protection panel. Once completed the remote team members departed the hilltop. Excellent work by all!

Eric and I stayed to install the network connectors at the main building and power up the new installation. With the connectors installed, the switch was turned on and, but 'nothing'; the remote network equipment was not powering up. Eric trudged back and forth a few times to confirm the connectors were crimped properly at both ends. We had no idea what was wrong or what to try next.

Feeling defeated we decided to finish up, try to understand what happened and come back another day. That evening I was speaking with Orv W6BI and he told me of a similar issue with a network installation he had done in Santa Clarita. That installation used a network lightning protection similar to what I was using and Orv had found these units had no network pass-thru connection for the POE power. I had some spare protection units so I installed one in a bench setup and, and, and, 'nothing'. So out came the ohmmeter. I also found that these units did NOT pass the required POE voltage to the radios. That was my ah-ha moment. After some discussion with Orv, we decided the best course would be to temporarily install simple Cat5 female to female adapters in place of the lightning suppressor units to get the equipment operational.

Sunday July 18th Eric and I made a return trip to South Mountain. We started at the remote Mesh location and with battery and laptop in hand aligned the backbone dish antennas and confirmed the network nodes were locally operational. With alignment completed we installed the Cat5 female to female adapters, packed up and headed for the Main building. This time when we powered up the switch all of the remote network units came up. The backbone link to Camarillo and Chatsworth Peak were up and passing traffic. With all items powered up and remotely accessible we packed up and came home. The nodes will be fully configured the first week of August. Once configured, Orv W6BI will send out an update as to the coverage pattern and frequencies of the two new Mesh access points.

VHF South Mountain Repeater Status

Finding a viable VHF frequency for the PVARC South Mountain VHF Repeater is proving to be a challenge. South Mountain has a surprisingly larger coverage area than I would have expected. South Mountain is reported as having an S-8 signal in Costa Mesa in Orange County, and the coverage east 110 miles away is so strong in Redlands that it interferes with a local co-channel repeater. It may take some time but I am determined I will find a usable frequency for the PVARC VHF South Mountain Repeater

I want to thank everyone for their service to this project. This installation could have not been possible without the dedication of the Team members that busted their backsides to make this so successful. If you see these folks or talk to them on the radio please also thank them for their time and expertise.

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James Norton KB6JWN
Mark Swaney KD6ASL
Jay Zatz WB6YQN
Eric Satterlee KG6WXC
Mike Lee K6MJU and Son

Please contact me if you have any questions or concerns.
Thank you all for your time

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