



EOSS Meeting Minutes

Tuesday April 14, 2020

Online via Zoom

Call to Order: Tom KE7KCK called the meeting to order at 7:00 PM. There were nineteen attending via Zoom.

Previous Meeting Minutes: Meeting minutes for March 2020 are available on the EOSS web site for review. Tom, KE7KCK, directed attendees to review minutes online. With no additions or corrections, passage of March's minutes is accepted as written.

Treasurer's reports: Rob, NØRPF, reviewed checking, savings, and PayPal accounts. Rob said that an additional donation in memory of Merle KØYUK will be moved to the special projects fund. Tom KE7KCK will test link for 2020 mileage claims setup by Rob NØRPF.

Tech Committee: Mark, KCØD, provided the following summary for the tech committee. Thanks, Mark.

EOSS- 298 Qual Flight:

- ADS-B
 - Steve made last minute modification to serial port to allow a USB dongle to be connected to change the SQUAWK code.
 - Worked perfectly, reporting altitudes just fine above 65K'
 - No complaints/comments from the FAA
 - Steve has possession of the ADS-B and Bernadette is still interested in EOSS flying this at every opportunity.
 - Price reduced to \$2500 vs. ~\$4000

- KCØD-1 Firmware Qualification – worked fine
 - Plan to load this firmware on KDØD-2, KCØD-14 and KCØD-15

- AEØSS-13 (Prior GPS Issue) worked fine, returned to flight inventory.

EOSS- 298:

- **Issue:**
 - KCØD-14 had difficulty recognizing the release code. I tried multiple times, as did Steve. We finally got it but it was cut down late.

- **Assessment:**
 - Steve added about 15' of flight string between the 'top' and the parachute.

- This was just enough distance to cause communications issues between the top and the release.
 - When the top has communications issues, it disconnects and reconnects (pairs) with the release. This process 'hangs up' the release for a second or two while the connection is made.
 - During this time, the payload cannot decode DTMF, so it was missing DEMF digits. This was determined by looking at the log file post-flight.
- **Resolution:**
 - Rewrote the 'pairing' routine so that it does not hang while establishing the communications.
 - Keeps track of release event - either an accelerometer burst detection, or DTMF command, and sends the release command immediately on successful pairing with the release, versus waiting a second or so when the command is un-queued normally.
 - Designed a new Bluetooth adapter board that can plug into both the TNC board and the Release board that allows the use a larger Bluetooth antenna (ie more gain) vs the grain-of-rice size antenna on the boards we are using today. The new board has been fabricated, it just needs to be built and tested with a new antenna. This should give us better signal strength between the top and the release.
 - The new firmware and BT board/antenna will need to be requalified this summer since the firmware is a significant change.

EOSS-297 – KCØD-2

- **Issue**
 - GPS failure about ½ way through ascent
 - Tried remote GPS reset and payload reset commands remotely, neither fixed the GPS.
 - Continued to send Status beacons with tracking tones
 - Worked when power cycled
- **Assessment:**
 - The 2" coax between the board and the antenna was taped down to the board (on top of the GPS unit).
 - Found in the past that this can cause intermittent loss of GPS
 - Reason is unknown, but guessing that the coax is picking up noise from the board which is blocking the GPS signals.
- **Resolution:**
 - The coax was un-taped, moved up and to the side of the board, and re-taped there. This should resolve the issue.

Launch Team: Larry, NØNDM, has nothing new at this time. Larry will evaluate conditions as we get closer to May's proposed launch.

Ground Station: Jeff, N2XGL, reports ground station is in good shape. Jeff N2XGL and Jeff N6BA are working on updates to the EOSS Trackers dev branch and will email everyone when it is ready.

Track and Recovery Team: Marty, WAØGEH, say nothing to report at this time.

FAA: Russ, KBØTVJ, check with FAA after last month's question regarding two ADS-Bs on a single flight string. Russ reported that the FAA does not have an issue as long as each transponder has its own tail number.

PPFMA : Don, WA9WWS, gave the group a presentation of changes coming in spring of 2021 for the 448.45 and 146.97 repeaters. The National Forest Service is constructing a new visitor center on Pike's Peak and will mandate a new location for the PPFMA antennas. The new construction will cause a loss of coverage to the northeast of about 40 degrees. The area between Deer Trail and Limon Colorado will be in the shadow. The PPFMA is requesting a use permit for the north overlook as a secondary antenna site to improve coverage in the affect areas. Don, WA9WWS, said they will be looking for help later in the summer to do propagation tests. Marty, WAØGEH, offered support of EOSS to help. Steve, KØSCC, offered the use of his tactical repeaters to place at proposed antenna sites to assist in propagation tests. EOSS would like to thank the PPFMA and Don WA9WWS for the information and support provide to EOSS in the past.

NDIA Flight Recap: Jim, KCØRPS, reported that the NDIA flight EOSS-297 went well. The flight was cut down at 85,000 feet and landed eleven miles short of the prediction in a bog. A local farmer with hip boots volunteered to wade into the bog for the recovery. Norm, KEØPAM, produce a video of the flight and a link has been posted on the EOSS web site. Jim, KCØRPS, reported that the high school students in Pennsylvania were excited to share a video of their experiment of Tardigrades that survived their trip to the edge of space. Jim is working on a way to distribute the video.

Upcoming Flights: Jim, KCØRPS, says that Randy Owen of Metro State is hopeful that restrictions will be lifted prior to their scheduled Intro to Space flight on May 23rd. If not, they would like to reschedule for August 29th.

Bernadette, KEØGKI, still looking at May 30th for their Gateway to Space Flight.

Marty, WAØGEH, reported that GPSL is up in the air for now. Status of meeting location and hotels are unknown. There have been some discussions of doing a virtual launch each from our home locations and sharing via zoom.

Tom, KE7KCK, reported that the BIRST program is cancelling their United Launch Alliance flight and would like to combine those payloads into a heavy balloon. This will require an additional flight day. Jeff, N2XGL, said that the BIRST program is still discussing how to proceed.

Russ, KBØTVJ, will check with NOAA to see if they are still interested in a flight since Aprils flight was cancelled due to lock down.

Jim, KCØRPS, says the remaining schedule is for a COSGC flight on July 25th, NDIA flight on October 3rd, Metro State on October 31st, and Gateway to Space on November 7th.

COVID-19: John, KCØL, expressed concerns of safety for EOSS members and the community at large as we learn to navigate in our new environment of COVID-19. John, KCØL, says that many of our members are in the high-risk category. Our payloads typically land in areas where the population has a very low exposure to the virus and may not be welcome to trackers knocking on their doors. EOSS needs to learn how to gauge community sentiment in these areas. Don, WAØWWS, suggests participating in the daily COVID-19 nets to get a feel how things are in areas we expect to operate. Tom, KE7KCK, will schedule an interim meeting in a couple weeks to discuss further EOSS's procedures to deal with COVID-19.

EOSS Zoom Account: Tom, KE7KCK, says it is time for EOSS to get its own Zoom Account. We have been using JSAV's Zoom account provided by Rob NØRPF. Tom will look into getting the account. Cost is around \$150.00 per year.

ADS-B Purchase: Mark, KCØD, asked if EOSS should proceed with purchase of an ADS-B unit. We have had a successful flight with CU's unit and the price has dropped by \$1500.00. Mark added that Bernadette, KEØGKI, has said that EOSS can use the CU ADS-B whenever needed. Doug, NØIX, suggests we hold off on purchase until flights pickup and we see how COVID-19 affects our operations. The group agreed.

Meeting adjourned at 09:00 PM

Minutes prepared by David Lanning, Secretary.