

Abstract Submitted
for the 4CS20 Meeting of
The American Physical Society

Payloads for the Colorado Space Grant Consortium¹ MARK HELTMAN, ROXIE SANDOVAL, NIKOLAS CONMY, CHARLES HAKES², None — A payload was built and flown during the summer of 2020 for the Colorado Space Grant Consortium DemoSat balloon. The payload included two experiments, the first one was to see which color white or silver versus black was better at keeping a low internal temperature. The second experiment was to use a Peltier device to generate power by heating the device using solar insolation. To support the experiments there were two other systems the temperature management system (TMS) and the power management system (PMS). Finally, there was also a Mobius camera and a GPS to record the flight. From the experiment, white was determined to be better at keeping a payload temperature cooler, and black did sustain warmer temperatures. However, the silver temperature sensor did not record any usable data during the flight, so therefore its results were inconclusive. Once landed and retrieved, there were noticeable temperature difference between the boxes. Silver was quantifiably cooler than white when compared to black. During the flight, the Peltier generated an average of 4.6mV. The payload performed as expected, the only failure was that the GPS did not turn on.

¹Colorado Space Grant Consortium

²faculty advisor

Mark Heltman
None

Date submitted: 30 Sep 2020

Electronic form version 1.4