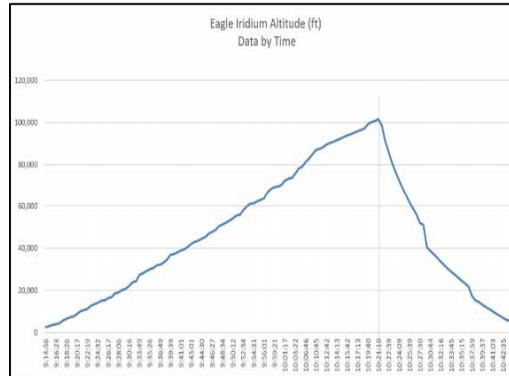
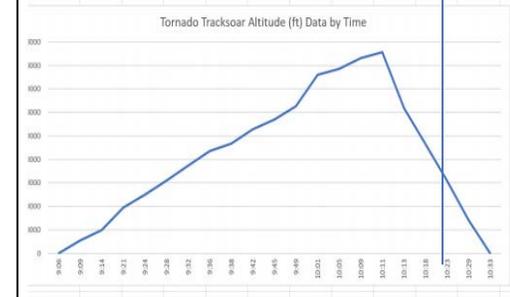
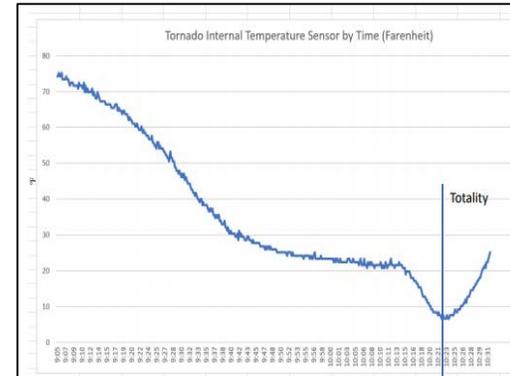


North Medford NASA High Altitude Balloon Project

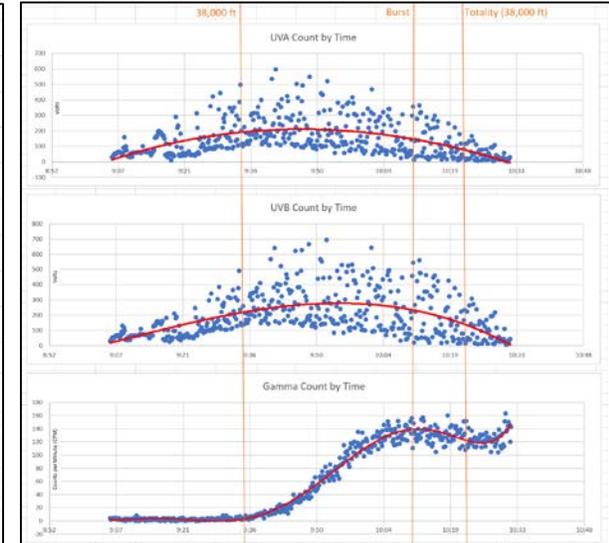
Abstract: We are one of 57 teams across the nation that participated in the NASA High Altitude Balloon Project. Not only did we launch the common NASA payload, our team designed, engineered, and constructed our own payload named "Tornado." Our own team's additional goals included photographing the umbra, and learning how UVA, UVB, gamma radiation, and other atmospheric conditions are affected during a solar eclipse. We met all of our team goals as well the NASA goals. Furthermore, we also participated in a project conducted by the NASA Ames Research Center and analyzed by Cornell University; this project involved attaching bacteria samples to our payload in order to test their survival in the upper atmosphere and the results will tell us about the Mars atmosphere.



The Eagle balloon soared up to 101,437 ft. before it burst thirty seconds before totality.



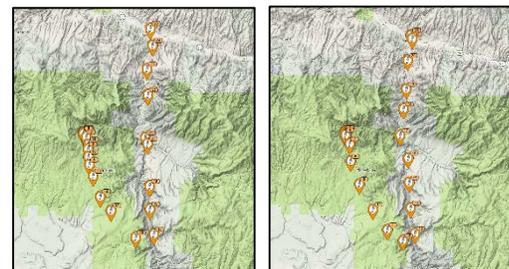
The internal temperature of the Tornado payload was recorded during the flight and our collected data shows that the temperature was the lowest during totality. As seen above, on the lower graph, our balloon burst ten minutes before totality. ☹️



One of the experiments conducted was on UVA, UVB, and gamma radiation in the upper atmosphere during a total solar eclipse. The graphs show that UVA and UVB decrease, and gamma increases as totality approaches.



Both of our payloads were able to capture the umbra moving across the Earth. The picture in the middle is a stitching of 22 umbra images made by Colin White. The rightmost picture shows the attachment of the bacteria samples to the bottom of the Tornado payload.



Tornado's path Eagle's path

The paths of the balloons recorded by the SPOT tracker. Tornado traveled 11.7 miles, and Eagle 12.1 miles respectively.



One of our mentors, John Bunyan stitched together 11 photos of the corona that were taken from a Takahashi FSQ 106 511mm, using a Canon SD Mark 3.

Conclusion: Our team successfully launched two balloons and streamed live video to NASA television, along with collecting radiation data during the total solar eclipse from the upper atmosphere. Cornell researchers are currently interpreting the data from our Astrobiology Experiment. In addition, our team participated in the mega movie project and captured extraordinary photos of the eclipse from the ground telescopes. Now, we are at the end of this two year journey and being able to see all our hard work pay off during the two short minutes of the eclipse, has made it all worth it.

