

HAB 2019 – Color vs. Altitude



METROPOLITAN
Community College

INTRODUCTION

For our HAB ballooning experiment we wanted to try to replicate a video that was found online where a group sent multi-colored pieces of plastic deep underwater to show how the color changed compared to how deep they went.

From our studying in physics we found that light that travels as a wavelength is affected by the medium it travels through. Water was used in their video, and we wanted to see what would happen when we went the opposite direction. What would happen if we video taped similar colored pen caps up to 90,000 ft. Would they stay the same, change drastically, or find ourselves somewhere in-between.

METHOD

We hypothesized that the colors would change slightly due to there being less atmosphere at the higher altitude. We also hypothesized that the change wouldn't be as severe as the underwater experiment.

What we decided to do was affix a multitude of pen caps to the front of our capsule, and point a wide angle camera at the caps to capture the change in color as altitude increased. We couldn't acquire a color meter so we decided to rely on photo comparison to get our results.

RESULT

Our results were fairly in line with what we expected. We didn't expect to see a huge change, but hoped we would. The change in color was slightly noticeable but not as pronounced as it was when submerged in water. There change in wavelength absorption just wasn't as severe at altitude as water is. We also had technical difficulties and only received video up to 60,000 ft, so we didn't get to see the full spectrum of our experiment.



CONCLUSIONS

While we were disappointed with our technical difficulties we were excited to see the results. We had some really good shots of the ascent. Our build quality was good enough to withstand the violent nature of the ascent, descent and freefall. We did see a slight change in color from base elevation to our highest recorded altitude of 60,000 ft.

REFERENCES

Roberg, K. (2017, December 17). Video Shows How Scuba Divers See Colors Change Underwater. Retrieved May 5, 2019, from <https://www.scubadiving.com/video-shows-how-scuba-divers-see-colors-change-underwater>

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