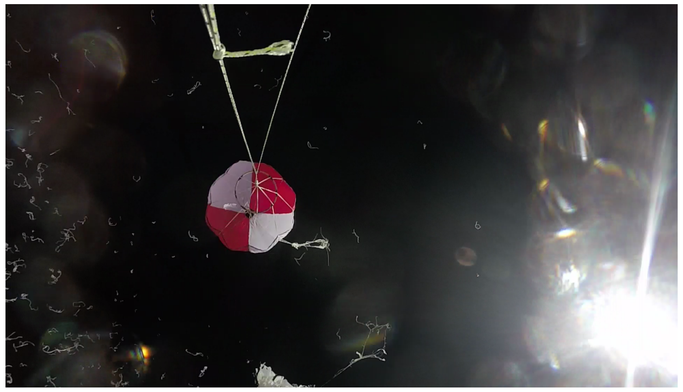
Balloon Speed Analysis

METROPOLITAN Community College

INTRODUCTION

We had to think of an experiment to do for a high altitude balloon launch that we had the opportunity to participate in as part of our physics class. We decided to determine at what time the balloon burst during the launch and when the parachute started to take effect by looking at the speed of the balloon pods during the flight.



The parachute seconds after the balloon burst.

METHOD

Using a GPS, we recorded the location of the balloon. Using that data, we were able to determine its vertical speed. By looking at the vertical speed we would be able to tell when the balloon burst and when the parachute started taking effect.

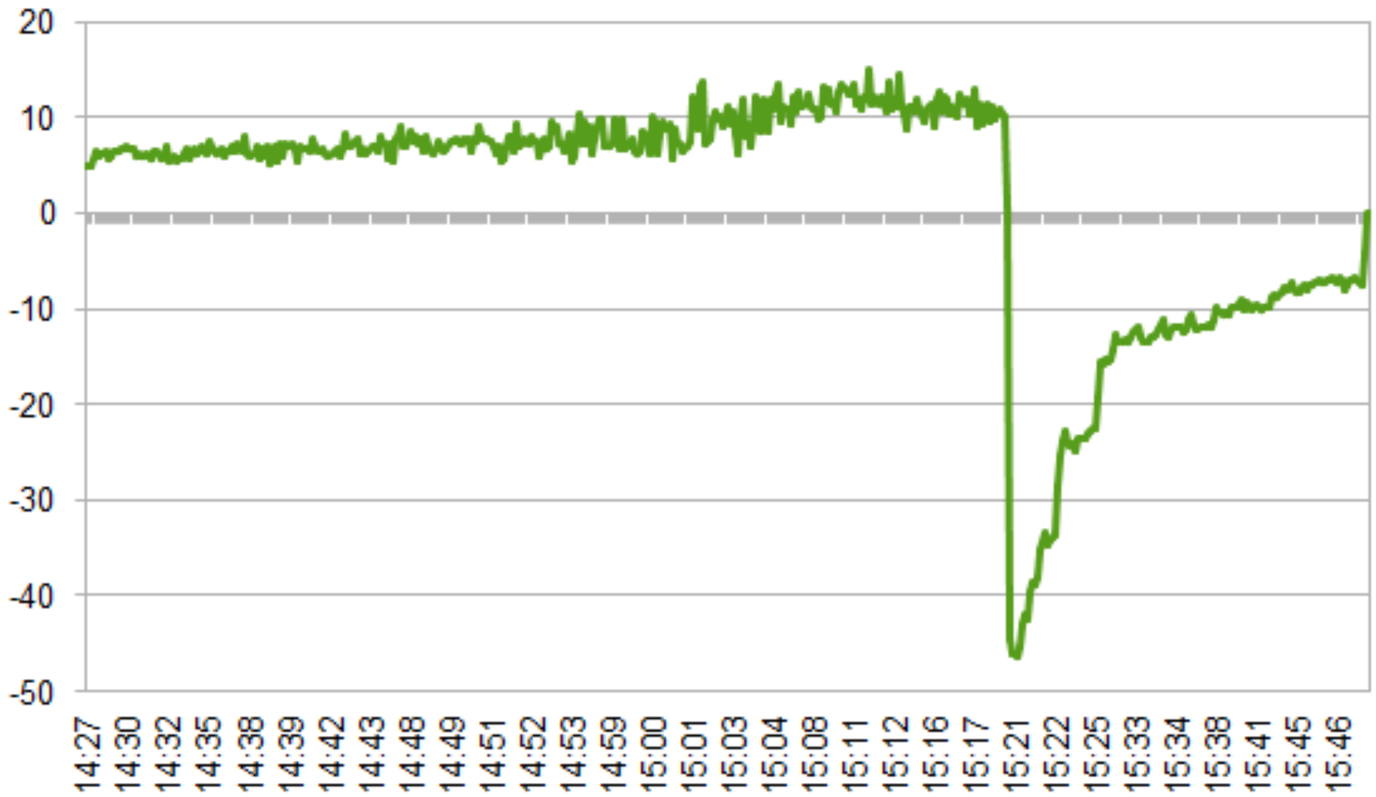
RESULT

As the graph of the balloon's vertical speed shows, the balloon burst around 50 minutes after launch. (The really big drop in speed is when the balloon burst.) The gradual slope downward after that shows that the parachute started taking effect immediately thereafter.
The vertical axis is in units of meters per second and the horizontal axis is the time at which the balloon was going that speed.

CONCLUSIONS

Using the speed of the balloon, we determined at what point the balloon burst and when the parachute started effecting the descent of the pods. Interestingly, looking at the picture on the left, the parachute immediately opened up; despite being in near-vacuum. The farther the pods fell, the more the parachute effected the speed because of the thicker atmosphere.

VERTICAL SPEED



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