

Testing the GPS

Description of problem

Accurate tracking of the balloon and payload is essential for the successful completion of the scientific investigations

Activity

Note: for setting up the CubeSat and downloading and interpreting the data refer to the document *Setting up and Using the SD Card*

1. Open google maps and locate your school.
2. Either print out the map of your school, or use the snipping tool to select your school buildings and paste the map into a drawing program.
3. Set up the SD card as described in the above document.
4. Turn on the electronics and GPS on the CubeSat.
5. Walk around the outside of the school buildings for about 10 minutes with the CubeSat. Stop at different spots, marking the time and place on your map. Transfer your findings to Google maps.
6. Download the data from the CubeSat and export it into Excel as described above.

The next part of the data analysis is to compare the positions you plotted by hand with the GPS measurements from the CubeSat.

7. The GPS file takes a reading once a second, but you do not need to plot every measurement. Look at the time stamp and find a measurement recorded by the GPS at the time you took and plotted your initial measurement. Remember the time is UTC (Universal Coordinated Time) and you will have to convert it into local time).
8. Open Google maps again.
9. Copy the latitude and longitude into the map in the format latitude,longitude: e.g. -35.083084,138.54605 and press search.
10. Zoom into the map until you can see your school in detail.
11. Plot the point on your school map shown in Google maps in a different color to the first set. Indicate the time.
12. Do this for each of the positions plotted.

Do the positions given by the GPS match the positions you initially plotted?

Conclusions

Present your findings and recommendations on the effectiveness of the GPS.