Analysis of the Data

The team leaders and sub-team leaders may allocate the investigations to the respective groups, although the groups who designed the investigations in lesson 2 should continue with their investigation.

Investigating Land Use under the flight path

Use the *Downloading and Using the Data* information sheet to produce a diagram that plots the flight path of the balloon.

Download the video from the camera.

- As part of the investigation, one or two groups may produce a 2 to 3 minute edited video of the flight showing the flight highlights (launch, selected images, balloon burst and parachute descent)
- Use the stills/video from the camera(s) and the timestamps on the photos to match the path with the images. Place selected images on the Flight Path to illustrate the land use under the flight path. The best images to use in this case are from a downwards facing camera if available.

Note: For the side facing cameras, consult with the distance to the horizon teams to estimate the distance of the features from the flight path, and place them in the appropriate position on the map.

Prepare a report describing the land use under the flight path.

Distance to the Horizon

As previously designed in the *Distance to Horizon* activity, use the downloaded altitude data to graphically represent your results of how distance to the horizon varies with altitude, and synchronize selected images using the timestamp on the image, and the match with the altitude measured at that time.

The land use group(s) may need assistance in determining distance to land features picked up in the side facing cameras.

Prepare a report describing the land use under the flight path.

Atmospheric Investigations

Use the download the data as described in the *Downloading and Using the Data Information Sheet*. Once you have the data in the Excel spreadsheet, you can produce a range of graphs such as altitude vs pressure, and altitude vs temperature. Also, on the graph indicate the atmospheric layers previously identified.

Report on the changes of pressure and temperature with altitude. Are there any noticeable changes as you go through the atmospheric layer boundaries?

Other Investigations

The data includes the speed of the CubeSat and also the course directions. It could be useful to graph the speed vs time to show the changes in speed during the launch and decent phases. Acceleration is speed/time. This could also be graphed to show the changes in acceleration during the launch, burst and parachute phases.