Mission space lab JBVK report

Date June 2022

Team name: JBVK

Chosen theme: Life on Earth

Organisation name: n/a

Country: England

Introduction

We have aimed to investigate if clouds have a pattern of cover depending on the time of day. This will be useful for weather forecasters (such as the met office).

We have predicted multiple things by different members of JBVK;

1. There will be more cloud in the morning than the afternoon this is because in the afternoon the wind will blow the clouds away
2. The second one was that there will be more cloud in the afternoon as the sun will heat the water in the morning to make more clouds throughout the day.

Method

We decided to measure the cloud coverage at different times of day using the camera. The camera took photos and these are stored as JPGs. We then processed the picture and tried to estimate how much of the picture is covered by cloud:

1. open the image
2. rotate the picture - we think it is upside down?!
3. Crop the photo to remove the window frame
4. Get the Saturation and Brightness of each pixel in the picture
5. Apply threshold - if the number is less than saturation threshold AND more than brightness threshold then we treat it as cloud
6. Work out the percentage cloud cover by adding up all the cloud pixels and dividing by total pixels

Next we put it in a CSV file along with the time, location and if it is day or night. The code takes a picture and calculates cloud cover every 15 seconds for 3 hours. At the end we have a big table of results to make a conclusion.