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Project Plaga Procedure

Balloon Fest, 2008

Date: Saturday, May 31, 2008

We will launch a tethered weather balloon to a maximum altitude of 1,000 ft from Tobin James Wine Cellars on May 31, 2008.

Purpose: We will be gathering data about the amount of UVA and UVB light that is reflecting off of the surface of the Earth. We will be comparing the two inputs to determine whether there is relationship between the two kinds of light and the surface that they are reading the amounts off of.

Equipment: 1 Balloon, 1 tank of helium, 1 reel of cord, 1 stopwatch, 1 spool of bright tape, 1 laptop, 1 Labpro, 1 UVA sensor, 1 UVB sensor, 8 extra AA batteries, 1 blank flash drive/or 1 blank CD-R, power cords for the laptop, and 1 gondola.

Payload: Gondola, Labpro, 2 sensors, and the connection cords for the Labpro and sensors.

Weight: 1,678 g

Labpro Remote Data Setup:

1. Verify that there are fresh batteries in the Labpro.
2. Connect the sensors to the Labpro.
3. Connect the Labpro to the laptop.
4. Start the Logger Pro software.
5. Open the Experiment, select Remote Setup:
 - a. Review Settings
 - b. Select OK
 - c. Verify that the *YELLOW* LED remains on.
6. Disconnect the USB cable from the laptop and the Labpro.

Flight Procedure:

1. Fill the balloon until it will lift 800 more g more than the weight of the fully loaded gondola, making sure to seal it shut with the PVC pipe attachment.

2. Tape balloon securely closed, and incorporate the metal ring into the tape around the opening of the balloon.
3. Attach both the gondola and the cord to the metal ring and secure both clips.
4. Commence recording in the written log. Record all incidents, comments, start and stop times, and observations about the general surroundings that pertain to the experiment (i.e. Wind speed/direction, weather patterns, etc.).
5. Prior to launch, confirm that the *YELLOW* LED is still blinking.
6. Press the Start/Stop button on the Labpro *once* and start the stopwatch at the same time.
7. Double check that the Labpro beeps once and that the yellow LED goes off as the *GREEN* LED blinks on. The green LED should blink every sample period. If not, then return to Labpro Remote Data Setup and try again.
8. Launch the balloon, noting in the log the amount of time elapsed since the stopwatch was started. Allow the balloon to rise to 100 ft (or 30 m). This first 100 ft should take about a minute and a half.
9. Tie a foot-long strip of the colored tape to the cord at the black mark. Hold this altitude for roughly one and a half minutes.
10. Continue on in this fashion, at the same speed and with the same time constraints. Switch reelers every 100 ft.
11. Hold at 1,000 ft for three minutes and then bring down at a faster speed than before 1,000 ft. this process should take about ten minutes.

Labpro Remote Data Recovery:

1. Upon the Labpro's return to the ground, verify that the *GREEN* LED is still flashing every sample interval.
2. Press the Start/Stop button *once* to cease collection of data. The Labpro should Beep once and *ALL* LEDs should turn off.
3. Restart the laptop and Logger Pro if necessary.
4. Reconnect the Labpro to the laptop via USB port. Verify that the "Interface is connected".
5. When the "Remote data Available" window opens, select "Yes" or "Open".
6. When the "Retrieve Remote Data" window opens:
 - a. Select "Into Current File" & "Make data available for multiple retrieval"
 - b. Select "OK"
7. Once data is verified and received:
 - a. Open Experiment Menu
 - b. Select "Reconnect Interface"
8. "Remote Data Available" window will open; select "NO" to erase the data on the Labpro.

Data Analysis Procedure:

1. Repeat the above procedures up to three more times to ensure adequate results. Save them all, even if they are incomplete.
2. When each flight test is finished, double check to make sure that they are all saved and labeled.
3. Analyze the data in the Logger Pro program.
4. Transfer the graphs to the Power Point program.
 - a. In Logger Pro, select graph window, Ctrl-c to copy the graph
 - b. Open the Power Point presentation; select a new page, Ctrl-V to paste the graph onto the page.