Using a High Altitude Balloon Platform to Measure Seasonal Ozone Flux over Agricultural Landscapes

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Hypotheses and Objectives

- **Objective 1**: The main objective of this study is to determine whether or not a balloon platform is suitable for determining surface ozone flux.
  - **Hypothesis 1a**: It is hypothesized that the high altitude balloon will be able to measure surface ozone flux because one has already successfully calculated carbon dioxide flux (Pocs 2014).
  - **Hypothesis 1b**: There will be a relatively high ozone uptake during the plant growing season and little to no ozone uptake during the winter.

- **Objective 2**: The second objective of this study is to determine how ozone concentration affects ozone uptake.
  - **Hypothesis 2**: We hypothesize that there will be a direct relationship between ozone concentration and ozone flux.

- **Objective 3**: To develop a more efficient balloon platform for documenting gas flux.

Materials and Methods

- Balloon platform shown to the right will be launched in central Illinois throughout the Summer.
- The platform will be tracked by GPS and retrieved when it returns to the Earth’s surface.
- The ozone data obtained by the ozone sensor will be analyzed back in the lab to determine the ozone flux.

Discussion

Although, three launches have been made so far this Summer, much more data and data analysis is necessary before any official conclusions can be made. This poster represents the preliminary plans for the project. Data will continue to be obtained throughout the Summer so that an official report can be assembled before the end of the next academic year (May 2016).

Source: Mike Davis, City Colleges, May 8, 2015 launch

Reference