A journey to Princeton University to collaborate on engineering an incubation chamber

Karina Graeter, Class of 2014

This fall, as part of my research for the Maine Space Grant Consortium and the Research for Women in the Physical Sciences Fellowship, I worked under the mentorship of Professor Mark Battle to design an incubation chamber for measuring plant respiration in the light. This work was in partnership with Professor Battle's colleagues at Princeton University and Columbia University's Lamont-Doherty Research Institute. We designed an instrument that measured CO₂ concentration, humidity, temperature, and other variables that affect plant photorespiration. This instrument was completed in spring 2013 and is now in use at Princeton University (Figure 1).

My intention was to use the Grua/O'Connell Research Award to travel with Professor Battle to Princeton University, where we would meet his colleagues and study a similarly designed incubation chamber that is used for measuring photorespiration in the dark. This would have been an amazing learning opportunity for me, because as a physicist, plant physiology is a somewhat foreign discipline. Most importantly, it would have been a great opportunity to meet and directly work with the other scientists on this project, whom I communicated with primarily through email and Skype.

However, scheduling conflicts between the scientists and my imminent trip to New Zealand prevented Professor Battle and me from traveling to Princeton University. This was disappointing, as I was -and still am - very eager to meet the scientists I had so closely worked with. Because it was impossible to schedule a trip, the remaining design details were hammered out via email and phone conversations.

While I was not able to travel to Princeton University, this experience was invaluable for developing an understanding of the difficulties involved in collaboration, whether across departments, universities, or even countries. The difficulties we had coordinating will assuredly influence me in the future, particularly in how I form collaborative relationships and the planning processes involved.

Faculty Mentor: Mark Battle

Funded by the Grua/O'Connell Research Award and the Maine Space Grant Consortium and Research for Women in the Physical Sciences Fellowship

Figure 1: Finished incubation chamber operating at Princeton University. Paul P. Gauthier