CAREERS IN SCIENCE: SUMMARY

The Careers in Science team visited three colleges in the greater Chicago area during a three-day period from October 27-29, 2010. The objective of the event was to visit several minority institutions in the area to provide information about and encourage students to enter various careers in atmospheric sciences. During each visit we showcased a variety of jobs that are essential to support field campaigns, illustrated the nature of field campaigns by using VORTEX II as an example, and provided hands-on demonstrations of the Doppler on Wheels (DOW) after the initial presentation and discussion.

Each of the three schools was different with respect to their familiarity with atmospheric sciences and the departmental support we received. The schools covered ranging from a 2 year college to a 4 year college; private college to a community college; a school with a well developed meteorology program to a school with only an introductory class to a community college with no meteorology classes. Only one school already had a working relationship with a university with a strong atmospheric science program.

We learned very quickly that we needed to customize our presentation each time to meet the needs of those varying audiences, and to get additional background information about the student body ahead of time:

- Is there a meteorology program at the school?
- How many and what classes are offered?
- Is it a two-year or four-year school?
- Do they offer bachelors degrees?
- Do our internships apply to the student body? Do they have the credentials needed in order to apply to our programs?
- Does the school already have a working relationship with an atmospheric science program at an accredited university?

The Careers in Science team requested and obtained funding from the NSF Deployment Pool to take along one of the Center for Severe Weather Research (CSWR) DOWs for show and tell. A large part of the excitement and draw to each event was due to the “fame” associated with Discovery’s Channel Stormchasers series, which involves CSWR and the mobile radars. Without a doubt, the events would not have been as successful if the DOW and CSWR staff were not present. Having Karen Kosiba and Josh Wurman (both CSWR Scientists) talk about the VORTEX field campaign and having the DOWs available for the students to see and explore brought the event nicely together. The students were exposed to one of NSF’s most “famous” observational facility right after the EOL presentation that covered NCAR, field projects, the facilities we support and the careers it takes to support atmospheric field campaigns. Without the hands-on demonstration, some of the material may have been lost on the students.

The diverse group of people from NCAR who visited these colleges and participated in the presentation was also an integral part of the success. Peisang Tsai, Vidal Salazar, Mike Daniels, Tim Barnes and Alison Rockwell not only shared their enthusiasm and excitement for atmospheric sciences, but also showcased NCAR’s diverse
Careers in Science: Debrief of Chicago Area Trip
October 2010

During the DOW demonstration when the NCAR staff had the opportunity to mingle with the students there were obvious self-groupings of students to staff. Students seemed much more comfortable approaching and talking with someone who they could relate to. For example, several women came to Alison and Pei to ask questions. Latino students seemed more comfortable talking with Vidal, and Tim Barnes was surrounded by African American students. The social time, whether during the DOW demo or when the team had lunch with the students, was also an important facet of the event as it provided the opportunity for students to talk with the NCAR and CSWR staff one on one. The two components of having the time to talk with the students on a more personal basis, plus having the diversity of staff for the students to choose from, was an essential aspect of the success of the event.

ELMHURST COLLEGE: WEDNESDAY, OCTOBER 27, 2010

- Alison Rockwell
- Peisang Tsai
- Tim Barnes
- Vidal Salazar
- Mike Daniels
- Karen Kosiba
- Justin Walker

Elmhurst is a 4-year private liberal arts college, with one Introduction to Meteorology class. Justin Hampton, the instructor who helped set up this event, was a former student of Dr. Bob Rauber of the University of Illinois, which is how the contact was made.

A total of 36 students came to the indoor presentation on Careers in Science and VORTEX/DOW, and about 50 students attended the outdoor DOW Hands-On Demonstration. The team attracted a few more people during the DOW demo due to the large gathering of people at the trucks. The majority of the students at the indoor presentation were students from the Introduction to Meteorology class. The student base is only about 8 weeks into their meteorology class, and most of the students were English majors. There were some high school students who attended but it was not clear how they had heard about the event or how many high schools they represented.

The announcement email was sent out to 11 Elmhurst College instructors in related departments. Twenty posters and 20 fliers were sent out to Justin Hampton to be distributed around the school. Alison spoke with many Elmhurst College staff in the weeks prior to the visit with hopes that they could help promote the event including the Director of Career Education; Associate Dean of Students; Director of Multicultural Groups; and Director of Communications & Public Affairs. The posters were posted outside of the cafeteria at the school, and theoretically in many other locations around campus. Additionally, a mass email went out to the entire student body announcing the event the day before the event.
Careers in Science: Debrief of Chicago Area Trip
October 2010

While the school only offers one meteorology class right now - Introduction to Meteorology - Justin Hampton plans to work on developing a meteorology minor in the school’s Geosciences Department. We are hopeful that this event served as a stepping stone to help with this process.

The following articles were written about the event in the local news sources:

- [http://beautyfuljobs.com/tag/doppler](http://beautyfuljobs.com/tag/doppler)
- [http://home.cod.edu/newsEvents/newsDetails.aspx?Channel=%2FChannels%2FAAdmissions+and+Campus+Wide&WorkflowItemID=c671ac4e-8d7f-4de1-a0f0-21159b273d1c](http://home.cod.edu/newsEvents/newsDetails.aspx?Channel=%2FChannels%2FAAdmissions+and+Campus+Wide&WorkflowItemID=c671ac4e-8d7f-4de1-a0f0-21159b273d1c)

Summary: This 4-year private college with no developed meteorology minor or major provided a great opportunity for EOL to engage students early on in their college careers, and describe opportunities that they may have not considered before. While the school does not have many socio-economically disadvantaged students, there were many from minority groups, both ethnicity and gender.

Once the Elmhurst event was finished, the group got together later that afternoon to revisit how the day went, made adjustments to the presentation, and assigned additional points that each individual speaker would cover in each of the presentations.

**COLLEGE OF DUPAGE: THURSDAY, OCTOBER 28, 2010**

- Alison Rockwell
- Peisang Tsai
- Vidal Salazar
- Mike Daniels
- Karen Kosiba
- Justin Walker

The College of DuPage is a 2-year college that offers Associate’s degrees and many certificate programs. The school has a very well developed meteorology program within their Associate’s of Science Degree / Earth Science Program, including two well-equipped storm chasing vans. Paul Sirvatka, who was referred to by Raj Pandya of the SOARS program, was EOL’s contact there.
Careers in Science: Debrief of Chicago Area Trip
October 2010

The students were all very enthusiastic about us being there, and clearly had a strong understanding of atmospheric science judged by the level of questions that they were asking during the presentation.

The presentations were held in a large classroom. Students were sitting on the floor and standing in the back, which definitely made it crowded, but also helped to create a more informal atmosphere. The EOL presenters seemed a bit more relaxed that day and the students were quite comfortable asking lots of questions. A total of 81 students attended the presentations on Careers in Science and VORTEX/DOW, and 50 students were at the DOW Hands-On Demonstration. It was quite chilly that day, so the cold weather may have deterred some people from attending.

The school helped promote the event extensively, as seen from the list of advertising venues below:

1. LED signs
2. Plasma screens
3. News release to local publications (local, regional and national)
4. Public Service Announcement (PSA) to local cable/radio stations
5. Posting on College’s web site
6. Posting on College’s online Events calendar
7. Posting on student portal
8. Green Sheet (internal weekly publication)
9. COD This Week Good News (President’s weekly newsletter)
10. Arranging for photography of event
11. COD Happenings radio program (weekly on WDCB – Fridays at 6:20 p.m.)
12. Social media outlets (as applicable) http://home.cod.edu/newsEvents/SocialMediaCOD.aspx
13. Follow-up photo caption to media/posted on web site

One person (http://www.nctv17.com/) came to take pictures and potentially write an article about the event.

There was a high level of interest in the EOL internship opportunities. We also went out to lunch with about 18 students, which gave us additional opportunity to talk with students one on one about other ways to get involved in EOL and atmospheric science. We encouraged them to request the DOW for an educational deployment since they have a well-developed meteorology department, and followed up upon our return to provide the necessary documentation and instructions.

The following articles were written about the event in the local news sources:

Summary: The level of interest and knowledge, lead by a strong Earth Sciences & Meteorology program, made this a good school to promote not only the Careers in Science program and EOL internships but also the opportunity to promote the educational deployments of NSF Observing Facilities such as the DOWs.

At least 20 females attend the presentation, and about as many students from a variety of underrepresented ethnic backgrounds - African American, Indian, Pakistani, and Asian. While this may not have been the most ideal school for our target audience for the proposal, there was definitely a large percentage of minority students present at both the presentations and DOW demonstration.

WILBUR WRIGHT COMMUNITY COLLEGE: FRIDAY, OCTOBER 29, 2010

- Alison Rockwell
- Peisang Tsai
- Vidal Salazar
- Mike Daniels
- Karen Kosiba
- Justin Walker
- Josh Wurman

City Colleges of Chicago is seven independently accredited community colleges located throughout Chicago, one of which is Wilbur Wright College. Many students come to Wright to earn an Associate’s degree that leads to a more satisfying career. Others come to complete a two-year degree and transfer to a senior institution to complete a bachelor’s degree. Still others come to improve their ability to speak and write in English, to develop specific job skills, or to take a new career direction. As a result, a large percentage of the students who attended the presentations were adult learners, most likely taking classes to enhance their careers or earn a certificate to enter the work force with credentials.

The event was held on a Friday, a day when most students do not have classes and therefore allowing more people to attend. Fifty-two people attended the presentation in the auditorium, and about 40 people attended the DOW demo. The presentation was given in a large auditorium with a large projector screen and a microphone. This more formal setting possibly created a less approachable environment for the students, which is perhaps why fewer questions were asked and why we had less interaction with the students at this event than the others. Five high school students plus a teacher came from the Chicago High School for Agricultural Science for the entire event. Breakfast and lunch were provided to those students who signed up for the event.
This presentation was more focused on technical aspects of jobs within atmospheric science rather than the actual science being done. The audience asked many questions afterwards about the types of degrees or skills needed for such jobs. We promoted the NCAR internships that we offer, which in hindsight was probably less useful since most of Wilbur students are not going to enroll in a four-year undergraduate program.

There was a surprising sense of skepticism coming from the students as they asked questions. At times it was hard to completely understand what they were actually asking – the reasons ranged from obvious language barriers to students not getting the answers they were looking for to uncertainty about how they could take advantage of some of our opportunities.

Summary: Wilbur was our original target audience for the Careers in Science diversity proposal - it was the only accredited minority institution that we visited. Pretty much everyone in the audience came from a socio-economically disadvantaged background.

Unfortunately it became obvious that we were not prepared with the right responses or the right opportunities for this demographic. There was an obvious gap between the student’s skill base and offerings at the school and the internships we offer and the career types that we promote. Perhaps NCAR and/or EOL could develop a different type of internship that is more closely focused on technical/mechanical aspects needed, for example, in the machine shop or in the radar development group. We also realized that the individual presenters have to know more details about available internships within the organization that are outside of EOL.

CAREERS IN SCIENCE: LESSONS LEARNED

1. We need to be sure that we connect the right opportunities with the appropriate groups, or offer additional opportunities for the targeted student base of a school. For example, we went to a 2-year community college that specializes in certifications and some Associate’s degrees, but very few if any of our opportunities are open to those students.

2. We may want to consider developing a pilot program for a truly technical internship – either in DFS or in the technician group (radar, aircraft). The focus of the Careers in Science proposal is to attract students from accredited minority institutions into the field of meteorology. Most of the students at these schools are there because it is within their means and interests. The students at these colleges are primarily looking at technical and mechanical degrees and certifications but most of them are probably not going to pursue
Careers in Science: Debrief of Chicago Area Trip  
October 2010

an advanced degree in meteorology. It would be great to have them continue on that track but steer them into considering working in the field of atmospheric science.

3. We need to be able to describe a clear path of opportunities and possibilities that students can take in a technical career. We can offer them a summer engineering internship, but what would be next?

4. While focusing primarily on NCAR and EOL, the presentation could be expanded to also include career opportunities at other types of organizations, such as forecasters at NOAA/NWS, EPA, Weather Channel, Military, TV/Radio, Education and Universities, Private Companies (Excel etc).

5. While the EOL staff is intimately familiar with the opportunities offered by EOL, the same cannot be said for other NCAR-offered internships and programs. Some familiarization and homework can take care of this.

6. The focus of the presentation and demo should not be to promote the EOL/NCAR internships, but really to promote the careers in science - truly as an outreach event.

7. The background of each school needs to be investigated in greater depth. For instance, we should find out what type of meteorology program the school offers? Do they already have a feeder school? What are the backgrounds (educational path) of the students who will most likely attend the event?

8. We should investigate whether there are ways we can encourage these schools to request educational deployments even if they have very little experience in meteorology. What help could EOL provide to make this successful?

9. Incorporate a balloon launch or MGAUS along with DOW for educational deployment.

10. We need to collaborate with other non-NCAR (e.g., CSU CHILL, CSWR, Storm Peak) organizations when developing a technical/mechanical internship program

11. The overall flow of each day worked well, but it became apparent that an informal session (whether it be lunch or coffee/snacks) where students and presenters could interact one-on-one also should be included in the formal schedule. Without such informal sessions, this one-on-one questioning/interaction took place during the DOW show-and-tell, which worked fine, but at the College of DuPage, an impromptu lunch with the students/professors was much more productive for answering questions and/or directing students to opportunities.

12. Include other opportunities such as ASCENT (too advanced?), GRASP, etc.