

QCC Space Weather Research and Education (SWREP) Program



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OF THE CITY UNIVERSITY OF NEW YORK (CUNY)**

Community Colleges & STEM



- Community Colleges are very important in the pathway to increase the number of STEM students.
- According to a National Science Foundation (2012) study, 46% of STEM graduates report having attended a community college.
- Community Colleges can introduce STEM students to their first research experience
- Community Colleges are also the foremost producer of technicians for industry.

Faculty Research at Community Colleges



Difficult & Struggling...

- Research is becoming more important for tenure at community colleges
- Most faculty default to pedagogical research since they're in the classroom the majority of the time (5 hrs straight) & it's a much easier transition
- Scientific research– What to work on based on free time (usually summer), resources (journal access), interest, student level and interest, etc.
- Identify research scientists to work with locally, nationally... attend talks..., etc

QCC



- One of the most diverse populations of any college in the U.S., over 16,000 students pursue associate degrees or certificate programs.
- > 80 languages are spoken at QCC
- 4th place at CUNY in the number of science grants received (at one time)
- 1st community college to be awarded an REU for research in laser & fiber optics (3), biophysics (1) and astronomy (SW (2); one is going back to being the Dean)
- REU was renewed this year

City University of New York (CUNY)



- QCC is part of the City University of New York (CUNY)
- CUNY provides high-quality, accessible education for more than 269,000 degree-credit students and 247,000 adult, continuing and professional education students at 24 campuses across New York City.
- CUNY has 11 senior colleges, 7 community colleges, The Macaulay Honors College and 5 graduate and professional school + many centers and institutes
- Famous Alumni– Jonas Salk, Andy Grove (Intel), Colin Powell
- 12 Nobel Laureates (scientists: Leon Lederman, Arno Penzias, Jerome Karle, Robert Hofstadter, Herbert Hauptman)

QCC Participation in SW REDI



- Two faculty members from QCC physics dept attended 2-week SW REDI Boot Camp
- 2-week quick start SW REDI in summer provided a good introduction to SW
- Learned a great deal about SW research, modeling & forecasting
- Opportunity to establish partnership with NASA scientists (both research & education)

QCC Summer Internship Program



- Summer 2013--6 students (3 college & 3 high school)--college students funded by the NASA NYC Research Initiative
- Introduce students to Sun-Earth connection, in particular SW
- Introduce students to iSWA to obtain SW data from different sources
- Students learned about different satellites (GOES, STEREO A & B, SOHO)
- Small finite project—Students looked at whether there was a relationship between solar flares and CMEs for the years 2000-2012
- Data analysis done mainly with MS Excel

Conference Abstracts



Students posters were presented at both NYCRI poster session and the 2013 AGU meeting

- **Michael Hirschberger**; Marie C. Damas; **Matthew O'Connell**; **Daniel Mezzafonte**; **Ariane Marchese**; **Adam Carbone**; **Kevin Chen**; Paul Marchese (2013), The Relationship Between Solar X-Ray Flux and Coronal Mass Ejection (CME), Abstract SH13A-2032 presented at 2013 Fall Meeting, AGU, San Francisco, Calif., 7-13 Dec.
- Matthew O'Connell, Ariane Marchese, Michael Hirschberger, Daniel Mezzafonte, and Kevin Chen, The Variability of Solar X-Ray Flux and Flare Frequency through a Solar cycle, Abstract ED33D-0805 presented at 2013 Fall Meeting, AGU, San Francisco, Calif., 7-13 Dec.

(green –college students; blue—high school students)

Going forward



- Establish QCC-CUNY SWREP with the following goals (with partners: NASA, CUNY, etc.):
 - Provide SW research opportunities to community college faculty & students
 - ✦ Summer 2014 REU– recruiting about 3 QCC students to work on SW
 - Expand program to provide SW research opportunities CUNY-wide (4-yr, graduate students, faculty)
 - Develop courses related to SW, including online materials
 - Offer SW workshops, SW summer school (students, high school teachers and faculty)
- Apply/beg for funds (NASA, NSF, just about anyone who can give us money!!!)

Big Challenges



- Heavy teaching load at community colleges (more research is required) (QCC– 27 credits hours/yr, new faculty – 21 credits hours/yr)
 - Need faculty release time
 - Summer research opportunities for faculty to just concentrate on research
- **JOBS!!!** Are there jobs available in SW for students with associate degrees?
- Student preparedness and interest (Why work in SW?) plus most don't want to leave NYC (Queens)
- **FUNDING!!!!!!!**

Acknowledgment



Thank you!!

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&

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