QCC Space Weather Research and Education (SWREP) Program

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QUEENSBOROUGH COMMUNITY COLLEGE (QCC)
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
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
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)
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
Students posters were presented at both NYCRI poster session and the 2013 AGU meeting.


(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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&

NASA GSFC SW REDI Team for a great Boot Camp!