



NOAA Interdisciplinary Scientific Environmental Technology (ISET) Educational Partnership Program

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Tom LeFebvre, MarySue Schultz, Cathy Smith, and David Welsh

NOAA – Earth System Research Laboratory



Key NOAA Research \longleftrightarrow Connecting With \longleftrightarrow Student Innovations

Educate, train, and graduate students, particularly from under-represented communities, in NOAA sciences.

Students gain valuable research experience, while ESRL leverages students' state-of-the-art knowledge.

Research Areas: Sensor Science and Technology, Global Observing Systems, Information Technology Tools – including Climate Modeling, Data Fusion, and Multi-Agent Grid Computing.

197 students nation-wide – 25 Ph.D. and 34 Master's candidates/14 student – mentor internships at GSD/PSD in 2009.

Collaboration leads to new course, seminars, and graduate programs, feeding future generations of NOAA scientists.

"The NOAA ISET program has broadened my horizons. I got the idea for my research on clustering weather data through this internship, which also enabled me to experience a professional environment." – Robert Olabode, Graduating 2010 – University of Minnesota

"Robert's work has become a cornerstone feature of the Workflow Manager and is used operationally by many scientists every day." – Chris Harrop, ESRL Mentor

Workflows to Access and Manipulate Weather Sensor Data

Cheickna Baber, Ph.D. Candidate, North Carolina A&T State University
ESRL Master's Thesis Committee Member – Tracy Hansen

Impact to Student: Learned and compared workflow software, data access standards, and analysis techniques

Impact to NOAA: Knowledge of OGC standards and workflows for data access and analysis



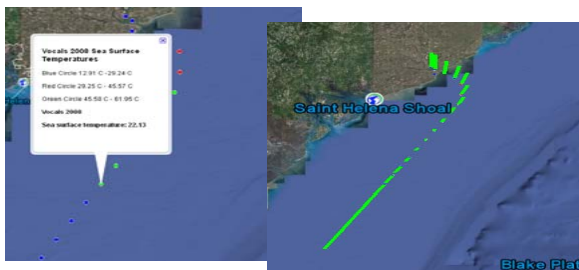
Google Earth Data Display for NOAA Cruises

Tammy Morrison, Master's Candidate graduating 2010 - North Carolina A&T State University

ESRL Mentor – David Welsh

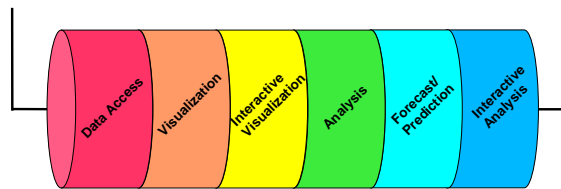
Impact to Student: Learned Perl, MATLAB, Google Earth visualization techniques

Impact to NOAA: PSD Web page now shows Cruise Data



Earth Information Services Unifying Theme for Student Projects

Weather and Climate Data \longleftrightarrow Predictions, Correlations



Workflow Manager to Run Weather Models

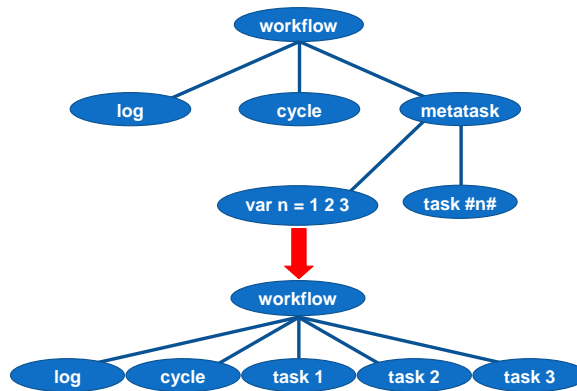
Kawana Fuller, Master's Candidate, North Carolina A&T State University

Robert Olabode, Graduating 2010, applying to Master's program, University of Minnesota

ESRL Mentors – Christopher Harrop and Isidora Jankov

Impact to Students: Experience with software design and implementation; workflows, Python, XML, Graphical User Interfaces

Impact to NOAA: GSD scientists now configure numerical model runs more efficiently



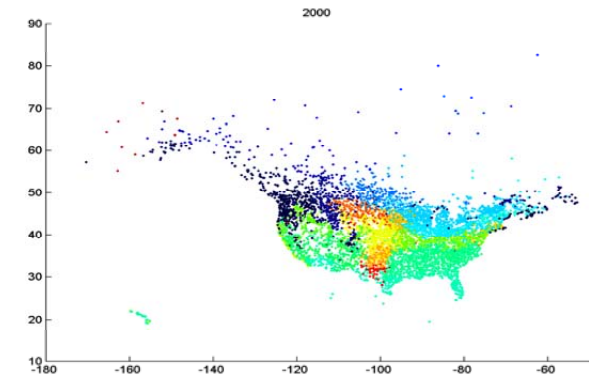
Clustering of Average Yearly Temperature

Robert Olabode, Undergraduate, University of Minnesota

ESRL Mentors – MarySue Schultz and Tom LeFebvre

Impact to Student: Worked with data access standards, data mining, visualization, and analysis techniques.

Impact to NOAA: Knowledge of OGC standards and limitations for data access.



Self-Generating KML Code for Google Earth

Richard L. Messick, Master's Candidate, North Carolina A&T State University

ESRL Mentor – Cathy Smith

Impact to Student: Learned data access methodologies using Perl, KML, Google Earth visualization and web interface design.

Impact to NOAA: PSD Web pages now show plots of NCEP/NCAR - Reanalysis and 20th Century Reanalysis on Google Earth.

