



Department of Earth and Environmental Science Eastern Connecticut State University Annual Newsletter

Message from the Chair

Peter Drzewiecki

The Environmental Earth Science Department at Eastern sends its best wishes to all of you! The 2014/15 academic year was another year of exciting growth for the department. As mentioned at the start of last year's newsletter, we were joined by Dr. Paul Torcellini (Endowed Chair in Sustainable Energy Studies) at the start of the year, bringing our department to its full capacity of 8 professors. Paul's impact has been immediate, and I recommend that you see what he has been up to in his narrative, later in this newsletter. We have successfully left the "survival" mode in which we were trapped the past few years, and entered a new period which offers more opportunities for students to engage with faculty in a whole range of disciplines. The efforts of faculty and students over the past few decades has paved the way to where we are now – we have the faculty and the funds to lead the university in providing high quality education and ample research opportunities for our majors.

In this newsletter, you can learn about what both our faculty and our students have been doing, as well as read about exciting events that have been taking place. I think you will be surprised, even if you are a recent graduate, about how much the department has changed.

As always, you can find this, and past Newsletters on our department website:

<http://www1.easternct.edu/environmentalearthscience/>

Enjoy the Newsletter!

EES Field Excursion to Arizona, May, 2014

In May of 2014, the EES Department ran its first undergraduate field trip to Arizona led by Dickson Cunningham and Drew Hyatt with 14 students in tow. The trip was an action-packed 12-day jaunt taking in many of the geological highlights of the Grand Canyon state. The trip was part of a new 3-credit course titled 'EES Geological Field Excursion' which we hope to run every spring. After flying into Phoenix, we followed a clock-wise route that included visits to a large number of classic geological sites including the Val Verde rift with its interesting Tertiary sedimentary successions, the Montezuma's Castle Native American cliff dwelling, the Montezuma's Well sink hole, the Jerome mining town that once had the west's largest population and boasts an excellent mining museum (and spoil heaps ripe for ore mineral collecting), the stunningly beautiful canyons and erosional landforms at Sedona, the Colorado Plateau sedimentary succession and Grand Canyon with all its majestic scenery, the San Francisco volcanic field including Sunset Crater and the nearby Wupatki pueblo ruins, the variegated badlands of the Painted Desert and Petrified Forest, the impressive Salt River canyon with its transition zone basement geology, and the fascinating Biosphere 2 enclosed human colony experiment. We also visited various sites around Tucson including the Late Cretaceous Tucson Mts caldera complex, the Mojave-Sonora Desert Museum, the Santa Catalina and Rincon Mts metamorphic core complex, Mt Lemmon highway with its impressive mountain scenery and different altitude-related vegetation zones, Sabino Canyon geological transect across the Catalina mylonitized detachment zone, igneous rocks of the Santa Rita Mts, and the active Asarco porphyry copper mine and mineral processing complex, including the on-site Mineral Discovery Center.



Our group at Ooh-Aah Point within the Grand Canyon. The trip leaders are wearing the blue Eastern tee shirts (Drew Hyatt on left, Dickson Cunningham near top right).

Although the trip was primarily focused on geological highlights, it was inter-disciplinary in scope because of the variety of site visits. Attention was given to Native American culture, sustainable land and energy use, economic geology, and the impacts of geology on Arizona society including geotourism. On most days, we enjoyed geological day hikes to key outcrops and viewpoints. The trip was organized so that there were daily discussions at each site and some wrap-up discussions in the evenings. Every student selected a topic that they researched beforehand so that they could serve as the trip 'expert' on that topic. All students made verbal presentations to the rest of the group on their topic when it tied in to one of the field trip stops. In this way, we all learned from each other and all students made important contributions to the trip's learning objectives.



Atop a small cinder cone in the San Francisco Peaks volcanic field north of Flagstaff.

On top of all the educational benefits of the trip, we had a lot of fun and the student group was wonderful in terms of the efforts made, positive behavior and general bonhomie. We demonstrated that for about \$1400/student, we can run an enormously fulfilling geological excursion to one of America's most spectacular and geologically diverse regions. Below are several more trip photos. Stay tuned for next year's newsletter, because at the time of writing, we are poised to embark on this year's field excursion to Idaho and Wyoming taking in Yellowstone and the Grand Tetons amongst other sites of geological interest.



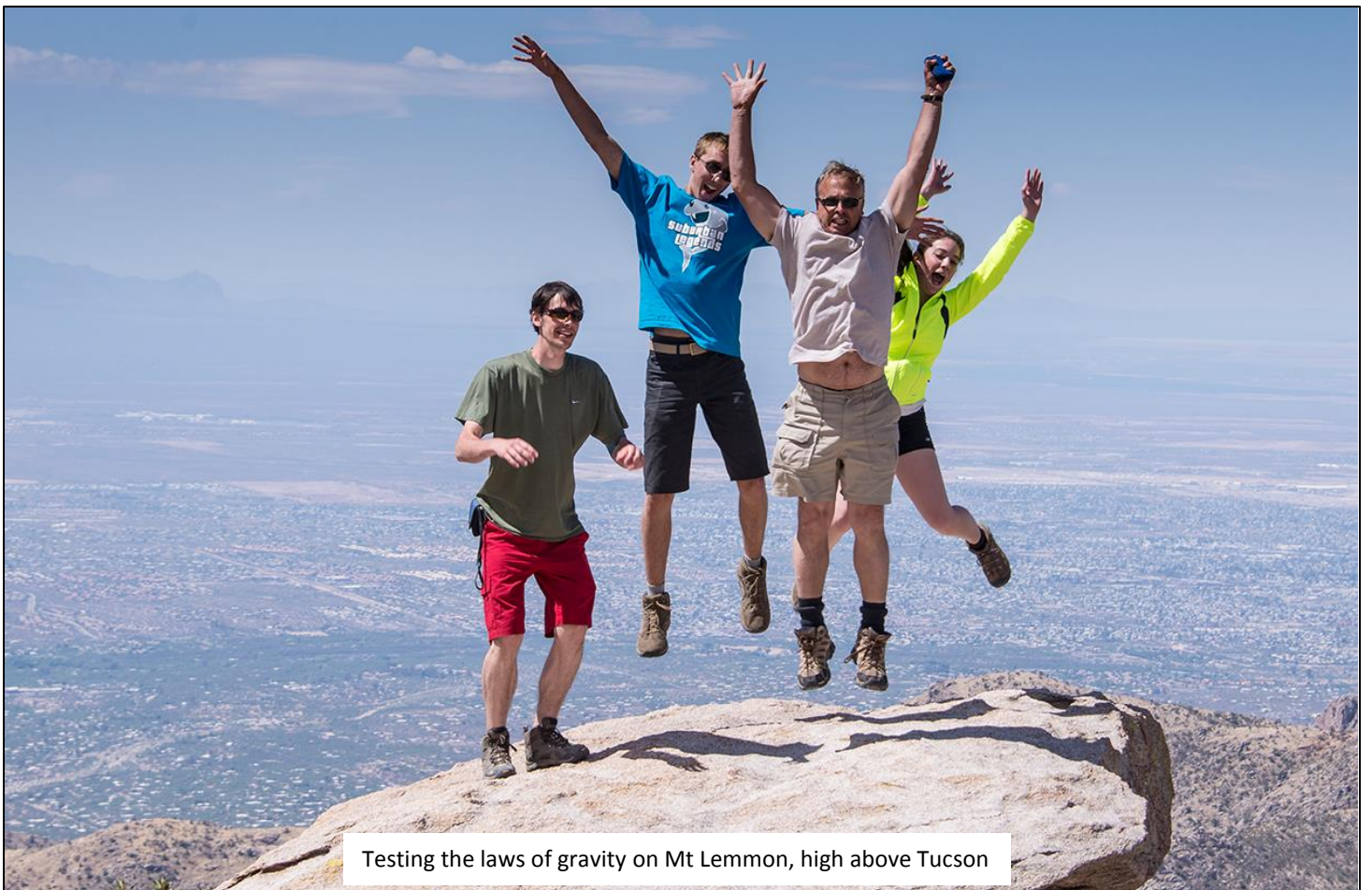
What a blast! At Meteor Crater, northern Arizona.



A true stratigraphic log! Petrified Forest National Park.



The big Tonka trucks at the Asarco Mission mine, southern



Testing the laws of gravity on Mt Lemmon, high above Tucson

Geological Society of America, Annual Northeast Section Meeting (NE-GSA 2015)

Fifteen students from the Department of Environmental Earth Science (and four EES faculty) made a strong showing at the 50th annual Geological Society of America Northeast section meeting (March 23 to 25, 2015). Seven of the EES students presented posters of their research, with topics ranging from arsenic in groundwater to coastal erosion to geothermal energy. The student presenters learned a great deal by having to field questions about their research as well as by seeing the posters and presentations of other students and professionals at the meeting. All the EES students made the most of attending the many concurrent oral and poster sessions that were presented over three days.

The conference was held at the beautiful Mount Washington Hotel/Omni resort, located at the base of Mt. Washington, and it mixed all areas of Earth Science research with stunning views of the snowcapped Presidential Range. Attended by nearly 1200 registrants (almost 700 were students), the meeting provided many of the EES students with their first experience of being a part of a larger scientific community of geoscientists. Better than any lecture or lab, the students saw for themselves the value of sharing and exchanging their research with others. The meeting also provided the students with the opportunity to begin building their professional networks (e.g., by attending a workshop on resume writing), talking with representatives of various graduate schools and exploring possible job prospects and career paths.



Pictured (Kneeling, L to R): Joshua Bartosiewicz, Matt Marsie, Michael Gozzo; (Standing, L to R): Professor Drew Hyatt, Mike Manzie, Brandan Sumeersarnauth, Ted Pycz, Vicky Szamocki, Laura Markley, Assistant Professor Brian Oakley (partly obscured), Jackie Lorange, Brian Wicks, Mackenzie Fannon, Assistant Professor Steve Nathan, Amber McDonald (front), Samantha Boyle (rear), Sydney Day (front), Kevin McCormick (partly obscured), Professor Peter Drzewiecki.

NEIGC Summary

Eastern Connecticut State University was well represented this year at the New England Intercollegiate Geological Conference (NEIGC) from hosted at Wellesley College, Wellesley, MA on October 10-12th. Sixteen Eastern Environmental Earth Science students and three faculty members (Professor Drew Hyatt and Assistant Professors Steve Nathan and Bryan Oakley) participated in the conference this year. This was the 106th annual meeting of the NEIGC, which brings together educators, the private sector, government and other groups to showcase a broad range of field trips exploring all aspects of regional geology. NEIGC is a unique conference; there are no formal talks, the sole mission is to present field trips to interesting geologic locales. The field trips (and guidebooks) are presented at a professional level, but undergraduate student participation is encouraged. The students in turn gain valuable field experience and a glimpse of life beyond the classroom.

This year, Eastern students participated in a field trip entitled “Climate change comes to the south shore of Rhode Island: Erosion, inundation and migration”. The trip focused on storm damage and rising sea level, and discussed the science and management of this very dynamic coastline. The field-trip was co-authored and co-led by Assistant Professor, Bryan Oakley of the Environmental Earth Science department.



Oakley (center, facing camera) discussing erosion at South Kingstown Town Beach, South Kingstown, RI while students and other field trip attendees look on. Photo by Prof. Hyatt.



Sixteen eastern students participated in the 2014 NEIGC conference. Pictured from left to right: Prof. Oakley, Daniel Grondin, Josh Bartosiewicz, Mackenzie Fannon, Dustin Munson, Stephanie Rogers, Carly Burgess, Mike Lundquist, Kevin Veilleux, Amber McDonald, Brandan Sumeersarnauth, Trent Stevens, Matt Marsie, Ujjwal Davda, Prof. Nathan and Zach Beauchesne. Not pictured, James Malcolm, Vicky Szamocki and Prof. Hyatt.

Daniel Grondin, graduating EES Major Presents at the National Conference for Undergraduate Research (NCUR), Spokane Washington, 4/16-18, 2015

A total of 13 student presentations, from 11 different ECSU departments were accepted for the 2015 NCUR Conference in Spokane, Washington. Daniel Grondin, a graduating senior represented EES and gave a poster presentation on his junior year research which was based on summer fieldwork mentored by Dickson Cunningham and carried out in Idaho in 2013 titled:

“Rheomorphic Folding of Super-Hot Ignimbrites in the Southern Snake River Plain, Idaho”



Daniel Grondin at NCUR, Spokane, WA presenting his poster summarizing research on southern Snake River Plain volcanism related to the Miocene record of the Yellowstone hotspot track.

Student Accomplishments

2015 EES Student Award Ceremony, April 27, 2015



2015 EES Award Winners: (left to right): Kevin Mokoski, Mackenzie Fannon, Brian Wicks, Jacqueline Lorange, Laura Markley, Samantha Boyle, Brandan Sumeersamauth

Physical Sciences Award Winner

(For academic achievement in Physics, Chemistry, and/or Astronomy): **Laura Markley**

EES Award Winners

Outstanding Environmental Earth Scientist Award: **Mackenzie Fannon**

Discipline Awards

Hard Rock Geology Award: **Kevin Mokoski, Mackenzie Fannon**

Geomorphology Research Recognition: **Jacqueline Lorange**

GIS Award: **Samantha Boyle**

Quaternary Geology Award: **Joshua Bartosiewicz**

Sustainable Energy Science Award: **Brian Wicks**

Excellence Awards

Senior: **Laura Markley**

Junior: **Brandan Sumeersamauth**

Sophomore: **Samantha Walter**



2015 Outstanding EES Major winner Mackenzie Fannon accepts her award.



Guests and alumni at the year-end celebration

2014 Summer Undergraduate Research

Environmental Earth Sciences

Eastern Connecticut State University

Funds amounting to \$25,000 were awarded to the EES Department to foster undergraduate research during the summer of 2014. These funds, along with external funds and CSU Research Grants, enabled the department to offer research opportunities to 19 EES students. Many of these students are continuing their projects throughout the 2014/2015 academic year, and are planning to present results at both university and professional conferences. Below is a summary of the completed and ongoing projects, followed by final budget summaries for each of the awards stemming from this \$25,000.

Student: Joshua Bartosiewicz

Faculty Mentor: Bryan A. Oakley

Project: Josh is working on an externally funded (U.S. Dept of Agriculture/Natural Resource Conservation Service) project to map the benthic geologic habitats of 1,000 acres of Long Island Sound offshore of Branford CT, including around the Thimble Islands, using side-scan sonar, underwater video imagery and surface sediment grab samples. The overarching goal is to provide baseline habitat information to examine aquaculture suitability. Using summer undergraduate funds, Josh also participated in fieldwork on Napatree Point and Misquamicut State Beach. Josh continued with the project in the fall, 2014 semester, and is being hired on as a paid undergraduate research assistant for the winter session and spring 2015 semester. We anticipate continuing with the project (lab work, some fieldwork) in the summer of 2015.



Josh bringing up a sample of the seafloor sediment

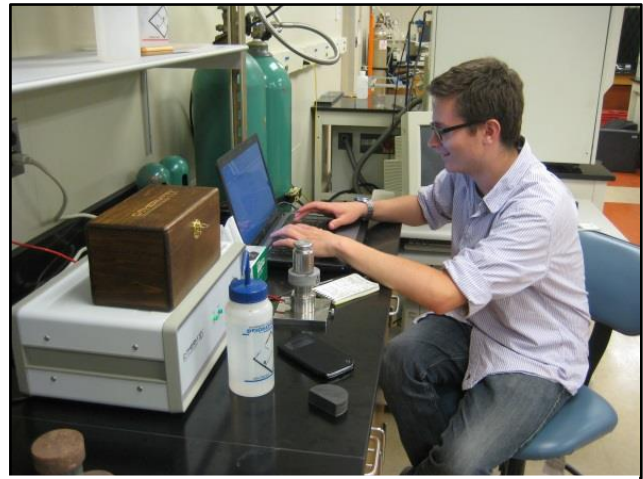
Students: Zachary Beauchesne, Ted Pycz, Brian Wicks

Faculty Mentor: Steve Nathan

Project: For one week EES students Zachary Beauchesne, Ted Pycz, and Brian Wicks collected glacial sediment samples in central Connecticut/metro Hartford. The students gained valuable field experience learning how to: 1) design a sampling program; 2) use standard field sampling techniques and record keeping; and 3) perform multiple laboratory analyses. Data collected from these samples can provide for the more efficient design of geothermal heating and cooling systems that are used in commercial and residential buildings. Brian Wicks continued his summer research as a two credit Independent Study (EES 480; fall 2014 and spring 2015). Brian will present his research at the annual Geological Society of America Northeast Section meeting in New Hampshire (March 23 to 25, 2015). He may also present his research at the spring 2015 ECSU CREATE conference.



Zach Beauchesne (L) and Ted Pycz (R) using a hand auger to sample glacial sediments (May 2014)

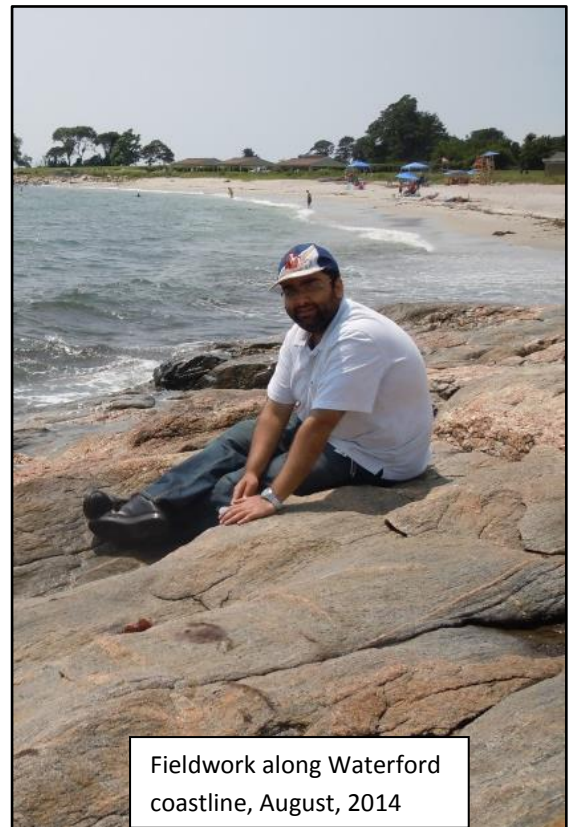


Brian Wicks measuring thermal conductivity of bedrock cores at UMass Amherst (June 2014)

Student: Ujjwal Davda

Faculty Mentor: Dickson Cunningham

Project: Ujjwal's project involves deciphering the igneous, metamorphic and deformational history of coastal outcrops in Waterford, CT. The gneissic rocks exposed on the Waterford coastline record a very complex multiple-phase history of contractional deformation, shearing, pegmatite intrusion, granite injection and brittle fracturing. During summer, 2014, Ujjwal geologically mapped three prominent peninsulas and statistically analyzed the structural data he collected to document the different tectonic events that have affected the rocks. During fall, 2014, Ujjwal has compiled his field data and is generating digital geological maps of his three study areas. He will compare and contrast the geology of the three peninsulas to determine common geological features and structural events to better understand the geological evolution of SE Connecticut. He will present his research results at the NE Geological Society of America Annual Meeting in March, 2015, and at the ECSU CREATE conference in April, 2015.



Fieldwork along Waterford coastline, August, 2014

Student: Sydney Day

Faculty Mentor: Catherine Carlson

Project: Sydney monitored Park Spring in Willimantic, CT from May through August to investigate spring recession and the influence of road salt on spring quality. These data will contribute to a multi-year study of Park Spring hydrology with the goal of aiding the town in effective management of this resource. Sydney continued this project during the Fall semester with 3 credits of Earth Science Research. She is interested in pursuing independent research on the regional distribution of springs in Connecticut using GIS.

Student: Daniel Grondin

Faculty Mentor: Meredith J. Metcalf

Project: Although landslides are not the greatest geologic hazard of Connecticut, the pressure for continuous growth and development requires slope stability. This research involved the identification of factors that are indicative of landslides in Connecticut and the incorporation of these factors to identify landslide susceptibility for the 91st Quadrangle in Connecticut using a GIS approach. The approach was based on the following factors identified as significant to slope failure: slope of the terrain, proximity to streams, soil type, drainage of soils, distance to faults, glacial sediment, land use, bedrock geology, and aspect. Daniel presented these findings as a poster presentation at the Northeast Arc Users Group Conference (Groton, Connecticut) in October of 2014. Additionally, his poster was on display for GIS Month (November) at the Connecticut Legislative Office Building.



Dan working on his completed analysis

Student: Ashley Houle

Faculty Mentor: Drew Hyatt

Project: In addition to helping with field work at Andover Lake, Ashley Houle collected ground penetrating radar and terrestrial laser scanning data at a gravel pit owned by the Haines Materials Corporation in south Windham. Data collected by Ashley (and others on the research team) will be used to image the internal characteristics of the glacial meltwater deposits that are being mined. Ashley is learning how to process GPR and scanner data through an ongoing practicum course (EES 392). This has required that she learn to use several computer programs (*e.g.* Ekko Project 2, GFP edit, Voxler, Excel, *etc.*) to process data and to build 2-dimensional and 3-dimensional visualizations of subsurface conditions. Ashley will present her findings in a poster at the spring 2015 ECSU CREATE conference in April, 2015.



Ashley Houle collects 100 MHz GPR data on a transect at the Haines Sand and Gravel mine in Windham. She is learning to process these data to image subsurface geological conditions.

Student: Jacqueline Lorange

Faculty Mentors: Drew Hyatt and Meredith Metcalf

Project: Although separate from 2014 funding, EES senior Jacqueline Lorange is completing an independent study that began with field work conducted in the summer of 2013 (which was supported by exemplary program funds). Jacqueline's project utilizes detailed terrestrial scanning survey data and pole photography to build educational resources that will be helpful with Dinosaur State Park (DSP) educational program. Specifically, through an ongoing independent study course (EES 480), Jacqueline is analyzing *Eubrontes* tracksites at the park to (a) build detailed image maps of both the main and secondary tracksite, to (b) create photo-realistic 3D computer models of selected tracks, and to (c) produce rapid prototypes physical models (*i.e.* 3D prints) suitable for use by school groups to cast individual tracks. As well, under the supervision of Meredith Metcalf, Jacqueline is (d) using ArcGIS to build a georeferenced data base that will support future paleontological studies of the track site. Jacqueline will present her findings at the spring 2015 Northeastern Geological Society of America meeting in New Hampshire and at the 2015 ECSU CREATE conference.



Jacqueline Lorange collects scanner data using a Trimble VX spatial station at Dinosaur State Park in Rockv Hill CT



Mike Manzi collecting data on beach

Student: Mike Manzi

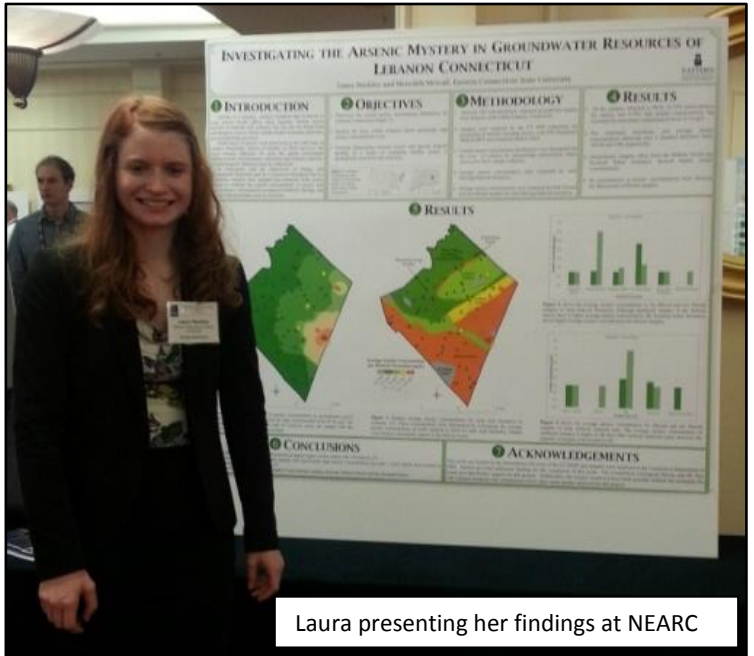
Faculty Mentor: Bryan A. Oakley

Project: Mike assisted in the field on Block Island in the summer of 2014. Fieldwork in Napatree involved mapping the position of last-high tide swash (LHTS) and collecting RTK-GPS based beach profiles. Fieldwork in Misquamicut also involved LHTS and beach profiles, examining changes to a recently replenished beach. Fieldwork on Block Island included: mapping the LHTS, photographing the bluff shorelines, measuring the position of the crest of the bluff along portions of the Block Island shoreline and determining the thickness of the washover fan deposits on the Nature Conservancy property at Beane Point. Mike obtained a prestigious internship at Northeast Utilities, which curtailed his involvement in other projects, although he continues to help out on the Block Island Google Earth based database project that began in 2013. He will present on this work with Brandan Sumeersarnauth at the Northeast section meeting of the Geological Society of America in March 2015.

Students: Laura Markley, Samantha Schwarz

Faculty Mentor: Meredith J. Metcalf

Project: This research utilized methods from the investigator's previous fractured rock work to examine sources of arsenic and manganese contamination for the town of Lebanon, Connecticut. The students involved were responsible for compiling and digitizing well completion report information and water quality information which was later integrated into a GIS. This allowed students to examine the spatial distribution of common contaminants and identify relationships between contaminants and the geology, development, and/or human practices. The well completion report data provided necessary information for Laura's Honor's Thesis work on arsenic contamination. Laura has presented the preliminary results as a poster presentation at the Northeast Arc Users Group Conference (Groton, Connecticut) in October of 2014. Additionally, her poster was on display for GIS Month (November) at the Connecticut Legislative Office Building. Laura has presented final results as an oral presentation at COPLAC and she will also present additional findings at the Northeast Geological Society of America Meeting in March.

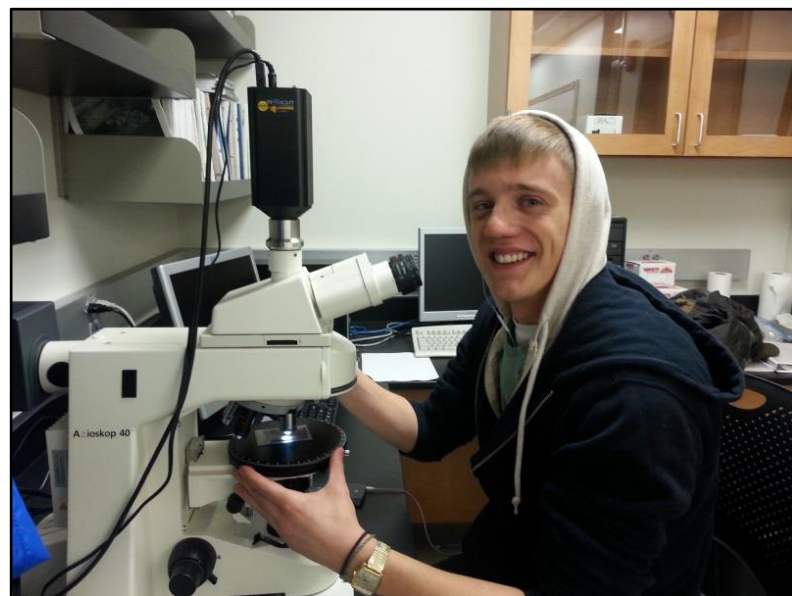


Laura presenting her findings at NEARC

Student: Matthew Marsie

Faculty Mentor: Peter Drzewiecki

Project: Matthew spent two weeks in the summer of 2014 collecting stratigraphic data from a core drilled in South Hartford for a large-scale construction project. The core is one of over fifty drilled along a transect, and penetrates both volcanic and sedimentary strata. It contains stratigraphic relationships not observed in outcrop, but are critical for



Matt at the petrographic microscope

proper correlation of units along the transect. His work relied heavily on microscopic work that provided insights into the stratigraphic relationships. Matt is currently conducting a 2 credit Independent Study. He will present research results at the ECSU CREATE conference and at the Northeast Geological Society of America meeting, both in spring 2015. Results from this work will be reported to the AECOM, the geological engineering firm overseeing the project for incorporation into their geological models.



Student: Amber McDonald

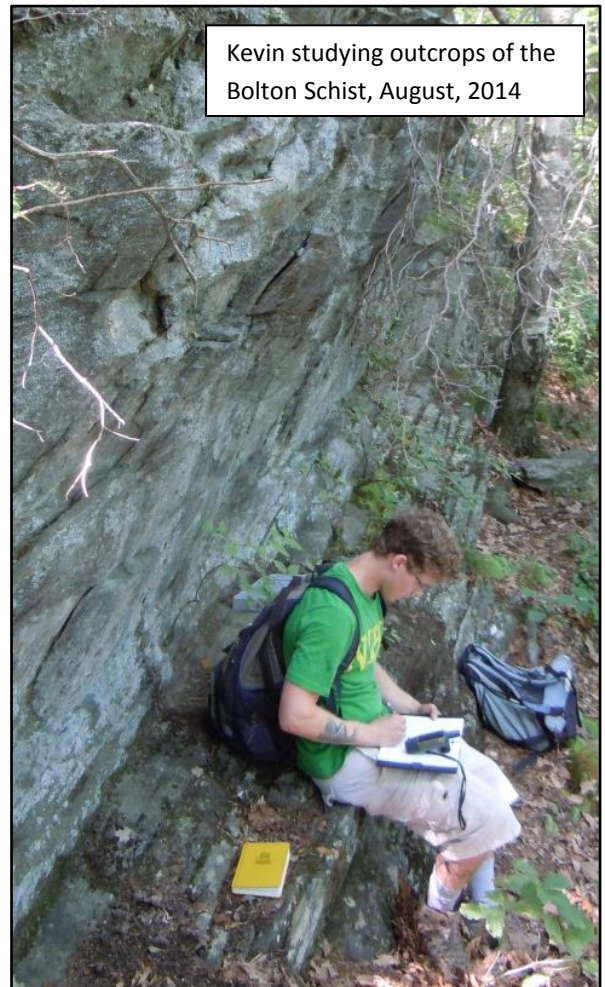
Faculty Mentor: Bryan A. Oakley

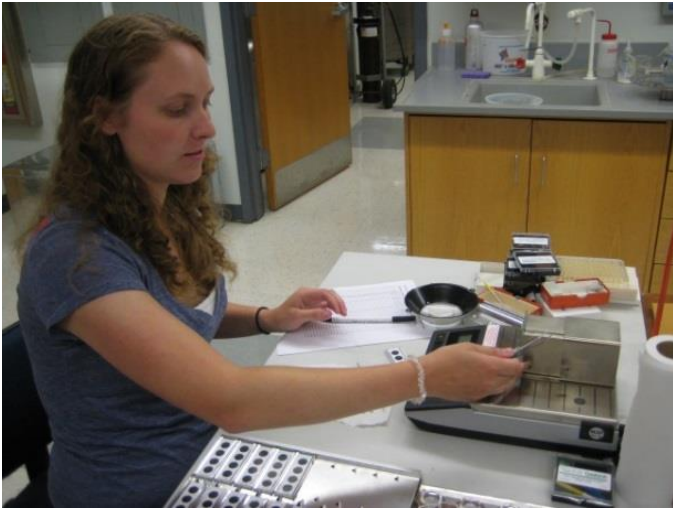
Project: Amber assisted in the field on Napatree Point, Misquamicut State Beach and Block Island in the summer of 2014. Fieldwork in Misquamicut involved last-high tide swash (LHTS) and beach profiles, examining changes to a recently replenished beach. Fieldwork on Block Island included: mapping the LHTS, photographing the bluff shorelines, measuring the position of the crest of the bluff along portions of the Block Island shoreline and determining the thickness of the washover fan deposits on the Nature Conservancy property at Beane Point. Amber enrolled in a practicum in the fall, 2014 semester, and is currently examining bluff erosion using topographic profiles extracted from LiDAR imagery collected pre- (2011) and post- (November, 2012) Superstorm Sandy. This work will be presented at the Northeast section meeting of the Geological Society of America in March 2015. Amber has also continued to be involved with fieldwork during the fall semester and winter 2014/2015.

Student: Kevin Mokoski

Faculty Mentor: Dickson Cunningham

Project: Kevin's Project involves investigating the structural geology of the Valley Falls-Bolton Notch staurolite schist belt in Vernon and Bolton, CT. Kevin's project is important for documenting the folding history between Bolton Notch and I-84 within a corridor of schist and quartzite that are complexly deformed. His preliminary results indicate the presence of a regional antiform that has never been documented before. This suggests that the famous Bolton Syncline is part of a high-strain domain characterized by very tight and overturned, east-vergent folds. Kevin has collected a large amount of structural data and is generating a new geological map using a high-resolution LiDAR basemap. During autumn-winter, 2014, Kevin is compiling and analyzing his field data and generating a new detailed geological map and cross-section of his study area. His results are new and potentially publishable. He will present his research results at the ECSU CREATE conference in spring, 2015.





Stephanie Rogers at the UMass Amherst stable isotope geochemistry laboratory (August 2014)

Student: Stephanie Rogers

Faculty Mentor: Steve Nathan

Project: EES senior Stephanie Rogers conducted original research that investigated historical changes in global climate. By studying microscopic organisms preserved in deep sea sediment cores, Stephanie's research could provide clues to the timing of a historical shift in regional, perhaps global, climate and/or ocean circulation. This is possible because the microorganisms she studied record environmental conditions at the time they lived. This in turn, provides clues as to how global climate changed during Earth history. Because Stephanie's research built upon work done by another EES

student (summer 2013; Tim Bugden), she was able to use that student's data to determine the spatial variability of how marine sediments are preserved in the paleoclimatic/

paleoceanographic record. Stephanie continued her summer research through a two credit Independent Study (EES 488; completed fall 2014). She presented her research at the November 2014 annual COPLAC student research conference. Stephanie may also present her research at the spring 2015 ECSU CREATE conference.

Student: Trent Stevens

Faculty Mentor: Drew Hyatt

Project: Trent Stevens, an EES sophomore, contributed to field work at Andover Lake in June 2014. Together with others on the research team, Trent helped to collect core samples and ≈ 2 km of ground penetrating radar data to assess the nature of deposits beneath the lake bed. Through follow-up practicum coursework (EES 392) Trent has begun to analyze three sediment cores to understand the physical and chemical properties of soft sediments. These activities have taught Trent how to split, subsample, analyze and interpret sediment cores. He will combine his findings with those of Samantha Walter in a poster presentation at the spring 2015 CREATE conference.



Ashley Hole (left) and Trent Stevens (right) prepare to collect ground penetrating radar data on Andover Lake. Trent is driving a pull boat (in reverse) while Ashley is managing controls on the GPR unit.

Student: Brandan Sumeersarnauth

Faculty Mentor: Bryan A. Oakley

Project: Brandan assisted in the field on Block Island in the summer of 2014. Fieldwork in Napatree involved mapping the position of last-high tide swash (LHTS) and collecting RTK-GPS based beach profiles. Fieldwork in Misquamicut also involved LHTS and beach profiles, examining changes to a recently replenished beach. Fieldwork on Block Island included: mapping the LHTS, photographing the bluff shorelines, measuring the position of the crest of the bluff along portions of the Block Island shoreline and determining the thickness of the washover fan deposits on the Nature Conservancy property at Beane Point. Brandan is currently working on a project that began in 2013, to use photographs and GPS measurements collected in the field to mosaic photographs and obtain an approximate X, Y (latitude and longitude) location of the photograph, in the larger context of a shoreline change study. He will become more comfortable with geologic terminology, shoreline processes, and become proficient with Adobe Photoshop and ArcMap or similar mapping software in this practicum. The photomosaics created are part of a GoogleEarth based database of the Block Island bluffs. This work will be



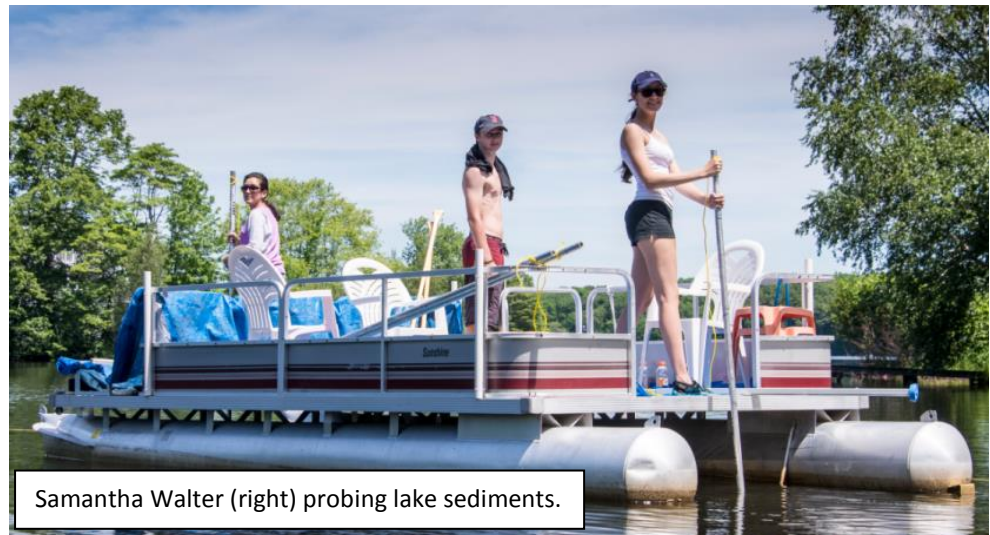
Brandan on Block Island.

presented with Mike Manzi at the Northeast section meeting of the Geological Society of America in March 2015. Brandan has also continued to be involved with fieldwork during the fall semester and winter 2014/2015.

Student: Samantha Walter.

Faculty Mentor: Drew Hyatt

Project: Samantha Walter worked as part of a 4-member research team to measure the thickness of soft sediments that have accumulated in a shallow bay at the south end of Andover Lake in Eastern Connecticut. This work included two weeks of intense field work in June of 2014 probing the lake to measure water depth and the depth to refusal at



Samantha Walter (right) probing lake sediments.

approximately 225 locations in the bay. The research team used Trimble Global Position Systems to measure sample locations. Since September, Samantha has undertaken a practicum course (EES 392) in which she has learned to use ArcGIS and Surfer software to process field data, to construct three-dimensional models, and to estimate volumes of lake sediments in the bay. This research is of considerable interest to the Andover Lake Management Association as they are trying to evaluate whether it would be necessary and/or feasible to dredge the bay in the future. Samantha will present a joint poster on this work with Trent Stevens at the spring 2015 CREATE conference.

Faculty Profiles

Catherine A. Carlson, Ph.D.

Greetings, everyone. As the academic year winds down, it's a great time to revisit the teaching highlights of the year. I taught EES 322 Hydrology both Fall and Spring semesters as our enrollment remains high. I replaced the exams in this course with a portfolio a couple of years ago, and both students and instructor continue to reap benefits from this change. Students are taking charge of their learning and building their portfolios, demonstrating the skills and knowledge they develop through coursework. I find it very rewarding to see students own their learning, and I am convinced that more learning is occurring now than when I gave exams. Over the course of the last year, I've taken a couple of 2-week short courses on writing both learning objectives and assignments that further those learning objectives. It has been fun to delve into the process of teaching/learning and revise the hydrology course accordingly. I've put these approaches to work in my other courses, too.

This year, I revived the Geology of National Parks course (EES 106), offering it both Fall and Spring semesters. What a blast to explore basic geology through the national parks! Both the National Park Service and the USGS maintain great websites that we used to investigate physiographic provinces and specific national parks. We cover most of the physiographic provinces using at least one national park to illustrate each province's most characteristic features. The capstone project requires students to plan a 2-week vacation to at least 3 national parks including itinerary, sightseeing plan, and budget. Each student gave an oral presentation on their vacation plans that covered the geology they would see on the trails, tours, and drives at their chosen national parks. If only we could actually take some of those trips!

Last, but certainly not least, I offered EES 323 Drinking Water Management Spring semester in support of the new Health Science interdisciplinary major at Eastern. I originally developed and taught this course online, so this was the first time I taught it on-ground. What a fantastic group of students! Public health and EES students, and even a few students taking the course just for fun, explored water quality issues, public water systems, source water protection, sanitary surveys, the Safe Drinking Water Act, and much more. Oral presentations of group and individual projects broadened the range of topics covered. I learned as much as they did! With the large number of Health Science majors, I'll likely be offering this course on a regular basis. One of our EES majors who took the course, Connor Dunleavy, will be doing a practicum this coming Fall semester reviewing and evaluating resource materials and assisting in writing new assignments/projects for use next Spring.

It's always great to hear from alumni about how you are doing; feel free to drop me a line.

Dickson Cunningham

It has been another hectic, but fulfilling 12 months for me as I complete my third year at Eastern. At the time of writing, I have been promoted to full professor with tenure, and the transition from my previous career and life in the UK to Connecticut now feels complete. The Department of Environmental Earth Sciences has gone from strength to strength in recent years and I am proud to be a part of its ascendancy.

I travelled less this year than any other during the last 30 years, but still managed to run the Arizona field trip with Drew Hyatt and 16 students last May (see separate report in this newsletter) and I went to the GSA Annual Meeting in Vancouver where I convened an oral session on *Contrasting Styles of Phanerozoic Orogenesis in the Continental Interiors of Asia and North America*. On my way back from Vancouver, I stopped in Oregon for a few days to visit with family and managed to squeeze in a hike on the upper slopes of Mt Hood and collect dacite samples for my mineralogy and petrology class!

On the research front, I have completed a new paper on the neotectonics of the North Tibetan foreland and published a chapter for a book on the Central Asian Orogenic Belt concerning the network of active fault systems within the Gobi corridor region of China and Mongolia. I also have my last PhD student in England (Rowan Vernon) completing her dissertation and I have been busy reviewing her chapters and helping prepare them for publication. Her project involves the evolution of the eastern termination of the Altyn Tagh Fault along the northern margin of Tibet and the crustal architecture of transpressional basins and bounding ranges adjacent to the fault.

Here in Connecticut, I have supervised 2 student research projects during the last year. Kevin Mocoski worked in the Bolton Schist belt near Valley Falls, Vernon and collected a large amount of structural data indicating the existence of a large overturned regional anticline adjacent to the famous Bolton syncline. This is a new discovery. Ujjwal Davda documented the complex tectono-magmatic history of the Rope Ferry Gneiss Formation along the Waterford coastline where superb agmatite and polydeformed gneissic basement exposures reveal at least 6 structural and intrusive events within mid-lower crustal Avalonian basement. In addition to my student projects, I continue to investigate the geology between Willimantic and Salem along a N-S transect focusing specifically on the world-class exposures of extensional shear zones and boudinage that reveal the orogenic collapse history of eastern CT. In February, the earthquake swarm in Plainfield, CT attracted a lot of media attention and I was interviewed several times for TV and radio about the seismic hazard in Connecticut, fault reactivation processes and the bedrock geology of eastern CT.

I continue to teach introductory geology, structural geology, mineralogy and igneous and metamorphic petrology. I also taught a new course on continental tectonics this spring and hope to continue to teach the annual field course in Arizona, Idaho or a future destination such as Oregon, Iceland, or Wales. I am convinced that these 1-2-week field experiences are unique opportunities for our students to enhance their understanding of earth and environmental sciences, develop other important transferable skills, and strengthen their resumes.

In terms of University service, I am the EES Senator and have been invited to serve on the University's new 10-year Master Plan. I am also Assistant Chair through the next academic year and also served as Chair of the University's CREATE conference in April and will do so again next year. CREATE stands for Celebrating

Research Excellence and Artistic Talent at Eastern and is the main forum for students from all departments to showcase their undergraduate project work. This year EES contributed 13 presentations to the CREATE event.

Finally, on the personal front, we are now very settled into our Lebanon home and continue to gradually move towards a more sustainable lifestyle with solar panelling installed, newly planted fruit and nut trees, a big vegetable garden, and we expect to add some chickens soon! We enjoy discovering New England's 4-season attractions and took a camping trip to New Hampshire last summer and a ski trip to the Berkshires in February. We also returned to England to visit with family and friends last summer.

I want to extend my personal congratulations to all 2015 EES graduates and remind our alumni that we love it when you come back and visit with us and tell us how your lives are progressing. Please remember that EES will always be your home on campus.



Atop Mt Kearsarge, New Hampshire with my son, Samuel



Dickson and Drew Hyatt with eroded Humphreys Peak strato-volcano and several cinder cones in distance, San Francisco volcanic field, northern Arizona.

Peter Drzewiecki

Fond greetings to everyone! The 20014/15 academic year has come and gone, and it has been a very busy year. I have just completed my second year as department chair, and this past semester, I assumed many of Drew Hyatt's duties while he was on sabbatic leave. Needless to say, I am ready for summer!

Summer 2014 was filled by two primary activities: (1) the development of a field course on carbonate rocks for the Norwegian Oil Company, Statoil, and (2) a family trip to Hawaii. My oldest daughter was heading off to college in fall, so we planned a big family trip to Hawaii. We had lots of fun exploring Oahu and the big island of Hawai'i. Highlights included seeing sea turtles, climbing a volcano, snorkeling with humuhumunukunukuapua'a (look it up!), zip-lining over a 450 ft. gorge, visiting Pearl Harbor, and hanging out on one of the world's Top 10 prettiest beaches. Everyone had a great time on the trip! The picture above is me with my kids, with the Mount Kilauea caldera in the background.



When I got home, I spent a busy month writing a guidebook and preparing 42 field posters/exercises for the trip to Spain.

At the start of the academic year, I drove to Pennsylvania with my family to drop my eldest daughter off at college – an emotional event for all. During the academic year, I once again taught Ancient Environments (fall) and Sedimentation and Stratigraphy (spring). The fall semester was interrupted by the actual trip to Spain to run the field course for Statoil (to the left is a picture of me showing off a giant rudist clam). Since it occurred early in the semester, we were able to get back on track. Spring was a different story. Weather-related closings wreaked havoc on the semester, and it never seemed to get in a groove. In March I went to give a talk at West Virginia University (which was cancelled because of snow!). I went with other faculty and students to the Northeast Geological Society of America meeting in New Hampshire (at the foot of Mount Washington). It was a great event, and it is always wonderful to see students present at their first research conference!

Professionally, I continue to plod along with two research projects. The first is to gain understanding of the sedimentology and stratigraphy of the Hartford Basin. An EES student, Matt Marsie, worked with me on this project. This year's effort involved looking at a core from a fault zone in the basin, and trying to understand the stratigraphy around it. I have also continued on research opportunities established through my work with

Statoil. Of particular interest is trying to understand the tectonic and climatic controls on the deposition of Cretaceous reefs, now exposed in Northern Spain. Results have been coming in slow, but that is OK... it just means more trips to Spain. Below is a picture of some of the outcrops (top), and the tube-shaped rudist clams that make up the reefs (bottom).

I hope all is well with each and every one of you. I would love to know how things are going. Feel free to call (860-465-4322) or send an e-mail (drzewieckip@easternct.edu).



Drew Hyatt

Another year has flown by and I have several items that are new this year. First, for spring semester, I have been on sabbatical working on three research projects. The first extends from previous research at Providence Canyon State Park in southwest Georgia. This project has involved a joint Art and Geology exhibit at the Macon Museum of Arts and Science entitled “Art Rocks” that is in collaboration with Eastern faculty member and noted landscape artist Andy Jones (who designed the CT quarter). We presented at the opening to the 2 month show and were able to view the art work and scientific exhibit which occupied about 2000 square feet in the museum. I also presented on prior research at the park through invited presentations at Central Connecticut State University and at Trinity College. Work on a related manuscript is on the docket for the summer. Secondly, I spent approximately 2.5 weeks re-scanning the main track-site at Dinosaur State Park resulting in a point cloud of approximately 1.5 million survey points that are being used to prepare 3D prints and image maps in support of educational resources for the park. In fact, these efforts build upon initial efforts by Jacqueline Lorange who finished an independent study project this semester and presented at the Northeast Geological Society of America meeting in Bretton Woods, NH (as well as the Eastern student CREATE conference). The new scan data will also support collaboration with a well-known dinosaur track specialist who will be conducting research at the park in late June. Thirdly, although I am just getting going, I am working with DEEP State Geologist Margaret Thomas on preparing summaries of ground penetrating radar signals for common near-surface materials in Eastern Connecticut as well as visiting some meltwater erosion sites near North Franklin.

This spring has also been busy as, in addition to Jacqueline, 3 of my previous summer’s students prepared posters and presented research. Research with Ashley Houle focused on collecting and processing 2D and 3D radar from a nearby gravel pit. Interestingly, we also collected terrestrial laser scanning data that will eventually enable visualization and quantitative comparisons of surface topographic models and subsurface radar volumes. In addition, Samantha Walter and Trent Stevens , with Ashley’s assistance, collected probe data and sediment cores from a shallow bay at Andover Lake to analyze the volume and physical character of infilling sediments (I include another piece in this newsletter on this). This research is helpful to the Andover Lake Management and Andover Lake Owners Associations as they contemplate whether dredging is feasible and/or advisable. Samantha and Trent did a fine job presenting a joint poster, as did Ashley on her GPR studies, at the inaugural CREATE conference at Eastern. I will be giving a presentation on the geologic and geomorphic history of Andover Lake at the Andover Lake beach in August as part of a celebration of the 80th Anniversary of the lake associations.

While the foregoing has kept me busy, the highlight of the year for me was an 8-day visit with Trudy and our son (Jake) to visit our daughter (Hannah) while she was on a semester abroad study at the University of the US Virgin Islands. We rented a wonderful house near Coral Bay on St. John and had a fantastic time hiking, boating and snorkeling. In fact, it is the first time I have ever snorkeled on a live reef and it absolutely blew my mind. I include a couple of photos from this trip.

Still ahead this summer, in addition to continued work on projects listed above, will be some new research with EES majors Kevin Veilluex and Ryan Brodeur. The focus primarily will be on collecting GPR and core records from Church Farm in Ashford. Specifically, we plan to investigate the extent to which radar can capture surficial transitions (till to alluvium, esker to modern wetlands) and soil characteristics along a terrestrial to subaqueous transect at the site. This work will build upon a previous research by Toni Langevin at the site several years ago. We may also team up with Dr. Oakley to collect some radar data from a sinkhole site on Block Island, RI later in the summer.

In closing, my spring 2015 sabbatical has been an excellent opportunity to delve into several projects and to have a bit of down-time from classes and meetings. That said, I am pumped to return to the classroom in the fall and look forward to a hectic but enjoyable semester teaching field methods and process geomorphology. I wish you all well and, alumni please let us know if you are going to be by the department as it is always enjoyable to catch up.





A panoramic view of the north shore of Saint John Island in the US Virgin Islands. The Island provides stunning vistas and great hikes.



My daughter dives down to say hello to a sea turtle while snorkeling near Ram's Head on the US Virgin Islands.

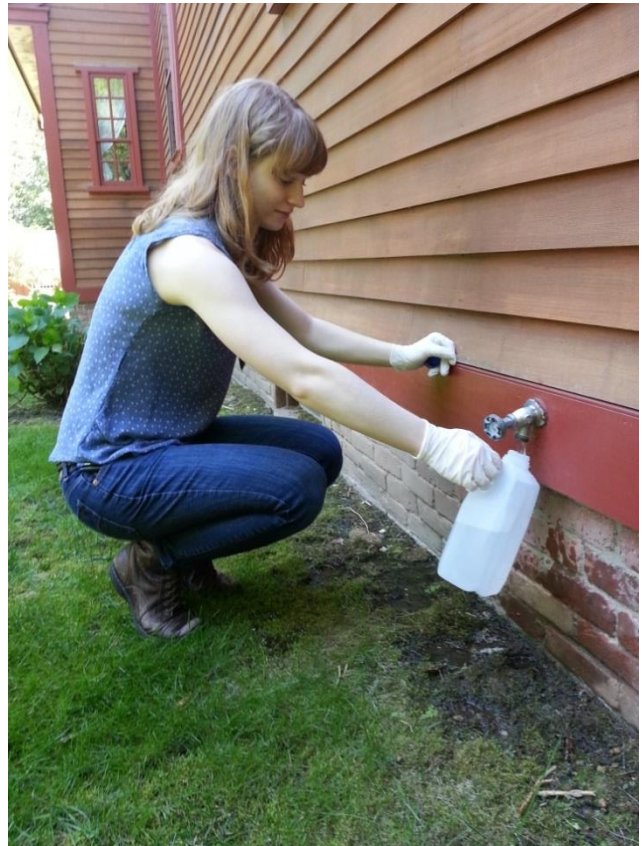


One of the many colorful scenes that are visible while snorkeling around Saint John Island, US Virgin Islands.

Meredith Metcalf

It's hard to believe that another academic year has ended and it is time to celebrate the accomplishments of our graduates. As I sit down to reflect on the year, I'm amazed at how much has happened. Where to begin!

My role in the Health and Life Sciences Career Initiative began early last May. Matthew Marsie, an EES student, worked with me for six weeks to demonstrate the use of geographic information systems in addressing public health issues. In a short time, Matt and I taught students how to use GIS, collect data, and present their findings on the health and walkability of Willimantic as a poster presentation. This summer Samantha Boyle will help guide students through the program and provide much needed support for them to complete individual projects using GIS. In between my contributions to the Health and Life Sciences Career Initiative, Laura Markley and I were conducting necessary field work for her Honors Thesis. In cooperation with the Department of Energy and Environmental Protection, the Connecticut Geological Survey, and the Department of Public Health, Laura examined the distribution and potential sources of arsenic in groundwater in Lebanon, Connecticut. Laura did a great job with her research and was able to present her findings at several conferences throughout the year. Dan Grondin and Samantha Schwarz contributed to this work as well by assisting in the digitization of many water quality reports and bore logs for the town. This analysis has sparked quite an interest and more research is needed to completely understand the complex groundwater conditions that are causing an increase in arsenic for some areas of Lebanon as well as many other areas across the State. This research will allow additional groundwater issues to be examined this summer by Sydney Day, Joel Hara, and Katie Quimby.



Laura Markley collecting water samples for her Honors Thesis during the summer of 2014.

This year I once again assisted my husband (a professor of architecture at Three Rivers) on the annual travel-study program he leads. The educational trip was a nice way to revitalize during the semester of teaching two advanced courses. We traveled to Rome, the Amalfi Coast, and circumnavigated Sicily, studying the architecture, engineering, infrastructure, and general history left behind by the Greek and Roman Civilizations. EES student Joel Hara participated on the travel study on a partial scholarship provided through a joint effort between our Colleges. Dr. Gary Robbins, my former advisor and Professor of Hydrogeology in the Department of Natural Resources and the Environment at the University of Connecticut who was in Italy conducting research, was a visiting guest along the entire tour. He provided valued insight on ancient quarrying techniques, Roman city organization, and specifically the complex and effective Roman aqueduct system, providing a lecture-tour of Aqueduct



Joel Hara and Meredith Metcalf at the base of Mount Etna in March of 2015 (weather did not permit a picture at the summit.)

Park and the convergence of aqueducts at Porte Maggiore. Geological interests are embedded in the history of all areas concerning these civilizations as the focus of building and engineering materials, aqueducts and sewers, groundwater sources and agricultural impacts. We ascended the volcanoes Aetna and Vesuvius (see photo), where we reviewed the historical and potential impacts of these effusive and explosive volcanoes respectively. Considered gods by the ancients, their activities not only led to loss of life; they also provided abundant and durable basalt as a building and road material while creating the unique qualities of agricultural products in this region.

Congratulations to our graduating seniors! I wish you all the best and I'm excited to see where life will take you next!



2014 Christmas Greeting Card from EES

Stephen Nathan

This past year was a very exciting one for teaching and engaging students in research. In the classroom, students in my EES 205 Sustainable Energy (lecture) and EES 207 Sustainable Energy Laboratory learned the latest about advances in generating electric power via solar, wind and other renewable sources. In my advanced class, EES 402, Energy Issues in Geoscience, a writing intensive course, I expanded the topics of oil and gas exploration, particularly in the highly contentious area of hydraulic fracturing (aka, fracking). In this class I have also introduced a unit on geothermal energy, a subject in which I carry out basic research with my students.

Speaking of geothermal research, during summer 2014, three EES undergraduates joined me in the field to collect glacial sediments for geothermal analyses. The data collected from these analyses can lead to the design and installation of more efficient geothermal heating/cooling systems (known as ground source heat pumps). We focused our collection in and around metro Hartford, in part, to have this material coincide with similar material collected by the City of Hartford's Metropolitan District Commission (MDC). As it happens, the MDC is planning the construction of a storm water tunnel. To do this, they have collected numerous test borings of the bedrock and overburden that the tunnel will go through. We (yours truly and EES Professor Peter Drzewiecki) were fortunate to gain access to the warehouse containing the MDC borings and, to strike gold twice, gained permission to analyze select samples. The MDC material consists of bedrock cores and split spoon samples of the overburden that were collected using a professional drill rig.

Our research goal was to compare the geothermal characteristics of glacial sediments we collected by hand to the test borings collected by the MDC drilling rigs. Test borings are expensive to obtain, so the question is, can samples collected more cheaply by hand serve as a reasonable substitute to those collected by the MDC? One of my summer students investigated this question through an Independent Study during the past academic year. This student presented his results for this pilot study at the 2015 Geological Society of America Northeast Section meeting (at the Mt. Washington Hotel, Bretton Woods, NH). His findings indicate the need for more samples and analyses; ideally this will provide for a more robust data set and stronger conclusions. Looking forward, we've done just that, a new crop of students are analyzing a new batch of samples collected this past summer (2015).

During the past academic year, a fourth student of mine started a project to investigate global climate change by looking at the historical development of the East Asian Monsoon and the Western Pacific warm pool, key components to the modern day waxing and waning of El Niño and La Niña. Studying this region of the world and the techniques used in this research are of vital interest to the energy industry and policy makers. This student continued the project as a two semester Independent Study and presented her results at the 2014 annual northeast regional meeting of COPLAC (Council of Public Liberal Arts Colleges; at Keene State University, November 2014) and at Eastern's CREATE conference (April 2015).

I look forward to engaging all my students in energy geoscience; in the classroom and in the laboratory. My goal is to give all students at Eastern the strongest possible preparation so they can succeed in the rapidly growing and competitive fields of sustainable energy and energy geoscience.

Bryan Oakley

Wow! Why is it when we look ahead to the end of the semester it seems to arrive at a glacial pace, yet the beginning of the semester seems like yesterday? This was a busy academic year; in addition to my introductory courses, I taught a special topics course in Coastal Geologic Hazard in the fall, which involved two field-trips (one in conjunction with an NEIGC field-trip I co-wrote and co-lead) and just finished teaching Landform Analysis while Dr. Hyatt is on sabbatical. Research projects have continued monitoring the shoreline on Block Island (collaborating with volunteers), Napatree Point and Misquamicut State Beach, and I am starting with two new students this summer on these projects. EES Students Mike Manzi and Brandan Sumeersarnauth completed the Block Island Bluff Photo database. This on-line database serves as a 'virtual' field-trip for the bluffs of Block Island. The bluffs of Block Island represent a world-class exposure of a tectonic end moraine, and the complex stratigraphy and topography creates a vast array of landforms as the bluffs erode from waves during storms, as well as via surface water and groundwater processes. Utilizing Google Drive, Google Earth and Spreadsheet mapper, the images are housed on an external website, and accessed via the Google Earth KMZ file. This creates a relatively small file for the user to download, although the speed of the connection does impact how fast the images can be viewed inside of Google Earth. Check them out via my Eastern website! EES Students Amber McDonald and I continue to examine bluff erosion at Block Island using LiDAR derived elevation models, and Josh Bartosiewicz and I are in the homestretch of a USDA/NRCS funded project mapping the seafloor around the Thimble Islands in Connecticut. Mike, Brandan and Amber all presented on these projects at the 2015 Northeast Geological Society of America Meeting this past March in Bretton Woods, New Hampshire. Mike is graduating in May and Brandan is off to do a salt marsh internship with a colleague of mine this summer, and both will represent Eastern well! Outside of Eastern I continue to be involved with the Rhode Island Shoreline Change Special Area Management Plan as we work on science and policy aimed at guiding sustainable development along the RI shoreline. More information on these projects can be found on my website: <http://www1.easternct.edu/oakleyb/>

On the home front, my kids continue to grow; Aidan is 5 ½ and Haley is approaching 2 ½, and give my wife lots of fun, fast times (and even furious; if you have a toddler, you know!)! Aidan is counting the years until he is old enough to be Dad's field assistant at the beach, and Haley is just trouble (in a good way!). Our home improvement projects that started when we moved in last March have started to wind down from major construction to minor renovations and landscaping, but will continue to consume my weekends this summer!

As many of my research projects are continual and on-going, I am always looking for motivated students to help with field and lab work, especially if you have already taken GIS!



Prof. Oakley on top of Cannon Mountain, New Hampshire; wind chill -35°F as part of a fieldtrip for the 2015 Northeast Geological Society of America Meeting

Evening Lecture – Grover Fugate, RICRMC

The EES department hosted Grover Fugate, Executive Director of the Rhode Island Coastal Resources Management Council (RICRMC) on Tuesday, 18 November, 2014. Grover has held the position of Executive Director of RICRMC for nearly 29 years, and is one of the nation's experts on coastal policy. As executive director of RICRMC, he is responsible for overseeing the development of all policies and programs for the state's coastal program, and is currently the project manager for the RICRMC's new Shoreline Change Special Area Management Plan (SAMP). The 'Beach SAMP' is a forward-looking plan at how climate change is affecting Rhode Island's shoreline. The overarching goal of the SAMP is to develop appropriate, science-based responses to this threat and protecting the state's coastal infrastructure, and guide future planning efforts to include sea level rise and shoreline migration. In addition to his duties as Executive Director, Grover also serves as the state Co-Lead to the Ocean Planning initiative for the Northeast Regional Ocean Council and is the state Co-Lead for the Regional Planning Body established under President Obama's Executive Order on the National Ocean Policy. Grover has authored various academic journal articles on coastal resources management, and serves as an adjunct faculty member at URI Marine Affairs and is a guest lecturer at the Roger Williams University Law School on Coastal and Marine Law. Prior to coming to Rhode Island, Grover was the Director of Shore Zone Management for the Province of Newfoundland and Labrador. He holds an MBA from Memorial University of Newfoundland, and a BS from the University of Connecticut. Grover spoke about coastal management, the role of science in coastal planning and the on-going Shoreline Change Special Area Management Plan. While the impetus for the talk was the EES course: Special Topics in Coastal Geologic Hazards, other EES students and faculty interested in coastal geology, ecology, resource economics, environmental management or planning attended the talk and it was very well received and informative.

Paul Torcellini

This past academic year was the first for new sustainable energy faculty member, Paul Torcellini. Dr. Torcellini has over 20 years of experience with the National Renewable Energy Laboratory, a national laboratory of the U.S. Department of Energy. He specializes in energy efficiency and sustainability of the built-environment. He has a passion for teaching and doing applied research in renewable energy and building efficiency systems and brings a wealth of knowledge to the Environmental Earth Science Department in the Sustainable Energy Track.

The Center for Sustainable Energy is focused on training and educating students and faculty on minimizing the impact of non-renewable energy sources. This not only includes the energy consumption of buildings, but transportation and manufacturing. During the past year, laboratory equipment has been refreshed with the latest in building diagnostic tools and data logging equipment, additional equipment has been purchased for new demonstrations, and laboratories rewritten to reflect the latest thinking in this rapidly evolving and growing field.

Sustainable energy efforts at Eastern is coordinated through the Center for Sustainable Energy (CSE), housed by the EES Department; Eastern facilities; and the Institute for Sustainable Energy (ISE) also located on Eastern's campus. With the addition of Dr. Torcellini on the faculty, Lynn Stoddard as the new director of ISE, and Renee Keech as the interim director of facilities, these three campus organizations are collaborating on making Eastern as sustainable as possible. Student interns for ISE and CSE evaluated dumpster (trash and recycling) arrangement and made several recommendations to improving the collection of recyclables and reducing trash. New recycling dumpsters began arriving on campus in August which are clearly marked for the new mixed recycling program. In addition, labels will be added to campus recycling with the mixed recycling message. The object is if it needs to be thrown away, it should be recycled. Not only will this improve recycling percentages, but will reduce Eastern's waste disposal fees. Look for statistics on how the effort is going as we strive for a zero-waste campus.

During the spring semester, CSE hired 4 students to create options for recycling beyond the Willimantic Waste mixed recycling program, including creating activities for Earth Day, performing research on environmental impacts of sustainable farming, benchmarking recycling efforts, and evaluating the energy impacts of Eastern's campus. In addition, a senior research project was completed evaluating the impacts of lighting upgrades in the Science Building.

In the classroom Fred Loxsom (Professor Emeritus) and Emile Levasseur (Adjunct Faculty) have been revising the content for EES205 (Sustainable Energy) to keep students and faculty teaching this course up-to-date. Dr. Torcellini has brought updated content to EES305 (Energy Resources) and EES306 (Sustainable Energy) to strengthen the green building content and the link to environmental issues. Field trips to a local combined cycle gas power plant, hydroelectric plant, wastewater recovery plant, and Eastern's energy infrastructure provided visuals of energy systems. Dr. Steve Nathan has expanded the course content of EES 402 (Energy Issues in Geoscience) as the writing intensive course for the Sustainable Energy Track. For example, students experience firsthand the challenges of hydrocarbon exploration by working in teams, and using actual field data from Exxon Mobil Corporation, to determine the quality of oil and gas in the Bighorn Basin (Wyoming). The students are also given a thorough overview of hydraulic fracturing or "fracking", which is the highly contentious method used for extracting oil and natural gas from shale deposits. In terms of renewables, the students learn about geothermal energy, a largely untapped resource that's right under their feet (and right on the Eastern campus, geothermal energy heats and cools the High Rise dormitory).



Sam Shifrin (right) gives EES305 students an in-depth tour of the restoration of the Kirby Mill.



The mid 1800's dam has been converted to hydroelectric providing up to 500 kW of clean renewable energy through four turbines.

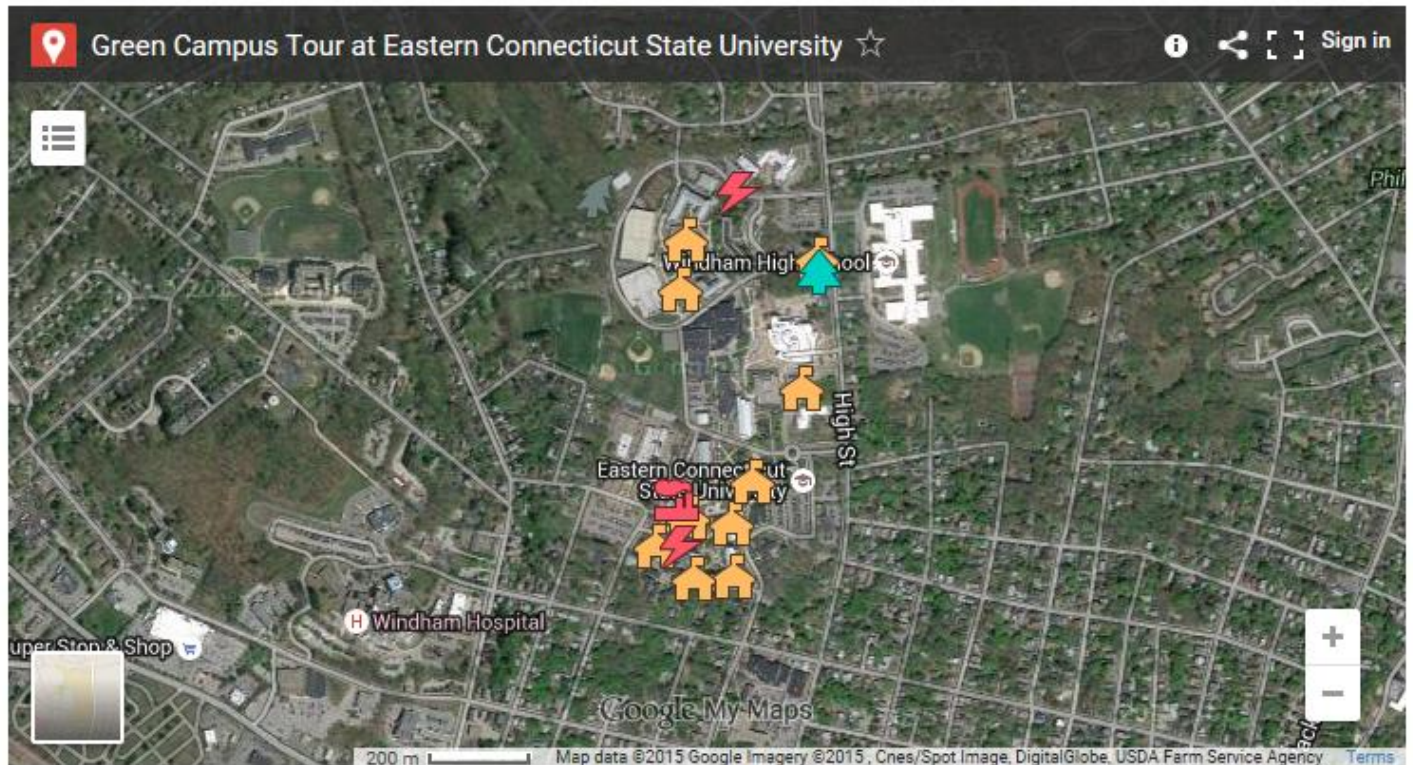


EES 305 class in front of the Kirby Mill building.

Sustainable Buildings and Grounds at Eastern

Go to: <http://www1.easternct.edu/sustainenergy/sustainable-buildings-and-grounds/>

And be sure to take the Green Campus Tour:



Commencement, 2015



**Congratulations to the
Class of 2015!**

For the Alumni

What are you up to?

We would very much like to include updates from EES alumni in our next newsletter (the 2015-16 academic year). Also, we are always interested in knowing what people are up to now. If you would like to contribute, please e-mail responses to the following questions to either Zosia (carlquitz@easternct.edu) or myself (drzewiecki@easternct.edu).

All the best for a great year!

To help us build the next newsletter, please send the following:

1. Name, graduation year, current e-mail address.
2. Tell us what you do now (and if you are ok with our including this information in the newsletter).
3. A brief paragraph updating us on what has happened to you since graduating (or over the last year, if you submitted a response for the current newsletter).

Supporting EES Students

The faculty members of the EES Department are committed to providing our students with practical research, field, and presentation experiences as often as possible. As mentioned earlier in this Newsletter, many of the activities our students participate in are supported through the EES Founders Fund, which was established for just such a purpose. We welcome your tax-deductible donations to this fund and encourage you to contact Mr. Peter Dane in University Relations (860-465-4513) if you would like to learn more about how to contribute to experiences that open minds and develop careers for new generations of EES students! Thank you in advance!