



Graduate Student Profile

In Geoscience Newsletters throughout the year, we will profile of one of our geoscience graduate students, so that we can learn more about them!

Graduate student David Hoover graduated from UConn in 2003 with a degree in Ecology and Evolutionary Biology. As an undergraduate his research concentrated on the physiology and molecular biology of desert algae.

After graduating from UConn, David spent some time traveling and working as a bartender. During this time he took several trips, including a 650 mile hike on the Appalachian Trail in 2004. His time off from school was also spent with two field research jobs. The first was studying marmot demography in gorgeous sub alpine meadows in Olympic National Park in 2005. This

previous summer was spent working at Konza Prairie Biological Station working on a variety of projects including a bison behavioral survey and grassland ecology.

While always intending on returning to school, David spent this time off deciding what topic interested him the most. One of the most influential experiences he had was a class on climate change he took while living outside of Boston. There he learned about the emerging global crisis, and the current research surrounding this topic. David found that he could combine his interest in climate change with his background in ecology for his research.

David came into the Geoscience program to use the interdisciplinary focus to examine how predicted changes in the hydrologic cycle may impact plant productivity.



David enjoys Olympic National Park in 2005

He is finishing the first semester of his masters, and will spend the winter break working in the grasslands of Kruger National Park in South Africa examining the interactions between climate, grazing and herbivory.

Season's Greetings from the Director



Very best wishes to all for the holidays! The Center's second full year has ended, during which we enjoyed increased enrollment in our undergraduate classes, and continued building

new cohorts of enthusiastic, interdisciplinary-oriented graduate and undergraduate majors. In addition, we are about to embark on a second Geosciences faculty search, for a sedimentologist/stratigrapher to add to the Earth sciences core. With

the Dean's and Provost's emphasis in strategic planning on interdisciplinary efforts, plenty of reasons to look full of optimism to the New Year ahead!

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In the News for Geosciences:

- Many paleontologists consider the cause of the extinction of most of the dinosaurs to be a closed case: About 65 million years ago, an enormous extraterrestrial object struck the Yucatán area in Mexico, creating the 200-kilometer-wide Chicxulub impact crater. Not so, according to Gerta Keller, a geologist at Princeton University. Analysis of new core samples from Texas support her previous research from 2004 that the Chicxulub meteor struck about 300,000 years prior to the K/T extinction event and, therefore, did not cause the event. Supposing that Keller is correct, and the Chicxulub impact did not kill the dinosaurs, the finding begs the question as to what caused the mass extinction. Keller suggests that a yet-undiscovered impact on the scale of Chicxulub must have occurred, to explain the anomalous presence of iridium — an extremely rare element associated with certain types of meteorites — at the K/T boundary.

Announcements, Awards, Publications, etc.

Faculty Contributions on Publications:

As a reminder, copies of these pubs are located in the 207 office, in a blue binder on the front counter, for anyone who would like to take a look or make copies.

Cardon, Zoe and Gage, D. *Resource Exchange in the Rhizosphere: Molecular Tools and the Microbial Perspective* Annu. Rev. Ecol. Evol. Syst. 2006. 37:459–88

Meeting Presentations:

Cardon ZG, Herron PM, Arango Pinedo C, Haider Z, and Gage DJ. "Live reports from the soil grain -- the promise and challenge of microbiosensors." Invited talk in symposium titled "Towards a Predictive Understanding of Belowground Ecosystem Responses to Global Change", at the Soil Science Society of America meetings, Indianapolis, IN, Nov. 2006.

O. Braissant, A.W. Decho, C. Dupraz, K.M. Przekop, K. Gallagher and P.T. Visscher. *Sulfate reducing bacterial exopolymers: Their role in calcium carbonate mineral precipitation*. Reunion des Sciences de la Terre, Society Geologique de France, Dijon, Dec 4-8.

IMPORTANT ANNOUNCEMENTS!

Northeast GSA will be held at the University of New Hampshire this spring - March 12-14th. Find out more about this professional meeting here:

<http://www.geosociety.org/sectdiv/northeast/07nemtg.htm>

Marine Conservation/Research Expedition to the Seychelles-

Expedition members are needed for periods of 5, 10 and 15 weeks to join the GVI marine research teams. Additional training is available if required, up to PADI Dive-master. Further details are outlined on the relevant webpage at http://www.gviusa.com/pages/expedition_Detail.asp?expedition=57 or can be requested by contacting GVI directly on 888-653-6028 or by e-mail: paul@gviusa.com



Undergraduate Students— looking for scholarships to apply for? If so, check out UConn's office of National Scholarships site: <http://www.ons.uconn.edu>— they have listings of current open scholarships to apply for along with criteria, website links, and application details!

Summer Fellowships: **IIASA Young Scientists Summer Program 2007**— Summer Fellowship in Austria for Graduate Students in Natural and Social Sciences, Math, Policy and Engineering.

Application Deadline is January 15, 2007. More information available here: <http://www.iiasa.ac.at/>

Faculty: Please see the back page for information on nominating Switzer Graduate Fellows—due by January 11, 2007. *Students can only be nominated, they cannot apply directly!*

GSA 2007: ANNUAL MEETING — DENVER—Earth Sciences for Society: Beginning of the International Year of Planet Earth 28-31 October 2007. NOW is the time to submit your technical program proposals. The GSA Annual Meeting is built BY geoscientists, FOR geoscientists! The Program Committee urges you to submit YOUR session proposal today. **Deadline: 9 January, 2007**

http://www.geosociety.org/GSA_Connect/0611/07denver_sesProp.asp

Now Available in the Main Office: **Cardon, Z.** and **Visscher, P.** *Report on the Geological Sciences Graduate Program:* Center for Integrative Geosciences, 2006.

Holiday Party!

Come join us on Tuesday December 12th, for our annual Geosciences Holiday Party. In Beach Hall 233 (library), the halls will be decked! Refreshments will be available all day between 10:30am and 3:30pm as a study break for students who need some time away from finals and school work.

At 12:30pm we will have a luncheon to celebrate the holidays. Associated students, faculty, and staff are welcome to join us.

So come one, come all.... And to all a good-night!



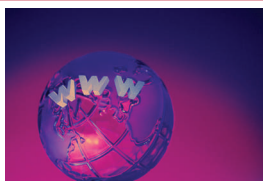
Geosciences T-Shirt Contest!



Students—design a T-shirt for the Center for Integrative Geosciences and win a free shirt! We are looking for a design with a small front logo and a full back design for T-shirts to represent our group at UConn. Submissions can be made to the main office (207 Beach Hall) or via email to geology@uconn.edu any time before the end of the semester! The winner will be announced in the January newsletter, and T-shirts will be made in the spring.

Geoscience Websites of Interest

For each newsletter that comes out, we will try to feature a few great sites related to geosciences that may be of interest to students and faculty associated with the Center. Please feel free to send any sites you find along to Abi, to be included in this section in future editions!



- **US Snow Monitoring:** From the National Climate Data Center, 'Snowfall maps are available for the most recent 1,2,3 and 7-day period by state or for the entire nation. Current snow depth maps are also available.
<http://hwf.ncdc.noaa.gov/oa/climate/research/snow/rent.html>
- **Just for fun: NORAD Tracks Santa:** Detecting Santa all starts with the NORAD radar system called the North Warning System. This powerful radar system has 47 installations strung across the northern border of North

America. NORAD makes a point of checking the radar closely for indications of Santa Claus leaving the North Pole on Christmas Eve.

<http://www.northpole.com/NoradSanta.asp>

• **Environmental Scorecards:** Provided by the League of Conservation Voters, this interesting site provides a link to an 'environmental scorecard' for 2003 which provides information on the voting records of all US congressmen in regards to environmental issues. Congressmen in the table are divided and rated by state, and a feature allows you to view the score of your own congressmen by typing in your zip code.

<http://www.lcv.org/scorecard/>

More to come in the next edition!



Upcoming Events

- **Tuesday, December 5**—Geoscience Seminar Series Presents Grad Megan McCusker, *Human Impact on the Landscape and Methods of Detection*, 3:30pm in Beach Hall 233.
- **Tuesday, December 5**—Honors geoscience course presentations 12:30pm, Beach Hall 233.
- **Tuesday, December 5**—3:00 to 5:00pm. Graduate student coffee break. Graduate Lounge SU 110.
- **Wednesday, December 6**—Grad Students, the GSS is inviting you to unwind during finals! Come get a FREE professional massage from 1-3PM in the Graduate Student Lounge, SU110.
- **Thursday, December 7**—Honors geoscience course presentations 12:30pm, Beach Hall 233.
- **Thursday, December 7**—5:00-7:00pm. Reception and Alumni Welcome for Seniors Graduating in December 2006. The event will

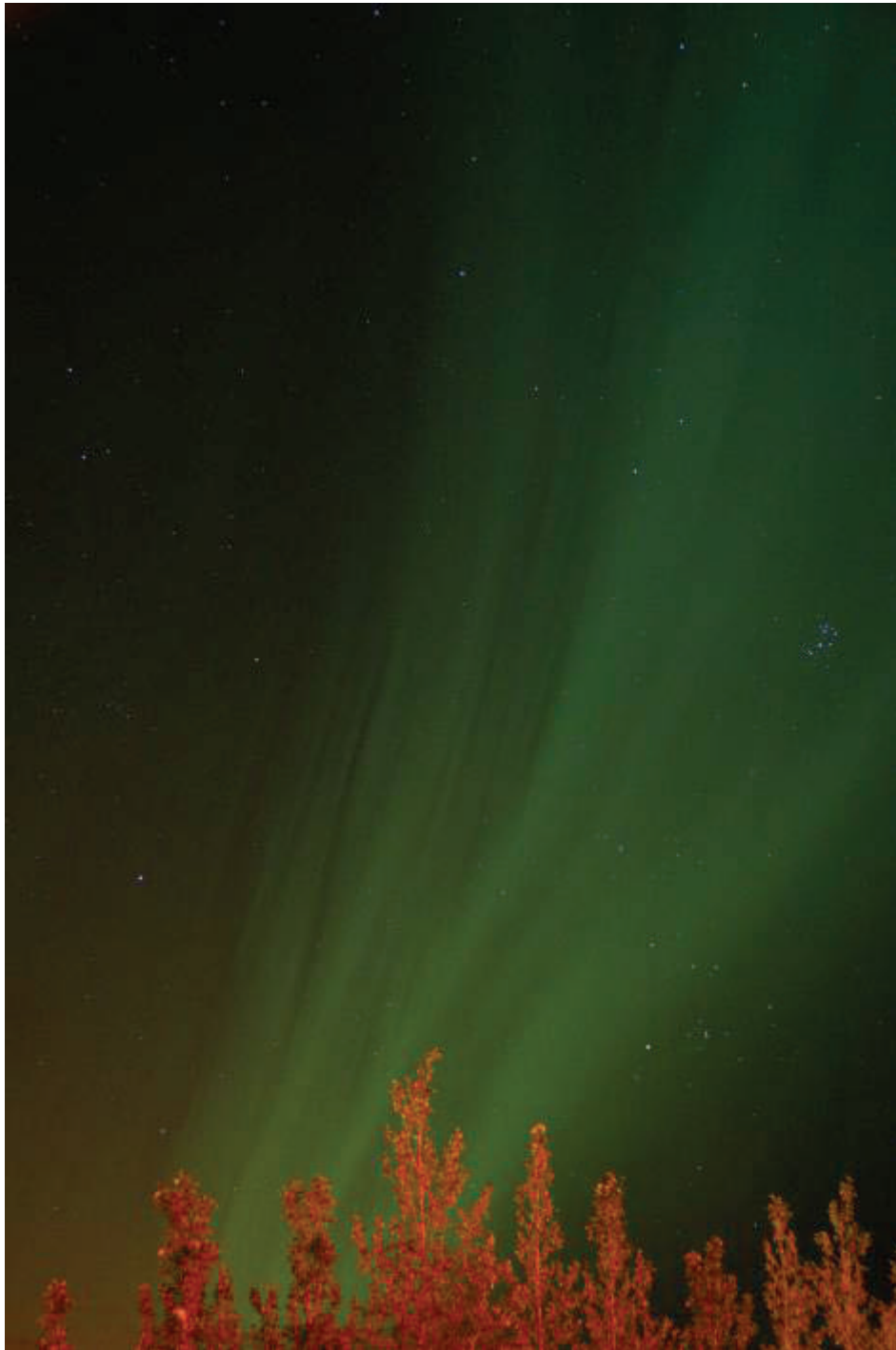
held at the Alumni Center in the Great Hall. Music, Food and gifts will be provided.

- **Friday, December 8th**—Physics Colloquium. Dr. Ronald L. Mallett, UConn Physics. Showing of BBC Documentary 'The World's First Time Machine'. Discussion with Dr. Mallett about his book on time travel to follow. P-36, 4:00pm.
- **Monday, December 11**—Final Exam Week Begins
- **Tuesday, December 12** — **Geosciences Holiday Party!** 12:30pm lunch, 233 Beach Hall. Snacks available all day 10:30am to 3:30pm. Come by for a study break!
- **Thursday, December 14**— Final presentations by new master's and PhD students of their NSF-style, interdisciplinary proposals written as part of the Geoscience Core Course. Topic: Arsenic from natural bedrock released into New Eng-

land groundwater. Beach Hall 233, 11:00am - 12:00 pm. Public welcome.



Earth Science Picture of the Day



EPOD from 11/08/2006: When fast-moving charged particles (electrons and protons) from the Sun reach Earth, they flow down into the Ionosphere along magnetic field lines around both poles. At an altitude of between 60 and 600 miles (100 to 1,000 km), these particles strike atoms and molecules in the upper atmosphere, giving them additional energy that they soon shed in the form of photons. We see this light as the Aurorae Borealis in the Northern Hemisphere and the Aurorae Australis in the Southern Hemisphere. This photo showing an all-green aurora (caused by the excitation of Oxygen atoms) was taken from Hveragerdi, South Iceland at 01:15 (Greenwich Mean Time) on September 4, 2006. Iceland is located within the Auroral Zone -- a region of 1,600 miles (2,500 km) radius centered on the geomagnetic pole. *Photo by Allan Tough, SIGMA-Moray's Astronomy Club*

Alan T. Waterman Award Nominations

The National Science Foundation is now accepting nominations for the Alan T. Waterman Award. Please see the Eligibility and Selection Criteria below for detailed information. **The deadline for nominations is December 31, 2006.** The National Science Foundation is now accepting nominations for the Alan T. Waterman Award.

Please see the Eligibility and Selection Criteria below for detailed information. The deadline for nominations is December 31, 2006. Candidates must be U.S. citizens or permanent residents and must be 35 years of age or younger or not more than 7 years beyond receipt of the Ph.D. degree by December 31 of the year in which they are

nominated.

Candidates should have demonstrated exceptional individual achievements in scientific or engineering research of sufficient quality to place them at the forefront of their peers. Criteria include originality, innovation, and significant impact on the field.

Rice Center Post-Doctoral Positions

Rice Center for Computational Geophysics: Post-Doctoral Positions in Seismic Imaging—We are seeking one or two post-doctoral researchers interested in developing and applying algorithms for structural seismic imaging with teleseismic data using direct imaging methods, i.e., depth migration and wavefield inversion.

Professional requirements are a strong background in theoretical seismology, strong computational skills, and some familiarity with teleseismic or active source seismic data processing.

The positions are for 2 year renewable to a maximum of 3 years. Rice is an affirmative

action employer offering competitive salaries and benefits.

<http://earthscience.rice.edu/ccg.cfm>

Please Contact: Alan Levander: alan@rice.edu or William Symes: symes@caam.rice.edu

Did You Know?

A new feature for our Geoscience Newsletter that reminds us of past Earth events and milestones that occurred around the time our newsletter comes out!

⇒ December 16th: The first of 3 earthquakes occurred in New Madrid Missouri (estimated 8.0 magnitude). The quakes caused the Mississippi River to change its course in 1811.



Image of Voyageurs National Park in Minnesota.

⇒ December 26th: Earthquake off the Coast of Northern Sumatra (Magnitude 9.0) sets off a massive tsunami, 2004.

⇒ January 8th: Voyageurs National Park (Minnesota) is established in 1971. This park features some of North America's oldest rocks.

GeoTrivia!

Fun with Geoscience Trivia

1. What term is given for faulted overturned folds?
2. What mineral is often referred to as Peacock Ore? (*hint: see photo!*)
3. In what state is Dinosaur Ridge?

Check your answers:

http://www.geosociety.org/GSA_Connection/0611/trivia.htm



Photo of Peacock Ore, otherwise known as....?

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UNIVERSITY OF MICHIGAN

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6 CREDITS

GEO 341

ECOSYSTEM SCIENCE
6 CREDITS

GEO 440

FIELD GEOLOGY
8 CREDITS

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- Satisfy your field requirements this summer.
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Camp Davis is a unique opportunity for students to satisfy all or some of their natural science and field requirements studying geology or environmental science in the American West. Low to no prerequisites are required, and college students at all levels, including incoming freshman, can attend. Course work includes trips to National Parks and historic sites throughout the west. Please visit our website for more information.

To remove your name from our mailing list, please click [here](#).

Spring 2007 Course Announcement

GEOL 375. Geophysical Inverse Theory. 3 credits, Lecture. The problem of fitting geophysical model parameters to data. Topics include model uniqueness, resolution, and error estimation.

$$\mathbf{Ax} = \mathbf{d}$$

This course is valuable to any physical scientist or engineer who wishes to fit physical properties \mathbf{x} to theoretical models \mathbf{A} of observed data \mathbf{d} expressed by series of linear or non-linear equations. Examples will emphasize solid earth geophysics, but other examples from physics and engineering will be used depending on the composition of the class.

Instructor: *Vernon Cormier*

e-mail: vernon.cormier@uconn.edu

ph. : 6-3547

office: P413 (Gant)

URL: www.phys.uconn.edu/~cormier

Prerequisites: Background in linear algebra, including eigenvector/eigenvalue analysis and matrix inversion (review in first two weeks of class)

Permission: PeopleSoft registration will be possible without a permission number, but contact instructor at e-mail above if planning to register. Organizational meeting time and location will be announced before first week of classes

Textbooks:

Inverse Problem Theory and Parameter Estimation, A. Tarantola, SIAM (download for free from <http://www.ipgp.jussieu.fr/~tarantola/>)
Parameter Estimation and Inverse Problems, R. Aster, B. Borchers, and C. Thurber, Elsevier (Note: includes Matlab exercises on CD).

Sea Grant Graduate Fellowships

The Connecticut Sea Grant College Program (CTSG) announces the following NOAA Sea Grant graduate fellowship programs, with applications due in 2007.

Dean John A. Knauss Marine Policy Fellowship: for students with an interest in ocean, coastal, and Great Lakes resources and in the national policy decisions affecting those resources.

NMFS - Sea Grant Graduate Fellowship Program in Population Dynamics: for students interested in careers related to the population dynamics of living marine resources and methods for assessing their status.

NMFS—Sea Grant Fellowship in Marine Resource Economics: for students interested in careers related to the development and implementation of methods

For assessing the economics of conservation and management of living marine resources.

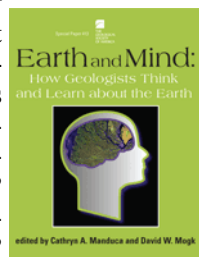
Additional information on these programs can be found on the National Sea Grant Website:

<http://www.seagrant.noaa.gov/funding/rfp.html>

Interesting Publications to Check Out

Earth and Mind: How Geologists Think and Learn about the Earth

(GSA Special Paper 413). What does it mean to be a geoscientist? What characterizes the expertise that geoscientists bring to understanding the Earth? How do students develop this expertise? Essays by geoscientists, cognitive scientists, and educators ex-

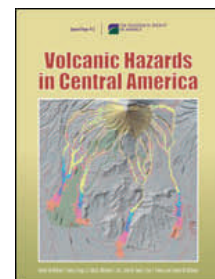


plore how expert geoscientists learn about Earth and the implications for student learning.

http://www.geosociety.org/GSA_Connection/0611/hot_spe413.asp

Volcanic Hazards in Central America (GSA Special Paper 412) is a sampling of current scientific work about volcanoes in Central America with specific application to hazards. Papers reflect a variety of international and interdisciplinary collaborations and

employ new methods. http://www.geosociety.org/GSA_Connection/0611/hot_spe412.asp





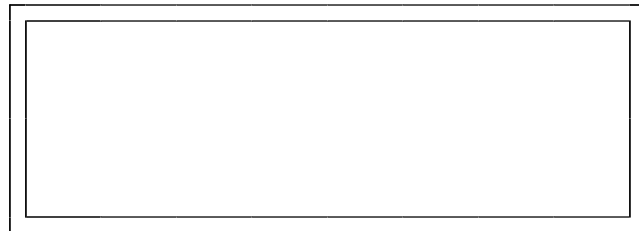
UNIVERSITY OF CONNECTICUT

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The Center for Integrative Geosciences mission is to offer transdisciplinary programs of instruction and research that advance understanding of the interaction of biological, chemical, geological, and physical processes, including feedback mechanisms, at all spatial and temporal scales that have shaped Earth through geologic time, continue to shape the environment today, and which provide the basis for understanding the present and future impact of human activity on this planet.

We will be issuing these newsletters monthly throughout the academic year to keep associated students, staff, alumni, and faculty up-to-date on the Center's activities!



Happy Holidays!

Switzer Foundation Fellowships

The Robert and Patricia Switzer Foundation invites nominations of highly talented graduate students in New England and California for Switzer Environmental Fellowships for the academic year 2007-2008. This year, the award amount increases to \$15,000. Up to twenty fellowships will be awarded to assist graduate students in a broad range of environmental science and related fields.

Deadline for Nominations: January 11, 2007

The Program: For the past twenty years, the Robert & Patricia Switzer Foundation has sponsored fellowships for environmental graduate students in New England and California. Each Fellowship award is \$15,000 and represents an extraordinary opportunity for a few, select students. This year we will be selecting the twenty-first class of Switzer Fellows since the program was founded in 1986.

The Switzer Environmental Fellowship awards are extremely competitive. Twenty Fellowships are awarded each year to stu-

dents who are enrolled in graduate programs at accredited institutions in the six New England states and California. Ten Fellowships are awarded in New England, and ten in California. They typically receive over 100 applications for the ten Fellowships in each region. A full description of the program is found on their website. (www.switzernetwork.org)

The goal of the Switzer Foundation is to identify and nurture those individuals who have the ability and determination to make a significant and early impact on environmental quality.

Candidate Profile: Candidates for the Fellowship should demonstrate leadership potential, be able to clearly communicate their objectives for applying their technical or professional expertise to environmental issues after graduation and convey a sense of purpose about their work. Candidates for the Switzer Fellowship are chosen not only for their excellence in academic and scientific work, but also on their true dedication to aggressively pursue practical solutions to environmental problems. The Fellowships

are not restricted to a specific field, but a good foundation in basic sciences is considered a plus. Past Fellows have studied in a range of fields including environmental law, public policy, natural resources management, architecture, business and journalism as well as in more traditional sciences of chemistry, biology and engineering.

The Switzer Foundation is interested in nomination of both terminal Master's degree students and doctoral students. Master's students who are likely to continue in a doctoral program should not be nominated until the doctoral stage. To be eligible, PhD students must have completed two years of study or have passed their qualifying exams by the time of their Fellowship interview date (May 12, 2007 for New England candidates, and May 19, 2007 for California candidates). Students may not apply directly for these Fellowships; a faculty member, environmental professional, or former Switzer Fellow must first recommend them, in writing. **Nominations must be received by Thursday, January 11, 2007**