

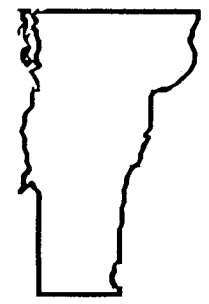
**THE GREEN MOUNTAIN GEOLOGIST**  
 VERMONT GEOLOGICAL SOCIETY  
 DEPARTMENT OF GEOLOGY  
 UNIVERSITY OF VERMONT  
 BURLINGTON, VERMONT 05405-0122

The GREEN MOUNTAIN GEOLOGIST is published quarterly by the Vermont Geological Society, a non-profit educational corporation.

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# THE GREEN MOUNTAIN GEOLOGIST



QUARTERLY NEWSLETTER OF THE VERMONT GEOLOGICAL SOCIETY  
 WINTER 1999, VOLUME 26, NUMBER 1

## CALL FOR ABSTRACTS

For the Combined Winter/Spring Meeting  
 of the  
 Vermont Geological Society  
 Saturday, April 17, 1999  
 Hosted by:

Department of Geology, University of Vermont  
 Burlington, Vermont

**Morning Session: Presentation of Student Papers**  
 A forum for the presentation of current graduate and undergraduate research on all aspects of the geological sciences.

**Afternoon Session: Professional Meeting**  
 An opportunity for geoscientists from Vermont and our neighbor states to present current and ongoing investigations and findings, with a focus on Vermont Geology.  
**Details on Page 4**

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## President's Letter

Greetings and Happy New Year,

On behalf of our members, I would like to thank Tania Bacchus for serving as the Society president this past year. Thank you also to those members who have volunteered to serve on the Executive Committee this year. We are looking forward to an eventful, yet manageable agenda for 1999. We hope to generate enthusiasm among our membership for our volunteer activities, and to see an increase in attendance at the Society's meetings - our Vermont forum for sharing current geologic research and business activity in the state.

In the immediate future, the Spring Meeting at the University of Vermont on April 17th will be a combined Winter/Spring Meeting featuring both student presentations and professional papers. The calls for abstracts for both sessions are in this GMG issue. Monetary awards are given for best presentations at both the undergraduate and the graduate student levels, and the Charles Doll Award is given for the outstanding undergraduate paper.

The Executive Committee will meet at the end of the day on the 17th; all members are invited to attend. We will be seeking members to serve on the nominating committee to select candidates for the year 2,000 officers. Another focus of the meeting will be to establish an Earth Science Week (October 10-15, 1999) Committee for 1999. In keeping with the Vermont Geological Society purposes of encouraging education, research, and service, plus contributing to the public education of the geology of Vermont, we would like to participate in this national celebration again.

We definitely need to get organized well in advance and we hope to have many of you participate. This past year, a number of our members were involved in Earth Science Week: they volunteered as organizers, field trip leaders, guest speakers at schools, geologists in the State parks, and as hosts of special events. The Vermont Geological Survey in the Department of Environmental Conservation sought the Governor's proclamation and served as a primary contact.

I would like to thank the volunteers who supported Vermont's first ES Week: Ginger Anderson, VT Dept. of Forests, Parks, and Recreation; Larry Becker, State Geologist; Alice Blount, OMYA; Barry Doolan, Geology Dept., UVM; Peter Gale, Stone Environmental, Inc.; Ruth Gibbud, OMYA; Jeff Hoffer, Hoffer and Associates; Jon Kim, Vermont Geological Survey; Christine Massey, Perkins Museum, UVM; Meg Petersen, Shelley Snyder, Mt. Abe Union High School; Kristin Underwood, Griffin International, Inc.; and Gregory Walsh, USGS

Lastly, we would like to be able to increase the amount of support given through the

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**TWENTY-SIX YEARS OF VERMONT GEOLOGY!**

## Past President's Letter

Dear Members.

Seasons Greetings from my home in the beautiful Sterling Mountains. The Fall 98 semester has now come to a close and like many of you we are preparing for the upcoming holiday season. My family and I will be spending our holidays in Florida this year - so no white Christmas for us although if you had asked me a few weeks back I would have said that there was not a great chance for a white Christmas this year in Vermont either. What a strange and unusual weather year this has been!

A recent article about the weather caught my attention this past week. According to the Worldwatch Institute, 1998 set a new record for economic losses as a result of weather-related disasters. The Institute suggested that as of the end of November global losses already totaled \$89 billion, 32,000 lives have been lost and more than 300 million people have been displaced. Let's hope that 1999 brings a more tranquil weather year as we hasten towards the new millennia.

At the recent VGS annual meeting, the executive committee and members set the calendar for the next year's field trips and meetings along with electing a new set of executive officers. Early in 1999 we will be planning several key events such as field trip venues, themes for the combined Winter/Spring Meeting professional presentations, and ideas for Earth Science Week. If anyone has any suggestions or would like to be involved in planning for these activities please let us know.

Happy Holidays

Tania Bacchus

Johnson State College

*(Continued from Page 2)*

VGS Research Grants Program, however, we need to build our coffers! Dick Ziegler, with Geodesign, Inc. in Windsor, has volunteered to try his hand at securing additional financial support for our research grant program through contacting potential donors. Also, timely payment of your annual dues will help to keep our grant program running. If you know geologists in Vermont, please encourage them to become members of the VGS. Through personal and professional connections, support of the extraordinary members of this organization, and the advancement of geologic knowledge base for Vermonters are the primary tangible benefits of VGS membership. See you in April.

Respectfully,

Marjorie Gale

**TWENTY-SIX YEARS OF VERMONT GEOLOGY!**

## CALL FOR ABSTRACTS!

Spring Meeting of the Vermont Geological Society  
Saturday, April 17

Hosted by the Department of Geology, University of Vermont

### Morning Session: Graduate and Undergraduate Paper Presentations

This session is dedicated to students conducting research in the geological sciences. Undergraduate and graduate students are encouraged to submit abstracts outlining the results of their research. Abstracts covering all aspects of the geological sciences are welcome and will be published in the Spring Issue of the *Green Mountain Geologist*. An award for "Best Paper" will be presented based upon the quality of the research, the abstract, and the presentation of the paper.

### Afternoon Session: Professional Paper and Research Presentations

Professionals working and/or conducting research in the geo-sciences are encouraged to submit abstracts outlining their research or detailing a pertinent case-study. Abstracts specifically focused on Vermont geology will be given preference if time becomes limited.

### Submittal Format:

Abstracts should be limited to one double-spaced 8.5 x 11 inch sheet and can include figures. Please submit both a paper and an electronic copy (e-mail or disk) of abstracts, reviewed by the student's advisor, to the editor at the address given below. Disks should include both a formatted and a "text only" version of the abstract (either MAC or IBM). Abstracts submitted by e-mail should be sent to: { GOTOBUTTON BM\_1\_swright@zoo.uv.edu. }. Oral presentations will be limited to 15 minutes with 5 minutes for questions and discussion. Two slide projectors and an overhead projector will be available.

Send abstracts to:

Stephen Wright, Editor  
Department of Geology  
University of Vermont 05405

TWENTY-SIX YEARS OF VERMONT GEOLOGY!

## VGS Student Research Fund Needs Member Help!

By Tania Bacchus

At the recent VGS annual meeting it was decided that the society would like to place a stronger emphasis on Vermont geology particularly in our funding of student research activities. Participants at the meeting also expressed the view that the funding level currently available to students (around \$300 per grant application) covers very little of the needs generated by these research activities. In the past funding at this level has been necessary to ensure that as many students could be included while recognizing the limited funds that the society has to work with. In this upcoming year we would like to increase the level of student research funds for individual proposals but probably will only be able to do that if we can raise additional monies (external to monies raised from membership dues). Therefore, I would like to urge members of the society to consider making a donation specifically to the student research fund so that we may realize our goal of funding students at a higher level especially those students who are pursuing research about Vermont geology.

Please clip and return the coupon in this issue of the GMG with your most generous support for our future geologists!

## Recent Publications by VGS Members

Ratcliffe, N.M., Hames, W.E., Stanley R.S., 1998 *Interpretation of ages of arc magmatism, metamorphism, and collisional tectonics in the Taconian orogeny of western New England*, *American Journal of Science*, v. 298, p.791-797. Synthesis of many new uranium/lead dates for igneous rocks of eastern Vermont and published or revised ages for published isotopic age information for western New England.

## Member News

Professor David Bucke has finished his last full time teaching at the University of Vermont. David is on research leave this semester and will officially retire at the end of this academic year. He has been an important influence in introducing hundreds of students to the wonders of geology for the last 30 years. His presence will be deeply missed by the faculty of the Department of Geology. We all wish Donna, his wife, and David best wishes for many graceful and fulfilling years in retirement.

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### Minutes From a Meeting of the VGS Executive Committee

December 10, 1998

by Shelley Snyder

Present: Tania Bacchus, Marjorie Gale, Shelley Snyder, Kent Koptiuch, and Dick Zeigler.

GMG deadline for the Spring issue will be March 20, 1999.

The Spring meeting will be on April 17, 1999. We will combine the student and professional meetings at the spring meeting.

The slate of officers elected for the 1999 year are as follows:

Marjorie Gale	President
Shelley Snyder	Vice President
Jeff Pelton	Secretary
Alan Carpenter	Treasurer
Tania Bacchus	Director
Kent Koptiuch	Director
Kristen Underwood	Director

The treasury has approximately \$1700 at the time of this meeting.

Communication with membership was discussed at some length. There is a need to streamline the process and get the GMG out in a more timely and efficient manner.

There was discussion about setting the calendar one year in advance. The following schedule was proposed for 1999:

April 17, 1999: Spring meeting

July 17, 1999: Summer Field Trip

Early October NEIGC; We may combine our Annual Meeting with this event

October 10-16, 1999: Earth Science Week

February 5, 2000: Winter Meeting

An initiative to support Vermont geology research grants through funds in addition to the VGS dues was discussed. Dick Ziegler will follow up on this. Student grant emphasis will return to Vermont geology. Outstanding research may be published in the Vermont Geology special publication. It was decided that grant amounts should not be a fixed sum, but should be based upon the funds available in the Treasury, and the merits of the proposal(s).

It was decided that Spousal memberships would be implemented discussed at the combined rate of \$25.00 as a way to encourage partners who are also interested and/or involved in geology to become members; only one subscription to the GMG would be sent with this membership.

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## NEW HAMPSHIRE GEOLOGISTS PURSUING LICENSURE

By Jeff Hoffer

The New Hampshire Council of Professional Geologists (NHCPG) was formed in October 1998, and intends to introduce legislation for the certification of professional geologists into the New Hampshire Legislature in 1999. The mission of the NHCPG is:

- to strengthen and advance the geologic sciences as a profession;
- to promote the protection of public welfare and the environment through the professional practice of geologic sciences;
- to promote high standards of ethical conduct within the profession of geology;
- to promote the legal standing of geologists and their ability to practice geologic sciences in New Hampshire; and
- to promote certification of geologists in New Hampshire through statutory regulation.

The NHCPG effort is modeled after a recent effort by the New York State Council of Professional Geologists (NYSCPG). Vermont geologists, particularly those who work in New Hampshire or New York, are encouraged to become members. Financial support is required to hire lobbyists to coordinate the legislative efforts.

For more information:

NHCPG information - Dorothy Richter, Hager-Richter Geoscience, Inc., (603) 893-9944, [dorothy@hager-richter.com](mailto:dorothy@hager-richter.com)

NHCPG Membership - NHCPG c/o Gretchen Rich, Treasurer, Coastal Environmental, PO Box 10, Epping, NH, 03042-0010

NYSCPG Membership - NYSCPG, PO Box 255, Dewitt, NY, 13214

### *Editor's Note:*

- Mississippi just completed enactment of a Registered Geologist Licensure; the grandfather period expired December 31, 1998.
- The Texas Association of Professional Geoscientists (TAPG) has recently submitted a bill to the Texas Legislature that, if passed, will include geologists, geophysicists, hydrologists, hydrogeologists, and soil scientists under the blanket *Geoscientist* license. The bill can be viewed on TAPG's web page at [www.tapg.org](http://www.tapg.org).

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## State Geologist's Report - Winter-Spring 1999

By Laurence R. Becker

### Earth Science Week

October 11 through 17 was the first Earth Science Week celebrated in Vermont and nationally. The Vermont Geological Society (VGS) and the Vermont Geological Survey received considerable encouragement and support from the American Geological Institute. In Vermont, the VGS, the Vermont Survey, UVM, individuals and businesses scheduled activities for the public.

The Vermont Survey secured the proclamation from Governor Dean who provided his much appreciated support. The Vermont Survey's level of involvement remained high as both planners, organizers, and volunteers. Marjorie Gale provided much energy and enthusiasm for the project. The Vermont Survey's first ever geologist-in-the-parks events featured activities at five areas in Vermont. Many thanks to Ginger Anderson of Forest Parks and Recreation for assistance and good advice. Our volunteer geologists for the Sunday event included Shelly Snyder, Meg Peterson, Peter Gale, Marjorie Gale, and Greg Walsh. Thanks also to Cammie McCormack at DEC who had to post changes to our web site events almost daily!

The VGS, the Vermont Survey and the Perkins Geology Museum sponsored a poster contest for Vermont students. The response was greater than expected, although we hope to increase participation next year. Judges for the contest were Christine Massey, Barry Doolan, Kristin Underwood, and Marjorie Gale. The Perkins Museum, under the direction of Christine Massey, also held two Open Houses for teachers and was the site for the evening poster contest award ceremony which the State Geologist participated in. The posters are on display at the museum.

Alice Blount, Ruth Gibbud, and other employees of Pluess-Staufner/Omya sponsored two events- a field trip to the Middlebury Quarry and a family minerals identification workshop.

Throughout the week, our hope was to involve as many volunteers as possible. The Vermont Survey and the Society coordinated an effort to bring geologists to classrooms. Thanks to Jeff Hoffer and Kristin Underwood for taking work days to visit schools. Earth Science Week concluded with a glacial geology trip led by the State Geologist in cooperation with the Green Mountain Club. The week will most probably become a yearly event depending on commitment from volunteers and support from Vermont's professional earth scientists.

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*(State Geologist - Continued from Page 8)*

### STATEMAP - Surficial Geology and Aquifers

The Vermont Survey submitted a STATEMAP grant application to the USGS on November 17, 1998. On December 15, notice was received that the proposal is fully funded. The focus is surficial geology directed toward finding ground water potential to meet municipal demands. The Vermont Geological Survey (Division of Geology and Mineral Resources) has been designated as the lead entity in the "Agency of Natural Resources Procedure for Groundwater Mapping of Potential Future Public Water Supply Sources". The intent is to produce general resource maps that include a hydrogeologic interpretation of framework geologic information. The Water Supply Division of the Agency has been queried as to communities that may be on a priority funding list for new water wells - two to three years in the future. Timing then would allow the use of the geologic mapping to supply aquifer information to a community when a town does make the list.

STATEMAP funds are proposed to support a surficial geologic map area from which geologic information can be derived to:

- interpret the nature of unconsolidated aquifers that have the potential to be a future public water supply source;
- define potential hazards;
- and identify resources.

The primary objective of this project is to map the three-dimensional distribution of surficial materials in the Vermont portion of the Newbury, NH-VT, 7.5 minute quadrangle. In Vermont, 1:24,000 surficial map and three dimensional data will be digitized to provide a database for land-use planning that includes identifying and delineating surficial aquifers, sand and gravel deposits, areas prone to slope failure, areas suitable for septic systems, and areas underlain by significant thicknesses of low-velocity clay-rich sediments where seismic risks are amplified.

The Vermont Portion of the Newbury, NH-VT quadrangle covers an area in the vicinity of the Town of Newbury with a number of water supply problems. The village center in Newbury is supplied by two infiltration galleries that have failed for microparticulate analysis. Four bedrock wells were drilled in the vicinity of the infiltration galleries but only one produced enough to contribute to part of the total demand. A further understanding of the subsurface may uncover the potential for additional supplies in the surficial deposits.

With surficial geologic work from the last year's STATEMAP effort and this year's proposal that includes back-hoe, seismic, and drilling work, the Vermont Survey will be building a base of experience to further conduct surveys of Vermont's surficial geology to be applied to resource and environmental issues.

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*(State Geologist – Continued from Page 9)*

The grant award letter stated that the Vermont Survey had “ a good clear proposal ... and .... your state mapping advisory committee is well-balanced” Committee members included two consulting hydrogeologists (Jeff Hoffer, Cindy Sprague), a representative from the Natural Resources Conservation Service (Tom Villers) and the USGS (Greg Walsh), Tom Eliassen -geologist at the Agency of Transportation, Elizabeth Hunt of the Water Supply Division, geologists experienced in mapping of surficial deposits (Dr. Steven Wright, George Springston, Dr. David Franzi) and Representative David Deen chair of the House Natural Resources Committee.

#### **Background Geochemistry and Constituents of Concern**

The Vermont Survey is receiving Environmental Protection Agency funds through the performance partnership program. Jonathan Kim moves from a 3/4 time employee to full time with the addition of a project that focuses on background geochemistry.

The Vermont Survey will begin to organize the bedrock and surficial geology, soils, and known geochemical information by watershed. The focus of Federal FY99 will be to set up the system for cataloguing geological information by watershed and focus on what is known and what needs to be known about natural sources of constituents of concern (for example mercury, arsenic etc.).

Work in FY99 will set the stage for a system to analyze natural geochemical inputs to the environment delivered by water and possibly air. There is a growing focus on environmental health issues - for example, the Health Dept. is placing attention on this issue in their planning process. Air transport models for constituents of concern require knowledge of background conditions. Fine particulate matter in air may have a natural geologic component to decipher. The issue of natural vs anthropogenic sources of constituents of concern can be addressed by this planned information system.

#### **Bedrock Geology**

On September 30, 1998, the Vermont Survey successfully met our obligations for the 1997 STATEMAP grant year by delivering the results of our bedrock mapping program to the USGS in Reston, VA.. The Vermont Survey delivered new bedrock maps for six 7.5 minute quadrangles, plus amendments to the Mt. Mansfield quadrangle, and to the Mt. Mansfield one-degree sheet. Considerable progress was made during the year by our contracted field crew of 14 professional geologists and student interns, with map work focused on geology of the Green Mountains and adjoining areas in northern Vermont. The quadrangles, mapped by traditional pace and compass techniques, represent over 11,000 hours of field work and are the last major *(Continued on Page 11)*

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*(State Geologist – Continued from Page 10)*

additions of bedrock information which will be contributed to the State geologic map. The maps will be released as Open-File Reports this winter and include: Plotted maps of the digital files for the Morrisville, Johnson, and Eden quadrangles; and paper copy of the Hazens Notch, Jay Peak and Richford (including topographic lineament analysis using the USGS Digital Elevation Model) 7.5 minute quadrangles. The contributions to the 1:24,000 scale maps and the compilation effort from Peter and Thelma Thompson, contractors for the Vermont Survey, have been enormous. Jonathan Kim provided significant and high quality input to the field mapping, to digitization of quadrangles, and as co-author of four quadrangles. Marjorie Gale contributed superior project coordination and compilation skills, and co-authored two quadrangles. The Division will work to edit and amend lines at the 1:100000 scale and fill in gaps this Fall, review cartographic feasibility of the State bedrock map product this Winter, and submit a draft map with text, in conjunction with USGS, for review in January 2000.

#### **Geology and Ecosystems**

One aspect of the Vermont Bio-diversity Project at the UVM Spacial Analysis Lab is to define ecological regions related to Vermont's landscape, surficial geology and bedrock geology. Eric Sorenson of the Nature Conservancy sought our input in assigning the bedrock geology formations within Vermont to classes which may relate to natural communities in Vermont. Using a scheme similar to one developed in Connecticut, we assigned formations mapped on the 1961 bedrock map to classes which reflect original depositional environment, major element geochemistry, textural criteria, and mineralogy.

More than 100 units were assigned to a preliminary grouping of 19 subdivisions, and these were then grouped into 9 categories. The categories will be used in GIS to help define features within biophysical regions and will become another set of variables which may relate to biodiversity of a given area. Marjorie Gale provided much assistance and attended a October 29 meeting at the Aiken Center with the Scientific Advisory Subcommittee of the Vermont Biodiversity Project to present the proposed bedrock geology classification. The goal is to define priority conservation areas in Vermont.

#### **Mineral Industry Surveys**

The Division and the USGS work cooperatively on an annual report that estimates mineral industry production in Vermont. The USGS collects the production data and the Division produces a narrative that describes activities of note in the mineral industry. The 1997 annual estimates have just been released. Vermont

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*(State Geologist – Continued from Page 11)*

ranked 45th among the fifty states in non-fuel mineral production. The estimated value of \$68 million is more than a 3% increase over 1996. Construction sand and gravel and crushed stone account for the significant increase in value. Vermont remains third in rank in the production of both dimension stone and talc.

#### **Stream Geomorphology**

On October 13, 1998, the Center for Watershed Protection (with sub-consultant, Dr. Craig McCrae of Aquafor Beach, Ltd. of Kingston Ontario) met with the technical subcommittee to finalize the stream sub-watershed selection criteria and the list of three urban/suburban sub-watersheds with varying degrees of impervious surface, two developing in the uplands, and one forested with two upland reference sub-watersheds for comparison purposes. The criteria includes a systematic method to objectively reach a list of 10-11 sub-watersheds and on October 13, 1998 the list was paired down to eight. (some are combined to make one selection and the forested watershed will be chosen by weeks end) Some of the up-front screening criteria included existing data on land use change and bio-monitoring locations.

The study protocol targets 1st and 2nd order stream systems to document the longer term hydrologic impacts from altered land cover. On the smaller sub-watershed scale of 1st to 2nd streams, land use alterations can be more immediately related to adjacent stream channel modifications. One 3rd to 4th order stream is also considered. The consultant's approach is greatly assisted by historical channel form data (some type of mapped topographical survey). If mapped historical channel form data is not available, the study will rely on obtaining the "historical" channel cross sections from either an upstream "undisturbed" section or an adjacent undeveloped or "least impacted" stream with "like" watershed characteristics (drainage area, slope, soils, etc.).

Finding historical channel form data proved to be more difficult than expected and limited what could be chosen for the list of 10-11 sub-watersheds. After discussion the list of eight is as follows:

- 1) Stevens, St. Albans- urban
- 2) Potash Brook, South Burlington - urban
- 3) Moon and Tenney Brooks, Rutland - urban
- 4) Roaring and Roaring trib - upland development
- 5) West Branch, Stowe (3rd order stream) - upland development
- 6) Cold River, Clarendon - reference
- 7) Smith Brook, reference
- 8) Dovesville - Forestry Activity

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*(State Geologist – Continued from Page 12)*

On December 4, 1998, the consultants met with the technical subcommittee to present an interim report on progress following fall field work. The study is progressing well with a draft final report expected on time by January 15, 1998. Results will come at the very end of the process when all data is catalogued, curves are drawn, and correlation's made with curves based on work done outside Vermont. Elements that remain underway are: completing sub-watershed mapping of current and historic land/use land cover for all 8 sub-watersheds; calculating run-off curve numbers an "equivalent impervious cover" for all sub-watersheds at each cross section location; completing analysis of stream channel geomorphic parameters and calculate/plot enlargement and relaxation data; complete channel sediment composition, soils and large organic debris analysis; collect and compare biological monitoring data to physical data and prepare draft and final report.

On December 4th the consultant submitted a proposal for "Assessment of Morphological Impacts of In-Stream River Management Practices for Vermont". The proposal is intended to address the issue of stream gravel removal as a proposed flood prevention method and how this may affect both downstream and upstream of the graveled section. The proposal includes a literature search, conceptual model development, and an air photo analysis of a Granville, Vermont case to tie a real world example to a conceptual model. The consultant proposes to complete the work by Feb 12, 1998.

#### **Deliverables to Vermont Emergency Management**

The Vermont Survey has completed the end of Federal fiscal year deliverables for Vermont Emergency Management, Federal Emergency Management Agency (FEMA), and the New England Interstate Water Pollution Control Commission. Jon Kim did an excellent job on a number of diverse outputs. The materials also include digitized maps from our STATEMAP obligations.

1 Completed initial testing of FEMA HAZUS earthquake damage-assessment program for a Burlington, Vermont target area. Tested potential effects of postulated once-in-500 year earthquake epicenter and magnitudes on the target area using HAZUS program data. Input soil polygons where soil depths exceed 30 meters (surficial deposits) in Burlington target area and tested the potential for amplified earthquake shaking. Confirmed validity of HAZUS outputs by comparing them with a seismic risk analysis report for Vermont written by the Weston Geological Observatory. When 30 meters of overburden is modeled as "soft soil" certain census tracks were predicted to have amplified shaking.

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For more information regarding ongoing work in the Vermont Geological Survey, you can contact:

Laurence R. Becker, State Geologist  
Vermont Geological Survey  
103 South Main Street

Waterbury, Vermont 05671-0301 Phone - 802-241-3496  
Fax - 802-241-3273 e-mail larryb@dec.anr.state.vt.us  
<http://www.state.vt.us/anr/geology/vgshmpg.htm>

(*State Geologist -- Continued from Page 13*)

- 2 Completed 11 educational outreach visits to schools and outdoor organizations. The subject matter for the visits included Vermont geologic history and geologic hazards (earthquakes and landslides). Hazard assessment and educational GIS prototypes were developed for river morphology and landslides. Visits ranged from one hour classes to all-day seminars.
- 3 Completed 7 digital (GIS format) Vermont Geological Survey and US Geological Survey Open File quadrangle maps (Rutland, Pico Peak, Mt. Carmel, Wallingford, Johnson, Eden, and Morrisville).
- 4 Completed a preliminary draft of a strategic plan for the Vermont Geological Survey that includes a new Economic Minerals Plan.

#### Radioactive Waste

The Texas Low-Level Radioactive Waste Compact became law on September 20, 1998 upon the President's signing of the bill. Many have worked on this issue over more than a decade since Texas made the initial overture to Vermont to consider a Compact. It has been a cooperative effort between the Texas, Vermont, and Maine with our governor's strong support assisted by his executive appointments. Staff at all levels helped negotiate the compact, move the bill through three state legislatures, and now Congress. Vermont's Congressional delegation supported and spoke in favor of the agreement at all junctures. Other government entities including the existing low-level waste compacts assisted in getting the word out.

The Compact is an agreement between the three states for the disposal of low-level radioactive waste in Texas. The agreement says nothing about a specific site or method for locating a facility - that is Texas' responsibility. On October 22, 1998, the Texas Natural Resources Conservation Commission denied a proposed license submitted by a State run authority for a waste disposal facility in West Texas.

Administrative Law Judges had recommended that the license be denied for insufficient information on an inferred fault beneath the site and any potential negative socioeconomic impacts. Though exceptions to the opinion based on the voluminous record were filed, the licensing Commission chose to deny the application.

Several commercial entities have offered to pursue licenses for waste disposal sites located in the panhandle of Texas. Without a legislative change, these commercial entities could not make an application directly to the licensing Commission, but would have work with the existing State authority to move any proposal forward.

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#### GRADUATE STUDENT (Ph.D.) SUPPORT

Department of Geological Sciences, Case Western Reserve University  
There is full-support for an incoming graduate student to work on one of several projects using naturally-occurring fallout radionuclides to trace the movement of fine sediment across landscapes and through drainage networks and receiving waters. The research projects are supported by NOAA, NSF and USDA. The position is available starting Fall 1999 but we hope to have the candidate begin work in June 1999. It is expected that the student will also participate in an interdisciplinary graduate program focusing on Great Lakes Basin studies. Please contact Gerald Matisoff (gxm4@po.cwru.edu) or Peter Whiting (pjw5@po.cwru.edu) for additional information and how to apply. Information about the department and application is also available at: [www.cwru.edu/artsci/geol](http://www.cwru.edu/artsci/geol)

Peter J. Whiting

Department of Geological Sciences, Case Western Reserve University  
Cleveland, OH 44106-7216

phone: 216-368-3989

fax: 216-368-3691

#### Contribute to the VGS Student Research grant Fund

Your *tax-deductible* contribution to the VGS Student Research Grant Fund will go a long ways towards helping our Vermont students of the geosciences advance their research! Clip this form and send it, along with your check or money order made payable to VGS, to:

Allen Carpenter, Treasurer, VGS  
Dept. of Geology, UVM  
Burlington, VT 05405-0122

Name: \_\_\_\_\_ Organization: \_\_\_\_\_  
Street: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

**TWENTY-SIX YEARS OF VERMONT GEOLOGY!**



## Career Opportunities

**Lecturer in Geosciences;** the Department of Environmental Sciences, University of Virginia, invites applications for a one-year temporary teaching appointment. Responsibilities each semester will include introductory physical/environmental geology, an additional undergraduate course, and a seminar course at the undergraduate or graduate level. Preference will be given to candidates holding a Ph.D. degree with a specialization in surface processes who can offer courses in coastal processes, geomorphology, or soils. The department is an interdisciplinary community of process-oriented scientists representing atmospheric sciences, ecology, geosciences, and hydrology. Therefore, the ability to offer geoscience courses with ties to the other areas will be beneficial. Applicants should include one-page statements on their research and teaching interests and experience, a curriculum vitae, and names and contact information of three references. Preference will be given to applications received before March 31, 1998. Send applications to:

James N. Galloway, Professor and Chair  
Department of Environmental Sciences  
University of Virginia, Clark Hall  
Charlottesville, VA 22903

We encourage applications of individuals from under-represented groups. The University of Virginia is an Equal Opportunity/Affirmative Action Employer.

**Lecturer Position;** The Department of Geography at Indiana University-Purdue University at Indianapolis seeks to fill a Lecturer position, to begin in Fall Semester 1999. This is a renewable five-year teaching position requiring at least an MA at the time of appointment. The person hired will teach introductory courses in physical and human geography, including a physical geography laboratory class, with the possibility of offering occasional advanced courses in his/her area of specialization. This is an important new position for the Department, designed to underpin growth of the major and progress toward an applied MA program. We hope to hire a person committed to the highest quality undergraduate education and willing to participate fully in Department development.

Candidates should provide curriculum vitae, names of three references, and documentation of excellence in teaching. Review of applications will begin 1 March 1999, and continue until the position is filled. IUPUI is an AA/EO employer, women and minorities strongly urged to apply.

Apply: Tim Brothers, Chair, Department of Geography, IUPUI, 425 University Blvd., Indianapolis, IN 46202

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**Professor in Geography;** The Geography Division of the School of the Environment wishes to appoint a Professor in Geography (post EN169), to lead the Division forward in developing excellence in geographical research in addition to advancing their personal research interests. Applications are invited from well-qualified persons in any area of Geography. Candidates should have a Ph.D. in Geography or a related discipline, an established research portfolio, the capacity to attract research funding, the potential to develop further research and the ability to motivate and inspire the research activities of colleagues. This ability is as important as the applicant's specific field of research, although it would be an advantage if this were to complement at least one of the existing areas of staff research interest:

geomorphology and environmental change,  
environment, society and development,  
environmental modeling and GIS, and  
natural resource management.

The position is intended primarily as a research post, although the successful candidate will be expected to contribute to teaching and curriculum development, especially at advanced undergraduate and postgraduate levels. The post will be advertised in *The Guardian* on 5/1/99 and in *the Higher* on 8/1/99 with a closing date for applications of 22/1/99. Application forms, including important information about the content of your CV, and further details for the post are available from the Personnel Department, University of Brighton, Mithras House, Lewes Road, Brighton BN2 4AT, or from our web site at <http://www.bton.ac.uk/vacancies/>, or via our 24 hour answer-phone: (01273) 642849. Please quote the reference number (EN169). For informal discussions about the post and any additional information, please contact either DR Roger Smith, Head of Geography Division (Telephone: 01273 642165, e-mail: [rfs@bton.ac.uk](mailto:rfs@bton.ac.uk)) or Professor Peter Gardiner, Head of the School of the Environment (Telephone: 01273 642289, e-mail [pfg@bton.ac.uk](mailto:pfg@bton.ac.uk)).

**Executive Director;** The Geological Society of America (GSA) is seeking an Executive Director beginning June 1, 1999. Deadline is March 15, 1999. See February 1999 **GSA Today** for additional information. Send resume, names and addresses of three references, and a letter describing your interest in the position to:

Executive Director Search Committee  
The Geological Society of America  
PO Box 9140  
Boulder, CO 80301-9140

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## Upcoming Short-Courses

*March 29-April 1, 1999; Fracture Trace and Lineament Analysis: Application to Ground Water Resources Characterization and Protection*, State College, Pennsylvania. Presented by David P. Gold and Richard R. Parizek, National Ground Water Association, 601 Dempsey Road, Westerville, OH 43081-8978. 1 (800) 551-7379. Ngwa@ngwa.org.

## Seminars, Meeting, and Field trips

*GSA Northeastern Section Meeting*, March 22-24, 1999, Providence, Rhode Island. For information contact: O. Don Hermes, Department of Geology, University of Rhode Island, Green Hall, Kingston, RI 02881, (401) 874-2192 (*pre-registration deadline was February 12, 1999*).

## Middlebury Spring Geo-Seminar Series

Submitted by Peter Ryan

All talks will be at 4:30 in room 420 of the Science Center at Middlebury College.

- Tuesday, March 2: Steve Buckley (Watershed Environmental Consulting Group)- *"Holocene Fluvial Geomorphology of the Northern Rockies: practical applications for understanding riparian succession, flood frequency and stream restoration."*
- Tuesday, March 30: Mary Roden-Tice (SUNY-Plattsburgh)- *"Apatite fission track evidence for Early Cretaceous Unroofing of the Adirondack Mountains."*
- Tuesday, April 3: Paul Bierman (UVM)- *"Clear cuts and big storms -- Landscape Impact in Vermont."*
- Tuesday, Apr 27: to be announced.

## Back Page Notes

By Kent S. Koptiuch, Guest Editor

Well folks, this issue of the GMG is just a little late, and that's my fault. If you've gotten this far through the copy, you'll realize that we had quite a bit of information to present to you from a variety of sources.

In fact, because we are late, some contributions were not included as they were no longer timely. I offer my sincere apologies to those of you who labored to submit on-time, but did not get to see their product in print.

If you had the opportunity to read the minutes on page 6, you would have noted that getting the GMG out on-time is a problem that we need to address better; this can only be solved through help from you. As I've expounded in here on a number of occasions, we are a volunteer organization; if someone doesn't dedicate their *very* precious time to the task, it does not get done.

For many years now, Stephen Wright has labored over producing the GMG, and while I've tried to help out when I could on one or two issues a year, what you typically see is what Stephen has had time to pull together. I ask all of you now to think about what you can do to help out our society. Whether it's signing up new members, assisting with, or contributing to the GMG, or serving on the Executive Board, it has its rewards.

For the past twenty-five years, we have provided a forum for students and professionals of Vermont Geology. In addition, we have provided small, but nonetheless valuable research grants to students on a regular basis for the advancement of their scientific studies.

Please take the time now to send in the enclosed dues statement, and if you can spare it, your tax-deductible contribution to the *VGS Student Research Grant Fund*.

Thank you