

GEOBULLETIN

DEC 4TH, 2009

GeoBulletin is distributed weekly, by E-mail. Contributions are requested! If you have a news item, a request, an announcement etc. email it to geodept@geology.wisc.edu or leave it at the office, Room 236 by noon on Monday.

Weeks Lecture

Dec. 4th Prof. Martin O. Saar

MARTIN O. SAAR

**ASSISTANT PROFESSOR AND GIBSON CHAIR OF HYDROGEOLOGY AND
GEOFLUIDS**

**DEPARTMENT OF GEOLOGY AND GEOPHYSICS
WINCHELL SCHOOL OF EARTH SCIENCES
UNIVERSITY OF MINNESOTA**

WEEKS LECTURE

Dec 4th, Friday, 3:30 p.m., Room 140 Weeks Hall

CO2 - Use it or lose it: How to use CO2 as a geothermal working fluid to generate carbon-negative renewable electricity.

An interdisciplinary research team, centered around the Hydrogeology and Geofluids Research Group in the Department of Geology and Geophysics at the University of Minnesota, is developing a method to combine geologic carbon dioxide (CO2) sequestration with geothermal energy use. This new approach represents a radical shift in electric/heat power generation as the resultant power plant not only utilizes a renewable energy source, but has a negative carbon footprint via CO2 sequestration. The technology has the potential to reduce greenhouse gas emissions, and associated global warming, by displacing fossil-fuel-based power production and by sequestering greenhouse gases from conventional energy technologies, industry, and biofuel (e.g., ethanol) plants. In addition, the technology would 1) provide a highly scalable electricity source for base-load or dispatchable power; 2) significantly reduce temperatures required for economical geothermal electricity generation and, hence, greatly expand geothermal energy use; 3) result in geothermal power plant efficiencies approximately twice those of comparable water-based systems; 4) provide an electricity source with efficiencies that scale with

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demand for nightly/winter heating and nightly charging of electric cars; 5) reduce foreign energy imports; 6) reduce power plant-related CO2 emissions by an estimated factor of 10-20% with large-scale deployment; and 7) establish the US as a leader in this new technology, which can be exported worldwide.

UW Geology Museum Holiday Sale

Friday, December 4th - 10am to 4pm in the museum lobby.

From fossils and minerals to books and jewelry, you'll find special gifts at this holiday sale. All items will be \$20 or less!

JOB OPENINGS

- *Seismologist* Geophysical Institute - University Of Alaska Fairbanks
- Mineralogy technician Royal Ontario Museum
- Associate Professor in Igneous Petrology
- Assistant Professor - WGNHS – Geologist with Emphasis in Clastic Process Sedimentology and Stratigraphy
- The University of Nevada, Reno, Department of Geological Sciences and Engineering is searching for a full-time, tenure-track Assistant Professor in the Geosciences.
- Tenure-Track Faculty Position -Sedimentary Geology/Sedimentation and Tectonics/Basin Analysis, University of Kentucky
- USGS has just put out a vacancy announcement for a senior research geologist to lead the USGS geologic carbon dioxide sequestration assessment.
- Two tenure-track faculty positions at Michigan Technological University.
- Green Scholar Positions In Geophysics At Igpp, Scripps Institution Of Oceanography, UCSD
- John W. Miles Fellowship In Theoretical And Computational Geophysics At Igpp, Scripps Institution Of Oceanography, UCSD
- Postdoc available with the Berkeley Nanogeoscience Center
- Post-Doctoral Research Fellow in Geologic Sequestration Risk Policy, Humphrey Institute of Public Policy, University of Minnesota
- Full-time Job Opportunity Fort Lauderdale, Florida -Graduating Masters/PhD Candidate

JOB OPENING

***SEISMOLOGIST* -GEOPHYSICAL INSTITUTE - UNIVERSITY OF ALASKA FAIRBANKS**

LOCATION: Geophysical Institute, Seismology

JOB TITLE: Research Professional 3

QUICKLINK: www.uakjobs.com/applicants/Central?quickFind=69015

EMPLOYMENT STATUS: Full-time, Regular, Exempt

CLOSING DATE: Open Until Filled

PCN: 924016

REVIEW DATE: January 4, 2010

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Applications are invited for a Staff Research position in seismology at the University of Alaska Fairbanks. We are looking to hire a seismologist who will complement our existing strengths in seismology, with expertise in one or more of the following fields: seismotectonics, earthquake source mechanics, or wave propagation and earth structure, with components of observational seismology in his/her area of interest. The successful candidate must be capable of participating in the near-real-time operation of the AEIC activities, and collaborative research efforts focusing on Alaska's tectonics, seismicity, structure, and related topics.

***Typical Duties:**

- Organize and maintain data-flow, files and algorithms for ShakeMap operations within AEIC real-time data processing system.
- Contribute to maintenance of the real-time data processing system, including trouble shooting data flow problems.
- Code development on Sun/Solaris computer systems for real-time and off-line earthquake data processing.
- Coordinate with other staff seismologists daily lab operations pertaining to processing, analysis, and archiving of earthquake data.
- Contributions required for the development, organization, and regular publication of Alaska earthquake reports and catalogs. This includes quality control, finalizing and archiving of current data.
- Strong understanding of digital seismograph systems as necessary for proposing and integrating new seismic stations into the existing systems.
- Conduct research on selected seismological topics, both descriptive and analytical. Publish papers and articles on this research in scientific periodicals and refereed journals. It will include both independent and cooperative studies focusing on Alaska's tectonics, seismicity, structure, and related topics.
- Responsible for immediate action in the event of a seismic crisis, coordinating 24 hour seismic monitoring with fast, accurate analysis of data so that hazard assessment and decisions regarding public safety may be made by emergency agencies.
- Interact with the public, news media, and/or public safety agencies as a spokesperson for the Geophysical Institute seismology lab as requested by the State Seismologist. This will include writing and distributing information releases as needed, radio and TV interviews regarding ongoing, recent, or past seismic and volcanic behavior.

***Minimum Qualifications*:**

- Requires at least a Masters Degree in Geophysics/Seismology with extensive experience (Ph.D. preferred) or equivalent.
- Must possess a strong seismological background as well as strong seismology training, both theoretical and observational.
- Relational database management experience preferably with Datascope.
- Experience operating and developing near-real-time seismic data processing systems using the Antelope Environmental Monitoring system.
- Experience with moment tensor inversion techniques, and seismic array processing techniques is highly desirable.
- Experience in regional earthquake seismology preferably in Alaska.
- Must be familiar with SOLARIS/UNIX operating systems on Sun computers and multi-threaded programming and languages including C, Fortran, Perl, Tel/Tk, and Java.
- Strong written and oral communication skills.
- Ability to think calmly and clearly in a crisis situation.
- Physically capable of performing fieldwork studies at remote locations, to include; walking, lifting, and outdoor survival in possibly unfavorable conditions.

****The successful candidate of this position will be placed at a level appropriate for their education and experience. This position is part of a career development plan and that will provide an avenue for increasing the position's scope, complexity, and degree of independence as the incumbent's experience and skills increase.**

For a complete job description and applicant instructions, please apply online www.uakjobs.com. If you have questions concerning the position please contact Roger Hansen (907) 474-5533 or e-mail: roger@giseis.alaska.edu. If you have any questions regarding applying, please contact Nicole Scholle, HR Technician, Geophysical Institute, University of Alaska Fairbanks, (907) 474-6010 or e-mail: nscholle@gi.alaska.edu.

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*The Geophysical Institute Human Resource Office is located at 903 Koyukuk Drive, Room 611 Fairbanks, AK 99775. Office hours are 8:00 am to 5:00 pm Monday through Friday. The University of Alaska Fairbanks is an Equal Opportunity/Affirmative Action Employer. *

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Mineralogy technician Royal Ontario Museum --Natural History(full-time)

Reporting to the Associate Curator, Mineralogy, you will be responsible for the development, operation and maintenance of the Scanning Electron Microprobe and the x-ray fluorescence spectrometer (XRF), with some responsibility for the x-ray diffraction (XRD) laboratory. The technician also acts as the Mineralogy and Geology section's health and safety liaison, responsible for chemical inventory and MSDS requirements.

QUALIFICATIONS:

- * Bachelor of Science degree
- * At least five (5) years directly related mineralogical experience OR an acceptable equivalent in education and experience
- * Demonstrated knowledge of theory and practice in microscopy, x-ray fluorescence and diffraction
- * Comprehensive knowledge of minerals, mineral identification and specimen handling required
- * General knowledge of inorganic analytical and crystal chemistry, high vacuum technology etc. related to thermal analysis and mass spectrometry
- * Judgement, initiative and good communication skills
- * Manual dexterity, mechanical aptitude and precision required

SALARY RANGE: \$47,961 - \$54,813 Grade: 11

PROBATIONARY PERIOD: 6 months worked

APPLY IN WRITING TO: Royal Ontario Museum, 100 Queen's Park, Toronto, Ontario M5S 2C6. Attention: Mara Gunner, Human Resources Coordinator, FAX # (416) 586-5827. Prior to 5:00 p.m. on December 4th, 2009.

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Associate Professor in Igneous Petrology

The Department of Earth Sciences invites applications for a tenured position at the associate professor level, starting March 1, 2010. We seek a highly motivated hard-rock geologist, whose main field is the petrology and geochemistry of igneous systems, preferably including interests in economic geology and ore genesis.

The candidate must have a strong research record and is expected to establish externally funded research activities. The position includes overall responsibility for electron microprobe and X-ray fluorescence laboratories. Teaching obligations include undergraduate and graduate courses and supervision of B.Sc., M.Sc. and Ph.D. students. To be considered at the associate professor level, the candidate must have at least three years postdoc experience. Exceptional applicants with a recent Ph.D. degree may also be considered at the assistant professor level. Background information is available at www.geo.au.dk and from associate professor C. Tegner, phone +45 8942 9456, email: christian.tegner@geo.au.dk

All interested are urged to apply irrespective of personal background.

Deadline

All applications must be made online and received by: 17/12/2009

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About Aarhus University

Aarhus University offers a good and inspiring education and research environment for 35,000 students and 8,500 members of staff, who produce academic results of a high international standard. The budgeted turnover for 2009 amounts to EUR 700 million. The university's strategy and development contract are available at www.au.dk.

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Assistant Professor - WGNHS – Geologist with Emphasis in Clastic Process Sedimentology and Stratigraphy

Office Location: Wisconsin Geological and Natural History Survey (WGNHS), 3817 Mineral Point Road, Madison, WI 53705

Type of Appointment:

This is a tenure-track faculty position. The tenure home of this permanent scientific staff position is the Department of Environmental Sciences, University of Wisconsin-Extension. The position is available beginning July 1, 2010. The position is eligible for benefits provided to state of Wisconsin employees and is subject to UW-Extension personnel policies.

Purpose and Primary Focus of Position:

This position will focus on sedimentary processes. The Geologist conducts fundamental and applied research in areas relating to clastic sedimentary processes through field-based investigations including but not limited to geologic mapping, clastic sedimentology, and issues relating to the stratigraphic and hydrostratigraphic framework of the Quaternary and/or Paleozoic sediments and rocks of Wisconsin. The Geologist works in cooperation with other WGNHS staff and University personnel, and collaborates with local, state, and federal agencies that have interests in geology, geophysics, hydrogeology, and mineral resources.

As a faculty member within the Department of Environmental Sciences, the Geologist must meet institutional expectations of scholarship, show evidence of professional development and growth, make contributions to the profession, and participate in faculty governance. The candidate will take a leadership role in the outreach and educational functions of WGNHS and UW-Extension.

To get more information, please visit <http://www.uwex.edu/ces/hr/listing.cfm?PVL=C10021>.

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The University of Nevada, Reno, Department of Geological Sciences and Engineering is searching for a full-time, tenure-track Assistant Professor in the Geosciences.

The areas of research expertise for the position are intentionally broad. We seek an outstanding geoscientist whose research and teaching strengths complement the existing department faculty. A willingness and experience to be involved with interdisciplinary earth science research is highly desirable. Experience in field-based research and ability to teach field classes is also desirable. Applicants must have been awarded a doctorate degree in a Geoscience field by the time of hire (July 1, 2010) and demonstrate the potential to establish a teaching and research program with international recognition. Excellent communication skills, established record of publication commensurate with the applicant's career stage, commitment to teaching, and ability to attract external funding are essential.

Further information about the University and Department of Geological Sciences and Engineering can be found at www.unr.edu and www.unr.edu/cos/geology.

Applicants should submit a letter summarizing interest and qualifications; names, e-mail, postal addresses, and telephone numbers of at least three references; a complete vita; and electronic copies of up to three of your publications

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to the Faculty Jobs page at jobs.unr.edu/. Applications will close on January 15, 2010. Please DO NOT ask referees to send letters; these will be requested later in the process.

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Tenure-Track Faculty Position -Sedimentary Geology/Sedimentation and Tectonics/Basin Analysis University of Kentucky

The Department of Earth and Environmental Sciences at the University of Kentucky invites applications for a tenure-track faculty position at the Assistant Professor level in the broad field of sedimentary geology, beginning August 2010. Field- and modeling-oriented candidates working in areas such as basin analysis, tectonics and sedimentation, sedimentary petrology or geochemistry, stratigraphy, and carbon sequestration science are encouraged to apply. We are seeking candidates interested in interdisciplinary research who would interact with our existing programs in tectonics, stable-isotope geochemistry, seismology and potential field geophysics, hydrogeology, and paleontology. A broad range of opportunities, including carbon sequestration research, exists for cooperation with other academic units, the Kentucky Geological Survey, the UK Center for Applied Energy Research, and the Tracy Farmer Institute for Sustainability and the Environment. In addition to developing a rigorous, productive, externally funded research program, the new faculty member will be expected to teach courses at the introductory, major, and graduate levels. Applicants will be expected to demonstrate a track record of publication and funding; experience beyond the Ph.D. (academia or industry) is desirable. Interested applicants should submit via e-mail (merged pdf document): cover letter, curriculum vitae, brief statements of research and teaching interests, copies of relevant research publications, and contact information for at least three references to Prof. Dave Moecher (moker@uky.edu), Sedimentary Search Committee Chair. We will begin review of applications on January 5, 2010; however, applications will be accepted until the position is filled. The University of Kentucky is an Affirmative Action/Equal Opportunity University that values diversity and is located in an increasingly diverse geographical region. UK is committed to becoming one of the top public institutions in the country. Women, persons with disabilities, and members of other underrepresented groups are encouraged to apply. Additional details of the Department of Earth and Environmental Sciences (faculty, research clusters, facilities) and University of Kentucky may be viewed at our web pages:www.as.uky.edu/ees and www.uky.edu.

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USGS has just put out a vacancy announcement for a senior research geologist to lead the USGS geologic carbon dioxide sequestration assessment. Funding for the assessment is in the DOI 2010 budget. The assessment is a three-year national assessment and the job is permanent. If you or anyone you know in your organization is interested in applying for the position, please follow the links below.

You can view the vacancy announcements by clicking the following links:

ER-2010-0054 DEU (Public Candidates)

<http://jobview.usajobs.gov/GetJob.aspx?JobID=84620797&JobTitle=Research+Geologist%2c+GS-1350-15%2c+BAR-DEU&vw=d&brd=3876&ss=0&FedEmp=Y&FedPub=Y&q=ER-2010-0055&pg=1&re=0&AVSDM=2009-11-16+13%3a12%3a00>

ER-2010-0055 MP (Status Candidates)

<http://jobview.usajobs.gov/GetJob.aspx?JobID=84621586&JobTitle=Research+Geologist%2c+GS-1350-15%2c+BAR-MP&vw=d&brd=3876&ss=0&FedEmp=Y&FedPub=Y&q=ER-2010-0055&pg=1&re=0&AVSDM=2009-11-16+13%3a48%3a00>

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Two tenure-track faculty positions at Michigan Technological University.

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The Department of Geological and Mining Engineering and Sciences (GMES) at Michigan Technological University invites applications for two tenure-track faculty positions (appointment as Assistant, Associate or Full Professor is possible) in support of programs in 1) atmospheric sciences and 2) geological engineering. Candidates must demonstrate a strong commitment to excellence in teaching and research, with the desire to strike a balance between undergraduate and graduate teaching and advising, funded research, scholarly activity, and service. Descriptions of the two positions are given below.

Atmospheric sciences. Atmospheric science activities within the GMES department and Michigan Tech are undergoing major growth, with recent hires in the fields of chemical-transport modeling, remote sensing, aerosol chemistry and climate modeling, complementing existing strengths in volcanology and cloud physics. We are particularly interested in candidates with a strong background in atmospheric chemistry and research interests/programs that include field measurements. The successful applicant will contribute to Michigan Tech's interdepartmental research and teaching program in Atmospheric Science (www.atmos-sci.mtu.edu). Informal inquiries may be directed to Dr. Simon Carn (scarn@mtu.edu).

Geological engineering. The geological engineering program is an integral part of our research and educational activities in natural hazards and natural resources (mineral, hydrocarbon, and water resources). We are interested in candidates who can enhance these programs and who possess technical strengths in geological engineering, hydrology, mining engineering, remote sensing, or related areas. While candidates need not have engineering degrees, they must possess experience and training that would permit licensure as a professional engineer. Dr. Greg Waite (gpwaite@mtu.edu) may be contacted with questions.

Only electronic applications will be accepted, preferably as a single PDF file that includes a detailed CV and statements of research and teaching interests along with a cover letter. Atmospheric science applications should be emailed to atmosearch@mtu.edu. Applications for the geological engineering position should be emailed to geoengsearch@mtu.edu. In addition, candidates should arrange for three letters of reference to be sent to the same address. Applications will be considered until the positions are filled.

Michigan Tech has a total student population of about 7000 and is located in Michigan's Upper Peninsula, a pristine area on the south shore of Lake Superior. The department is committed to a strong educational focus and values basic and applied interdisciplinary research. Undergraduate and graduate programs are offered in Atmospheric Sciences, Geology, Geological Engineering and Geophysics. Interested candidates can learn more about the department faculty, research, and educational programs at www.geo.mtu.edu.

In addition to the present search, a two-year university-wide search to fill up to ten positions in each of the areas "Next-Generation Energy Systems" and "Health: Basic Sciences, Technologies, and Medical Informatics" is underway. Qualified candidates are encouraged to send a separate application, following the "How to Apply" guidelines at www.mtu.edu/sfhi.

Michigan Tech is an ADVANCE institution, one of a limited number of universities in receipt of NSF funds in support of our commitment to increase diversity and the participation and advancement of women in STEM, and an Equal Opportunity Educational Institution/Equal Opportunity Employer.

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Green Scholar Positions In Geophysics At Igpp, Scripps Institution Of Oceanography, UCSD

The Institute of Geophysics and Planetary Physics (IGPP) at Scripps Institution of Oceanography has openings for one or more postdoctoral scientists as Green Scholars. Joint funding from the Green Foundation for Earth Sciences and extramural sources associated with specific projects are available to support postdoctoral positions in a broad range of research areas in geophysics. Information about current areas of research at IGPP can be found in the IGPP Annual report at:

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<http://www.igpp.ucsd.edu/IGPP-2009AnnualRpt.pdf>

The positions are available for one year and are renewable subject to satisfactory performance and availability of funds. Applicants should send a statement of research interests, a curriculum vitae, a bibliography, the names of at least two references, and the expected PhD completion date to:

Green Scholar Selection Committee
Institute of Geophysics and Planetary Physics
Scripps Institution of Oceanography
University of California, San Diego
La Jolla, CA 92093-0225

Review of applications will begin on January 4, 2010. The University of California is an equal opportunity/affirmative action employer.

John W. Miles Fellowship In Theoretical And Computational Geophysics At Igpp, Scripps Institution Of Oceanography, UCSD

The Institute of Geophysics and Planetary Physics (IGPP) at Scripps Institution of Oceanography announces a fellowship in honor of the late John W. Miles. Funding from the Green Foundation for Earth Sciences is available to support fully a postdoctoral position in the broad areas of computational and theoretical geophysics. Information about research conducted at IGPP can be found in the IGPP Annual report at:

<http://www.igpp.ucsd.edu/IGPP-2009AnnualRpt.pdf>

The position is available for one year and is renewable subject to satisfactory performance and availability of funds. Applicants should send a statement of research interests, a curriculum vitae, a bibliography, the names of at least two references, and the expected PhD completion date to:

Green Scholar Selection Committee: Miles Fellowship
Institute of Geophysics and Planetary Physics
Scripps Institution of Oceanography
University of California, San Diego
La Jolla, CA 92093-0225

Review of applications will begin on January 4, 2010. The University of California is an equal opportunity/affirmative action employer.

Postdoc available with the Berkeley Nanogeoscience Center - November 19, 2009

We have an opening for a postdoctoral scientist with a focus in x-ray scattering and nanoscience. The specific area of investigation is the formation of acid mine drainage (AMD) nanoprecipitates, and the manner in which these may collect and transport metals such as Cu and Zn. The research involves synchrotron-based experimentation at the ALS, APS and possibly at SSRL, and seeks to understand both the nanoparticle structures and the kinetics of formation/transformation with time. As a position associated with the Berkeley Nanogeoscience Center, the scientist also will have opportunities to be involved with several other cutting-edge investigations that are ongoing in the center. The postdoc position is for two years with the possible extension to another year as funding permits, and will be based at UC Berkeley (Earth and Planetary Sciences Department) and at Lawrence Berkeley National Laboratory (Earth Sciences Division, Geochemistry Department). Non US citizens should have the appropriate visa for work in the USA, or be able to apply for this before accepting the position.

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For more information about the AMD project, the Berkeley Nanogeoscience Center, and for more general questions about the postdoc please contact Dr. Glenn Waychunas at LBNL (gawaychunas@lbl.gov), or Prof. Jillian Banfield at UC Berkeley (jill@eps.berkeley.edu).

Post-Doctoral Research Fellow in Geologic Sequestration Risk Policy, Humphrey Institute of Public Policy, University of Minnesota

This position is part of a multidisciplinary team of scientists and engineers from the University of Minnesota, Princeton University, and Brookhaven National Laboratory on a project to assess the basin-scale risks from geologic carbon sequestration and their impact on CCS energy market competitiveness. The successful candidate will lead the part of the research to gather subsurface data and build an integrated GIS model of the Michigan Basin, examine scenarios by which CO2 leakage could cause damages to competing subsurface land uses, evaluate the costs of different operational and leakage scenarios, and coordinate with the economic modeling team to evaluate the role of CCS under various regulatory and leakage scenarios. Job will include writing reports and journal articles, making presentations at professional meetings, and mentoring graduate students. Job duties start June 2010 or earlier, as negotiated.

Required: Ph.D. in engineering, geosciences, or related field, with significant background in geologic sequestration of carbon dioxide, risk analysis, engineering economics, and environmental policy. Specific experience with complex GIS modeling is required, as are excellent verbal and written communication skills.

Preferred: Experience with economic modeling; legal and regulatory research.

Salary will be competitive and will be based on qualifications and experience.

This is a one-year position with option of renewal for up to three years based on performance and funding. For additional information, contact Melisa Pollak at fryxx035@umn.edu

Please apply online via the Employment System at <https://employment.umn.edu/applicants/Central?quickFind=83327>.

Please include a CV, cover letter, and list of 3 references.

Full-time Job Opportunity Fort Lauderdale, Florida -Graduating Masters/PhD Candidate

The Water Resources Division of the U.S. Geological Survey is seeking applicant who will assist project manager in selected hydrogeologic investigations of south Florida. Student should have a Master's or PhD degree in geology with 3.0 GPA or above. Duties to concentrate on aquifer characterization including Plio-Pleistocene and Eocene-Oligocene carbonate core descriptions (knowledge of carbonate sequence stratigraphy very desirable), interpretation of marine seismic geophysical data (Kingdom SMT software) and borehole geophysical data (using slim-hole tools, such as digital optical borehole image tool, full-waveform sonic tool, flow meters), hydrogeologic and hydrologic data inventory, entry, compilation and analysis. Opportunity for geomodeling with ROXAR RMS software. Potential interaction with other governmental agencies and academia. Salary commensurate with education and/or experience. Computer skills such as graphics programs and GIS desirable. Flexible hours. As a Federal agency, U.S. citizenship is required. Valid driver's license is also required.

Please email resume to: Kevin J. Cunningham, kcunning@usgs.gov or fax: 954-377-5901 (954-377-5913 office)

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*******HAVE A GREAT WEEKEND*******