Salton Sea flooding may trigger high magnitude San Andreas earthquakes

Southern California’s Salton Sea, once a large natural lake fed by the Colorado River, may play an important role in the earthquake cycle of the southern San Andreas Fault and may have triggered large earthquakes in the past.

“We’ve been able to show a correlation between past flooding from the Colorado River and triggering of intersecting earthquake faults under the Salton Sea,” said Graham Kent, director of the Nevada Seismological Laboratory and co-author of a report published in June in the journal *Nature Geoscience*.

Kent is part of a team that has been using a CHIRP profiler, a sonar-like device towed underwater behind a boat, to map sediments and earthquake faults under bodies of water around the country and the world. The team—including researchers at Scripps Institution of Oceanography; University of California, San Diego; and the U.S. Geological Survey—discovered new faults in the Salton Sea near the southern end of the San Andreas Fault in underwater surveys conducted over the past several years.

Rupture on these newly discovered intersecting, or “stepover,” faults has the potential to trigger large earthquakes in the magnitude 7 and higher range on the southern San Andreas Fault. Report lead author Daniel Brothers of the USGS said this research does not improve the ability to predict such a quake, but suggests that heightened preparedness for a major quake immediately following smaller quakes (up to magnitude 6) in the stepover zone is warranted.

Since the beginning of the 20th century, local authorities have redirected the Colorado River away from the Salton Sea. The current dimensions of the Salton Sea, located in California’s Imperial Valley, are less than 1/25th of the natural lake that preceded it, Lake Cahuilla. Ancient Lake Cahuilla had a surface area of approximately 2,201 square miles; the Salton Sea’s surface area is 376 square miles.

By comparison, Lake Tahoe, which is 22 miles long, 12 miles wide and has 72 miles of shoreline, has 193 square miles of surface area. The Salton Sea is 35 miles long, 15 miles wide and contains 7.5 million acre feet of water. Lake Tahoe, which is much deeper that the Salton Sea, holds 122 million acre feet. Lake Cahuilla had one and a half times the volume of Tahoe, 183 million acre feet, and was 35 miles wide and 100 miles long.

When its natural dimensions were in place, Lake Cahuilla and its surrounding region experienced, in a thousand-year period, five earthquakes on the southern San Andreas that are believed to have been larger than magnitude 7. It’s been more than 300 years since the last one, and no such sequence has taken place since the lake assumed its current dimensions. Diversion of the Colorado River and the lack of flooding events in the local basin, known as the Salton Trough, may be one possible explanation.

“We’ve been baffled as to why the southern San Andreas hasn’t gone. It’s been compared to a woman who is 15 months pregnant,” said Scripps seismologist Debi Kilb, a report co-author. “Now this paper offers one explanation why.”

The researchers cautioned that failure of the stepover faults is ultimately driven by tectonic forces and could still set off a major rupture of the San Andreas Fault independent of any lake-level fluctuations. Other research teams have estimated that stress buildup in the area is still great enough to produce a quake between magnitude 7 and 8 and potentially cause significant damage in the Los Angeles area.

—Mike Wolterbeek ’02
Geothermal industry to get boost from University research

An ambitious University project to understand and characterize geothermal potential at nearly 500 sites throughout the Great Basin is yielding a bounty of information for the geothermal industry to use in developing resources in Nevada.

The project, based in the University’s Bureau of Mines and Geology in the College of Science, is funded by a $1 million U.S. Department of Energy grant from the American Recovery and Reinvestment Act of 2009.

The project has reached the one-year mark and is entering phase two, when five or six of the 250 identified potentially viable geothermal sites will be studied in more detail. Some of the studied sites will include 3-D imaging to help those in the industry better understand geothermal processes and identify drilling locations.

The research aims to provide a catalog of favorable structural elements, such as the pattern of faulting and models for geothermal systems and site-specific targeting using innovative techniques for fault analysis. The project will enhance exploration methodologies and reduce the risk of drilling nonproductive wells.

Jim Faulds, principal investigator for the project and a geologist and research professor at the University, has a team of six researchers and several graduate students working with him on various aspects of the project.

The success of modeling sites for exploration is limited without basic knowledge of which fault and fracture patterns, stress conditions and stratigraphic intervals are most conducive to hosting geothermal reservoirs.

“The geothermal industry doesn’t have the same depth of knowledge for geothermal exploration as the mineral and oil industries,” Faulds said. “Mineral and oil companies conducted extensive research years ago that helps them to characterize favorable settings and determine where to drill. With geothermal, it’s studies like this that will enhance understanding of what controls hot fluids in the Earth’s crust and thus provide an exploration basis for industry to use in discovering and developing resources.”

Faulds and his team have defined a spectrum of favorable structural settings for geothermal systems in the Great Basin and completed a preliminary catalog that interprets the structural setting of most its geothermal systems.

In addition, Faulds has developed and taught a geothermal exploration class, published many papers on his work and presented his work at many conferences, including the World Geothermal Congress in Bali, Indonesia and the GeoNZ2010 Geoscience-Geothermal Conference in Auckland, New Zealand.

—Mike Wolterbeek '02

University hosts nation’s first geothermal academy

The National Geothermal Academy, the first of its kind in the United States, held its inaugural summer session on the University’s Redfield Campus this summer. The eight-week, intensive program drew a group of 40 students from around the country who were selected competitively.

The academy is a consortium of top geothermal schools from around the country, including Nevada, Cornell University, Stanford University, Southern Methodist University, West Virginia University, the Oregon Institute of Technology, the University of Utah and Dartmouth. The consortium seeks to grow the national energy infrastructure by educating the next generation of scientists, engineers, plant operators and policymakers.

With its 20 years of geothermal research, development and exploration success, Nevada was selected to be the lead institution and the central site to host the academy. The University was awarded a $995,000 grant from the Department of Energy to develop and operate the academy.

The state of Nevada leads the nation in the number of geothermal energy projects under development. Collectively, geothermal power plants in Nevada produce 300 megawatts of power, enough to provide electricity to more than 200,000 homes.

—Mike Wolterbeek '02
College of Education uses tough times to build quality

When College of Education Dean Chris Cheney convened a task force of faculty to look at the undergraduate and teacher licensure programs to consider areas of savings, consolidation and revision, she had no idea the result would be a totally revamped program for future elementary teachers, so different than the previous one, that it would need approval from the Nevada System of Higher Education Board of Regents.

“I gave them a charge to look at everything we were doing and come up with recommendations for change,” Cheney said. “What they came up with blew me away—they really ran with it, and now we have a program that is on the cutting-edge in its responsiveness to national trends and local needs.”

Among the most significant changes is that all students who pursue the college’s new, single degree for elementary education, the Integrated Elementary Teaching degree (BSEd), will not only be eligible for an elementary teaching license, but will also be eligible for a second license in one of the highly needed areas of special education, English as a second language, or early childhood education.

“To our knowledge, our program is the only one in the Western United States in which students will graduate with such eligibility,” Cheney said. “It’s well-documented across the country that numerous factors have contributed to a strong need for dually certified educators who can teach all students, including English-language learners and those with disabilities, in one classroom. Our new program specifically addresses this need.”

The college’s formerly four separate degrees have been consolidated into the new single degree, with the option to specialize in one of the three high-demand areas—special education, English as a second language or early childhood education. Cheney said that in doing so, they were able to eliminate the need for more than a dozen classes.

“For example, our four degree programs were each offering a different class related to diversity,” she explained. “We have now been able to create curriculum with a single class related to K-12 student and family diversity that meets the needs of all students, regardless of their area of specialty.”

In addition, the program is now requiring a broader and more in-depth knowledge in the core content areas of math, English, science and social studies. Cheney said that math competency in particular has been low in elementary-level teachers across the country, and she is determined to change that in Nevada.

“Our future elementary teachers will now have to complete a higher level of math than ever before, something equivalent to pre-calculus,” she said. “With the new, more demanding Common Core State Standards that Nevada has adopted for K-12, our future elementary teachers will be teaching fifth-graders math skills that were previously taught at the middle-school level. The ante has been raised, and we have to make sure that our future elementary teachers are ready to meet that challenge.”

In order for the college’s students to meet these tougher standards, Cheney said they have allowed for more electives in the program. That way, if students need a few math classes before they are ready to successfully complete the pre-calculus-level math class, they may do so with their electives. If they don’t need to use the electives to meet the increased requirements, they can use the electives to become eligible in an additional area of licensure or augment their knowledge in their chosen specialty area.

On June 16, the Nevada Board of Regents approved the college’s new degree program for elementary education. And, as part of the college’s reorganization in response to budget cuts, as of July 1, the College will no longer officially have departments. Cheney spoke of “not wasting a good crisis.”

“What this has really translated to is that we no longer have department walls,” she said. “We are one faculty. I’m really proud of my colleagues in the college. They responded to these challenging times by creating a streamlined program that minimizes expense, eliminates content overlap, reduces credits, increases opportunities for specialization and is responsive to national trends and local needs.”

The college has also made some changes, to their secondary education undergraduate program. It provides more field experience, as well as allowing students in the program to get two degrees—one in secondary education and one in their subject area, such as biology, math or English. A student can also minor in an area such as English as a second language or special education, which makes them eligible for licensure in those areas as well.

—Claudene Wharton ’86, ’99 M.A.
New ag-related degrees offer individualized curriculum and meet industry needs

New educational programs aimed at meeting the state’s changing needs for agriculture and rangeland have been implemented in the College of Agriculture, Biotechnology and Natural Resources for Fall 2011.

The college’s new Department of Agriculture, Nutrition and Veterinary Sciences will offer two new degrees: agricultural sciences and rangeland ecology and management. A revamped and renamed major, forest management and ecology, was part of the package recently approved by the Nevada System of Higher Education Board of Regents.

The new degrees were developed with input from industry, faculty and other stakeholders. Key elements of the department’s programs were retained, especially pre-veterinary education as well as teaching and research in livestock/range management, by combining faculty with other departments in the college.

“With strategic planning and targeting industry needs, our students will be well trained to enter the job market in Nevada,” said Ron Pardini, dean of CABNR.

The new realignment will offer students a variety of course options in these two new degree programs that complement existing programs.

Moving ahead, CABNR will now have three departments instead of five, consolidating course offerings and programs into the Department of Agriculture, Nutrition and Veterinary Sciences. The Department of Natural Resources and Environmental Sciences and the Department of Biochemistry and Molecular Biology remain substantially in place.

—Mike Wolterbeek ’02

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University offers world premiere of *Hamlet in the Original Pronunciation*

Theatre lovers from around the globe will be watching—and listening—in awe when the University’s world premiere of *Hamlet in the Original Pronunciation* hits the stage this fall.

The production was created by a group of international Shakespeare scholars and Reno’s own Nevada Repertory Company.

Amazingly, the last time *Hamlet* was presented in its original dialect was centuries ago. In fact, only four original pronunciation productions of Shakespearean works have been performed in modern times: two recently at The Globe Theatre in London, one at the University of Kansas, and one at Cambridge in the 1950s. And now … Reno.

The actors include British superstar and scholar Ben Crystal as Hamlet, and the Nevada Repertory Company under the leadership of director, Rob Gander, chair of theatre and dance.

“Original pronunciation is almost like a dialect, grounded not in geography but through time,” says Gander. “When Shakespeare was writing, ‘love’ and ‘prove’ rhymed. By employing original pronunciation, we can experience the text as it was meant to be heard. Original pronunciation is still remarkably easy to understand, even to a modern ear.”

The creative team also includes David Crystal, an English linguist and The Globe’s consultant, and English professor Eric Rasmussen, the production’s dramaturge, author of *Pronouncing Shakespeare* and co-editor of The Royal Shakespeare Company’s *Complete Works of William Shakespeare*.

Preview performances of *Hamlet in the Original Pronunciation* will take place Nov. 1 – 3, with additional performances Nov. 4 – 20. For more information, visit www.unrschoolofthearts.org.

—Nonie Wainwright ’10

*Shakespearean actor Ben Crystal as Lucius in Comedy of Errors at The Globe Theatre in London. Crystal will star in the world premiere of Hamlet in the Original Pronunciation this November.*
Rebecca Solnit honored as 2011 Laxalt Distinguished Writer

The Donald W. Reynolds School of Journalism, in collaboration with Nevada Humanities, will honor San Francisco-based art critic, cultural historian, essayist and journalist Rebecca Solnit as the 2011 Laxalt Distinguished Writer. Solnit, whom the Utne Reader selected as “one of 25 visionaries who are changing your world,” will talk about the craft of writing at the Joe Crowley Student Union Theater, Oct. 19 at 7 p.m. The event is free and the public is welcome.

Solnit is a contributing editor to Harper’s Magazine and is the recipient of a Guggenheim Fellowship, the National Book Critics Circle Award and the Lannan Literary Award. Her 13 books and numerous essays explore ideas about art and photography, landscape, public life, memory, politics and ecology.


“Rebecca Solnit is one of the last great public intellectuals—an outstanding journalist and rare literary talent who engages passionately with the issues facing the American West and the world beyond,” said Alan Deutschman, Reynolds Chair of Business Journalism. “We’re honored and excited that she’s coming to campus as the Laxalt Distinguished Writer.”

Solnit recently has begun a six-year term as a participant in the Program for Andrew D. White Professors-at-Large at Cornell University, in which she explores themes of environmental, environmental justice and social justice.

A collection of Solnit’s work will be available for purchase at the event, and the author will sign books following her talk.

—Zanny Marsh ’09MJM

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**Faces on the Quad**

**JARELL GREEN** is one of 20 students nationwide to receive the title National Fellow of the Pearson Prize for Higher Education. Green, who spent his childhood surrounded by drugs and gangs, is pursuing a nursing degree in memory of his mother, who suffered from a long history of illness and died from cancer three weeks before Green began his studies at the University. During his first semester, Green testified at the Nevada State Legislature in support of the University’s Center for Student Cultural Diversity and TRiO Scholars Program as a “first-generation student,” the first in his family to pursue a college degree. Today, he mentors and tutors at the center, volunteers at Hug High School, mentors at Wooster High School through Youth Matter Now and volunteers with Pathfinders Children’s Ministry. Green plans to use his college education and volunteer experience to continue working with at-risk youth and sharing his faith.

**CLARISSA MARTINS** always wanted to be a doctor. While attending Reed High School in Sparks, she joined the Dean’s Future Scholars program, allowing her to work on campus, spend time with a University mentor and get ahead in high school. Now a University junior pursuing a bachelor’s in biochemistry, Martins remains involved with the Dean’s Future Scholars and conducts research related to cancer and nutrition. This year Martins earned the Nevada INBRE (Idea Network of Biomedical Research Excellence) Undergrad Research award, and she plans to use his college education and volunteer experience to continue working with at-risk youth and sharing his faith.

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**High school students work their minds at Smallwood Multimedia Boot Camp**

Eight high school seniors attended an unusual kind of “boot camp” this summer. The students were chosen through a competitive application process to be participants in the first Smallwood Foundation Multimedia Boot Camp, where they received rigorous instruction and hands-on experience in a wide range of media and research activities at the University’s award-winning Mathewson-IGT Knowledge Center, one of the most technologically advanced university libraries in the country.

The students made use of the full range of multimedia equipment and software provided in the Knowledge Center’s @One area, including the use of state-of-the-art media facilities. They received concentrated instruction in audio, video and media editing skills using Final Cut Pro, Flash, iMovie, Camtasia, Adobe Photoshop and Adobe After Effects. In professional-level projects, they learned how to shoot video with HD camcorders, integrate images, develop informative posters, create 2-D and 3-D animation, and use recording room technologies.

The Boot Camp was provided free of charge to the students, thanks to a grant from the Frances C. and William P. Smallwood Foundation, which will also provide a two-year $2,500 annual scholarship to attend the University to the student exhibiting the most potential. This student, who will be named the “Smallwood Foundation Scholar,” will also be given a paid job at the Knowledge Center’s @One multimedia area during his or her undergraduate career at Nevada. All of the students who attended the boot camp will also be allowed to use the Knowledge Center throughout their senior year in high school.

This is the first year of the new pilot program, which, besides providing a learning experience for the students, is also aimed at spreading the word among high school students about the University.

“The Knowledge Center just impresses everyone who steps through its doors,” said Kathy Ray, dean of University Libraries. “It is such a terrific resource for our students that we believe exposing high school students to the Knowledge Center will help them realize all this University has to offer and will aid in recruitment efforts.”

Mark Gandolfo, manager of media design and production for the past 13 years, serves as co-director of the boot camp, with Daniel Fergus, media production specialist. Gandolfo has produced national and international award-winning productions, including film, video and multimedia projects.

—Claudene Wharton, ’86, ’99M.A.
University celebrates new study-abroad program in Thailand

When Carmelo Urza founded University Studies Abroad Consortium in 1982, his goal was to allow university students to study in nontraditional places abroad, cities not necessarily packed with American tourists, so that students would truly become immersed in another culture. Through the University and its Basque Studies Program, the consortium first offered a study-abroad experience in San Sebastian, Spain, in the heart of Basque country.

Urza’s 30 years of accomplishments with the consortium, which now offers 39 programs in 24 countries and has served students from more than 700 universities, was celebrated in June. The contract for the newest program in Chiang Mai, Thailand, was signed during the event.

In juxtaposition to Bangkok, the coastal Thai capital with a population of more than 9 million, Chiang Mai’s population is only about 1 million, and it sits on the Ping River in the far north, surrounded by high mountain ranges. Lonely Planet listed the city as one of the top-10 places to visit in 2011, stating that “If Chiang Mai were a person, it would be Bob Dylan … despite its great age, there’s still a bohemian chic that makes it as relevant and hip as ever.”

Kelly Corrigan, the consortium’s marketing director, said the program in Chiang Mai will offer unique experiences for students:

“In addition to the classes they take, students will have opportunities to do internships and field studies in a rehabilitation facility for elephants, at an AIDS organization, or with the indigenous hill tribe people.”

A wide variety of coursework will be offered, including courses in international finance, business management and relations, money and banking, Buddhist philosophy, comparative politics, Thai society and culture, language, civilization and cuisine and more.

The University Studies Abroad Consortium’s mission is to provide students with the opportunity to develop the knowledge, skills, experiences and attitudes to prepare them for the global society of the 21st century. For more information, please visit http://usac.unr.edu/.

—Claudene Wharton ’86, ’99M.A.
Larson selected as director of School of Community Health Sciences

Dr. Trudy Larson has been named director of the School of Community Health Sciences. Her appointment follows a 27-year career at the University of Nevada School of Medicine, where she has served as a professor and former chair of the Department of Pediatrics and served as an associate dean. She was interim director for the School of Community Health Sciences for 10 months.

The school's Master of Public Health program was recently accredited by the Council of Education for Public Health, making it the only such accredited program in the state.

As a pediatric infectious disease specialist, Larson has spent her career focusing on HIV/AIDS and immunizations and has contributed to both fields in research, education and service. In 1990, she co-founded the first clinic for those with HIV/AIDS in the Truckee Meadows, Northern Nevada HOPES, for which she is currently the medical director. She continues to see patients at the clinic, and will continue to do so, even with her new appointment.

"All of the doctors at the clinic are from our University of Nevada School of Medicine," she said. "It is an interdisciplinary team, and we also have graduate students doing research there."

With this year marking the 30th anniversary of the discovery of HIV/AIDS, Larson noted that some advances in addressing the disease have been made, and points to one local accomplishment in particular.

"In northern Nevada, we haven't had a baby born with HIV/AIDS in 18 years," she said.
—Claudene Wharton '86, '99M.A.

Foundation Professor Scott Casper named interim dean of College of Liberal Arts

Scott Casper, history department chair and University of Nevada, Reno Foundation Professor, was named interim dean of the University's College of Liberal Arts and assumed his duties July 1.

Casper has been at the University since 1992 and served as the history department's chair for five years, and as the department's director of graduate studies before that. He has received several honors, including Professor of the Year from the University of Nevada Foundation in 2008 and the Nevada Regents' Teaching Award in 2005.

"Scott is an award-winning teacher with a strong record of research in his specialty, 19th century United States history, and a distinguished record of campus and professional service and outreach," said Heather Hardy, the college's former dean, who was named the University's executive vice president and provost June 1.

For the past 11 years, Casper has shared his knowledge of George Washington with K-12 teachers from across the country at summer institutes at Mount Vernon, Washington's estate. He also shares her expertise locally with K-12 history and social studies teachers through the Northern Nevada Teaching American History Project.

Casper is the author of two books, including Sarah Johnson's Mount Vernon: The Forgotten History of an American Shrine (2008). He is the co-author, editor or co-editor of six other books and has held fellowships at the National Humanities Center and the Virginia Foundation for the Humanities, among other institutions.
—Claudene Wharton '86, '99M.A.

David Ake takes helm at School of the Arts

The College of Liberal Arts has named accomplished jazz musician and associate professor of music David Ake the director of the School of the Arts.

In addition to teaching at the University, Ake maintains an active career as a jazz pianist and composer. His work includes a solo piano CD In Between" (2005) and most recently, The Dark, the debut album from the group EEA, consisting of Ake (piano) and fellow Nevada music professors Peter Epstein '04M.M. (saxophonist) and Larry Engstrom (trumpet).

He is also a member of The Collective, a distinctive jazz ensemble that includes Epstein and Engstrom, as well as music department colleagues drummer Andrew Heglund and bassist Hans Halt '99 (music), '01M.M.

Ake has also published extensively, including the books, Jazz Culture (2002) and Jazz Matters (2010), in which he lends his perspective to post-1940s jazz.

Ake has earned high honors for his teaching in the music department, being the recipient of the 2010 Regents' Teaching Award, the University's 2009 F. Donald Tibbitts Distinguished Teaching Award, and the College of Liberal Arts' 2002 Mousel-Feltner Award for Outstanding Research and Creative Activity.

Ake earned both a Ph.D. in musicology and a master's in ethnomusicology—the study of social and cultural aspects of music and dance in local and global contexts—from UCLA. He also studied jazz piano at California Institute of the Arts and University of Miami, earning a master's and a bachelor's, respectively.

Colleague Larry Engstrom, the school's former director, stepped down from the position to spend more time teaching. He continues to serve as the director of the Reno Jazz Festival.

—Claudene Wharton '86, '99M.A.
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