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# Geological Society of Nevada Southern Nevada Chapter Newsletter

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April 2006

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## Tracing Faults and Fissures in the Las Vegas Valley - Reprised

### **PRESIDENT**

Robyn A. Howley  
UNLV Graduate Student  
702.895.5054  
robynhowley@yahoo.com

### **VICE PRESIDENT/ WEBMASTER**

Joseph Kula  
UNLV Graduate Student  
702.895.4255  
jkula@unlv.nevada.edu

### **TREASURER**

R. Paul Bowen  
R.P. Bowen Engineering,  
Inc.  
702.247.7765  
paulbowen@cox.net

### **SECRETARY**

Melissa Hicks  
UNLV Graduate Student  
702.895.1162  
hicksm@unlv.nevada.edu

### **NEWSLETTER EDITOR**

Lora Griffin  
UNLV Undergraduate  
Student

**SPEAKER:** Otto Holmquist, Geolines, LLC

**DATE:** Thursday, April 27, 2006

**LOCATION:** LFG Rm. 102

**TIME:** Social half-hour at 6 pm  
Meeting business at 6:30 pm  
Talk at 6:45 pm

**SPONSOR:** Enviroscientists, Inc., Reno, Nevada

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### Geological Society of Nevada, Southern Nevada Chapter

University of Nevada, Las Vegas  
4505 Maryland Parkway, Box 4010, Las Vegas, NV 89154-4010  
<http://geoscience.unlv.edu/GSN/gsnsc.htm>

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**Spring has arrived!** And, it is a great time to think about new beginnings. The beginning of a new fiscal year for the chapter means new chapter officer elections. The current nominees are listed in the announcements. Look for your e-mail ballot early next month.

This month's speaker will be Otto Holmquist, founder of Geolines, LLC. He will be discussing advances in field techniques made over the last year while tracing faults and fissures in the Las Vegas Valley.

The Nevada Mining Association Minerals Education Workshop was a great experience for those involved. Workshop officials were encouraged by the outpouring of willing volunteers who worked so hard to make it a success. The 1<sup>st</sup> Annual UNLV GeoSINposium is this Friday and Saturday, April 21-22. It is a great opportunity to encourage and recruit some of the best and brightest students within UNLV's Geoscience department. Geologists for a Cure is still looking for participants to help support their efforts to raise funds for cancer awareness and research. The sponsorship for the refreshments at the next meeting is still open. If anyone is interested in helping to support the chapter in this way please contact Robyn Howley.

-- *Lora Griffin*

# ANNOUNCEMENTS

## Officer Nominations

GSN Southern Nevada Chapter officer elections will be held in May 2006. All chapter members will receive an email ballot in early May. Please return this email ballot, with your name attached, no later than 10 days after the date of the email. The new officer year will begin in June 2006.

The following are our officer nominees for 2006/07:

**President:** Bruce W. Hurley,  
*Physical Scientist, US Dept. of Energy*  
**Vice President:** Jean S. Cline,  
*Professor of Geology, UNLV*  
**Treasurer:** R. Paul Bowen,  
*President R.P. Bowen Engineering Inc.*  
**Secretary:** Joseph Kula,  
*PhD Candidate, UNLV*

## UPCOMING EVENTS

**May 25** - No Meeting  
*Officer Elections (e-vote)*

## UPCOMING GSN RENO SEMINARS

**April 21** - Bill Stanley, *VP Exploration, Atna Resources Ltd.*  
"Update on Atna's Pinson Underground Project, Nevada"

**May 19** - Eric Struhsacker, *AuEx Ventures, Inc.*

Contact [gsn@mines.unr.edu](mailto:gsn@mines.unr.edu) for reservations.

## UNLV GeoSINposium *Friday & Saturday April 21-22*

This Friday and Saturday, April 21-22 the 1<sup>st</sup> Annual UNLV GeoSINposium will kick off at the Marjorie Barrick Museum on the UNLV campus, adjacent to LFG.

Doors open on the first day of this student-run geology symposium at 8:30am, oral presentations begin at 9am, poster presentations begin at 1pm, and the award ceremony will commence at 3:30pm.

Graduates and undergraduates alike will be presenting posters or talks on their current research. Research topics include: soils, geomorphology, hydrogeology, paleontology, sedimentology, stratigraphy, geochemistry, volcanology, seismology, structural geology and economic geology.

The symposium committee encourages businesses looking for future scientists to attend. The feedback provided by professionals in industry, civic, government and academics can be valuable to the advancement of student research. Local and national scientific companies are invited to attend and potentially recruit future employees.

Our GSN chapter donated \$100 to support one presentation award for a student who gives the best presentation. We were able to provide this donation because of the chapter dues that our wonderful members pay every year and because meeting sponsorship allows us to use our membership dues for other things such as field trips and this donation.

For more information on the symposium please contact Wendy Barrow at [wendyj@unlv.nevada.edu](mailto:wendyj@unlv.nevada.edu) or go to <http://geoscience.unlv.edu/gradsymposium.htm>.

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## PAID ADVERTISEMENTS

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## ADS & SPONSORS

We would like to thank Enviroscientists, Inc. of Reno, Nevada for generously sponsoring the food and refreshments served during our social hour during the April meeting. *Thanks!*

GSN is a non-profit organization and our chapter relies on meeting sponsors and advertisements to keep our chapter up and

running. If your business would like to sponsor social hour at one of our southern Nevada chapter meetings or place an ad in our newsletter please contact Robyn Howley.

## MEMBER NEWS

### Geologists for a Cure

Saturday May 6, 2006

Only a few short weeks until the 11<sup>th</sup> Annual Susan G. Komen Breast Cancer Foundation Race for the Cure to be held at the Fremont Experience, Saturday, May 6, 2006. Several members of the GSN Southern Nevada Chapter will be participating.

The Komen Breast Cancer Foundation's Las Vegas affiliate is dedicated to ensuring that women and men suffering from breast cancer are supplied with the critical tools for survival and a better quality of life. The generous donations of race supporters make this possible.

New participants and donors are invited to support this year's race. Anyone interested in participating must be registered online by April 17, 2006. Late registrations will be accepted until May 5 but race bags and t-shirts will have to be picked up by the participant. To join the department team or to get more information or make a donation visit <http://race.komenlasvegas.com> and look for "Geologists for a Cure".

*If you have member news or information, suggestions or comments, that you would like to share with other GSN members contact Lora Griffin at [lora.griffin@unlv.edu](mailto:lora.griffin@unlv.edu).*

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## **GSN Member Joseph Kula's Adventure in New Zealand**



Franz Josef Glacier photo by Joe Kula

Well, I've returned safe and sound from several weeks of adventure in New Zealand. The primary purpose of the trip was to do fieldwork along the southeast coast of Stewart Island – also known as Rakiura. Stewart Island is located just south of South Island, and it holds a great record of Mesozoic magmatism and tectonism that occurred along the Pacific margin of Gondwana. Our interest was in what we have named the Sisters shear zone. It's exposed for ~40 km along the coast, and consists of mylonitic granitoid rocks with offshore conglomerate making up the Sisters Islets (hence the name!). The mylonites dip south, and the conglomerate dip north and so there is likely an intervening detachment fault between them –conveniently submerged under the ocean. Fieldwork in this type of region is done off of a boat, and well, the weather wasn't exactly cooperating all the time, so the sea was pretty rough at times. Nonetheless, we accomplished a lot and had a blast while doing so.

For anyone interested in why we were working near the end of the earth, well the Sisters shear zone appears to have accommodated continental extension leading to formation of the South Pacific spreading ridge when New Zealand separated from West Antarctica. The thermal history of footwall rocks indicates that the shear zone basically 'turned off' at ~82 Ma, which coincides with the oldest seafloor along the southeast New Zealand continental margin. So we think that we have documented the thermal signature of the transition from rift to drift. Additionally, this is the first structure described that relates to extension between New Zealand and West Antarctica.

So that's the "work" part if you want to call it that. We also had an opportunity to tour around the South Island a bit. The South Island has an amazing intertwined geology-geography-climate system. Starting in the southeast we headed west out of rainy Dunedin and drove over the Southern Alps into the west coast region. Turning north, we spent time in glacier country, where it is really something to be standing in basically a rainforest and looking up a valley at a glacier. When we headed back over the Southern Alps, we saw just how prevalent the rain shadow effect is as we drove out of lush green landscapes and into dry brown landscapes.

There is an awful lot of outdoorsy things to see and do in New Zealand, but there is also a lot of other stuff there. The Cadbury chocolate factory is in Dunedin, and they also have several museums. Baldwin street is the labeled "the steepest street in the world". Oh and the wine. Mmmm. The wine. I don't really know what to say about it, I don't know much about wine, but I think that if you don't drink wine you're missing out. Kiwis sure seem to know what they're doing.

One other thing I'd like to mention is the little personality things that go on. Like morning and afternoon tea. I like it. Everyday without fail, 10 AM and 2 pm –time for tea. Oh, and it turns out that you can say 'thanks' by saying 'ta' or 'lovely' or 'cheers' and 'cheers' also means 'see

ya later', 'right on', and 'how's it goin/good day to you....'. I'll end this little bit by saying I had a wonderful adventure, saw some great geology and countryside, met some really interesting people, and feel tremendously lucky to have had the experience.

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## **Tracing Faults and Fissures in the Las Vegas Valley - Reprised**

Otto Holmquist  
Founder of Geolines LLC

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### **Abstract**

In April 2005 we discussed the successful use of surface seismic methods to trace faults and fissures in the lacustrine deposits of the Las Vegas Valley. Considerable experience has been gained since our last visit, including the exposure of approximately six feet of offset within a test pit excavated by a rubber-tired backhoe at the Eglington Fault near Valley and El Campo Grande, tracking the elusive Frenchman Mountain Fault across boulder strewn plains and the application of surface seismic techniques to areas where trenching alone did not provide definitive results. Along with advances in the field techniques, we will be discussing potential application of the energy traces developed with refraction seismic equipment to estimate fault dip angle and depth of investigation.

### **Background and Education**

Otto Holmquist is a graduate of the New Mexico Institute of Mining & Technology, Socorro, New Mexico, where he received a B.S. Geological Engineering in December, 1982. He is a registered professional engineer (Civil) in Nevada, Texas and New Mexico. After brief periods with Schlumberger Well Services and the New Mexico State Highway Department, he provided environmental and geotechnical engineering services with an international consulting engineering company for 16 years. Otto came to the Las Vegas Valley with a local geotechnical engineering and materials testing firm in late 2001 and started Geolines, LLC in January 2004.

Geolines provides consulting services to engineering firms and developers in the Las Vegas Valley, Arizona and New Mexico. These services have included monitoring ground vibrations associated with blasting and construction projects, developing shear wave velocity profiles for seismic design, assessments of excavatability, and tracing faults and fissures using refraction seismic tools with visual verification.