



September 2010

LOS ANGELES BASIN GEOLOGICAL SOCIETY MEETING NEWSLETTER

September 23th (Thursday): Dr. Vali Memeti, with the Dept. of Earth Sciences, University of Southern California will give a talk on:

Growth of a large Magma Chamber: An example from the Tuolumne Batholith, Sierra Nevada, CA

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Abstract

Field, geochronology and geochemistry studies on the magmatic lobes of the 1,100 km², 95-85 Ma Tuolumne batholith, Yosemite National Park, California, increasingly support the idea that this large igneous body grew incrementally, and ultimately resulted in a large region of interconnected melt in a centralized magma chamber. This magma chamber was large and long-lived enough for differentiation processes and widespread magma mixing and recycling of older pulses into younger to operate.

Four magmatic lobes – tongues of magma that emplaced at the distal parts of the central Tuolumne body – represent each of the three major Tuolumne batholith units. All lobes are characterized by a pattern of more mafic marginal granodiorites that grade successively into more felsic, leucogranitic units towards the center. Structural field relationships indicate inward younging, which is verified by high precision U/Pb zircon geochronology. Whole rock and single mineral element and isotope geochemistry of the lobes suggest the compositional variation of the magmas is due to differentiation processes and minor magma mixing, whereas magma mixing and recycling were the dominant processes in the main chamber.

Our interpretation is that the 10-30 km² magmatic lobes are probably single pulses emplaced too far away from the eventual focus of magmatism and thus failed to amalgamate with other pulses to form part of the large, central magma chamber. Due to their distance to the main zone of amalgamation they cooled earlier and were able to freeze in their initial magma composition and isotopic signature. Closer to

the main chamber, gradational mixed units formed indicating the areal extent of amalgamation. Contacts and magmatic structures dip or plunge steeply in lobes and in the main chamber implying that the pulses dominantly grew vertically. Although it is difficult to identify the number and size of magma pulses that built up the Tuolumne batholith, pulses must have been large enough or arrived fast enough to amalgamate and form a large, centralized area of interconnected melt. This must particularly be true during growth of the 92-88 Ma old Half Dome granodiorite and the 88-86 Ma Cathedral Peak emplacement as is evidenced by gradational contacts, recycled antecrystic zircons and cognate inclusions into younger units, and geochemical results.

Speaker's Biography

Vali grew up in Darmstadt, Germany and attended undergraduate school at the University of Technology in Darmstadt. For her diploma from the same university, she studied a metamorphic gneiss dome in southern France. Wanting to perfect her English, she decided to go to graduate school in an English speaking country and ended up at the University of Southern California, where she completed her doctorate in Geology in August 2009. She went on to teach classes in geology as a lecturer at Washington University in St. Louis, Missouri, and just recently returned to the University of Southern California. Her specialty is in structural geology, tectonics, the study of pluton emplacement and the petrologic-geochemical evolution of plutons through time as well as pluton-host rock interactions. She has recently started to pursue single mineral geochemical analyses to decipher magma chamber processes and growth.

Meeting Time, Place, Cost and Reservations

Time:

Thursday, Sept 23th, 2010

Typical Meeting Agenda

Lunch Served: 11:30 AM to 12:00PM
Announcements: 11:45 AM to 12:00 PM
Guest Speaker: 12:00 PM to 12:30PM
Questions/Close: 12:30 PM to 12:45 PM

Place:

The Grand at Willow Street Conference Center located at 4101 East Willow Street, Long Beach, CA. (562-426-0555). Take Lakewood Boulevard south from the San Diego Freeway (405), turn west onto Willow Street and turn right onto Grand Avenue at the sign for the Center. Park free in the garage structure.

Cost:

Lunch and Speaker: \$20.00 with reservations
\$25.00 without reservations
Student: FREE (Lunch and Speaker)

Meeting Reservations:

Make your reservations using our web site at www.labgs.org, or by calling Bill at (213) 448-2841, or emailing william.long@breitburn.com. **Reservations made prior to Tuesday before the meeting is appreciated**, but walk-ons are welcome.

Contact Us – The LABGS Board

President: Bill Long (213) 225-0205
William.long@breitburn.com

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(805) 937-7216 x 104
ghummel@energy-reserves.com

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Secretary: Open Position

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k2mobile@MSN.com

OUR WEB SITE ADDRESS IS:
www.labgs.org

Student Sponsorship

Looking for Student Lunch sponsors for Fall schedule. If you or your Business/Organization would like to become a Student Lunch Sponsor, please let us know.

LABGS Don Clark Brunton Award

Congratulations Wynee Hu, she has won the 2010 Don Clark Brunton Award. Graduating in late Spring 2010 from CSULA with a M.S. Geological Sciences, Environmental Hydrogeology option. Wynee was nominated for this award by Dr. Ivan P. Colburn of CSULA, Prof. Emeritus Dept. of Geological Sciences who provided the scholarship committee with her qualifications and a letter of recommendation.

The LABGS Don Clarke Brunton Award was created as an annual gift of encouragement and recognition to those community college students who show dedication and passion to the field of geoscience. It is our goal to encourage future geoscientists in their pursuits.

Los Angeles Basin Geological Association Advertising Costs 2008-2009

Newsletter and SoCal website posting:

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|-------------------------|------------|------------|
| • Business Card size ad | \$25/month | \$230/year |
| • 1/4 Page | \$45/month | \$450/year |

Website posting only: \$20/month



Upcoming 2010 LABGS Speaker/Event Schedule

Next meeting October 28rd – Speaker TBA

If you have a speaker suggestion, please mention it to a Board member!!

Other Events

USGS Fall Symposium

It is a special opportunity for students and professors to get together and discuss research. It is also a fantastic networking opportunity for collaboration and student recruitment. Contact the USGS for further information.

Earth Science Week

Earth Science Week is October 11-15th. Volunteer to participate and bring more science education to our schools. Karla Tucker will be at our meeting recruiting.

LABGS Brunton Award

We have a 2010 Winner, Melissa Bernardino, Student of Geological Sciences @ CSULB. Congratulations Melissa!!!!!!

Melissa was nominated for this award by Dr. Richard J. Behl, Prof. and Undergraduate Advisor Dept. Geological Sciences, CSULB, who provided the scholarship committee with her qualifications and a letter of recommendation. The LABGS Brunton Award is given to a qualified undergraduate student attending a four-year LA Basin College or University currently pursuing a baccalaureate degree in Geology or the Earth Sciences.

TOTY

The Teacher of the Year (TOTY) Award is a \$250 award for a teacher with 3+ years experience in K-12, who teaches at least one unit per year in the natural resources. Please see our website www.LABGS.org, for more details.



President's Note

To all our members,

Our 2010 Fall/Winter program is in full swing – so make sure you attend our upcoming September 23rd meeting and hear Dr Vali Memeti speak on ‘Growth of a Large Magma Chamber: An Example from the Tuolumne Batholith, Sierra Nevada, Ca.’

The LABGS committee is trying very hard to bring you a diverse program that will interest a wide spectrum of members. The upcoming September meeting is a good example of this, make sure you make it.

Time to step up and participate in this organization. We are looking to fill our Secretary opening. Let anyone of our committee members know of your interest.

Bill



Los Angeles Basin Geological Society Membership Form

Join the LABGS and become a member of the Pacific Section AAPG all for one low price of \$12.00 per year - 2 West Coast Geoscience Organizations for the price of one



Membership Benefits

- LABGS Membership
- Monthly Luncheon Meetings with Strong Technical Programs
- Pacific Section AAPG Membership
- Pacific Section AAPG Bi-Monthly Newsletter
- Discounts for PSAAPG Bookstore Publications
- Bi-Annual West Coast Geoscience Directory - *next edition 6/03*
- Networking and Social Opportunities with Fellow Geoscientists

Current Annual LABGS/PSAAPG Dues

1 Year Option = \$12.00 \$ _____
 3 Year Option = \$36.00 \$ _____

Extended E-Mail Announcement List Fees

To receive meeting notices from SJGS and CGS
 1 Year Option = \$12.00 \$ _____
 3 Year Option = \$36.00 \$ _____

PSAAPG Foundation Contributions

B. Hacker Publication Fund \$ _____
 Martin Van Couvering Fund \$ _____
 Dibble Map Foundation \$ _____
 California Well Sample Repository \$ _____
 John Kilkenny Scholarship Fund \$ _____
 PSAAPG Foundation Trust Fund \$ _____

TOTAL PAYMENT

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Essential Member Information

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 Position / Title _____
 Bus Phone # _____
 Res Phone # _____
 Fax Phone # _____
 Spouse's Name _____
 Education *Highest Degree* _____ *Year* _____
 School _____

Signature _____

Annual membership is handled through PSAAPG and runs from July 1, through June 30. If you are already a current member of PSAAPG and you selected LABGS affiliation you are already a member of the LABGS.

**Please Make Checks out to PSAAPG and mail along with member form to:
PSAAPG P.O. Box 1072, Bakersfield, CA 93302**