



# San Joaquin Geological Society

**Date:** Tuesday, February 11<sup>th</sup>, 2014

**Time:** 6:00 PM Social Hour  
7:00 PM Dinner  
8:00 PM Lecture

**Place:** American Legion  
2020 H St. Bakersfield, CA 93301

**PSAAPG Members & Mesozoics**  
\$25 w/ reservation  
\$30 without reservation

**Non PSAAPG Members**  
\$30 w/ reservation

**Full-time Students with ID:**  
Free, Courtesy of Chevron & Occidental

## **SJGS WEBSITE**

<http://www.SanJoaquinGeologicalSociety.org/>

## **SJGS OFFICERS**

### **PRESIDENT**

**Laura Bazeley**

WZI, Inc.

[lbazeley@wziinc.com](mailto:lbazeley@wziinc.com)

### **VICE PRESIDENT**

**Jonathan Allen**

Chevron

[Jonathan.Allen@chevron.com](mailto:Jonathan.Allen@chevron.com)

### **SECRETARY**

**Evan Bargnesi**

Occidental of Elk Hills, Inc.  
412-5143

[Evan\\_Bargnesi@oxy.com](mailto:Evan_Bargnesi@oxy.com)

### **TREASURER**

**Noel Velasco**

Aera

[NOVelasco@aeraenergy.com](mailto:NOVelasco@aeraenergy.com)

### **PRESIDENT-ELECT**

**Anne Draucker**

### **PAST-PRESIDENT**

**Vaughn Thompson**

## Unraveling the Geologic History of Mars

**Dr. Robert Anderson, Group Supervisor of Geophysics and Planetary Sciences  
California Institute for Technology – Jet Propulsion Lab (JPL)**

Understanding the geologic and tectonic histories of Mars is a complex problem. Magmatism, tectonism, and hydrogeologic activities have contributed significantly to the geologic evolution of Mars, especially pronounced in and surrounding the Tharsis region. Tharsis is interpreted to be the result of plume-driven activity, ranging from mantle plume to superplume activity. Tharsis displays: (1) distinct episodes of intensive early magmatic/tectonic activity that declines with time, (2) a suite of diagnostic landforms, including volcanic constructs of diverse sizes and shapes and extensive lava flow fields, large igneous plateaus, canyon systems, ancient mountain ranges, catastrophic outflow channels, and systems of radial faults and circumferential systems of wrinkle ridges and fold belts centered about local and regional centers of magmatic-driven activity, which includes uplift, dike emplacement, volcanism, and hydrothermal activity, (3) early explosive activity transitioning into more concentrated, volcano and fissure-fed eruptions, (4) early basin formation, and (5) pulsating, long-lived development. Tharsis-related activity is considered to have triggered gigantic floods that ponded in the northern plains to form oceans and/or lakes, causing short-term hydrological cycles and transient climatic perturbations from a common cold and dry Mars. Dr. Anderson will present an overview of the early histories of Mars.

### **Dr. Robert Anderson – Bio**

Robert Anderson received degrees from Old Dominion University (B.S., M.S.) and University of Pittsburgh (Ph.D.). Dr. Anderson is currently the group supervisor of Geophysics and Planetary Geosciences at the Jet Propulsion Lab (JPL) where he serves as an investigation scientist on the Mars Science Laboratory, the lead for the Solid Sample Library, and director of the JPL Regional Planetary Image Facility. At JPL he has also served as a collaborator on the Mars Exploration Rovers, mission planner and investigation scientist for the 2001 and 2003 Mars Missions, geological consultant for rover development, and deputy education and outreach coordinator for the Mars Exploration Office. Dr. Anderson has served on the faculty of California Institute of Technology, Pasadena City College, and University of Pittsburgh where he has taught a number of classes on planetary geology. He has been an officer of the Planetary Science Division for the Geologic Society of America for the last 7 years and is currently serving as past chair. He is the recipient of numerous NASA Group Achievement Awards for his work with the Mars Pathfinder, Mars Exploration Rovers, and Mars Science Laboratory projects.

### **\* RSVP \***

By: Friday, Feb. 7<sup>th</sup>, 2014

By Replying to this email

or by phone 412-5143

or PayPal on the Website:

<http://www.SanJoaquinGeologicalSociety.org/>