

SAN DIEGO ASSOCIATION OF GEOLOGISTS

www.sandiegogeologists.org

SDAG MEETING ANNOUNCEMENT

WEDNESDAY, September 14, 2016

(Note: This is the second Wednesday in September)

Tectonic Geomorphology and Active Faulting in Northern Baja California, Mexico

Presented by:
Peter Gold

- Where:** Green Dragon Tavern & Museum **See map on next page**
6115 Paseo del Norte, Carlsbad, 92011
- When:** 5:30 pm - Social Hour
6:30 pm - Dinner
7:30 pm - Program
- Directions:** FROM INTERSTATE 5: Exit at Palomar Airport Road. Head east approximately 200 yards and take the first right (or south) onto Paseo del Norte. The restaurant is located just past the Taco Bell on the right hand side.
- Dinner:** Chicken Marsala and Vegetarian Penne Pasta. Includes Caesar salad, roasted red potatoes, green beans with garlic sundried tomato butter, coffee, iced tea, and chocolate mousse for dessert. Cash bar
- Cost:** \$35 per person, \$5 discount for members, STUDENTS and PROFESSORS: \$15. Add \$5 if you did not make a reservation.
- Reservations:** Make your reservation **online** at www.sandiegogeologists.org **no later than noon, Monday September 15th**. Reservations cannot be guaranteed after Monday at noon; but are always preferred over walk ins. Reservations well before the deadline are MUCH appreciated.

Map:



ABSTRACT AND BIO

Tectonic Geomorphology and Active Faulting in Northern Baja California, Mexico

Presented by: **Peter Gold**

Efforts to unravel the geologic slip histories of faults within the southern San Andreas Fault system have largely overlooked active faults in northern Baja California. However, offset landforms along the Agua Blanca Fault record evidence for dozens of earthquakes over the Holocene, and the 1892 Laguna Salada, 1956 San Miguel, and 2010 El Mayor-Cucapah surface rupturing earthquakes serve as reminders that this part of the plate boundary system is capable of producing potentially damaging seismicity. In recognition of this fact, new geochronologic methods, increasingly complex paleoseismic excavations, and high-resolution topography from lidar and photogrammetry, all methods that have long benefitted slip rate and rupture timing estimates for faults north of the border, are now being applied to active faults south of the border as well. While focusing primarily on the Agua Blanca Fault, this talk will explore tectonic geomorphology along active faults in northern Baja California, review early studies and existing data, and describe new and ongoing efforts to constrain the geologic slip histories of faults in this region.

Peter Gold is a Ph.D. candidate in geology at the University of Texas, Austin. For his doctoral research he uses lidar, field observations and quantitative geochronology to measure geologic fault slip rates with the end goal of understanding strain partitioning between parallel active faults within the southern San Andreas Fault system in southern California and northern Mexico. He has worked extensively in the western US along the Dixie Valley Fault and the southern San Andreas Fault in Coachella Valley and in northern Mexico along the Agua Blanca Fault and 2010 El Mayor-Cucapah rupture. He completed his B.S. and M.S. in geology at the University of California, Davis, where he used terrestrial lidar and 3D visualization systems to quantify uncertainties in measurements commonly made along fault scarps immediately following surface ruptures.

UPCOMING MEETINGS

Meetings are usually held on the 3rd Wednesday of the month but may change to accommodate the speaker and meeting place schedules. Check the SDAG web site for updates.

October 22-24, 2016	THE 2016 SDAG Field Trip – Northern Baja, California
November 16, 2016	Chuck Houser - Groundwater Sustainability in southern California
December 14, 2016	FEATURING Tom Demere starring LIVE @ THE SAN DIEGO NATURAL HISTORY MUSEUM (one showing only)

2016 SDAG EXECUTIVE COMMITTEE

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ANNOUNCEMENTS

GEOLOGY AND GEOHAZARDS OF NORTHWESTERN BAJA'S GOLD COAST AND THE AGUA BLANCA FAULT



The 2016 San Diego Association of Geologists annual field trip will explore the many fascinating stops and stunning vistas along Highway 1 to Ensenada, travel inland to the Santo Tomas and Agua Blanca Valleys, and return via Highway 201 to see recent road cuts exposing excellent examples of Cretaceous deltaic sedimentary systems. The second day of this year's trip is generously sponsored by Geocon Incorporated. The highlight of the second day will be a recently excavated fault trench through Holocene alluvial fan deposits derived from a right-laterally offset drainage along the Agua Blanca Fault.

Field trip leaders include John Minch and Jim Ashby, who have both performed extensive research and consulting work in Mexico for many years, and Peter Gold (PhD Candidate, University of Austin, Texas) who is studying the mechanics and slip rate of the Agua Blanca Fault. Tom Rockwell, SDSU professor, will also be lending his expertise for planned fault trench and fault related discussions. We are also very fortunate to have the support of several staff members from CICESE University in Ensenada, who contributed several papers on local geology and will be accompanying us for different portions of the trip. Highlights of the trip include many outstanding fault exposures, deep seated coastal landslides, including a stop at the recently repaired landslide on Highway 1, fault related geomorphic features, subsurface fault features in a fault trench to be dug in early October, and faulted road cuts showing complex relationships between proximal and distal fan deposits in Cretaceous sediments.

The planned trip will be by bus and personal vehicles. The trip cost includes this year's guidebook and T-shirt, transport by bus (for the first 50 people), all meals, drinks and snacks and camp site fees.

ITINERARY: The planned trip is three full days, beginning Saturday October 22 at 5.30am, ending Monday October 24, at 6pm

October 7: Last day to sign-up. Bus limited to 50 passengers (first come, first serve seat allocation).

Saturday, October 22: Meet at parking lot next to Las Americas Premium Outlets starting at 5.30am (Map to be provided). Check in and continental style breakfast. Bus and convoy departs promptly for the border at 7.30am. Travel the coastal toll road (Hwy 1D) to Villarino Camp Ground, via multiple stops. Lunch will be at La Fonda at noon, dinner will be catered at the camp ground. Evening discussions planned.

Sunday, October 23: Catered breakfast. Convoy leaves at approximately 9am, heading south through the Santo Tomas and Agua Blanca Valleys to explore multiple stops along the Agua Blanca Fault. Lunch in the field. Return to camp site at El Palomar in Santo Tomas Valley. Catered dinner at local winery including whole pig cooked over coals in a pit.

Monday, October 24. Catered breakfast. Convoy departs around 9am. Possible stop at coastal overlook depending on time. 9-mile transit along Highway 201 to examine outstanding exposures of Cretaceous aged, faulted deltaic sediments. Cross border and return to vehicles at approximately 6 to 7pm.

RECOMMENDED EQUIPMENT: Short hikes are planned, but are anticipated to be less than a mile. Bring hat, sunscreen, walking stick, sturdy boots and personal field gear. Bring camping equipment: tent, sleeping bag, folding chair, coffee mug, binoculars, etc. Campsites are equipped with hot water for showers.

COST: \$275 per person. Discount for SDAG members and students. Fee includes guidebook, T-shirt, bus transportation, camping, eight meals, snacks, and beverages (water, soda, beer etc). Fees are non-refundable. All ages welcome.

TRAVEL DOCUMENTS AND EXCLUSIONS: A valid passport, US passport card is mandatory to return to the United States from Mexico. Your passport should valid for at least 6 months past the date of the field trip. The following items are not included in the trip cost:

1. Car or personal travel insurance in Mexico
2. Toll Fees for personal vehicles (approximately \$1.50 /toll, 3 toll stations between Tijuana and Ensenada)
3. Drinks purchased from the bar at La Fonda (Lunch stop, Day 1)
4. Wine purchased from the Winery in Santo Tomas (Dinner, Day 2)
5. Costs for hotels. Small hotels are available adjacent to both campgrounds. Contact Information has been provided herein.

RESERVATIONS: Reservations are on a first-come, first-serve basis. Bus transportation is likely limited to the first 50 people unless demand is high. If you intend to bring your own car, please indicate if you are willing to provide car pool services.

QUESTIONS: Contact SDAG VP Rupert Adams at: adams@geoconinc.com or 858-260-1214

2016 SDAG FIELD TRIP REGISTRATION FORM

TODAY'S DATE: _____, 2016

Name(s): _____

Address: _____

City/State/Zip: _____

Mobile Phone(s): _____

Email: _____

- T-Shirt Size:** Small Medium Large, Xtra Large
- Food:** Vegetarian. Allergy: Yes No Please Describe:
- Transport:** Bus Personal Vehicle Carpool

TOTAL NUMBER AND FEE FOR YOUR PARTY

___ \$275/ea. Non-members: \$ _____

___ \$255/ea. SDAG member discount: \$ _____

 Member spouse cost w/o field trip guidebook

___ \$ 130/ea. Students (1st 10) \$ _____

TOTAL ENCLOSED: \$ _____

MAIL FORM AND CHECK (payable to SDAG) TO:

SDAG Field Trip Registration
c/o Rupert Adams
Geocon Incorporated
6960 Flanders Drive
San Diego, CA 92121

**San Diego Geological Society, Inc. and San Diego Association of Geologists
General Release and Save Harmless Waiver**

The undersigned is advised that dangers and hazards may include but are not limited to uneven ground, steep trails, heat and cold stress, poisonous reptiles and insects, open flames, uncertain and possible extreme weather conditions, floods, earthquakes, and landslides on the San Diego Association of Geologists field trip planned for October 22 through 24, 2016, and does hereby assume any and all risks involved in connection with the field trip and does hereby save and hold harmless San Diego Geological Society, Inc., and its board of directors, its committees including the San Diego Association of Geologists and its officers and members, and other participants, all claims, losses and damages (including attorneys fees and any costs involved because of said claims) on account of injury, illness, death, property damage, and inconvenience or loss of money due to delay that may arise, by reason of my participation in the field trip. I understand that I am responsible for carrying my own medical and liability insurance.

Signature

Date

MENU:

1. Day 1:
 - a. Continental Breakfast – Muffins, Croissants, Tea and Coffee, etc.
 - b. Lunch at La Fonda - Beef taco with chile relleno, rice, beans, soup. Cash Bar
 - c. BBQ at Campsite - Carne Asada, grilled sausage, grilled chicken, grilled vegetables, corn and flour tortillas, salsa, guacamole, tortilla chips, beans
2. Day 2:
 - a. Full Breakfast – Scrambled Egg with chilies, vegetables, potatoes, beans cheese; chilaquiles, tortillas, milk, juice, coffee, seasonal fruit and pan dulce
 - b. Lunch in the field – Machaca Burrito, fruit, pasta salad.
 - c. BBQ at local winery - Whole Pig cooked 'La Grulla Style' (over coals in covered pit), beans, salsa, guacamole, tortillas
3. Day 3:
 - a. Full Breakfast – Omelets, seasonal fruits, pan dulce, hot chocolate, tea and coffee, juice
 - b. Lunch in the field – Burrito, fruit etc.

The menu has been set up to provide several options for vegetarians, including many fruits, cooked vegetables and breakfast cereals. Please **clearly indicate** if you have any specific allergies so that this information can be passed on to our catering service.

LIBATIONS AND SUNDRIES:

Water, soft drinks and bottled beer will be available throughout the trip. We also hope to have beer on tap at the campsites provided by a local craft brewer in Ensenada called Wendlandt Cerveceria. The Margarita Bar will also be available in the evenings, and the 'snack bucket' will make the rounds at field stops. Wine will be available for purchase during dinner on the second night from the winery.

HOTELS:

1. Night 1: La Jolla Beach Camp: +52 (646)-154-2005 or +52 (646)-154-2004
 - a. Camp ground has 6 rooms across the street, each with 2 double beds. \$40 per night for two people, \$5 extra for each additional person. Bathrooms, showers, hot water available.
 2. Night 2: Hotel El Palomar: +52 (646)-153-8071 or +52 (646)-153-8002
 - a. 2 rooms with one double bed – Approximately \$21 per night
 - b. 2 rooms with 2 doubles and one single – Approximately \$32 per night
 - c. 6 rooms with 2 double beds – Approximately \$27 per night
 - d. A house that sleeps 10 people– Approximately \$160 per night
- \$5 deposit per person. Bathrooms, showers, hot water available.

The Earthquake Engineering Research Institute (EERI) San Diego Chapter, the University of California San Diego (UCSD) Extension and the GeolInstitute San Diego Chapter are organizing the 2nd Workshop on Geotechnical Earthquake Engineering with the topic "Dealing with the Consequences of Liquefaction" on Wednesday-Thursday, March 29-30, 2017 in UCSD campus, San Diego, California. As you may remember, the first workshop in 2014 was a success with almost 300 attendees (<https://sandiego.eeri.org/?p=203>).

The second workshop will honor the lifetime achievements and contributions of Prof. Kenji Ishihara to the field of geotechnical earthquake engineering. The afternoon session of the second day of the workshop ([Thursday, March 30, 2017](#)) will be entirely devoted to honor Prof. Ishihara and the session will be hosted by Prof. I.M. Idriss. We will have distinguished speakers from US, Japan, New Zealand, Europe and South America sharing with us their experiences with liquefaction mitigation, recent major earthquakes and highlighting the contributions of Prof. Kenji Ishihara. We are in the process on preparing the final program and the website for the workshop. A one-day short course before the workshop on Tuesday, March 28 is also in the plans.

We would much appreciate your participation in this workshop. Please mark your calendars and save the dates.

Hope you will be able to join us and be part of this big event.

If you have any question, feedback or wish to sponsor this event, please feel free to contact the Chair of the Organizing Committee, Dr. Jorge Meneses, at jmenesesl@gmail.com

Thanks and looking forward to seeing all of you in beautiful San Diego,

Jorge

President, EERI San Diego Chapter

PROF. KENJI ISHIHARA



Prof. Kenji Ishihara was born in Chiba, Japan in 1934. He started his studies in Civil Engineering at the University of Tokyo, obtaining BS-degree in 1957, MS-degree in 1959, and Ph.D-degree in 1963. During one-year period from 1966 to 1967, he was a Visiting Research Associate at the University of Illinois in Urbana, U.S.A. under the guidance of late Professor R. B. Peck. He has been affiliated with the University of Tokyo since then, taking the position of professorship in geotechnical engineering since 1977. On his retirement from the University of Tokyo in 1995 he took up the position of Professor of Geotechnical Engineering at the Tokyo University of Science and then at Chuo University in 2001.

He served for ISSMFE as secretary of the Japanese National Committee for the period of 7 years between 1970 and 1976 during which time he attended the Executive Committee meeting of ISSMFE in Sydney, 1971 as a voting member representing the Japanese National Society. Since then, he often represented Japan in several Executive Committee Meetings of ISSMFE and those of Asian region. He acted as Vice-President of Asian region of ISSMFE during the period of 1989-1993.

His major research interest covers problems in soil dynamics associated with earthquakes, such as liquefaction of sandy deposits, and seismic stability of slopes and earth structures. He wrote about 250 papers on the these subjects.

He has served on various occasions as consultant or adviser to UNESCO projects (Balkan region, India) and UNDP project (Chile, India, Iran). He has participated in the geotechnical investigations of earthquakes worldwide such as those in Romania (1977), Yugoslavia (1979), Chile (1985), Mexico (1985), Ecuador (1986), Soviet Armenia (1988), Soviet Tajik (1989), Philippines (1991) and Iran (1991). He is the author of the book "Fundamentals of Soil Dynamics" (1974) and the textbook "Soil Mechanics" (1988) both in Japanese. He recently published from Oxford Press an English book entitled "Soil Behaviour in Earthquake Geotechnics"

He has received the honor by being assigned on many occasions to deliver lectures worldwide including the theme lecture in the 11th ICSMFE in San Francisco and the 33rd Rankine Lecture of the British Geotechnical Society in 1993. He acted as chairman of the Technical Committee TC4 on Earthquake Geotechnical Engineering in ISSMFE for the two tenures of office from 1985 to 1993. His incessant endeavor in TC4 has led to the periodical holding of the International Conference on Earthquake Geotechnical Engineering of which the first in a series was held in Tokyo in 1995 and the second in Lisbon in 1999. He has also received honor by being awarded the H. B. Seed Gold Medal in 1998 from the American Society of Civil Engineers. For his significant contribution, title of Honorary Doctorate was given to him from Technical University of Bucharest, Romania in 1995 and from Istanbul Technical University, Turkey in 1999. In 2000, he was honored by being bestowed the most prestigious Japan Academy Prize. In 2010, he was elected to Foreign Associate of the United States Academy of Engineering.

In commemoration of his long-time contribution to the profession, the International Conference on Earthquake Geotechnical Engineering held in Istanbul by the efforts of Professors A. Ansal and M. Sakr, published two volumes of selected papers containing major publications by Prof. Kenji Ishihara.

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Jorge F. Meneses, PhD, PE, GE, [D.GE](#), F.ASCE

South Coast Geological Society 2016 Field Trip:

South Coast Geological Society is now accepting reservations for the 2016 field trip. The field trip will explore the geology along some of the great Californian Faults. We will travel along the San Andreas, explore the contact with the Garlock and other faults along the Tejon Pass, and the uplift and geology of the Temblor Range. We will also visit the Monterey Formation in the Carrizo Plains, Soda Lake, and some petroglyphs at Painted Rock. During this trip we will look at the overall geology of the region, the tectonic development, fault interactions with the aqueduct, mineralogy, and other related topics (potentially even a Trekkie movie set stop at Vasquez Rocks). For more information visit the SCGS website: <http://southcoastgeo.org>

SDSU- AAPG Student Chapter:

Jennifer Luscombe (current student M.S. student at SDSU) and the SDSU-AAPG student chapter officers are beginning the 2016/2017 academic year. Their intention is to support student interest in petroleum and geology related fields. The AAPG student officers are currently organizing an event to stockpile the students with geology supplies and funds to attend the AAPG event in Las Vegas and GSA event in Denver. Details of the event will be forthcoming.

CALL FOR ARTICLES

SDAG invites members to submit articles on their current research or an interesting project they are working on for publication in the monthly newsletter. The article should be no more than 1 page in length. Photos are welcomed; too. Please submit articles to the SDAG secretary via email.

SDAG RESEARCH TOOL

SDAG RESEARCH TOOL - A comprehensive listing of all papers published by SDAG, whether as annual field trip guidebooks or special publications, is now available on our website. Entries are sorted by primary author, or chronologically by date of publication, from our first guidebook in 1972, up the San Luis Rey River in 2013, from Coast to Cactus in 2014, and finally over the edge to the Coyote Mountains in 2015. These can be accessed or downloaded as .pdf files. They are fully searchable in Adobe Reader or Acrobat, so if you are researching a topic, "tsunami" for example, you can search for that keyword. This listing will be updated as new books are published. Thanks to Greg Peterson and Hargis + Associates, Inc., for making this possible. See the links below:

http://www.sandiegoeologists.org/SDAG_Pubs_authors.pdf

http://www.sandiegoeologists.org/SDAG_Pubs_chronological.pdf



THE GEOLOGICAL SOCIETY OF AMERICA®

The 2016 GSA Annual Meeting will be September 25 - 28, 2016
in Denver, Colorado

SDAG MONTHLY PHOTO COMPETITION

This month's photo is incorporated into Mike Hart's article publication at the rear of this newsletter. Do you have an interesting or unique photo? Submit the photo to the secretary's email address: secretary@sandiegogeologists.org

Geology Institutions

We have heard from many upcoming geologists at our recent meetings, all of whom are seeking work opportunities here in San Diego. Included herein, in no particular order, are bio's and contact information of our members looking to gain a foothold in the local professional community

Geographic Information Systems Professional Seeking Job Opportunity

I have completed my coursework for a GIS Certificate from San Diego Mesa College and am looking for an internship or full/part-time position as a GIS Analyst or Technician.

Skills and Experience

- 4 ½ years' experience with ESRI ArcGIS Desktop 10.x software.
- 3½ years' experience as a GIS Specialist in Environmental Consulting.
- 6 years' experience as a Geotechnical and Environmental Geologist.
- Collect, process and import GPS survey data into ArcGIS.
- Georeference data, maps and aerial photos.
- Geodatabase design and management, geospatial data analysis.
- Excellent communication skills, able to multitask and work independently.

- Effective team-player, works well with people in multidisciplinary environment.
- Client/Customer service oriented, able to translate needs of non-GIS personnel into effective solutions.
- Strong computer skills including automation of tasks (Python/Perl) and scientific programming.
- Excellent mathematical background and technical writing skills.

For resume and references please contact Chris Lynch, (619) 302-1152, mrprbgeo@gmail.com

REQUEST for 2016 SDAG/SDGS and PUBLICATION SPONSORS

On behalf of the San Diego Geological Society, Inc. (SDGS), a public benefit 501(c)3 nonprofit educational corporation, we would like to request tax deductible Donations for our San Diego Association of Geologists (SDAG) group. The list of paid Sponsors and the forms to become a Sponsor are located on the SDAG web site at: <http://www.sandiegogeologists.org/Sponsors.html>.

Your donation will further the SDGS mission to promote geology and related fields in the greater San Diego region, operating through the San Diego Association of Geologists (SDAG), a committee of SDGS. To achieve our primary educational objective, we organize frequent field trips and maintain a program of monthly meetings featuring speakers on current geological topics. We also publish field trip guidebooks and other publications related to geology and natural history. We encourage scholarship and research by awarding scholarships from the elementary through graduate levels. With your \$100 "EMERALD" donation, your name/business will be listed as a sponsor on the SDAG web site (<http://www.sandiegogeologists.org/>) and in the monthly SDAG meeting newsletters. With your \$500 "RUBY" or \$1,000 or more "DIAMOND" level donation, your business card will also be included on the SDAG web site and in the monthly SDAG meeting newsletters. In addition, as a "\$1,000 or more DIAMOND" level donation you will be presented with a thank you plaque.

Should you have any questions regarding a Sponsorship, please contact our non-profit SDGS Secretary (Diane Murbach) at 619-865-4333.



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Contact: **Louise Adams or Suzie Nawikas**



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Contact: **Dave Bloom**



Contact: **Rupert Adams, CEG**

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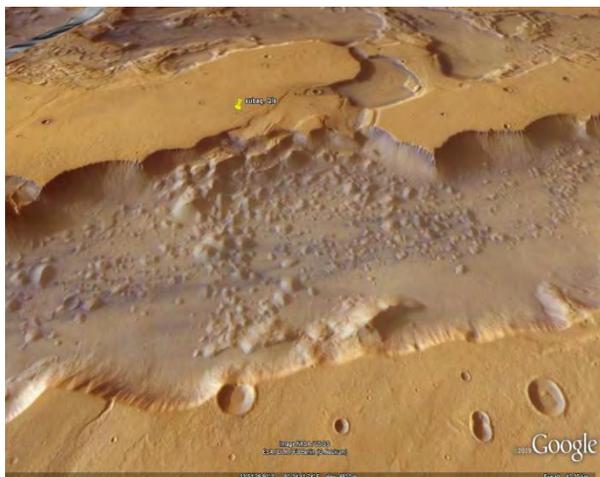


GEOMORPHIC EVIDENCE FOR ANCIENT RIVERS AND LAKES ON MARS

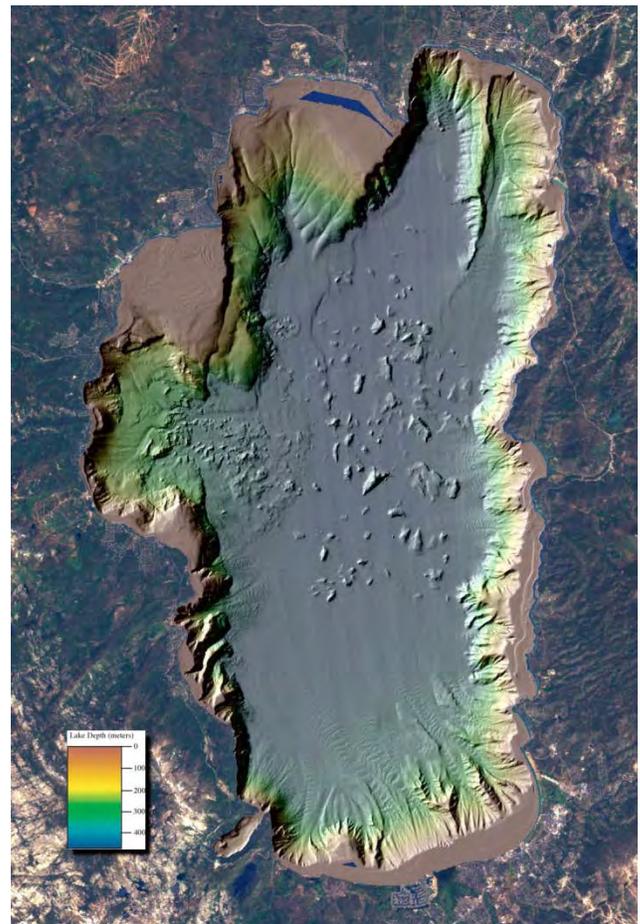
Mike Hart, mwhart40@gmail.com

NASA scientists have found evidence for large amounts of water on Mars that existed billions of years ago and theorize that Mars had oceans that were up to one mile deep. This period, termed the Noachian Period, ended approximately 3.7 Gya (billion yrs. ago.). So what happened to all that water? Most planetary scientists believe that atmospheric water was stripped away by solar winds that were able to deplete the water after Mars lost its magnetic field. It is calculated that solar winds currently are depleting atmospheric water at a rate of approximately $\frac{1}{4}$ pound/second (the rate was once much higher). That Mars once had a magnetic field is attested to by the magnetism detected in Martian rocks by NASA experiments during the rover expeditions. The reason the planet does not currently have a magnetic field is the subject of much speculation. One possible explanation is that the iron core is no longer producing the field because it has cooled and solidified. Mars low gravity which is approximately 38 percent of Earth's likely also contributed to the loss of water.

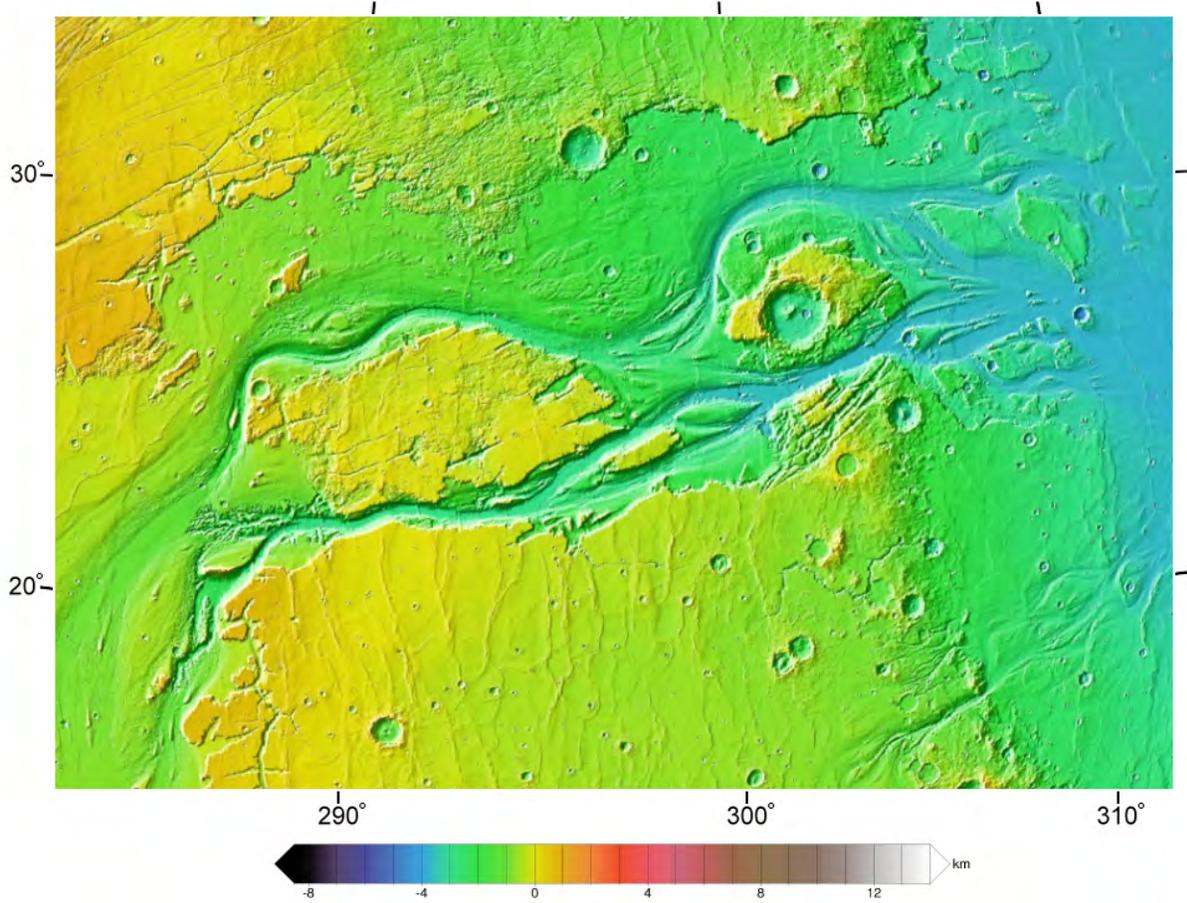
The geomorphic evidence that water was once plentiful on Mars consists of ancient strandlines in some of the major depressions, streamlined islands in river channels, scoured outflow channels, deltas at the terminus of rivers, and subaqueous landslides. Below are examples of some of these features taken from Google Mars images and NASA orbiter missions.



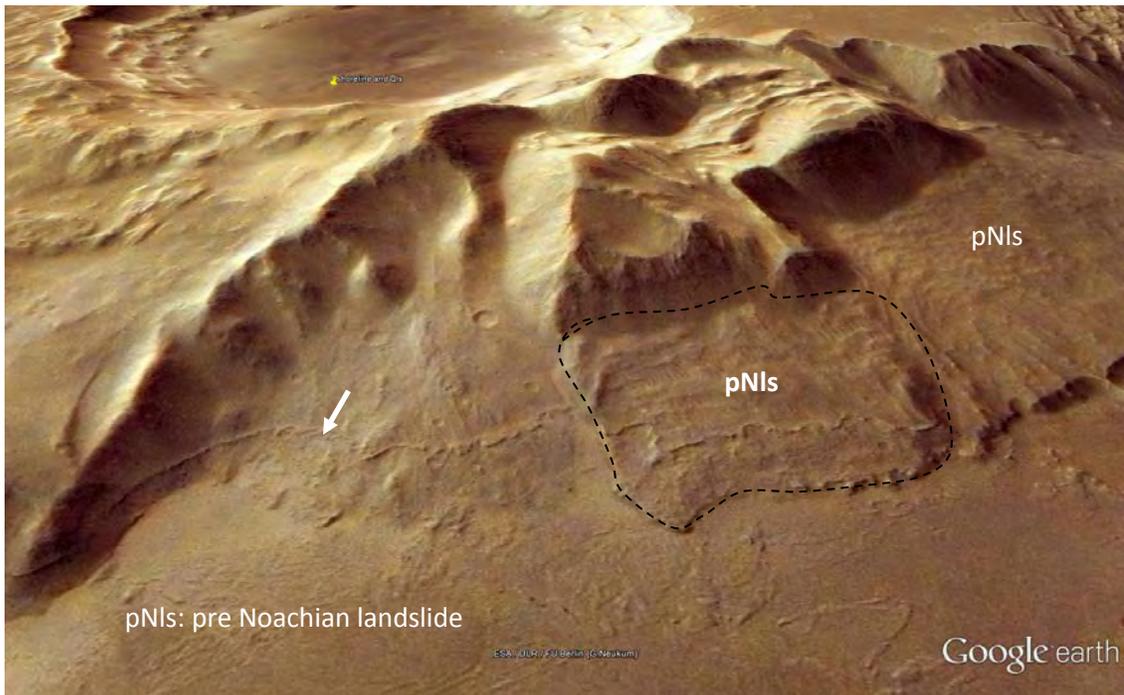
Martian equivalent of Lake Tahoe Landslide in an ancient lake bed. Width of channel is 23 mi.



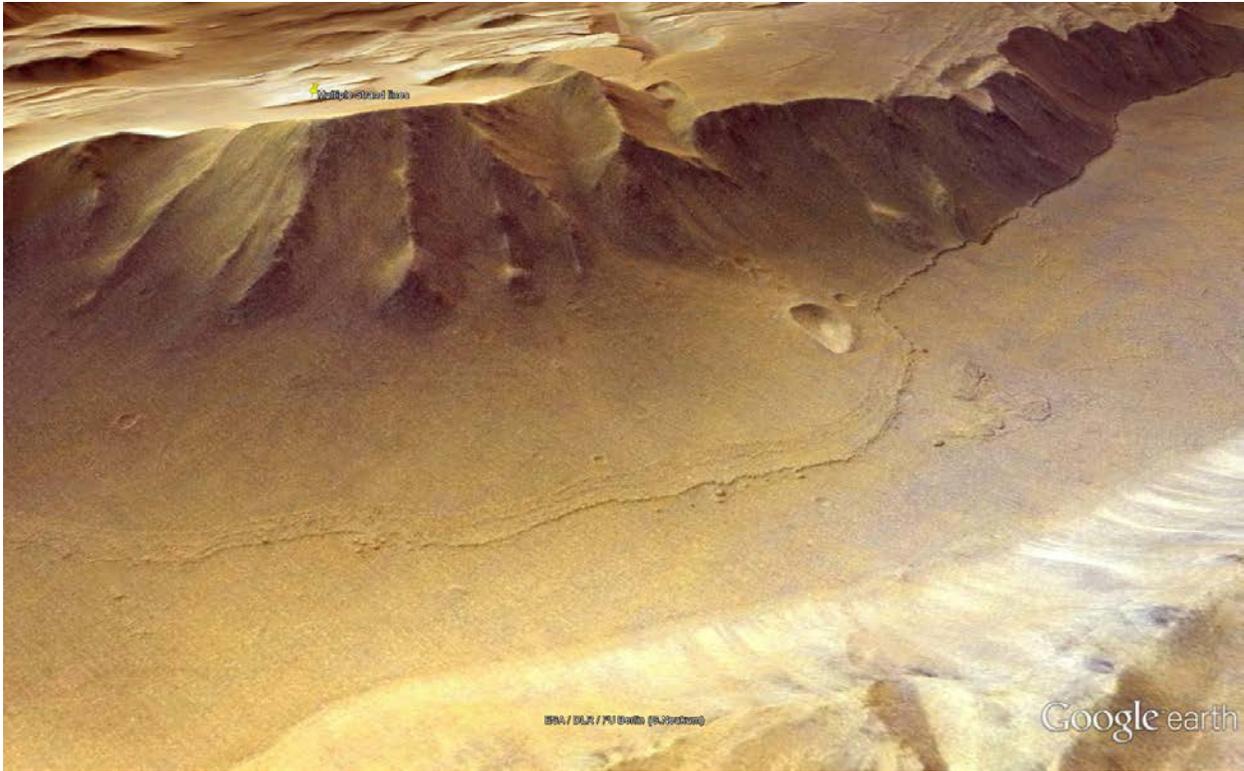
Bathymetry of Lake Tahoe showing blocky landslide deposits that emanated from the large reentrant on the west wall of the lake basin. E-W dimension of lake at the head of the slide is 11 mi.



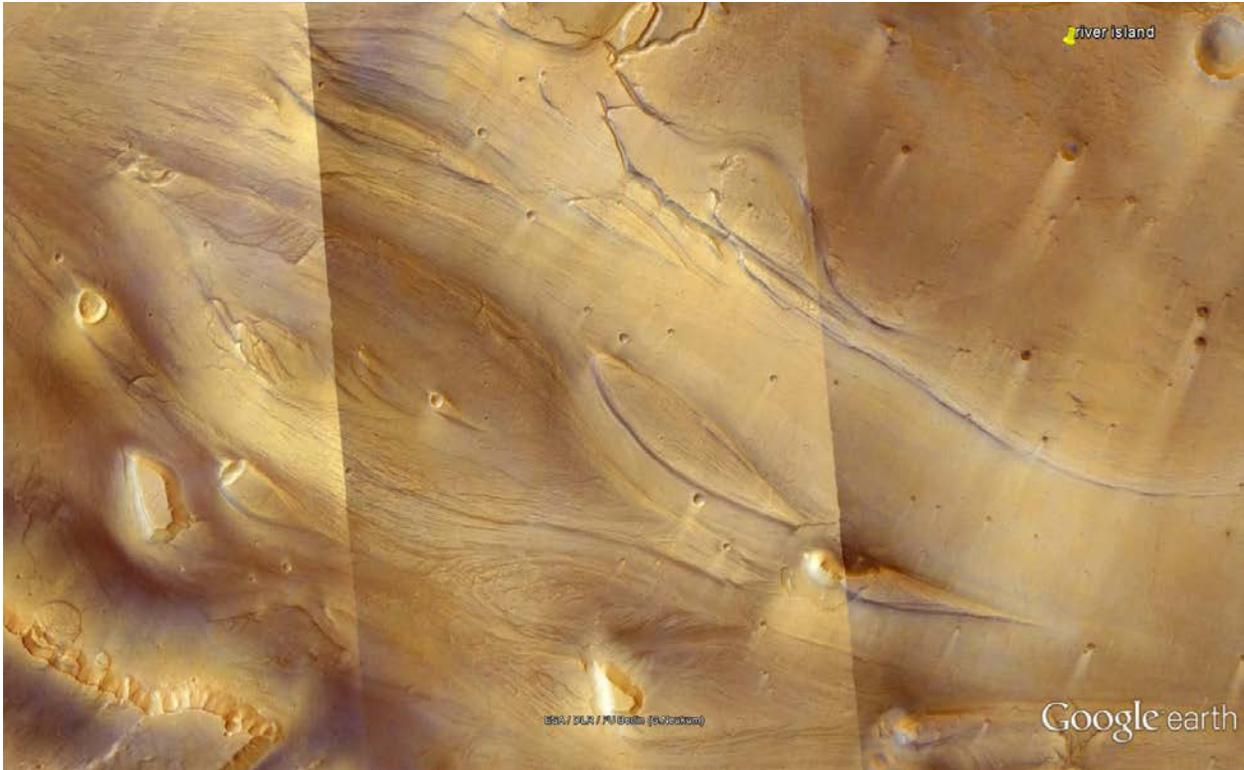
Outflow channels near Kasei Valles. Note the streamlined “islands” near the mouth of the channels. The field of view is approximately 1000 mi.



Strandline (arrow) extending across an alluvial apron and a landslide. Such lines have been interpreted as possible bedding. The fact that the line extends uninterrupted across a landslide is evidence that it represents an ancient highstand of a large lake. (18.654831, -74.074941)



Multiple strandlines on an apparent alluvial apron. (19.186731, -73.310135).



A fleet of streamlined islands in a large outflow channel. Field of view is approximately 90 mi. (28.299567, -54.846803)



Alluvium filled craters in channel with possible strandline at black arrow. Width of largest crater is 7.5 miles. Note the outflow channel wall eroded into crater rim at white arrow (23.823650, -72.854590).