

## CGS Monthly Meeting

Tuesday April 15, 2008

### Geomorphic Processes along the Coastal Cliff, Central Coastline - Israel

by:

*Jonathan Yonni Schwartz*  
National Forest Service



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**MEETING INFO: 3<sup>RD</sup> TUESDAY OF EVERY MONTH (DARK IN JULY & AUGUST)**

**BIEDERMANN HALL AT SACRED HEART CHURCH**

**10800 Henderson Road Ventura, CA 93004**

*(See the MAP at the end of this Newsletter for directions.)*

**Reservation Deadline: 4:00 PM on THURSDAY before the meeting.**

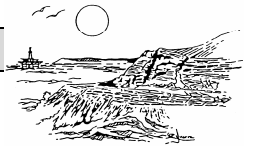
**E-mail Reservations to: [secretary@coastgeologicalsociety.org](mailto:secretary@coastgeologicalsociety.org) or visit the CGS website**

**\*\*\*Please specify your dinner choice: Tri-Tip, BBQ Chicken or Vegetarian Lasagna,**

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Social Happy Hour - 6:00 p.m., Dinner - 7:00 p.m., Speaker – 8:00 p.m.

\$18 – With Reservation, \$25 - Without Reservation, \$ 10 - For Students and K-12 Teachers



Sponsored by:

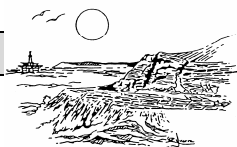
***Badger Drilling and Global Probe, Inc.***

**Abstract:** A study aimed at finding the nature, rate and causes of the morphological changes in the coastal cliff in central part of Israeli coastline, was carried out between 1991 and 1996, along the coast of Michmoret – Giv'at Olga, Israel. The stratigraphical sequence of this cliff, which is of Pleistocene age, consists of alternating layers of Kurkar (a carbonate cemented quartz eolianite) and Hamra (a red brown sandy loam).

The morphological changes occurring in the coastal cliff were documented, prior, during and immediately after storms, by field observation, redundant surveying and photography. The retreat of the coastal cliff is composed of several steps. As a rule the moisture level in the Hamra layers is higher than that of the Kurkar layers because of the higher content of silt and clay in the Hamra. During the rainy season the increase of moisture in the Hamra increases the relative weight and lowers its friction. This in turn intensifies the process of rill development in the Hamra layers and slides of material from this layer occur. As a result the overlying Kurkar remains without support, until the overhanging Kurkar breaks down and falls to the bottom of the cliff. The debris, which accumulates at the foot of the cliff, forms a moderate slope and a stable cliff profile, which prevents continuation of the erosion process. This does not last for long, because sea waves remove the debris from the foot of the cliff leaving it with a precipitous slope and vulnerable to further erosion. The magnitude of the landslide or rock fall event determines, to a certain degree, the frequency of the event. The larger the event, the less likely another landslide or rock fall will occur at the same point in the near future.

Losses of soil and rill development at the cliff slopes are a result of runoff action. The wind action has an effect on the erosion of the coastal cliff by blowing the loose sand from Kurkar and Hamra layers. The main factors influencing the changes (retreat or forward movement) of the base of the cliff are: the rock strength at the base of the cliff, and the ability of the waves to reach the base of the cliff and erode or sweep away material. Sea waves break upon the base of the cliff only a few days during the year. The cliff base is protected by the Kurkar Beit-Yanai rocks, which fell from the top of the cliff. During the winter the beach profile is relatively lower and flatter than in the summer, with a difference of more than 120 cm. Therefore, it is in the winter that the sea waves have a greater ability to erode and sweep away material from the base of the cliff. The rock, debris fall and slides occur during the winter month, as a result of rainfall. It was found that when a rainstorm is smaller than 10 mm the probability of a rock or debris fall event are nil. The probability of rock, debris fall and/or slide increases with the amount and intensity of the rain. During a rainstorm of over 90 mm, the probability of a rock, debris fall and/or slide event is 100 percent.

**Biography:** Yonni is a Natural Resource Officer on the Angeles National Forest, which includes the responsibility of managing the Mineral and Geology Program. He earned his Bachelor's (1994) and Master's (1997) degrees in Physical Geography from the Haifa University, Israel. In 1998 he came to the States to work on his Ph.D. at the University of Southern California in Coastal Geomorphology



studying coastal sediment transport. From 2000 to present he has been teaching and lecturing at California State University Dominguez Hills, California State University Long Beach, Antioch University and Santa Monica College courses in Earth Sciences and Geography. Some of the studies he's involved in at his current job in the Forest Service include: landslide investigations, slope stability studies and post-fire landslides, debris-flows and surface erosion.

**RESERVATIONS:** E-mail or visit the CGS website by the Thursday before the meeting at 4 pm. Please include name and menu choice (Tri Tip, Chicken, or Vegetarian Lasagna) for each person attending. If you don't make a reservation, it's possible there will not be a meal available for you the day of the meeting.

### **MARK YOUR CALENDAR:**

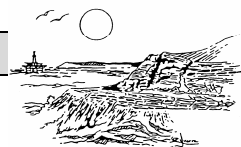
#### • **Upcoming CGS meetings:**

May 20, 2008: Craig Nicholson, UCSB: "Subsidence, Compaction and Gravity-Sliding: Implications for 3D Geometry, Dynamic Rupture and Seismic Hazard of Active Basin-Bounding Faults in Southern California"

June 17, 2008: Mark Legg, Legg Geophysical: Title TBA on the topic of Southern California Tsunamis

### **UPCOMING EVENTS:**

- SPE Western Regional and Pacific Section AAPG Joint Meeting: "Adding Reserves Through Collaboration, Innovation and Technology Transfer" March 31-April 2, 2008 in Bakersfield, CA. Contact Allen Waggoner at [jwaggnr@wziinc.com](mailto:jwaggnr@wziinc.com) or [www.PSAAPG.org](http://www.PSAAPG.org) for more information.
- 2008 Desert Symposium Field Trip: April 19-21, 2008, "Development of the Colorado River and its entry into the Salton Trough." The field trip will explore geographic extent of the Bouse Formation and contrast fresh water deposits with deposits containing marine fossils. Examine sediments at Anza-Borrego that indicate when the Colorado River entered the Salton Trough. Drive from eastern Mojave Desert pinon-juniper plateaus to the Sonoran vegetation of the Colorado Desert. Contact [wpresch@fullerton.edu](mailto:wpresch@fullerton.edu) more information.
- The Statewide Golden Bear Gem & Mineral Show: 69th Annual Show of the California Federation of Mineralogical Societies. Dates & Times: Fri., June 27 - Sun., June 29, 2008 (10 AM - 5 PM each day) Admission: \$5 adults, \$4 Seniors (60+), \$3 students, Kids under 12 free with paid adult. Location: Seaside Park, Ventura County Fairgrounds, 10 W. Harbor Blvd, Ventura. Contact Person: Bural LaRue, Show Chair, (909) 874-5664, [bpalarue@earthlink.net](mailto:bpalarue@earthlink.net) or [www.cfmsinc.org](http://www.cfmsinc.org). Features: over 100 gem, mineral, rock, fossil & jewelry exhibits, including exhibits entered into statewide competition; 50 dealers; demonstrations of jewelry making; informative speakers; door prizes & silent auctions; kids activities; and the official State Gemstone, State Fossil, State Rock, and State Mineral on display. This is informally known as "the Super Bowl" of California gem shows!
- The 2009 Pacific Section AAPG Convention will be hosted by the Coast Geological Society May 3 - 7, 2009 at the Ventura Marriott. Tom Hopps will serve as the Convention Chairman and Gene Fritsche will be the Technical Chairman.
- Upcoming Events at the California Oil Museum: See [www.oilmuseum.net](http://www.oilmuseum.net)



**CGS MEMBERSHIP:** CGS membership is through Pacific Section AAPG. Be sure to select **Coast Geological Society** as your local affiliated society. To join CGS, please go to: [www.psaapg.org/member.html](http://www.psaapg.org/member.html)

### **CGS OFFICERS DIRECTORY:**

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### **NOTICES**

1. *No-Cost* Employment Announcements (Help Wanted & Job Wanted) are available on our website! Also, business card ads and employment ads available in the newsletter! Contact [secretary@coastgeologicalsociety.org](mailto:secretary@coastgeologicalsociety.org)
2. If you forward the email notice to another party, cc: [secretary@coastgeologicalsociety.org](mailto:secretary@coastgeologicalsociety.org) in the email, we will put your party on the monthly notification list. There is no cost to receive CGS email notifications.
3. Buy your raffle tickets! Money generated goes toward scholarships, field trips, etc., to promote the advancement of Geosciences. Check the CGS supported activities on our website (3 Tickets for \$1).
4. Always needed: **Sponsors for our meetings!** Sponsors get a beautiful colored banner hung at the meeting, and the opportunity to distribute their literature and introduce their businesses, as well as the satisfaction of having supported a great organization! Sponsorships are \$300 per meeting and may be shared between two individual sources. Contact [vicepresident@coastgeologicalsociety.org](mailto:vicepresident@coastgeologicalsociety.org) for info.

### **MEETING PLACE: MAP AND DRIVING DIRECTIONS**

Meetings are held at the Sacred Heart Church, Biedermann Hall, 10800 Henderson Road, Ventura, CA 93004.

The location is off Hwy 126 at the Wells Road/Route 118 Exit. Click on the map below for a more detailed view and directions.

