

Map of the World Ocean Floor

This map by Bruce Heezen & Marie Tharp has been called one of the most famous documents in the earth sciences. Prepared during a time before side-scanning sonar or satellite mapping of ocean surfaces was even a dream, it represents over 30 years of work and is one of the most beautiful maps ever made. Laminated and with a 10 page article on the history of it's creation, it is available in two sizes:

38" x 27" (\$25.00) and 4' x 7' (\$40.00) plus \$5.00 s/h

Orders can be placed directly with Maps Unlimited in Danville (925) 831-2181

Northern California Geological Society
c/o Dan Day
9 Bramblewood Court
Danville, CA. 94506-1130



NORTHERN CALIFORNIA GEOLOGICAL SOCIETY



FAMILY PICNIC and GEOLOGY on MT. DIABLO

When: Saturday, June 20, 1998

10:00AM to 4:00PM

Where: Live Oak Picnic Area

Mt. Diablo State Park

PICNIC ACTIVITIES

Barbecue lunch served about noon.

There will be a short conducted hike before lunch to look at the rocks around Rock City, the Wind Caves, and an Indian grinding stone site. Everyone invited.

After lunch, for those interested, we will offer a short drive to vantage points along the road where we can view the mountain and hear an overview of the geologic history of Mt. Diablo. Craig Lyon presiding.

Those that want to see more of the mountain can drive to viewpoints on your own. The summit museum is open until 5:00PM.

Picnic Cost:

Adults (14 years old and above) - \$7.50/Person

Children (5 to 13 years old) - \$5.00/person

Children under 5 free.

Cost includes Park entrance fee of \$5.00 per vehicle.

When you stop at entrance kiosks, tell the Park Aid you are with the Northern California Geological Society Live Oak picnic and they will let you through.

For directions to the Park and Live Oak, see next page.

Picnic signup form - detach and mail by June 13, 1998, to:
Craig Lyon, 743 Santa Ynez Ct., Concord, CA, 94518

Name _____

Address _____

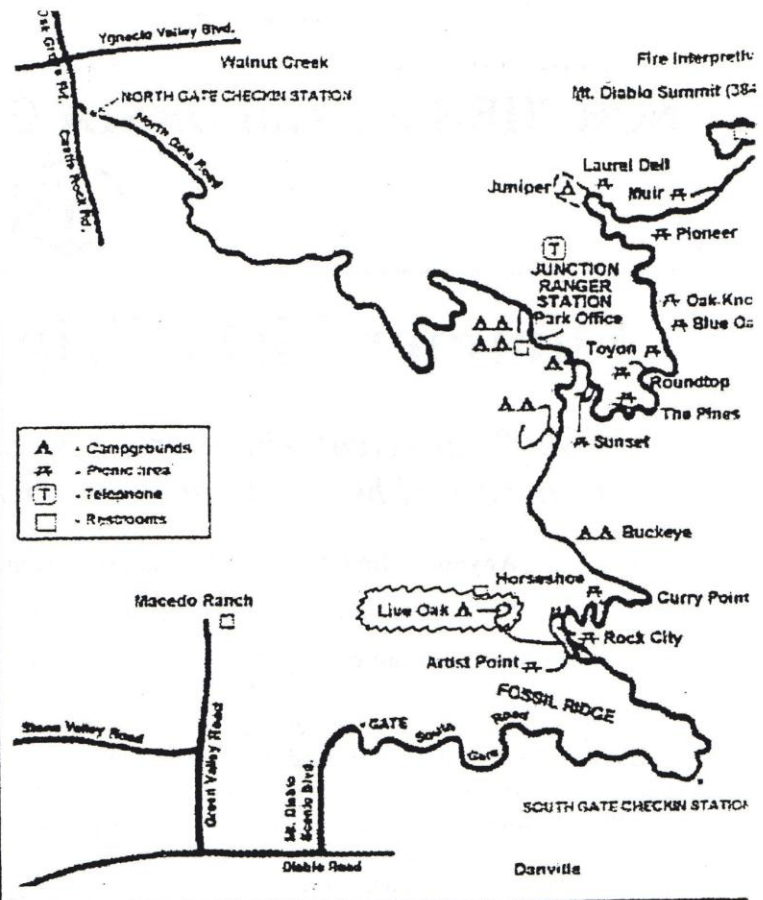
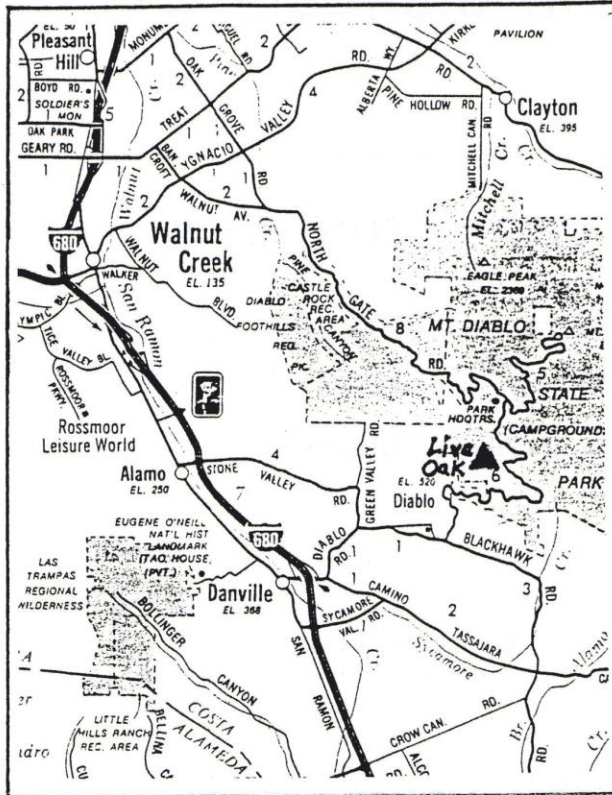
Telephone No. _____

No. Attending: adults (14 and above) _____; children (5 to 13) _____

Remittance enclosed: \$ _____

If you want a vegetarian lunch, indicate here _____

Getting to Live Oak Picnic Area-
Use maps and directions below:



Roads to the north and south
entrances to the park.

Roads in the park that will get
you to Live Oak Picnic Area.

From the north get on Oak Grove Road or Walnut Ave. The Northgate Road to the park entrance takes off left just after the intersection of Oak Grove and Walnut Ave. Stop at the kiosk and register in (about one mile). Drive up mountain to junction of 3 roads (Ranger Station on right). Turn right, go to Rock City. Trend to the right and follow signs to Live Oak. Picnic area is at bottom of hill. Park to the right.

From the south get on Diablo Road. Take Mt. Diablo Scenic Blvd. that goes north off Diablo Road. This turns into Southgate Road. Drive up mountain to kiosk, register in, then go one mile to Rock City. Trend left and follow signs to Live Oak. Picnic area is at bottom of hill. Park to the right.

Because of a limit on the number of cars we can park at Live Oak,
we encourage car-pooling to the picnic if possible.

No alcoholic beverages are allowed in the Park. Also no collecting of plants, rocks, etc.

Picnic is cancelled for rain or closure of the Park for fire hazard.

For questions about the picnic, call Craig Lyon, 925-689-3849 or Tridib GuMa, 925-370-0685.

Stop 4 - Marin Headlands--The Long Journey To The Subduction Zone: The Marin Headlands cherts record pelagic deposition from 200 to 100 million years ago, representing thousands of kilometers of travel on the oceanic plate as it moved toward the Franciscan subduction zone. The imbrication of the cherts, overlying greywackes, and underlying basalts, is a consequence of the structural processes that occurred during the incorporation of these rocks into the Franciscan complex about 100 million years ago. Subsequent rotation of the Marin Headlands block relative to the neighboring Franciscan (we'll be able to see this difference in orientation in the field) may be a consequence of an early phase of San Andreas (post-subduction tectonics), but age constraints on this rotation are poor.

Stop 5 - Tiburon Peninsula (Ring Mountain) High Grade Tectonic Blocks--The Beautiful Consequences of the Initiation of Franciscan Subduction: For the metamorphic petrologist or lover of gorgeous rocks, Ring Mountain would be considered the crown jewel of the California Coast Ranges. The wondrous high grade tectonic blocks exposed here continue to enchant even the most jaded (pardon the expression) Franciscan geologists with glittering mica, green and blue blades of amphibole, and sparkling garnets. But there's more to the rocks than just good looks: the beguiling minerals tell the story of the earliest stages of subduction in the Franciscan.

HOW: 7:30 am on Saturday, July 18th at the Chevron Parking Lot, 2101 Diamond Blvd., Concord (I-680 to Willow Pass Road exit. Go 1 block east, turn north (left) onto Diamond Blvd.), OR meet at the El Cerrito BART Plaza parking lot by 8:00 am (I-580 to Albany-Central Avenue exit. Go east past San Pablo).

COST: \$20.00 per person. Includes lunch, beverages, and field trip guide.

TO ATTEND: Fill out the form below and mail with a check made out to the NCGS to:
Bill Howell, 6651 Alisal St., Pleasanton, CA. 94566

***** REGISTRATION FORM *****

- I want to tour the Franciscan with Dr. Wakabayashi.
- I don't believe the Franciscan can be mapped so show me.
- I don't care about the Franciscan but I want to taste some of Dr. Wakabayashi's home brew.

Name _____

Address _____

City, State, Zip Code _____

Phone (days) _____ (evening) _____

e-mail/FAX _____

Vegetarian Lunch (circle if YES)

Note: There is a limit of 35 people. If you have a vehicle that can seat 5 or 6 and you're willing to drive, please indicate below. (Drivers get preference and will be reimbursed for mileage)

Yes, I can drive (name)

Phone No.

*Make checks payable to NCGS and mail completed registration form to:
Bill Howell, 6651 Alisal St., Pleasanton, CA. 94566
For questions contact Bill at (925) 484-3111*

NORTHERN CALIFORNIA GEOLOGICAL SOCIETY



Summer Field Trip Announcement

*Let's Get Subducted: The World's Most Famous Subduction Complex
Demystified by Dr. John Wakabayashi, Geologist and Brewer*

- WHO:** Anyone Who Grew Up Thinking the Franciscan Couldn't Be Mapped
WHEN: Saturday, July 18, 1998 at 7:30 and 8:00 am (two meeting places)
WHY: Because some of the most interesting geology in the world is right here in our backyard

Reason 1: The Franciscan Complex records over 140 my of uninterrupted subduction, a period covering coeval formation of volcanic arcs that formed the roots of the Sierra Nevada batholith and a forearc basin known as the Great Valley Group. This field trip will take a structural transect across part of the Franciscan to observe individual terranes that represent discrete structural horizons (thrust nappes). Geochronologic data indicates that individual nappe sheets young structurally downward within a given stack of nappes suggesting these nappes represent sequential underplating of units in the subduction zone. Mapping this inverted accretion sequence is a key for recognizing subduction-related structures because post-subduction thrusting (such as occurred during the late Cenozoic transform regime) would produce a more randomized age- progression sequence.

Reason 2: Dr. Wakabayashi has promised to bring a sampling of his home-brew (the field trip is just an excuse). In addition, if the weather is inclement, lunch may be held at the Marin Brewing Company. It has not yet been decided if inclement weather means foggy & rainy or hot & sunny (or both).

WHERE:

Stop 1 - Northbrae "Rhyolite"--The Roof of the Subduction Complex: This stop visits an exposure of volcanic rocks on the hill above the El Cerrito Quarry (stop 2). These volcanic rocks are part of the Jurassic Coast Range ophiolite that formed the "roof" of the subduction complex. These rocks are part of the overriding plate of the subduction system; they tectonically overlie the subduction complex rocks viewed at the El Cerrito Quarry stop.

Stop 2 - El Cerrito Quarry--Major Shear Zone Within a Subduction Complex: Rocks on both sides of a major shear zone, and the shear zone itself, are fully exposed in this quarry. The difference in metamorphism between the rocks on either side of the shear zone indicates 15 km. of vertical throw across the shear zone. The huge vertical throw and full exposure make this one of the finest tectonic contacts exposed in western North America. This structure, along with the exposures in Stop 1, provide clues to the mystery of how blueschist facies rocks made it back to the surface from a burial depth of about 30 km.

Stop 3 - Baker Beach--Ultramafic Rocks Within a Subduction Complex: This serpentinite and shale matrix melange of the Hunters Point Shear Zone is one of several discrete shear zones that separate coherent Franciscan nappes in the Bay Area. This zone is an example of ultramafic rocks that are structurally within the Franciscan, in contrast to Coast Range ophiolite which structurally overlies the subduction complex. An interesting amphibolite-grade tectonic block we will examine within this zone contains evidence of partial melting. The rock also has metachert horizons interleaved in the metabasic rock, indicating that the block originated as the uppermost part of the oceanic crust. This block will serve as a "preview" to the metamorphic blockfest at Ring Mountain later in the trip.

(continued on the next page)

FOR IMMEDIATE RELEASE



****ANNOUNCING****

**WESTERN STATES SEISMIC POLICY COUNCIL
20th ANNUAL CONFERENCE**

**SEPTEMBER 15-18, 1998
PASADENA, CALIFORNIA**

WESTERN STATES SEISMIC POLICY COUNCIL

The mission of the Western States Seismic Policy Council is to provide a forum to advance earthquake hazard reduction programs throughout the Western Region and to develop, recommend and present seismic policies and programs through information exchange, research and education.

WSSPC's goals are:

- to promote regional cooperation and the interaction of the members' Emergency Management Program and Geoscience Program representatives to cultivate, develop and recommend seismic policies
- to raise the overall awareness among all parties of earthquake hazards and methods to mitigate the associated risks
- to serve as a resource for earthquake related materials, information and activities, in coordination with others
- to provide advice to all policy implementing bodies on issues and research related to earthquake hazards.

WSSPC ANNUAL CONFERENCE POLICY SESSIONS

To further the mission of WSSPC, we have structured the conference sessions around the development of seismic policy. What is seismic policy? First perhaps we need to define "policy" or "government policy." The dictionary defines it as a principle, plan, or course of action as pursued by government. Following the dictionary definition using the word "principle," government policy could be defined as the philosophical basis for laws and regulations adopted by government. Seismic policy would then be such government policy that relates to earthquake hazards and mitigation. Each policy session will have brief presentations by the speakers and extensive time for participants to discuss and attempt to develop policy alternatives that address these issues.

CONFERENCE POLICY SESSION PAPERS

In an effort to add value to the conference, WSSPC will be issuing a *Policy Session Papers* volume before the event. The papers from the session speakers will be compiled and distributed to all attendees (before the conference). This volume will serve to prepare participants and will be an excellent addition to your library.

FIELD EXCURSION

WSSPC will be hosting a visit to interesting seismic sites in the Los Angeles area. The tour will take conference attendees to geologically interesting sites. Lunch will be provided during the field excursion. Space is limited and will be assigned on a first-come first-served basis.

FOR MORE INFORMATION CONTACT:

Western States Seismic Policy Council
121 Second Street, 4th Floor
San Francisco, CA 94105
415-974-6435
fax 415-974-1747
e-mail wsspc@wsspc.org