



May 2008

Los Angeles Basin Geological Society Newsletter

May 22, 2008 Meeting: Dr. Rick Behl of CSULB

Will speak on . . .

“Sailing through Underseas Fold and Thrust Belts for Fun and Science”

Speaker Synopsis / Abstract

This is a two-part presentation to kick off the summer season.

The first part will be about the use of active tectonics in the Santa Barbara Basin to extend the highest-resolution paleoclimate record ever recovered from the ocean, a million years farther back in time. The second part is a travelog of a sailing adventure through the Dalmatian Coast of the Adriatic Sea, where an extensive fold and thrust belt breaks the sea surface as a thousand sun-drenched islands among the ruins of ancient Roman and Byzantine empires.

Ocean Drilling Program (ODP) Site 893 located in Santa Barbara Basin has provided one of the highest-resolution continuous climate records of the late Quaternary ever recovered from the world's oceans. Isotopes, microfossil and sedimentology of these sediments show a remarkable correlation of climate change between the Pacific Rim and the high-resolution Greenland ice cores. The Santa Barbara record indicates that the atmosphere and oceans responded both rapidly and dynamically to short-term climatic oscillations. Unfortunately, ODP Site 893 was only drilled to a depth of 200 meters below the seafloor, which goes back to ~160 ka.

This spectacular record exists because Santa Barbara Basin is situated in the middle of a young, active fault-and-fold belt. Where most paleoceanographers avoid areas of tectonic disruption, we have embraced them. Detailed mapping of high-resolution multichannel seismic (MCS) reflection data and stratigraphic correlation with existing well data, indicate that continuous Quaternary strata originally deposited in the deep basin were subsequently uplifted, folded, and in places eroded across young, active fault-related fold structures in the eastern Santa Barbara Channel. These older strata are exposed at or near the seafloor, where they are now accessible to shallow piston coring. In 2005, we were able to systematically recover substantial sections of many of these older late-Quaternary sedimentary sequences back to about 700 ka and found climatic behavior that has not been observed anywhere else in the world. We will use this methodology to extend the spot record back to 1.2 Ma to test the hypothesis that climatic sensitivity intensified at the Mid-Pleistocene Transition (~800 ka) and to make the case for continuous coring by the new Integrated Ocean Drilling Project.

The Dalmatian Islands, located off the coast of Croatia in the eastern Adriatic Sea, are part of the Outer Dinarides fold and thrust belt. This tectonic regime is part of the Alpine-Carpathian-Asian closing of the Tethys Sea and involves deformation of predominantly Cretaceous miogeoclinal carbonate sediments over incompetent Jurassic-Cretaceous evaporites. The folded and faulted limestones have been uplifted out of the Adriatic foreland to form the golden Dalmatian Islands. These islands and the adjacent Dalmatian coast of Croatia (across from Italy) have been the provinces over which the Illyrian, Greek, Roman, Byzantine, Venetian, Ottoman, Hungarian, Austrian and other empires waxed and waned. After collapse of communist Yugoslavia, and recovery from the Bosnian-Serbian war, the Dalmatian coast has become the favorite sailing playground of Europe, with beautiful islands, perfect winds,

enchanting ancient villages, and excellent food and wines. Just like Santa Barbara, none of this would exist without active tectonics.

Hurray for geology!!!!

A GREAT TALK TO FIND OUT ABOUT GEOLOGY, SUMMER TRIPS AND MORE !!!

Meeting Time, Place, Cost and Reservations

Time:

Thursday, May 22, 2008

Typical Meeting Agenda

Lunch Served: 11:30 AM to 12:00PM

Announcements: 11:50 AM to 12:15 PM

Guest Speaker: 12:15 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, by calling Marieke at (562) 624-3364., or emailing Marieke_Gaudet@Oxy.com.