

PHOENIX

Stuart Smith
0223

SCRIPPS INSTITUTION OF OCEANOGRAPHY
UNIVERSITY OF CALIFORNIA, SAN DIEGO
LA JOLLA, CALIFORNIA 92093



CRUISE PROSPECTUS
R/V MELVILLE
JULY 1992 - SEPTEMBER 1992

Robert A. Knox

Robert A. Knox, Associate Director, SIO

PHOENIX EXPEDITION

R/V Melville

Leg 01

C. de Moustier, Scripps Institution
of Oceanography
Sea Beam 2000 Calibration Cruise
San Diego - Acapulco
7-16 July 1992

Calibration of Sea Beam 2000
including water gun profiling
along the west coast of Mexico

Leg 02

R. Batiza University of Hawaii at Manoa
H. P. Johnson University of Washington
Petrologic Temporal Variation Tests
Rockdrill Tests
Acapulco - Manzanillo
20 July - 16 August 1992

Dredging, magnetics, Sea Beam 2000
and Rockdrill tests at the
East Pacific Rise 9°30' - 13°21'N.

Leg 03

P. Lonsdale Scripps Institution of Oceanography
Guadalupe Island Cruise
Manzanillo - San Diego
18 August - 2 September 1992

Sea Beam 2000, magnetics, and
Single-channel seismic refraction
west of Guadalupe Island.

Underway Geophysical Data Collection

R/V *MELVILLE* (1992):

I.D.	Dates	Days	Chief Scientist(s)	Ports
Leg 1:	7 Jul -16 Jul	10	de Moustier	San Diego - Acapulco Sea Beam (w/SB Proc); Gravity (transit mode) Magnetometer (yes); Seismic profiler (yes)
Leg 2:	18 Jul - 14 Aug	31	Batiza UH/Johnson/UW	Acapulco - Manzanillo Sea Beam (transit mode); Gravity (transit mode) Magnetometer (yes); Seismic profiler (no)
Leg 3:	18 Aug-2 Sep	17	Lonsdale	Manzanillo - San Diego Sea Beam (w/SB Proc); Gravity (transit mode) Magnetometer (yes); Seismic profiler (yes)

Contact:

Stuart Smith
 Head, SIO Geological Data Center
 Scripps Institution of Oceanography
 La Jolla, CA 92093-0223
 Phone: (619)-534-2752

**P. Lonsdale, SIO
Guadalupe Island Cruise
Manzanillo - San Diego
18 August - 2 September 1992**

The research is a continuation of studies to determine the structural pattern of the oceanic crust west of Baja California. The overall purpose of the investigations is to learn how the East Pacific Rise, where the crust was created, interacted with the continental margin in the past 20 million years. This tectonic history has major implications for studies of the continental geology of Baja California and adjacent regions. For example, the changing movements of the oceanic plates (which are recorded by the seafloor structures) have determined the timing and location of onshore volcanic activity and earthquake faulting.

The specific objective of the proposed August/September 1992 research is to map the structure of two oceanic fracture zones, north and south of Guadalupe Island. These fracture zones are thought to record the history of East Pacific Rise transform faults, from 20 million years ago up until 11 million years ago, when the northern section of the East Pacific Rise (alongside Baja California in the vicinity of Guadalupe Island) became inactive. This history can in turn be used to describe the changing plate motions.

The tools to be used in our planned work are a new multibeam echosounder (Sea Beam 2000) for mapping the pattern of structural landforms on the seafloor, a magnetometer for delineating magnetic stripes used to infer the age of the crust, and a single-channel seismic reflection system that will use a low energy water-gun sound source to determine the thickness of sediment that has accumulated on the inactive rise.

We have obtained clearance through diplomatic channels to operate in Mexican jurisdictional waters.

Scientific participants Leg 03:

List not available at this time.

