

## 1998 Annual Report

### LARSE II: High Resolution Santa Monica Experiment

In preparation for the high resolution Santa Monica Experiment we have carried out a preliminary inversion of the Aftershock amplitudes to obtain a best estimate of the location of the proposed focusing structure (see Report to Group B, by Davis and Rubenstein). We visited with the Vibroseis company SECO and have forwarded a work plan to SECO which involves two 10 km Vibroseis lines through Santa Monica. We have chosen a route and carried out a reconnaissance logistical study. Detailed plans were obtained from utilities companies along the roads chosen.

#### *Tentative Plan*

The high-resolution surveys will consist of two 10 km lines along the southern segments of the auxiliary dog-leg lines. Each survey will be made with receiver spacings of 10 m and source spacings of approximately 20 m (logistics permitting). The seismic source will be a Vibroseis.

One high-resolution line will be located in the city of Santa Monica with 2/3 in the urban area, and 1/3 in Temescal Canyon in the Santa Monica Mountains. This profile spans the focusing region of the Northridge event, and traverses the Santa Monica fault. A second high-resolution line will be deployed approximately 10 km to the east of the Santa Monica line. It also traverses the Santa Monica fault, but in this case no particular focusing of energy from Northridge was observed. We anticipate obtaining high resolution images of the structural units and the basement down to 3 seconds or 5 km.

SCEC will do permitting with guidance and assistance from SECO. SCEC will provide people to help lay out geophones, and will provide people to guard/remove geophones/cables.

#### *In summary:*

1. 2 deployments of 10 km receiver spreads (1000 take-outs) in Santa Monica
2. Record explosions of LARSE 2 ~ 5 nights
3. Record Vibroseis ~ 500 locations 20 m apart into spread of length 10 km with 10m (1000) take-outs East Line
4. " " " West Line.

Line	Shots	Spacing	# recorders	Line length	Days
Santa Monica West (SMW)					
Main					
LARSE -	60x~1000 lb.				
SM Fault -	2x500 lb.				
Southern-	2x1000 lb.				
NWI -	1x4000 lb.				
NWII -	1x4000 lb.	200-400 m	80	30 km	Days 1-5
Santa Monica East (SME)	"	400-1000 m	50	30 km	Days 1-5
Cross Line	"	500m	20	10 km	Days 1-5
Square Array	NWI -4000 lb.				
	NWII-4000 lb.	1000m	100	10x10 km <sup>2</sup>	Day 5
SECO SMW	All+Vibroseis	10m	1000	10 km	Days 1-7
SECO SME	Vibroseis only	10m	1000	10 km	Days 9-11