**Measurement of Rayleigh-Wave Phase and Group Velocities from Ambient Noise Recorded on Land and Ocean-Bottom Seismographs**

*Nina Carriero (Brown University), Jim Gaherty (Lamont-Doherty Earth Observatory, Columbia University, Palisades, New York, USA), and Josh Calkins (Lamont-Doherty Earth Observatory, Columbia University, Palisades, New York, USA)*

Using the data from eight ocean-bottom seismometers, part of the 12-month-long deployment of the Sea of Cortez Ocean-Bottom Array (SCOOBA) seismic experiment, and the data from six onshore seismometers, part of the NARS-Baja experiment, we have used ambient seismic noise to estimate the phase and group velocity of surface waves propagating through the crust and the upper mantle beneath the Gulf of California. We cross-correlated one year of continuous data from 91 station pairs in 6-hour time windows and stacked it. As inter-station distance decreases the noise recorded between each station pair becomes more coherent, and the resulting cross-correlation signal-to-noise ratio increases. The cross-correlations were most successful, as measured by high signal-to-noise ratios, for stations less than 400 km apart. We then used two methods to determine the surface-wave velocity. We found the phase velocity using a spectral method based on *Aki*'s [1957] original expression for the cross-correlation of stochastic surface waves. Using an independent technique, frequency-time analysis, we also estimated group velocity, from which we plan to extract the phase velocity. We inverted the group velocity and created maps at a number of different frequencies. The group velocity maps suggest that the localization of the high velocities in the central southern Gulf, most prominent at 20 seconds period, is perhaps consistent with low temperatures and/or less melt content along the portion of the Gulf that displays less robust magmatism.

# Measurement of Rayleigh-Wave Phase and Group Velocity from Ambient Noise Recorded on Land and Ocean-Bottom Seismographs

Nina Carriero, James Gaherty, Josh Calkins