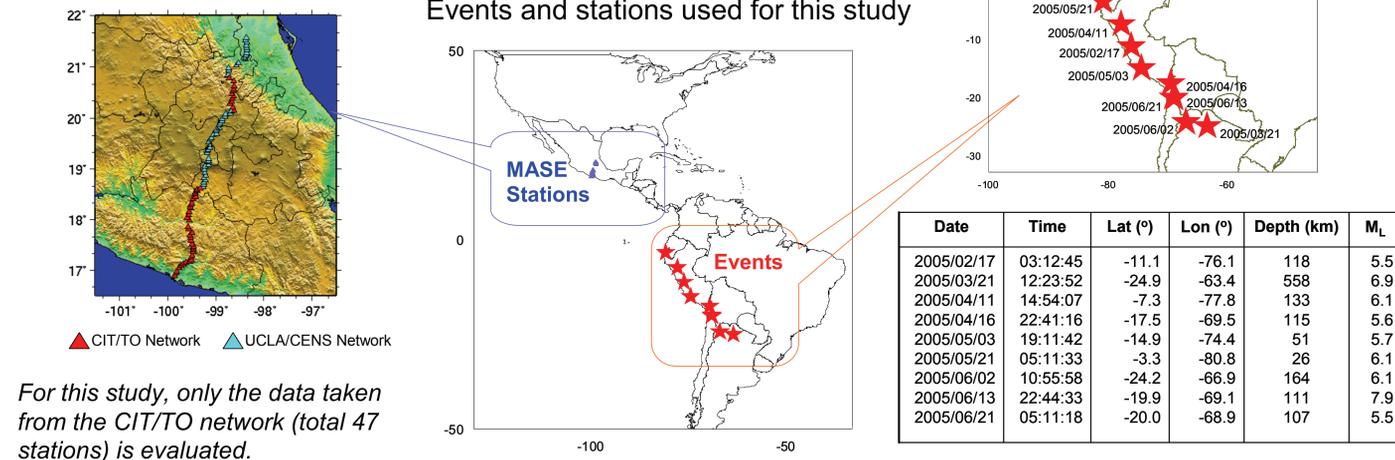


## ABSTRACT

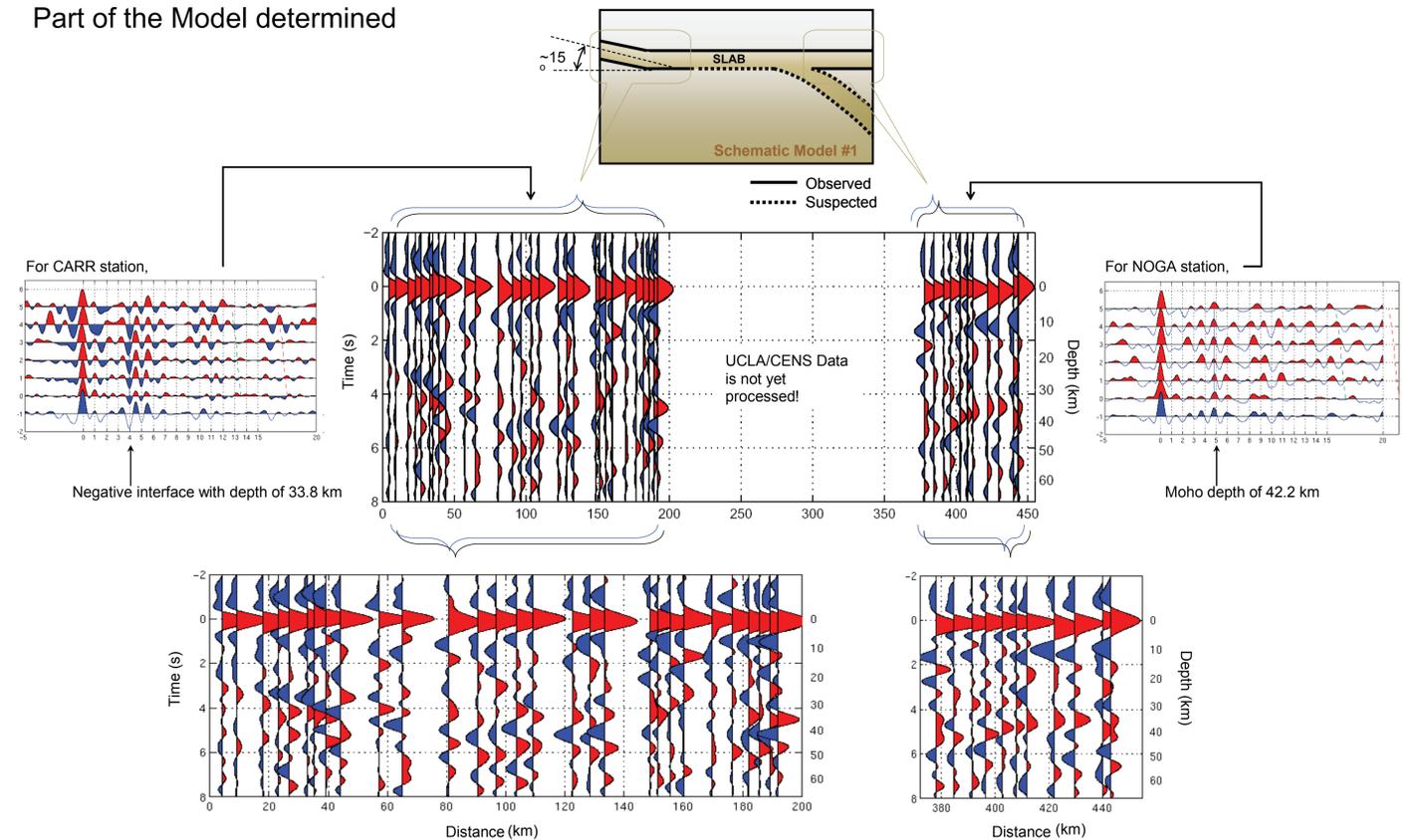
A preliminary model of the subducted Cocos slab beneath Central Mexico is determined from receiver functions derived from data from the Middle America Subduction Experiment (MASE). The MASE seismic array consists of 100 broadband station spanning Mexico from Acapulco to Tampico (through Mexico City). This array is part of the Tectonic Observatory which is scheduled to be deployed until September of 2006. The results show that the slab is sub-horizontal for almost 275 km from the trench. Both the continent-slab and slab-mantle interfaces are determined. The section from Acapulco to a point 65 km to the north shows the results erosion of the continental material by the slab. The dip angle of the interface as it cuts through the crust is 15 degrees. At present the section north of Mexico City is less well determined because that section of the array will come online in September 2005.

## DATA



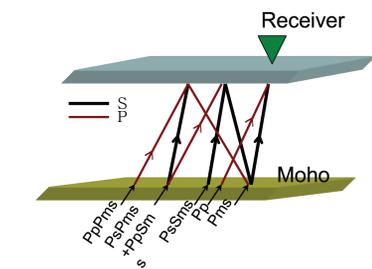
## RESULTS

Part of the Model determined

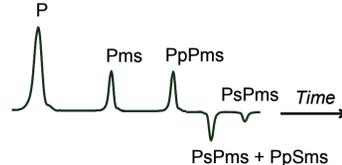


## METHOD

Receiver function method



For each receiver, we get the following receiver function:



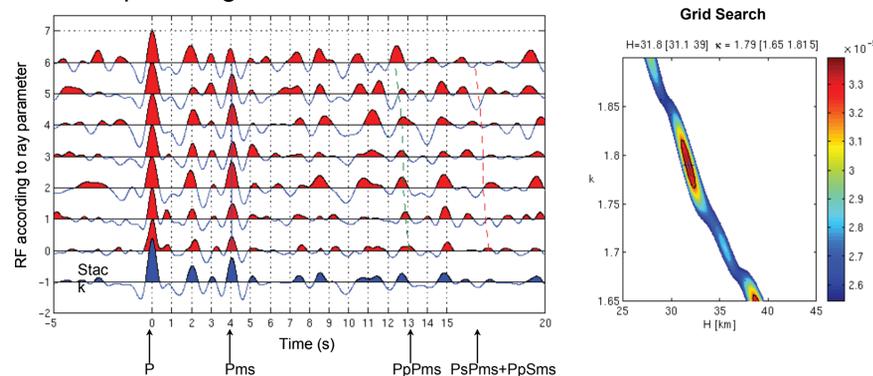
STACKING

$H$  (moho depth) and  $\kappa (v_p/v_s)$  are estimated by maximizing the weighted summation function

$$S(H, \kappa) = w_1 r(t_{Pms}) + w_2 r(t_{PpPms}) - w_3 r(t_{PsPms})$$

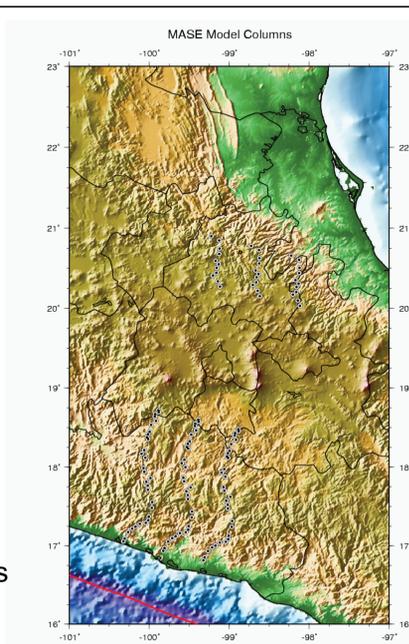
The arrival times for  $Pms$ ,  $PpPms$ , and  $PsPms$  are calculated for given  $(H, \kappa)$  and their amplitudes are phase-weighted summed.

Example using data recorded at ACAH station



## FUTURE 3D MODEL

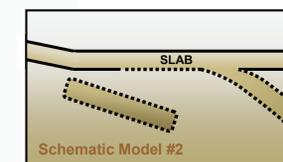
Map of the columns of 3D model



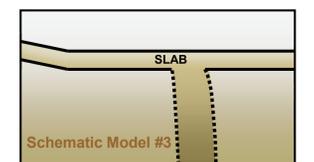
## ALTERNATIVE MODEL

Besides the one specified as our model, there are several alternative models for this region. They are the following:

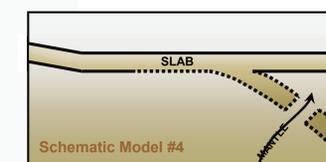
According to Dante Moran,



According to Luca Ferrari,



According to Gorbatov and Fukao (2005),



Legend: — Observed, ..... Suspected