Zhimei Yan & Robert W. Clayton More evidence in the San Gabriel Mountains rayp = 0.060.065 13.5Data Summary 0.05 9.6 km -15 Notch on the Moho view from az = 120, el = 284 118 -118°00' -117°30' 34°30'-34°30' 6.3/3.63 km/s 7.8/4.6 km/s 30 40 50 60 70 80 90 100 Distance (km) horizontal distance (km) **Step on the Moho** 84 118 **X X** converted S Radial_DAN 6.3/3.63 km/s NW 7.8/4.6 km/s inciden 50 60 70 Distance (km) increasing ray parameter 34°30' -000400000004040-00000 time, sec - 34°00' **Moho Depth result** - 33°30 NW: 21.7 [20.7 22.6] Radial_RF_JCS PDU 33°00' ____ E-SE-S SW-W SE: 32.2 [30.7 33.7] ower plate schist gn. SATF SMF SGH PBF Upper Crust \mathbb{I} $\mathbf{\hat{\otimes}}^{\mathbf{1}}$ _____ RFs Lower Crust **Radial RF DPP** Radial_RF_YAQ SW-W SW-W NW E-SE SE-S NW Moho Upper Mantle 117°W 40-

Baldy block.

Evidence for large Moho offset in Southern California from Receiver Functions Abstract Large offsets on the Moho are imaged among the back-azimuthal grouped Receiver Function (RF) beneath several stations in Southern California. Some of them correlate very well with the surficial geologically mapped faults, such as station TA2 on the San Andreas Fault (SAF), some of them occur in places where no surficial major faults exist, such as station DAN in Fenner Valley, Mojave Desert. Combined with synthetic RF waveform modeling, a notch structure is inferred on the eastern San Gabriel Mountains, where Moho shallows from 38 km north of the SAF, 34 km south of the San Gabriel Fault to ~29 km in between beneath the Mt. **Examples of large offset on the Moho** 20 25 30 35 40 45 At station DAN in the Mojave







Desert, a large Moho offset of ~10 is inferred. At station JCS, which locates on the Elsinore Fault, large Pms of 4.5 sec is observed for the **RFs from West, while small Pms** arrival of 3 sec is observed for events from SE. The large Moho offset here is confirmed by the two nearby stations DPP and YAQ.



anomalous features in the receiver functions for two stations (TA2 and BFS) in the eastern San Gabriel Mountains indicates that a notch structure exists on the Moho, where the Moho shallows from 38 km north of the SAF, 34 km south of SGF to ~29 km beneath the Mt. Baldy block. The shallow Moho correlates very well with the surifcial exposure of the lower plate Pelona Schist or places where the schist resides at very shallow depth. This is either related to the strike-slip movements along the two major faults or