

Descriptions of the Models:

- (1) Yang, Y., Ritzwoller, M. H., Lin, F.-C., Moschetti, M. P., & Shapiro, N. M. (2008). Structure of the crust and uppermost mantle beneath the western United States revealed by ambient noise and earthquake tomography. *Journal of Geophysical Research*, 113(B12), 1-9. doi:10.1029/2008JB005833.

Properties:

Location: US west of 114°W longitude

Grid: 0.5°x0.5°

Stations: TA

Data: Rayleigh wave phase speeds.

Ambient noise: 2005-2007

Earthquakes: 60 earthquakes, $M_s > 5.5$, 9/06-9/07

Tomography:

Ambient noise: ray theory (Barmin et al., 2001), 6-40 s

Earthquakes: 2-plane wave regionally, called multi-plane wave, 25-100 s

Parameterization: 3 crustal layers, 5 B-splines in the mantle

Inversion: Monte Carlo model space sampling following a linearized inversion.,

Forward code: Herrmann

Moho: fixed Moho from Gilbert and Fouch (2007)

Format of model file: WUS_Yang_2008.zip

The model is located in a single file called WUS_Yang_2008.dat, that was actually constructed for plotting purposes and is not the original model file that included uncertainty estimates. It is organized as a set of 1-D models strung into a long file, presented on a 0.5 deg horizontal grid at 1 km depth intervals to a depth of 160 km. For example, for the point (lat, lon) = (32, -116.5) the top 31 km of the model is as follows:

lat	lon	depth(km)	Vs (km/s)
32.	-116.5	0.	3.4849999
32.	-116.5	1.	3.4849999
32.	-116.5	2.	3.4849999
32.	-116.5	3.	3.4849999
32.	-116.5	4.	3.4849999
32.	-116.5	5.	3.4849999
32.	-116.5	6.	3.4849999
32.	-116.5	7.	3.4849999
32.	-116.5	8.	3.4849999
32.	-116.5	9.	3.4849999
32.	-116.5	10.	3.63100004
32.	-116.5	11.	3.63100004
32.	-116.5	12.	3.63100004
32.	-116.5	13.	3.63100004
32.	-116.5	14.	3.63100004
32.	-116.5	15.	3.63100004
32.	-116.5	16.	3.63100004
32.	-116.5	17.	3.63100004
32.	-116.5	18.	3.63100004
32.	-116.5	19.	3.63100004

32. -116.5 20. 3.78800011
32. -116.5 21. 3.78800011
32. -116.5 22. 3.78800011
32. -116.5 23. 3.78800011
32. -116.5 24. 3.78800011
32. -116.5 25. 3.78800011
32. -116.5 26. 3.78800011
32. -116.5 27. 3.78800011
32. -116.5 28. 3.78800011
32. -116.5 29. 3.78800011
32. -116.5 30. 4.03981066
32. -116.5 31. 4.04927015

Note that the crust is divided into three constant Vs layers and the Moho is between depths of 29 and 30 km at this point. Unlike some of our models, there is no repeated knot to denote jumps between layer boundaries in this model, unfortunately. The model extends to 160 km depth and then jumps to the next (lat, lon) point, in this case it will be (32, -116).

Although uncertainties in the model were estimated via Monte Carlo, they are not included in this file.