Combining Seismic Hazard Files
Part III: CEUS and WUS Sources

Combining of the WUS with CEUS hazard curves is discussed in this readme. This step is important in a broad region where WUS and CEUS have some overlapping hazard contributions. Some states where CEUS and WUS contributions overlap significantly are Montana, Wyoming, Colorado, New Mexico and Texas. The final hazard curves and uniform hazard arrays that are posted on the web are the results of steps summarized in the cshell scripts contained in combine.UShazard.zip.

All WUS hazard models were either computed at a spatial increment of 0.05 degrees or were interpolated to that sampling interval. The CEUS hazard model was computed at 0.10 degrees spatial sampling. The two programs that are run in the scripts associated with this step deal with the different spatial sampling and the different region boundaries. The CEUS western grid boundary for purposes of hazard calculation is at 115° W, and the WUS eastern boundary is at 100° W longitude. Thus, hazard curves in the overlap region, 115° to 100°, must be combined to get a full model of seismic hazard in that region.

The programs that are used to perform the combining of CEUS and WUS hazard curves were designed to run on SUN computers with Solaris operating system. These programs are combineL.v2.f and combinehaz2007.f. They are included in this Zip file, but we have not tested them on PCs or other computers. Thus, we have no experience with this step when performed on PCs. Also, a cursory examination of these programs will show you that they are designed to merge data with very specific region boundaries. The WUS region is -125 to -100 degrees E and 24.6 to 50 degrees N, and the CEUS region is -115 to -65 degrees E and 24.6 to 50 degrees N.
Any deviation from these regions is expected to produce unacceptable results. However, it would be easy to modify the codes to work with more flexibly defined regions.

In contrast to the programs combineL.v2.f and combinehaz2007.f, all other programs for PSHA that we include at this web site have been tested on PCs and PC clusters. The tests include comparing output from PC Windows runs with that from Sun Solaris runs. The gnu-fortran compiler (March 2008) and Intel compiler, ifort, were used in these cross-platform comparisons. Such tests have not yet been performed for combineL.v2.f and combinehaz2007.f. Product names are for descriptive purposes only and do not constitute endorsement by USGS.