

Comparing TeamX and BJJ Ground Motions, with a few comments on the consequences of the nonlinear model

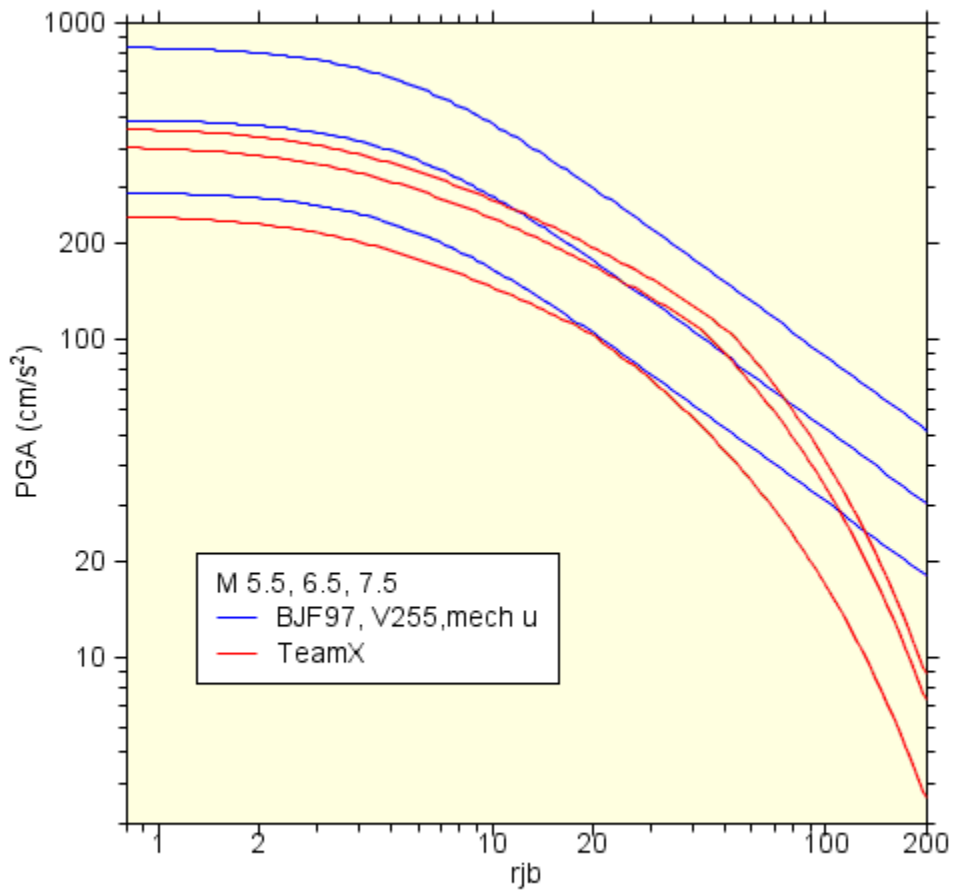
Date: 13 August 2005

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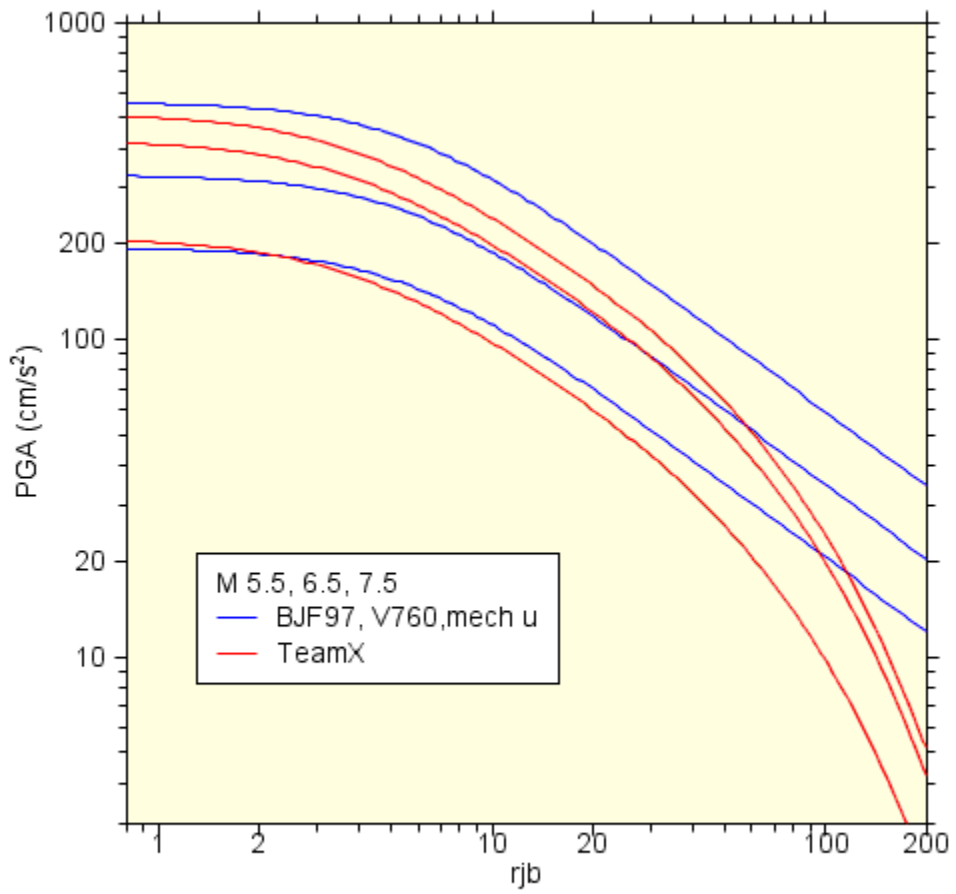
\peer_nga\teamx\daves_notes_comparing_teamx_bjj_14augustjuly2005.doc

Below are figures of pga and PSA at 0.1, 0.2, and 1.0 sec, as a function of distance. Shown are motions for $M = 5.5, 6.5,$ and $7.5,$ for $V30 = 255$ m/s and $V30 = 760$ m/s.

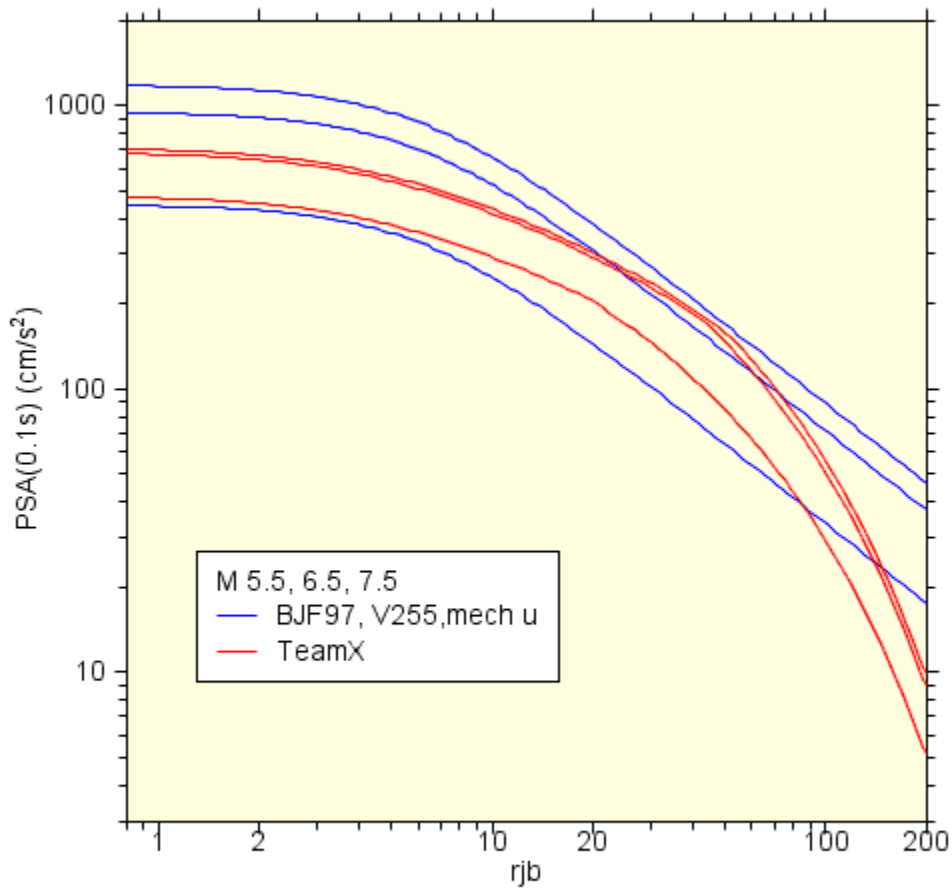
Comparing the two v30 outputs for large distances (small motions) shows the TeamX amps to be somewhat greater than the BJJ amps. Part of this could be the different blin values used (we use CS05 for TeamX amps), but a more important reason is that the nonlinear amps for small motions are larger than the CS05 (and BJJ) linear amps. This is because the motions that were used to determine the linear amps are not very small, and therefore include some nonlinear reduction. Note that I switched from increasing amps with decreasing pga4nl amplitudes to constant amps when $\text{pga4nl} = 0.06g$; this puts a kink in the amps vs pga4nl curve (see figures on p. 7 and 8 of daves_notes_on_including_nonlinear_amps_26july2005.doc). and this kink gets mapped into the plots of motion vs distance, putting a visible kink in the $V30 = 255$ m/s plots. This abrupt change in slope could be lessened by rounding the transition from increasing amps with small pga4nl to constant amps, but there is no time to do that now and probably makes little difference in practice.



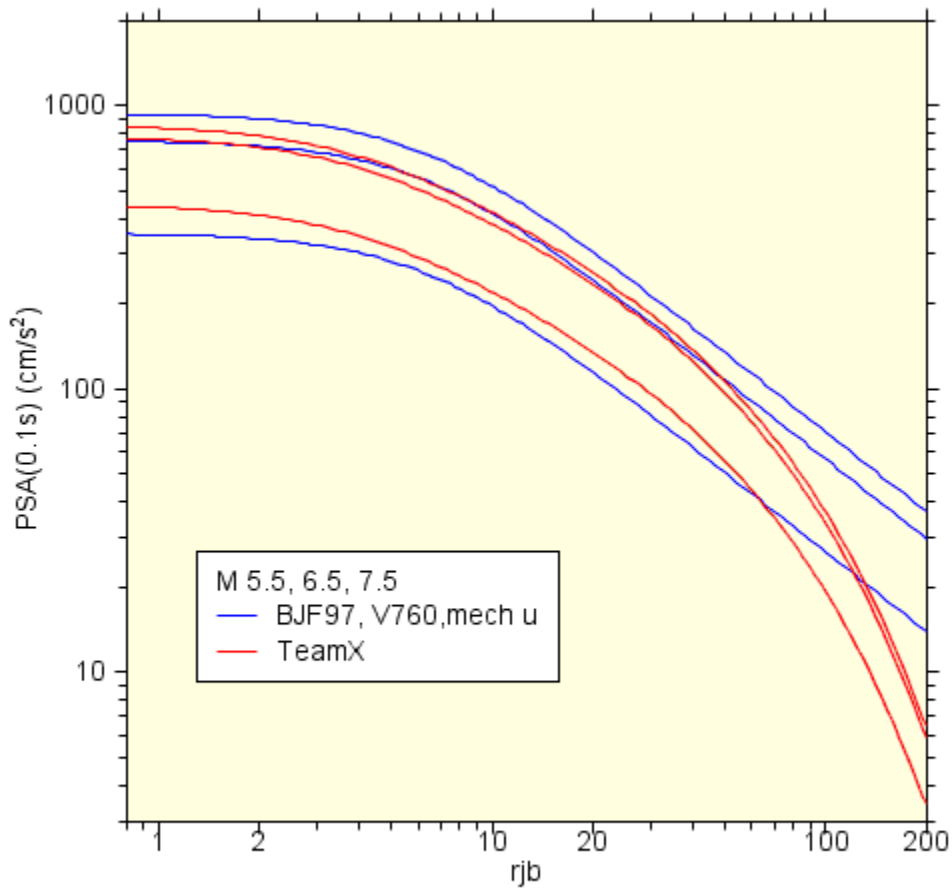
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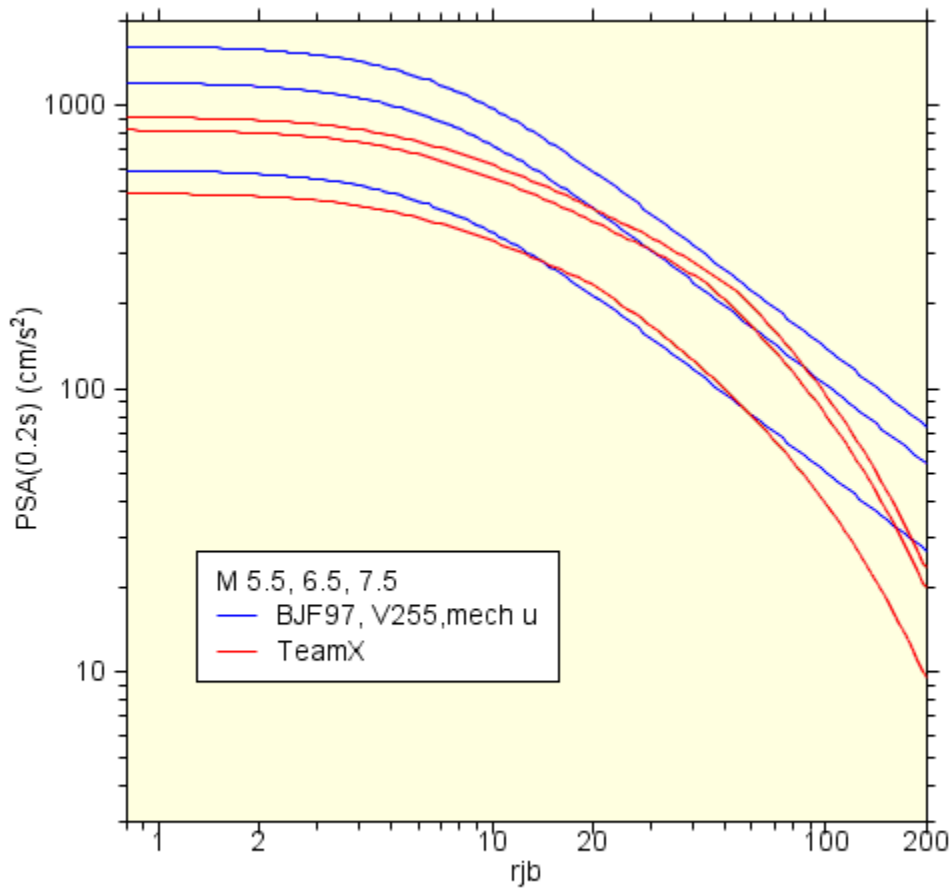
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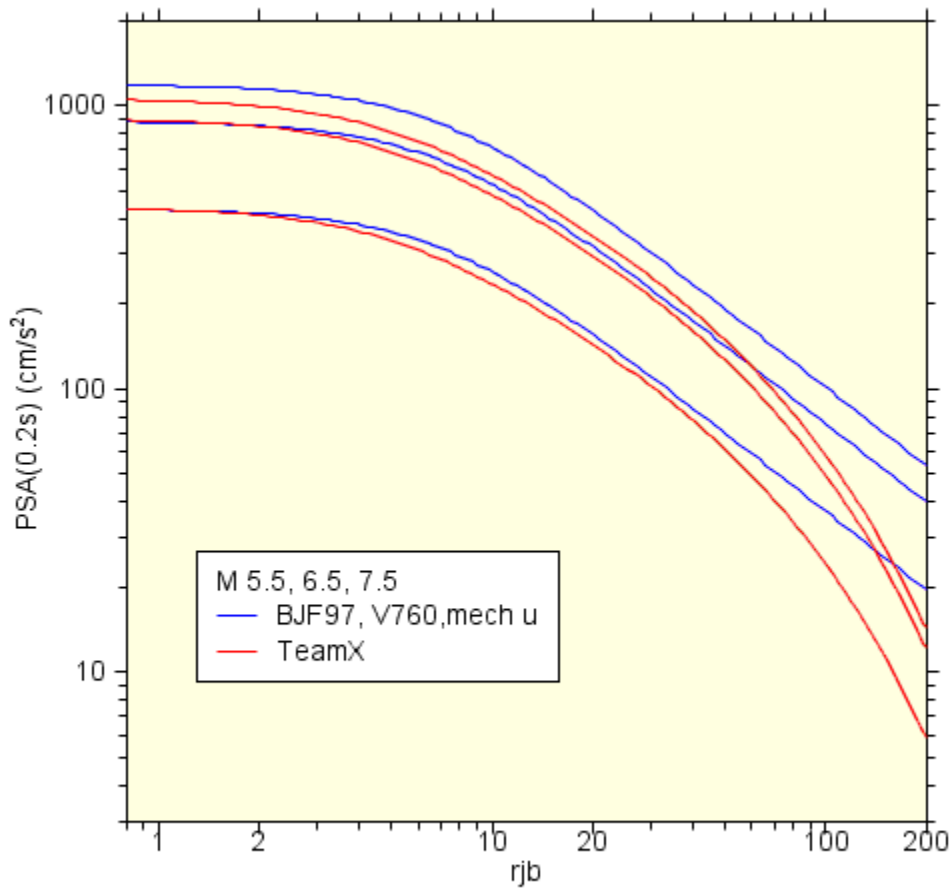
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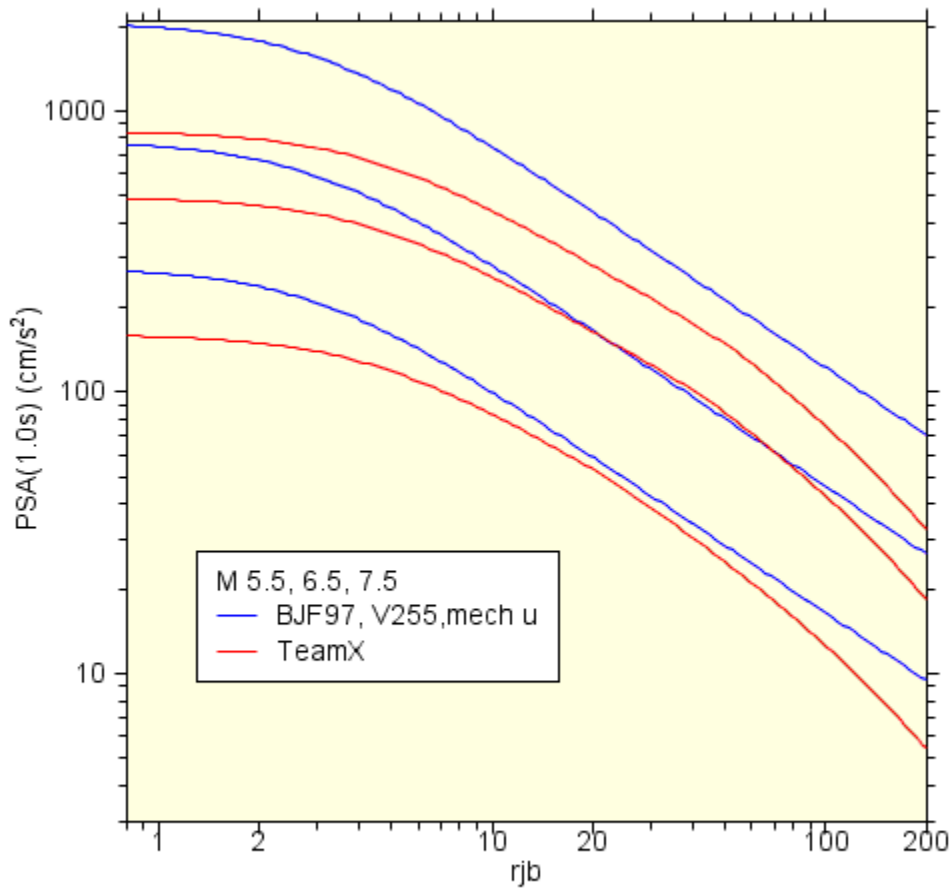
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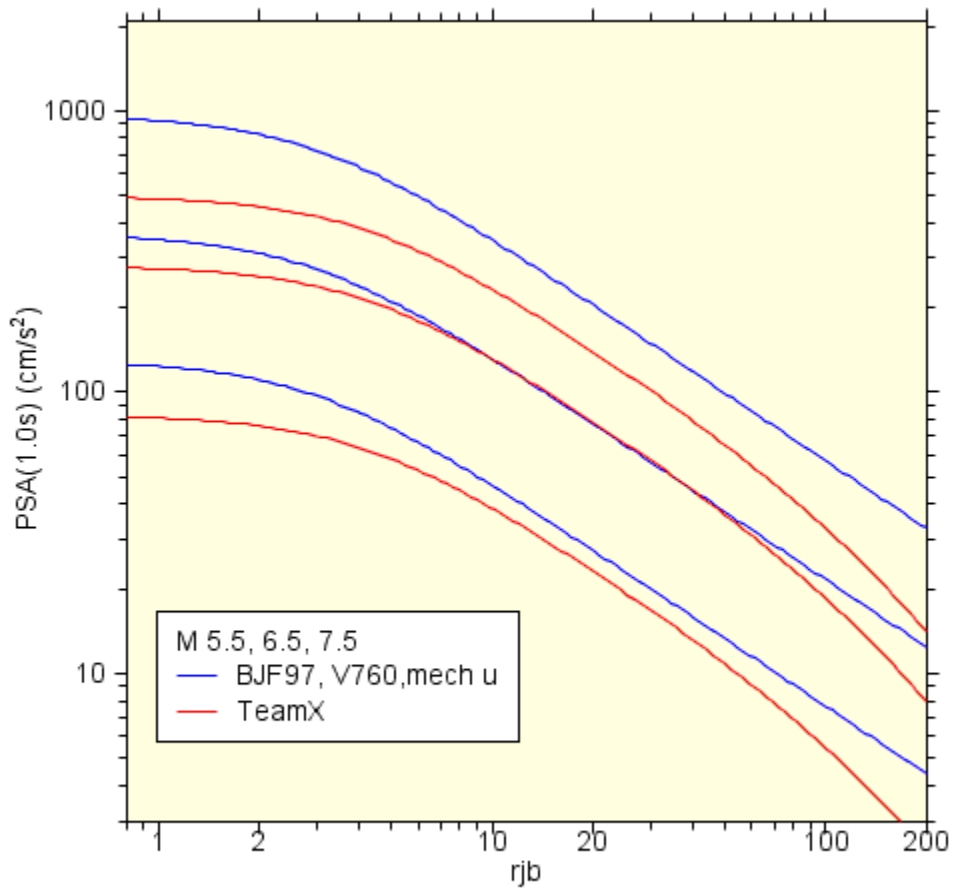
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