Appendix A Results using Chiou and Youngs [2008] Hypocenter Distribution Models

A.1 STRIKE–SLIP RUPTURE RESULTS

A.1.1 Changes in the Mean of the Log Normal 5% Damped Pseudo-Spectral Acceleration

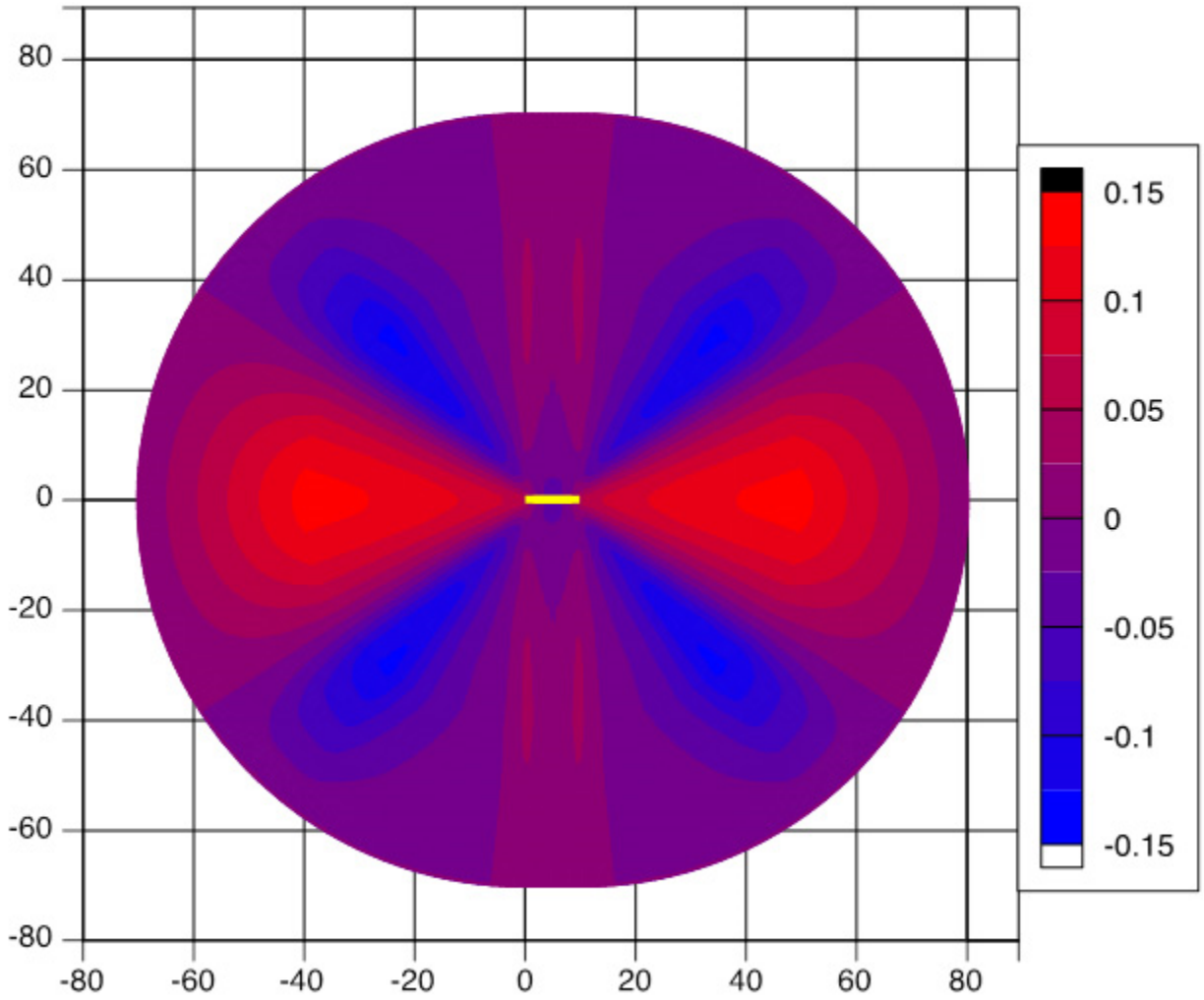

Figure A.1 **Change in the mean of the natural log of the 5% damped pseudo-spectral acceleration at 1 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 6, strike–slip rupture.**

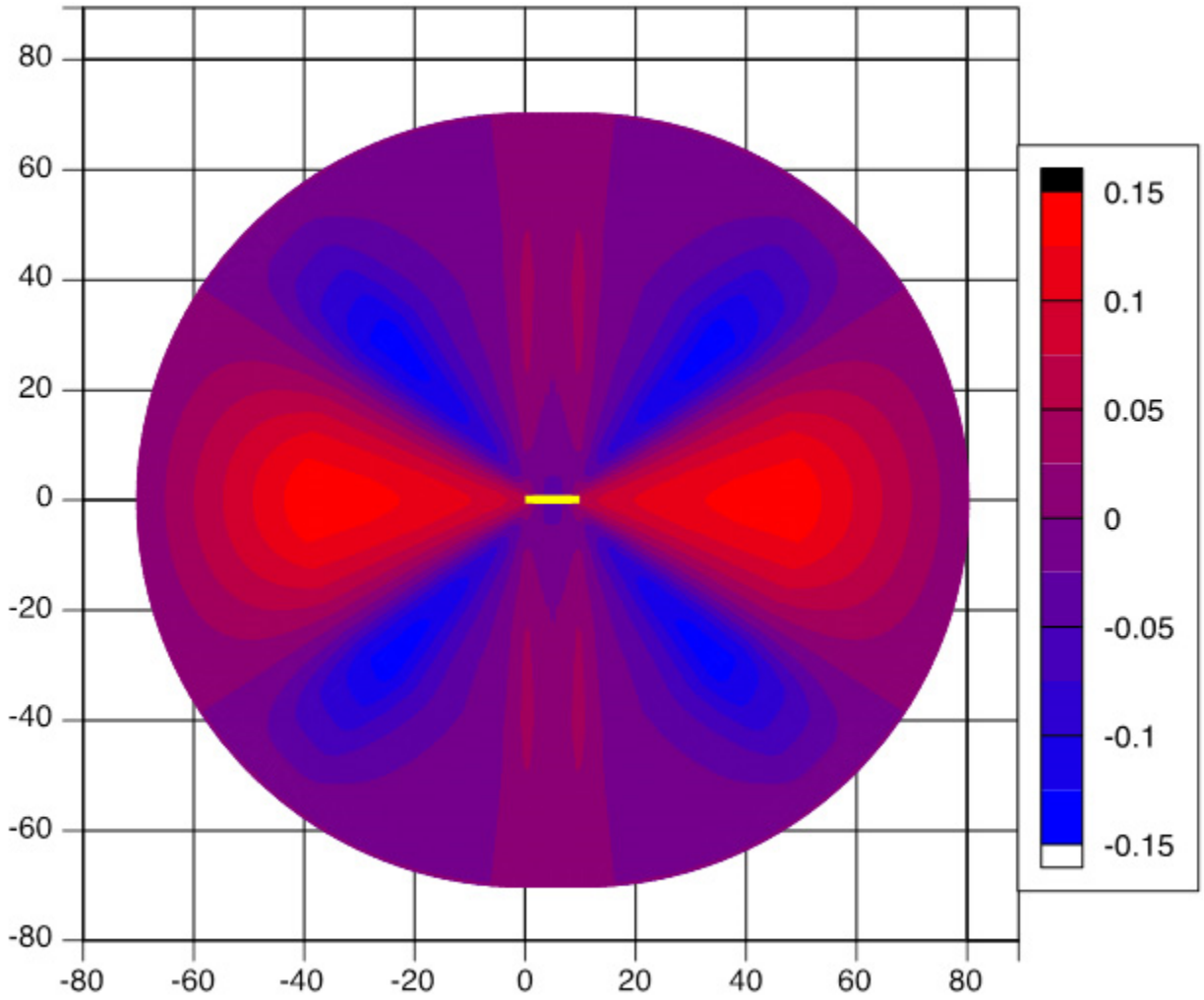

Figure A.2 **Change in the mean of the natural log of the 5% damped pseudo-spectral acceleration at 3 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 6, strike–slip rupture.**

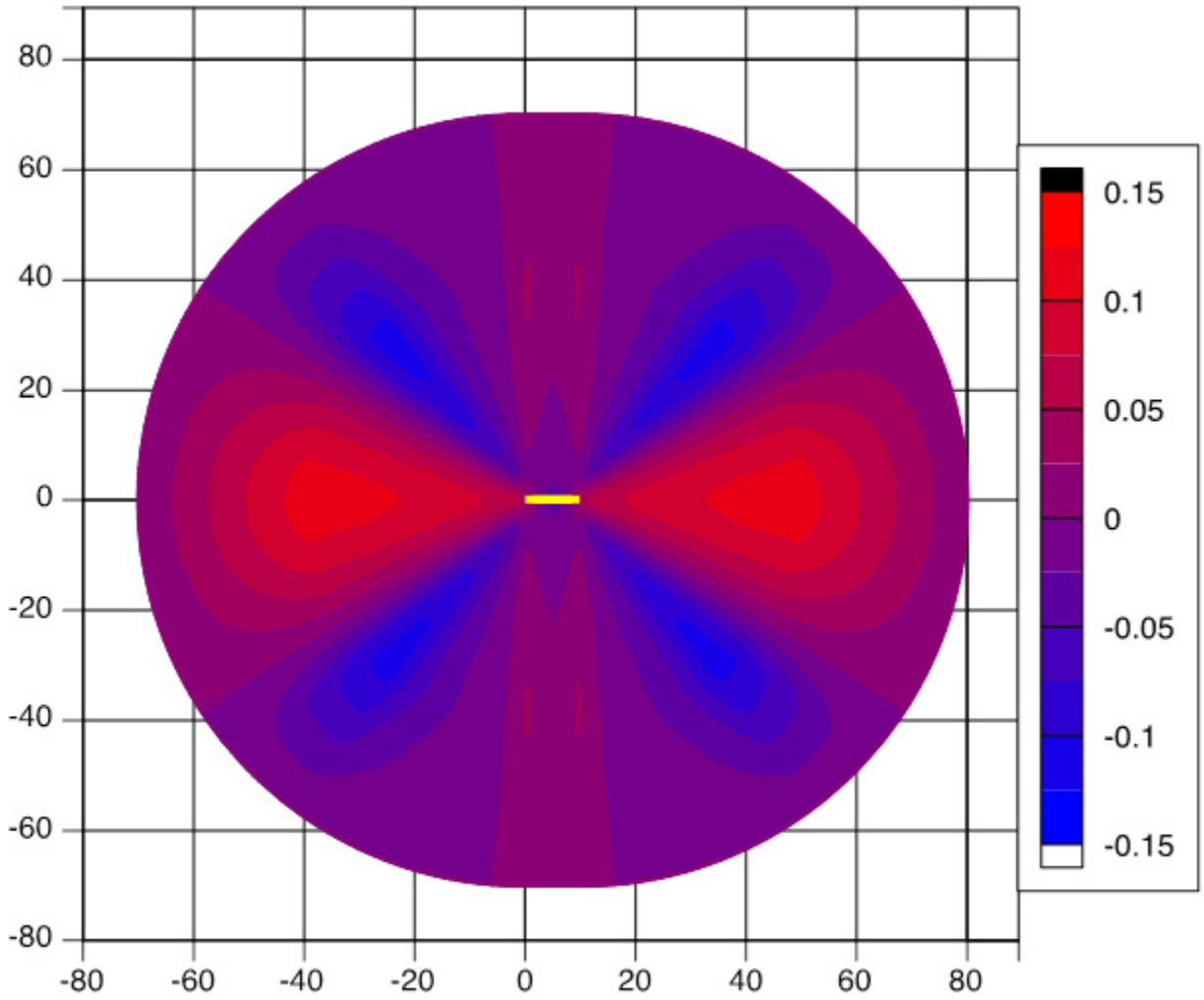

Figure A.3 **Change in the mean of the natural log of the 5% damped pseudo-spectral acceleration at 5 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 6, strike–slip rupture.**

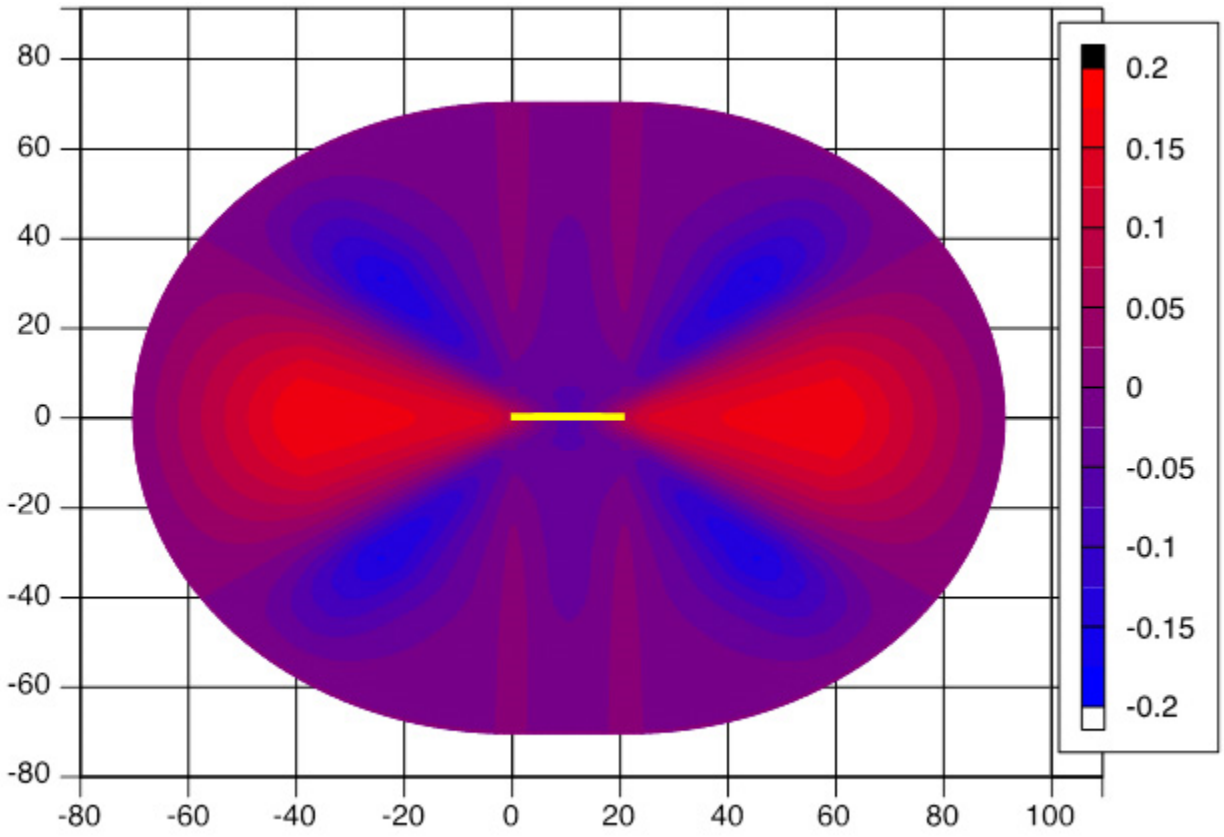

Figure A.4 **Change in the mean of the natural log of the 5% damped pseudo-spectral acceleration at 1 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 6.5, strike–slip rupture.**

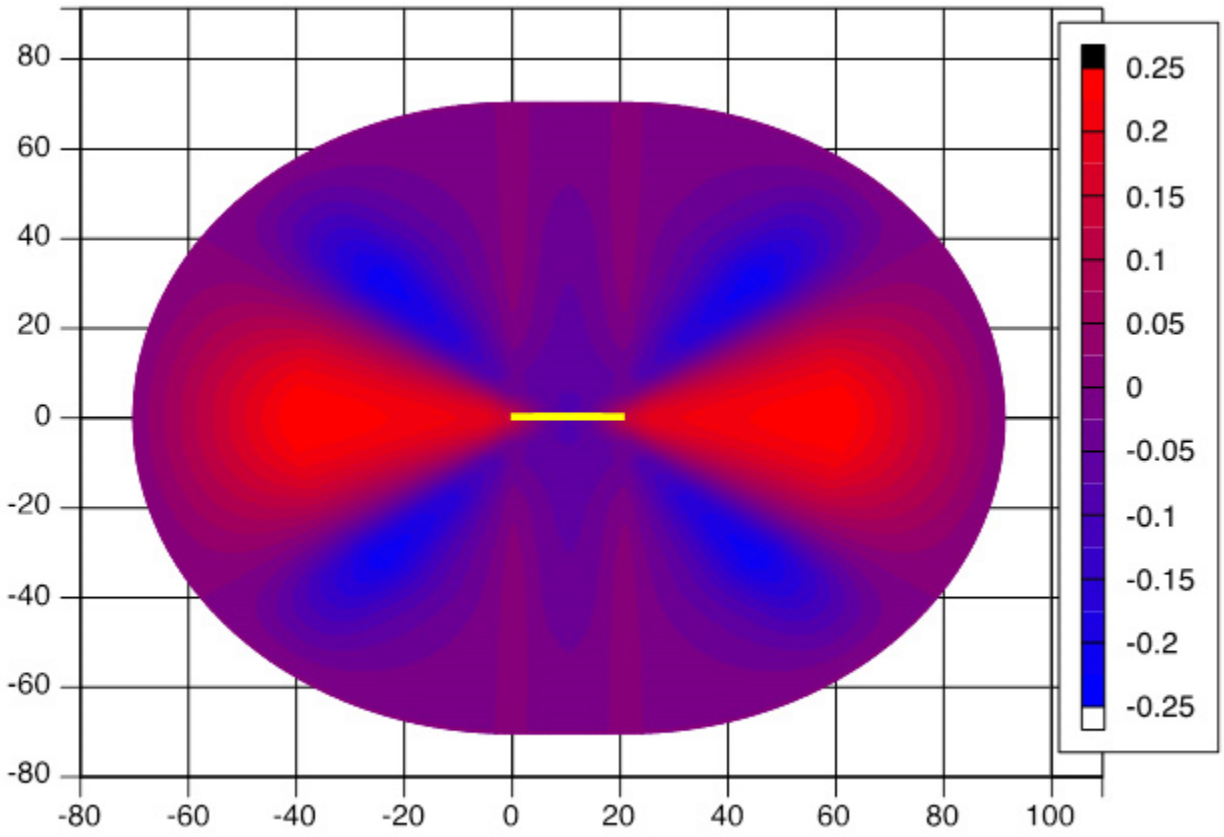

Figure A.5 **Change in the mean of the natural log of the 5% damped pseudo-spectral acceleration at 3 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 6.5, strike–slip rupture.**

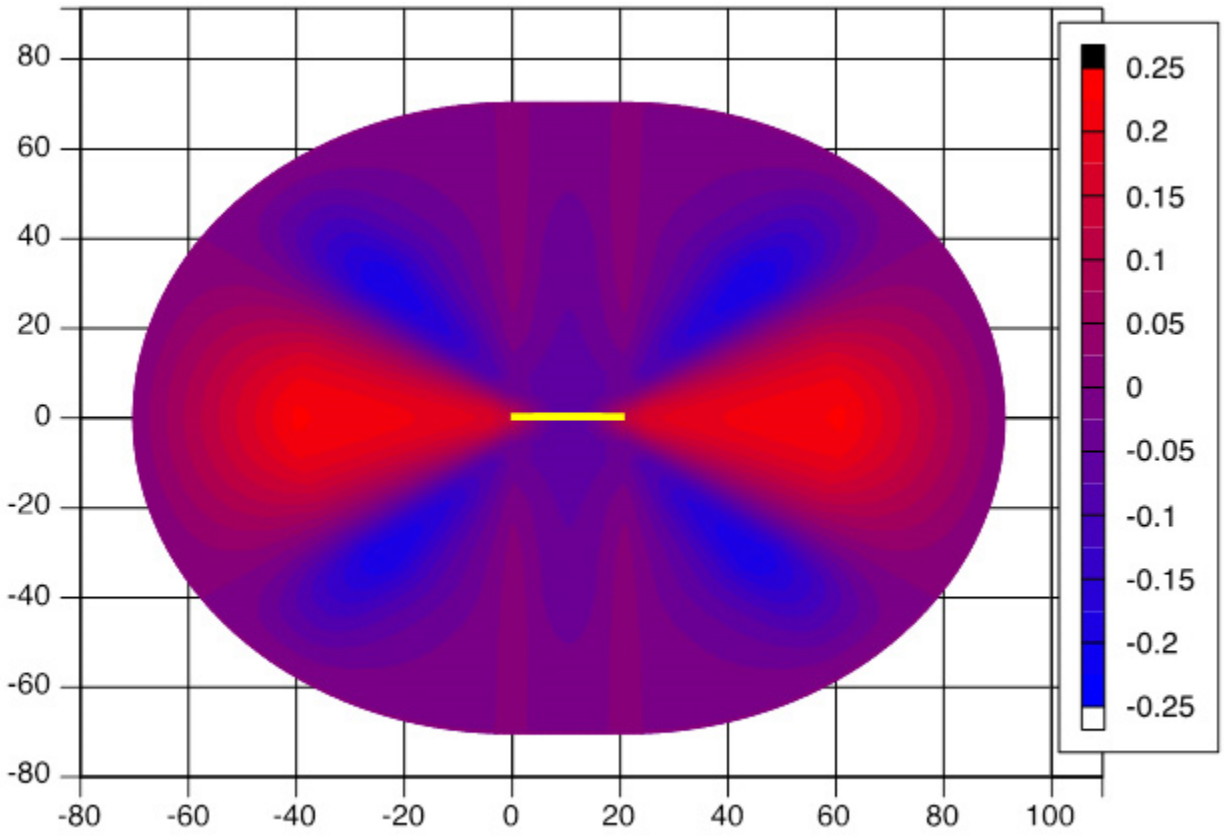

Figure A.6 **Change in the mean of the natural log of the 5% damped pseudo-spectral acceleration at 5 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 6.5, strike–slip rupture.**

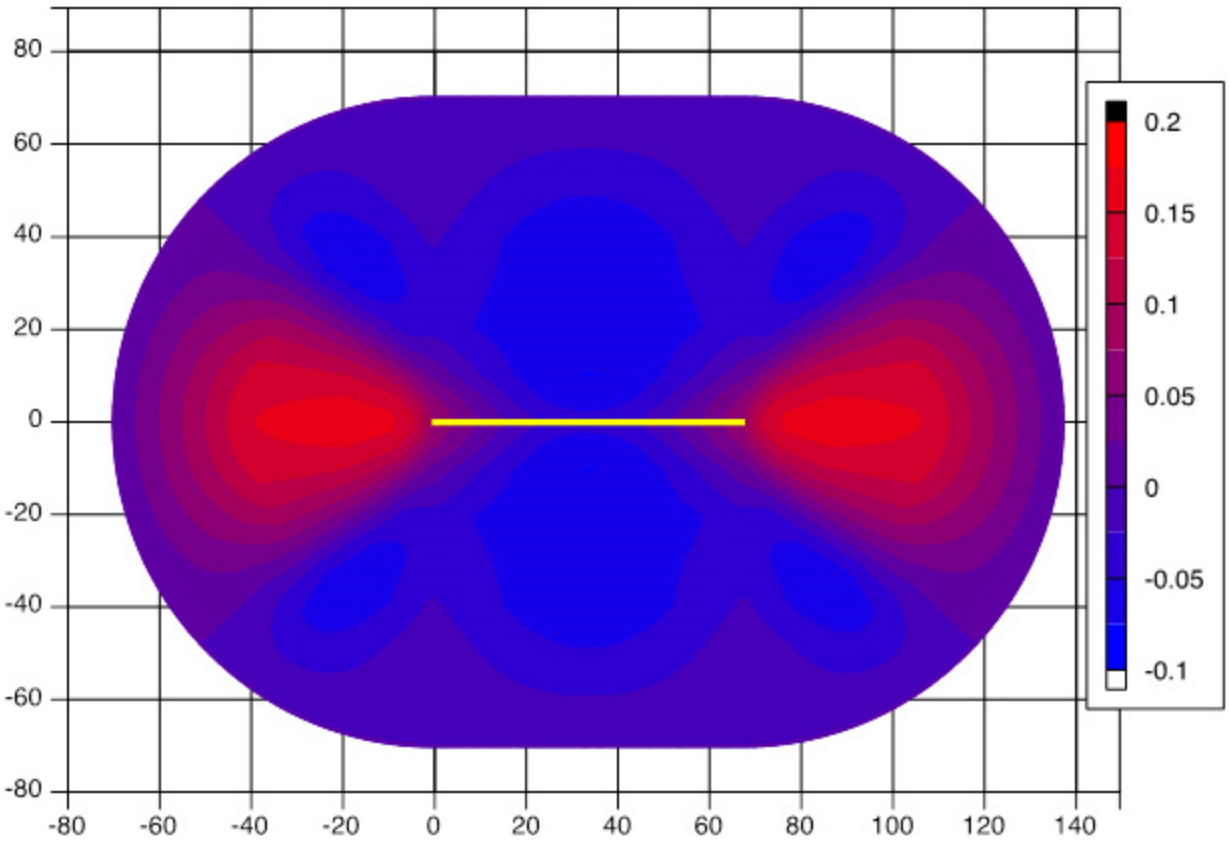

Figure A.7 **Change in the mean of the natural log of the 5% damped pseudo-spectral acceleration at 1 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 7, strike–slip rupture.**

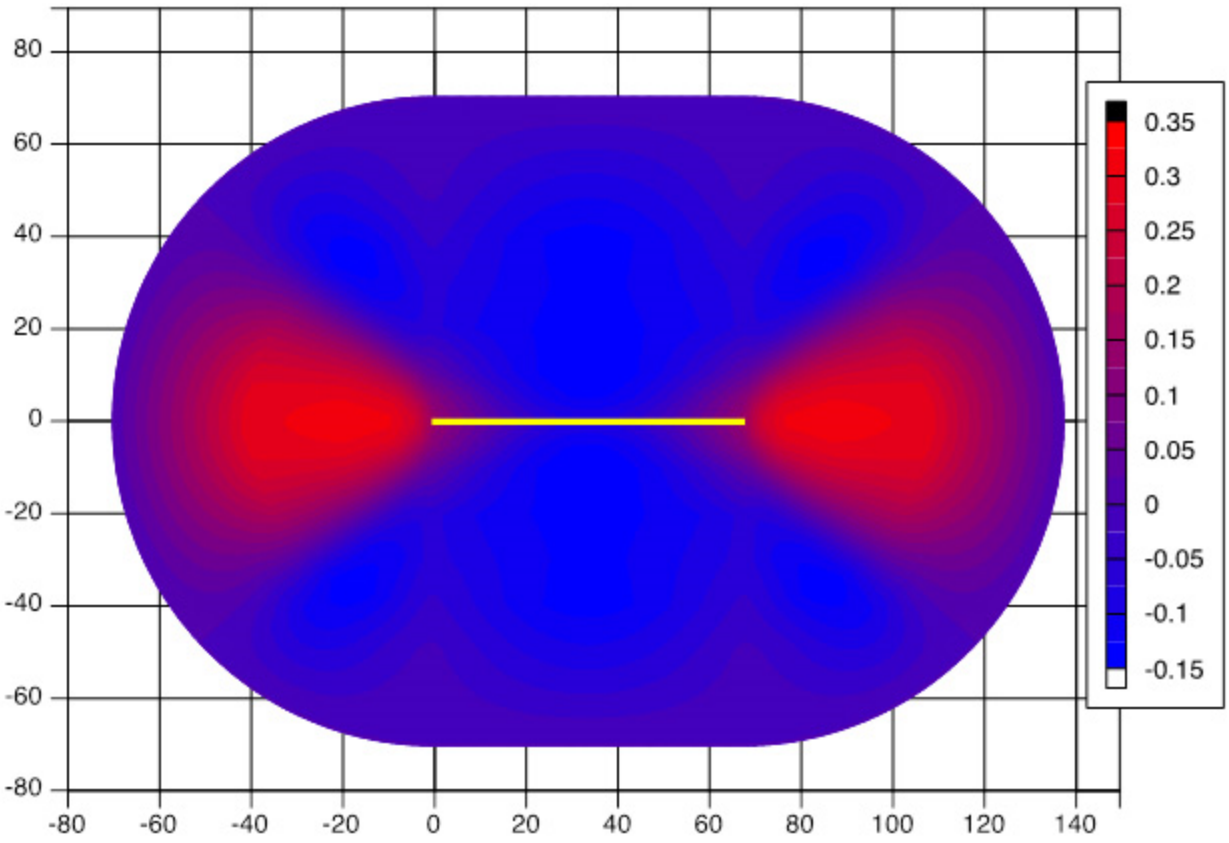

Figure A.8 **Change in the mean of the natural log of the 5% damped pseudo-spectral acceleration at 3 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 7, strike–slip rupture.**

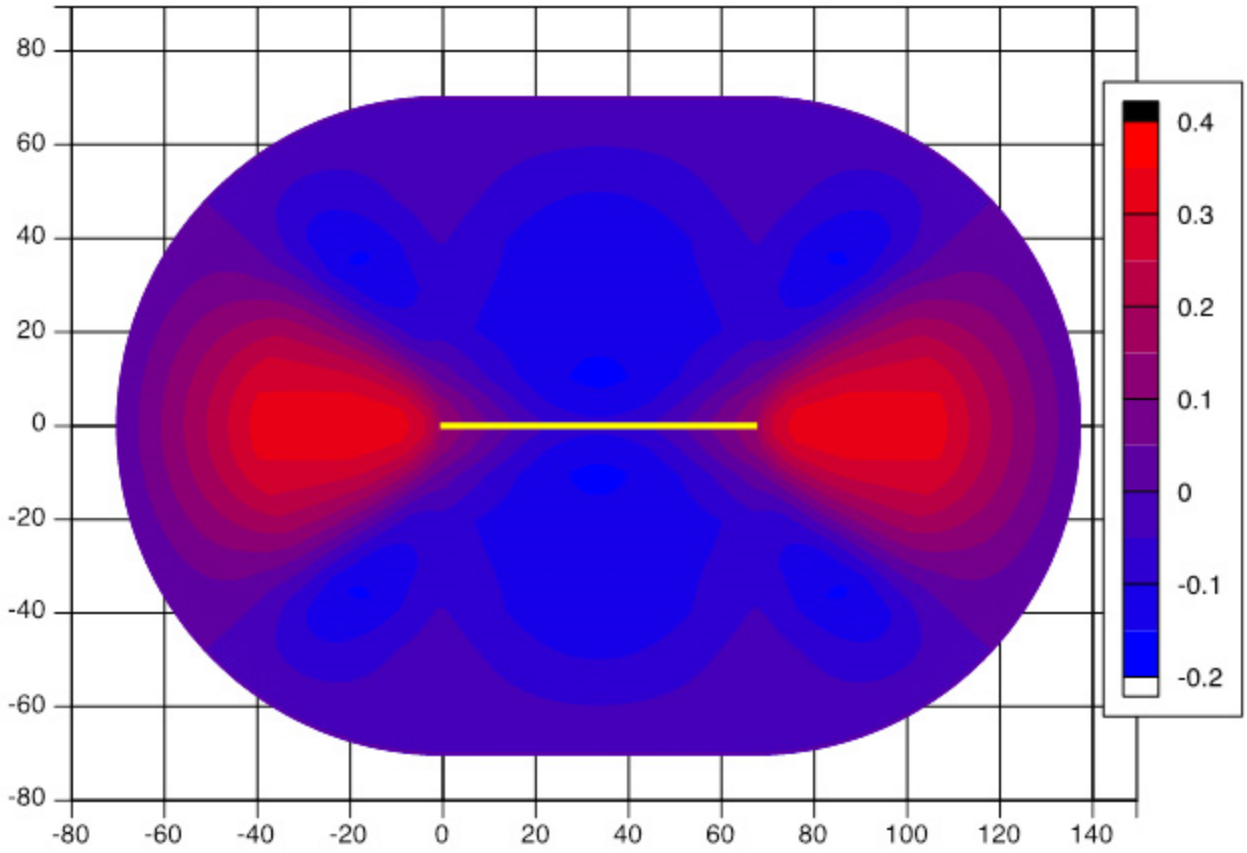

Figure A.9 **Change in the mean of the natural log of the 5% damped pseudo-spectral acceleration at 5 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 7, strike–slip rupture.**

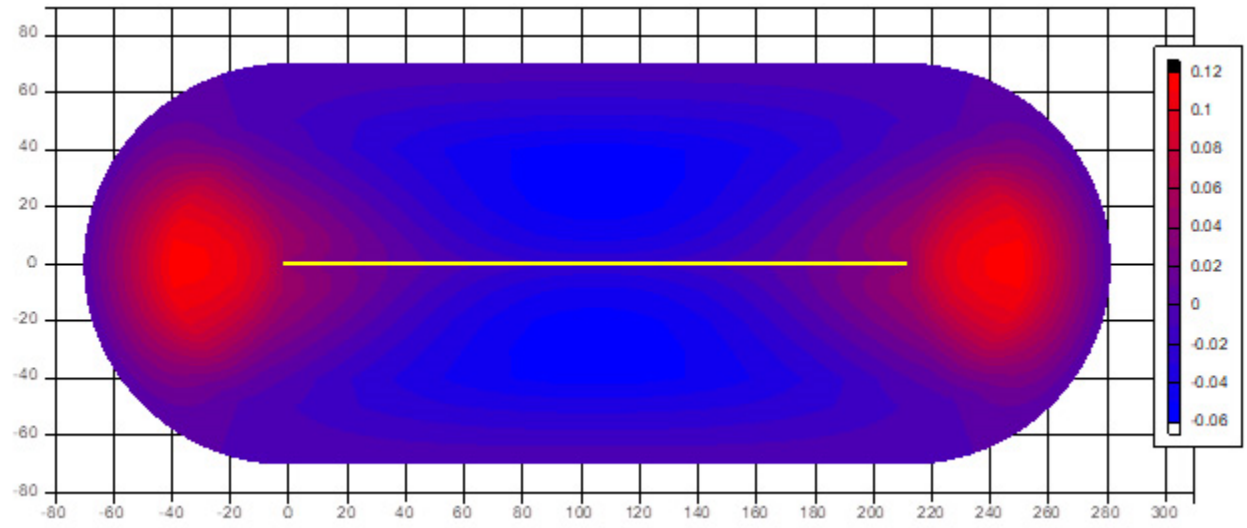

Figure A.10 **Change in the mean of the natural log of the 5% damped pseudo-spectral acceleration at 1 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 7.5, strike–slip rupture.**

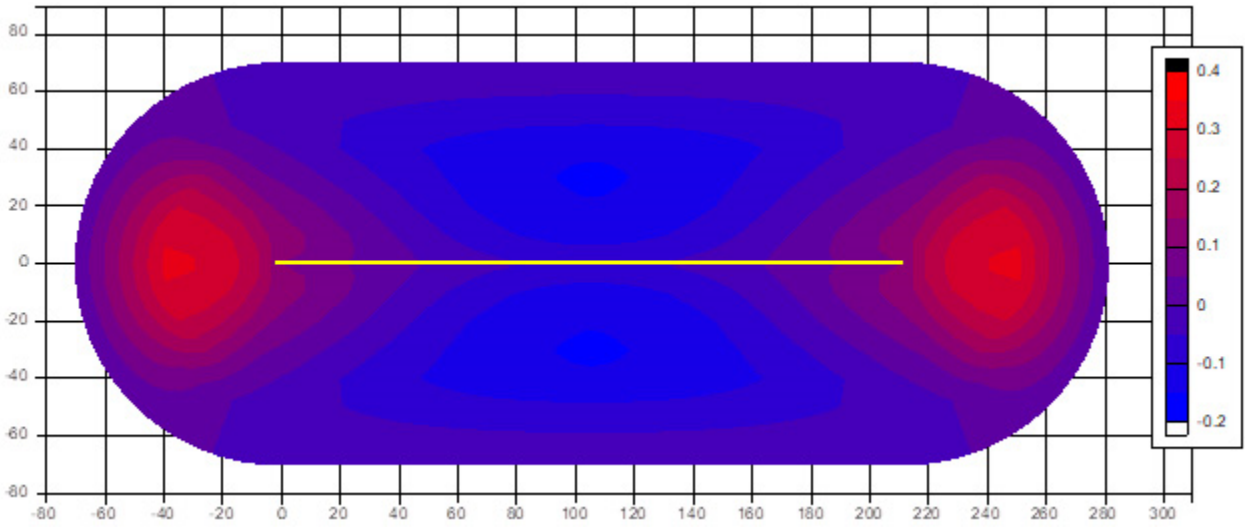

Figure A.11 **Change in the mean of the natural log of the 5% damped pseudo-spectral acceleration at 3 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 7.5, strike–slip rupture.**

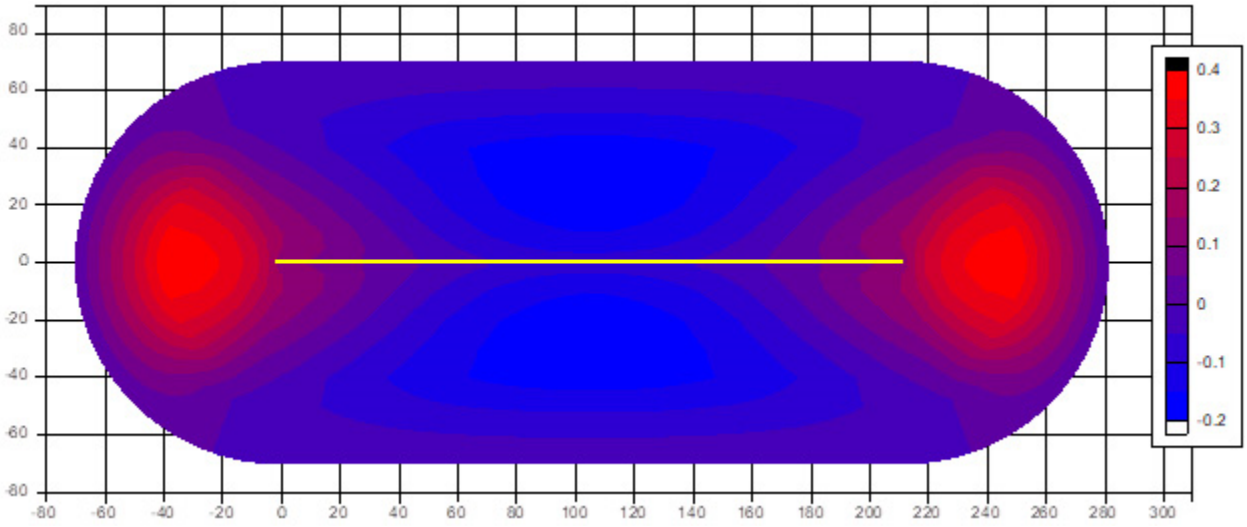

Figure A.12 **Change in the mean of the natural log of the 5% damped pseudo-spectral acceleration at 5 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 7.5, strike–slip rupture.**

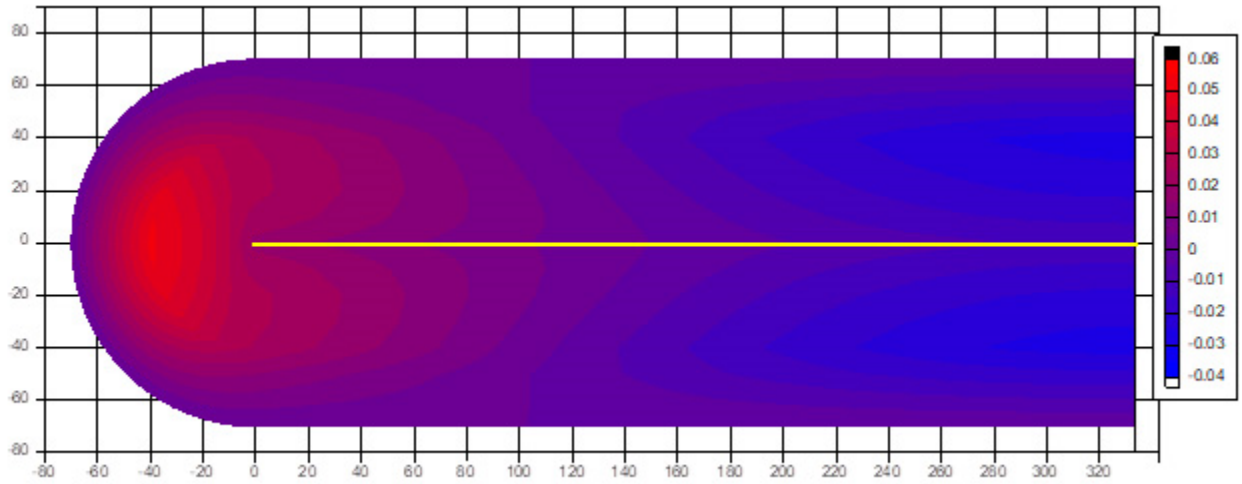

Figure A.13 **Change in the mean of the natural log of the 5% damped pseudo-spectral acceleration at 1 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 8, strike–slip rupture.**

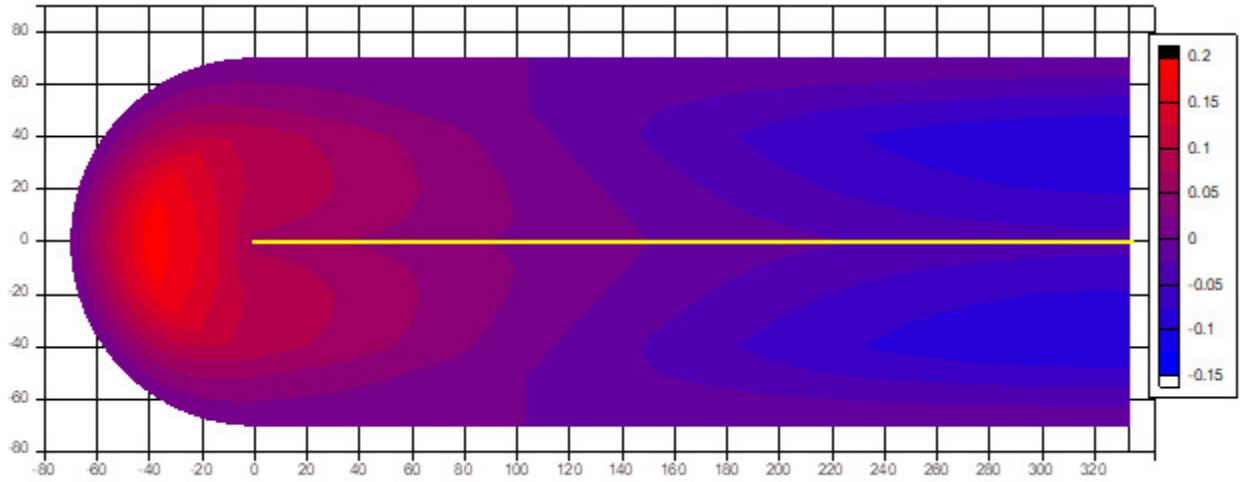

Figure A.14 **Change in the mean of the natural log of the 5% damped pseudo-spectral acceleration at 3 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 8, strike–slip rupture.**

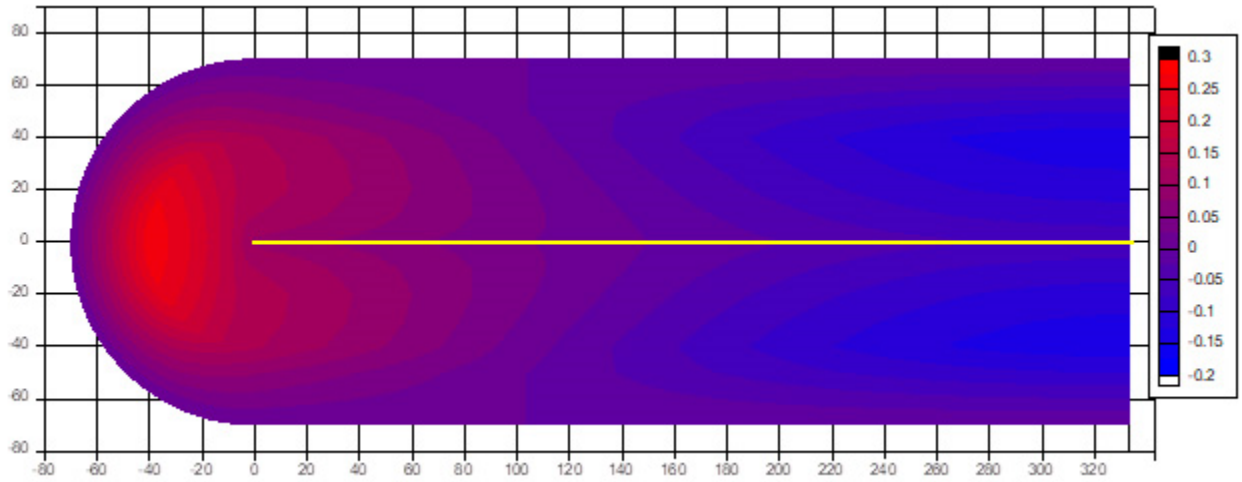

Figure A.15 **Change in the mean of the natural log of the 5% damped pseudo-spectral acceleration at 5 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 8, strike–slip rupture.**

A.1.2 Changes in the Standard Deviation of the Log Normal 5% Damped Pseudo-Spectral Acceleration

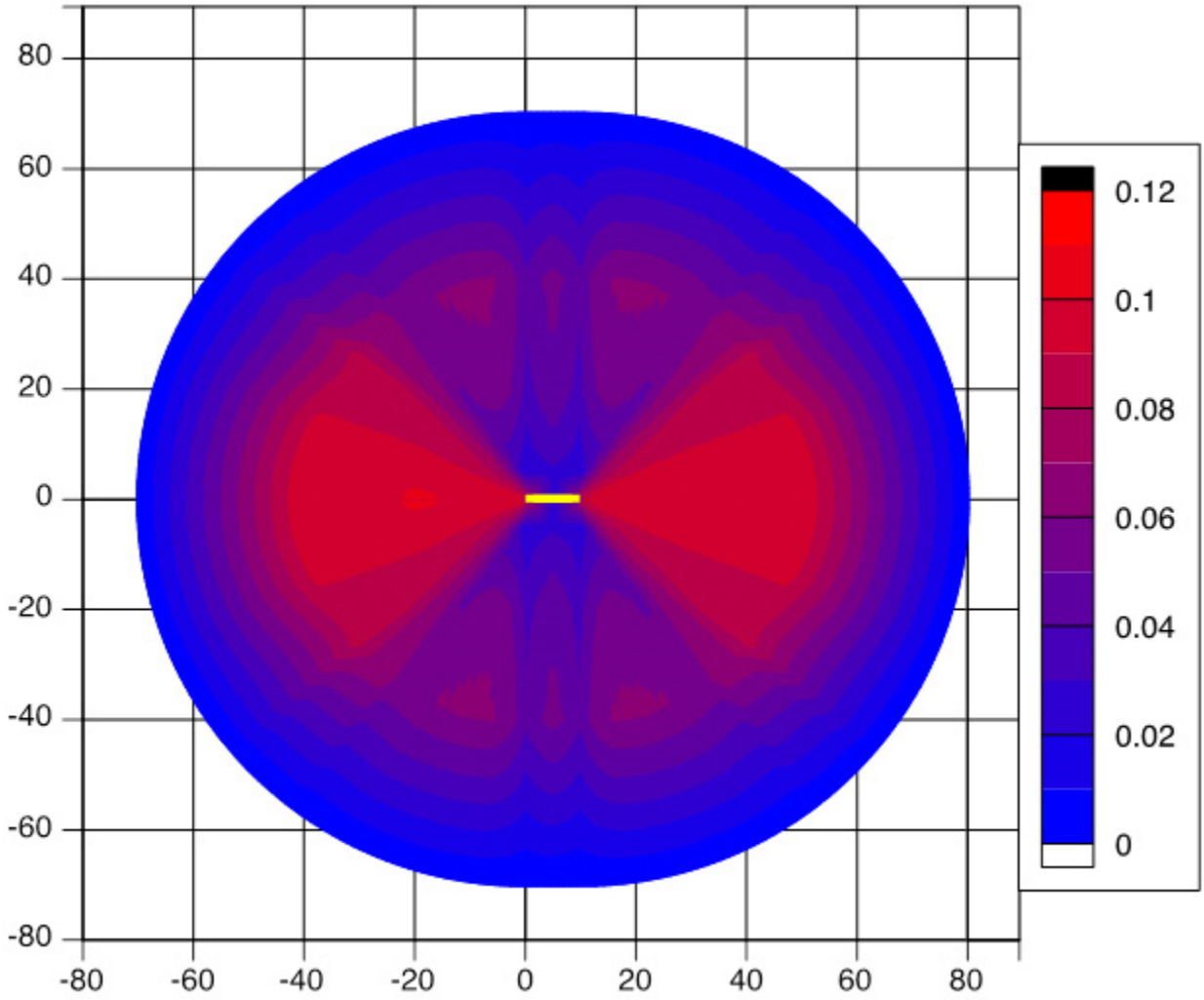

Figure A.16 **Change in the standard deviation of the natural log of the 5% damped pseudo-spectral acceleration at 1 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 6, strike–slip rupture.**

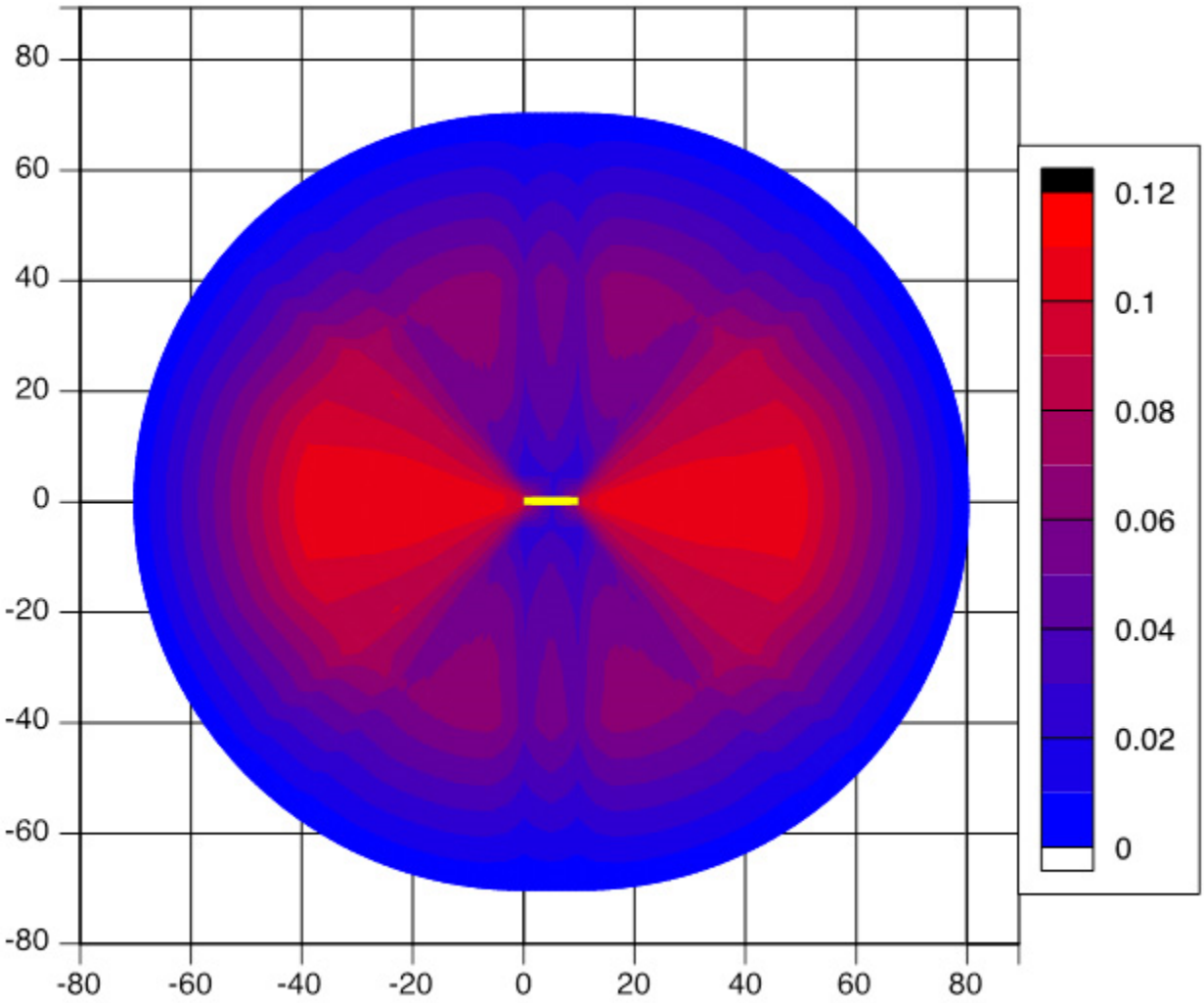

Figure A.17 **Change in the standard deviation of the natural log of the 5% damped pseudo-spectral acceleration at 3 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 6, strike–slip rupture.**

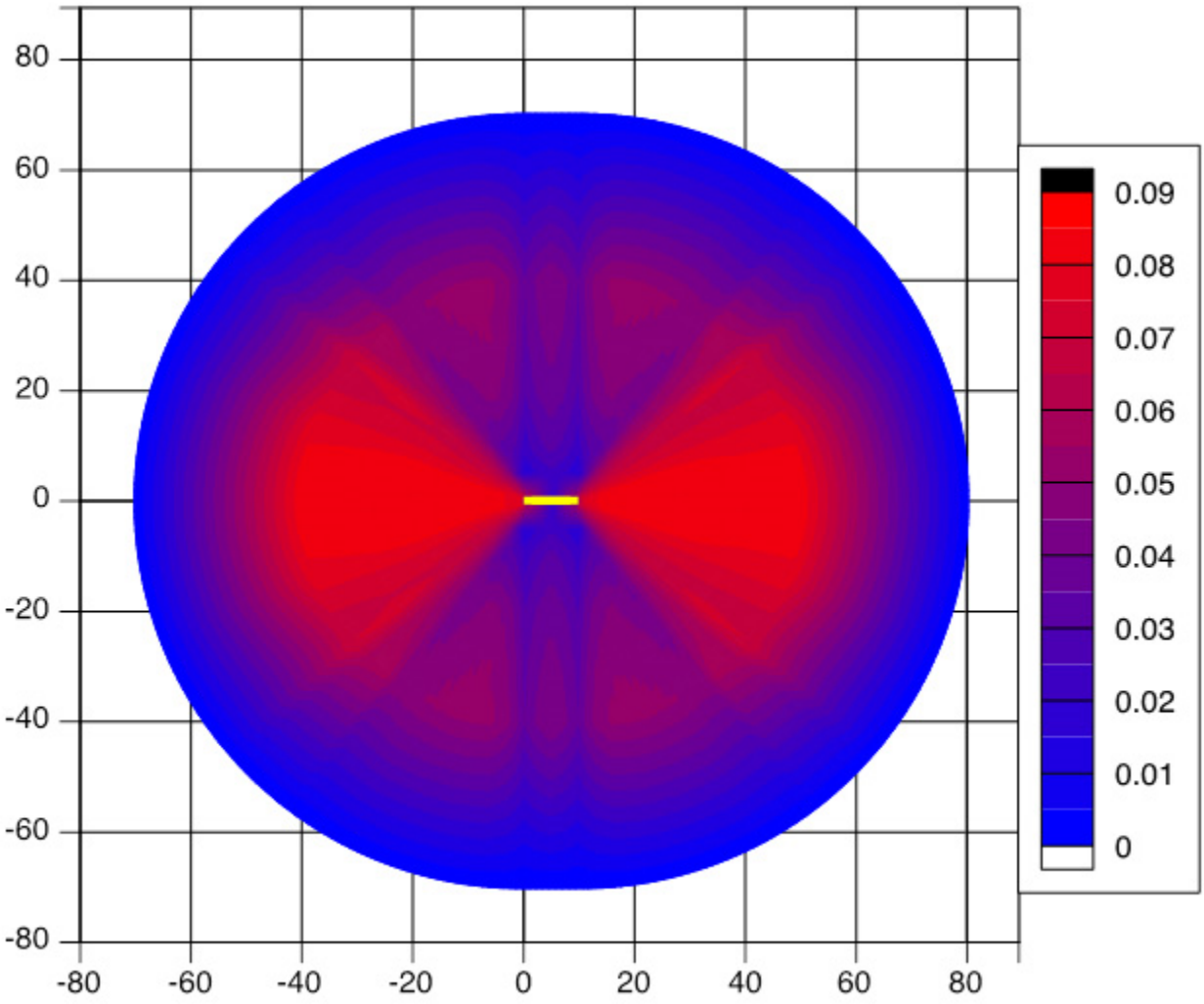

Figure A.18 **Change in the standard deviation of the natural log of the 5% damped pseudo-spectral acceleration at 5 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 6, strike–slip rupture.**

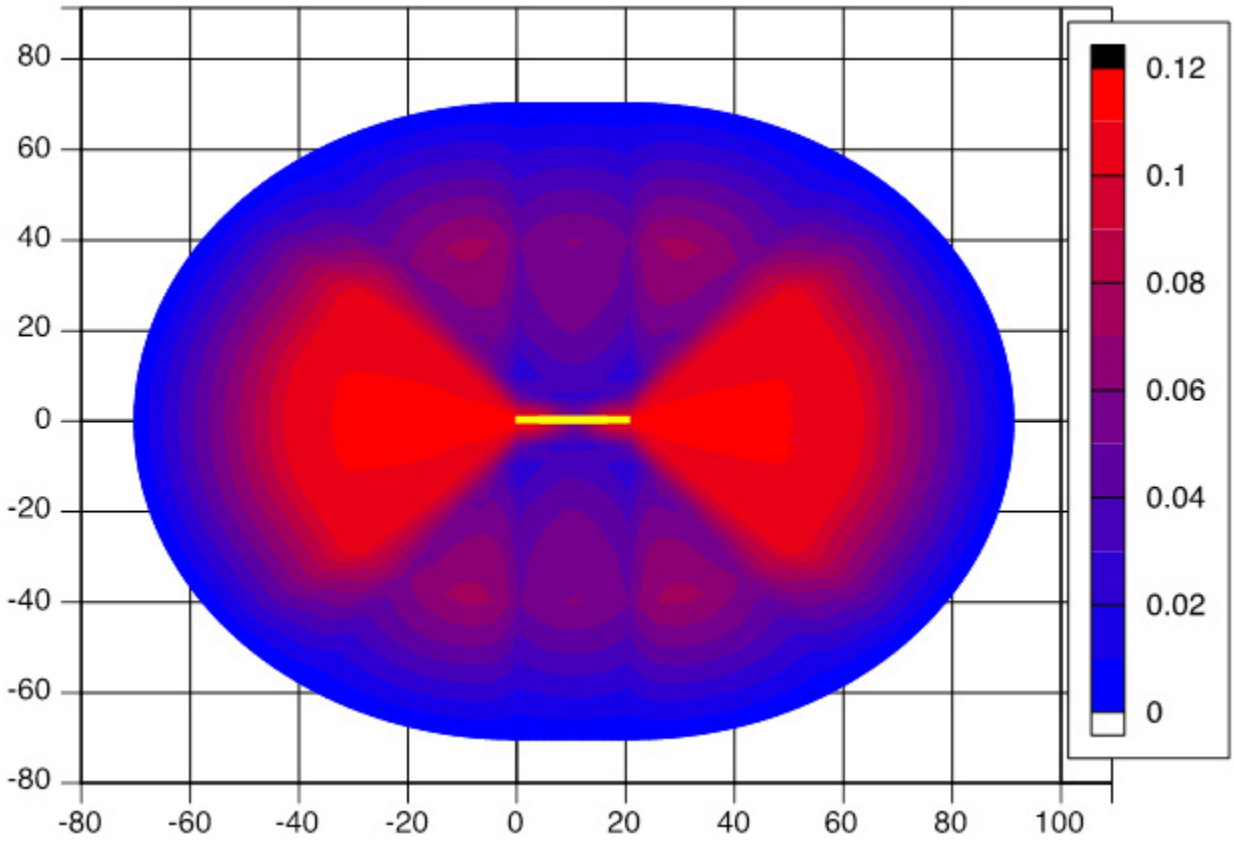

Figure A.19 **Change in the standard deviation of the natural log of the 5% damped pseudo-spectral acceleration at 1 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 6.5, strike–slip rupture.**

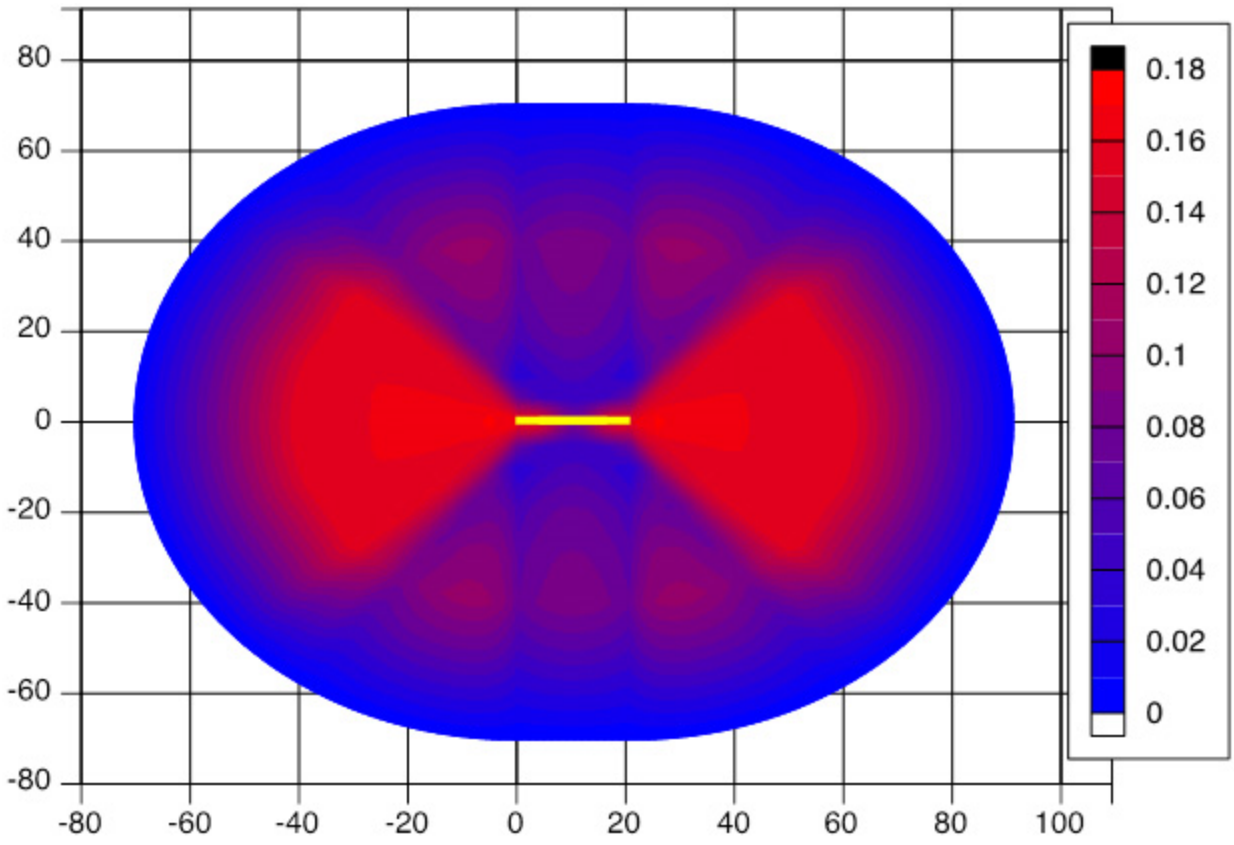

Figure A.20 **Change in the standard deviation of the natural log of the 5% damped pseudo-spectral acceleration at 3 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 6.5, strike–slip rupture.**

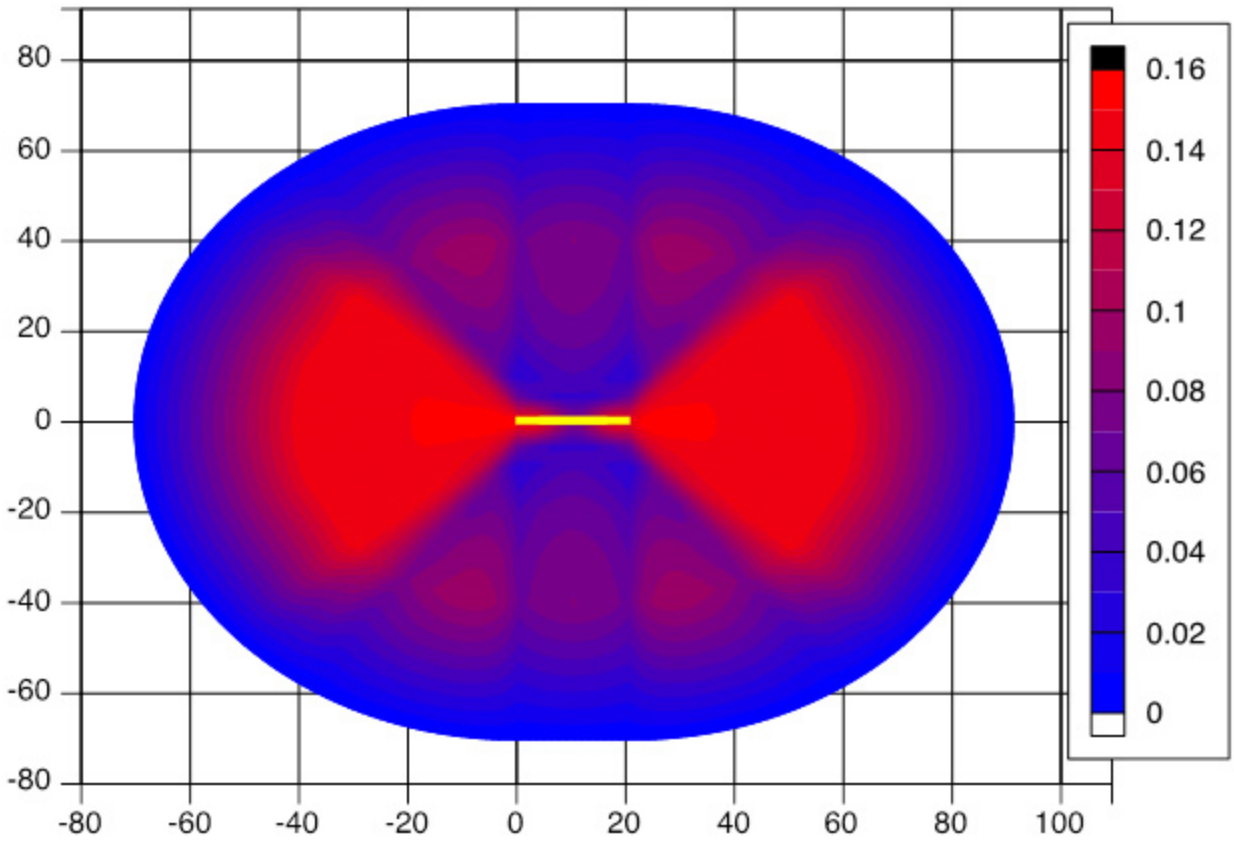

Figure A.21 **Change in the standard deviation of the natural log of the 5% damped pseudo-spectral acceleration at 5 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 6.5, strike–slip rupture.**

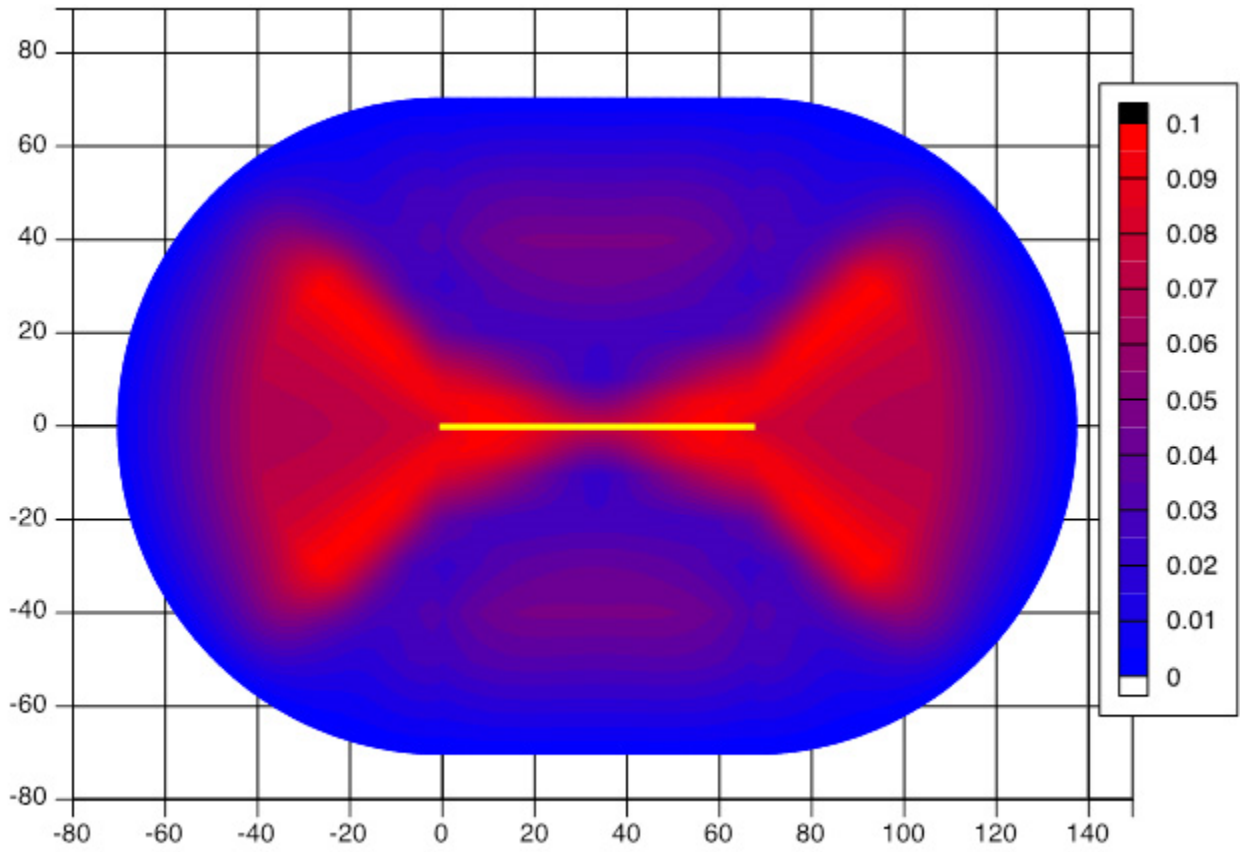

Figure A.22 **Change in the standard deviation of the natural log of the 5% damped pseudo-spectral acceleration at 1 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 7, strike–slip rupture.**

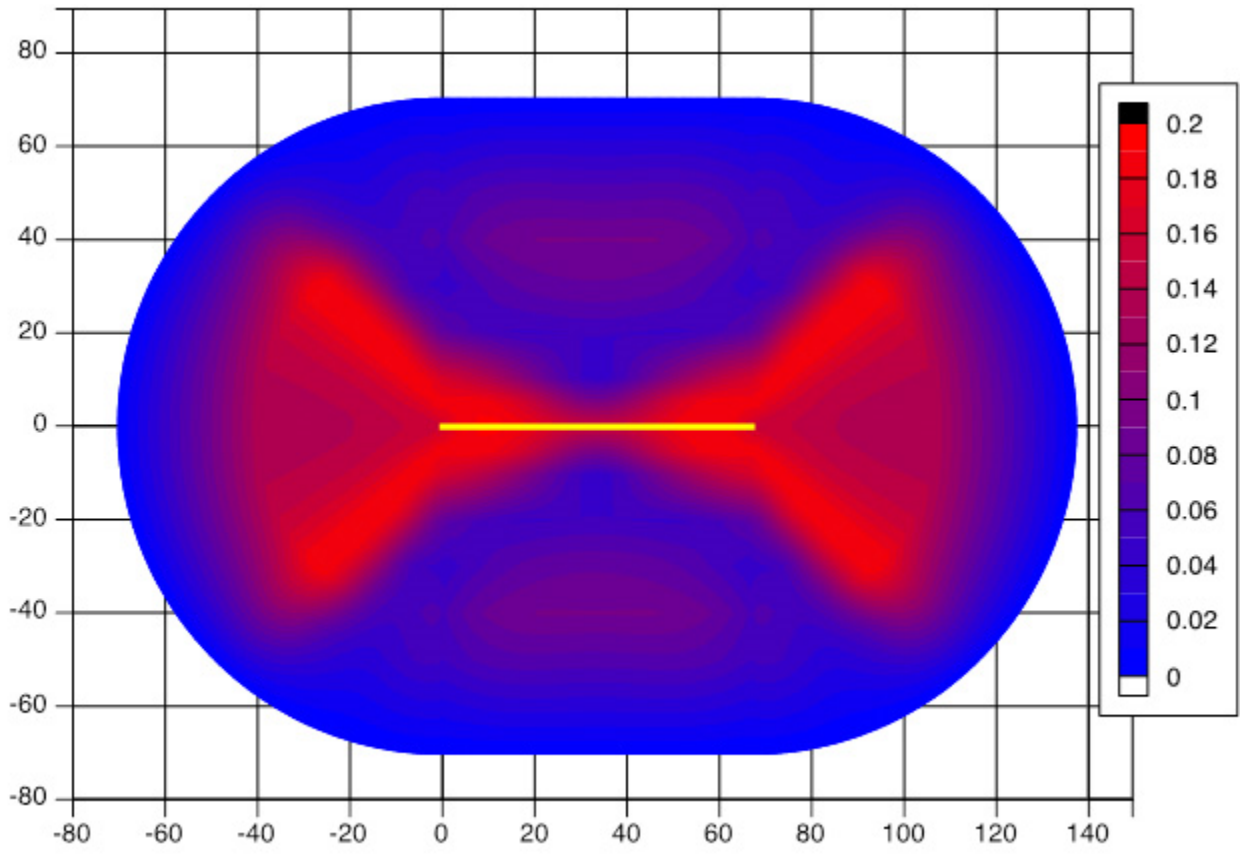

Figure A.23 **Change in the standard deviation of the natural log of the 5% damped pseudo-spectral acceleration at 3 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 7, strike–slip rupture.**

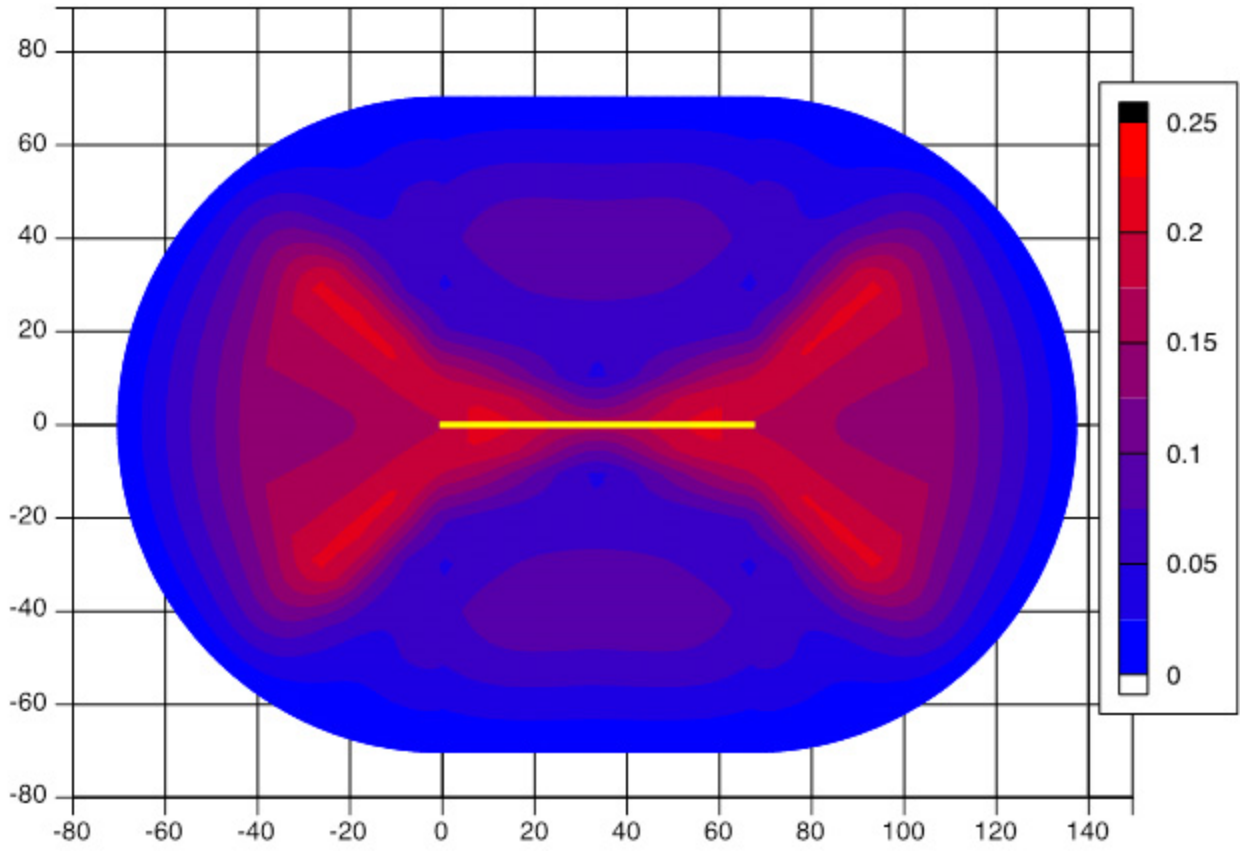

Figure A.24 **Change in the standard deviation of the natural log of the 5% damped pseudo-spectral acceleration at 5 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 7, strike–slip rupture.**

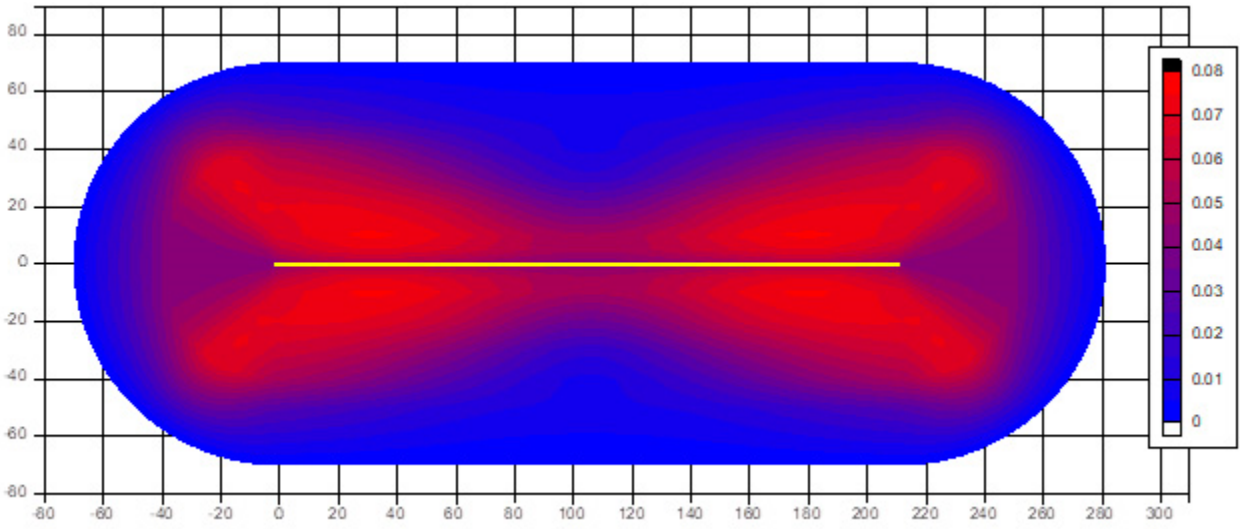

Figure A.25 **Change in the standard deviation of the natural log of the 5% damped pseudo-spectral acceleration at 1 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 7.5, strike–slip rupture.**

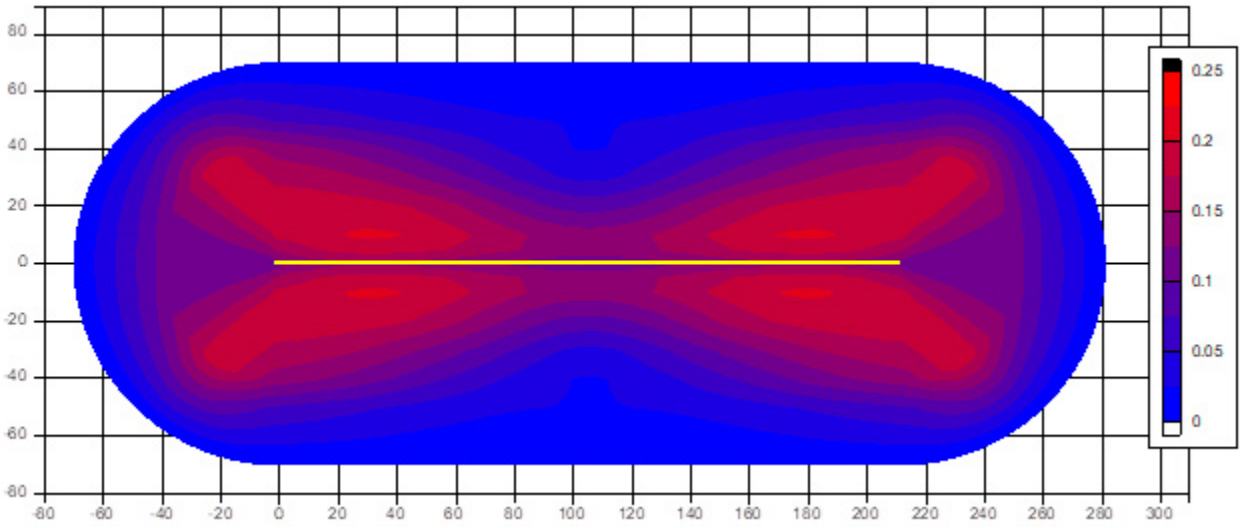

Figure A.26 **Change in the standard deviation of the natural log of the 5% damped pseudo-spectral acceleration at 3 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 7.5, strike–slip rupture.**

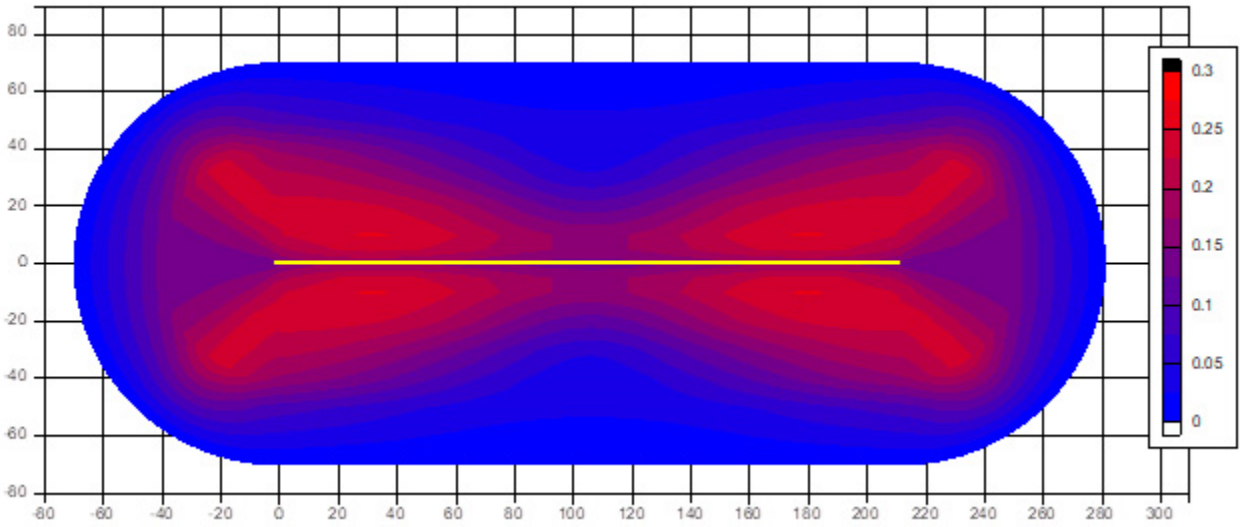

Figure A.27 **Change in the standard deviation of the natural log of the 5% damped pseudo-spectral acceleration at 5 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 7.5, strike–slip rupture.**

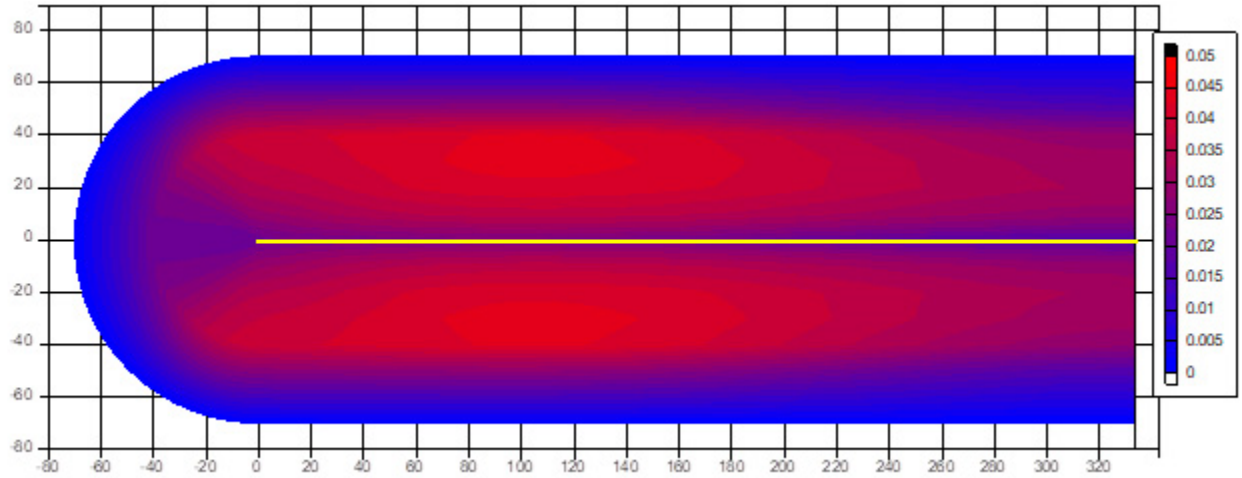

Figure A.28 **Change in the standard deviation of the natural log of the 5% damped pseudo-spectral acceleration at 1 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 8, strike–slip rupture.**

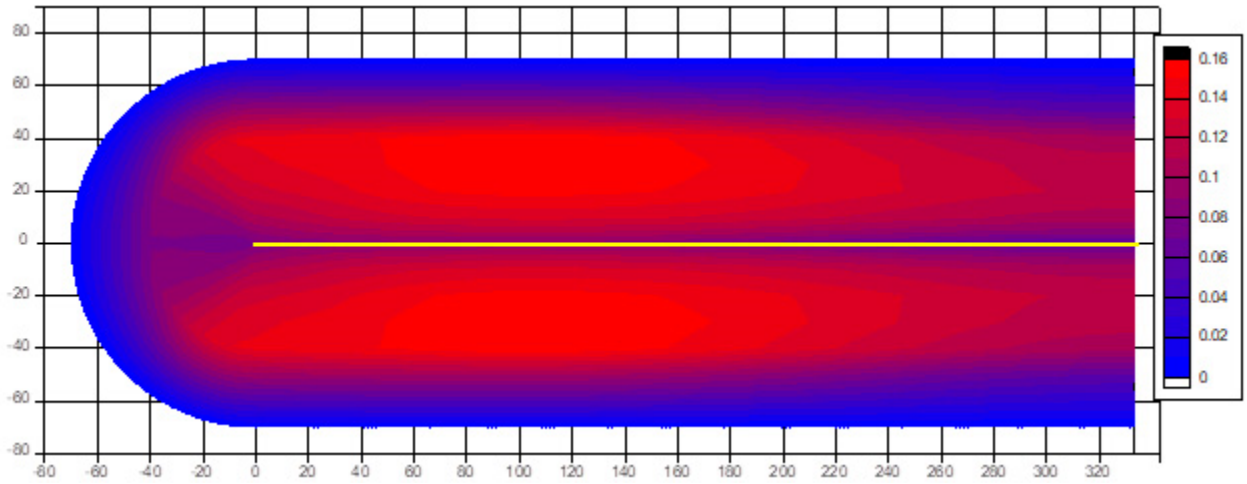

Figure A.29 **Change in the standard deviation of the natural log of the 5% damped pseudo-spectral acceleration at 3 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 8, strike–slip rupture.**

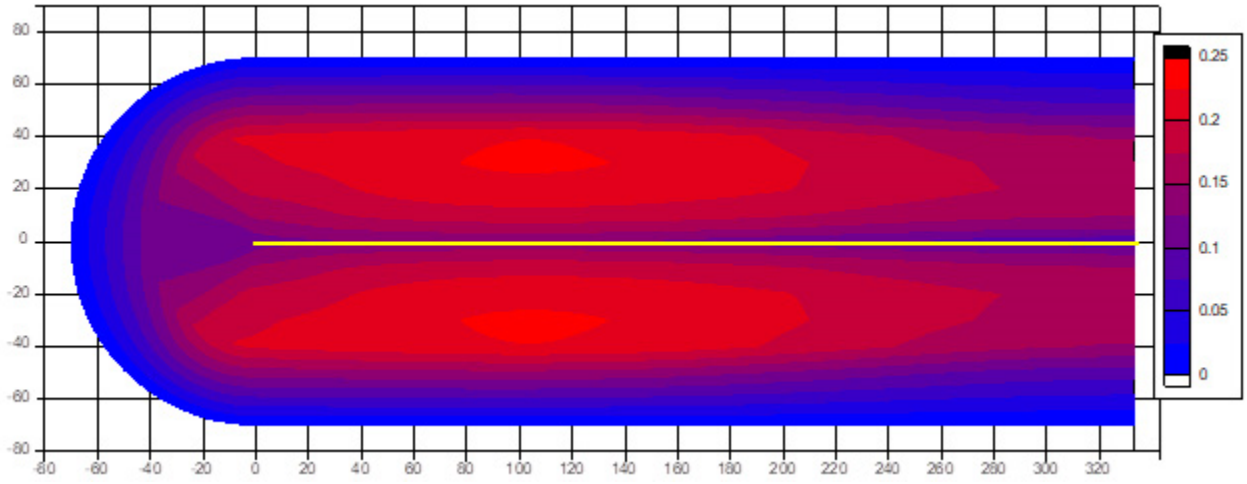

Figure A.30 **Change in the standard deviation of the natural log of the 5% damped pseudo-spectral acceleration at 5 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 8, strike–slip rupture.**

A.1.3 Changes in the Standard Deviation of the Log Normal 5% Damped Pseudo-Spectral Acceleration with ϕ_2 Reduction

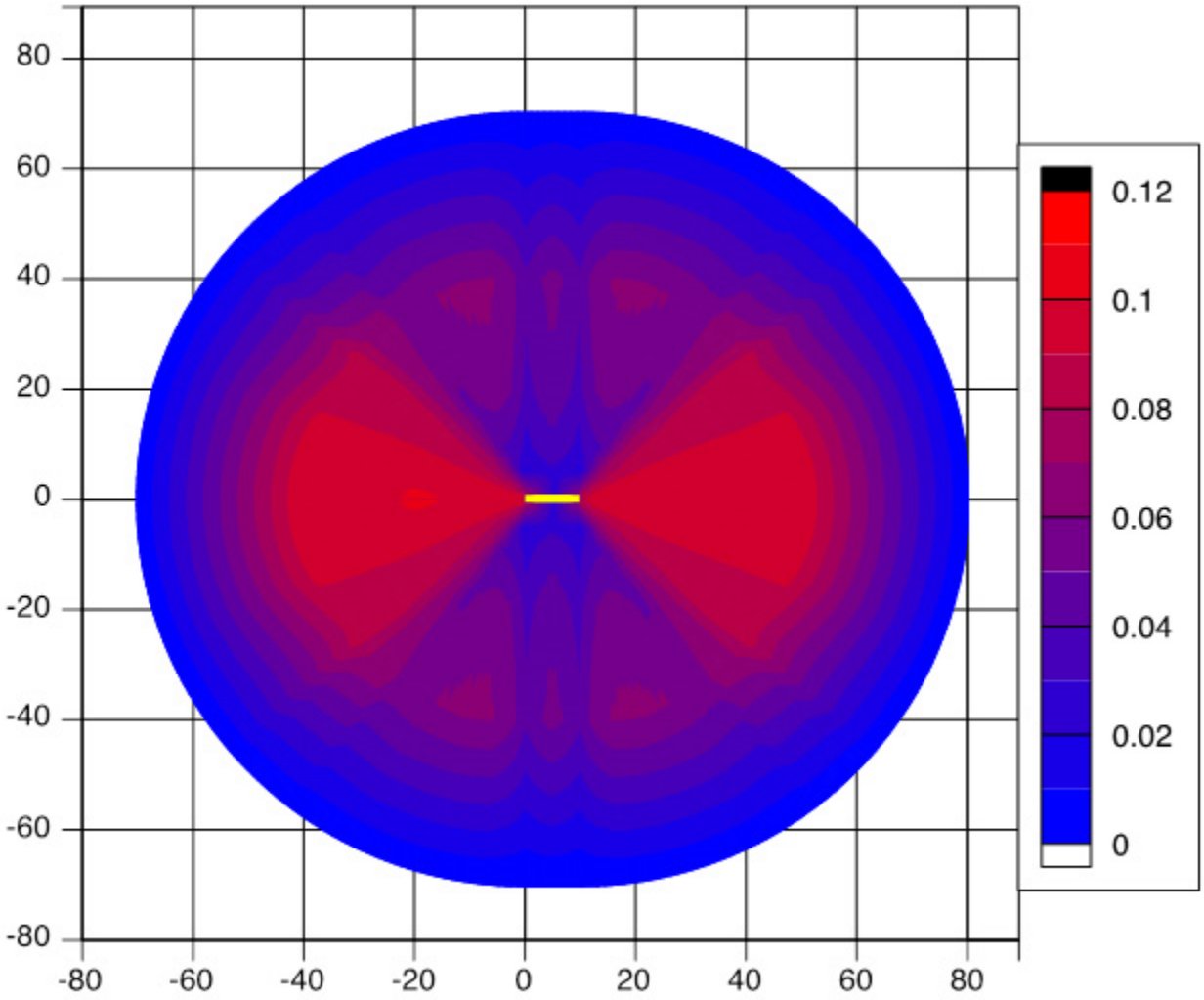

Figure A.31 **Change in the standard deviation of the natural log of the 5% damped pseudo-spectral acceleration at 1 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 6, strike–slip rupture with ϕ_2 reduction.**

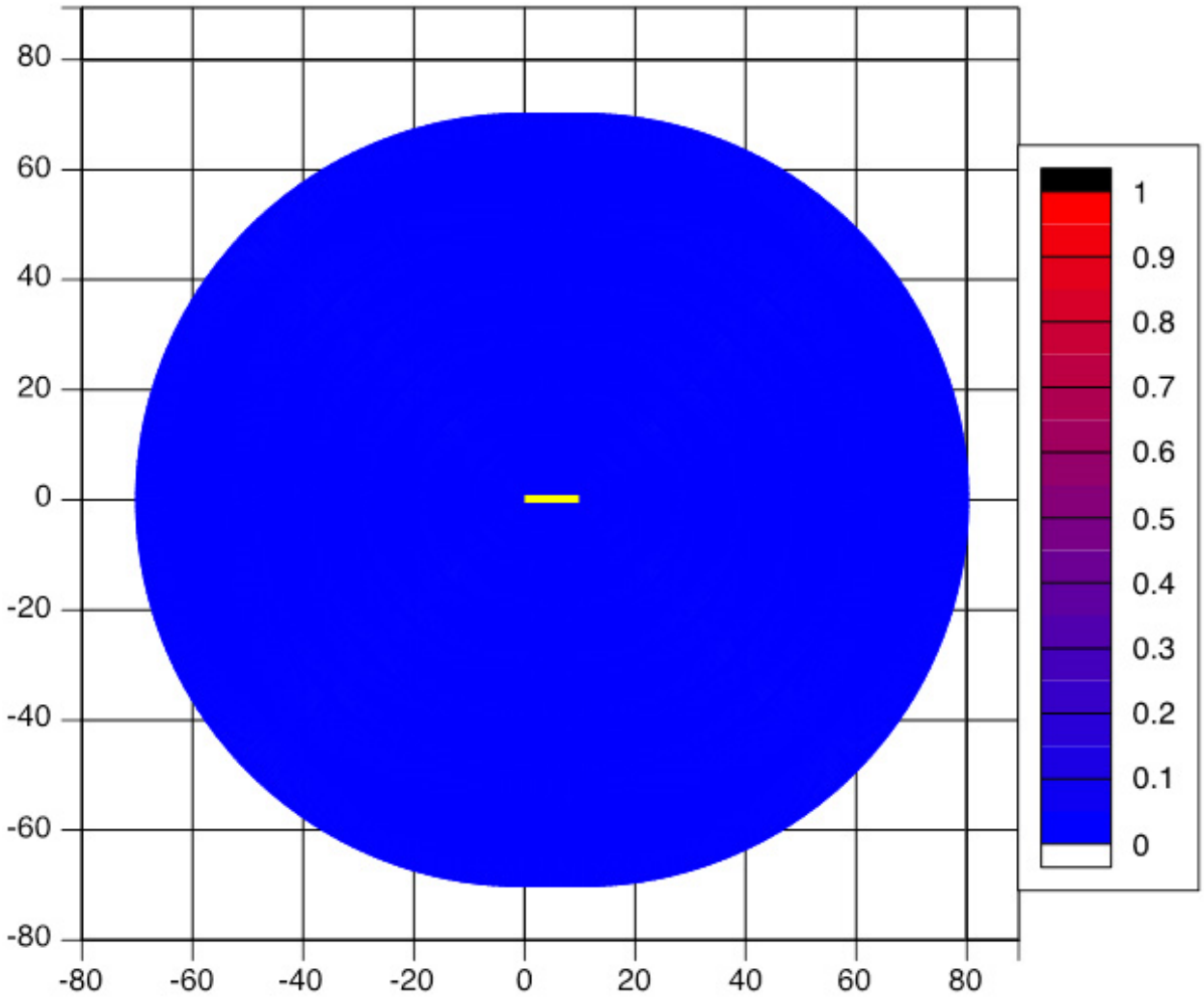

Figure A.32 **Change in the standard deviation of the natural log of the 5% damped pseudo-spectral acceleration at 3 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 6, strike–slip rupture with ϕ_2 reduction.**

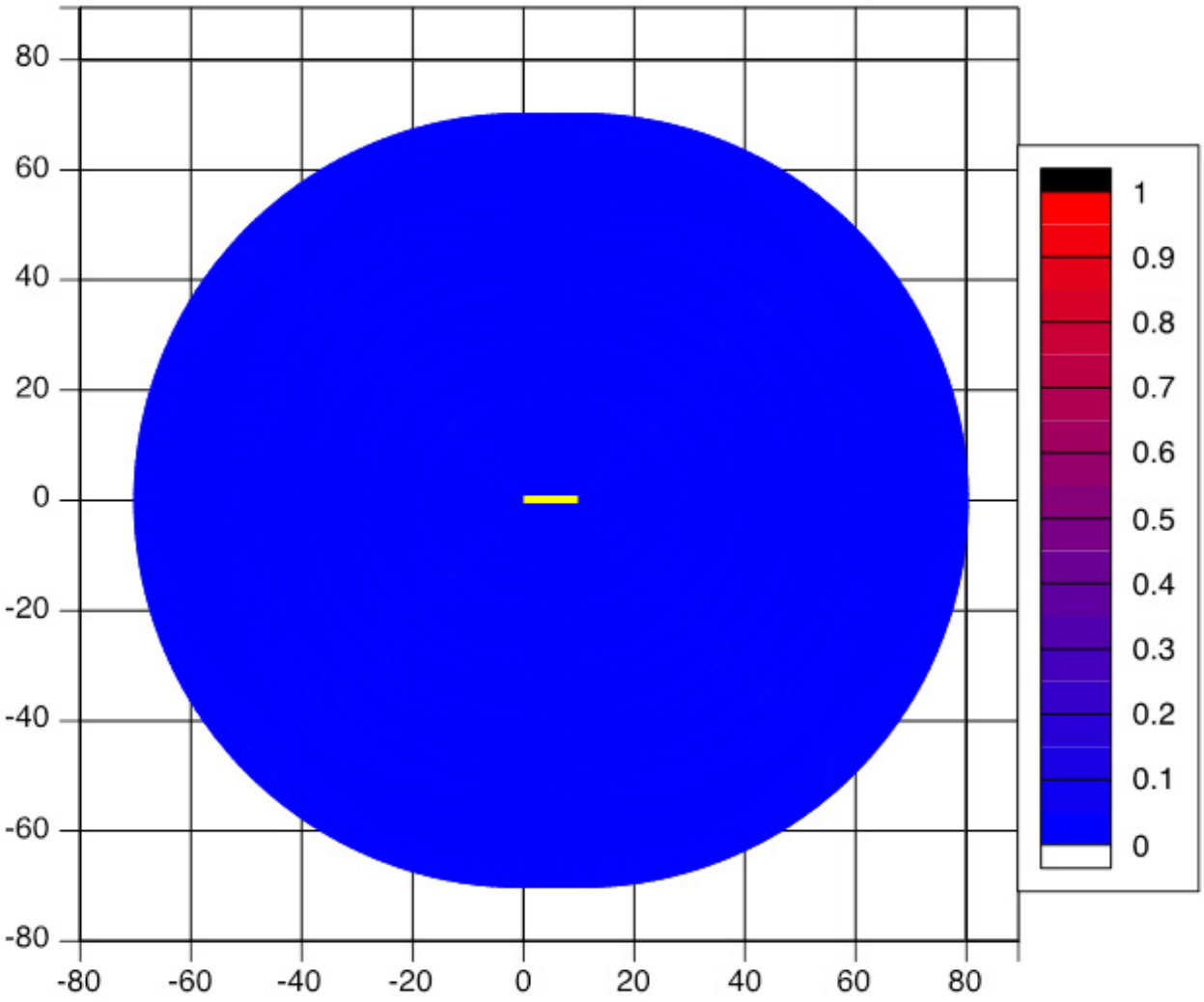

Figure A.33 **Change in the standard deviation of the natural log of the 5% damped pseudo-spectral acceleration at 5 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 6, strike–slip rupture with ϕ_2 reduction.**

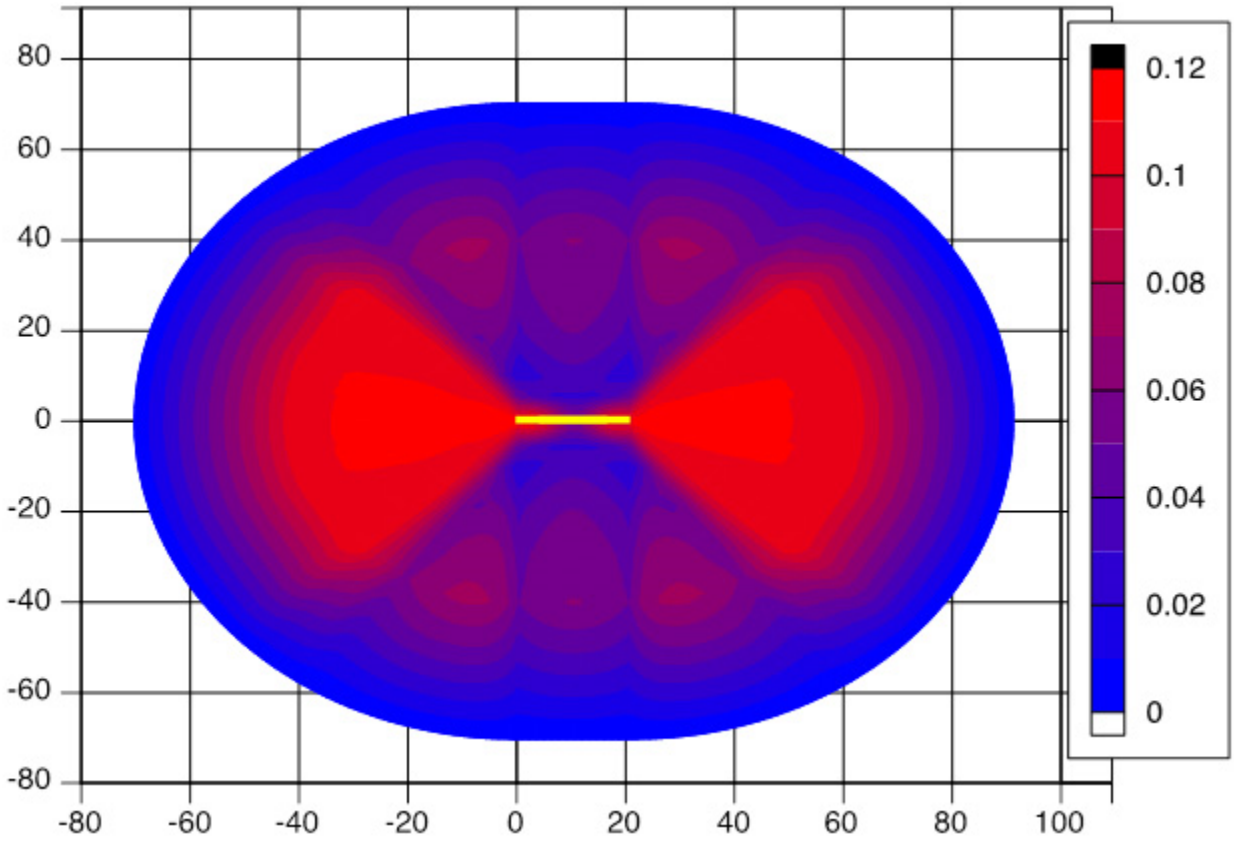

Figure A.34 **Change in the standard deviation of the natural log of the 5% damped pseudo-spectral acceleration at 1 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 6.5, strike–slip rupture with ϕ_2 reduction.**

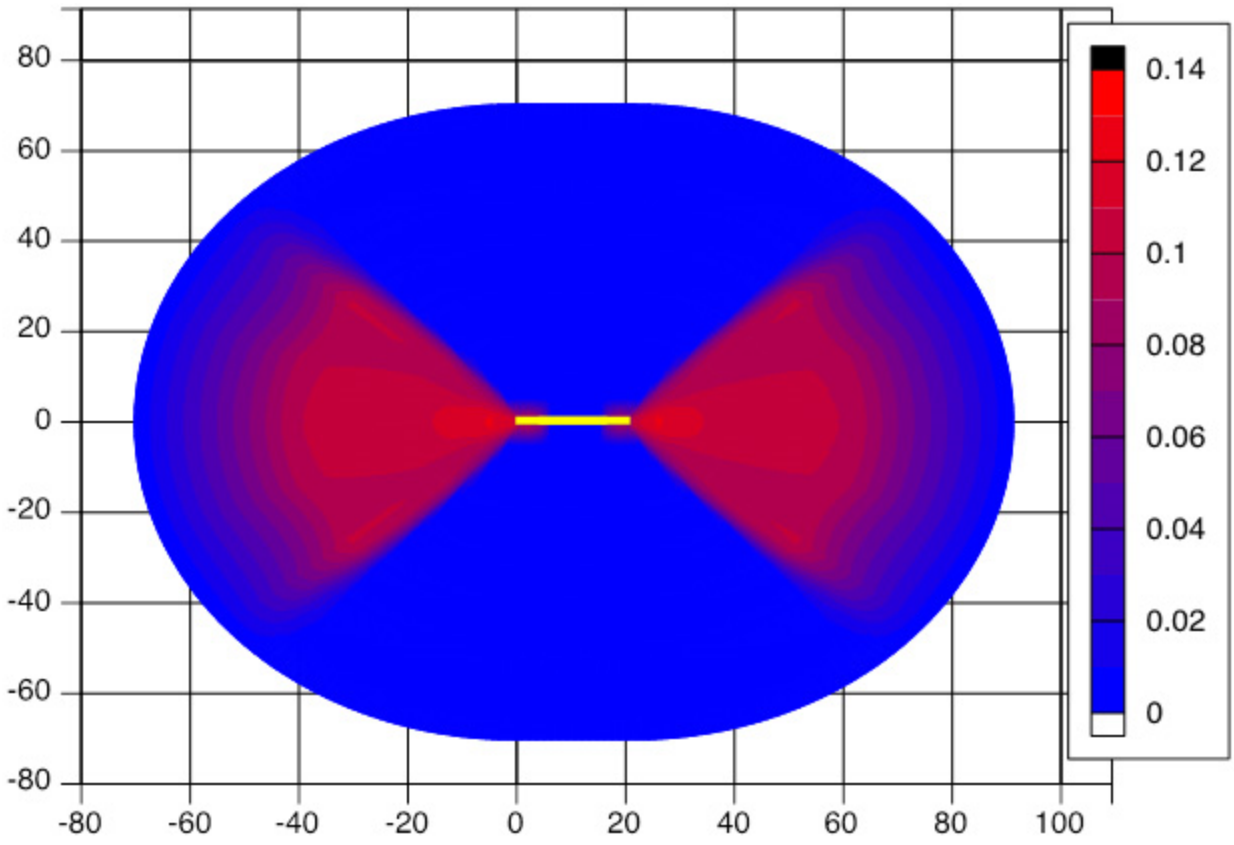

Figure A.35 **Change in the standard deviation of the natural log of the 5% damped pseudo-spectral acceleration at 3 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 6.5, strike–slip rupture with ϕ_2 reduction.**

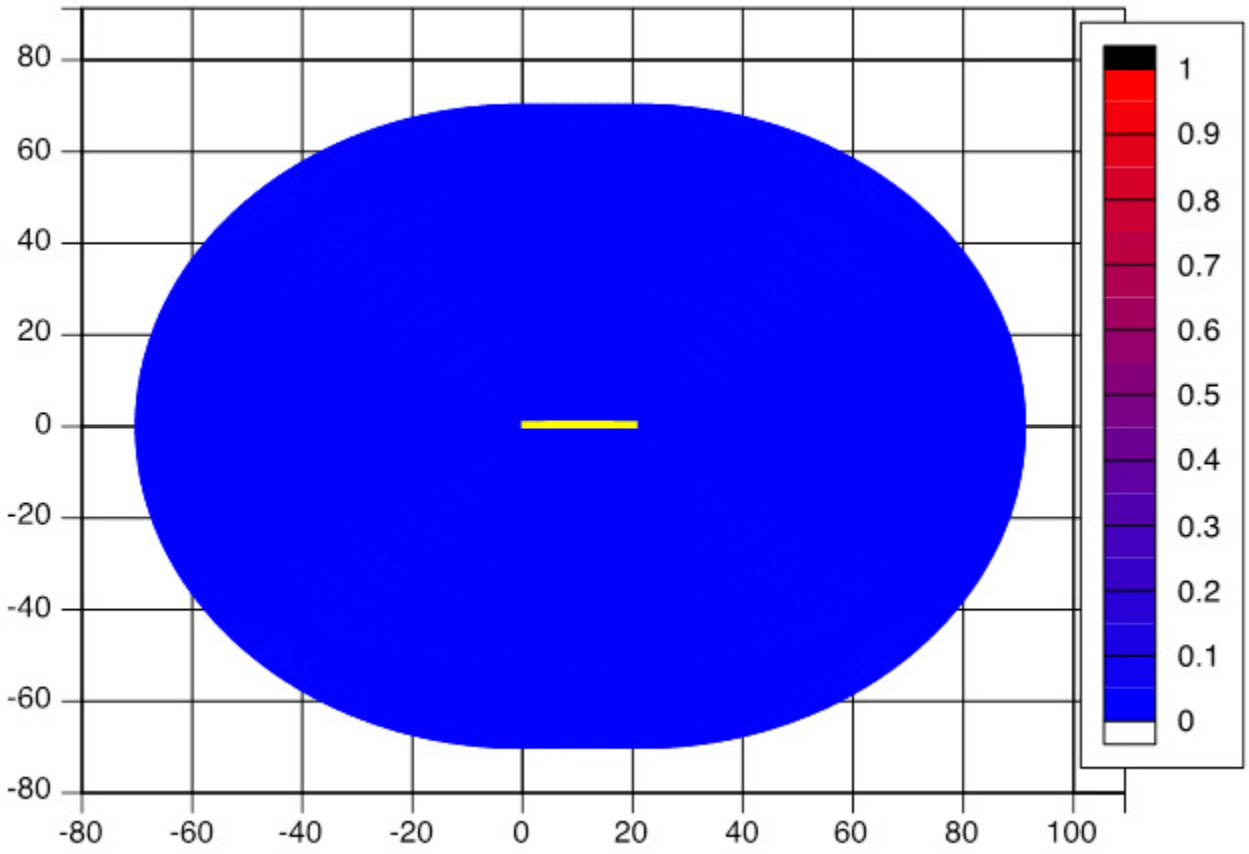

Figure A.36 **Change in the standard deviation of the natural log of the 5% damped pseudo-spectral acceleration at 5 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 6.5, strike–slip rupture with ϕ_2 reduction.**

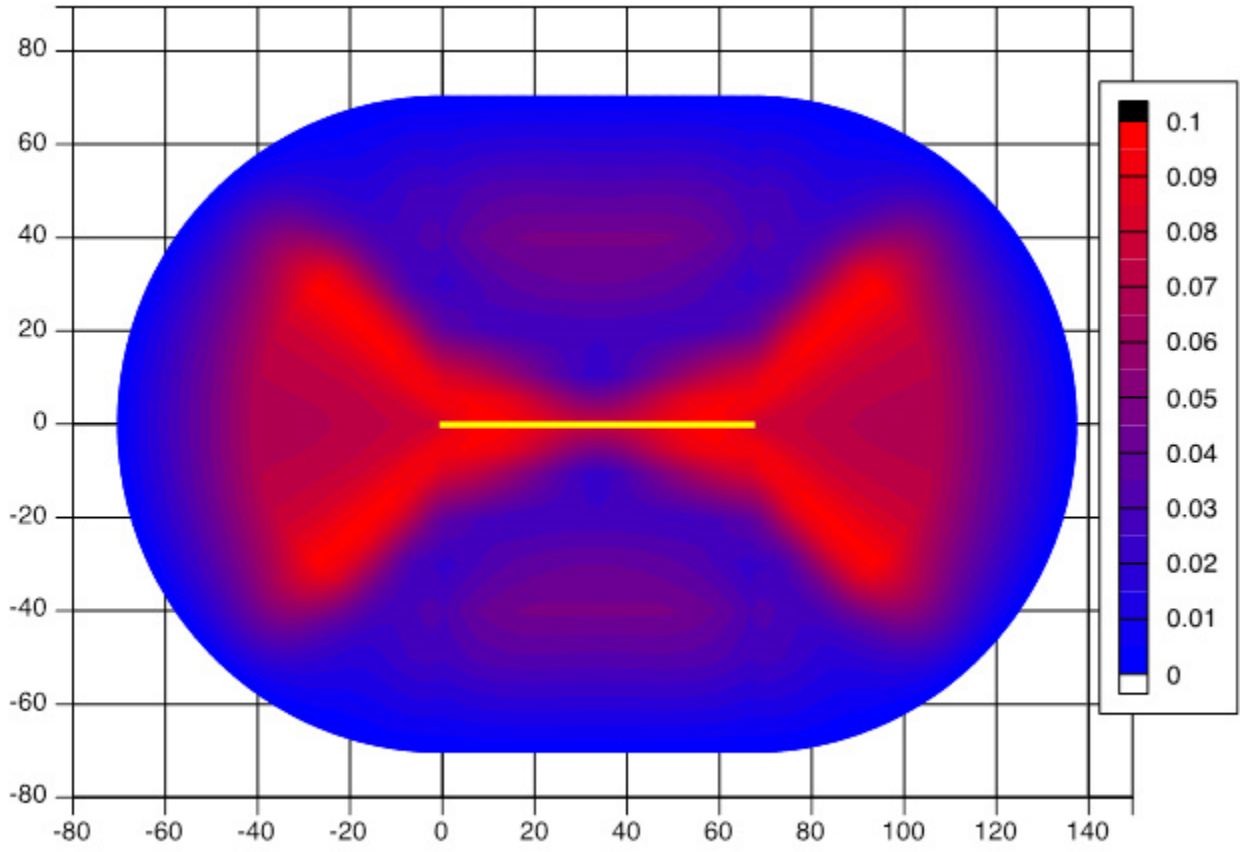

Figure A.37 **Change in the standard deviation of the natural log of the 5% damped pseudo-spectral acceleration at 1 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 7, strike–slip rupture with ϕ_2 reduction.**

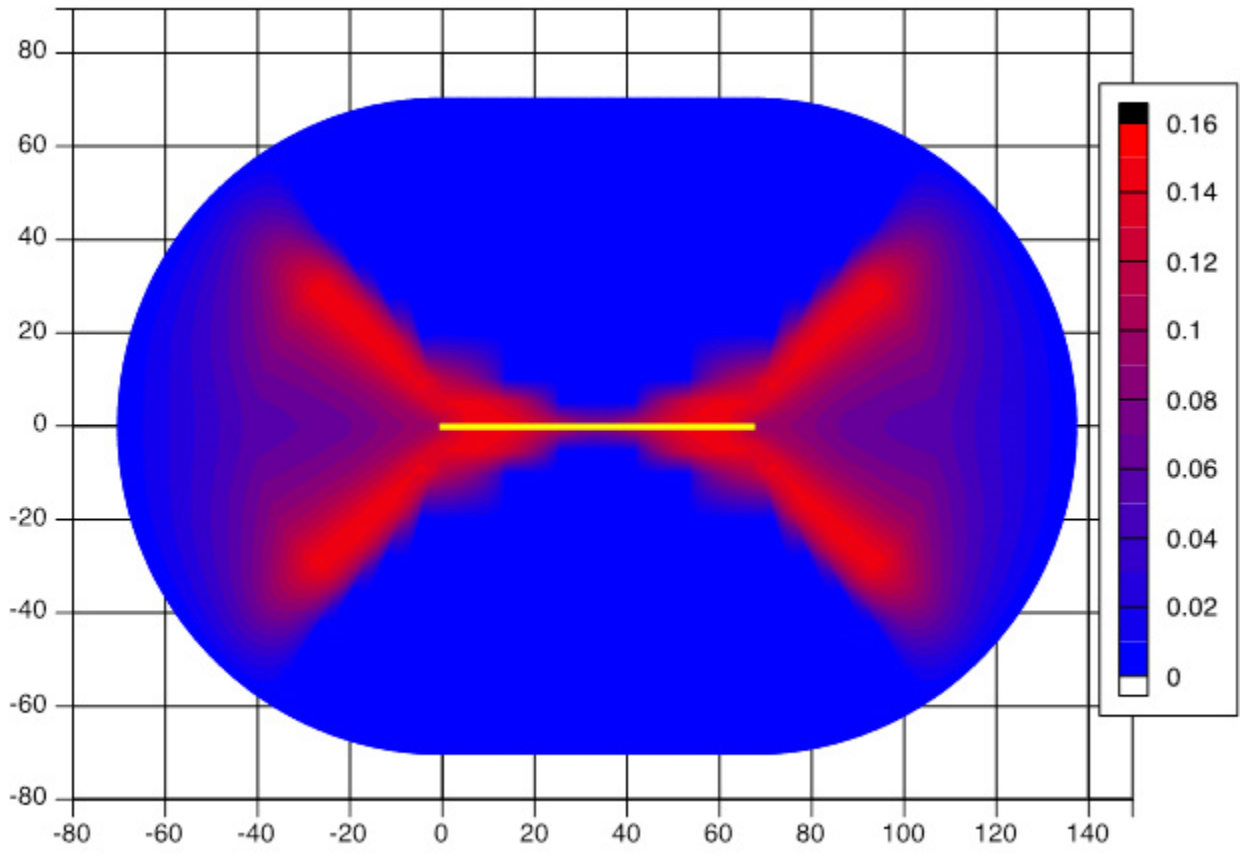

Figure A.38 **Change in the standard deviation of the natural log of the 5% damped pseudo-spectral acceleration at 3 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 7, strike–slip rupture with ϕ_2 reduction.**

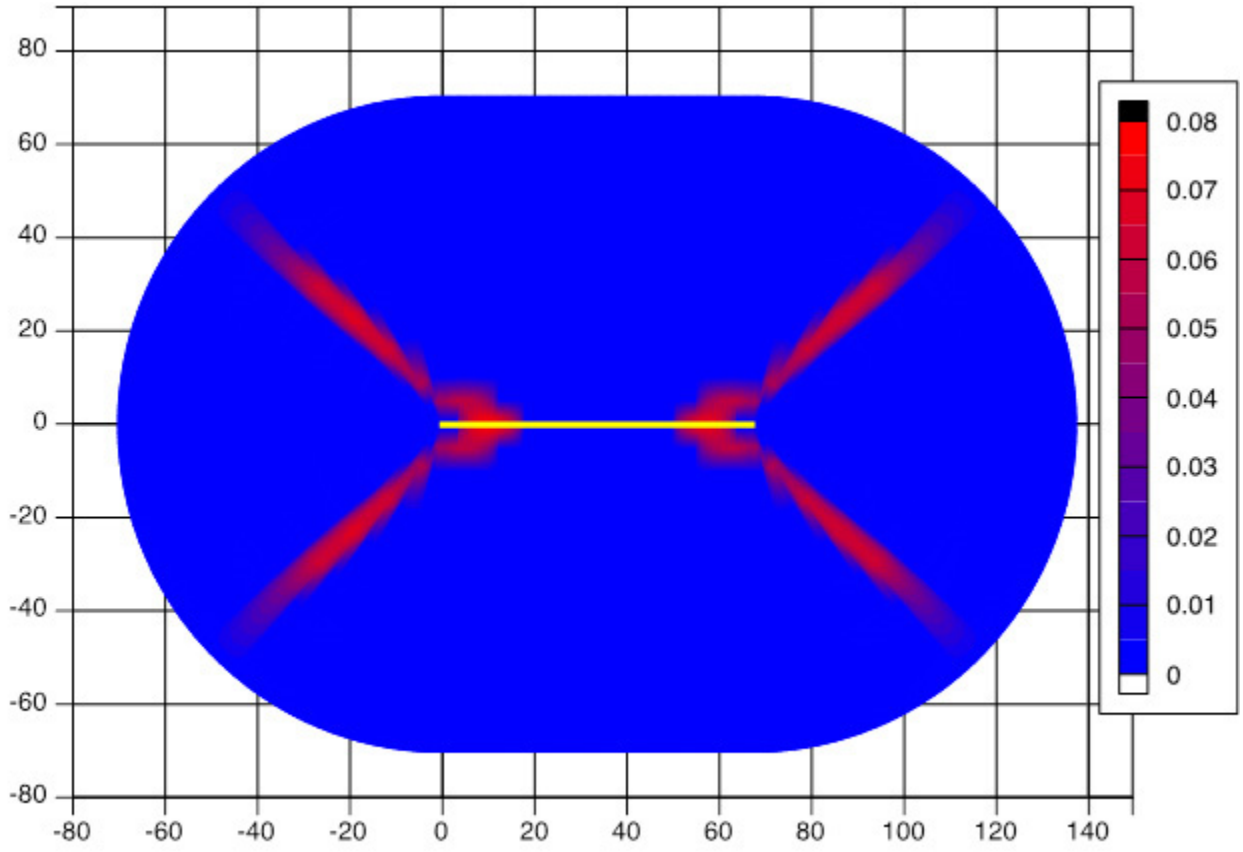

Figure A.39 **Change in the standard deviation of the natural log of the 5% damped pseudo-spectral acceleration at 5 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 7, strike–slip rupture with ϕ_2 reduction.**

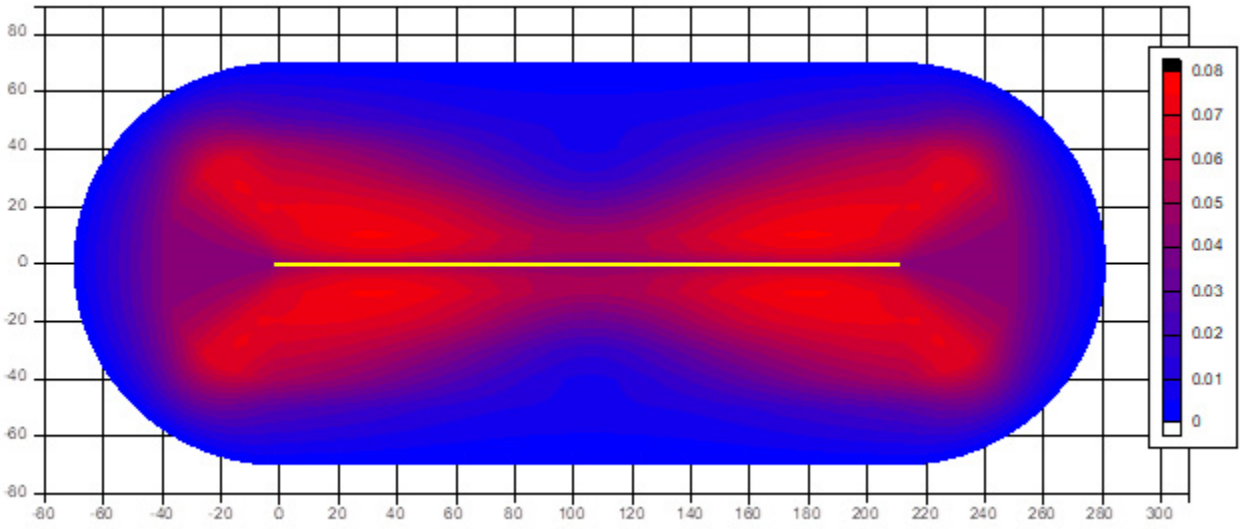

Figure A.40 **Change in the standard deviation of the natural log of the 5% damped pseudo-spectral acceleration at 1 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 7.5, strike–slip rupture with ϕ_2 reduction.**

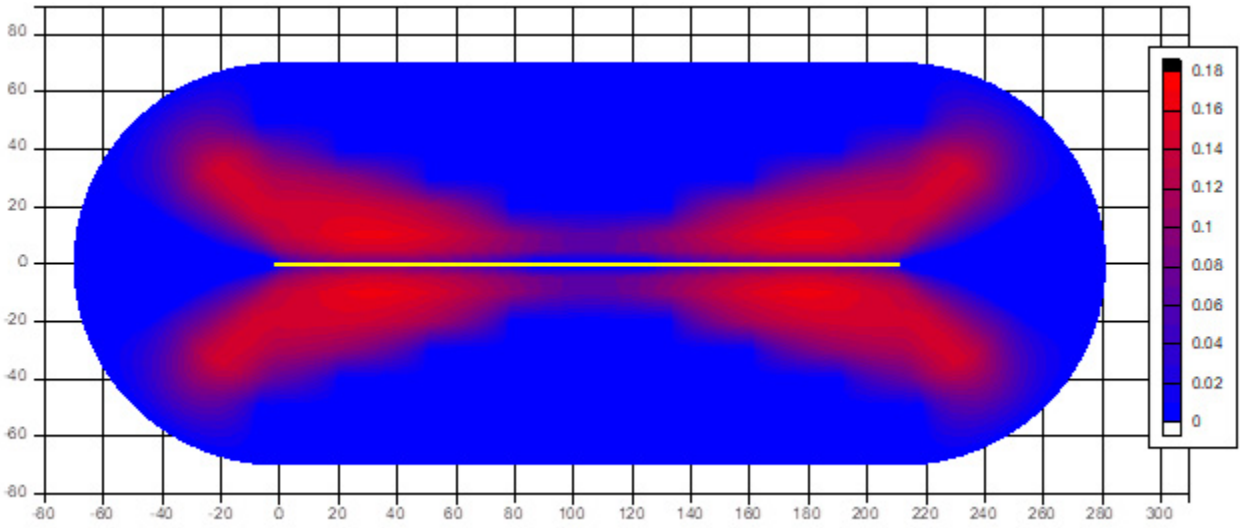

Figure A.41 **Change in the standard deviation of the natural log of the 5% damped pseudo-spectral acceleration at 3 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 7.5, strike–slip rupture with ϕ_2 reduction.**

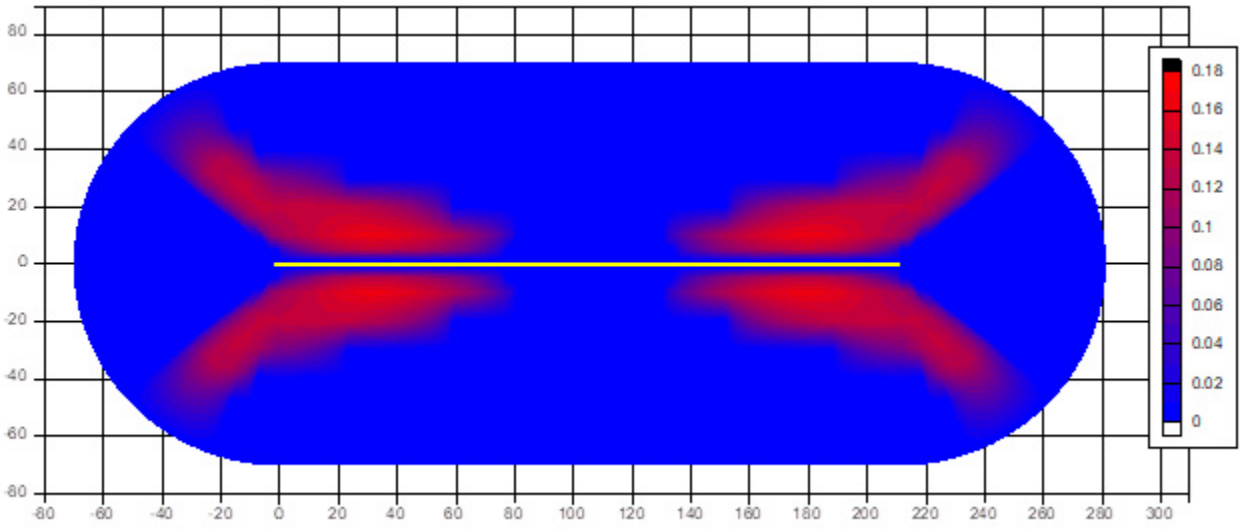

Figure A.42 **Change in the standard deviation of the natural log of the 5% damped pseudo-spectral acceleration at 5 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 7.5, strike–slip rupture with ϕ_2 reduction.**

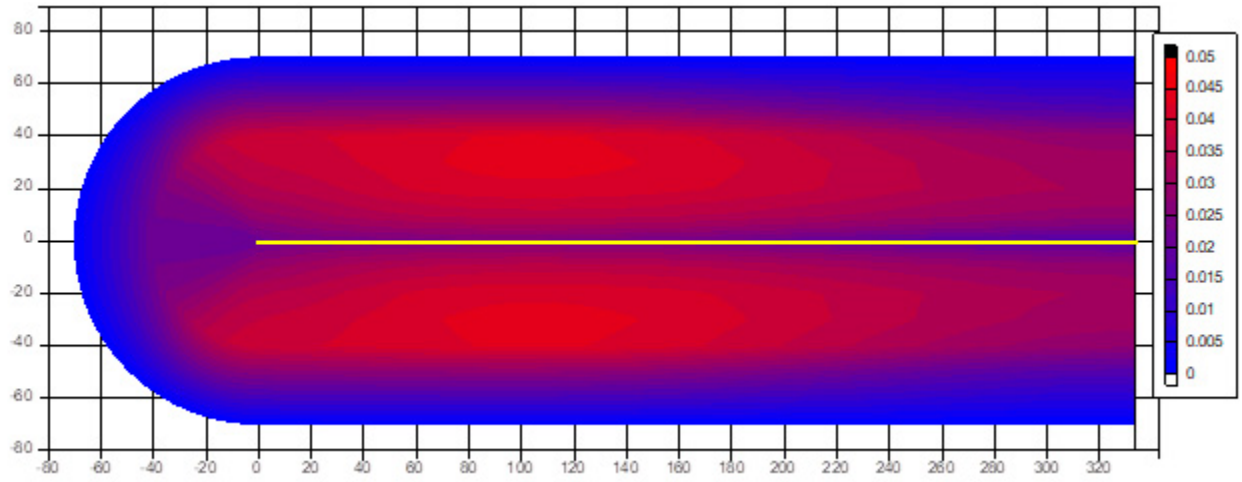

Figure A.43 **Change in the standard deviation of the natural log of the 5% damped pseudo-spectral acceleration at 1 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 8, strike–slip rupture with ϕ_2 reduction.**

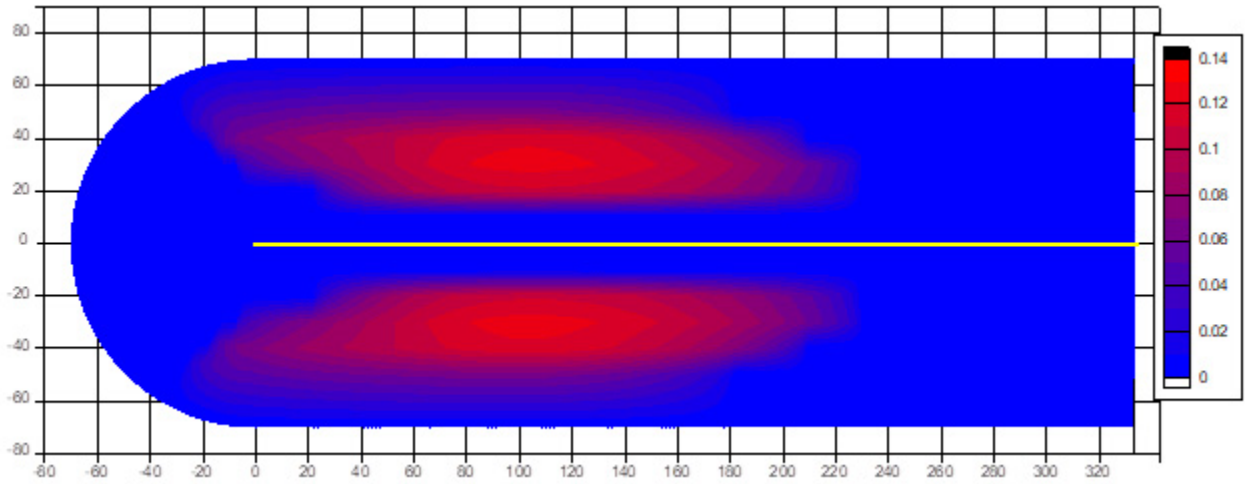

Figure A.44 **Change in the standard deviation of the natural log of the 5% damped pseudo-spectral acceleration at 3 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 8, strike–slip rupture with ϕ_2 reduction.**

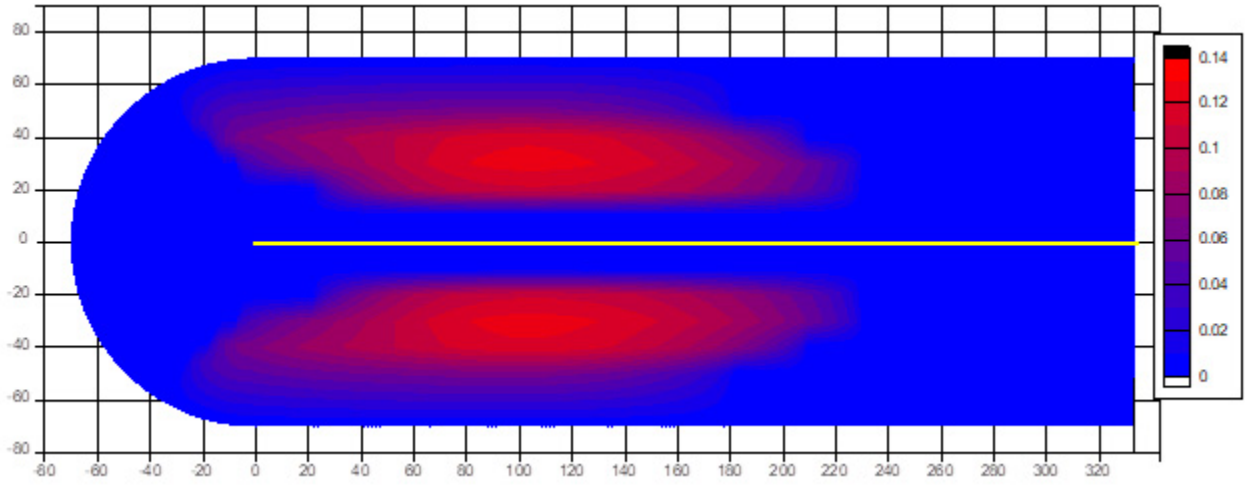

Figure A.45 **Change in the standard deviation of the natural log of the 5% damped pseudo-spectral acceleration at 5 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 8, strike–slip rupture with ϕ_2 reduction.**

A.2 REVERSE RUPTURE RESULTS

A.2.1 Changes in the Mean of the Log Normal 5% Damped Pseudo-Spectral Acceleration

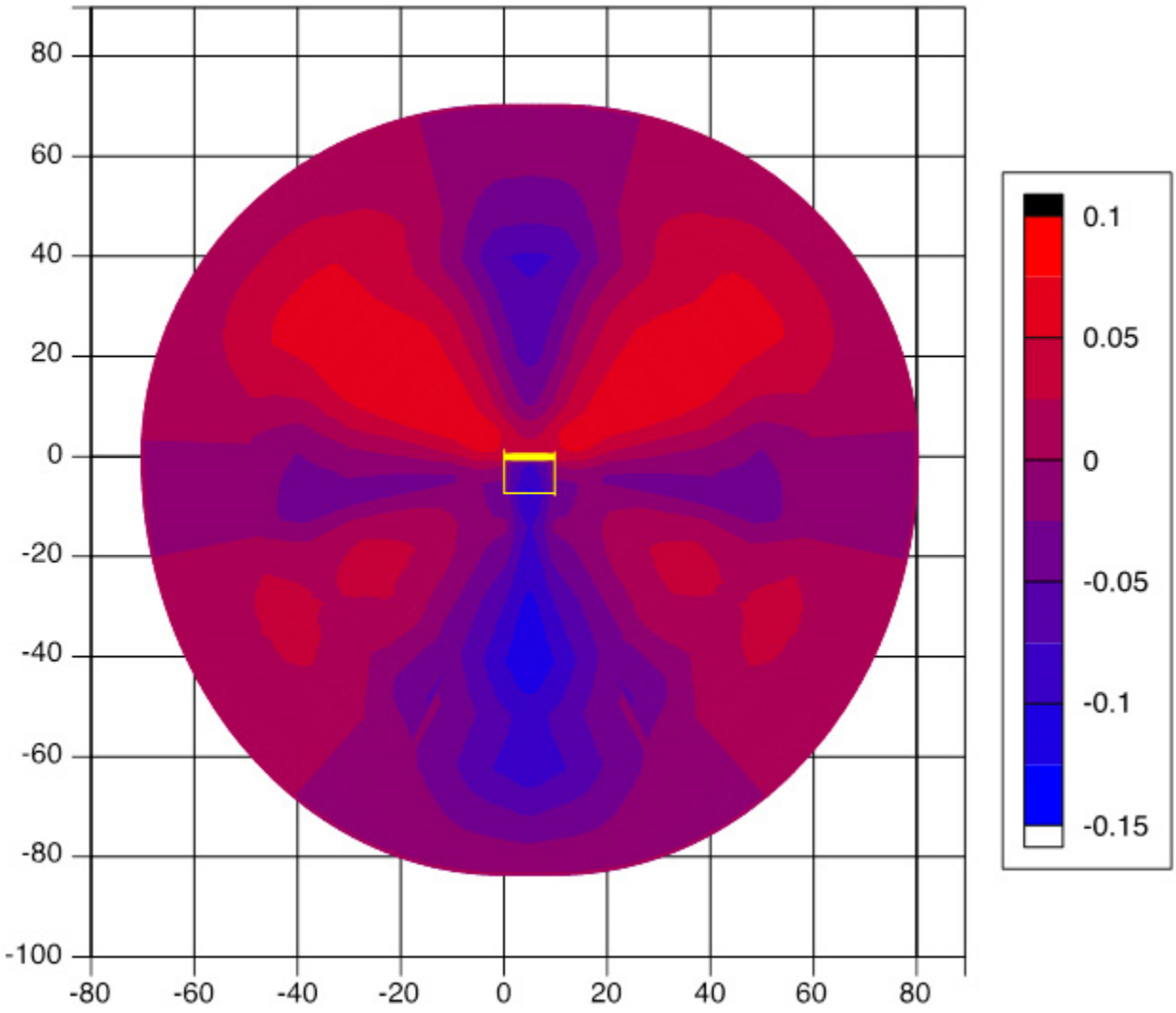

Figure A.46 Change in the mean of the natural log of the 5% damped pseudo-spectral acceleration at 1 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 6, reverse rupture.

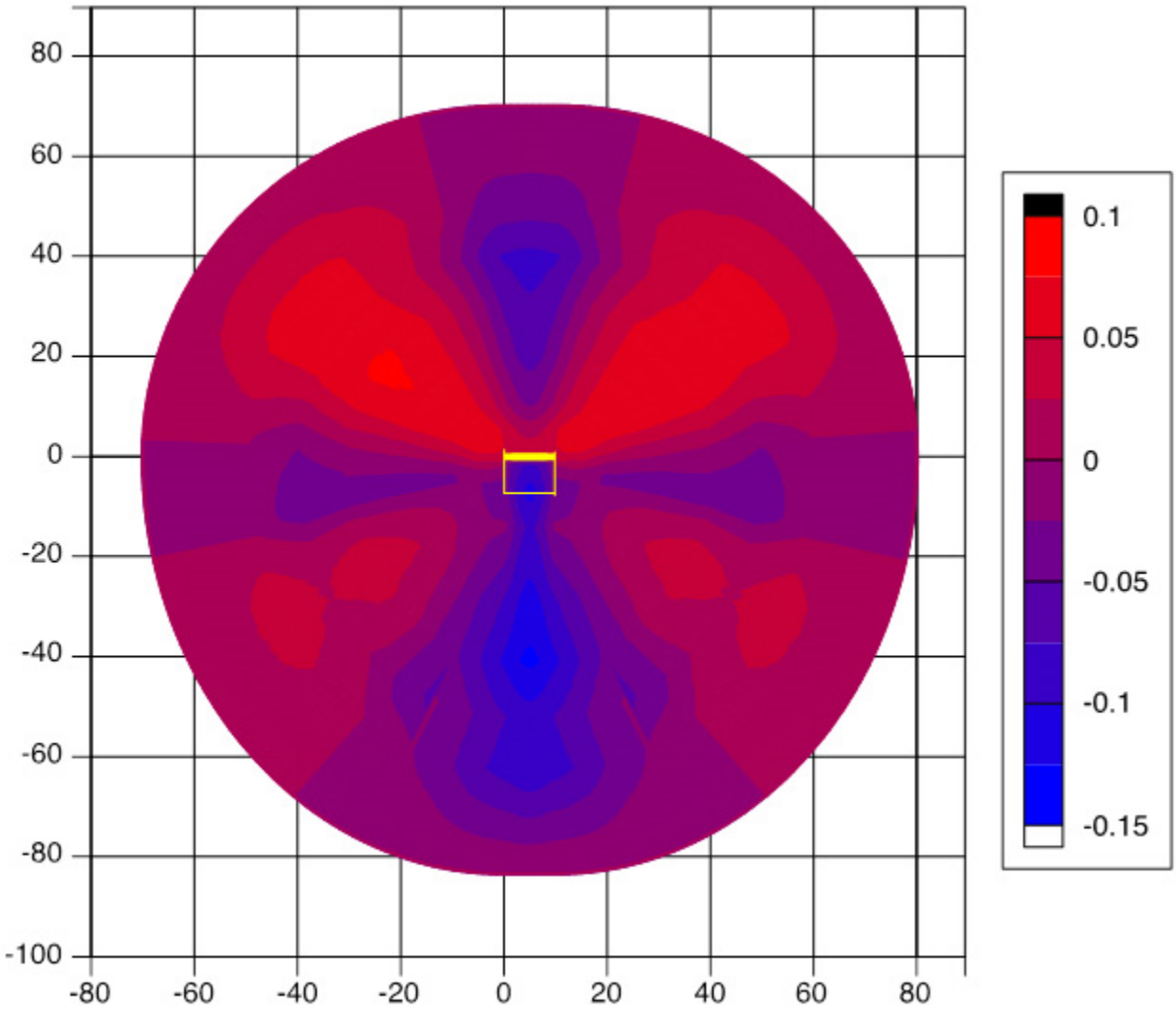

Figure A.47 **Change in the mean of the natural log of the 5% damped pseudo-spectral acceleration at 3 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 6, reverse rupture.**

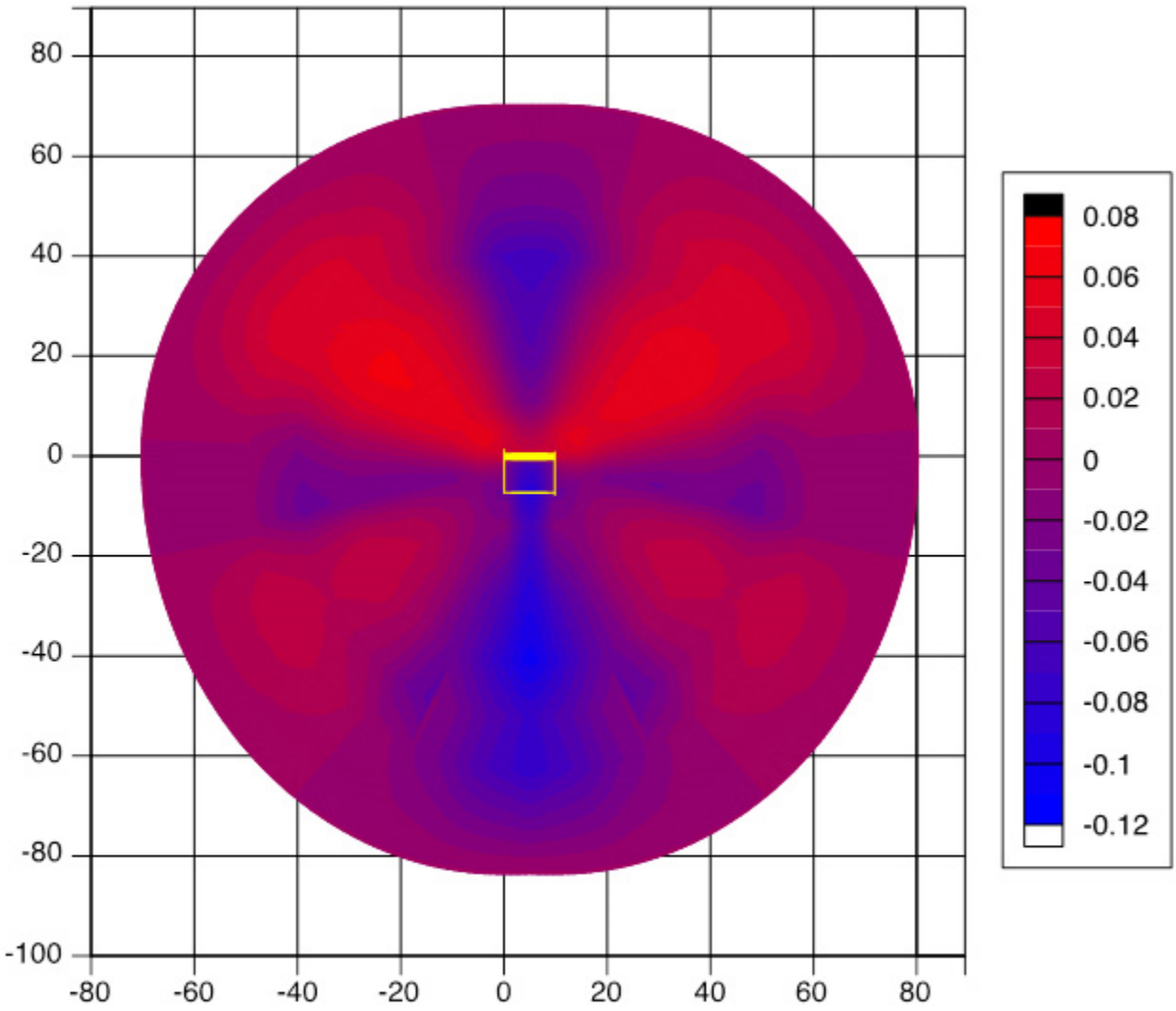

Figure A.48 **Change in the mean of the natural log of the 5% damped pseudo-spectral acceleration at 5 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 6, reverse rupture.**

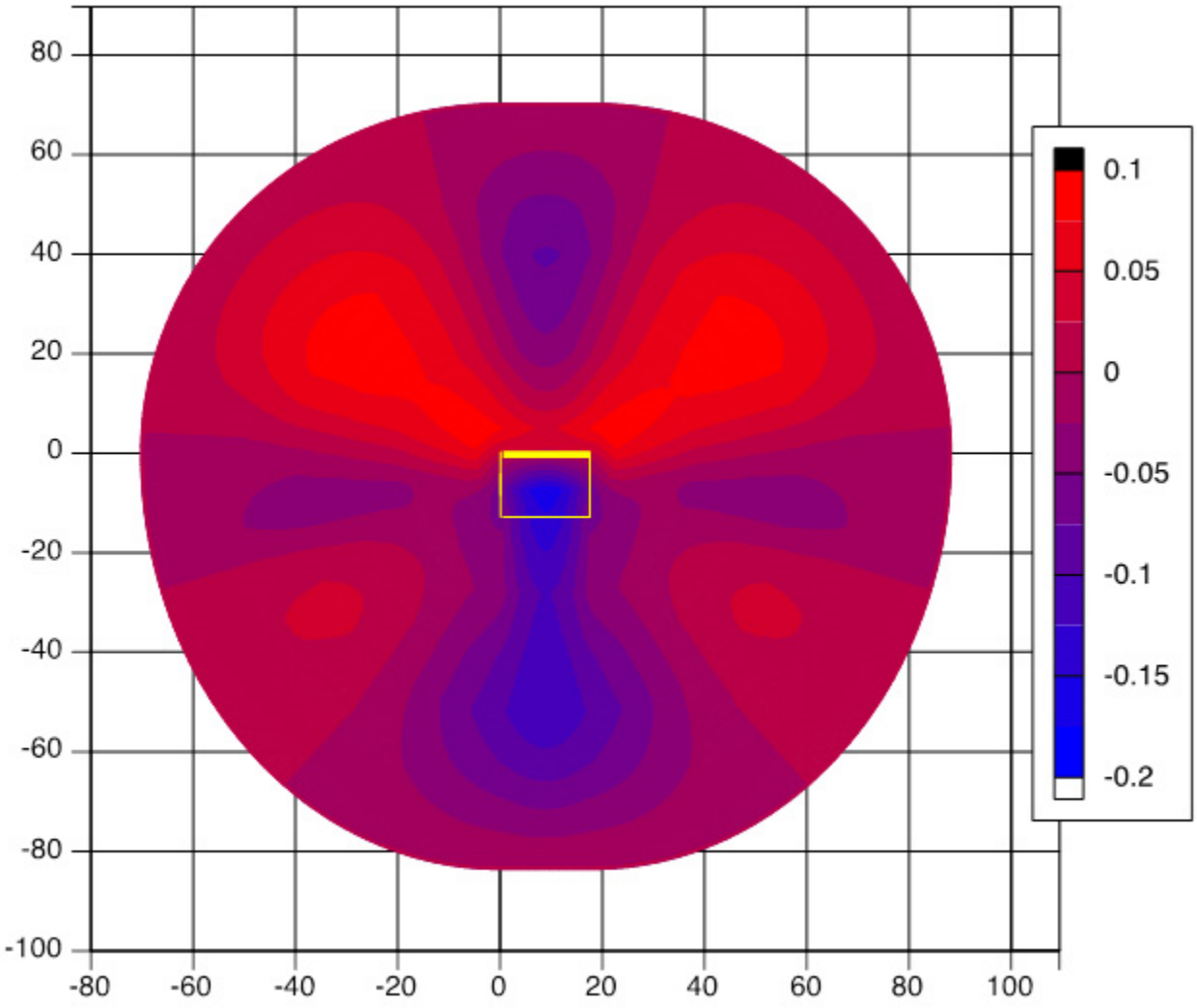

Figure A.49 **Change in the mean of the natural log of the 5% damped pseudo-spectral acceleration at 1 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 6.5, reverse rupture.**

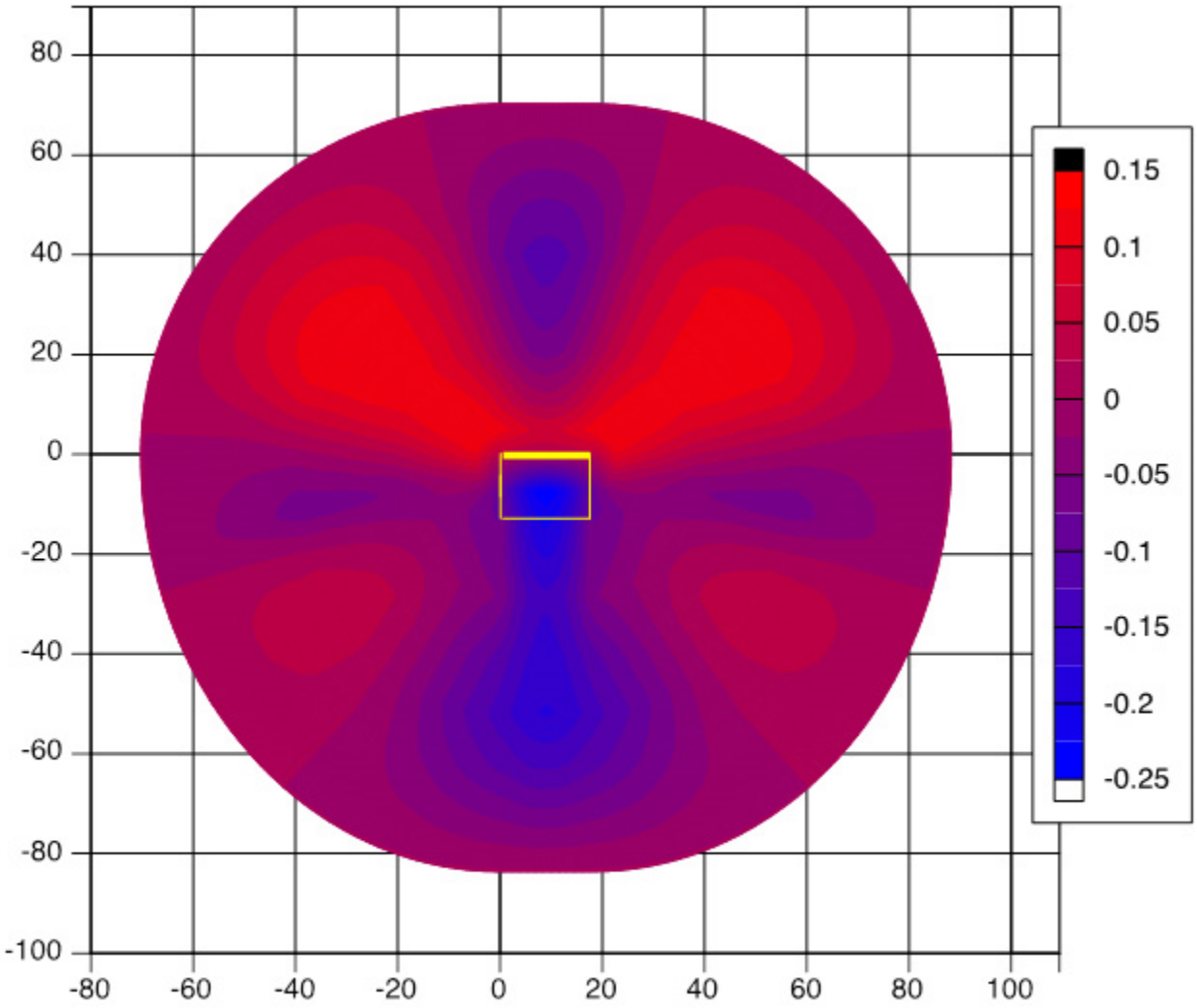

Figure A.50 **Change in the mean of the natural log of the 5% damped pseudo-spectral acceleration at 3 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 6.5, reverse rupture.**

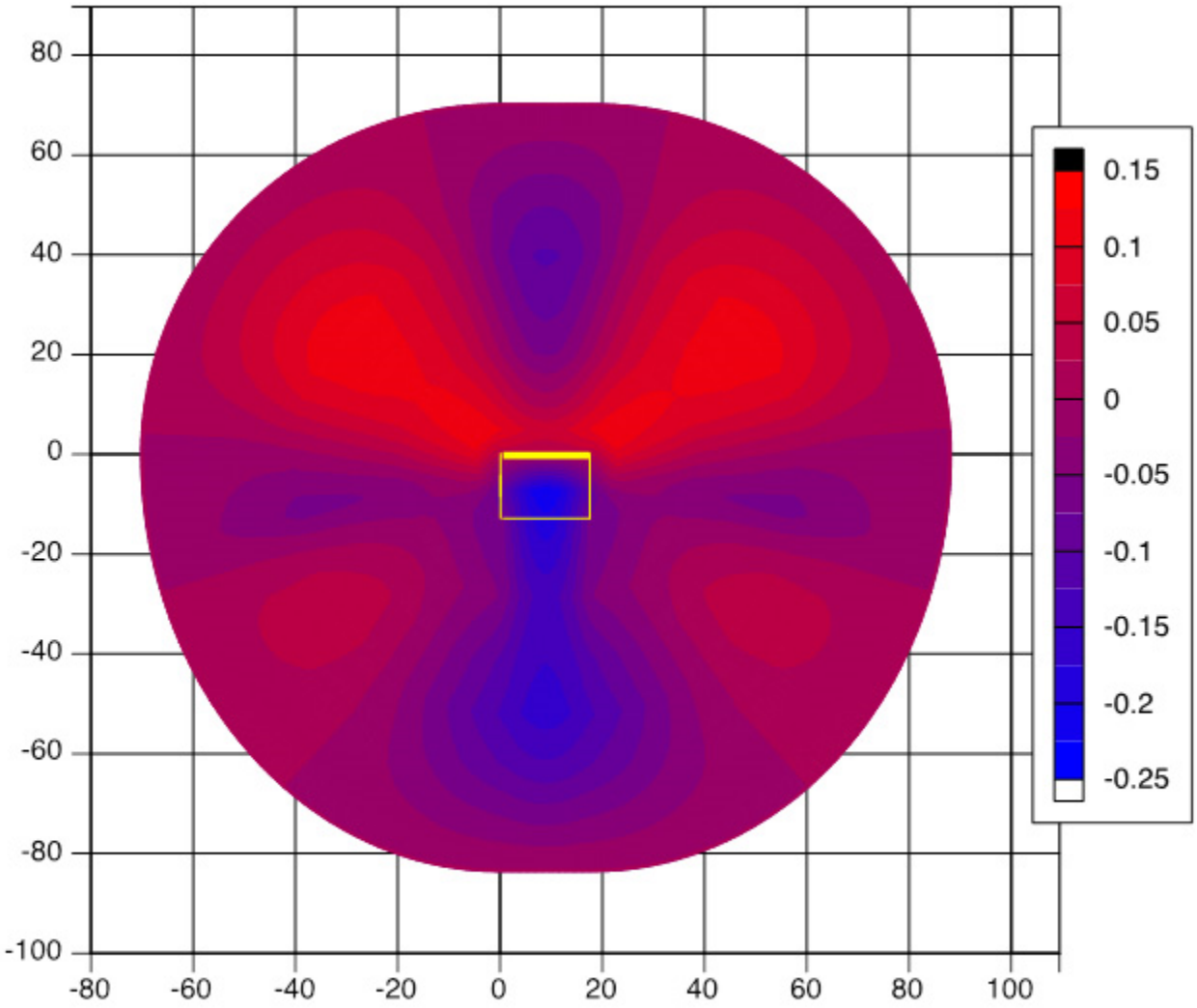

Figure A.51 **Change in the mean of the natural log of the 5% damped pseudo-spectral acceleration at 5 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 6.5, reverse rupture.**

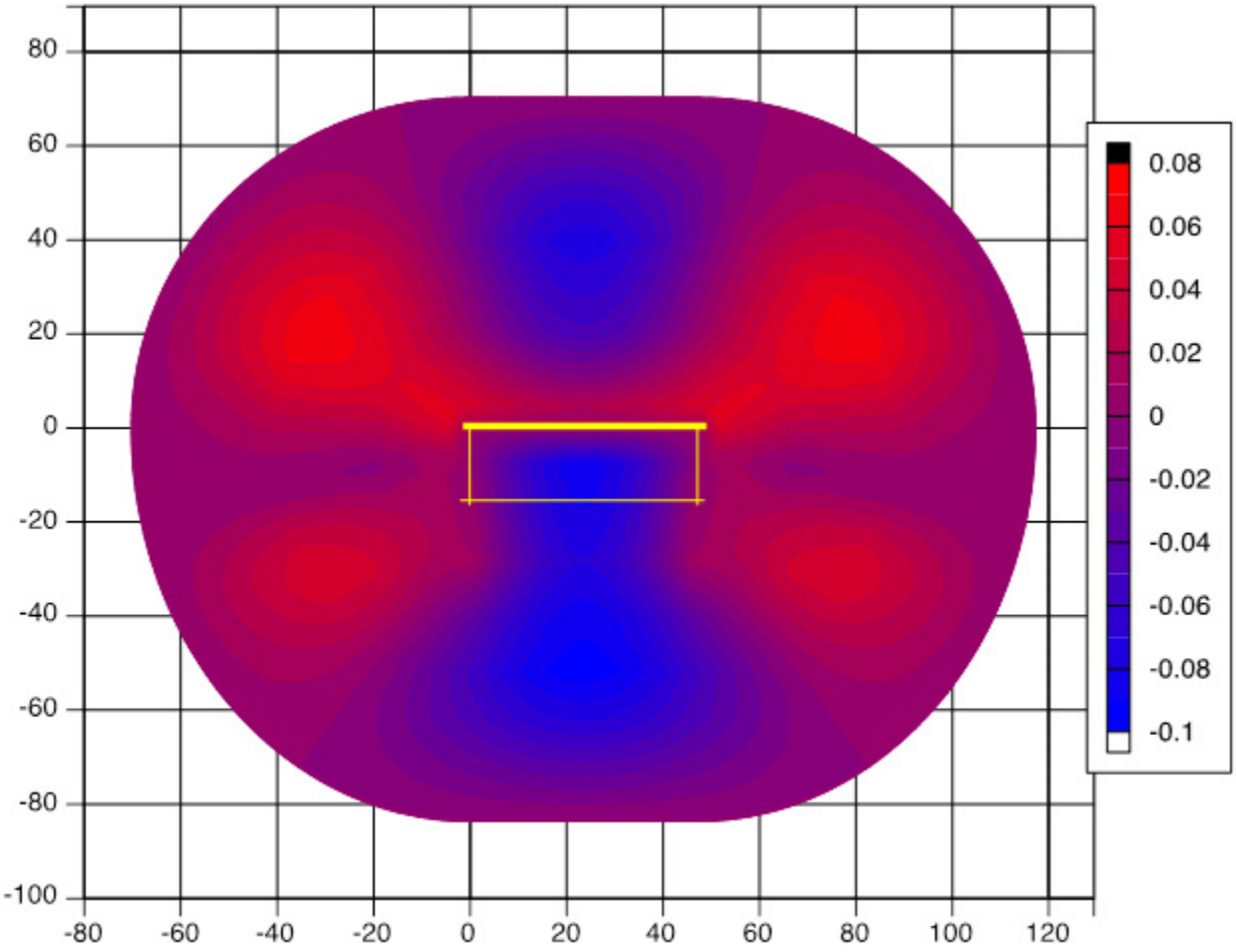

Figure A.52 **Change in the mean of the natural log of the 5% damped pseudo-spectral acceleration at 1 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 7, reverse rupture.**

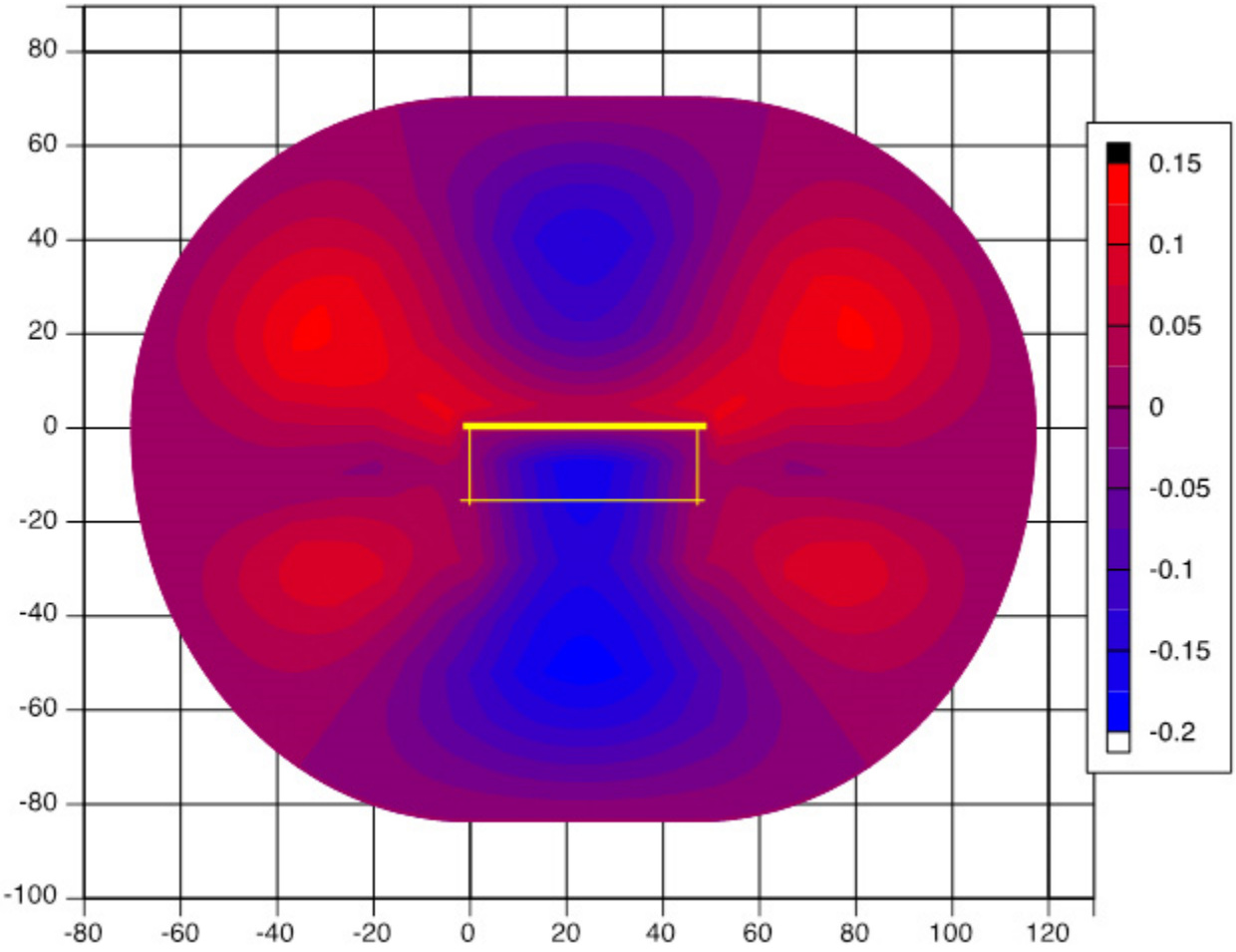

Figure A.53 **Change in the mean of the natural log of the 5% damped pseudo-spectral acceleration at 3 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 7, reverse rupture.**

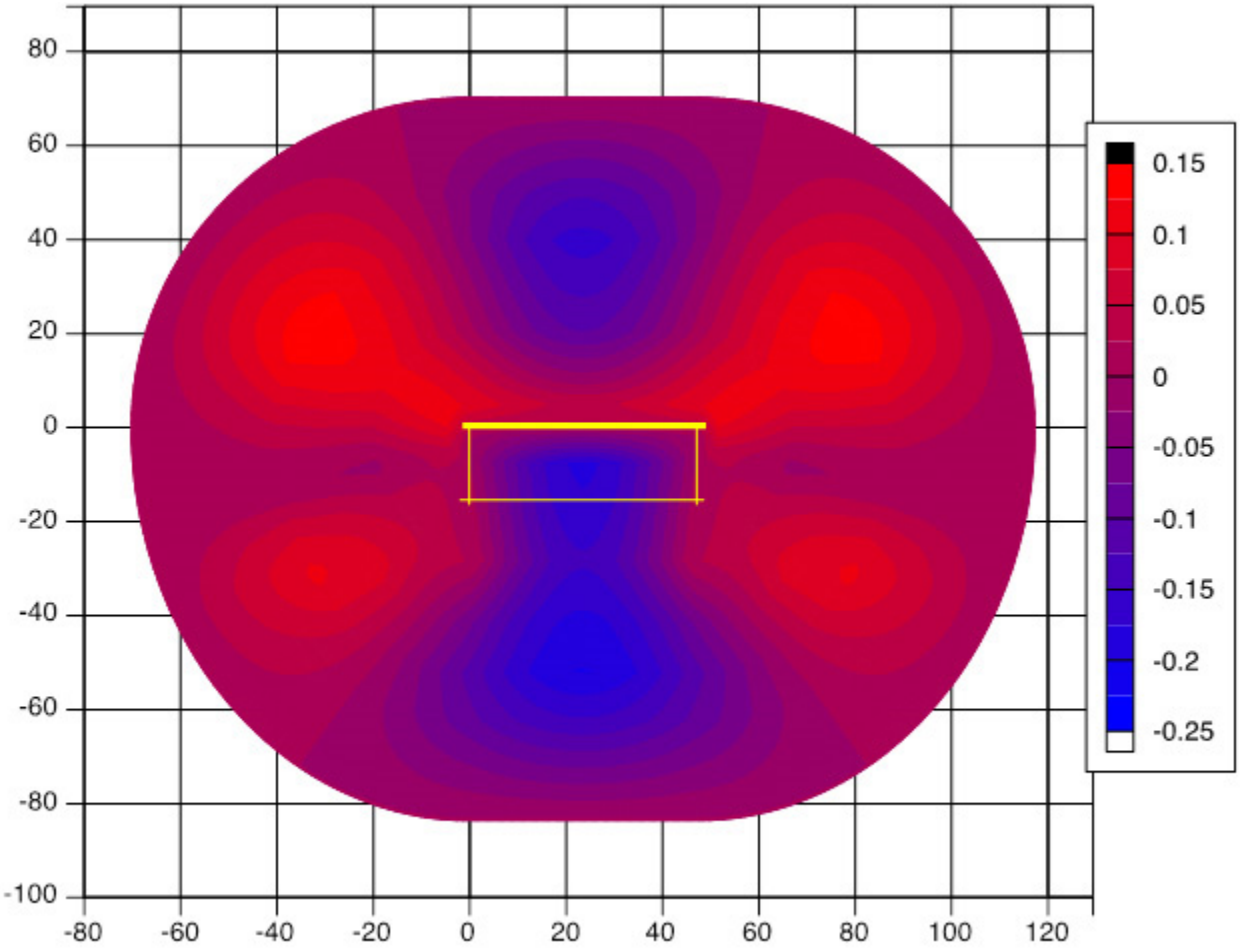

Figure A.54 **Change in the mean of the natural log of the 5% damped pseudo-spectral acceleration at 5 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 7, reverse rupture.**

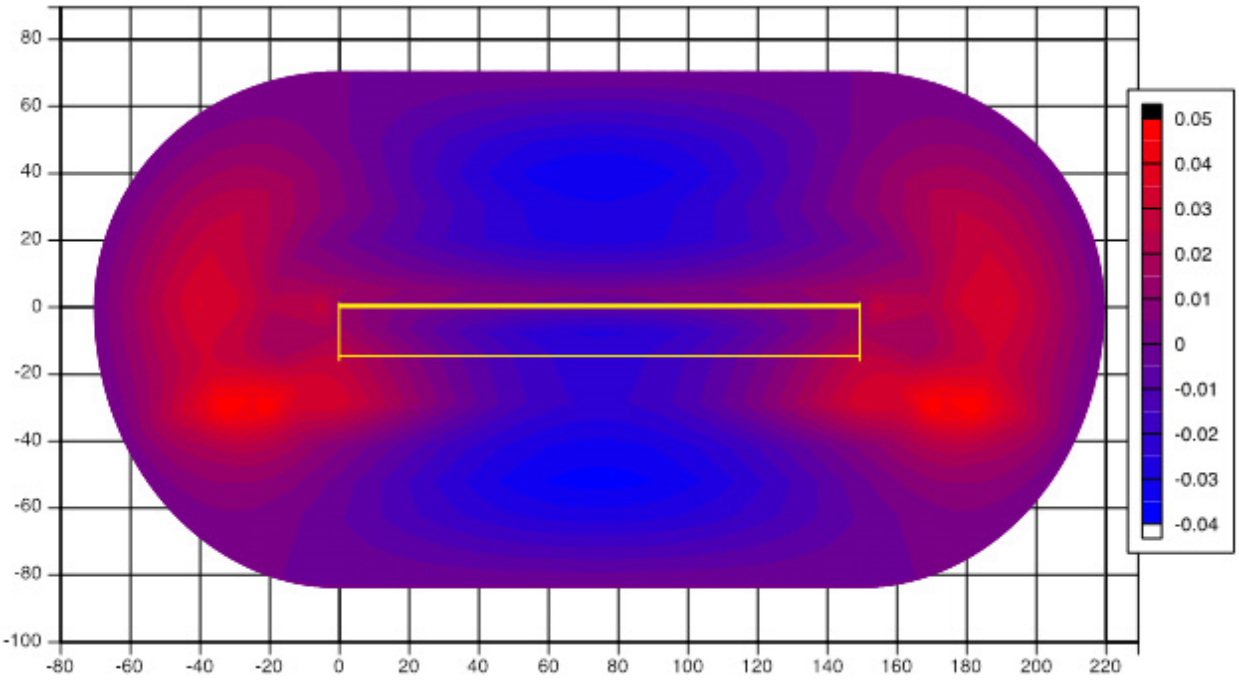

Figure A.55 **Change in the mean of the natural log of the 5% damped pseudo-spectral acceleration at 1 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 7.5, reverse rupture.**

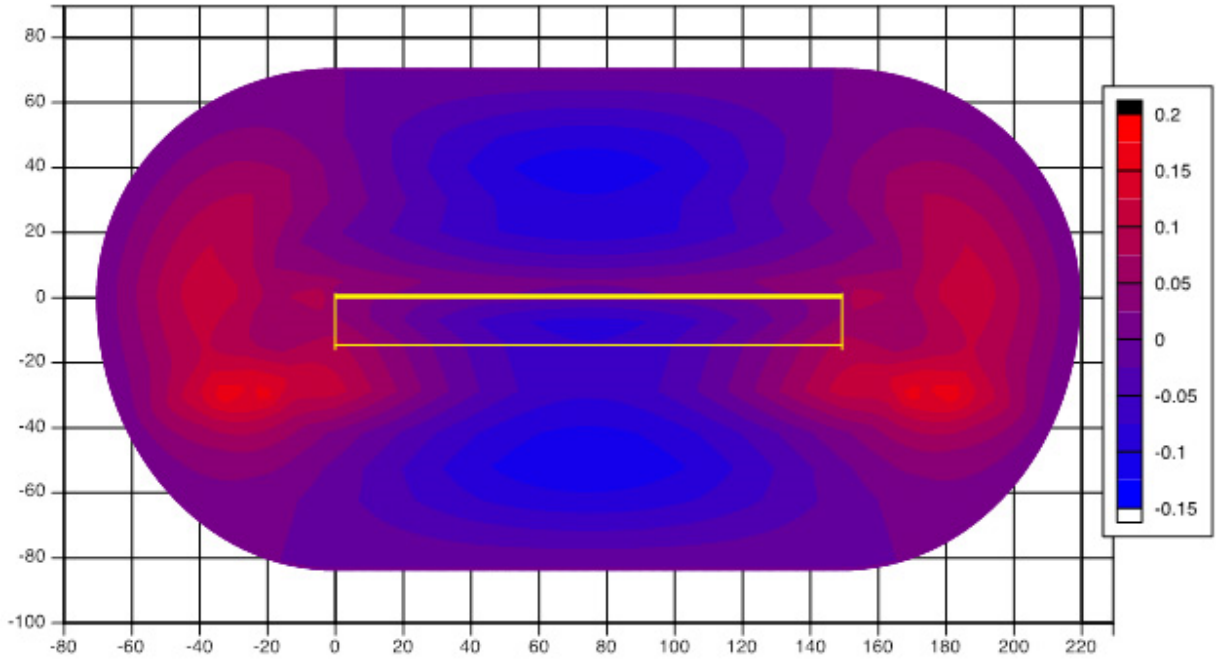

Figure A.56 **Change in the mean of the natural log of the 5% damped pseudo-spectral acceleration at 3 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 7.5, reverse rupture.**

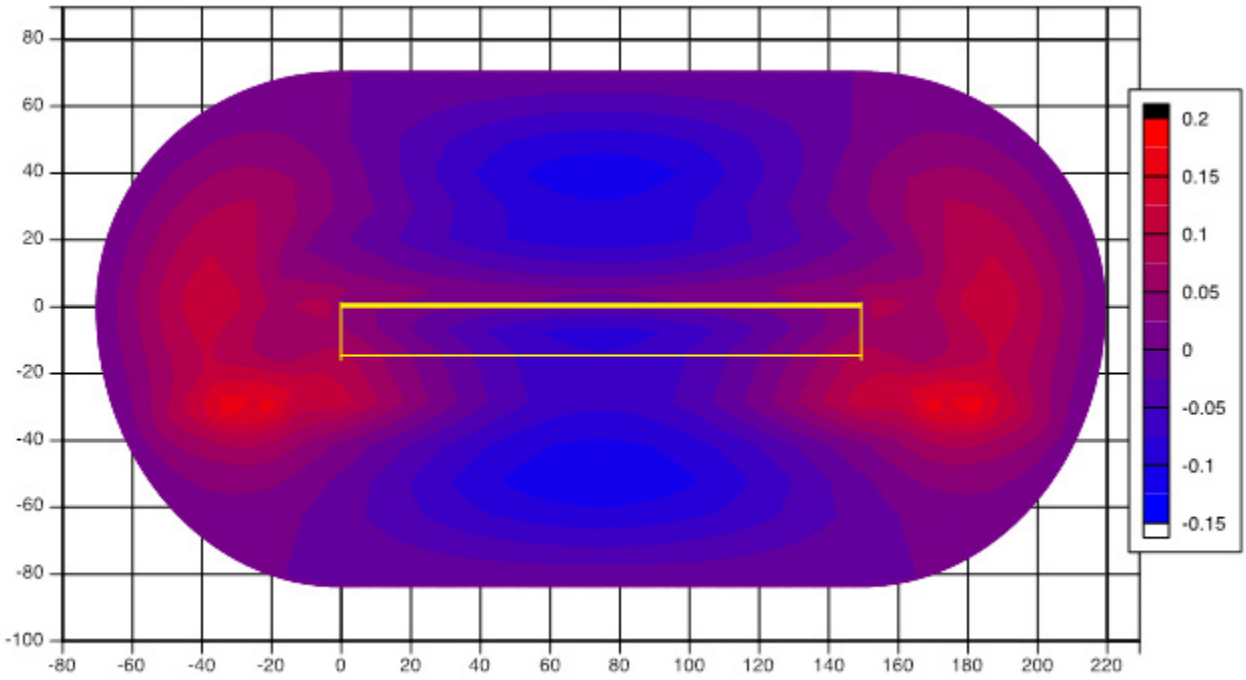

Figure A.57 **Change in the mean of the natural log of the 5% damped pseudo-spectral acceleration at 5 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 7.5, reverse rupture.**

A.2.2 Changes in the Standard Deviation of the Log Normal 5% Damped Pseudo-Spectral Acceleration

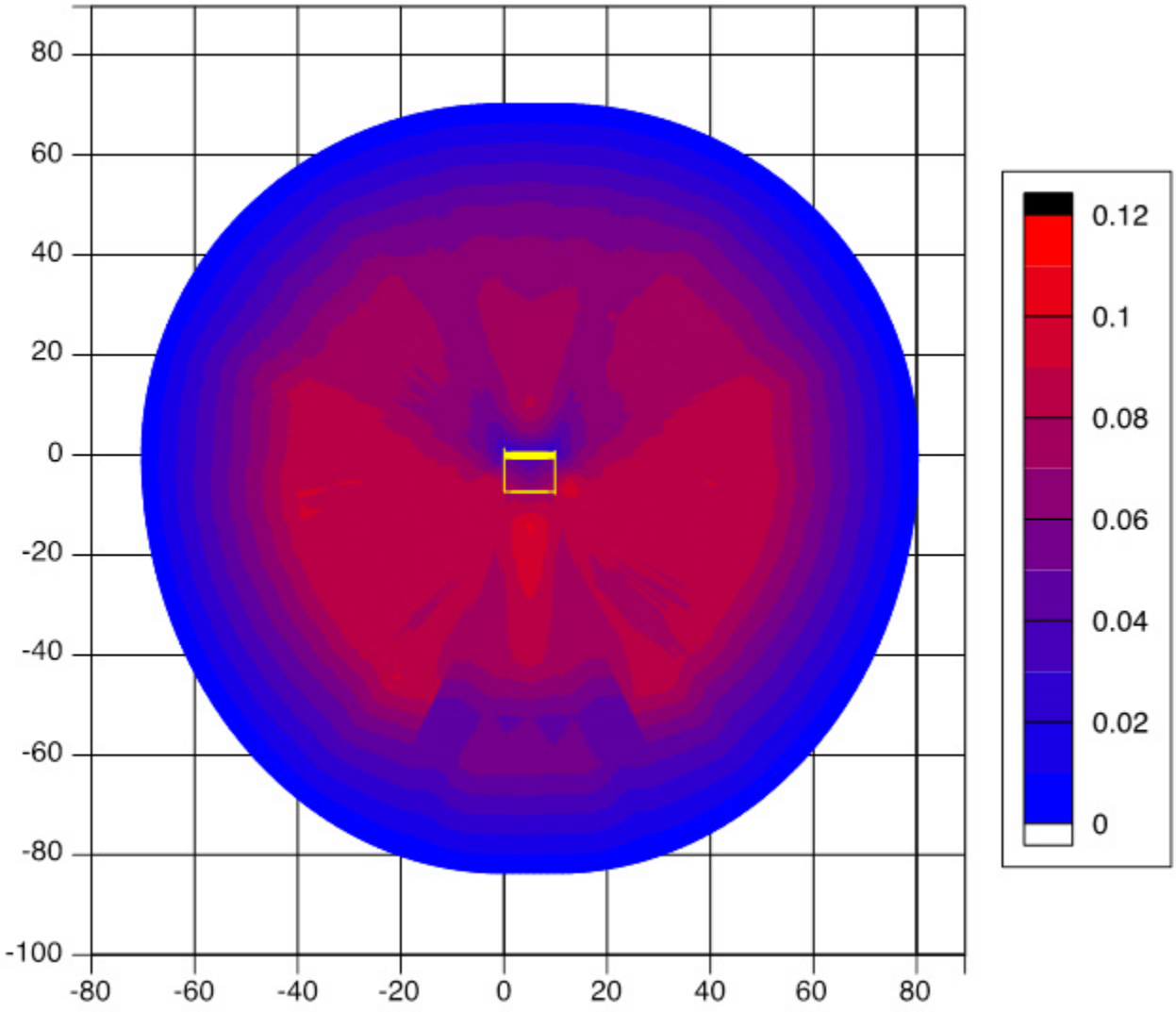

Figure A.58 **Change in the standard deviation of the natural log of the 5% damped pseudo-spectral acceleration at 1 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 6, reverse rupture.**

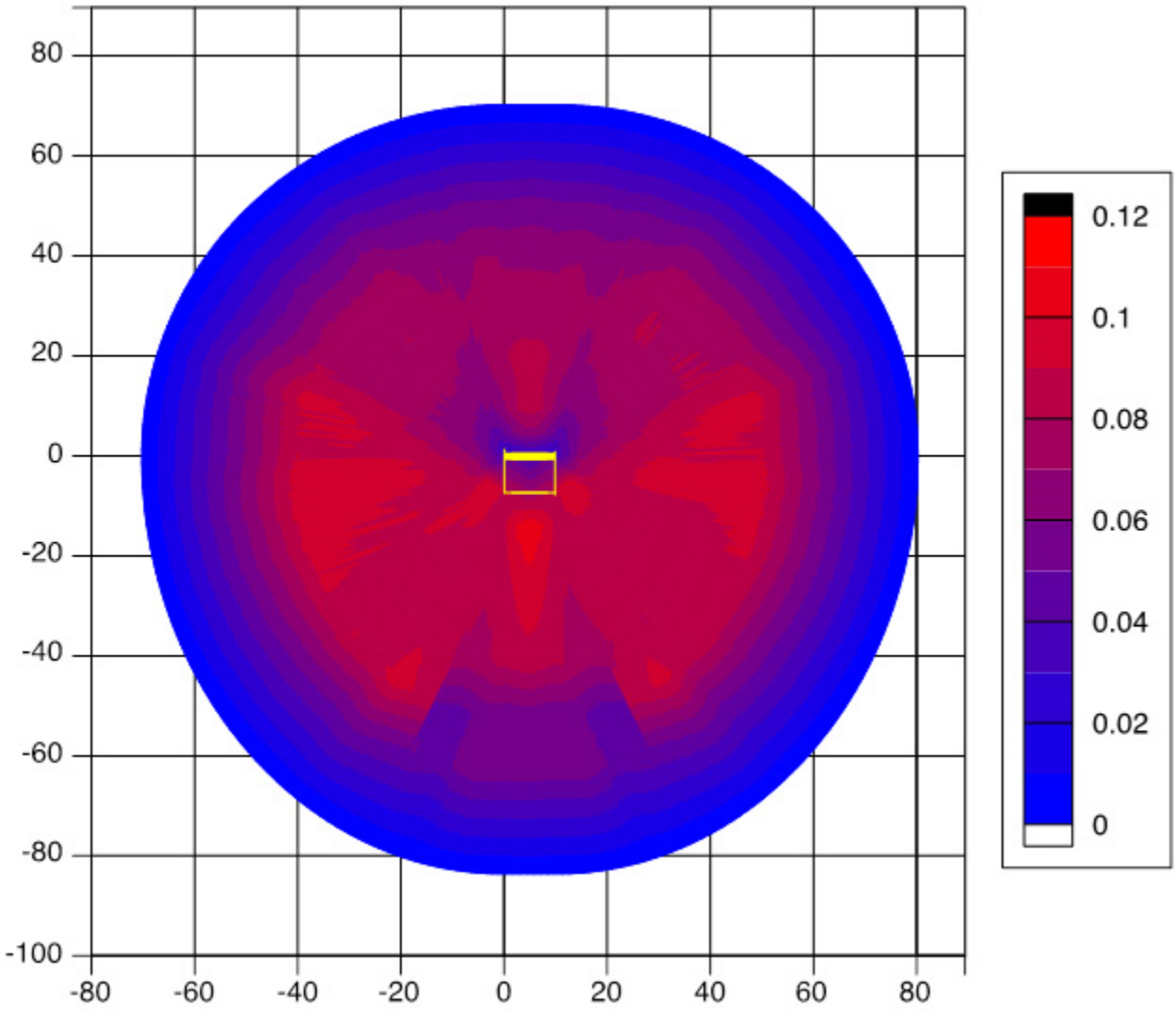

Figure A.59 **Change in the standard deviation of the natural log of the 5% damped pseudo-spectral acceleration at 3 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 6, reverse rupture.**

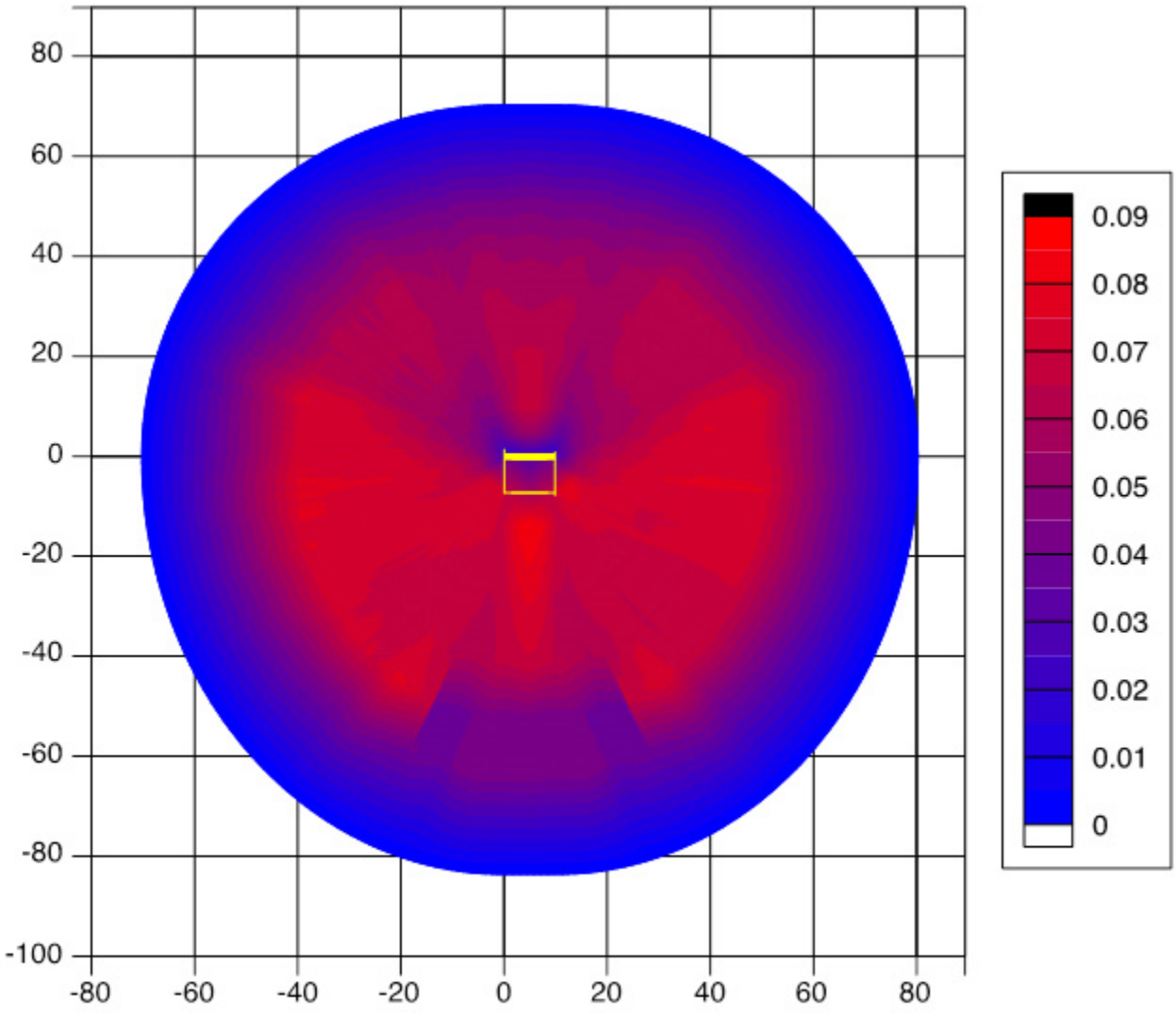

Figure A.60 **Change in the standard deviation of the natural log of the 5% damped pseudo-spectral acceleration at 5 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 6, reverse rupture.**

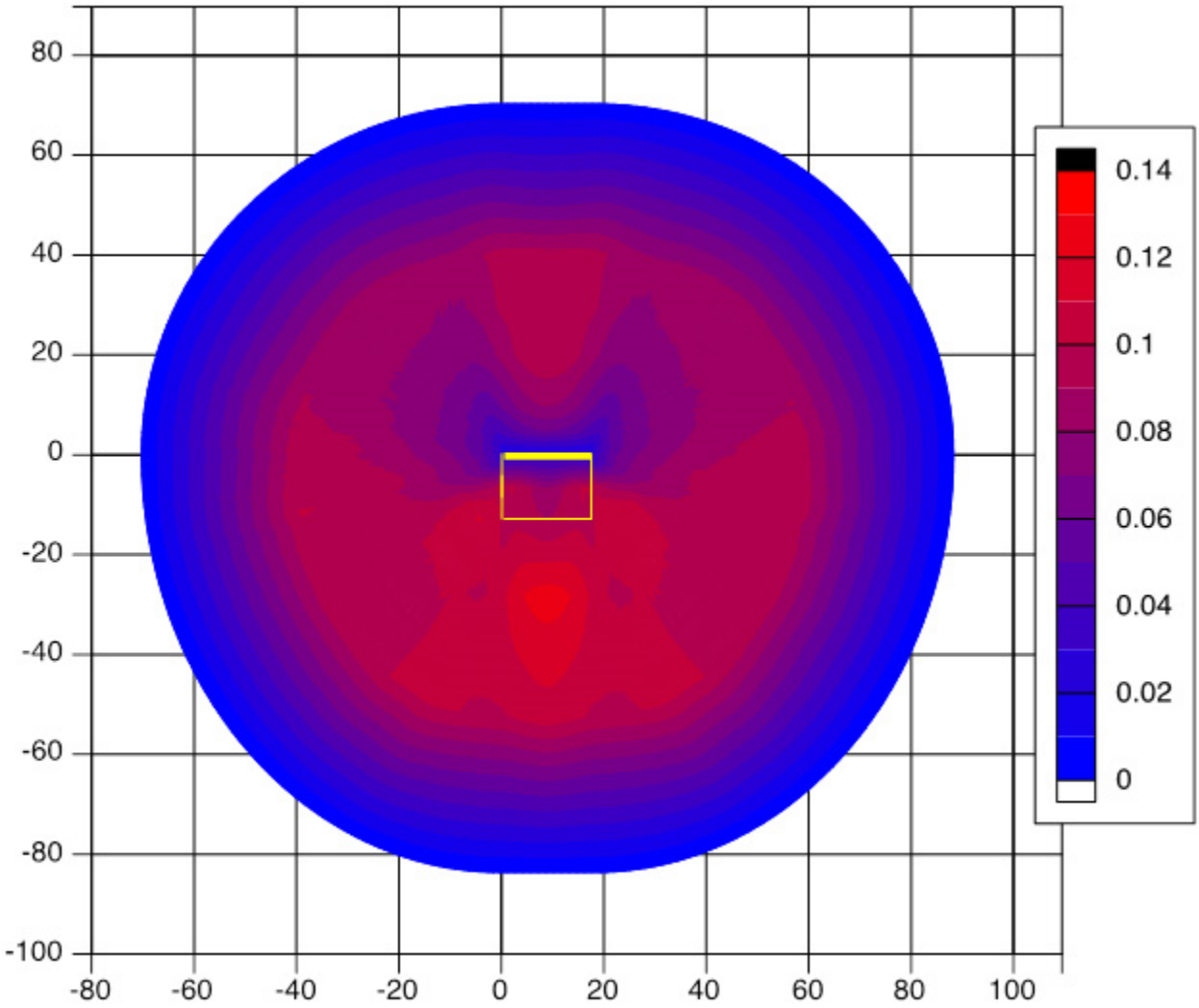

Figure A.61 **Change in the standard deviation of the natural log of the 5% damped pseudo-spectral acceleration at 1 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 6.5, reverse rupture.**

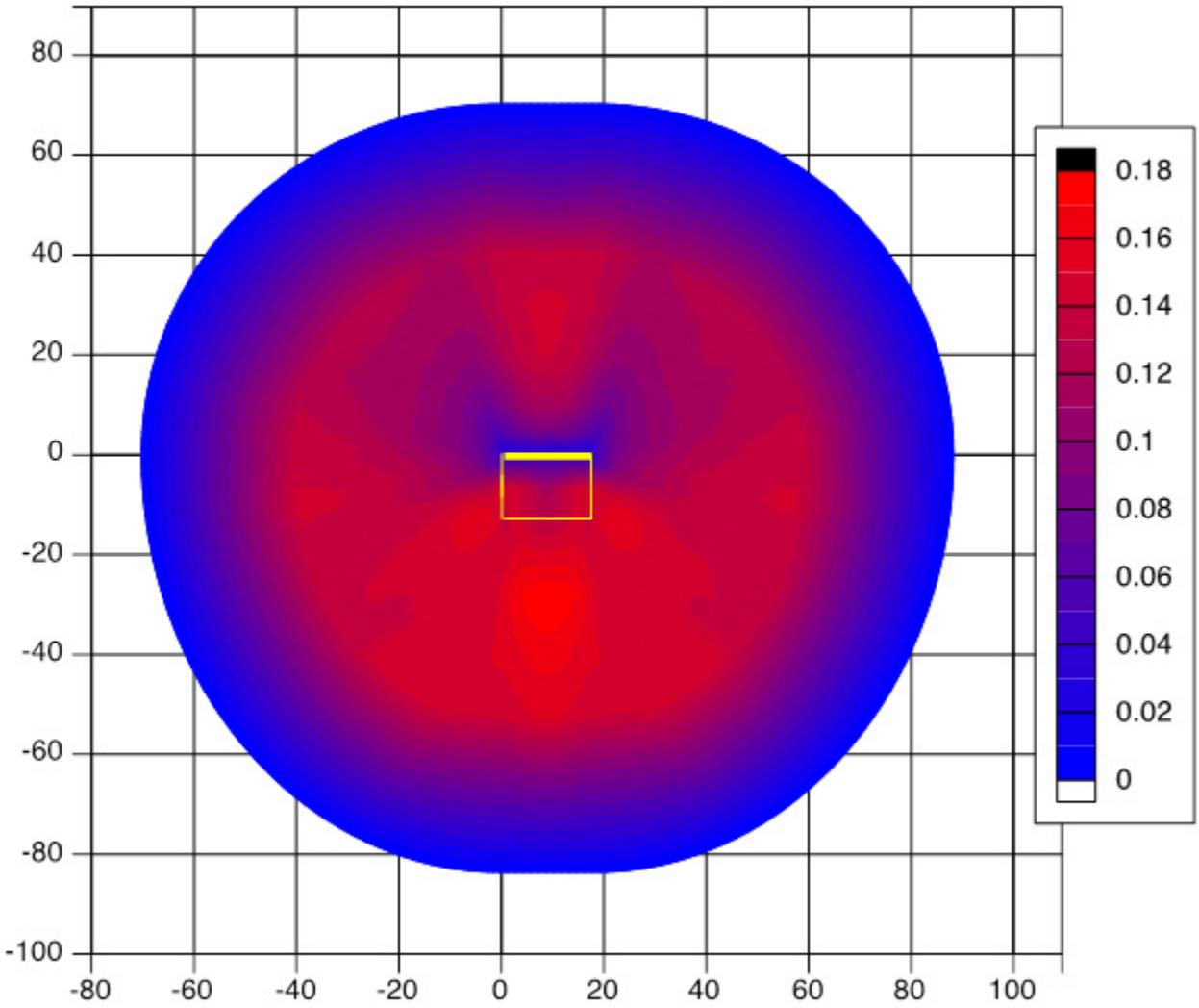

Figure A.62 **Change in the standard deviation of the natural log of the 5% damped pseudo-spectral acceleration at 3 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 6.5, reverse rupture.**

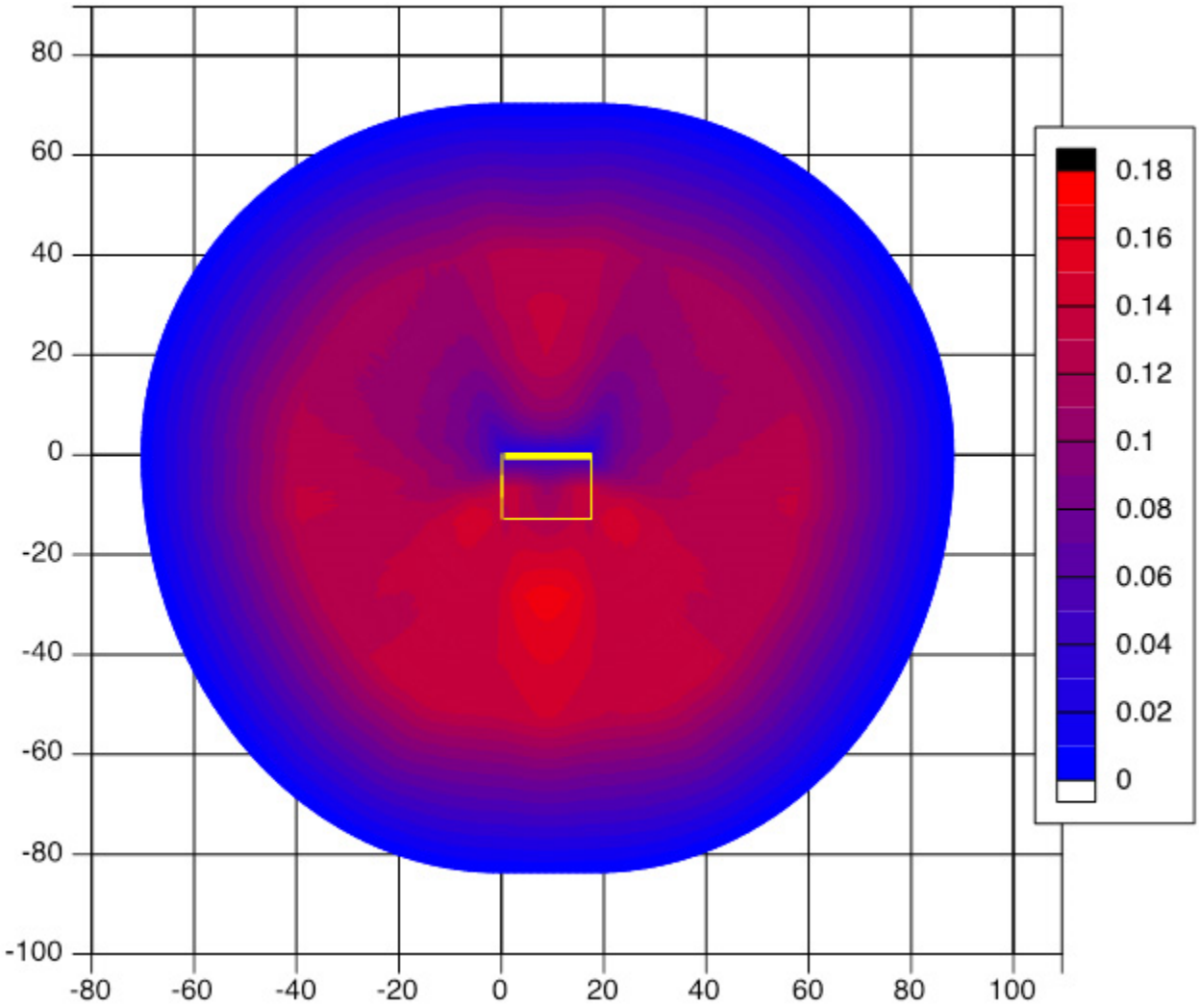

Figure A.63 **Change in the standard deviation of the natural log of the 5% damped pseudo-spectral acceleration at 5 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 6.5, reverse rupture.**

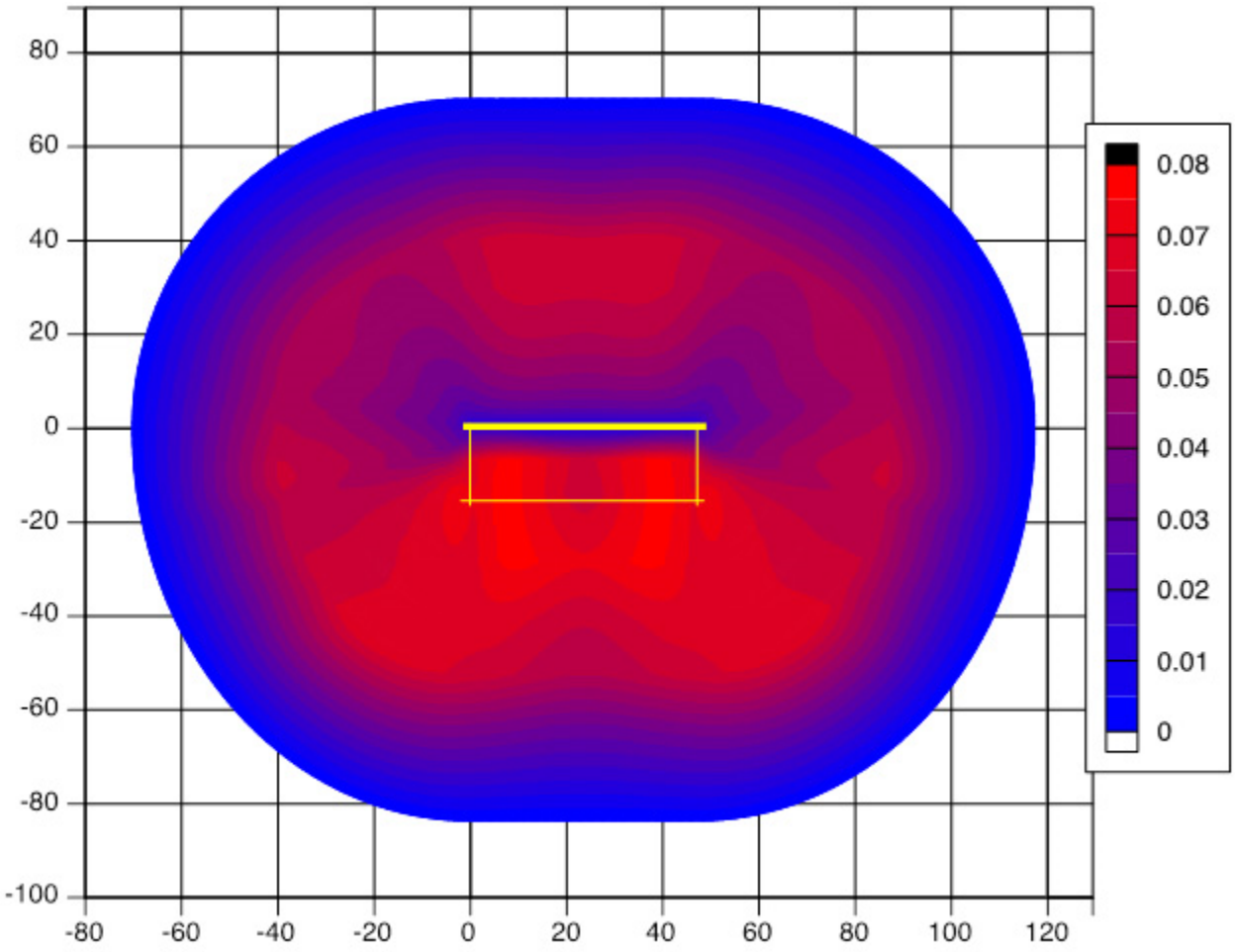

Figure A.64 **Change in the standard deviation of the natural log of the 5% damped pseudo-spectral acceleration at 1 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 7, reverse rupture.**

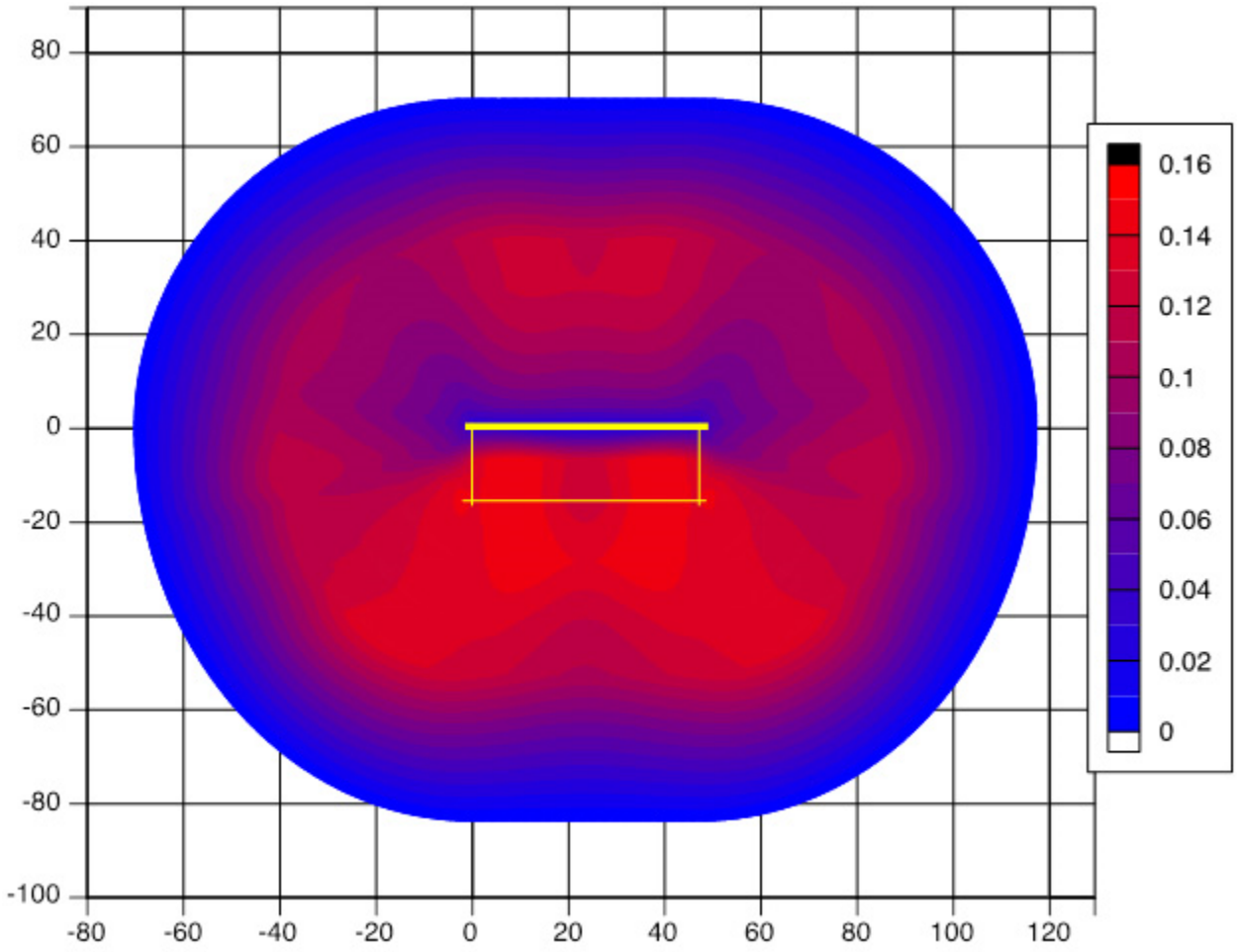

Figure A.65 **Change in the standard deviation of the natural log of the 5% damped pseudo-spectral acceleration at 3 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 7, reverse rupture.**

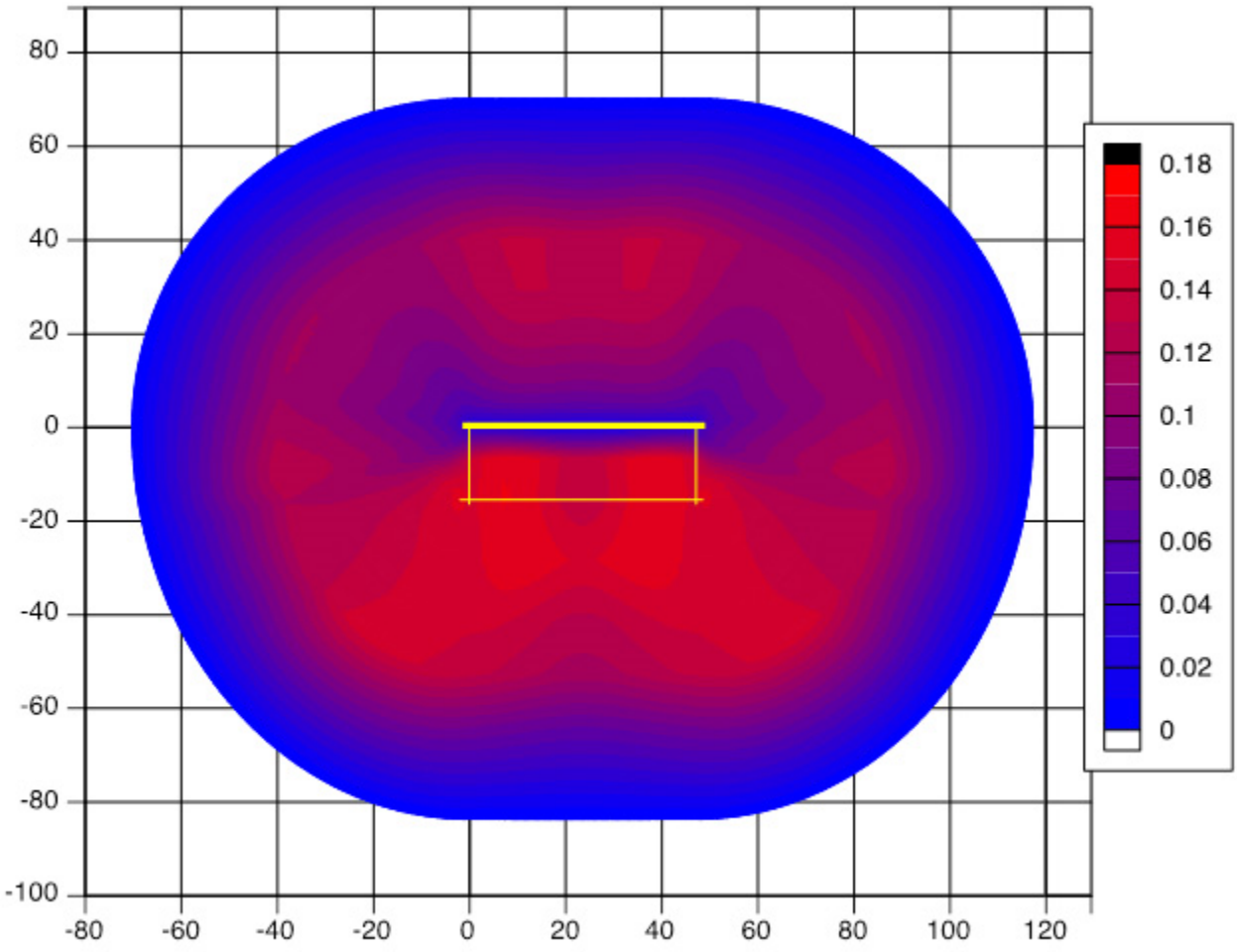

Figure A.66 **Change in the standard deviation of the natural log of the 5% damped pseudo-spectral acceleration at 5 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 7, reverse rupture.**

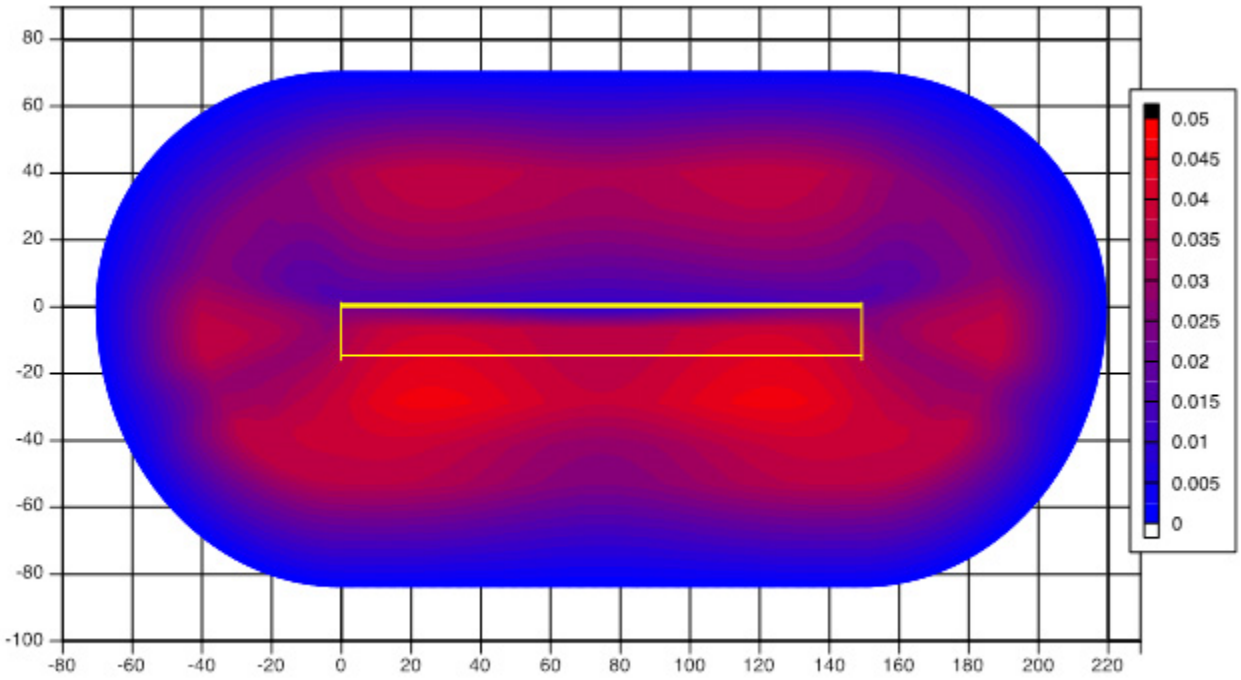

Figure A.67 **Change in the standard deviation of the natural log of the 5% damped pseudo-spectral acceleration at 1 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 7.5, reverse rupture.**

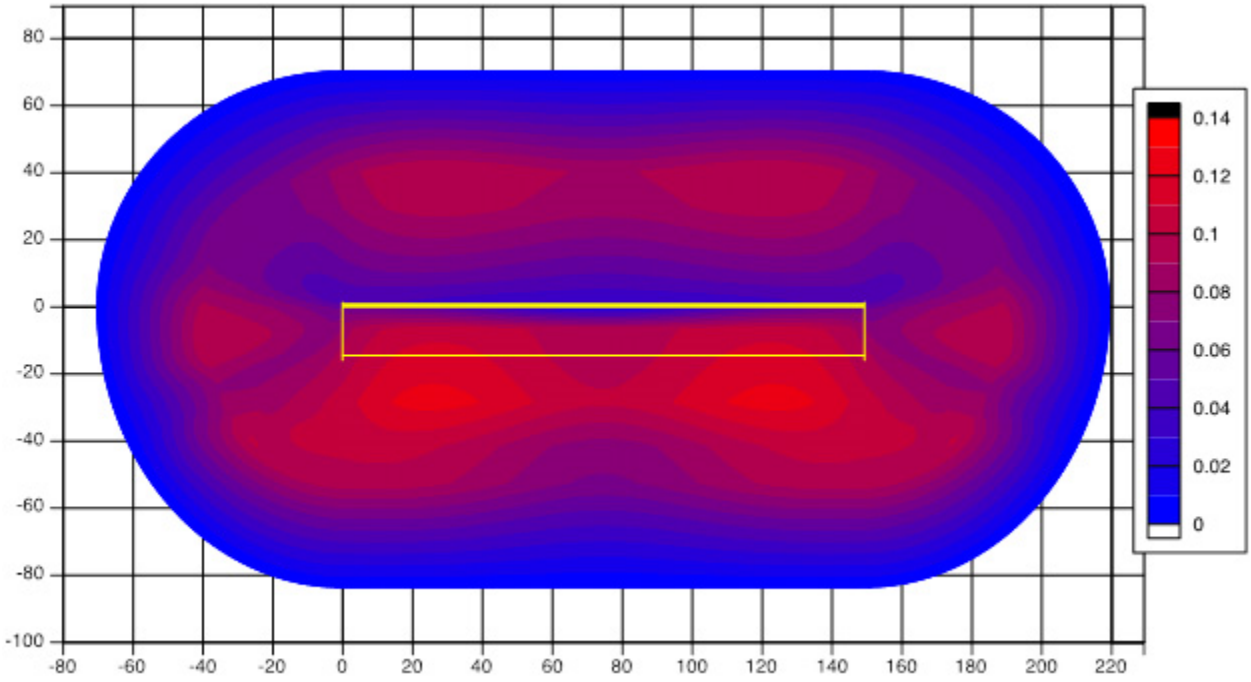

Figure A.68 **Change in the standard deviation of the natural log of the 5% damped pseudo-spectral acceleration at 3 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 7.5, reverse rupture.**

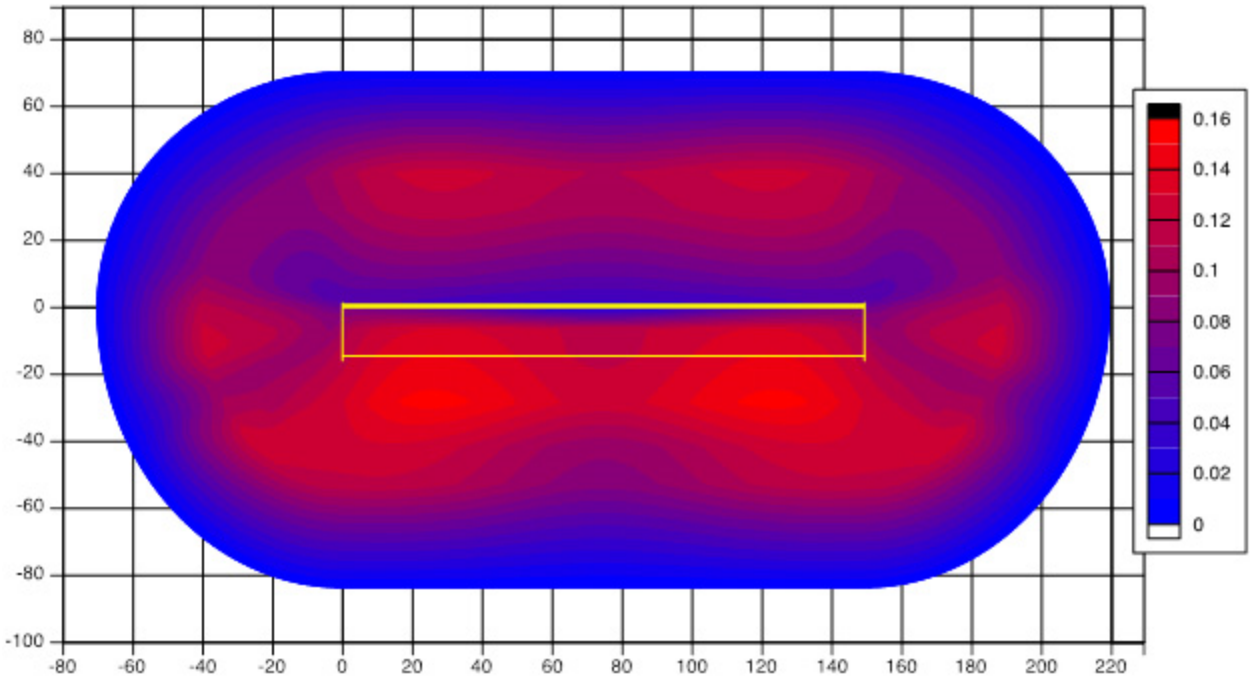

Figure A.69 **Change in the standard deviation of the natural log of the 5% damped pseudo-spectral acceleration at 5 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 7.5, reverse rupture.**

A.2.3 Changes in the Standard Deviation of the Log Normal 5% Damped Pseudo-Spectral Acceleration with ϕ_2 Reduction

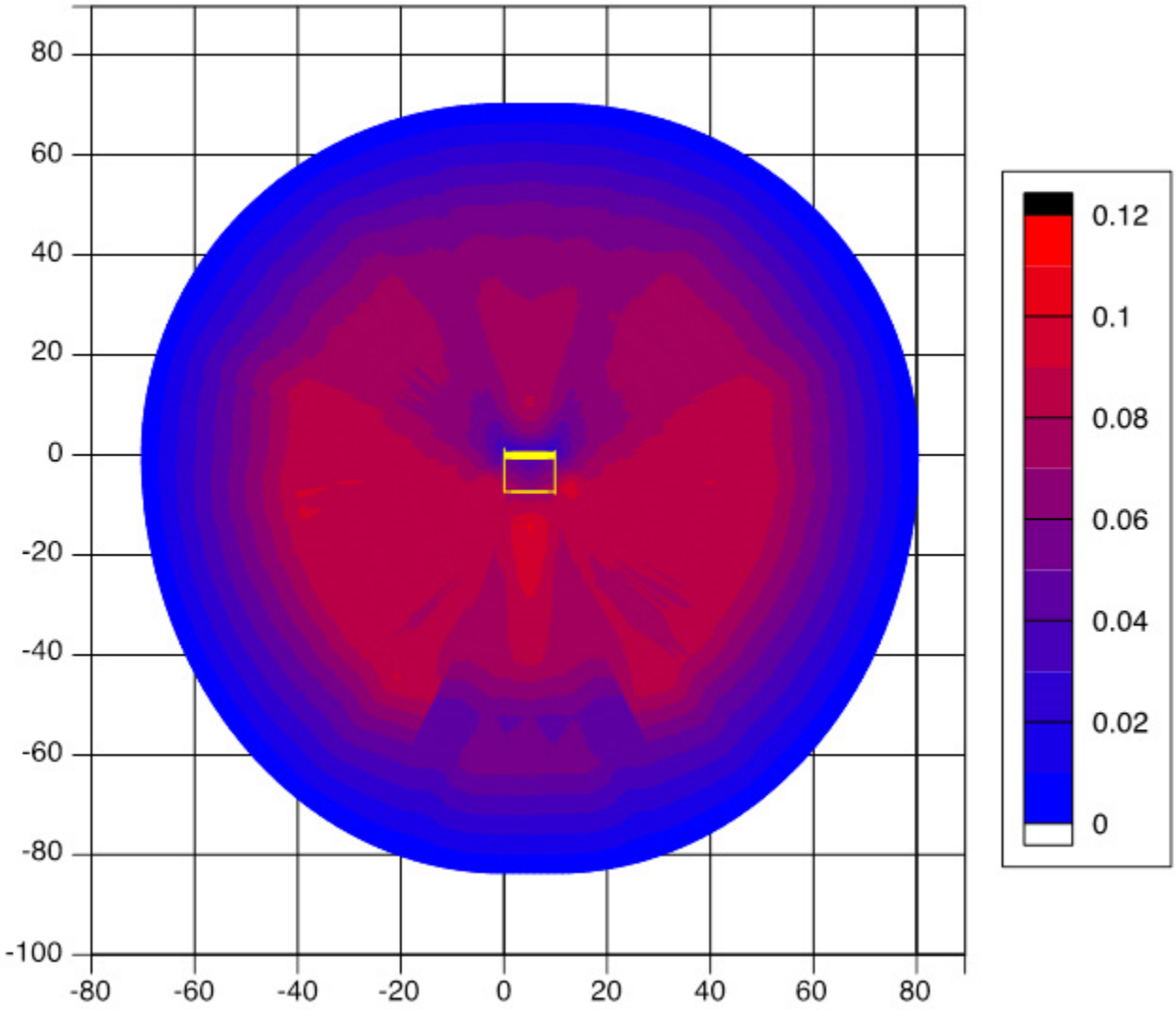

Figure A.70 **Change in the standard deviation of the natural log of the 5% damped pseudo-spectral acceleration at 1 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 6, reverse rupture with ϕ_2 reduction.**

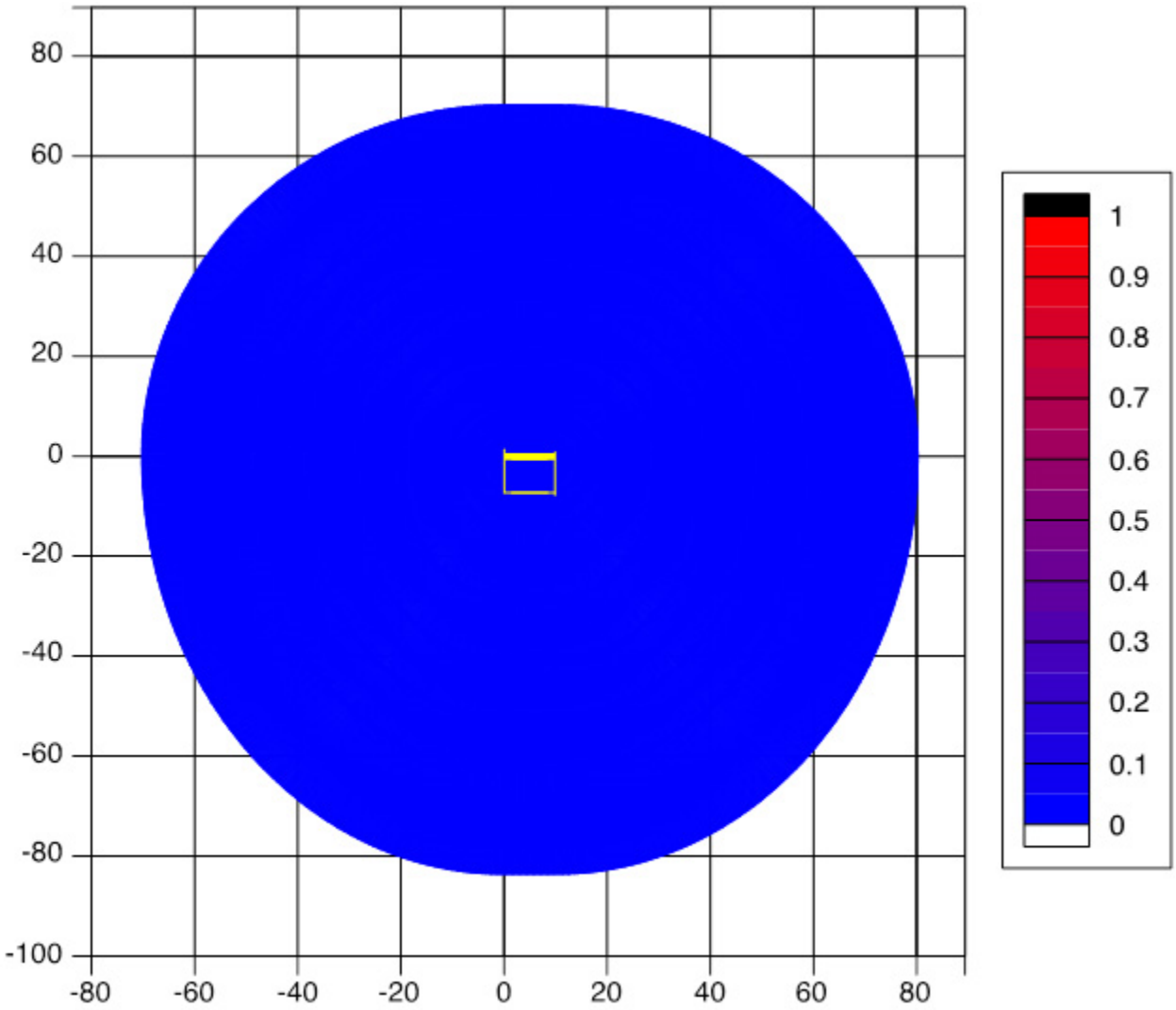

Figure A.71 **Change in the standard deviation of the natural log of the 5% damped pseudo-spectral acceleration at 3 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 6, reverse rupture with ϕ_2 reduction.**

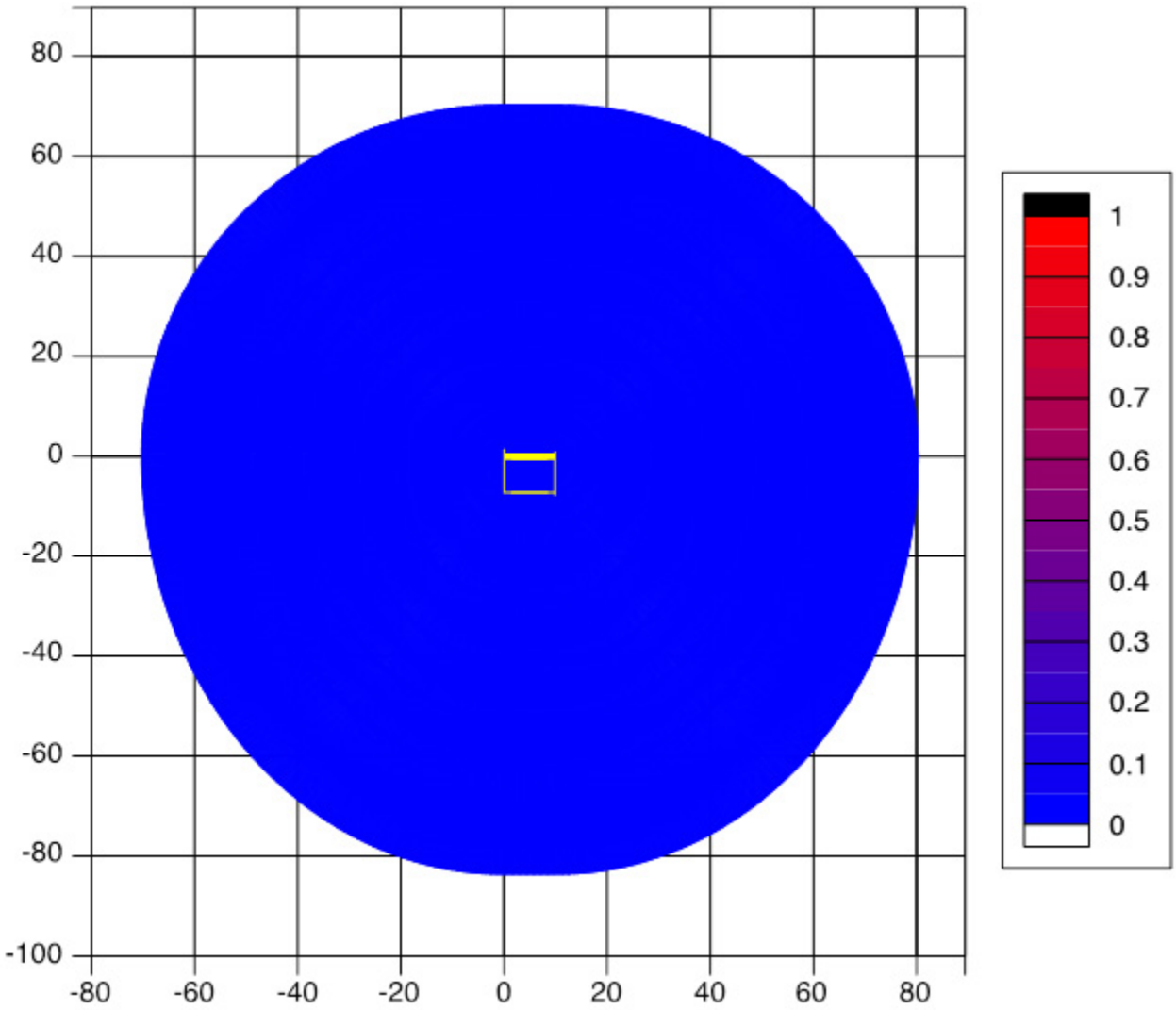

Figure A.72 **Change in the standard deviation of the natural log of the 5% damped pseudo-spectral acceleration at 5 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 6, reverse rupture with ϕ_2 reduction.**

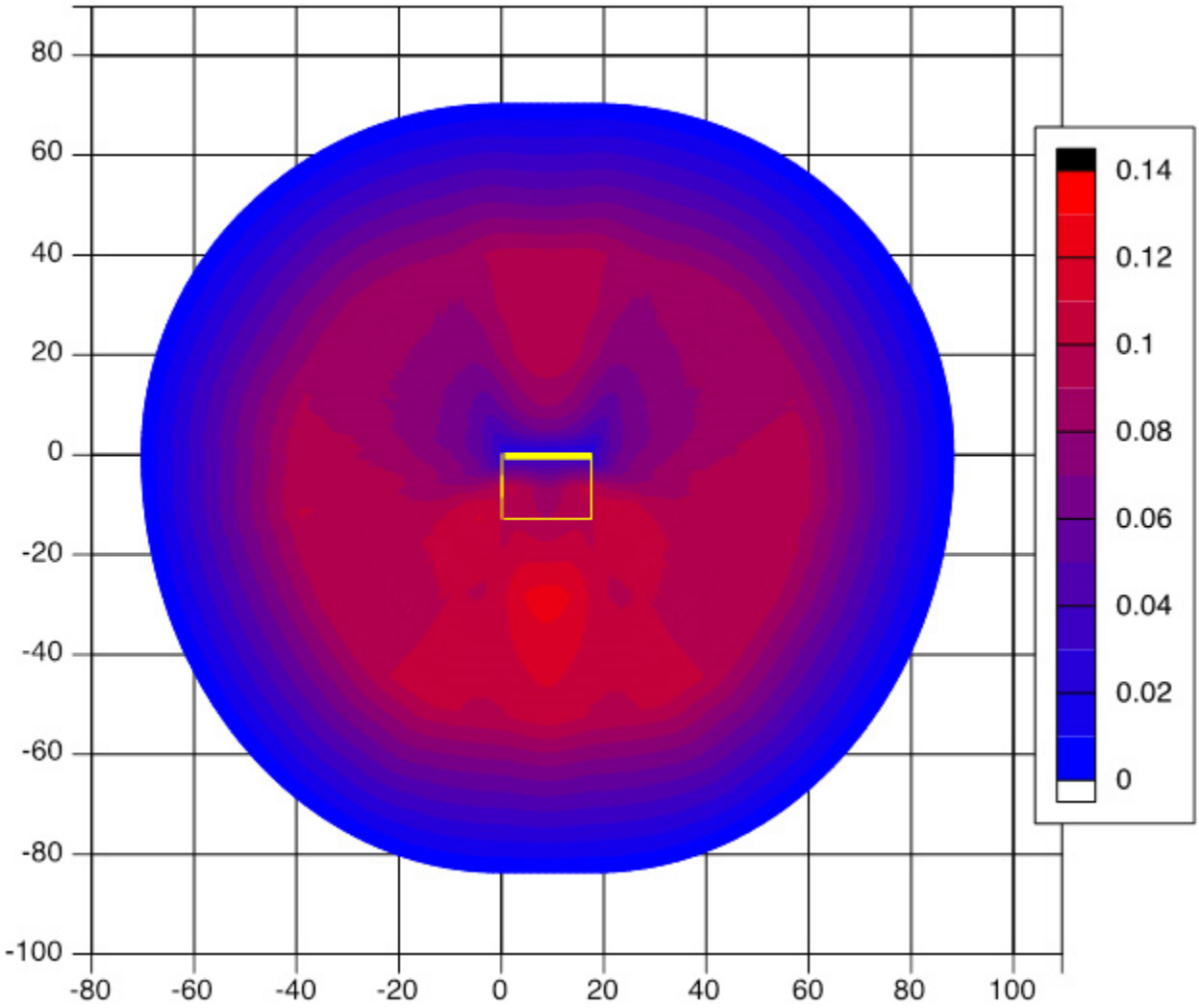

Figure A.73 **Change in the standard deviation of the natural log of the 5% damped pseudo-spectral acceleration at 1 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 6.5, reverse rupture with ϕ_2 reduction.**

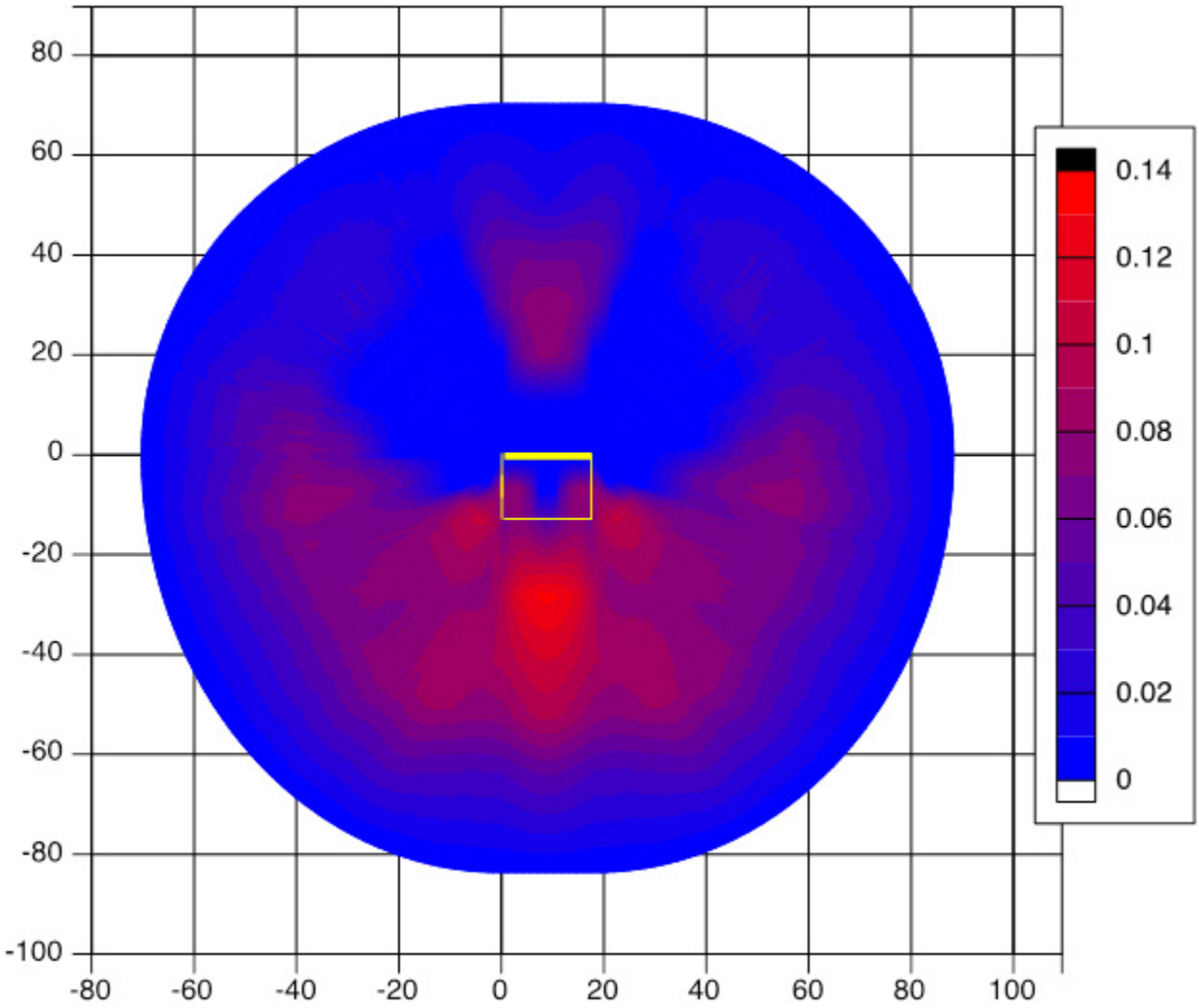

Figure A.74 **Change in the standard deviation of the natural log of the 5% damped pseudo-spectral acceleration at 3 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 6.5, reverse rupture with ϕ_2 reduction.**

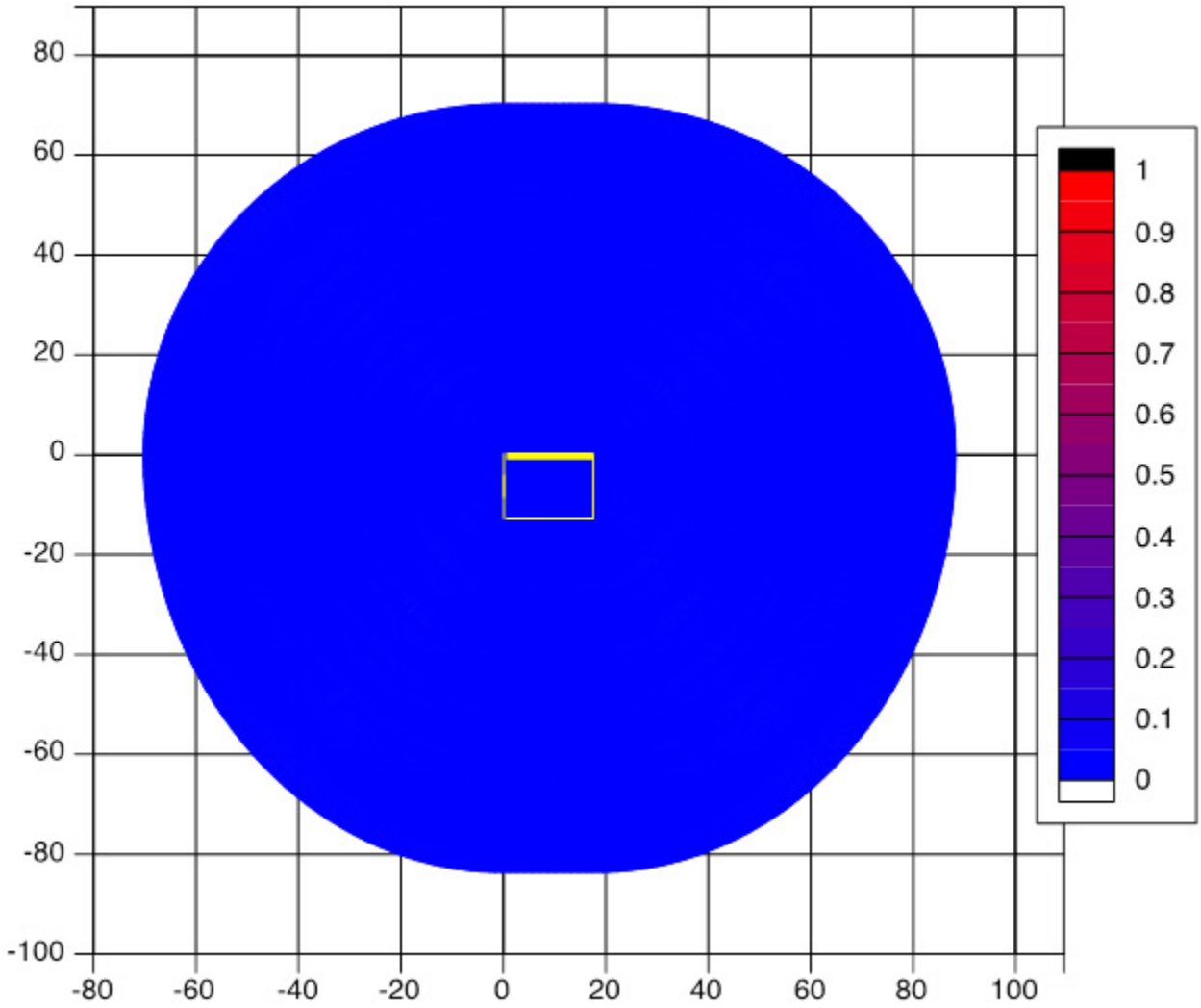

Figure A.75 **Change in the standard deviation of the natural log of the 5% damped pseudo-spectral acceleration at 5 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 6.5, reverse rupture with ϕ_2 reduction.**

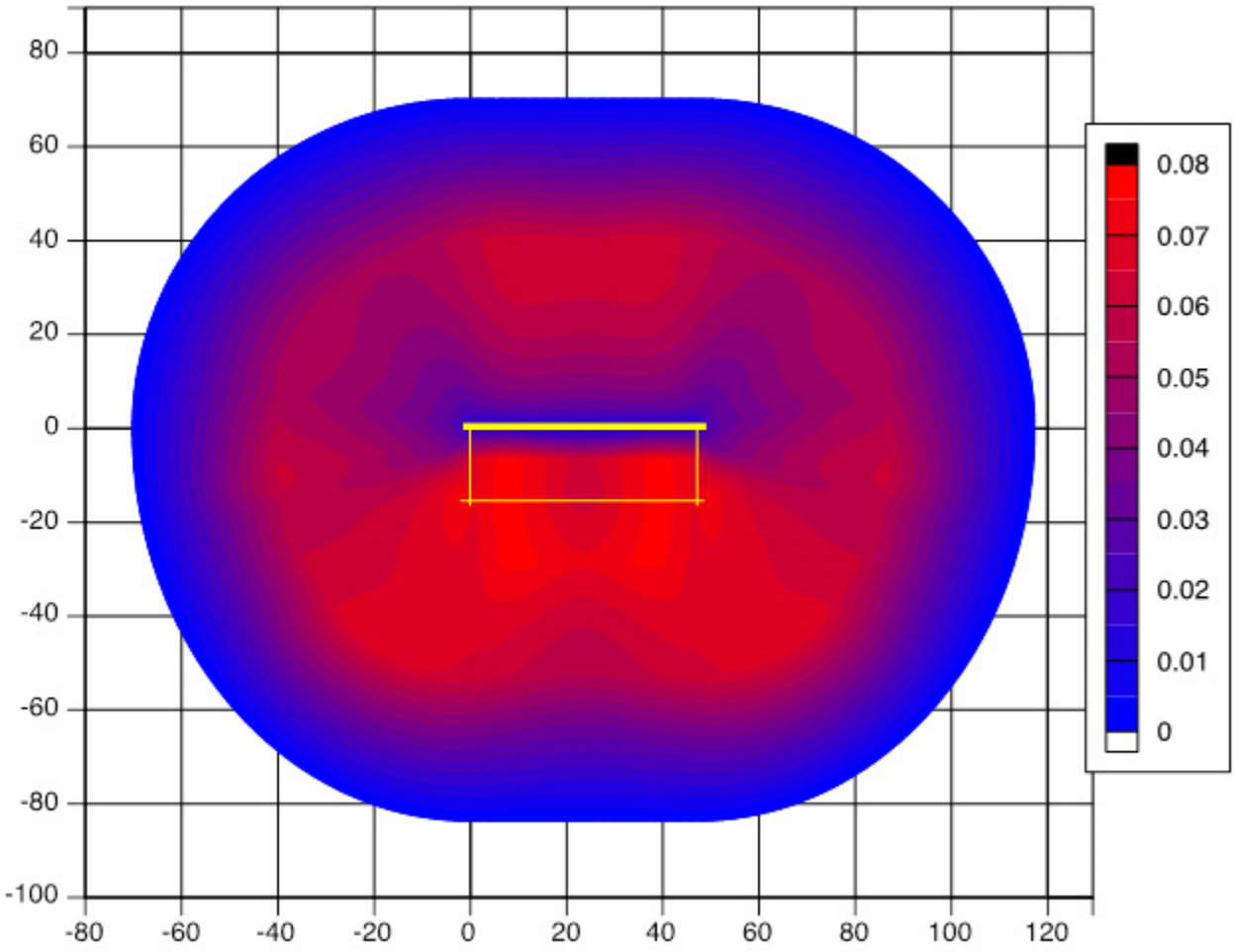

Figure A.76 **Change in the standard deviation of the natural log of the 5% damped pseudo-spectral acceleration at 1 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 7, reverse rupture with ϕ_2 reduction.**

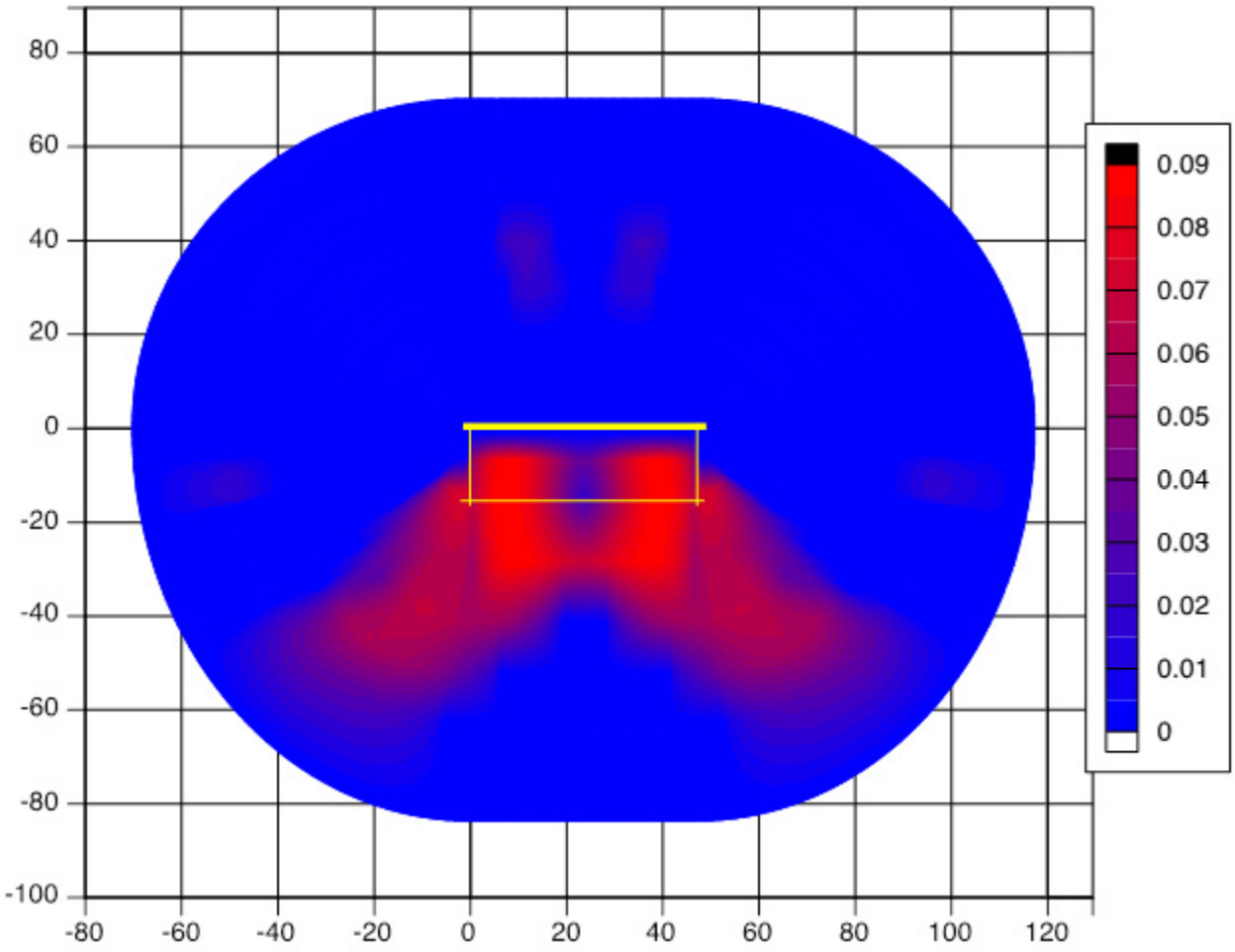

Figure A.77 **Change in the standard deviation of the natural log of the 5% damped pseudo-spectral acceleration at 3 sec due to the randomization of hypocenters using hypocenter distribution models from Chiou and Youngs [2008] for a moment-magnitude 7, reverse rupture with ϕ_2 reduction.**