

Cybershake v19p5

Scientific Improvements

Functionality	To be included in this version	Might be included	Not this version	What we actually did?
VM v2.0.2+	Aim: All basins that are included in the latest NZVM (as published in Thomson et al 2019) for which validation workflow has shown produce enhanced results over neglect of basins (targets incl: Cant, Cheviot, Waiau, Hanmer, Kaikoura, Nelson, Blehneim, Marlborough , Welling ton)		Basins that are currently undergoing consideration for inclusion (e.g. 'enhanced' versions of current basins; new basins such as Hamilton, Hauraki, Napier etc)	Cant, Cheviot, Waiau, Hanmer, Kaikoura, Nelson, Blehneim, Marlborough , Wellington , basins included
Inclusion of Subduction-Interface ruptures: - SRF v5.4.2 for subduction interface - Skarlatoudis magnitude scaling	Aim: Need to run sufficient scenario simulations with the functionality in order to have confidence that we are running correctly. (pseudo-validation via 50 realizations of a specific fault geometry; then examine statistics of the outputs in terms of macro-parameters).	Not in the part 1 runs of this version (which will run in May and comprise only shallow crustal), but should be appended to complete this version		No Subduction included
SRFgen improvements for shallow crustal earthquakes		Validation pending. Will need to be pseudo-validation from the perspective that we don't have validation for finite fault SRF ATM		Still using same SRF generation
200m simulation realisations	Not in the initial version but will be done in a supplementary version (based on disagg outputs)			Did not end up computing
Sim Duration	Reducing the simulation duration by 66%-75% (75% is Karim's recommendation). Also need to consider the depth of the simulation (currently X and Y dimensions are strongly optimized, whereas depth and sim duration are poorly optimized).			Sim duration calculation updated. Average 70% of 18p6
Additional Realisation Parameters (e.g. Magnitude)			Not to consider in this version (will wait for validation with uncertainties to get a better constraint on this.	
New Non-uniform Grid		Update in Christchurch / Wellington Region Finer Grid Real station update		No changes
vs30 improvements	Update to Kevin's 18p12 model			Recalculated the vs30 for all sites based on Kevin's 18p12 model
BB sim methodology improvements	From Robin's Validation already identified changes to HF path duration and LF site amp (i.e. no LF site amp). Apply these advancements.			gmsim_v18.5.3 - see the wiki page for more information
Depth of VM increase	Equation is taking dbottom rather than hdepth now.			Equation is taking dbottom rather than hdepth now. VMs 33% deeper

Core Hour Estimations

LF

Original estimate: 133082

Last run: 132544

New estimate with sim-duration change: 104173

New estimate with sim-duration and z change: 112709

Subduction To-Do

Check SRFgen 5.4.2

Magnitude Scaling

Run quick animation for all faults

Core Hour Usage:

LF: