



Supplement of

Methodology for earthquake rupture rate estimates of fault networks: example for the western Corinth rift, Greece

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spent on F2 scenarios alone The rest of the F2 budget is until the target is reached. The overall system respects a GR MFD After, the slip-rate is considered as NMS slip. Hazard Model target is reached. The remaining budget of F2 is considered as NMS slip. The rest of F2 budget is spent on lower magnitude EQ until the F_1+F_2 GR distribution in seismic moment → more chance to pick large magnitude F_2 F_1 Target MFD Incremental MFD of the sources Incremental MFD of the model Toward final state: Use of the slip-rate Slip rate budget Final state F_2 F_1 F_2 F_1 , , greater magnitude EQ and the b No more EQ can be generated on F1+F2 since it requires to spend F1 budget. The target MFD can be drawn using the rate of the Mmax F1 slip-rate budget reaches 0: **Farget MFD** Incremental MFD of the sources Incremental MFD of the model Magnitude earthquakes Use of the slip-rate value imposed. Slip rate budget F_2 F_2 F_1 F_1 one possible FtF rupture scenario Size of the s-r increment = 0.001 mm/yr More slip-rate budget is spent on greater earthquakes but lower magnitude earthquake on F1 an F2 start to be populated as well Incremental MFD of the sources Incremental MFD of the model i Iteration goes on: i Use of the slip-rate Slip rate budget ◊ 2 faults L F_1 F_2 F_1 F_2 \diamond Slip-rate budgets are spent, mostly on greater earthquakes on F1+F2 but also on F1 alone and F2 alone Mmax = 6.2Mmax = 6.3Mmax = 6.6After a few iteration steps: Incremental MFD of the sources Incremental MFD of the model 1 I Use of the slip-rate I Slip rate budget 3 mm/yr 2 mm/yr F_2 F_1 F_1 F_2 $F_{1} + F_{2}$ i $F_1 + F_2$ Possible sources are defined F_2 - Fault slip-rate budgets are F1 Initial state of the methodology : l F_2 ŧ ŧ F_1 6.6 i Incremental MFD of the sources Incremental MFD of the model 6.3 6.2 Input information : (F1, F2 and F1+F2) i Use of the slip-rate Initial state == Slip rate budget calculated F_1 F_2 F_1 F_2

GR distribution in number of