

Supplement of Nat. Hazards Earth Syst. Sci., 17, 1857–1869, 2017
<https://doi.org/10.5194/nhess-17-1857-2017-supplement>
© Author(s) 2017. This work is distributed under
the Creative Commons Attribution 3.0 License.



Supplement of

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

Thomas Chartier et al.

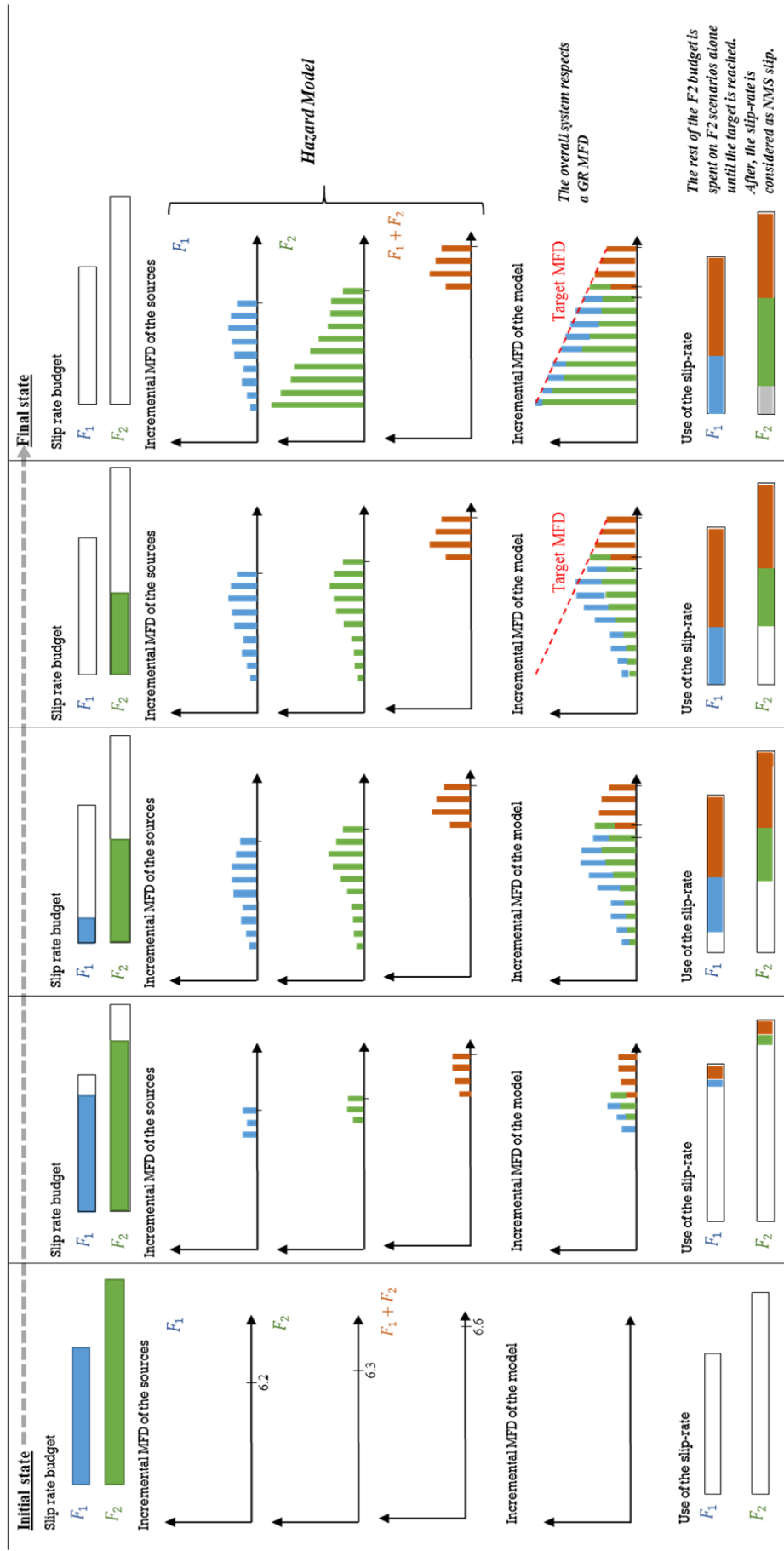
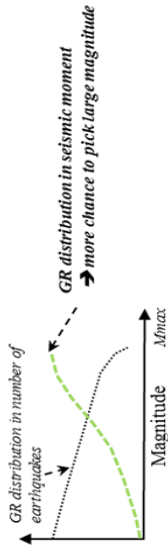
Correspondence to: Thomas Chartier (chartier@geologie.ens.fr)

The copyright of individual parts of the supplement might differ from the CC BY 3.0 License.

Input information :

F_1	2 mm/yr	$M_{max} = 6.2$
F_2	3 mm/yr	$M_{max} = 6.3$
$F_1 + F_2$		$M_{max} = 6.6$

- ◇ 2 faults
- ◇ one possible F1 rupture scenario
- ◇ Size of the s-x increment = 0.001 mm/yr



Initial state of the methodology:

- Fault slip-rate budgets are calculated
- Possible sources are defined (F1, F2 and F1+F2)

After a few iteration steps:

- Slip-rate budgets are spent, mostly on greater earthquakes on F1+F2 but also on F1 alone and F2 alone

Iteration goes on:

- More slip-rate budget is spent on greater earthquakes but lower magnitude earthquake on F1 an F2 start to be populated as well

F1 slip-rate budget reaches 0:

- 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 greater magnitude EQ and the b value imposed.

Toward final state:

- The rest of F2 budget is spent on F2 scenarios alone until the target is reached. After, the slip-rate is considered as NMS slip.

The overall system respects a GR MFD

The rest of the F2 budget is spent on F2 scenarios alone until the target is reached. After, the slip-rate is considered as NMS slip.