RC1: 'Comment on egusphere-2022-1472', Anonymous Referee #1, 20 Apr 2023

No	Review	Response
0	This study investigates the slip rate of the Lembang fault, Indonesia, from Sentinel-1 images and GNSS measurements. The authors argue potential seismic hazards around the fault based on the estimated slip rate and previous recurrence of large earthquakes. Because investigating seismic hazards posed by the Lembang fault is not only interesting from a scientific point of view but also important from a practical point of view, this study merits publication. However, the manuscript improves by addressing the following points.	We thank the reviewer for the constructive comments and suggestions. We have responded to each point below.
1	The authors' definition of locking (d1) and creep depths (d2) needs to be clarified. The equation below Line 100 indicates that the fault creeps from the surface to the d2 with a rate C, locks between d2 and d1, and slips below d1 with a rate S. If that is the case, d1 must be greater than d2. However, Figure 6 indicates that d2 can be greater than d1. To resolve my confusion, the authors must clearly define d1 and d2 with a figure, if necessary.	We will include a new figure (shown at the end of this review) to show the d1, d2 and related information. In our analysis we use a similar equation as Hussain et al (2016).
2	Figure 5 shows no discontinuities in the observed velocity field, indicating that surface creep is unlikely. Nonetheless, the authors assume the surface creeps on the fault. Is there any evidence for surface creeps from surface measurements, for example?	The evidence for shallow creep is from the GNSS stations located approximately ~50m either side of the fault. We agree that the discontinuity is not as obvious in the InSAR velocities. We attribute this to the significant noise present in the InSAR. This is seen clearly by the large spread in the grey points in Figure 5.
3	The Lembang fault dips to the north by 75 degrees (Line 24), but the modeling assumes a vertical fault (Line 100). Does this discrepancy affect the modeling much?	We agree that a more realistic model of the fault would take into account the dip. However, at 75 degrees, the fault is near vertical and so a simple vertical screw dislocation model captures the main aspects of the fault behavior we

		are looking for, namely the fault slip rate. The dip would only add a slight asymmetry to the profile weighted to the north.
4	The authors should say something about the subsidence of >50 mm/yr to the south of the Lambang fault because it is more visible than the displacement by faulting.	While this is not the main topic of the paper, we will add a short narrative on the subsidence in the main text.
5	The scenario seismic hazard delineated in Section 5 depends on the obtained fault-slip parameters, which have a fair amount of uncertainties. Then how does this scenario change with different fault-slip parameters within uncertainty bounds?	A difference in slip rate between 3.3–6.3 mm/yr results in a moment magnitude difference of 0.1. However, the return period difference between 170–670 years results in a moment magnitude range of 0.4. Therefore most of the uncertainty in our models is in the return period. We have added text to the Discussion section of the manuscript explaining this.
6	I cannot understand how to look at Fig. 6. I understand that the black part at the center of a contour is where the probability is high. Then, how about the black part at the edge of and outside of the contour?	The points are the results from the full MCMC simulations. The black dots are the results from all our monte carlo simulations. The contours show the densest regions of the plot covering 86% of the data points. We have clarified this in the figure caption.
7	Related to the above comment, does Fig. 6 show that there are trade-offs between slip rate and creep depth, for example?	Yes, there are. This is a well known phenomenon in screen dislocation models where the slip rate trade-ffs against the locking depth. Hussain et al 2016 found no trade offs with the creep rate/depth.
8	Line 103: What is emcee?	Emcee is a Bayesian Markov Chain Monte Carlo algorithm developed by Foreman-Mackey et al. (2013) based on the work of Goodman and Weare (2010). We have made this clearer in the main text.

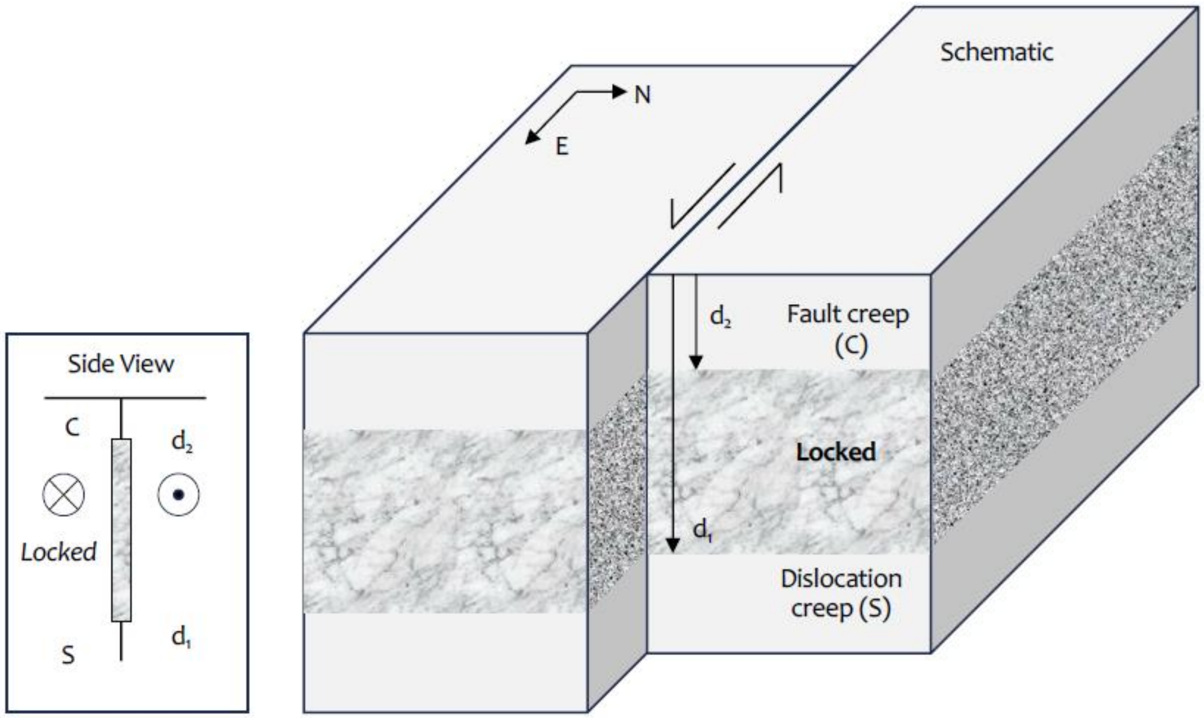

Figure: Model setup