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Natural Hazards and Earth System Sciences
Discussions

Interactive comment on "Coseismic slip inversion based on InSAR arc measurements" *by* C. Wang et al.

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First, we would like to thank the anonymous Reviewer #1 for the useful and helpful comments. We would take into account the recommendations and revise our manuscript accordingly. The detailed responses are as follows:

1.The reference on Feigl and Thruber [2009]

We are sorry for some inappropriate words used in citing the paper of Feigl and Thruber [2009]. Their paper is a milestone work on modeling wrapped interferogram and we have no meaning to disregard its contribution.

Our work and the work of Feigl and Thruber [2009] both deal with the low-coherent

InSAR interferogram with unwrapping problem, but the earthquake source models we used are different. Feigl and Thruber [2009] used an uniform slip model with nine free parameters to describe the earthquake source (stated in the second paragraph of part 5 in their paper). We used a finite fault slip model which allows slips to vary on the fault plane. The number of parameters in finite fault slip model depends on the number of finite fault patches, which would be normally more than several hundreds. Consequently, the form of our results would be different. Feigl and Thruber [2009] give result of nine earthquake source parameters and we give a slip distribution result. It would be difficult to compare the two methods quantitively. But we would revise the improper saying of our manuscript on the work of Feigl and Thruber [2009].

2.Quantitative support for the conclusion

I agree that some statistically-based supports are missing in the manuscript. In the revised manuscript, we would add corresponding quantitative statistics to support conclusion 1 and 2.

3.Fault offsets measurements

Thanks for the suggestion. Fault offset measurement is treated as direct observation in our method. It can also be incorporated in standard inverse method by making some changes on the inversion equation. We ignored to point it out and we will revise some sayings accordingly in the manuscript.

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., 1, 6961, 2013.