

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

### **Anonymous Referee #2**

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General Comments: The article: “Coseismic slip inversion based on InSAR arc measurement” describe an arc constrained phase unwrapping method for the coseismic slip inversion.

The study is potentially interesting and fitting with the objective of the journal but needs major revision to get it into a publishable form. My two major comments are listed below: 1) The implementation of the proposed methodology has an assumption, as described in P6964 Line 10-15. However, this assumption cannot always be held. If arcs crossing branch cuts are removed, the derived connectivity map would be similar to Fig.2 (g), resulting in isolated patches as the coherence of interferogram decreases. Then a problem will arise, that is, how to integrate the phase of isolated patches into a common reference system? Otherwise, the whole slip trend cannot be derived. The

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integration of surface rupture displacements is a feasible solution, as this work done. Does this mean that the proposed method depends on the ground-based measurements, particularly for low-coherence interferograms. If yes, the novelty and applicability of this method would be questionable. 2) The application to Yushu earthquake is not representative, because the interferogram can be satisfactorily unwrapped as the coherence of the interferometric pair is high over the entire interferogram. Consequently, another application is mandatory recommended with a low-quality interferogram in order to reflect the advance of the proposed methodology, such as an Envisat ASAR interferometric pair covering Yushu site. In such a way, the comparison between those two datasets can also be implemented.

Minor comments: P6965, Line 4, for the expression (4), where is the term of “G”? From my viewpoint “G” should be included referring to the expression (3).

The cited reference in the manuscript of “Lin et al., 2011” should be “Li et al., 2011”; e.g. in P6969, Line 26; P6978, the description of Fig.5

P6970, Line 7, Fig.3c should be Fig.5c.

English style needs further improvement by a Native English speaker.

The quality of Figure 2 needs improvement. At present, clarifications on sub-figures are invisible.

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