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Natural Hazards and Earth System Sciences
Discussions

Interactive comment on "Subsidence activity maps derived from DInSAR data: Orihuela case study" *by* M. P. Sanabria et al.

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I have read the above manuscript and found that the research presented therein is very interesting and with potential impact on the field of not only radar technologies applied to structural monitoring in subsiding areas, but also of geosciences applied to conservation of historical buildings. The case study is of high interest (also thanks to its cultural significance) and the results demonstrate the usefulness of this approach.

My specific comments are reported here below and, I hope, can help the authors to improve the manuscript:

A) In light of the case study presented, I feel that the state-of-the-art provided in the 'Introduction' section might be strengthened, at least in a couple of instances:

A.1) p. 5367, Lines 5-6: the sentence reports a list of papers describing the major advanced DInSAR techniques developed so far. The authors may want to add the following two papers:

Ferretti et al. (2011) A new algorithm for processing interferometric data-stacks: SqueeSAR. IEEE Transactions on Geoscience and Remote Sensing, 49: 3460–70.

Sowter et al. (2013) DInSAR estimation of land motion using intermittent coherence with application to the South Derbyshire and Leicestershire coalfields. Remote Sensing Letters 4(10): 979-987.

The latter, in particular, introduces an advanced technique as improvement of SBAS approach which has been recently developed and published, and probably deserves to be accounted for within a paper that will be published in 2014.

A.2) p. 5367, Lines 15-17: "fewer works use these techniques to monitor singular urban structures and infrastructures and indicate its usefulness as a prevention tool". The authors may want to consider the addition of the following papers:

Cigna et al. (2012) Ground instability in the old town of Agrigento (Italy) depicted by on-site investigations and Persistent Scatterers data. Nat. Hazards Earth Syst. Sci. 12: 3589-3603

Tapete et al. (2012) Satellite radar interferometry for monitoring and early-stage warning of structural instability in archaeological sites. Journal of Geophysics and Engineering 9(4): S10-S25

Arangio et al. (2013) An application of the SBAS-DInSAR technique for the Assessment of structural damage in the city of Rome. In: Structure and Infrastructure Engineering: Maintenance, Management, Life-Cycle Design and Performance.

These papers present applications at the scale of single building and relate to InSAR monitoring of historical buildings. Including them might help to put the approach presented in this manuscript more in the context. InSAR and PSI have been recently

applied to cultural heritage and this research should be accounted for. Orihuela case study relates directly to this specific topic.

B) Some of the figures (and the related captions) are not completely self-explanatory and, probably, are too full of information which can be presented more clearly.

E.g. Fig. 4: the two histograms can be enlarged and put close to the respective maps, while the bedrock geology can be displayed with more contrast in the colours, also with regard to the background.

Table 4: The authors may provide more details about how the double entry matrix works.

Such type of improvements might ease reading and understanding.

C) Can the authors add specific reference to the impacts this study have had (if any) to address and improve the conservation strategy employed by the local/national authorities responsible for the maintenance and protection of Santa Justa and Rufina church? Insights into end-user's perspective could be an added value for this research manuscript.

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., 1, 5365, 2013.