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## ***Interactive comment on “Automated classification of Persistent Scatterers Interferometry time-series” by M. Berti et al.***

**Anonymous Referee #2**

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The manuscript entitled “Automated classification of Persistent Scatterers Interferometry time-series” presents an automatic approach to classify PSI point targets into different types (uncorrelated, linear, discontinuous, etc.) overcoming the limitation of traditional representation of PS which is only based on the average velocity. The subject of the study is very interesting and represents a step further in the actual state-of-the-art regarding PS classification methods.

Lines 13-17: The authors say that “PSI time series, in fact, are somewhat noisy and difficult to interpret because of the detrimental effect of residual atmospheric errors and by problems related to phase aliasing. For these reasons a linear regression model is generally fitted to the data and the average displacement rate is used to describe the entire time series.” This is correct, without any a priori knowledge about

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deformation, a linear deformation mechanism is usually assumed, however to improve the success rate, various deformation models can be tested in a recursive scheme. For example, a linear model can be first evaluated and if the residues between the model and the unwrapped phase observations are small enough, the assumption is made that the ambiguities are estimated correctly. If not, an alternative deformation model can be tested, etc. The implications of evaluating different models is the computing time. For each evaluation, the integer least-squares minimization problem needs to be solved. Hence, a trade off should be made between computing time and success rate. I propose to complete the sentence (lines 13-17) in order to allow a better understanding of what is usually done or can be done in terms of using deformation models. I believe that the paper is adequate for publication and, after the authors implement changes/suggestions made by the reviewers, I think the paper will be able to be published.

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Interactive comment on *Nat. Hazards Earth Syst. Sci. Discuss.*, 1, 207, 2013.

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1, C203–C204, 2013

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