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## ***Interactive comment on “The unrest of S. Miguel volcano (El Salvador, CA): installation of the monitoring network and observed volcano-tectonic ground deformation” by A. Bonforte et al.***

### **Anonymous Referee #1**

Received and published: 6 December 2015

This manuscript reports the installation of a new monitoring system in S. Miguel volcano, a volcano which has been very sparsely monitored. The manuscripts mainly reports initial geodetic datasets from the monitoring project with not much interesting results from the scientific point of view. I think that the manuscript is nevertheless mer- its publicaition in NHESS because this article will be of some help to scientists and engineers who want to build a capability of a brand new volcano. The manuscript will be improved by addressing my comments enumerated below. These are either scientific or technical comments; I tried to make scientific comments first and technial ones

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in the latter part, but the order of comments is not strictly from scientific to technical or from the most important ones to less important ones.

1. p. 6125 line 13: the weekly solutions: We usually use daily solutions to assess "slow" movements. Are there any particular reasons to go with weekly, not daily, solution? If there are, the reasons are explicitly described.

2. p. 6125 line 10: What do you estimate the errors in t=station coordinates?

3. p. 6126 line 8 the fairly constant rate of contraction suggests tectonic dynamics controls this side of the volcano: The baseline change between PATI and TANQ, for example, is 15 mm during the measurement. Considering that the baseline length between PATI and TANQ is less than 10 km, the strain change is more than 15 microstrain in just a few months! This large strain change is certainly not of tectonic origin. I imagine that this is due to a long-term magma transport beneath the volcano. Are there any evidences to rule out this possibility?

4. p. 6126 line 18 Distances between the stations: The authors discuss the deformation field from baseline changes, but the discussion should be made from three-dimensional coordinates of stations because these should have more information. I understand that the baseline changes are sometimes visual to understand the deformation but three-dimensional coordinates should at least be mentioned in the manuscript.

5. p. 6118 line 13 geochemical sensors: What kind of geochemical sensors are set in the volcano?

6. p. 6122 line 14 radiometric sensors: What do these sensors measure? Ground temperature?

7. p. 6123 line 1 ...have a minimum impact.: A minimum impact to what? Environment?

8. p. 6120 line 13 This is the very first experience of such complete a monitoring of this volcano: Should be rewritten to "This it the very first experience for this volcano to have such a complete monitoring system."

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9. p. 6123 line 7 Teh internal part of the cylinders are designed to perfectly contain and fix, without any movement, the bottom of the geodetic pins...: This part should be rewritten, for example, as "The internal part of teh cylinders are designed to be perfectly contained and fixed to the bottom of teh geodetic pins..."

10. p. 6125 line 16 no strong motion: "no substantial motion" or "no substantial motion"?

11. p. 6125 line 17 An up-down behavior: A vertical motion

12. Some figures (e.g., Figures 2 to 7) are not referred in the text.

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Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., 3, 6117, 2015.

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