The reviewer judged that this manuscript is potentially acceptable, but please consider next addition and comments.

Preferable addition

1. Fig. 10b and 10c: line 2 of the caption says “projected on LOS”. Please explain in the text how to project three dimensional GPS-measured velocity (dx, dy, dz) into one dimensional LoS velocity (Hanssen 2001), showing equations and values of (dx, dy, dz).

Comment

1. About Figures 11 and 12. The reviewer understood mapping expression of LoS change in Figures 9 and 10; however, the reviewer could not understand how LoS change is able to be projected on vertical (Figure 11) and horizontal (Figure 12). Three-dimensional data are projectable into one-dimensional data, but one-dimensional data such as LoS change does not reveal only vertical and horizontal components of displacement. This paper deals only ascending orbit of PALSAR data, in this case, one-dimensional (elongate or shorten) change is revealed. If the authors calculate not only ascending but descending PALSAR data, they will be able to know the site has uplifting or EW motion (Fujiwara et al. 2000). However, the authors describe “if we generalize, … uplifting toward the LoS” (p.8, L.11) and “uplift” and “subsidence” (p.8, L.16) using Figure 11. Furthermore, the authors describes variations of velocity offset along strike of the fault (p.7, L.26). The reviewer could not understand why such the generalization and assumption is appropriate. Even if photo interpretation support this phenomena, LoS change has information deficiency to support it. The reviewer feels that both photo-interpretation and LoS change is unfairly related and discussed. The reviewer could understand that this paper is not expected to show fault model, but as far as three-dimensional deformation is related to the fault and anticline motion shown in Figure 14, the reviewer thinks that strict evaluation about LoS change is needed. The reviewer guesses that the authors do not have redundant force to calculate descending PALSAR data, or descending PALSAR data may not cover your interesting area. Therefore, how about delete Figures 11 and 12 and re-consider description of assumption and generalization about LoS change in LL.21-28 of p.7, LL.11-19 of p.8, and conclusion?

2. Here, the reviewer does not intend to cast issue in question, but in Figure 8, the authors use PALSAR pair data, whose Bperp is more than 1,500m. In the reviewer’s experience, Bperp more than 1,500m gives low coherent result and be barely acceptable. Perhaps the authors consciously eliminate LoS change data derived from Bperp > 1,500m or STaMPS software automatically discard such low-coherent LoS change data, but in the authors’ future work, please pay attention to use PALSAR data pairs that have too long Bperp.

References

Fujiwara S, Nishimura T, Murakami M, Nakagawa H, Tobita M, Rosen PA (2000) 2.5-D surface deformation of M6.1 earthquake near Mt Iwate detected by SAR interferometry, Geophys. Res. Lett., 27, 2049-2052.

Hanssen RF (2001) Radar interferometry: data interpretation and error analysis. Kluwer Academic Publishers, Dordrecht