

## ***Interactive comment on “Modeling of fast ground subsidence observed in southern Saskatchewan (Canada) during 2008–2011” by S. V. Samsonov et al.***

### **Anonymous Referee #1**

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#### General comments:

Samsonov et al. use SBAS and MSBAS method to derive the cumulative LOS deformation time series in Saskatchewan (Canada) from 23 ascending MF3F and 15 descending S3 Radarsat-2 images. In order to determine deformation mechanism, they perform inversions using spherical and sill source model from two high coherent interferograms in 2009–2010. But they do not identify the source of the subsidence. Although the methods used in this study are well-known, the work is very well. I consider the manuscript is good and appropriate for the NHESS.

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#### Specific comments:

The authors have got the surface subsidence time series using SBAS and MSBAS methods, why they only use two interferograms to model the subsidence. And from Fig 3, the coherences seem good enough for modeling. What is more, some statistical methods (e.g., F-test) can help the authors identify the source model for subsidence.

#### Technical corrections:

1. P5882/L5-6: the full terms of SBAS and MSBAS should be given here.
2. P5883/L6: typical measurement? Could you show some SARs as examples?
3. P5889/L11: What is the unit of  $\sigma$ ,  $\alpha$  and  $b$ ?
4. P5890/L7: What is the unit of  $\sigma$ ,  $\alpha$  and  $b$ ?
5. Fig. 3: The figure should include X/Y labels and a colorbar.

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