

“Response to the Editors comments”

Dear Astrid;

The authors would like to thank the respected reviewers and the associate editor for their valuable comments. Following are the authors’ responses and corresponding corrections.

Referee #2

Astrid Kerkweg:

1. You use both, the Sarproz and Envi software, to compute some of the data that is used to train the convolutional neural network. However, this is only mentioned in the text, but no information about it is provided in the code availability section. At least you have to provide the version numbers of the used code.

Thank you for your feedback,

We have addressed the concern regarding the specification of the software versions used in our study. The revised manuscript now includes the version numbers of both Sarproz and Envi software in the Data Availability section, ensuring clarity and reproducibility for our work. Below is the updated section for your reference:

"Data Availability

The data used in this study consists of subsidence measurements obtained from Sentinel-1A and Landsat 8 images over the period of 2014-2020. The subsidence was calculated using the [Sarproz](#) and driving forces of subsidence was calculated using the [ENVI](#) software tools.

Sentinel-1A Data: The Sentinel-1A images were used to Calculation of subsidence through PSInSAR in Sarproz (Version [pcodes_2019-10-02]).

Landsat 8 Data: The Landsat 8 images were used to calculate Land use and NDVI using ENVI (Version [5.3]).

Digital Elevation Model: DEM was used to calculate TWI, SPI, Aspect, Slope, Altitude using [ArcGIS](#) (Version [10.7.1])"

2. In the Zenodo repository, you deposited a Python notebook and a .xls file with data and nine satellite images. What we cannot comprehend is, that you say you used seven years of data (2014-2020) from Sentinel-1A and Landsat 8 images to train the CNN. What you provide is an .xls file containing 62,000 data points. So, we have to guess that they correspond to the mentioned images; however, we (and also no other reader) should be forced to guess, so you should provide links to repositories with the images (maybe, if you can, it would be nice to store them in Zenodo or similar - this

should be approx. 200 GB) and you should better explain the source of the data in the .xls file deposited. If possible, please share it in plain ASCII or .ods formats.

Thank you for your insightful feedback and for giving us the opportunity to improve our manuscript.

Regarding your query about the data provided in the Zenodo repository, we apologize for any confusion caused. We understand the importance of clarity and transparency in presenting our data sources and methodologies. Here are the clarifications and improvements we have made:

"Code and data availability

The Excel file in the Zenodo repository contains 62,000 data points corresponding to permanent scatterers obtained from the PSInSAR method.

The nine satellite images used as inputs for the model, which include NDVI, Land use, etc., were calculated using Landsat 8 and DEM images from the area. These images are also available in the Zenodo repository.

Additionally, the Python code for the CNN model used in this paper are accessible through the Zenodo archive at the following link:

<https://zenodo.org/records/12721120> (Azarm, 2024)."

Regarding your query about the Sentinel-1A and Landsat 8 images, we would like to provide the following clarification:

The seven-year (2014-2020) Sentinel-1A and Landsat 8 images used to calculate subsidence and driving forces are indeed large, amounting to approximately 520 GB. Unfortunately, we are unable to upload these extensive datasets directly to Zenodo.

However, we have included comprehensive details about these images in the article, such as the dates of images acquisitions and the corresponding satellite track numbers. This information will allow readers to download the necessary data from <https://earthexplorer.usgs.gov/> , <https://scihub.copernicus.eu> if needed.

Thank you for your valuable feedback, which has significantly contributed to the improvement of our manuscript.