# Article information:

GInSAR: A cGPS Correction for Enhanced InSAR Time Series | IEEE Journals & Magazine | IEEE Xplore
<https://ieeexplore.ieee.org/document/8839742>

# Article summary:

1. The article introduces a novel combination of InSAR and Global Positioning System (GPS) data to align InSAR displacements to an absolute reference and reduce long-wavelength spatial errors prior to InSAR time series construction.

2. The GInSAR (GPS-enhanced InSAR) methodology is tested on Sentinel-1 data over the southern Central Valley, CA, USA, and outperforms alternative methods in terms of mm-level displacement differences with respect to collocated cGPS.

3. A modification to the widely used small baseline subset (SBAS) technique for time series estimation is presented, whereby a temporal connectedness constraint is used to regularize the mathematical inversion and increase the number of InSAR pixels with valid time series estimates.

# Article rating:

May be slightly imbalanced: The article presents the information in a generally reliable way, but there are minor points of consideration that could be explored further or claims that are not fully backed by appropriate evidence. Some perspectives may also be omitted, and you are encouraged to use the research topics section to explore the topic further.

# Article analysis:

The article provides a detailed overview of the GInSAR (GPS-enhanced InSAR) methodology for aligning InSAR displacements to an absolute reference and reducing long-wavelength spatial errors prior to InSAR time series construction. The authors test their approach on Sentinel-1 data over the southern Central Valley, CA, USA, comparing GInSAR displacement velocities and time series with those from three other referencing techniques. They find that GInSAR outperforms alternative methods in terms of mm-level displacement differences with respect to collocated cGPS.

The article is generally reliable and trustworthy as it provides evidence for its claims through testing on real data sets and comparison with other referencing techniques. It also presents a modification to the widely used SBAS technique for time series estimation which increases the number of valid pixels in the resulting image. However, there are some potential biases that should be noted when interpreting the results presented in this article. For example, since only one region was tested using this method, it may not be applicable or accurate for other regions or scenarios where different conditions may apply. Additionally, since only one type of satellite imagery was used in this study (Sentinel-1), it is unclear if similar results would be obtained using other types of satellite imagery such as Landsat or MODIS images. Finally, while the authors present their findings objectively without any promotional content or partiality towards any particular method or technique, they do not explore any counterarguments or possible risks associated with their proposed approach which could have been addressed in more detail.

# Topics for further research:

* InSAR time series construction
* Alternative referencing techniques
* SBAS technique
* Landsat satellite imagery
* MODIS satellite imagery
* Risks associated with GInSAR

# Report location:

<https://www.fullpicture.app/item/0f0da4bd41d7e24d6314f94d619f3945>