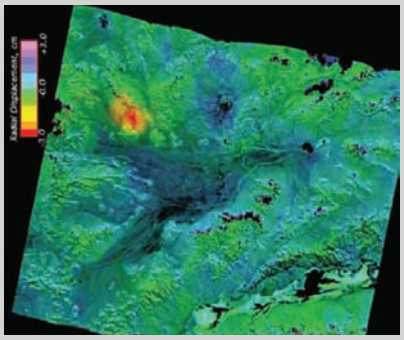
PHASE™
STANDALONE SAR INTERFEROMETRIC PROCESSING SYSTEM

PRODUCT OVERVIEW

SeaSpace's SAR interferometric processor, Phase™, is a stand-alone software system capable of forming digital elevation models and differential centimeter-level displacement maps from spaceborne SAR satellites including Radarsat, Envisat, ALOS, TerraSAR-X, ERS, JERS, and COSMO-SkyMed.

Phase tools can be controlled from a .NET-based Graphical User Interface, which allows the user to operate the system both interactively or as a batch processor. The GUI leads the user through the following processing steps:

- Estimation of baseline
- Registration and resampling of SLC
- Creation of interferogram
- Composition of DEM mosaic
- Simulation of interferogram from DEM
- Registration of simulated interferogram
- Flattening with simulated phase
- Filtering of flattened interferogram
- Refinement of baseline
- Creation of displacement map



ERS interferogram showing land displacement due to Little Skull Mountain Earthquake just southeast of Yucca Mountain. The red portion represents a 3cm downward shift in the earth.

KEY FEATURES

• Easy-to-use graphical user interface supports both interactive and batch-mode processing

• Automated precision image-to-image matching and resampling for quicker data processing

• State-of-the-art algorithms for iterative orbital parameter adjustment

• Ability to utilize existing digital elevation models (DEM's) as input reduces requirement for ground control

• Two-and three-pass differential interferometry

• Along-track and range aperture trimming to maximize interferogram coherence

• Baseline estimation and interferogram flattening from the image geometry to improve phase unwrapping

• Choice of methods for interferogram filtering to aid and improve phase unwrapping

• Geolocation and baseline refinement from ground control points or input DEM

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EARTH ON DEMAND

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SYSTEM SPECIFICATIONS

Input Data

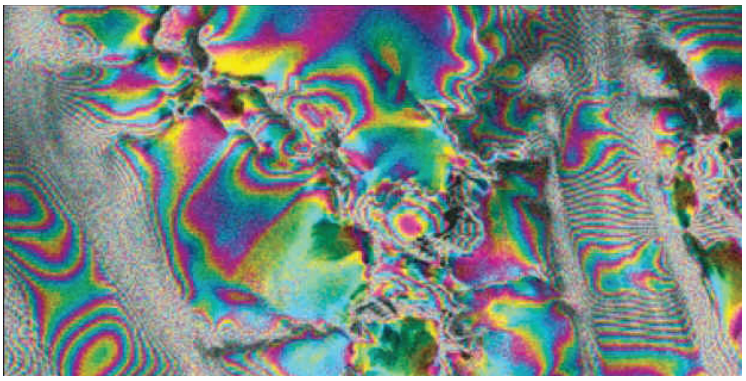
- SLC images produced by SeaSpace Focus™ processor
- Digital elevation model (optional)
- Binary raster format
- USGS standard format
- Japanese (JGS) standard format
- SeaSpace VxStero™ format
- Shuttle Radar Topography Mission (SRTM)

Output Data

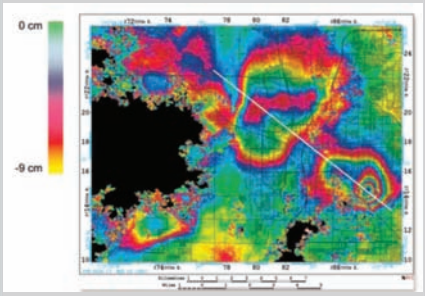
- Digital elevation models
- Enhanced digital elevation models (in case of updated input model)
- Displacement maps (centimeter scale or better)
- Coherence maps

Options

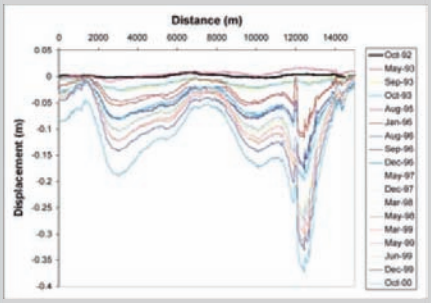
- Ice velocity Tools (using speckle-tracking and phase estimation
- Long-Term Coherent Target Monitoring
- Linux or Windows platform



Interferogram showing complex patterns of Alaska glacier ice motion.



Subsidence map for Phoenix, AZ, derived interferometrically from ERS-1/2 SAR data. It is the final frame in an 18-frame time series calculated for the eight-year period 1992-2000. Each cycle of color corresponds to 9 cm of ground motion.



Plotted data of transects along the white line in the above map.

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