Pre-processing

After the files are imported, we can start processing them. After importing and/or selecting the dataset, press the Site Processing button in the MAIN window.



SITE PROCESSING - D:\Projects\LasVegasDescending\						
Preliminary analysis		InSAR processing		Sparse points selection	Post-analysis	
Reflectivity map and amplitude stability index	Go	Update new images Phase to height	only Go	Load mask Go	Geografic coordinates estimation Go	
Mask for sparse points selection	Go	constants generation Phase to flat		Amplitude processing	UTM coordinates Go estimation Go	
		constants generation		Images fine equalization	DEM post-analysis Go	
Preliminary geocoding	_	MST estimation	Go	Amplitude time series analysis	PS classification Go	
Current: SRTM	Go	estimation and removal	Go	Sub-pixel positions analysis	Multi-sensor Go	
DEM visualization	Go	Second order fringes removal	Go	Flat Cartesian coordinates estimation Go	Cumulative	
GCP selection	Go	Interferograms processing	Go	Multi Image InSAR processing	Displacement	
External DEM and		Coherence map generation	Go	APS estimation Go	Visualization tools	
synthetic amplitude in SAR coordinates	Go	Syntethic coherence map generation	Go	Sparse Points Go	Scatter Plots Go	
Auxiliary analysis		Single interferogram	Go	Results exporting		
Change detection	Go	Sub-dataset extraction		Extended geocoding (googleearth kml) Go	View parameters Go	
Image classification	Go	Selection and extraction	Go	Sparse geocoding (kml-dbf) Go	View interferograms Go	
SARPRO2 2009, the SAR PROcessor by periZ NO security prompt OK						

First, the steps in the Preliminary analysis group need to be done. Press the Go button next to the Reflectivity map and amplitude stability index label. Press Go on the upcoming security prompt.



In the future we always assume that you directly press, Go on the security prompts. You may also consider to check the NO security prompt check box on the bottom of the SITE PROCESSING window.

4	SITE PROCESSING - D:\Pro	jects\LasVegasDescending\	- • ×		
Preliminary analysis	InSAR processing	Sparse points selection	Post-analysis		
Reflectivity map and amplitude stability index	Update new images only Phase to height Go	Load mask Go	Geografic coordinates estimation Go		
Mask for sparse points selection	Phase to flat	Amplitude processing	UTM coordinates estimation Go		
	constants generation	Images fine Go equalization	DEM post-analysis Go		
Preliminary geocoding	MST estimation Go	Amplitude time series analysis Go	PS classification Go		
Current: SRTM	estimation and removal Go	Sub-pixel positions analysis Go	Multi-sensor		
DEM visualization Go	Second order fringes removal Go	Flat Cartesian coordinates estimation Go	Cumulative		
GCP selection Go	Interferograms processing Go	Multi Image InSAR processing	Displacement		
	Coherence map	APS estimation Go	Visualization tools		
External DEM and synthetic amplitude Go	Syntethic coherence		Histograms Go		
	map generation Go	processing Go	Scatter Plots Go		
Auxiliary analysis	Single interferogram Go	Results exporting	View parameters		
Change detection Go	Sub-dataset extraction	(googleearth kml) Go	30		
Image classification Go	Selection and extraction Go	Sparse geocoding (kml-dbf) Go	View interferograms Go		
SARPROZ 2009, the SAR PROcessor by periZ NO security prompt OK					

After the processing the button color is changing to green. Next, press the Go button next to the Mask for sparse point selection. In the Matlab command window you have to select the option for the initial point mask selection:

choose your option:

0 all points (no mask),

1 local max (default),

2 local max without range lobes,

3 local max without range and azimuth lobes

any else exits

In our example, we press 1 and Enter in the command window to select the default local max option.

Afterwards, we work on the Preliminary geocoding. Using the standard option of an SRTM DEM, we press the Go button next to the GCP selection label in the SITE PROCESSING window.

Preliminary analysis	InSAR processing	Sparse points selection	- Post-analysis
Reflectivity map and go amplitude stability index	Update new images only Phase to height	Load mask Go	Geografic coordinates estimation
Mask for sparse	constants generation	Amplitude processing	UTM coordinates estimation
	constants generation	Images fine Go equalization	DEM post-analysis G
Preliminary geocoding	MST estimation	Amplitude time Go series analysis	PS classification G
Current: SRTM	estimation and removal	Sub-pixel positions Go analysis Go	Mutti-sensor Gi
DEM visualization Go	Second order fringes removal	Flat Cartesian coordinates estimation Go	Cumulative
GCP selection Go	Interferograms Components	Mutti Image InSAR processing	Displacement
	Coherence map	ADS actimation	Visualization tools
External DEM and synthetic amplitude Go	generation G	APS esumation Go	Histograms Go
IN SAR COORdinates	map generation Go	Sparse Points Go	Scatter Plots Go
- Auxiliary analysis	Single interferogram	- Results exporting	
Change detection Go	Sub-dataset extraction	Extended geocoding (googleearth kml) Go	View parameters Go
Image classification Go	Selection and extraction	Sparse geocoding (kml-dbf) Go	View interferograms Go
SARPROZ 2009, the SAR PROC	essor by periZ 🗌 NO sec	urity prompt OK	1
SARPROZ 2009, the SAR PROC GCP - D:\Projects\LasVegas	essor by periZ NO sec	urity prompt OK	1
SARPROZ 2009, the SAR PROC GCP - D:\Projects\LasVegas	essor by periZ NO sec	urity prompt OK	
SARPROZ 2009, the SAR PROC GCP - D:\Projects\LasVegas -GCP Coordinates North [m] / Lat [1]	essor by periZ NO sec	urity prompt OK	
SARPROZ 2009, the SAR PROC GCP - D:\Projects\LasVegas GCP Coordinates North (m) / Lat [1] East (m) / Lon [1]	essor by periZ NO sec	urity prompt OK	
SARPROZ 2009, the SAR PROC GCP - D:\Projects\LasVegas OCP Coordinates North [m] /Lat [*] East [m] /Lon [*] Ellipsoidal Height Auto Sample	essor by periZ NO sec	urity prompt OK	
GCP - D:\Projects\LasVegas GCP - D:\Projects\LasVegas -GCP Coordinates North [m] / Lat [*] East [m] / Lon [*] Ellipsoidal Height Auto Sample Line	essor by periZ NO sec	unity prompt OK	
SARPRO2 2009, the SAR PROC GCP - D:\Projects\LasVegas GCP Coordinates North [m] / Lat [*] East [m] / Lon [*] Ellipsoidal Height Auto Sample Line Reset GCP & Orbits	essor by periZ NO sec	urity prompt OK	
SARPRO2 2009, the SAR PROC GCP - D:\Projects\LasVegas -GCP Coordinates North [m] / Lat [1] East [m] / Lon [1] Ellipsoidal Height Auto Sample Line Reset GCP & Orbits Auto GCP	essor by periZ NO sec	urity prompt OK	
SARPRO2 2009, the SAR PROC GCP - D:\Projects\LasVegas -GCP Coordinates North (m) / Lat [*] East (m) / Lon [*] Ellipsoidal Height Auto Sample Line Reset GCP & Orbits -Auto GCP Keep Current Orbits	essor by peri2 NO sec	urty prompt OK	
GCP - D:\Projects\LasVegas GCP - D:\Projects\LasVegas GCP Coordinates North [m] / Lat [*] East [m] / Lon [*] Elipsoidal Height Auto Sample Line Reset GCP & Orbits Auto GCP Keep Current Orbits GCP Plot	essor by periZ NO sec Desce Coord UTM Geo Local Local Local Hemi. North Write Through Ext. DEM	urity prompt OK	
SARPRO2 2009, the SAR PROC GCP - D:\Projects\LasVegas -GCP Coordinates North [m] / Lon [*] East [m] / Lon [*] Ellipsoidal Height Auto Sample Line Reset GCP & Orbits -Auto GCP Keep Current Orbits -OCP Plot Plot Mean GCP Kml	essor by peri2 NO sec	urky prompt OK	

In the upcoming GCP window, we first try the Auto GCP options by pressing Keep Current Orbits.

🛃 GCP - D:\Projects\LasVegasDesce 🗕 🗖 🗙						
GCP Coordinates						
North [m] / Lat [*]	3999572	© UTM Geo Local				
East [m] / Lon [°]	667418					
Ellipsoidal Height	614.9628					
Sample	5175	Zone 11				
Line	2914	Hemi. North				
Reset GCP & Orbits Write						
Auto GCP						
GCP Plot						
SARPROZ © 2009 the SAR PROcessor by periZ Ok						

We are then checking the results using the functions in the GCP Plot group by pressing Plot Mean and GCP Kml.



In our example, we are not really satisfied with the automatically selected point. Therefore, we are going to select one manually. Depending on the available data and the resolution, there are different strategies for selecting good tie-points for geo-coding. Often poles are very good and precise points if you can clearly identify them in both images.

To identify the points, we suggest to rotate the view in Google Earth to match the view in the SAR image, as this will make it easier to identify the homologous points.



After setting the placemarkers in both images, we are copying the values in the GCP window. Be careful to enter the values correctly, because X & Y are not in the same order as the Sample & Line in the GCP window.



Then we press Write in the GCP window.



Finally, we check the results by pressing Mean Kml in the GCP Plot group.



Then we press Ok to close the GCP window.



Then we calculate the DEM in SAR coordinates by pressing the Go button next to the External DEM and synthetic amplitude in SAR coordinates label. This step is optional and only necessary if you want to use a DEM to assist the PS-InSAR processing later.



Finally, we are going to the InSAR processing group. First, press the Go button next to the Phase to height constants generation label. Then, press the Go button next to the Phase to flat constants generation label. Now, the pre-processing steps are finished.

