Tutorial on SAR, InSAR, PSInSAR

SARPROZ

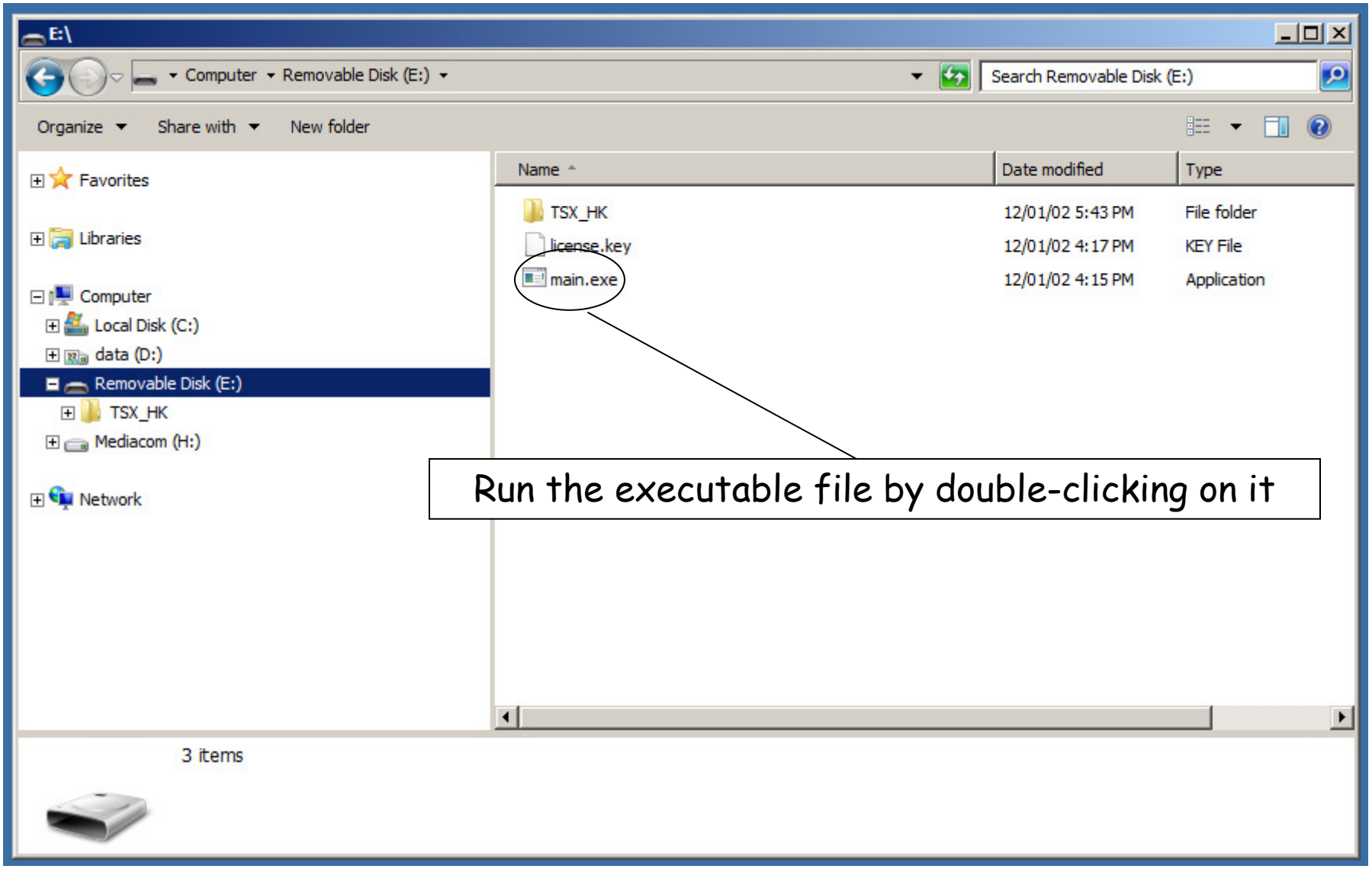
The SAR processing tool by PeriZ

http://ihome.cuhk.edu.hk/~b122066/index_files/download.htm

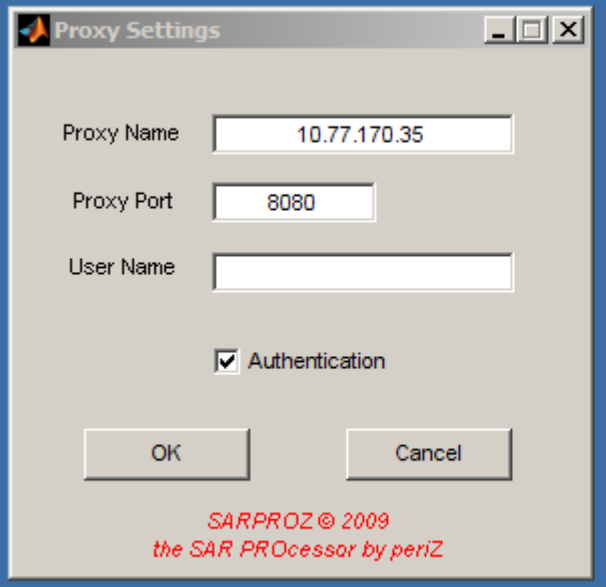
Part I

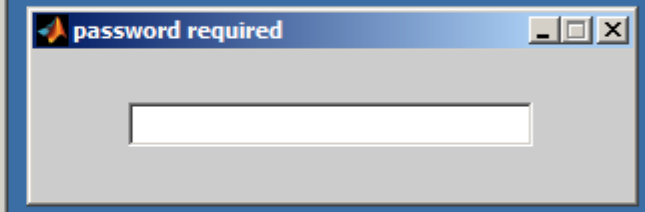
Petronas University of Technology UTP

Windows explorer

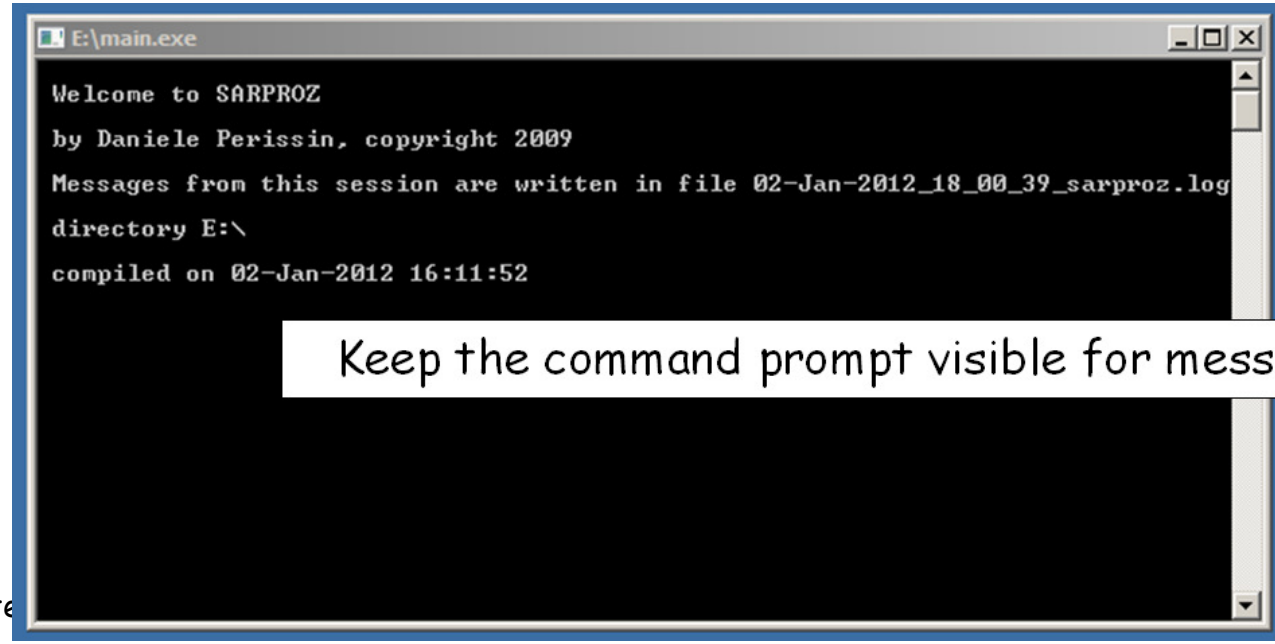


Proxy settings





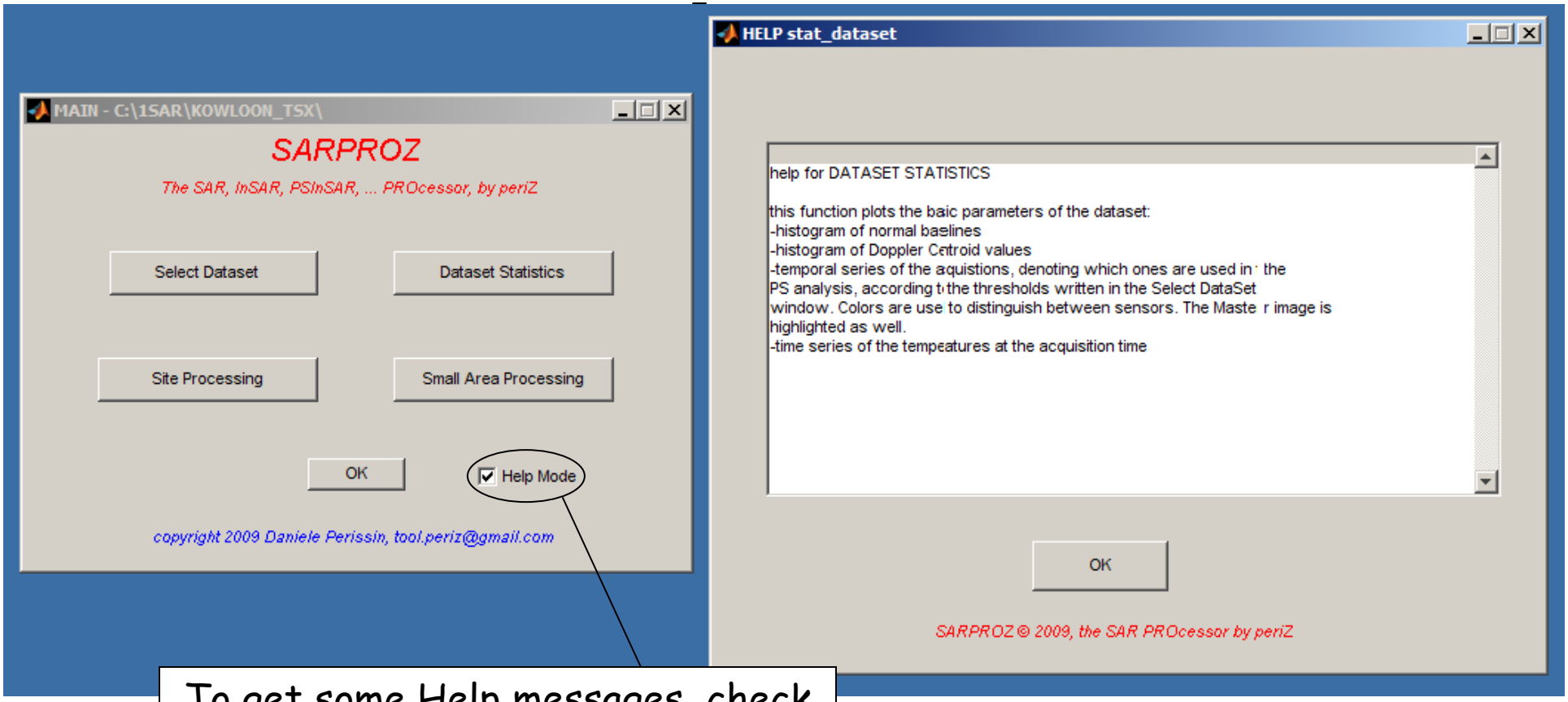
Fill in the user/classroom settings



Keep the command prompt visible for messages

SARPROZ main window

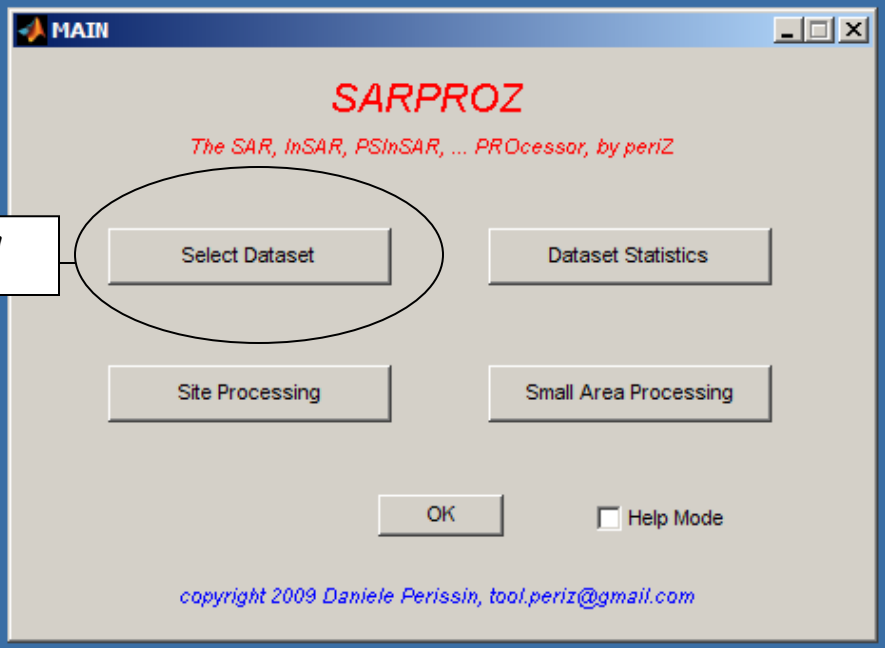
Help for "Dataset Statistics"

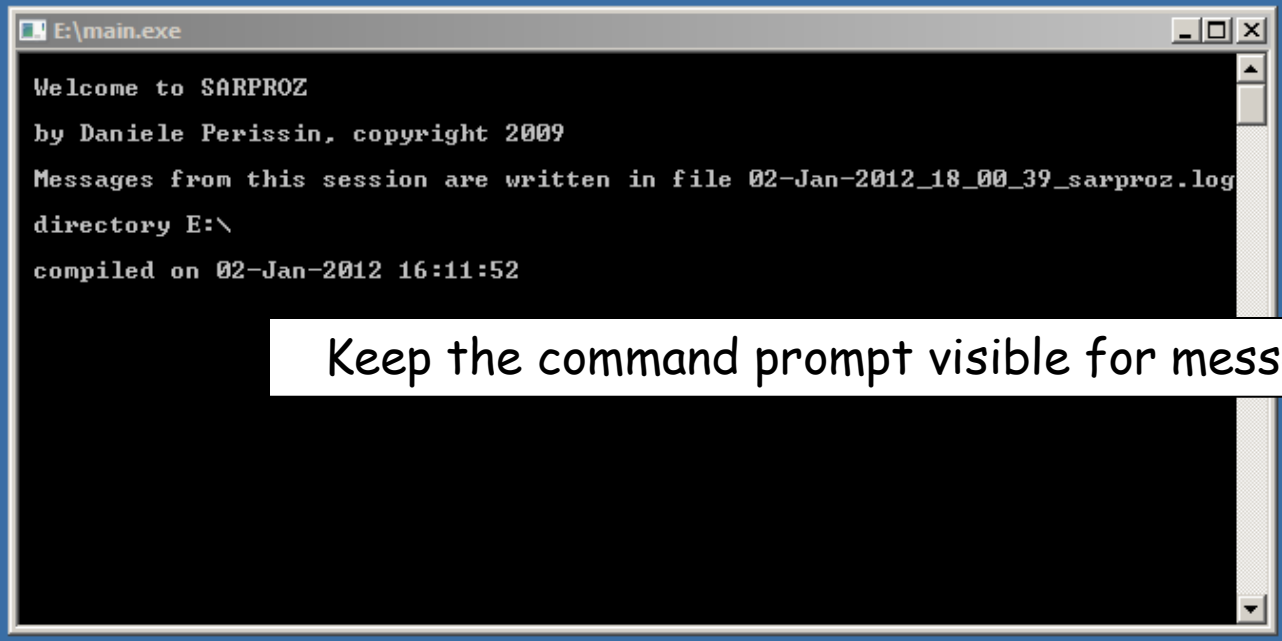


To get some Help messages, check "Help Mode" and press the button you want to receive help about

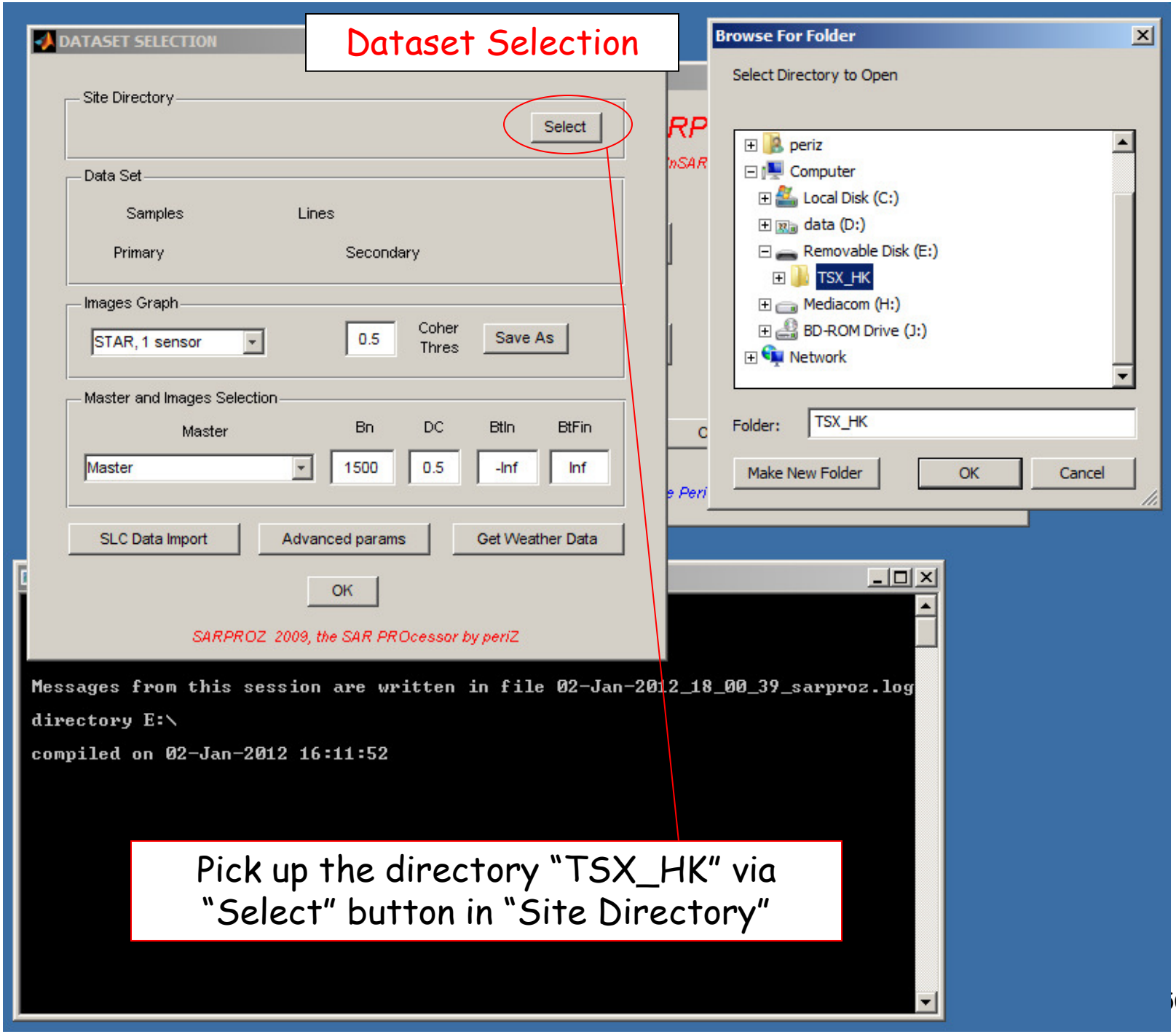
SARPROZ main window

Load data with "Select Dataset"



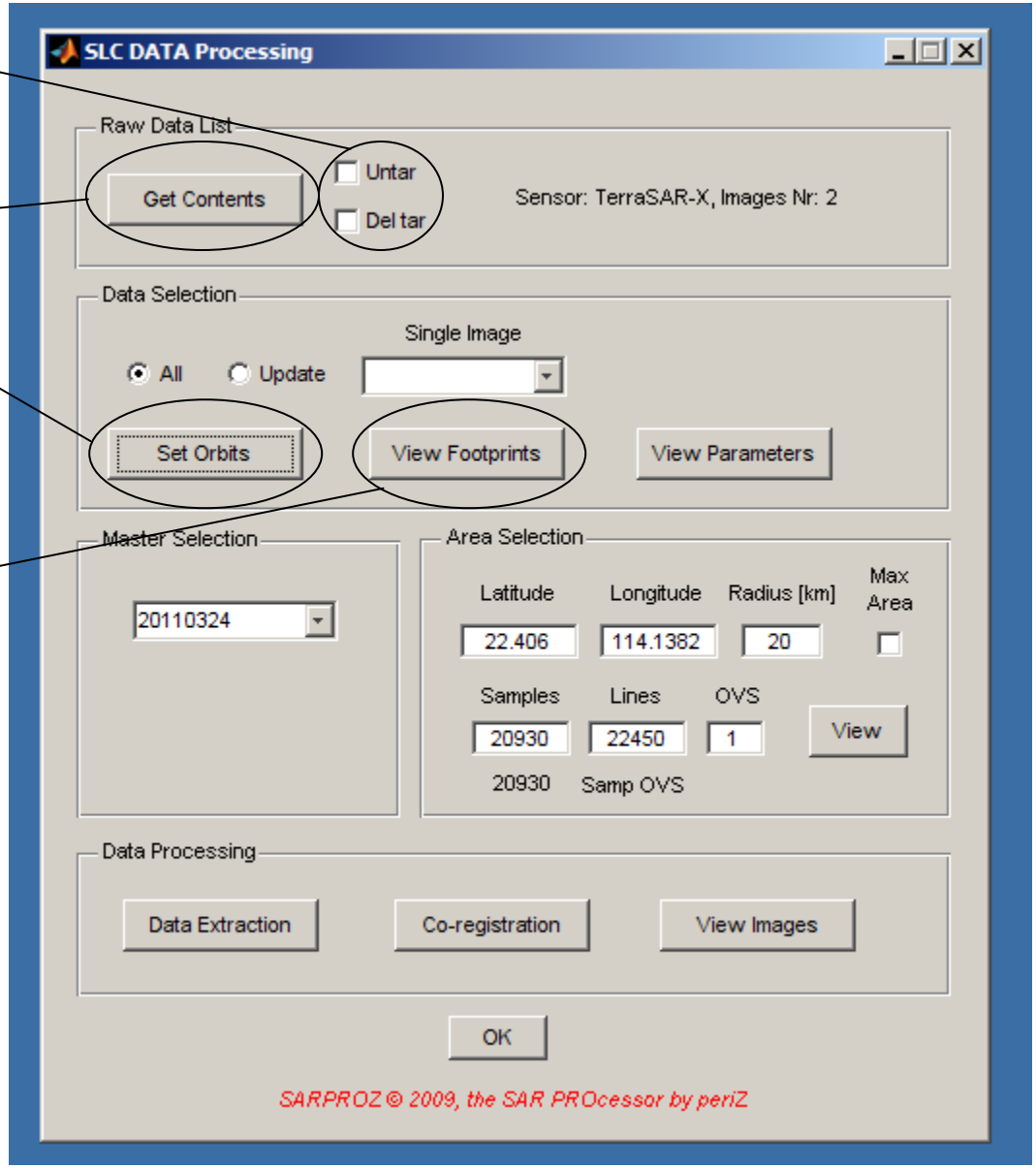


Keep the command prompt visible for messages

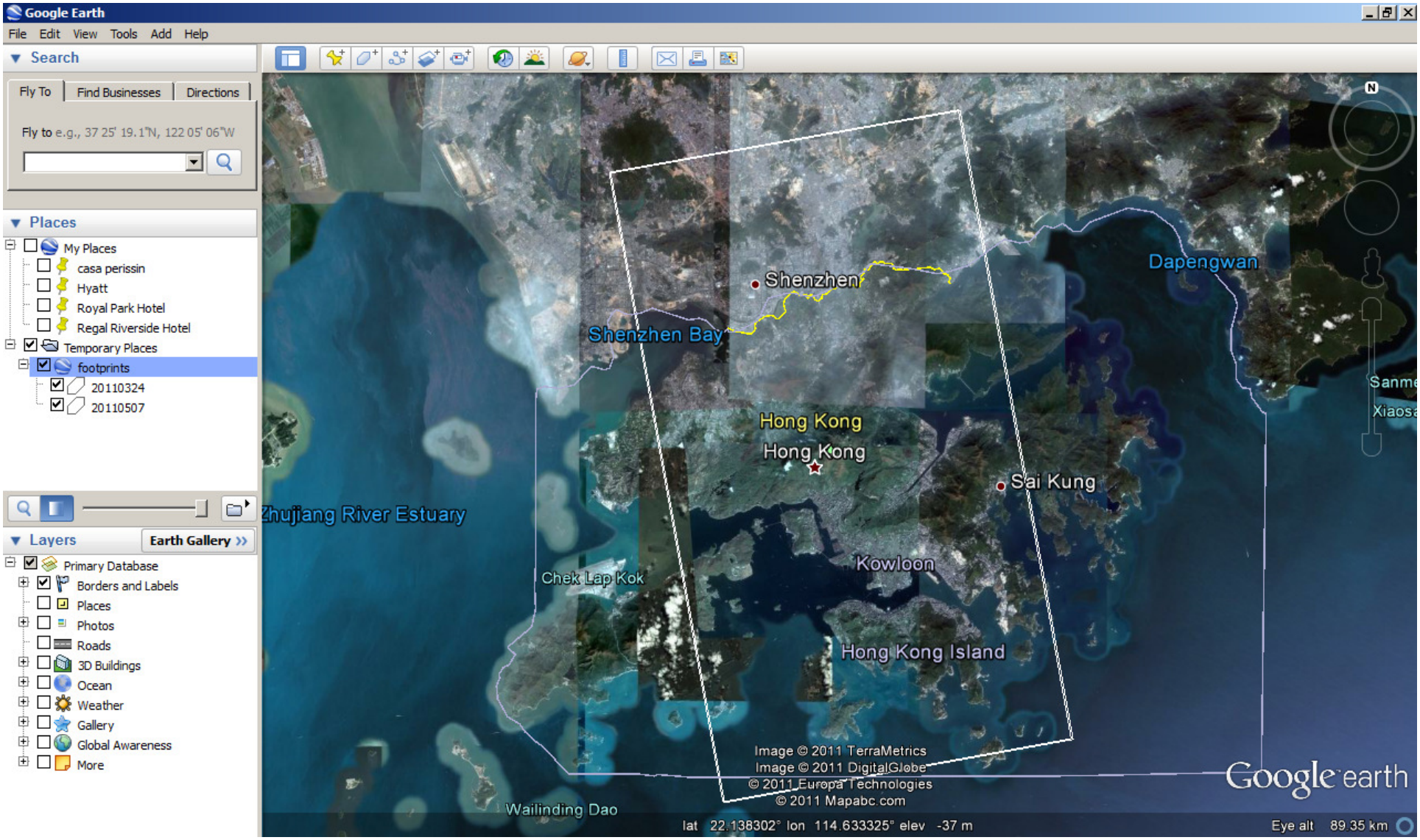

Dataset Selection
DATASET SELECTION
Site Directory
Select
Data Set
Samples
Lines
Primary
Secondary
Images Graph
STAR, 1 sensor
0.5
Coher Thres
Save As
Master and Images Selection
Master
Bn
DC
BtIn
BtFin
Master
1500
0.5
-Inf
Inf
SLC Data Import
Advanced params
Get Weather Data
OK
SARPROZ 2009, the SAR PROcessor by periZ
Browse For Folder
Select Directory to Open
periz
Computer
Local Disk (C:)
data (D:)
Removable Disk (E:)
TSX_HK
Mediacom (H:)
BD-ROM Drive (J:)
Network
Folder:
TSX_HK
Make New Folder
OK
Cancel
Messages from this session are written in file 02-Jan-2012_18_00_39_sarproz.log
directory E:\
compiled on 02-Jan-2012 16:11:52
Pick up the directory "TSX_HK" via "Select" button in "Site Directory"

SLC data import

1. Uncheck "Untar" and "Del Tar" options
2. Press "Get Contents" button to get the directory contents
3. Press "Set Orbits" to read all the data in the directory
4. Press "View footprints" to see the footprints in Google Earth

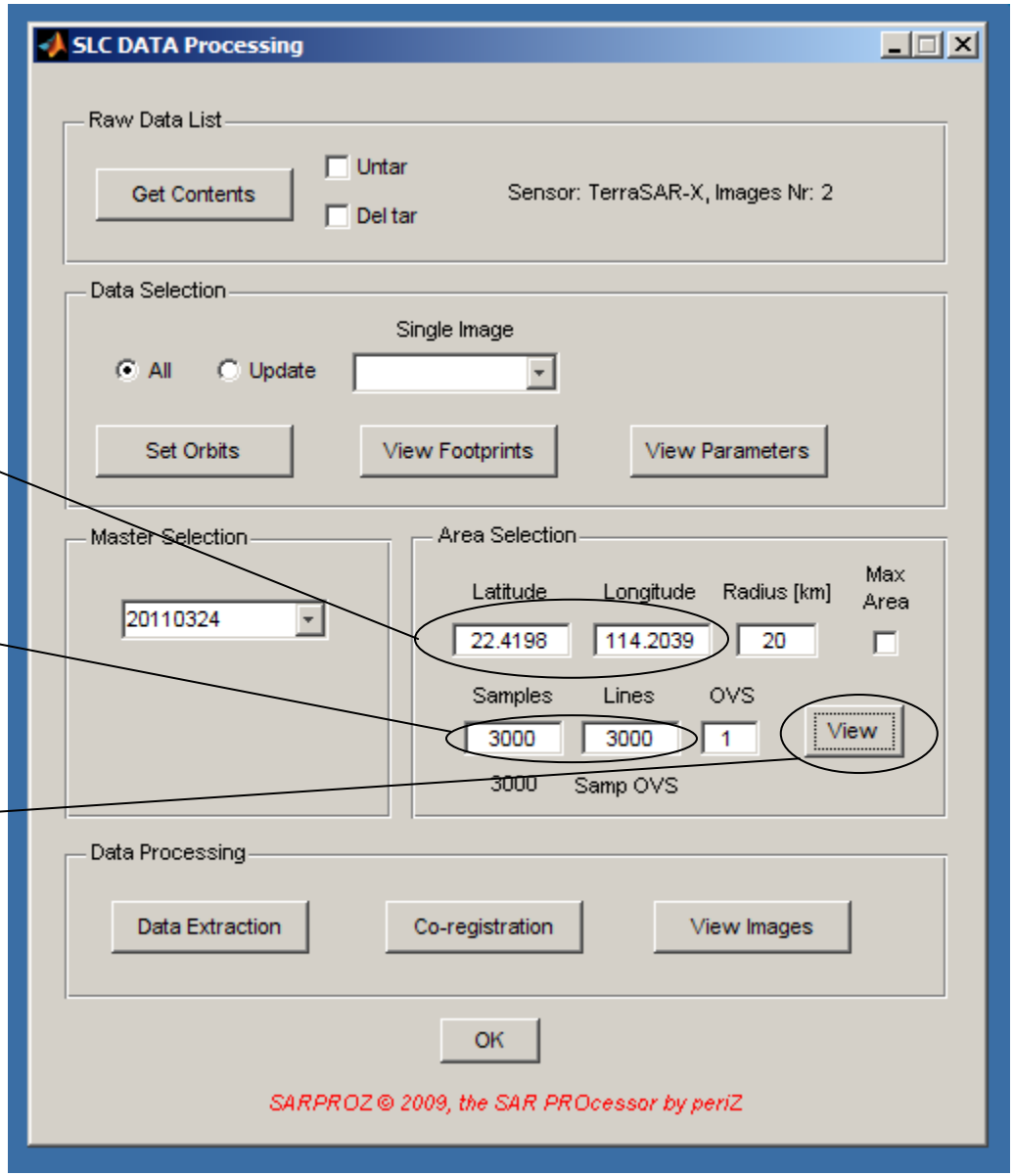


Footprints in Google Earth

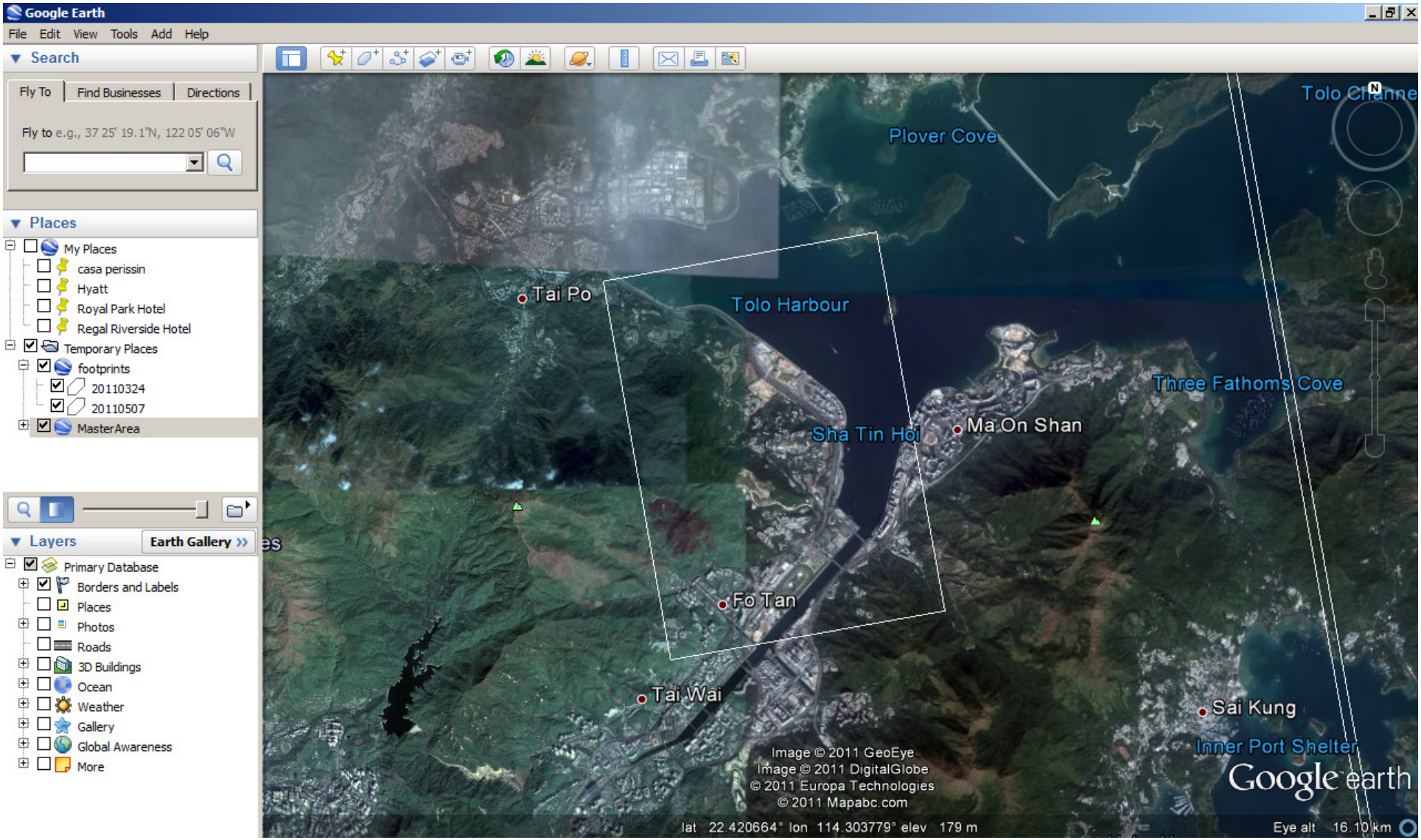


Choose the Area to process

1. Set the area center (lat and lon in decimal degrees)
2. Set the area size (samples and lines in pixels)
3. Press the "View" button to see the area in GE

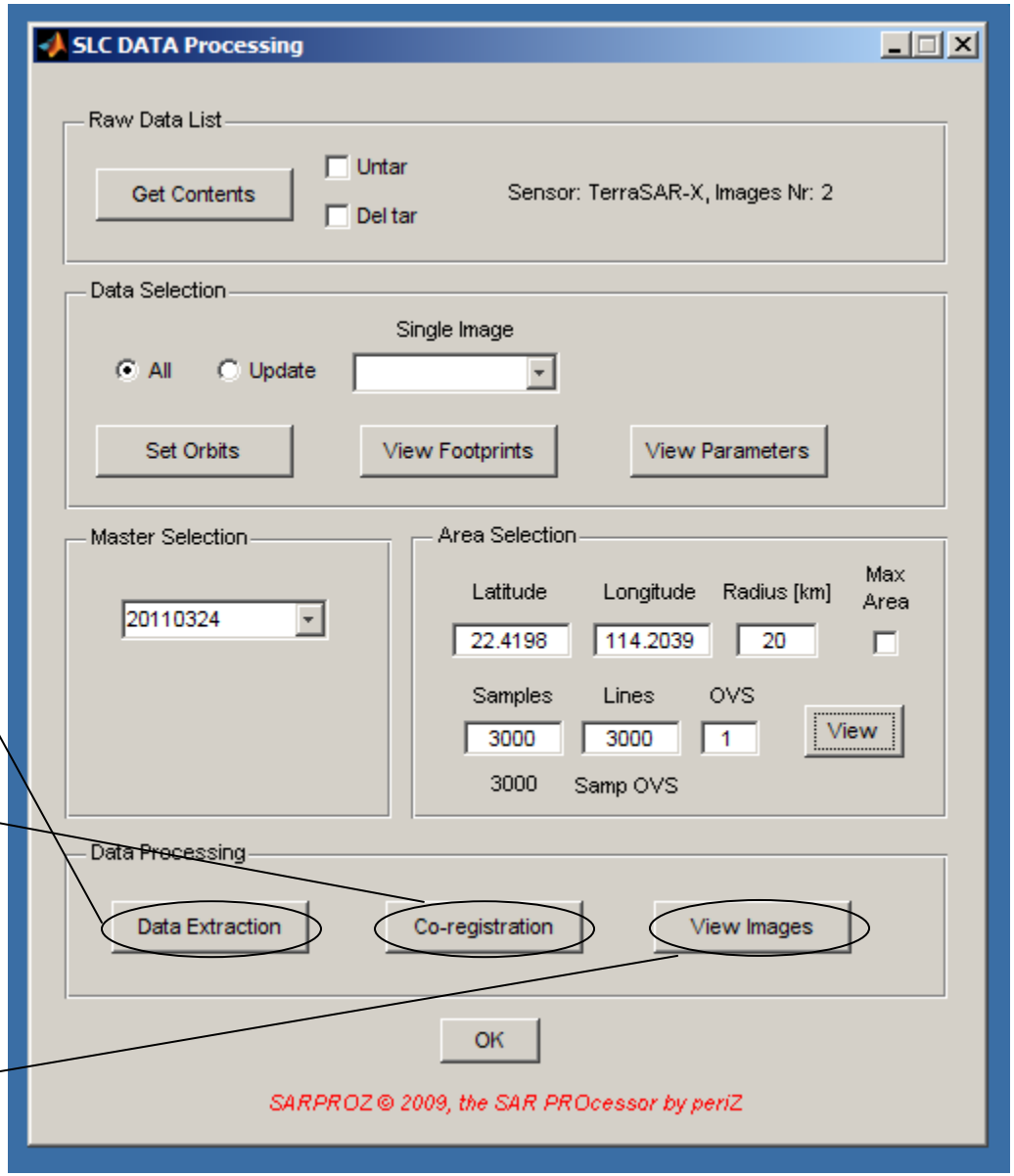


Selected Area



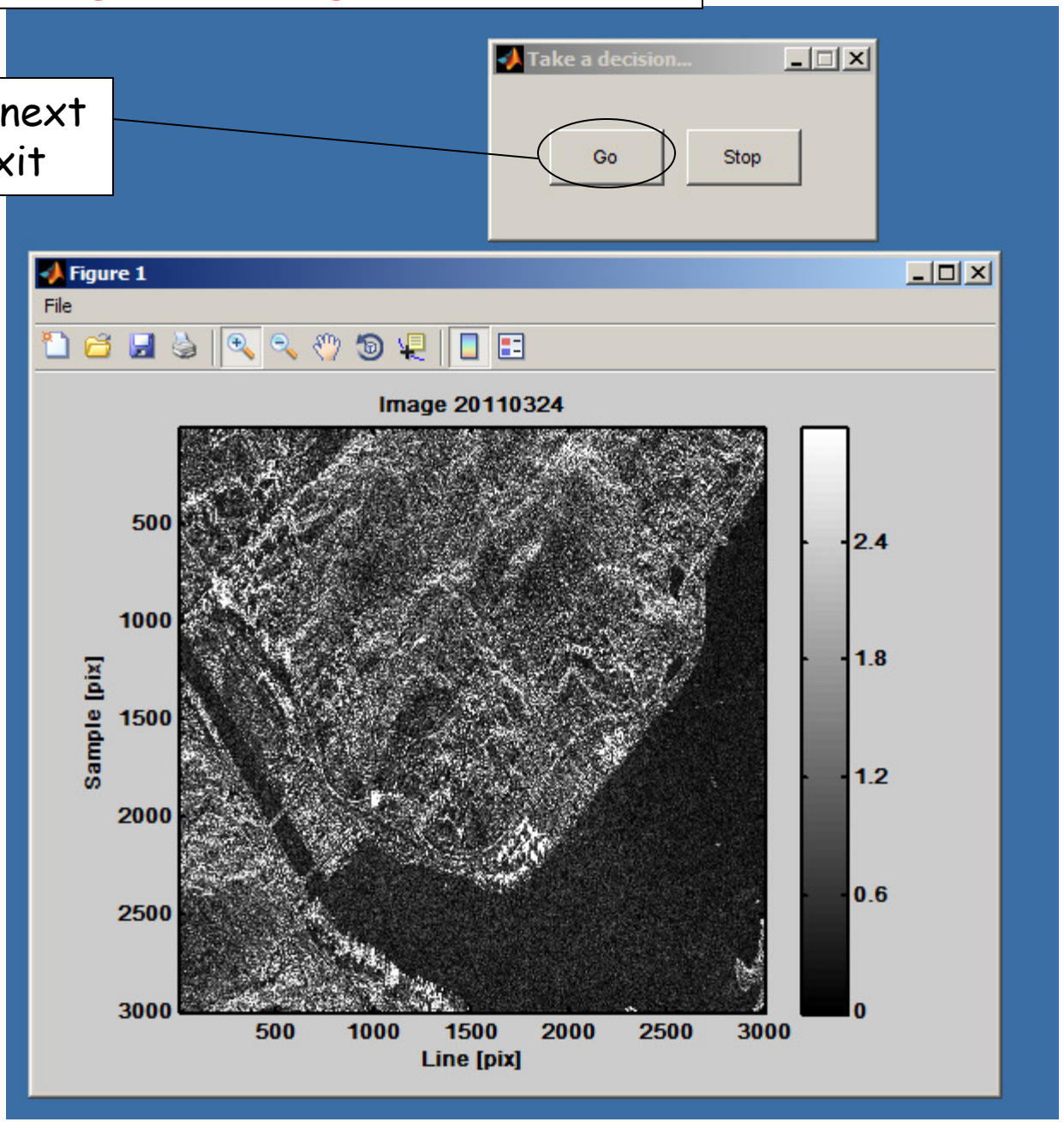
Extract and co-register the data

1. Press the "Data Extraction" button
2. When the previous step is successfully terminated, Press the "Co-registration" button
3. Check the result with "View Images"



Co-registered images visualization

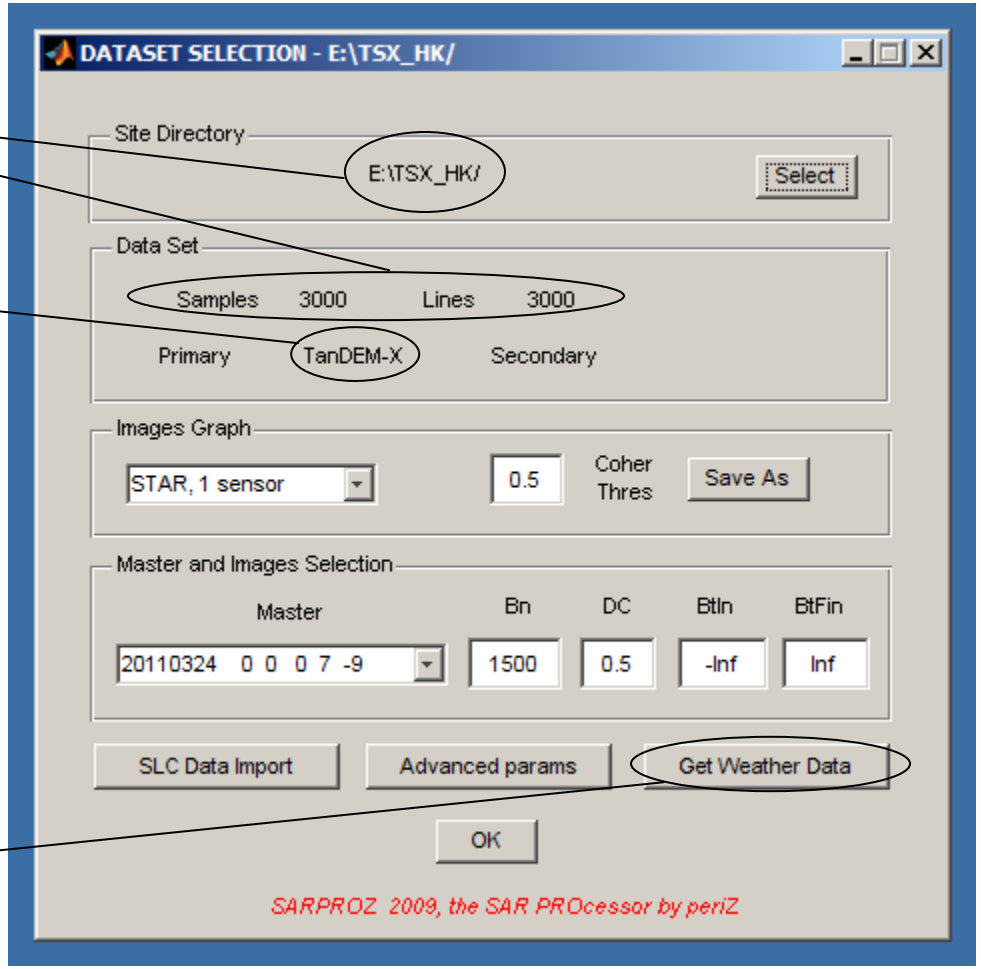
Press "Go" to view the next image or "Stop" to exit



When ready, press "OK" in "SLC Data Processing" window to close it

Dataset Selection

After data have been imported and co-registered, info like Samples, Lines, Sensor are displayed in "Dataset Selection"

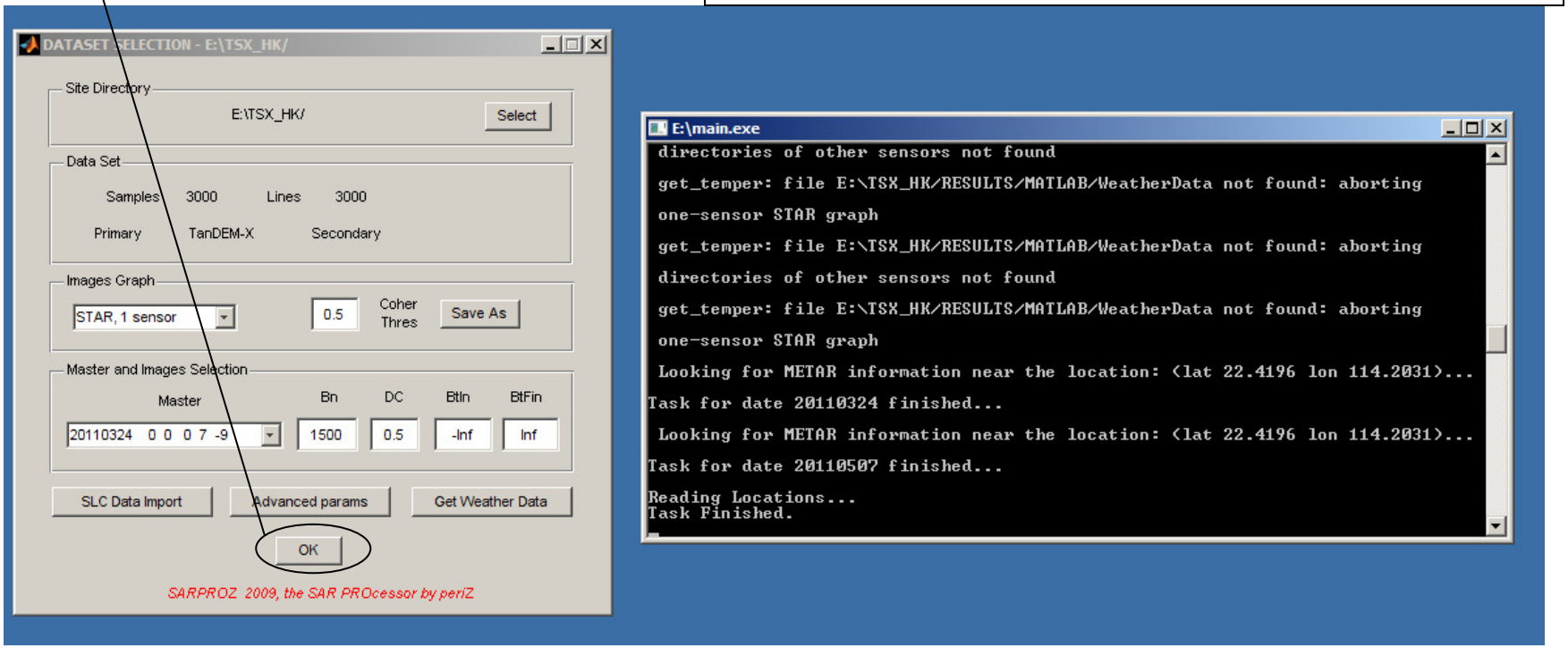


Use the button "Get Weather Data" to retrieve weather info from the web

Dataset Selection

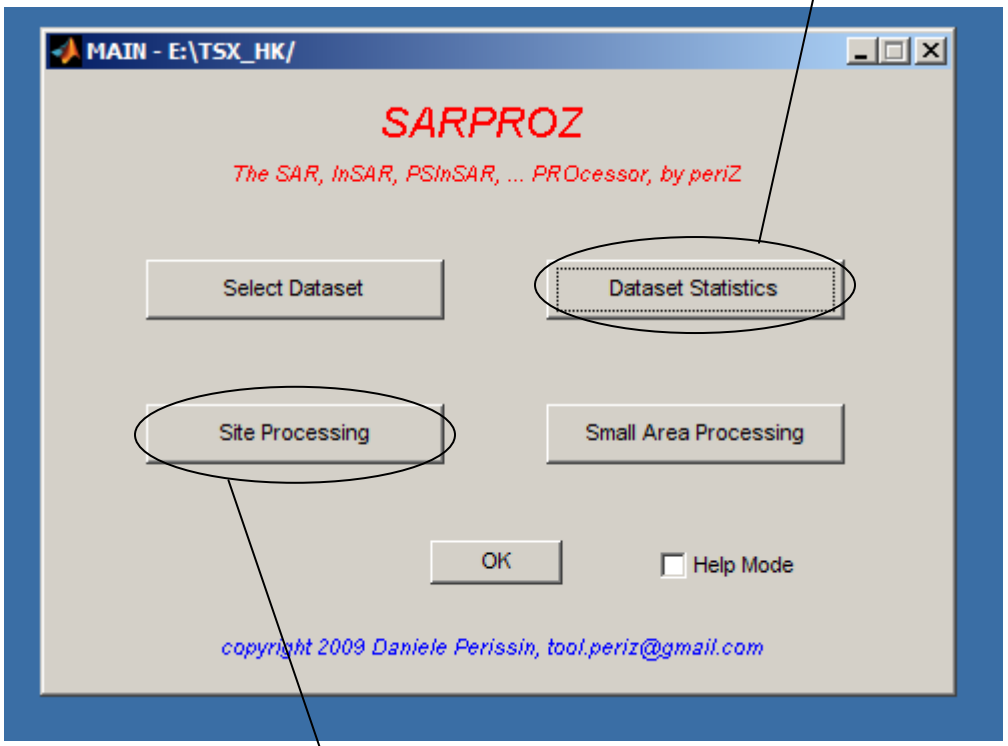
When ready, press "OK" to close the "Dataset Selection" window

Completed operations and messages are displayed in the command prompt



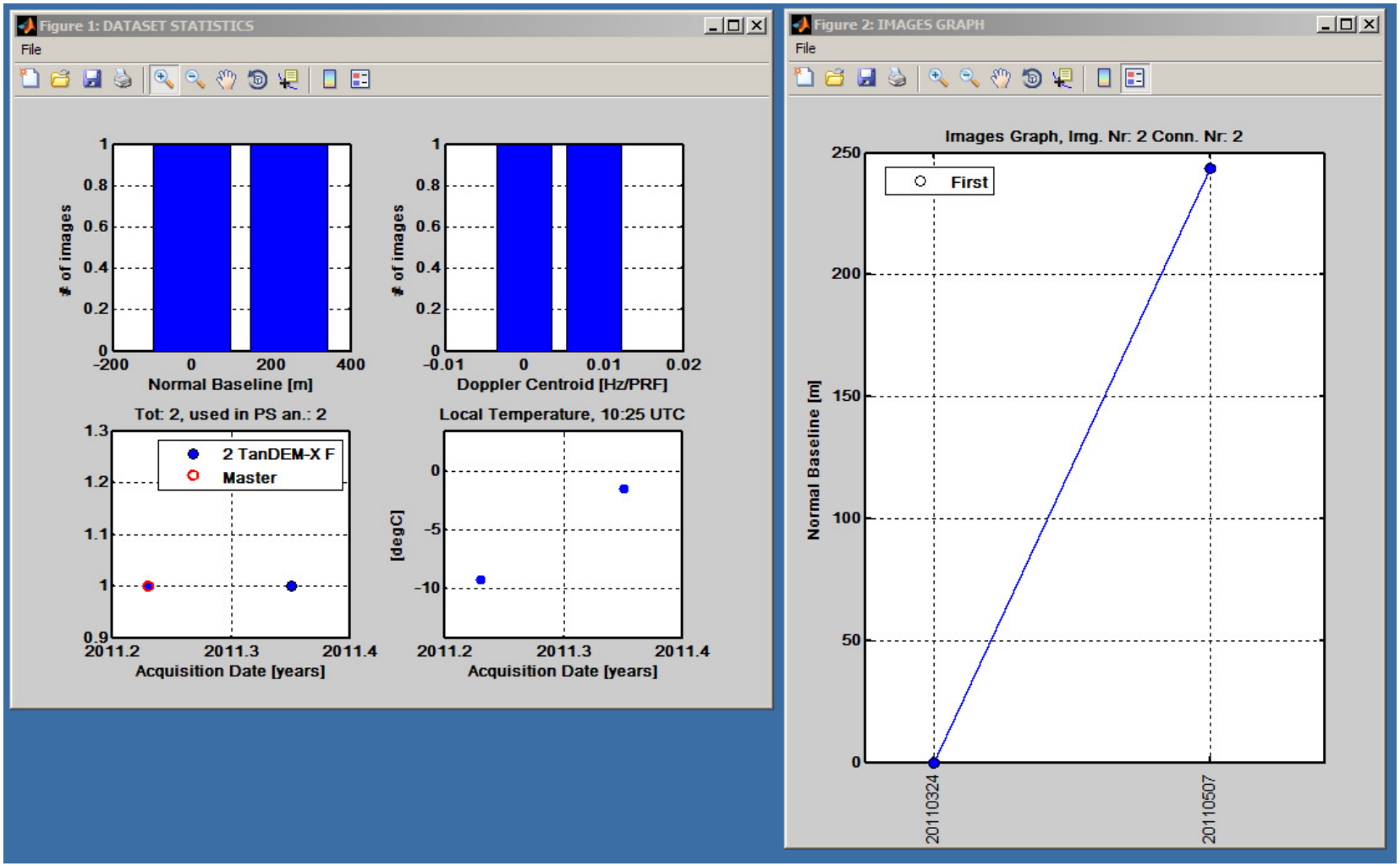
SARPROZ main window

Display the dataset parameters via button "Dataset Statistics"



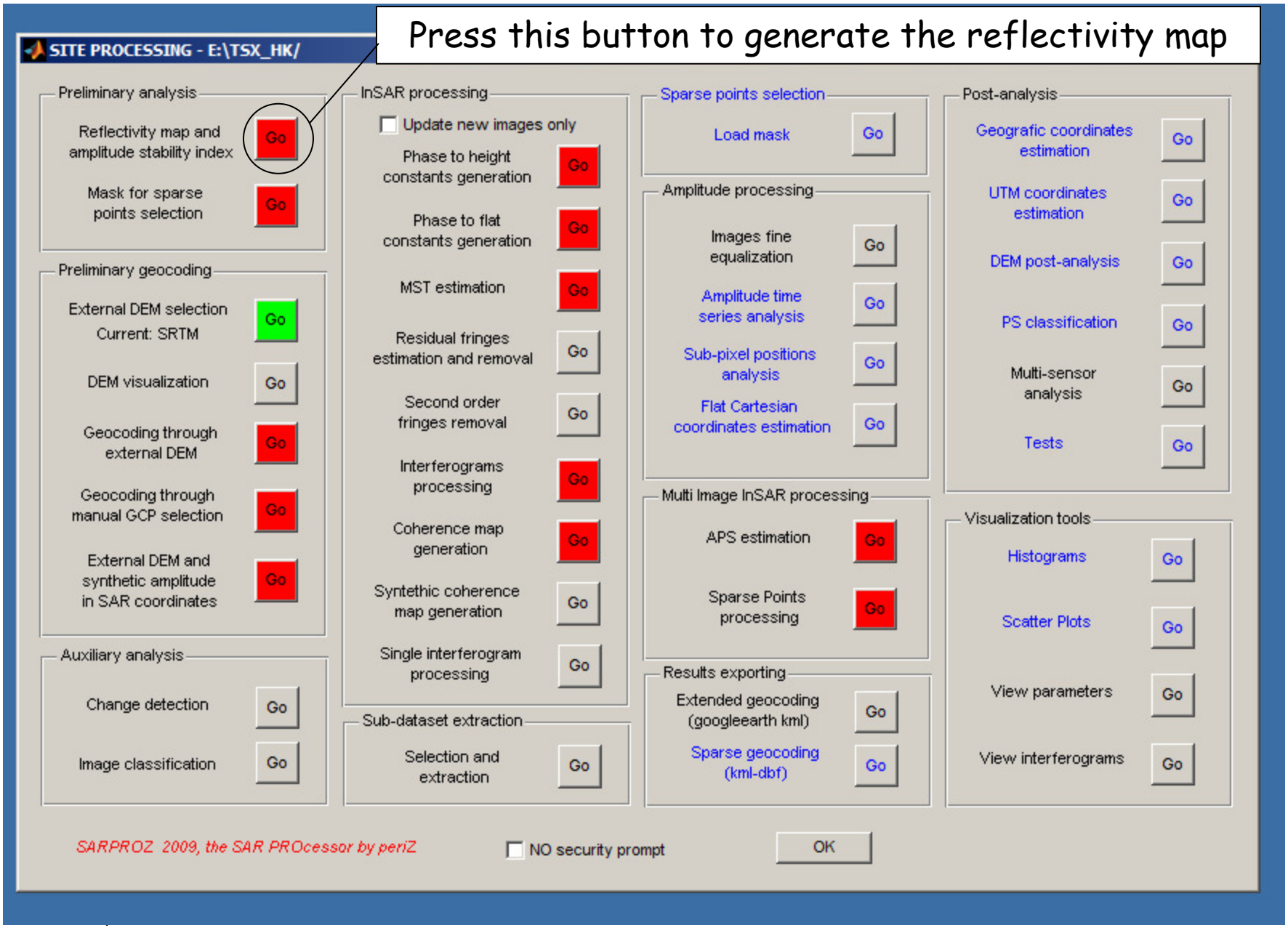
Processing modules are accessed through "Site Processing"

Dataset Parameters



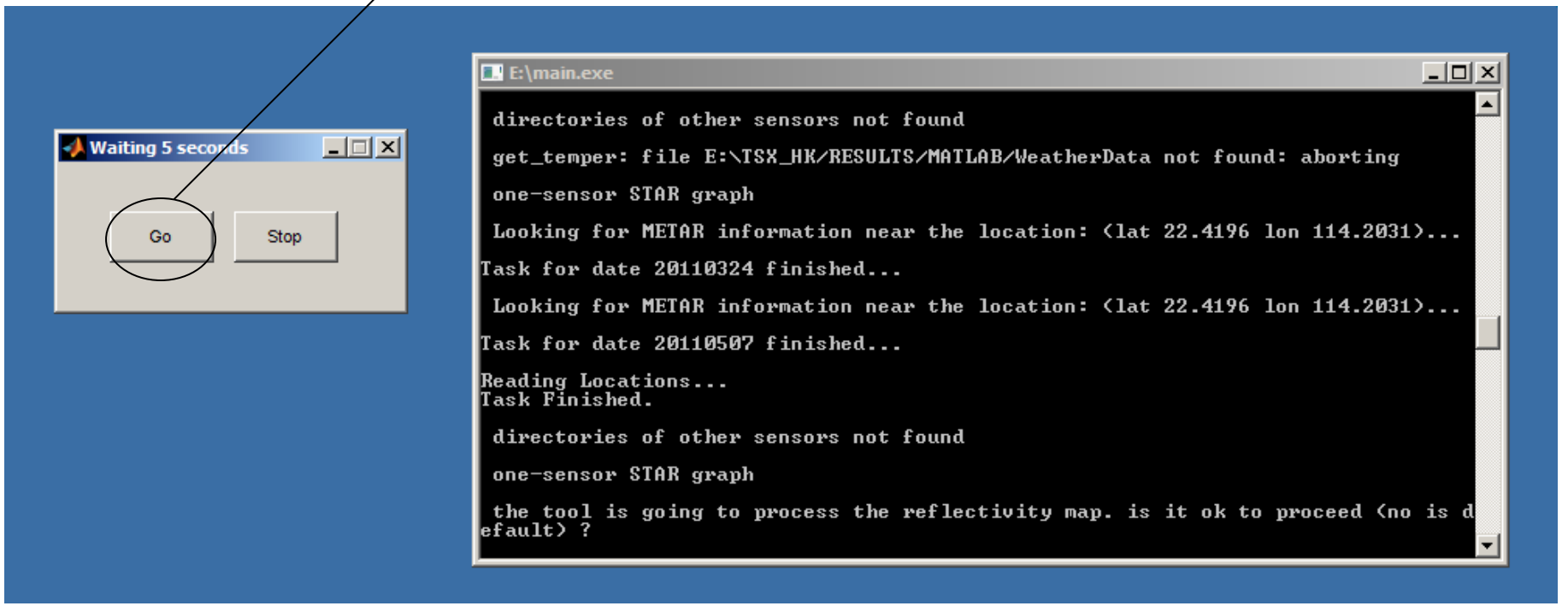
Generating the Reflectivity map

Site Processing



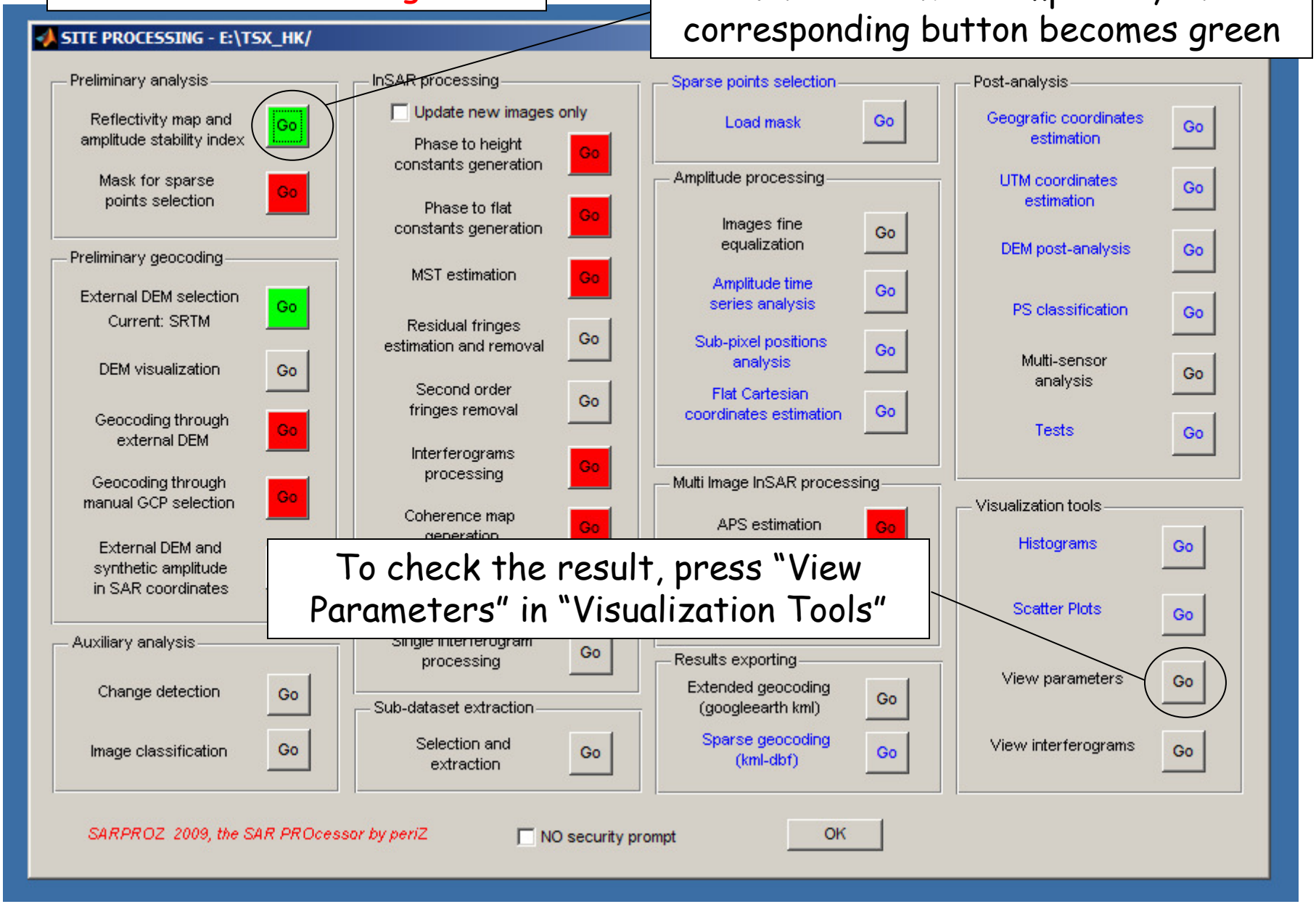
Security prompt

The tool asks for a confirm (to avoid possible mistakes)



Site Processing

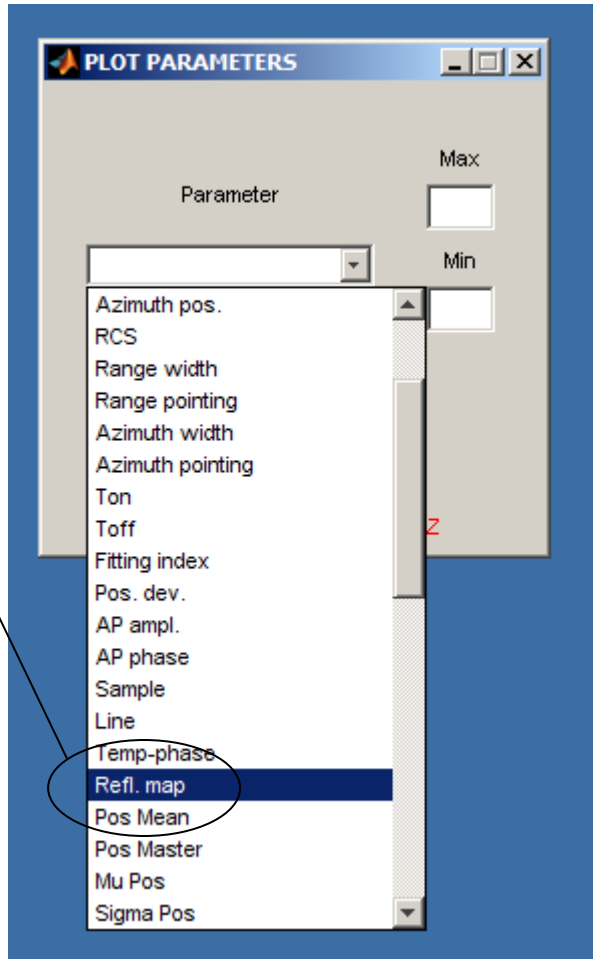
When a task is completed, the corresponding button becomes green



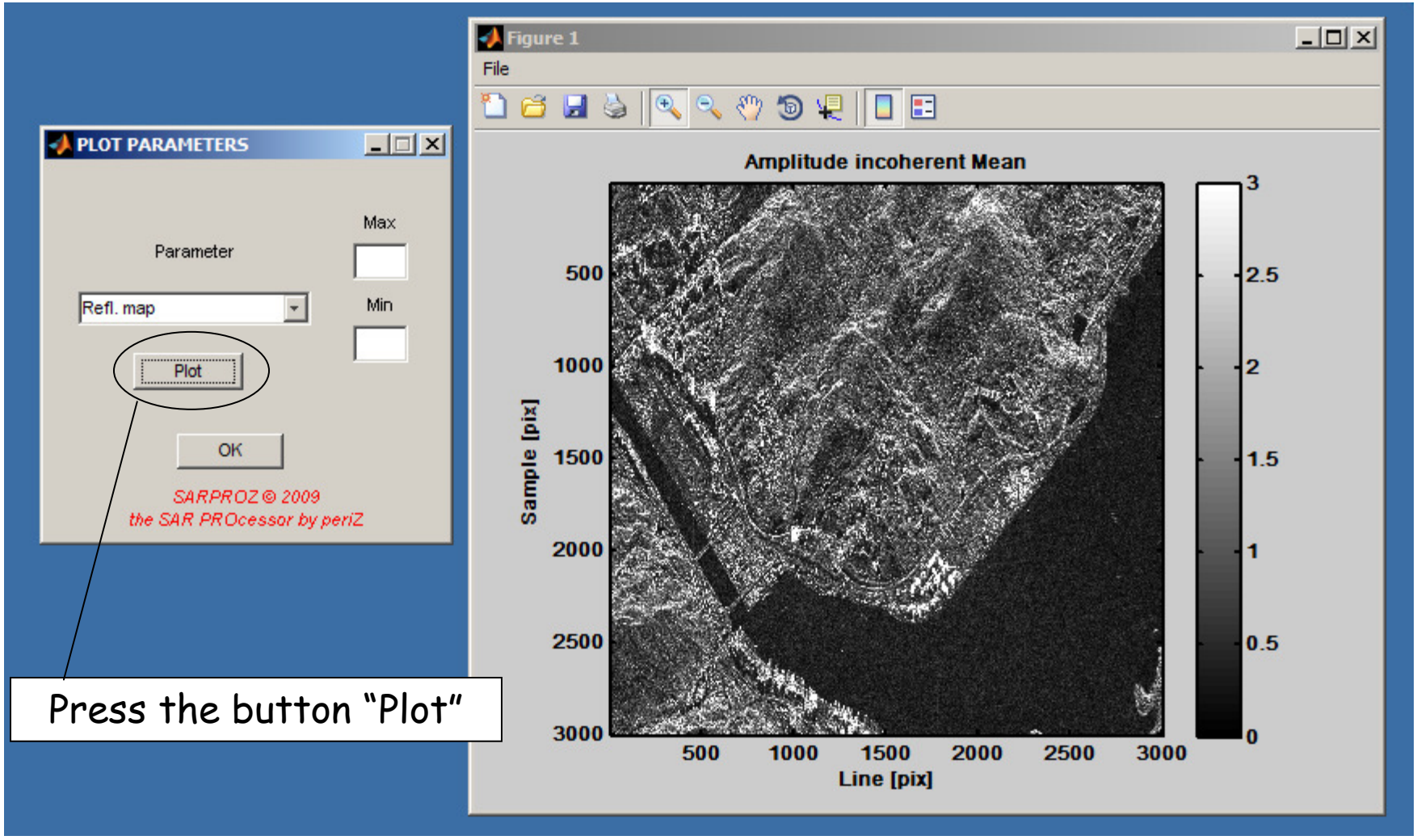
To check the result, press "View Parameters" in "Visualization Tools"

View Parameters

Select "Reflectivity Map" from the menu

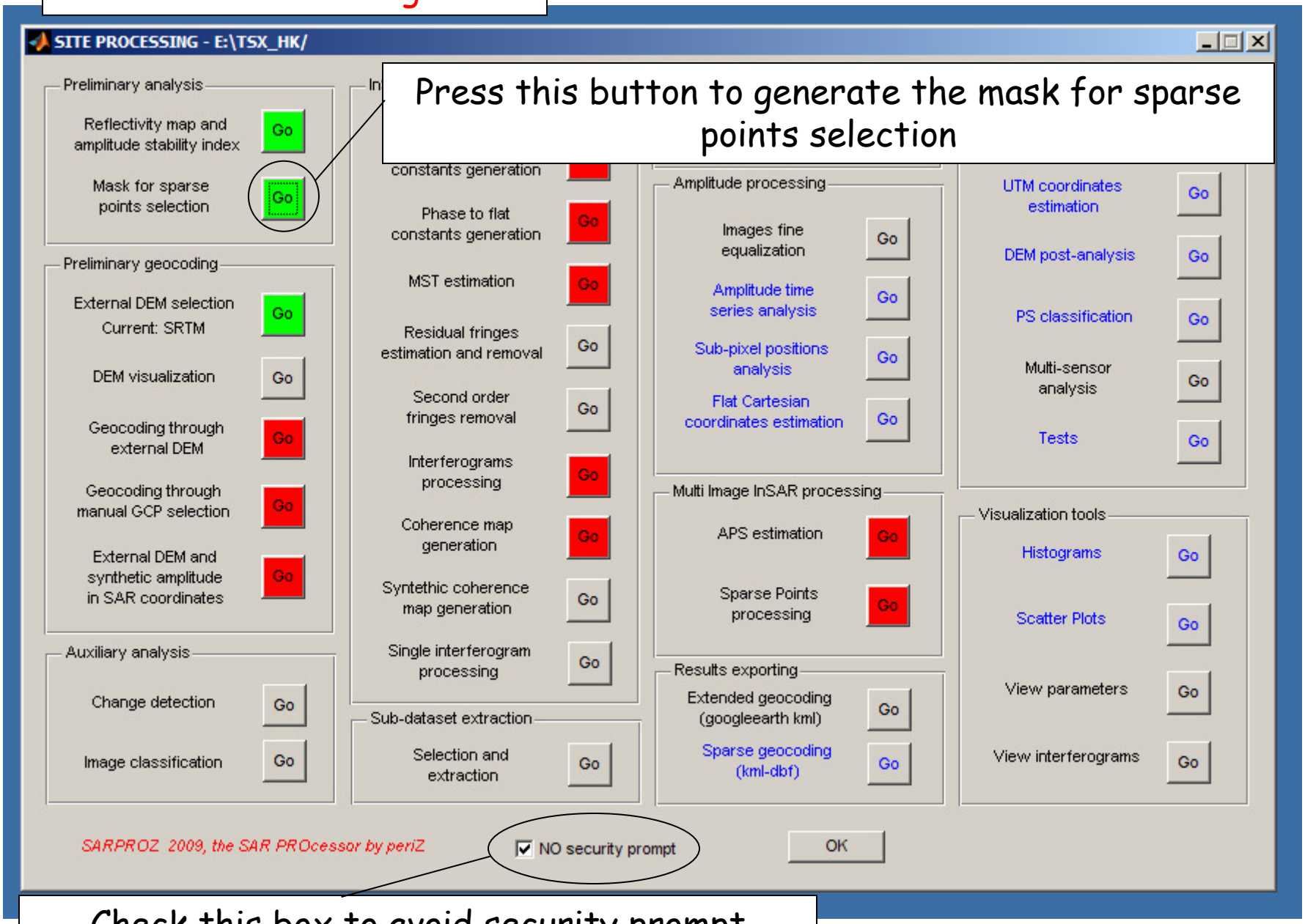


View Parameters



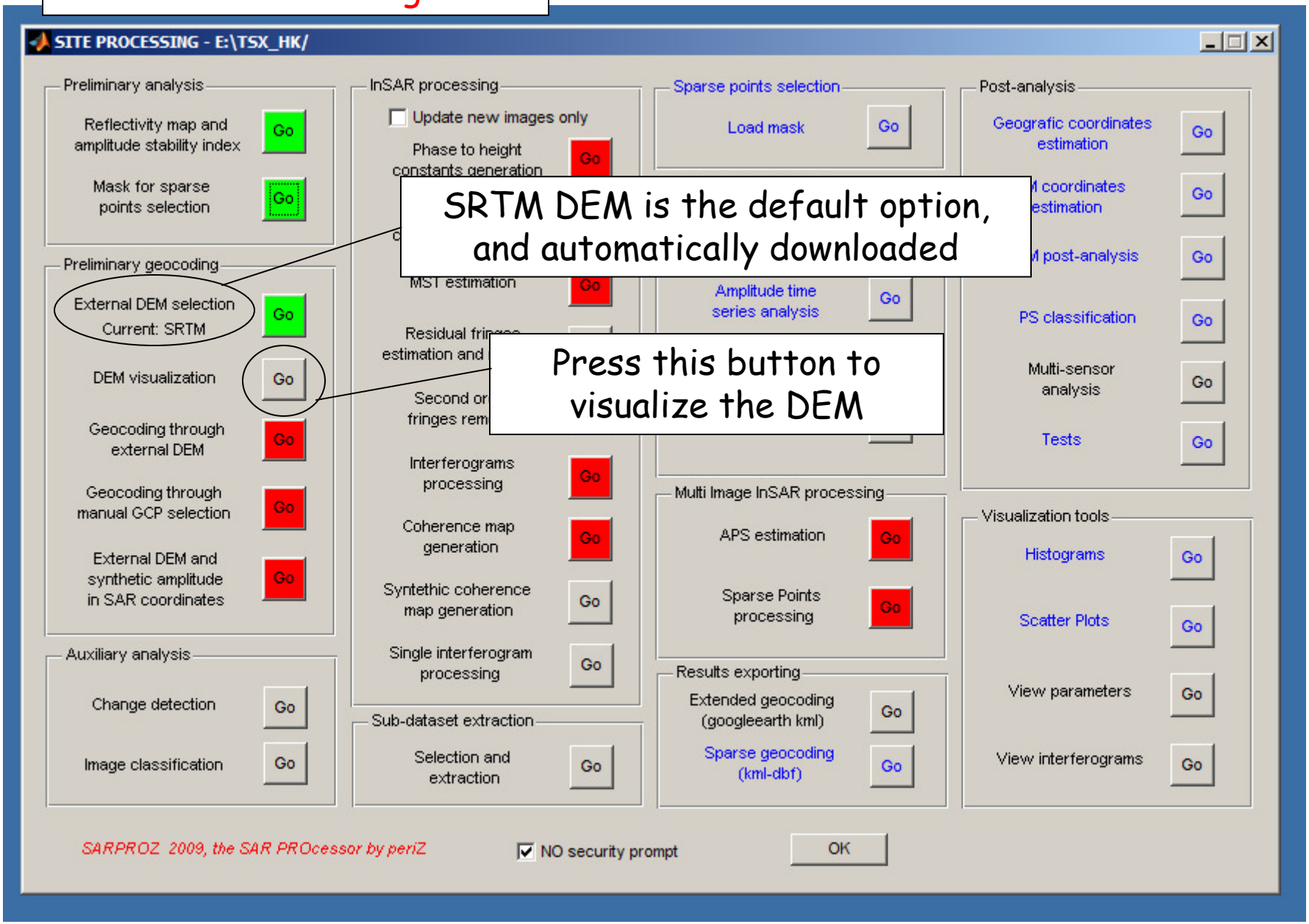
Press the button "Plot"

Site Processing



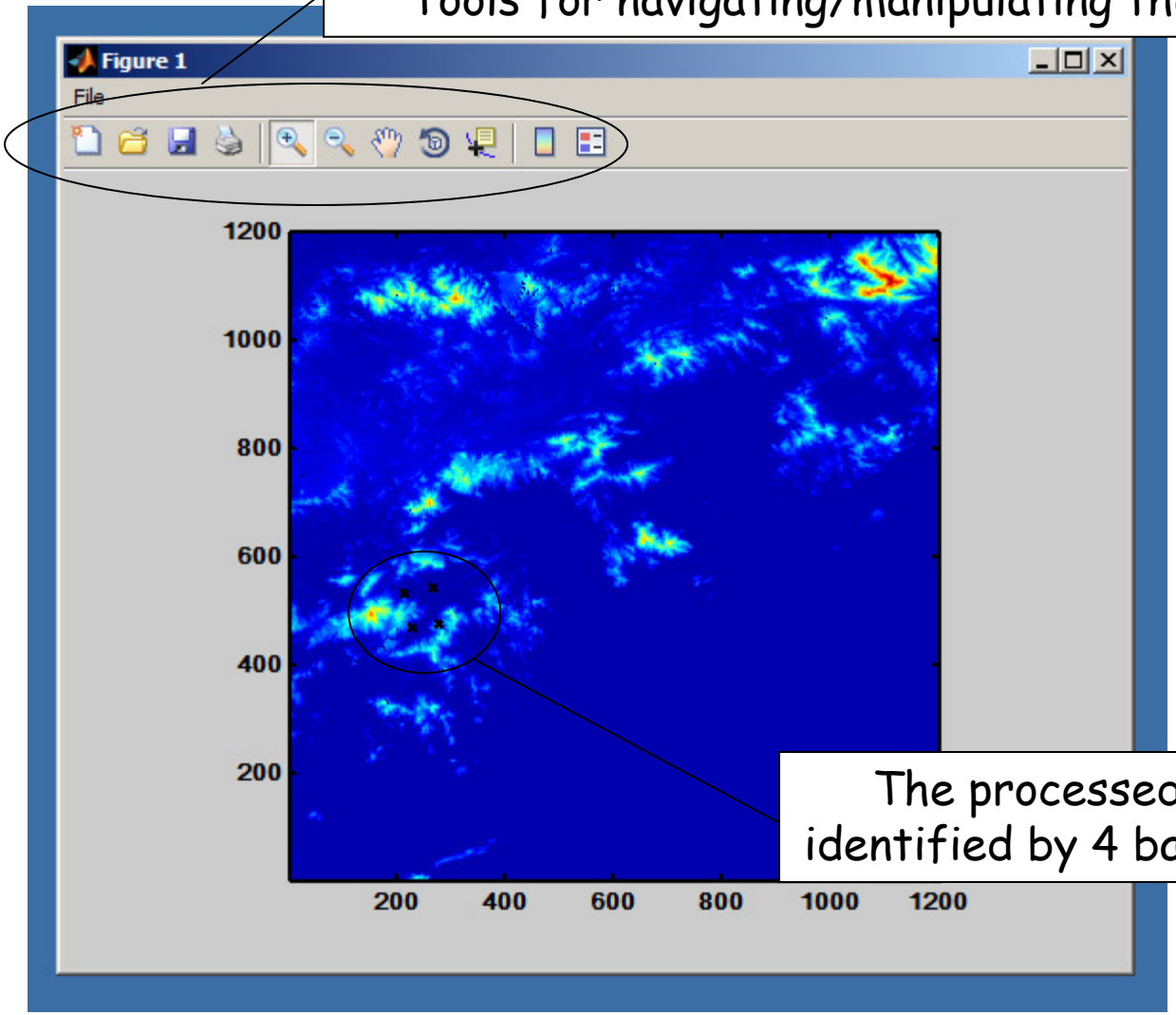
The external DEM

Site Processing



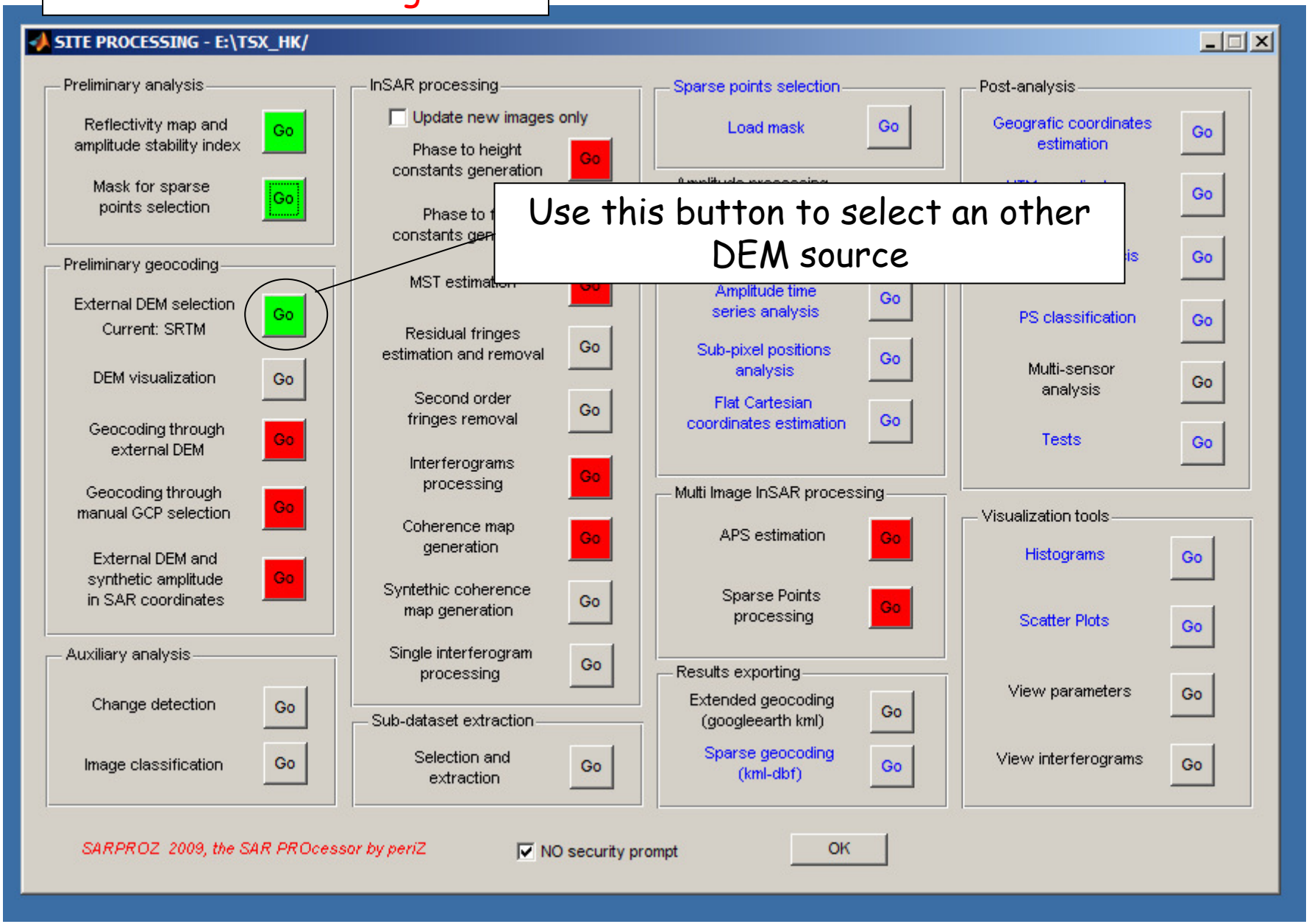
DEM visualization

Tools for navigating/manipulating the image



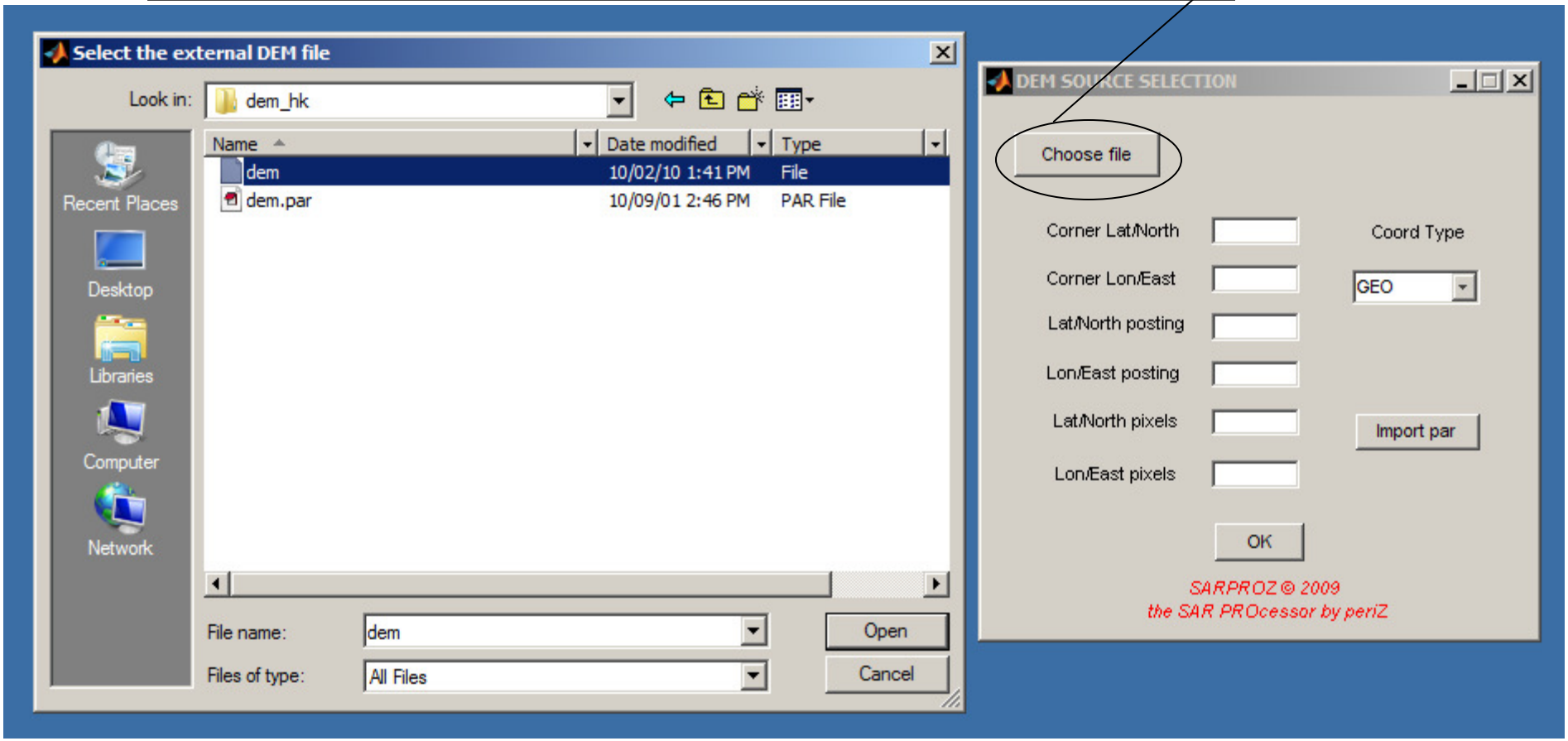
The processed area is identified by 4 back crosses

Site Processing

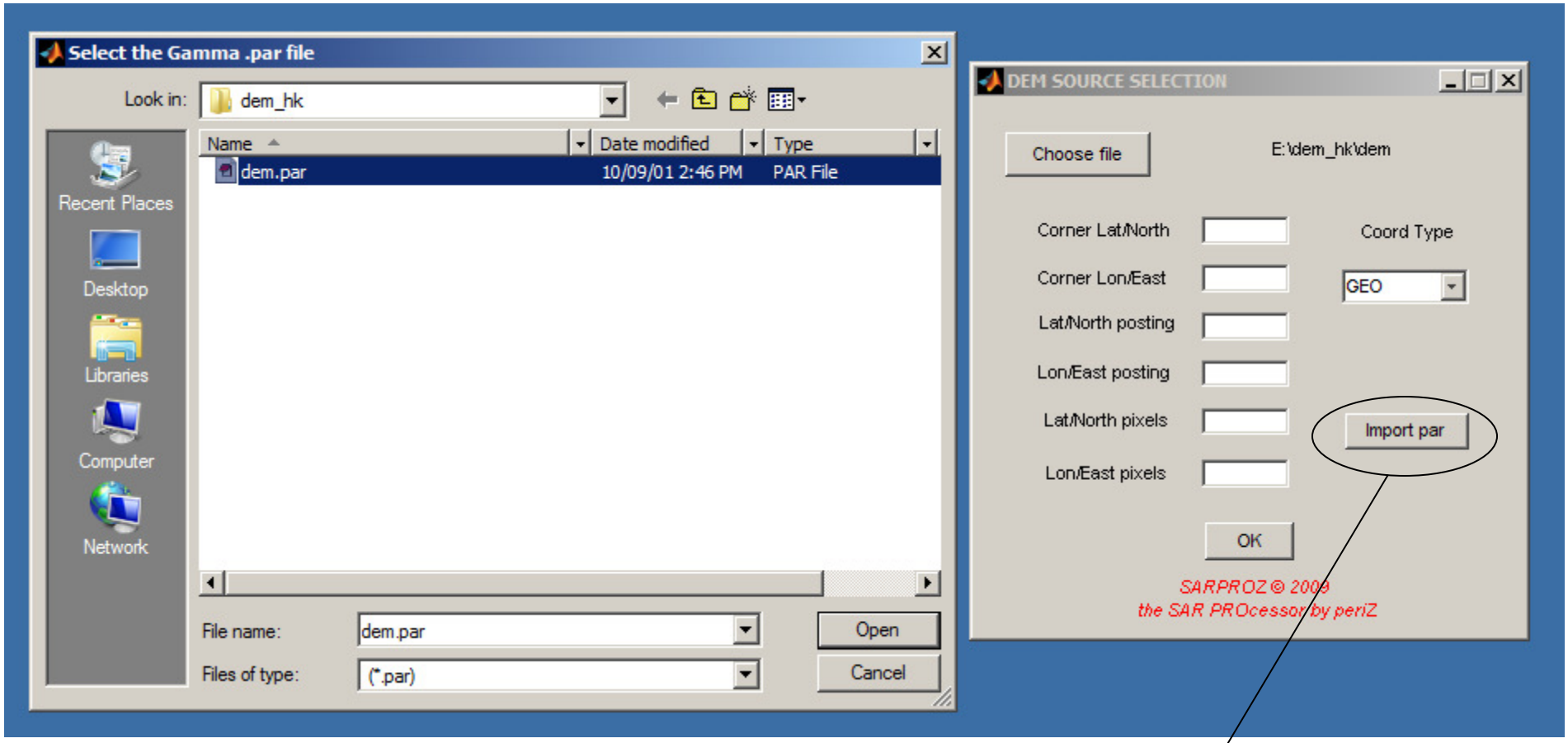


External DEM selection

Select a file containing the DEM data



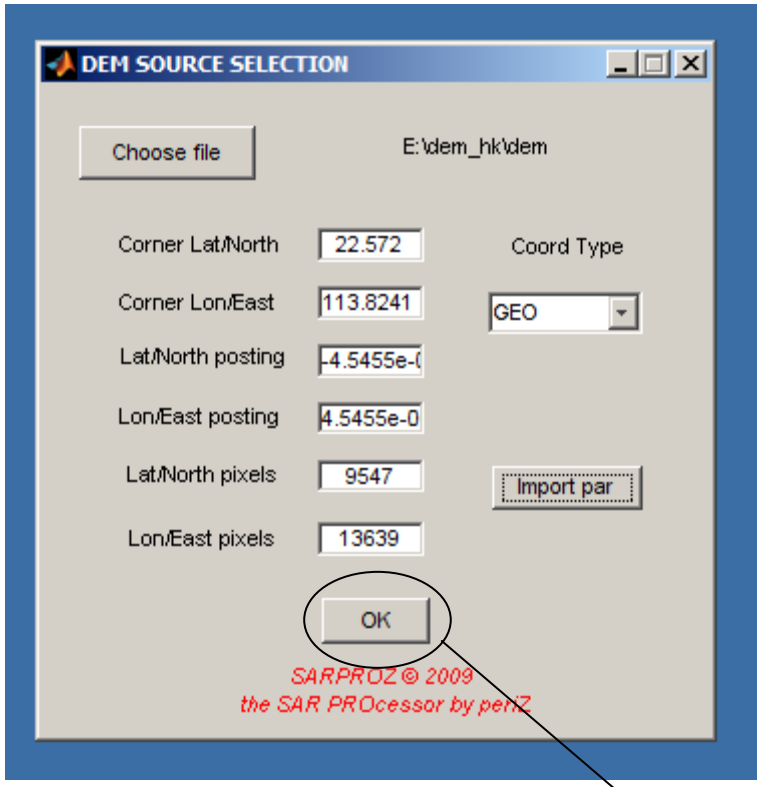
External DEM selection



Import a parameter file for reading the DEM data

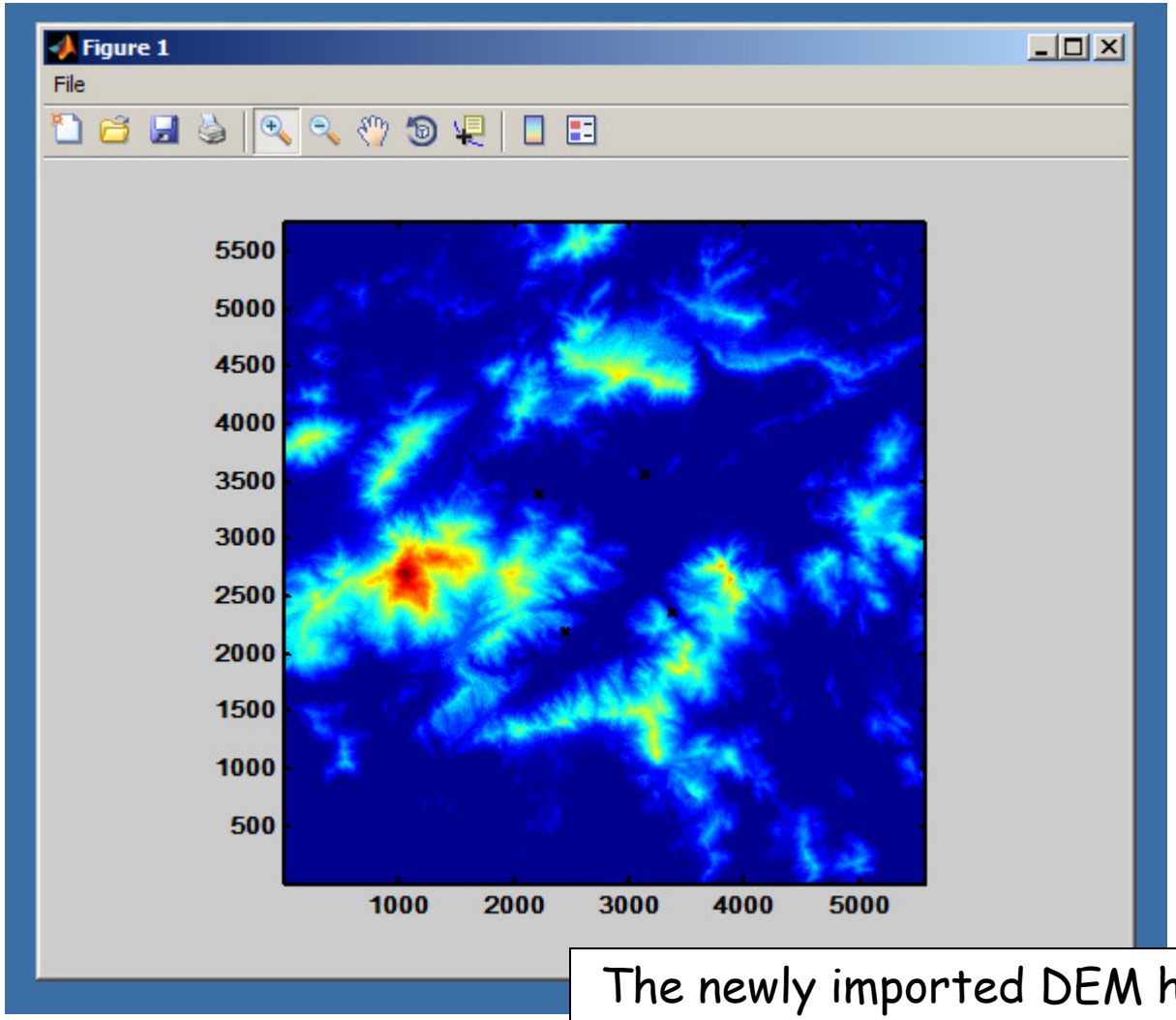
External DEM selection

Alternatively, fill in manually the DEM parameters



When completed, press the "OK" button

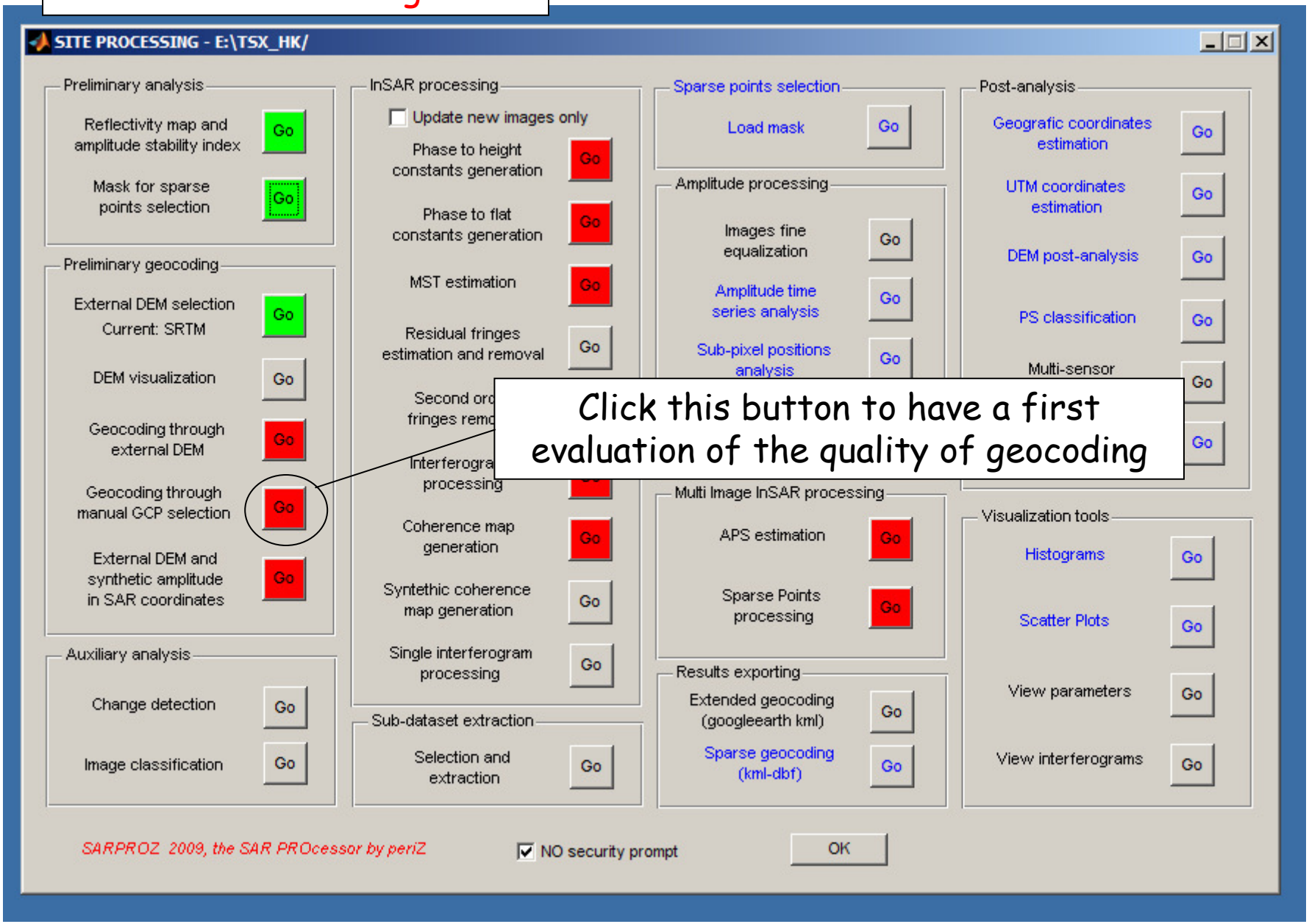
DEM visualization



The newly imported DEM has a better resolution than SRTM

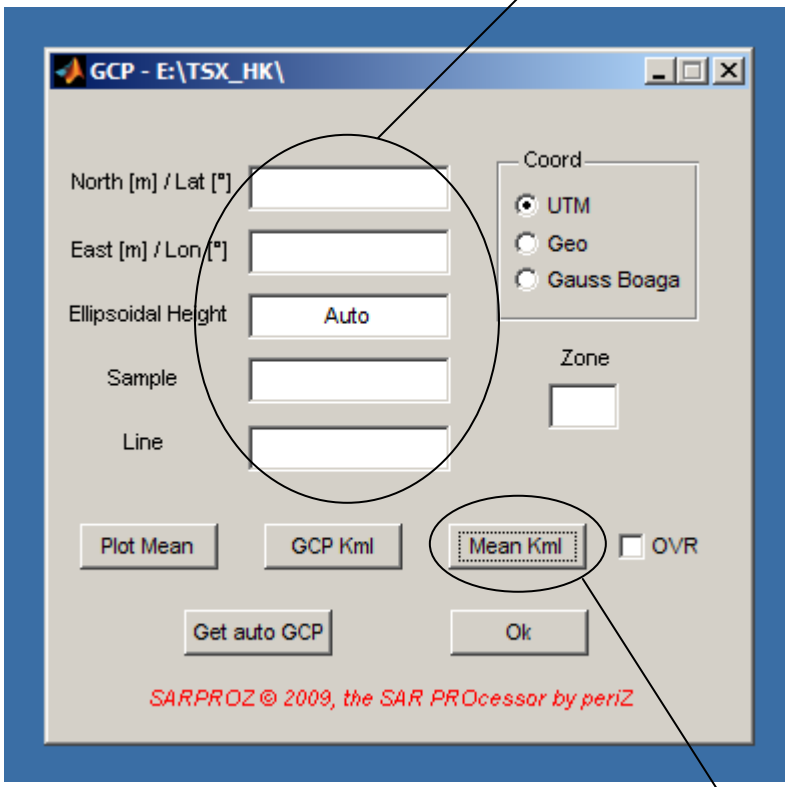
Preliminary geocoding

Site Processing



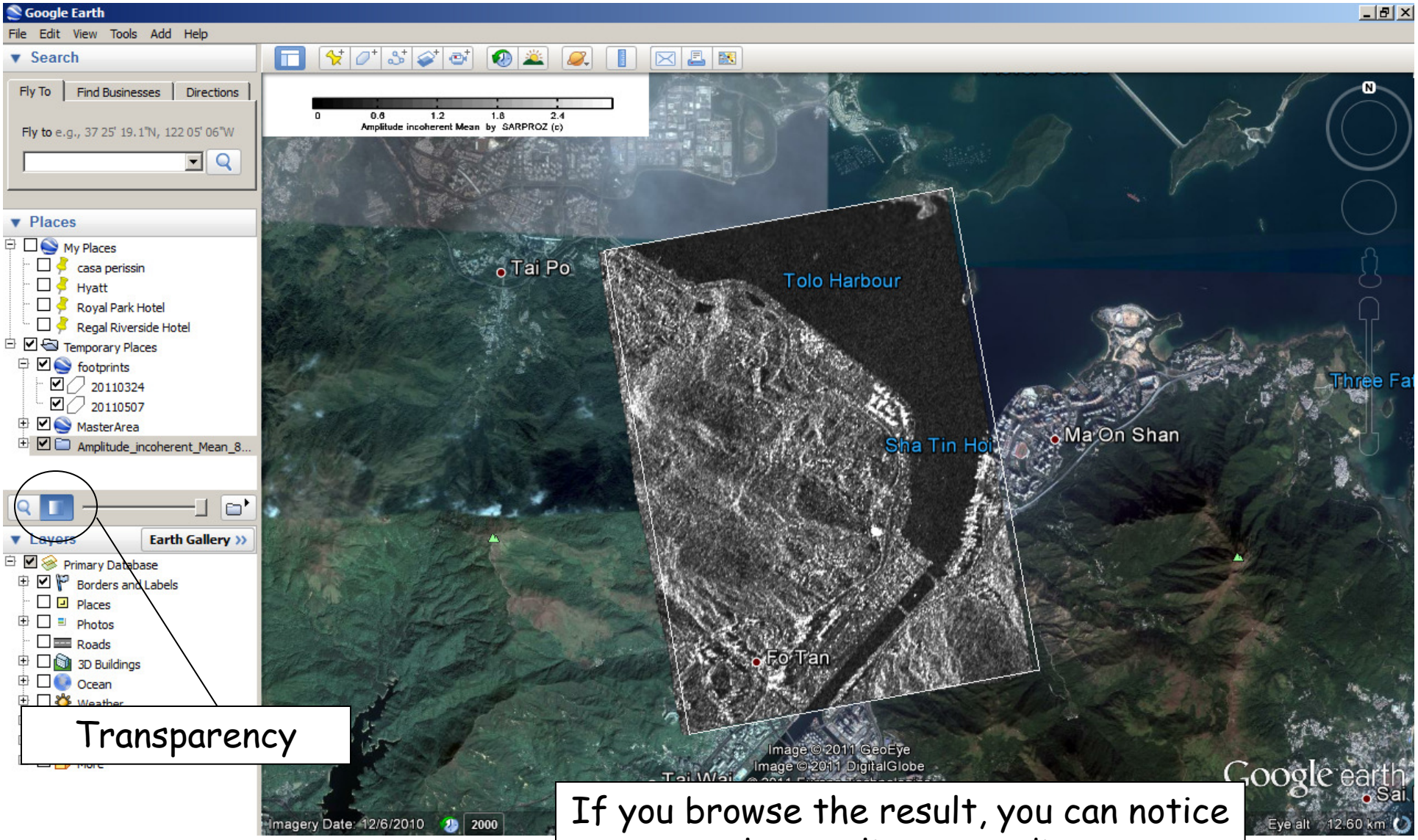
Geocoding through a GCP

No GCP has been inserted yet



Use this button to display the Reflectivity map in Google Earth

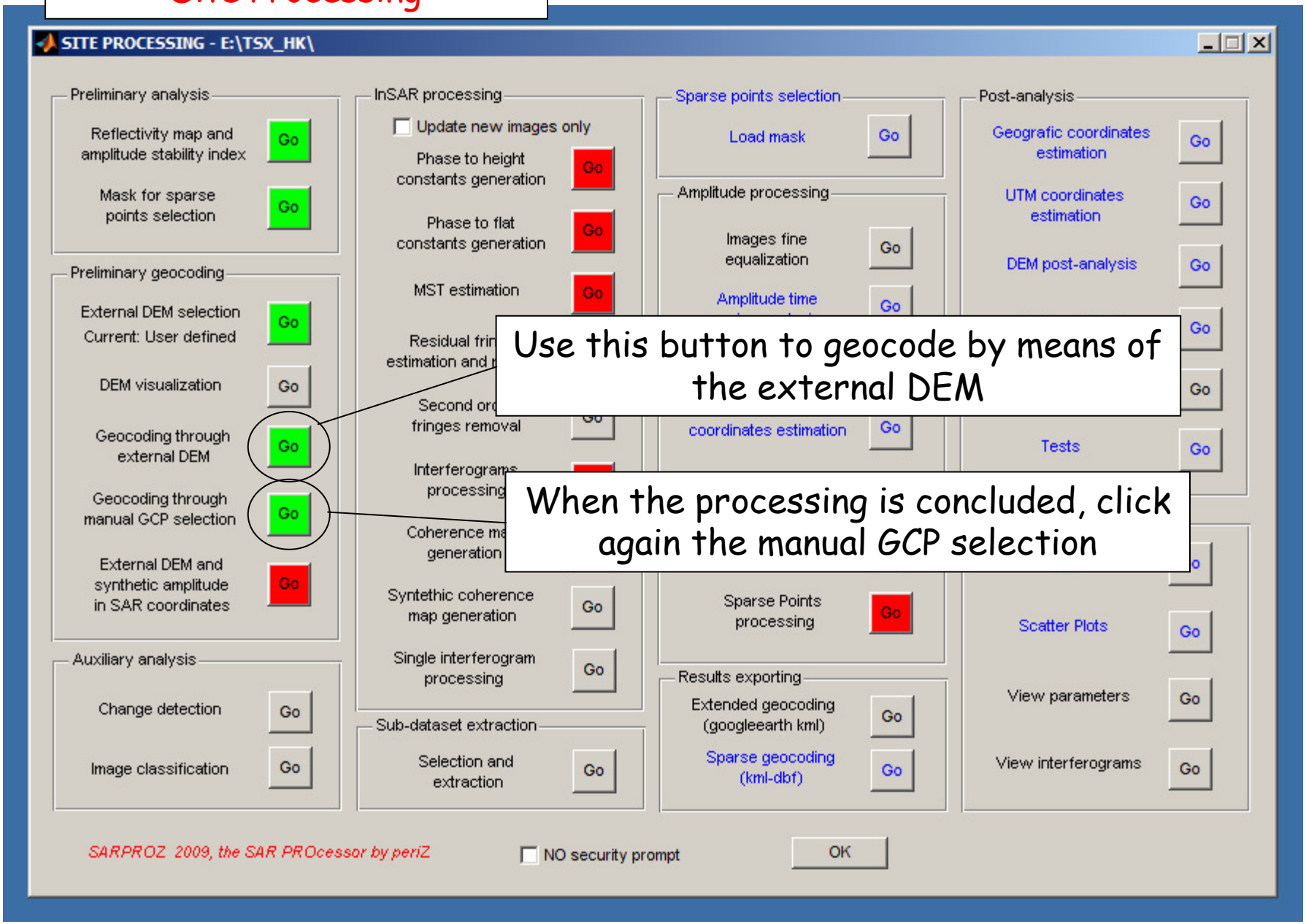
The Reflectivity Map in GE



Transparency

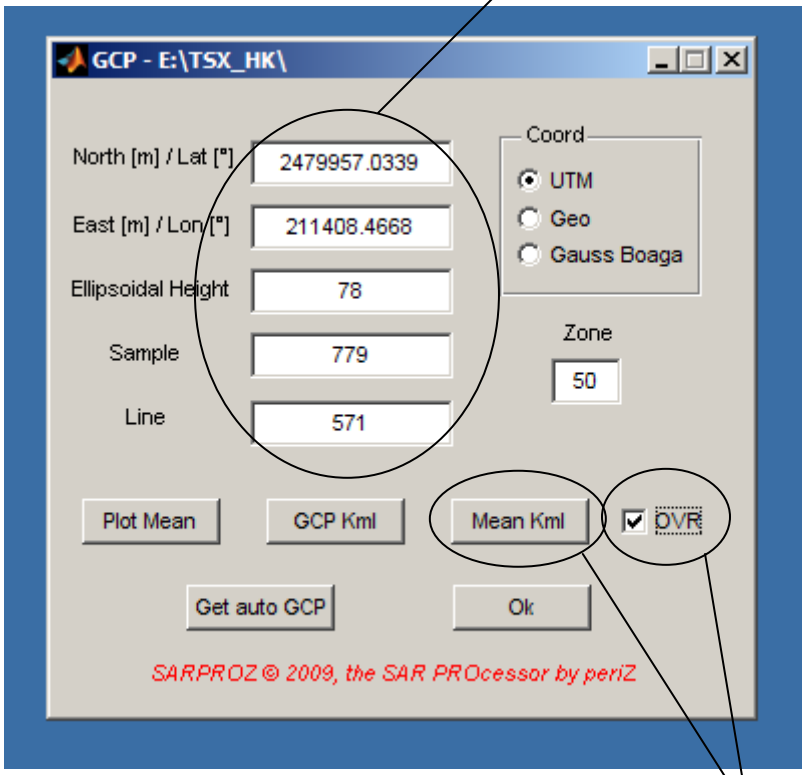
If you browse the result, you can notice a low quality geocoding

Site Processing



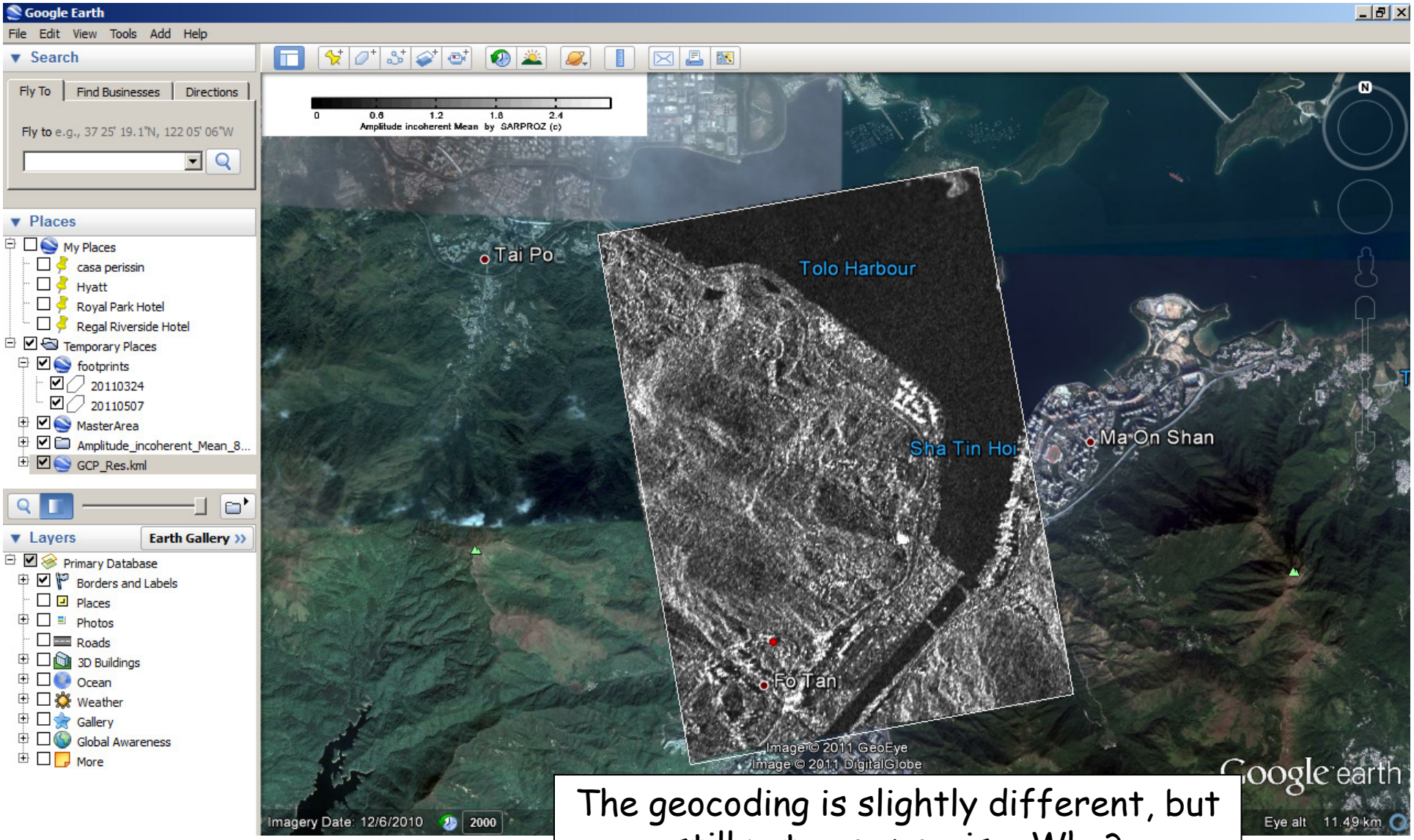
Geocoding through a GCP

After the automatic geocoding, a GCP is shown here



We can display again the reflectivity map in GE, but we need to check "OVR" to overwrite the previous result

The Reflectivity Map in GE



The geocoding is slightly different, but still not very precise. Why?

Site Processing