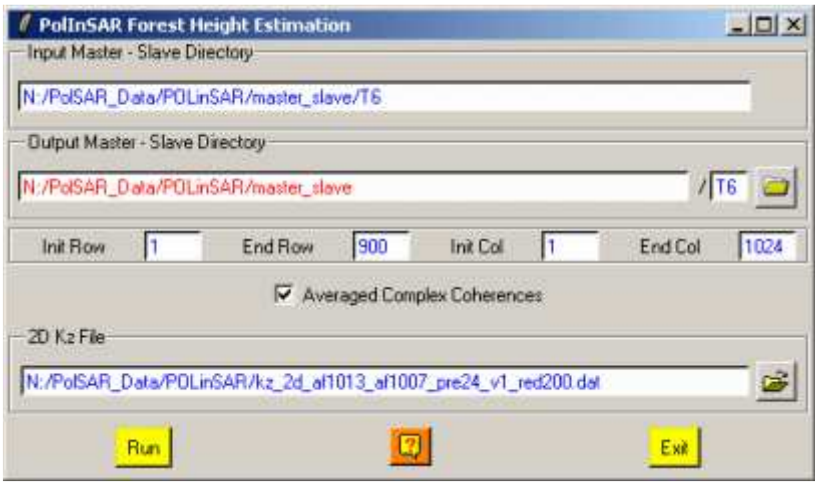
Forest Height Estimation



Description:

This function analyses forested terrain using single-baseline polarimetric SAR inteferometry. Based on a polarimetric coherent scattering model, forest parameters such as tree height and underlying ground topography are estimated by an inversion procedure. Further information about the scattering model and the inversion scheme can be found in :

S.R. Cloude and K.P. Papathanassiou: "A Three-stage inversion process for polarimetric SAR interferometry", IEEE Transaction on Signal Processing, June 2003.

Comments:

Parameters written in Red can be modified directly by the user from the keyboard.

Input/Output Arguments:

Input Master-Slave Directory	Indicates the complete location of the considered **Main Directory / T6 (MD / T6)** containing the data to be processed.
Output Master-Slave Directory	Indicates the location of the processed data output directory. The default value is set automatically to : **MainDirectory (MD / T6)**.

Output Image Number of Rows/Columns:

The output image numbers of rows and columns are initialised to the input data set dimensions.

Averaging Complex Coherence:

To select or not the averaged complex coherence files on which will be applied the inversion algorithm.

2D Kz File:

External file providing the 2D Kz information obtained from the acquisition track information file.

Complex Coherences:

To apply the inversion algorithm, the Input Directory must contain the following complex coherence files:

- Linear representation of the considered complex coherences : coh_hhhh.bin, coh_hvhv.bin, coh_vvvv.bin
- Circular representation of the considered complex coherences : coh_llll.bin, coh_lrlr.bin, coh_rrrr.bin
- Pauli representation of the considered complex coherences : coh_pauli1.bin, coh_pauli2.bin
- Optimal polarization state representation of the considered complex coherences : coh_opt1.bin, coh_opt2.bin, coh_opt3.bin

If the flag Averaging Complex Coherences is selected, the Input Directory must contain the following complex coherence files:

- Linear representation of the considered complex coherences : coh_avg_hhhh.bin, coh_avg_hvhv.bin, coh_avg_vvvv.bin
- Circular representation of the considered complex coherences : coh_avg_llll.bin, coh_avg_lrlr.bin, coh_avg_rrrr.bin
- Pauli representation of the considered complex coherences : coh_avg_pauli1.bin, coh_avg_pauli2.bin
- Optimal polarization state representation of the considered complex coherences : coh_avg_opt1.bin, coh_avg_opt2.bin, coh_avg_opt3.bin

Note: Complex format corresponds to 4 bytes interlaced real and imaginary parts.

Output Files:

The output files are:

- height.bin : Tree Height Estimation
- phi_0.bin : Underlying ground topography
- mask.bin : Validity mask. An evaluation of the interferometric coherence accounting estimation, system, geometry, and scattering issues in terms of a quality/validity map is provided.