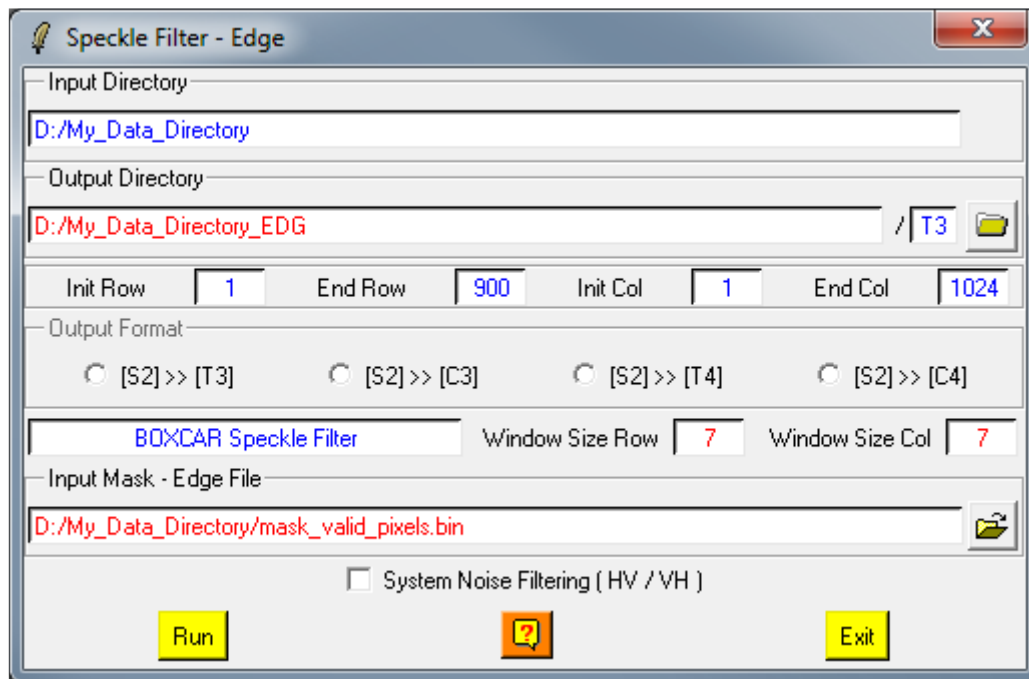# Speckle Filter with Edge



**Description:**

This function is used to apply a Polarimetric Speckle filtering on polarimetric raw binary data.

This function filters polarimetric complex raw binary data sets using a Boxcar filter which performs incoherent averaging within a (N*N) sliding window (W), weighted by the values of an edge detector.

According to the input data format, indicated in the widget, different compatible output data formats are proposed according the following table:

| Input Data Format | Output Data Format |
|---|---|
| (2x2) Sinclair matrix [S2] | [T3], [T4], [C3], [C4] |
| (3x3) Coherency matrix [T3] | [T3] |
| (4x4) Coherency matrix [T4] | [T4] |
| (2x2) Covariance matrix [C2] | [C2] |
| (3x3) Covariance matrix [C3] | [C3] |
| (4x4) Covariance matrix [C4] | [C4] |
| Dual Polarimetric Elements (Sxx, Sxy) | [C2] |
| Intensities (Ixx, Ixy) | (Ixx, Ixy) |

## Comments:

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

## Input/Output Arguments:

| | |
|---|---|
| **Input Directory** | Indicates the location of the considered **Main Directory (MD)** containing the polarimetric data sets to be filtered. |
| **Output Directory** | Indicates the location of the filtered data output directory. The default value is set automatically to : **Main Directory_EDG / YY**. where **YY** is associated with the Output Data Format (**C2, C3**, **C4, T3** or **T4**). |
| **Input Mask - Edge File** | Full path name of the Edge Detector binary data file to be used as mask during the data filtering. |

## Output Image Number of Rows/Columns:

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

Users wishing to process a sub-part of the initial image can modify the **Init** and **End** values of the converted images rows and columns.

Note: init and end values have to remain within the range defined by the input image dimensions.

## Filtering Parameters:

| | |
|---|---|
| **Window size** | Users have to set the size of the (N*N) sliding window used to compute the local estimate of the average matrix. The default value of N is set to **7**. |