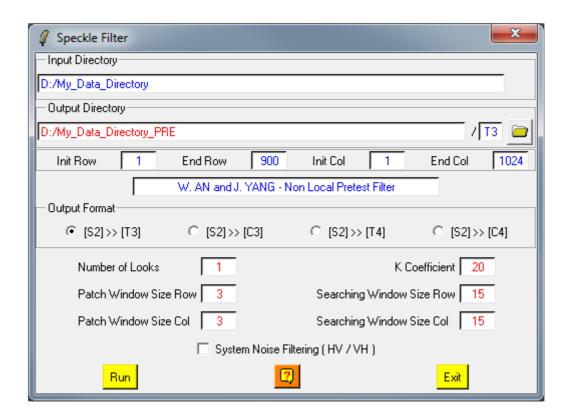# An - Yang Speckle Filter

Description:

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

The proposed polarimetric Speckle Filetr is :

- W. AN & J. YANG - Non Local Pretest Filter.

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]

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_PRE / YY.
where **YY** is associated with the Output Data Format (**C2, C3**, **C4, T3** or **T4**).

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 (Patch and Search)   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 3 for the Patch Window and to 15 for the Search Window.

Number of Looks   Users have to set the Input data equivalent number of looks used to compute the a priori input speckle noise variance.
The default value of N is set to **1**.

Note : The W. AN & J. YANG - Non Local Pretest Filter functionality is a contribution by :

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