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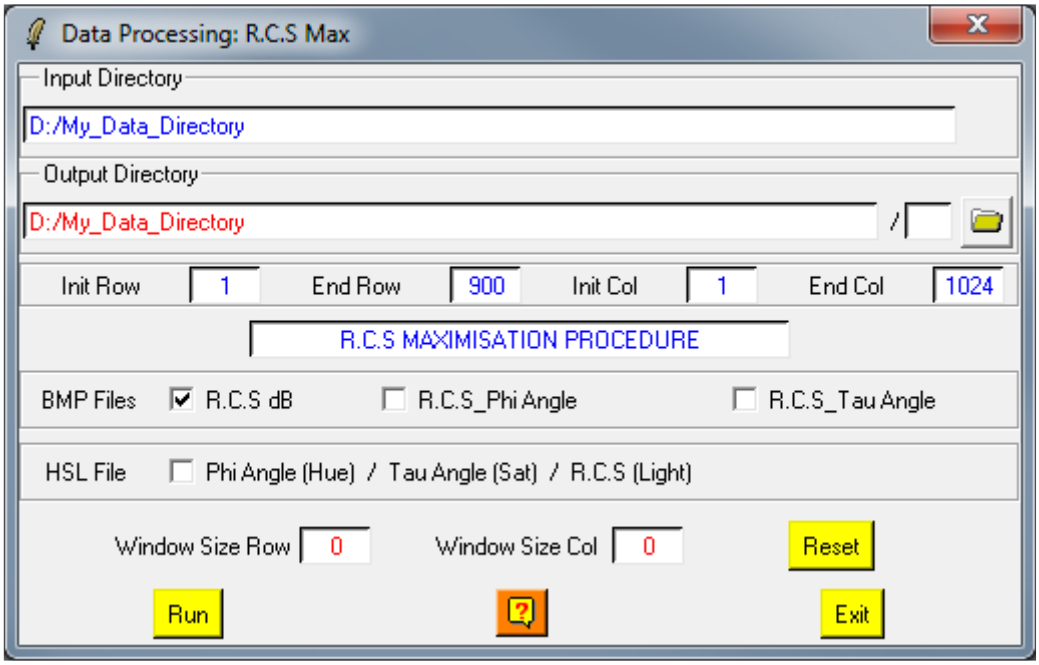
R.C.S Max



Description:

This function finds for each pixel of a polarimetric data set the maximum Radar Cross Section (R.C.S). This procedure is based on the use of the Target Null Theory, where the Graves Matrix [G] is estimated within a (N*N) sliding window (W).
The change from the original elliptical polarisation basis to the pixel-optimal polarisation basis (XPOL-Nulls) is performed by the way of Special Unitary operators from SU(2) or SU(3).
The resulting polarimetric parameter |s11|, obtained in the Target polarisation Basis, corresponds to the maximum R.C.S. The pixel-optimal polarisation basis can then be represented using the ellipse geometrical parameters (orientation and ellipticity angles) associated to the corresponding XPOL-Null Jones vector, defining the Target Polarisation Basis.

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 data output directory. The default value is set automatically to : **Main Directory (MD)**.

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.

Processing Parameters:

If Elliptical Basis Change is selected, the geometrical parameters defining the basis change have to be provided.

BMP Files — If selected, a 8-bit dynamic range (Windows Bitmap format) image file of the parameters R.C.S, Orientation angle and Ellipticity angle, extracted during the Target Null optimisation procedure, is created.

HSL File — If selected, create a 24-bit colour BMP image (Windows Bitmap format) containing contrasted hue, saturation and light channels assigned to the parameters R.C.S, Orientation angle and Ellipticity angle, extracted during the Target Null optimisation procedure, is created.

Window size — Users have to set the size of the (N*N) sliding window used to compute the local estimate of the whitening matrix.

Output Files:

The RCSmax procedure output files are :

- MD / RCSmax.bin
- MD / RCSmax_db.bmp (if selected)
- MD / RCSmax_phi.bin
- MD / RCSmax_phi.bmp (if selected)
- MD / RCSmax_tau.bin
- MD / RCSmax_tau.bmp (if selected)
- MD / RCSmax_hsl.bmp (if selected)