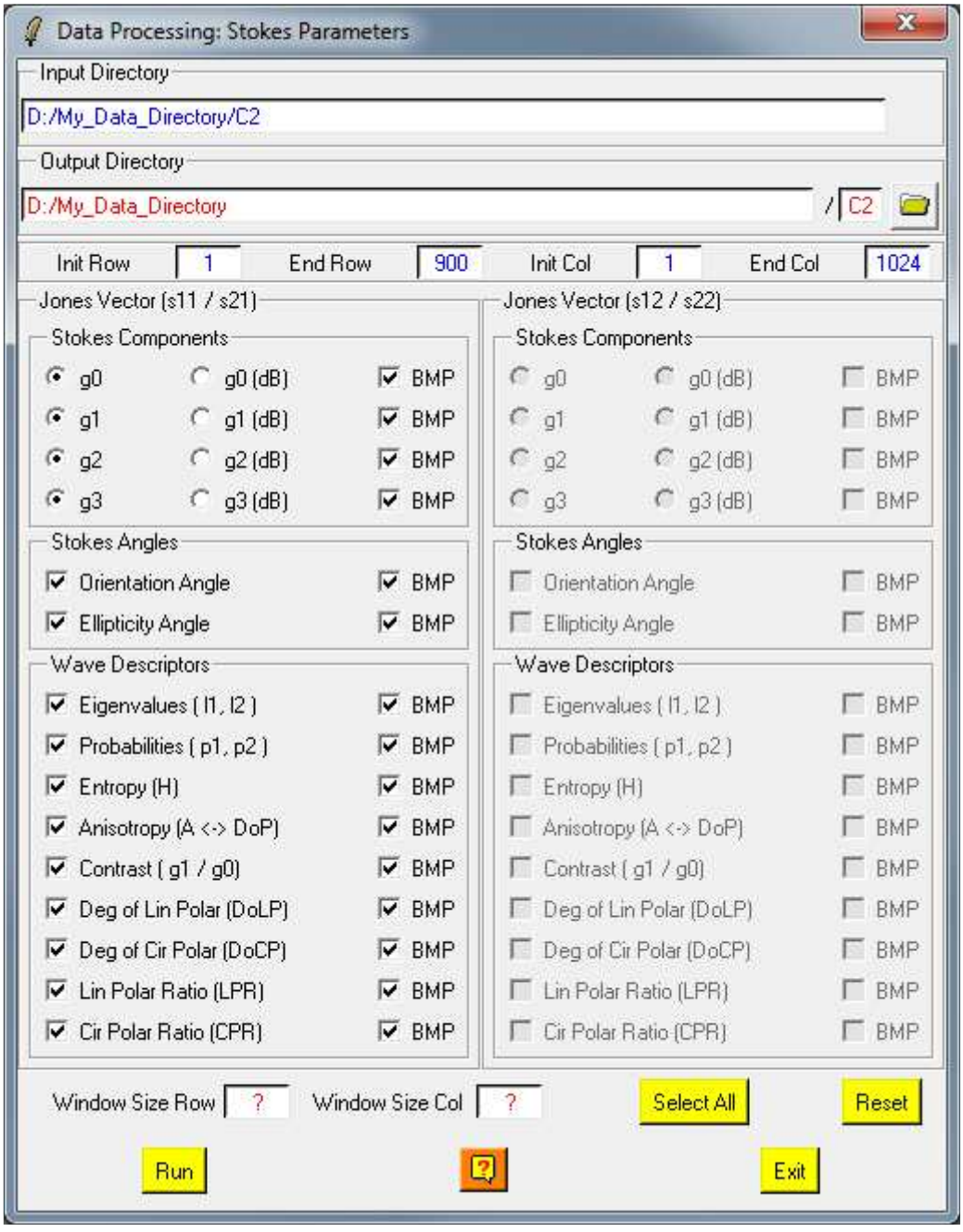
Stokes Parameters



Description:

Creates binary files corresponding to the different Stokes parameters constructed from the (2x2) complex Sinclair **[s2]** raw binary data.
An option may be set to simultaneously create the corresponding bitmap image files.

Comments:

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

Input/Output Arguments:

Input Directory	Indicates the complete location of the considered **MainDirectory (MD)** containing the raw binary data to be processed.
Output Directory	Indicates the location of the processed data output directory. The default value is set automatically to the **MainDirectory (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.

Stokes Components:

Several Stokes vector components may be processed at a time. The selection of the BMP options enables the creation of output bmp files.
Users may choose between two types of output binary data :

- gi : Linear representation of the considered Stokes vector component amplitude. Ouput file name : Stokes1_gi.bin or Stokes2_gi.bin (.bmp)
- gi (dB) : Stokes vector component amplitude in dB = 10log10(gi). Ouput file name : Stokes1_gi_dB.bin or Stokes2_gi_dB.bin (.bmp)

Stokes Angles:

The two wave polarisation angles may be processed at a time. The selection of the BMP options enables the creation of output bmp files.

- Orientation Angle : Linear representation of the considered polarisation angle. Ouput file name : Stokes1_phi.bin or Stokes2_phi.bin (.bmp)
- Ellipticity Angle : Linear representation of the considered polarisation angle. Ouput file name : Stokes1_tau.bin or Stokes2_tau.bin (.bmp)

Wave Descriptors:

The wave descriptors may be processed at a time. The selection of the BMP options enables the creation of output bmp files.

- Eigenvalues : Linear representation of the eigenvalues of the corresponding (2x2) Covariance **[C2]** matrix. Ouput file name : Stokes1_l1.bin and Stokes1_l2.bin or Stokes2_l1.bin and Stokes2_l2.bin (.bmp)
- Probabilities : Linear representation of the pseudo-probabilities constructed from the two eigenvalues. Ouput file name : Stokes1_p1.bin and Stokes1_p2.bin or Stokes2_p1.bin and Stokes2_p2.bin (.bmp)

- Entropy : Linear representation of the wave entropy. Ouput file name : Stokes1_H.bin or Stokes2_H.bin (.bmp)
- Anisotropy : Linear representation of the wave anisotropy equivalent to the Wave Degree of Polarization. Ouput file name : Stokes1_A.bin or Stokes2_A.bin (.bmp)
- Contrast : Linear representation of the Wave Polarization Contrast (ratio between the two Stokes parameters g1 and g0). Ouput file name : Stokes1_contrast.bin or Stokes2_contrast.bin (.bmp)
- Degree of Linear Polarisation : Linear representation of the Degree of Linear Polarization (sqrt(g1*g1+g2*g2)/g0. Ouput file name : Stokes1_DoLP.bin or Stokes2_DoLP.bin (.bmp)
- Degree of Circular Polarisation : Linear representation of the Degree of Circular Polarization (g3/g0). Ouput file name : Stokes1_DoCP.bin or Stokes2_DoCP.bin (.bmp)
- Linear Polarisation Ratio : Linear representation of the Linear Polarization Ratio (g0-g1)/(g0+g1). Ouput file name : Stokes1_LPR.bin or Stokes2_LPR.bin (.bmp)
- Circular Polarisation Ratio : Linear representation of the Circular Polarization Ratio (g0-g3)/(g0+g3). Ouput file name : Stokes1_CPR.bin or Stokes2_CPR.bin (.bmp)

Processing parameters:

Data to be decomposed may be processed through an additional filtering procedure consisting of a boxcar filter. Users have then 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 **0**. Users wishing to avoid additional filtering may set N to 1.

Note: In the *pp3 mode*, the contrast corresponding to the combination I11 / I22 cannot be processed because these elements do not correspond to a Jones vector definition.
