

# ***GIAS***

## *Geological Image Analysis Software*

How to use it

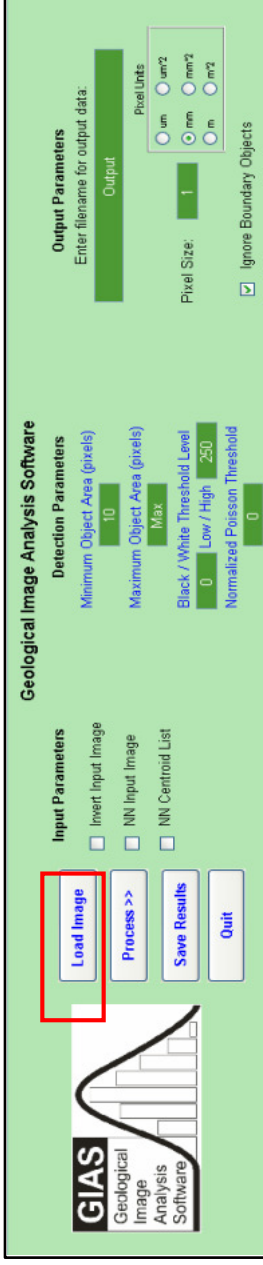
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# Running the application

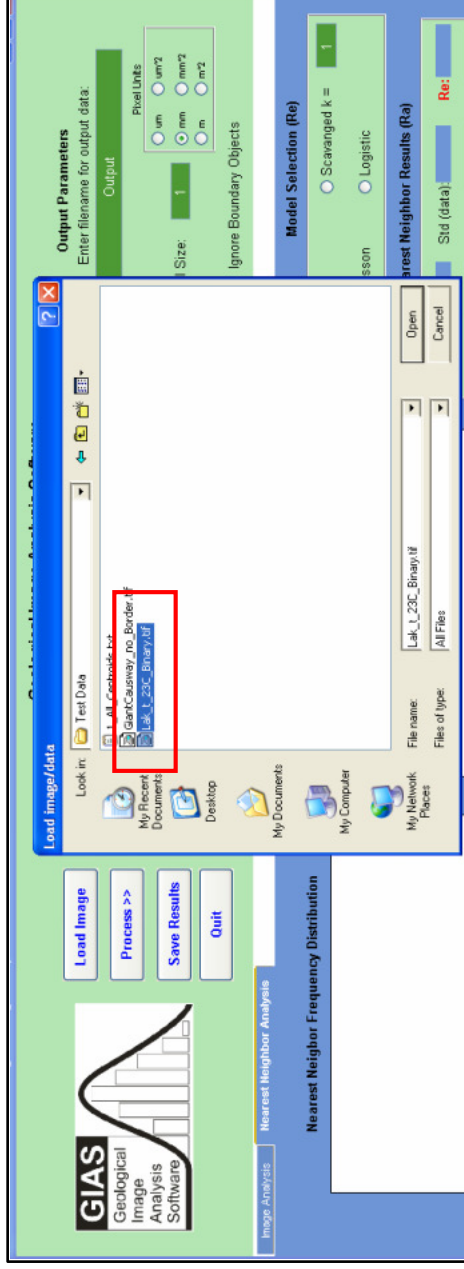
- If you are using the stand alone code (i.e. not running in MATLAB)
  - Double click on 'GIAS\_v03.exe'
  - This opens a MS-DOS window initially and then the GIAS GUI window
- In MATLAB
  - Add the GIAS directory to your path (along with the skdata directory)
  - On the command line type: `GIAS_v1_1`

# Opening an image

- Click on the 'Load Image' button

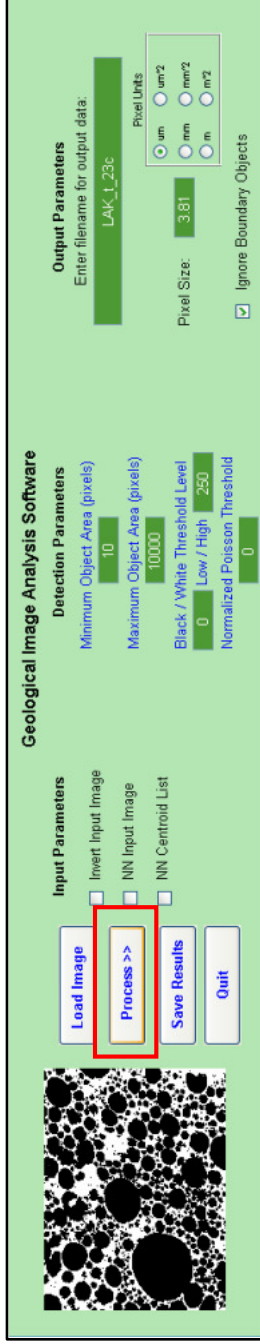


- Select the required image file (tiff, jpeg, png)



# Processing the Image

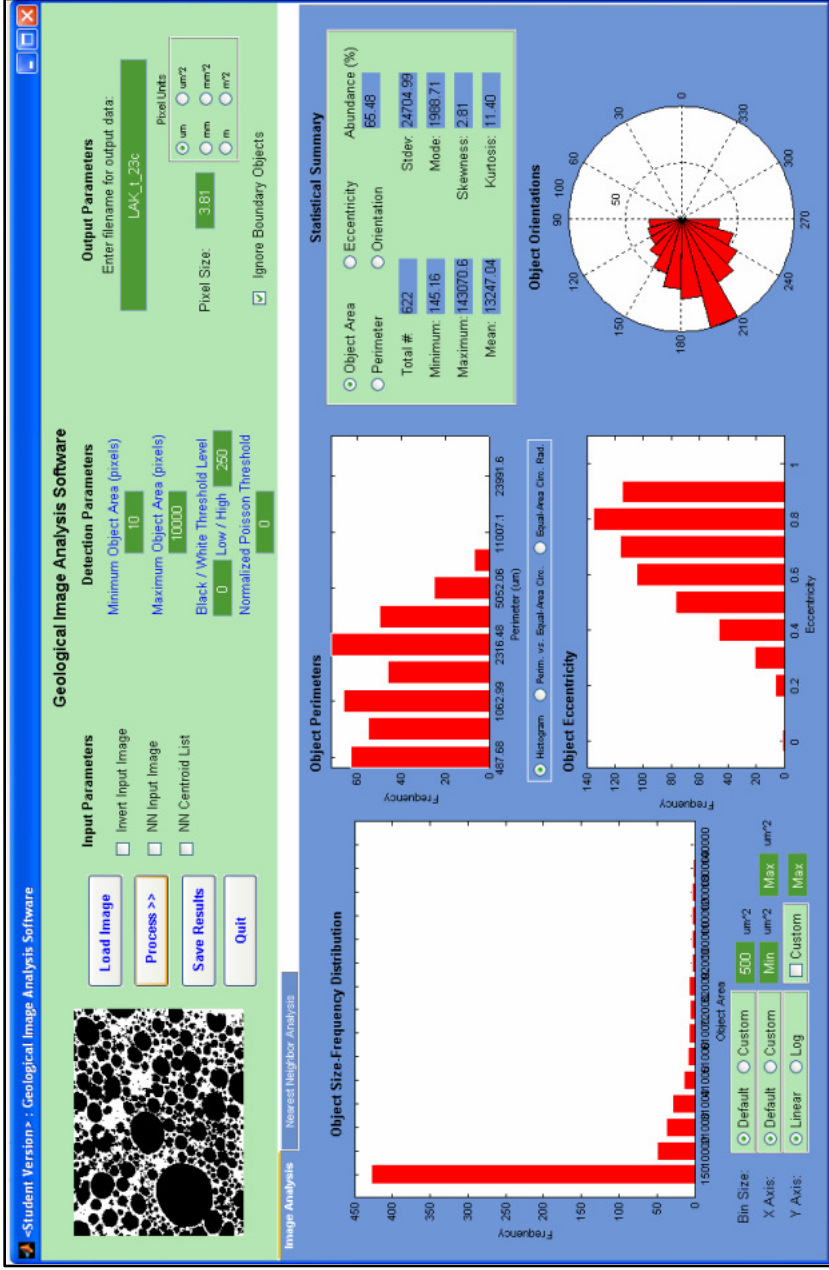
- Select the relevant detection parameters and output parameters (e.g. pixel size)
- See the Help files for information on the options
- Click on the ‘Process’ button



- It takes approximately 15 seconds to process test image LAK\_t\_23c

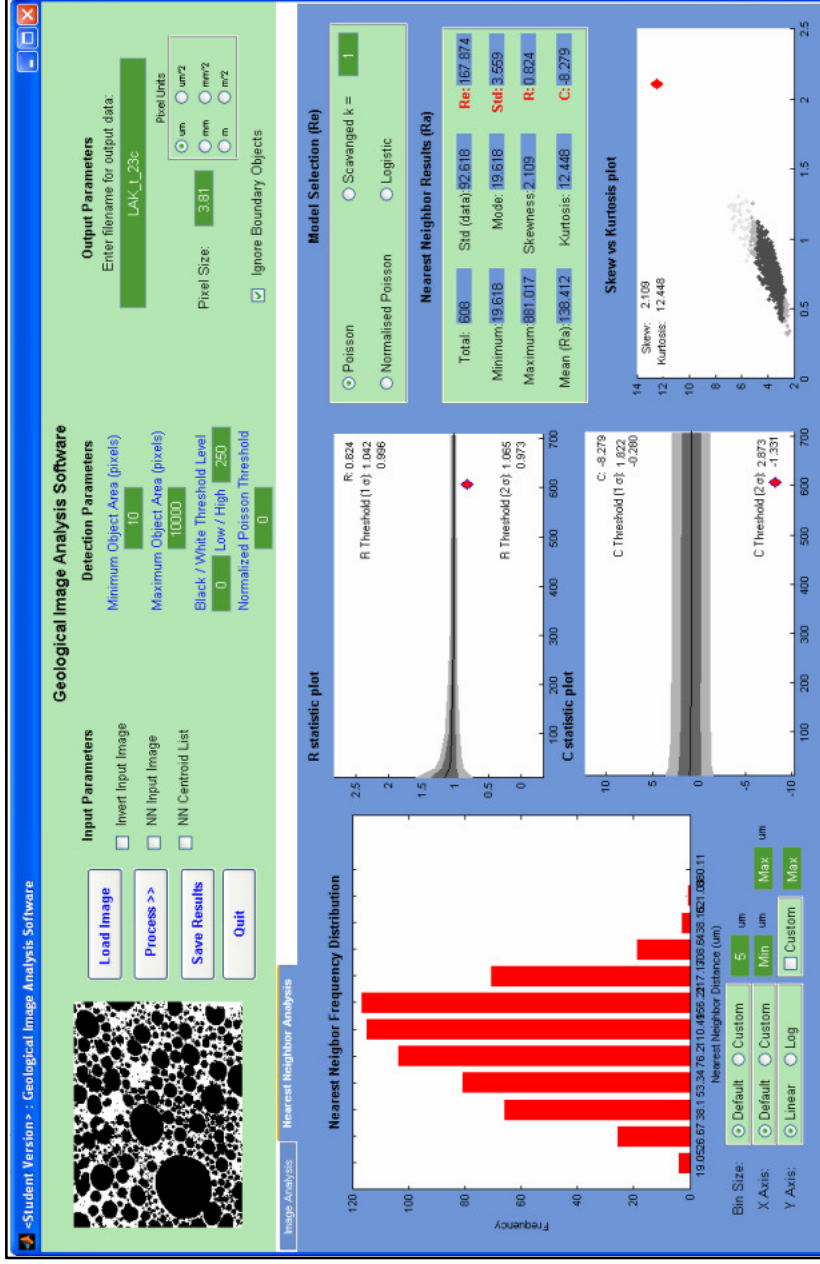
# Results: Image Analysis Tab

- These are the results for the Image Analysis



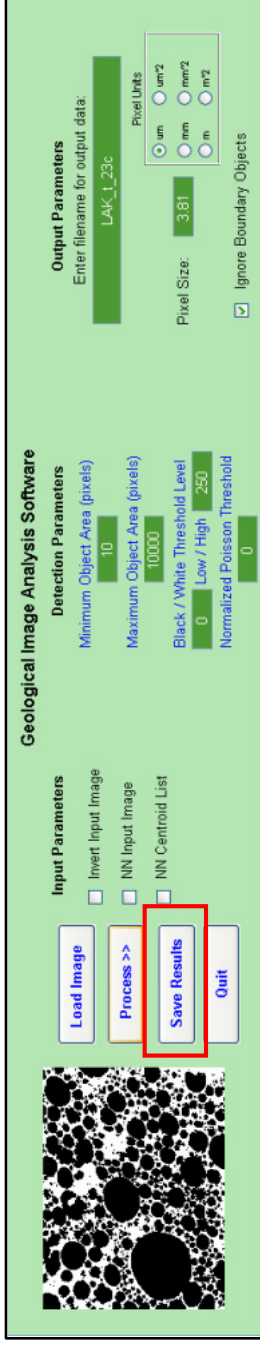
# Results: Nearest Neighbor Tab

- These are the results for the Nearest Neighbor



# Saving output

- You can save all the graph calculations using the ‘Save Results’ button



- This writes an Excel-readable tab-delimited file named from the output filename box: LAK\_t\_23c

# Results in Excel

- You results are written to two separate files in the local working directory
- One is for *image analysis* statistics, the other for *nearest neighbor* statistics

The screenshot shows a Windows Explorer window on the left and a Microsoft Excel spreadsheet on the right.

**Windows Explorer:** The address bar shows 'D:\ImageProcessing\GIASv1.0\Test Data'. The file list shows several files, with three files highlighted in a red box: 'LAK\_t\_23C\_Binary.tif', 'LAK\_t\_23CImageAnalysisStats.txt', and 'LAK\_t\_23CNearestNeighborStats.txt'.

**Microsoft Excel:** The spreadsheet is titled 'LAK\_t\_23CImageAnalysisStats.txt'. It contains two main sections of data:

Geological Image Analysis Software (GIAS)									
Image Analysis (A) Results									
Input Image Name: LAK_t_23C_Binary.tif									
Date of Analysis: 20-Feb-2009									
Percentage Variables									
Minimum Object Area: 149E402 um^2									
Maximum Object Area: 145161 um^2									
Lower ENH Threshold: 0 DN									
Upper ENH Threshold: 255 DN									
Pixel Size: 3.98E+00 um									
Ignore Boundary Bubbles: Yes									
Statistical Summary									
Total Number of Objects: 622									
Object Area									
Minimum: 1784294									
Maximum: 1890344									
Perimeters									
Minimum: 640									
Maximum: 103352176									
Orientation									
Minimum: 0.17193									
Maximum: 0.56579									
Detailed Results									
Object Identification Number									
Minimum: 1									
Maximum: 212205									
Centroid Coordinates									
Minimum: 231143587									
Maximum: 483243521									
Perimeters									
Minimum: 421745286									
Maximum: 4607788474									
Area									
Minimum: 4645452									
Maximum: 3844554									
Standard Deviation (Sigma)									
Minimum: 12.80584									
Maximum: 1794294									
Mode									
Minimum: 11561654									
Maximum: 11561654									
Skewness									
Minimum: -0.558472									
Maximum: -0.295837									
Kurtosis									
Minimum: 4.246927									
Maximum: 4.246927									
Operation									
Minimum: 57438851									
Maximum: 57438851									



## Other options

- See the Help files for advice on how the other options work
- If the code stops working, the best thing to do is to close the programme and restart it
- If it is persistently crashing, check the image format is correct and that you have set the path in Matlab correctly.
- If all else fails, contact us via the [www.geoanalysis.org](http://www.geoanalysis.org) website