Applications with tutorials

01 - Intercepts processing in grey levels of Adamello Batholith images

02 - SPO basic processing of classified images

03 - SPO processing of one classified norite of the Bushveld

04 - Intercepts processing in greyscale and classified images of Rooi Rand dykes

05 - Intercepts processing in grey levels of faults and lineaments

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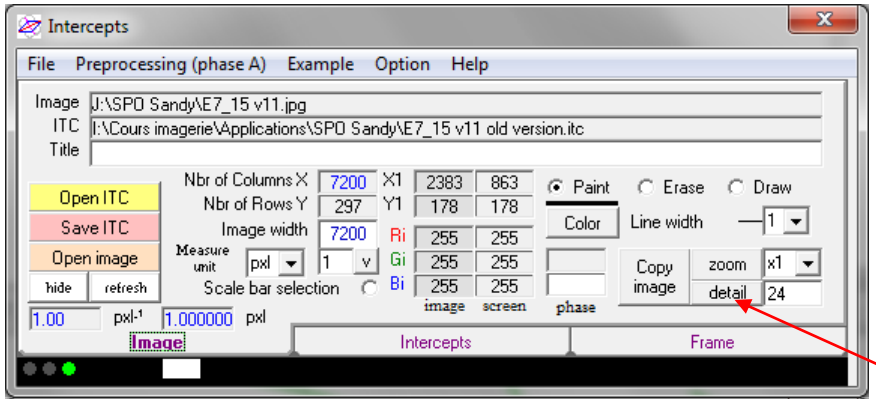
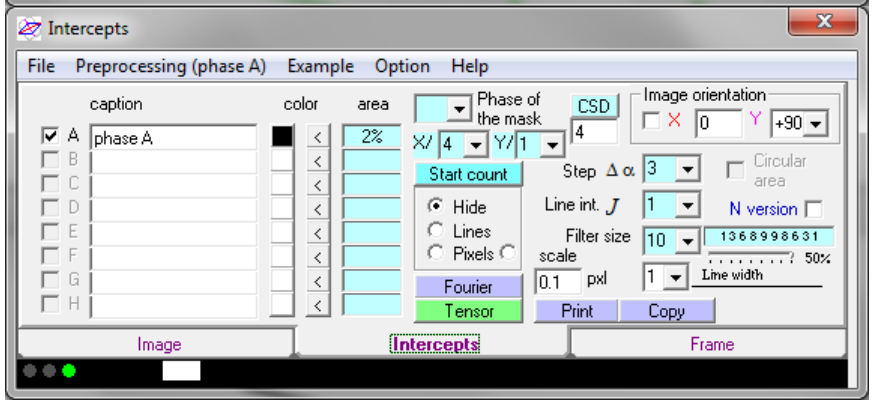


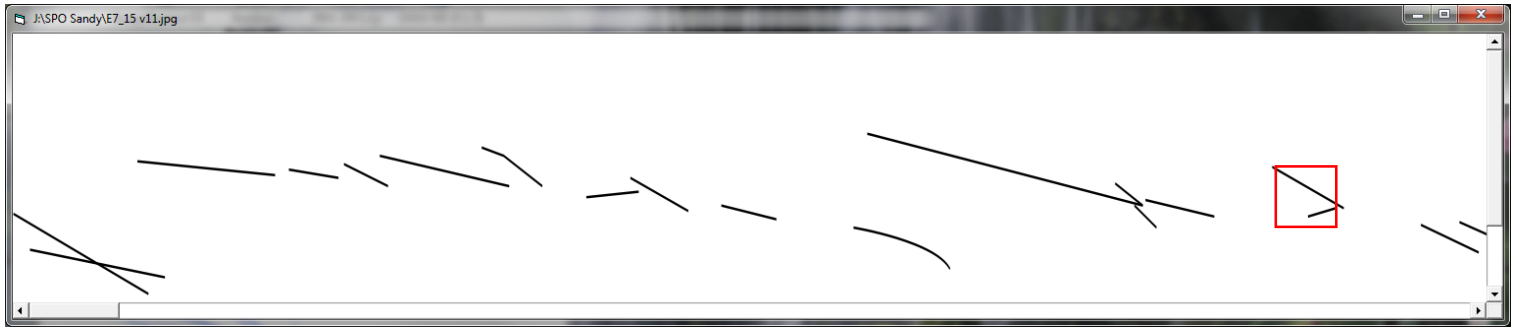


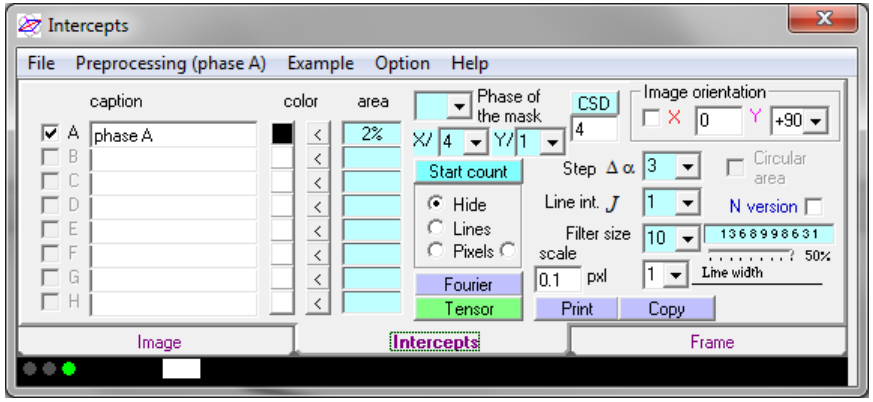
Detail on 24×24 pixels

This image of drawing was provided by Sandy Cruden for a discussion about faults and lineaments

Use angular step delta alpha smaller or equal to 3° to get enough harmonics or power spectrum components for a better selection of noise threshold.

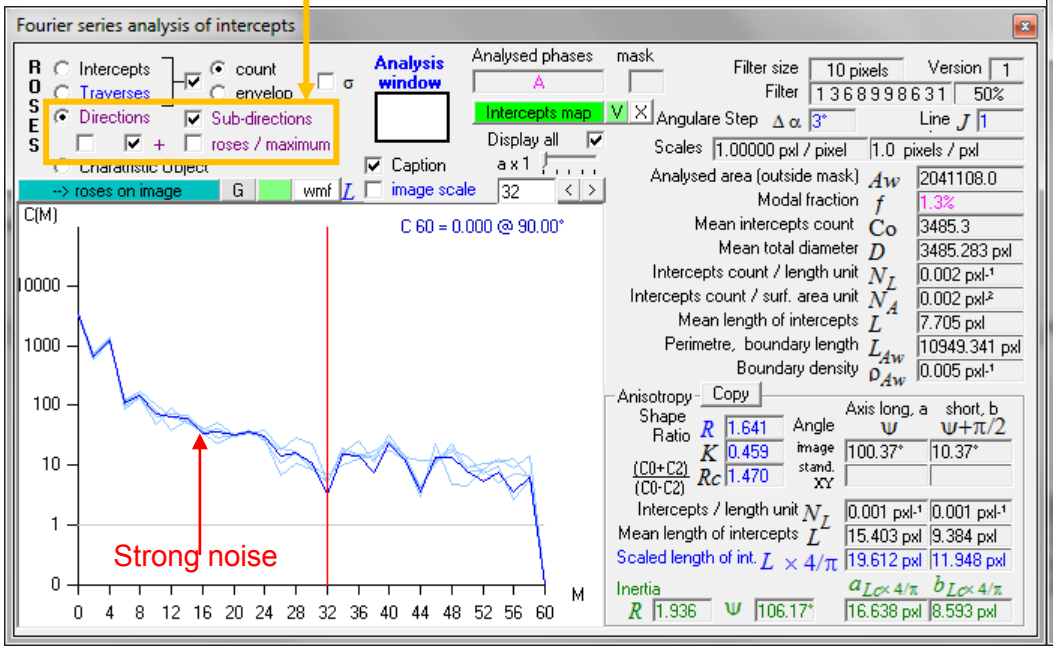
The interval J set to 1 analyzes evry the lines. The default one at 4 analyzes 1 out of 4 lines, which is not suitable for the analysis of fine lines.

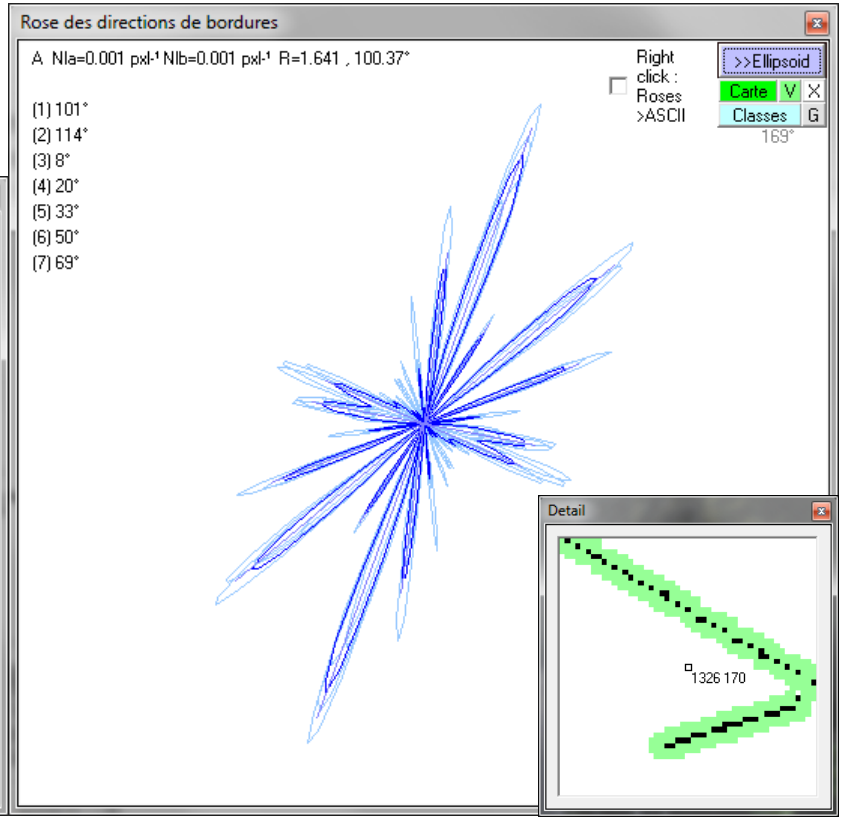




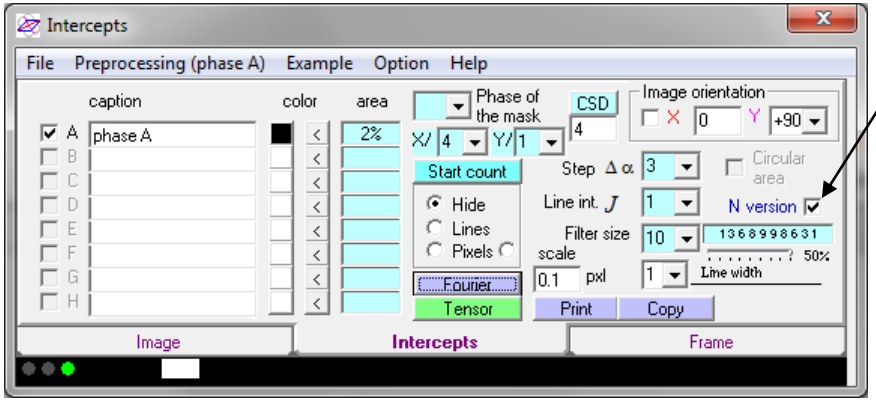
Best setting for faults and lineaments studies

The old version of intercepts should be applied on 4 pixels thick lines! When applied on 1 or 2 pixels lines it gives unexpected rose of directions.

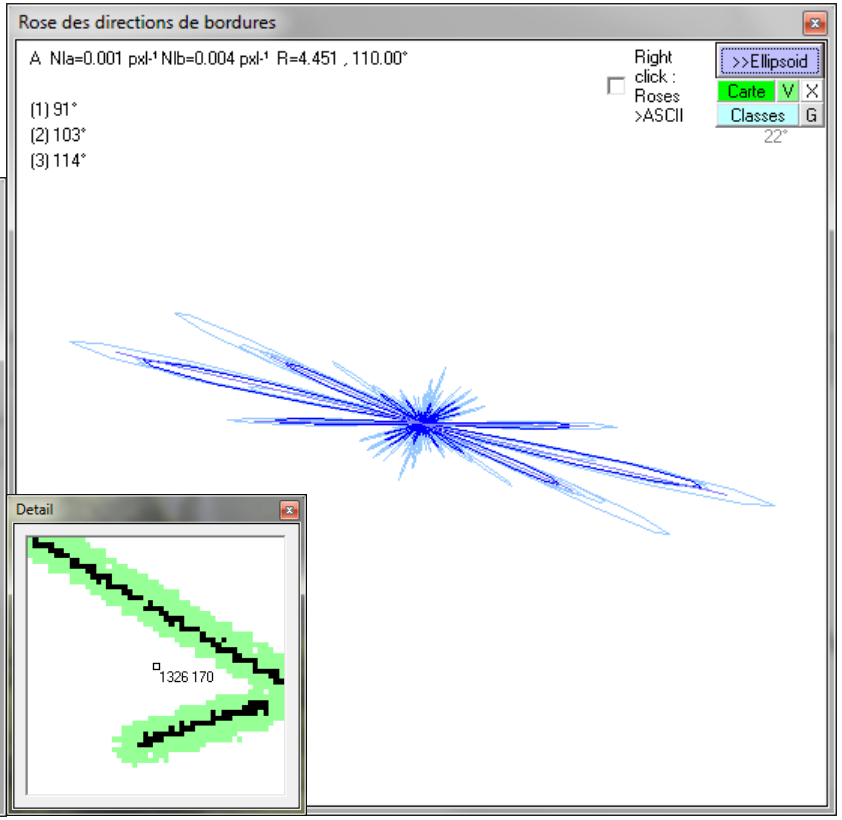


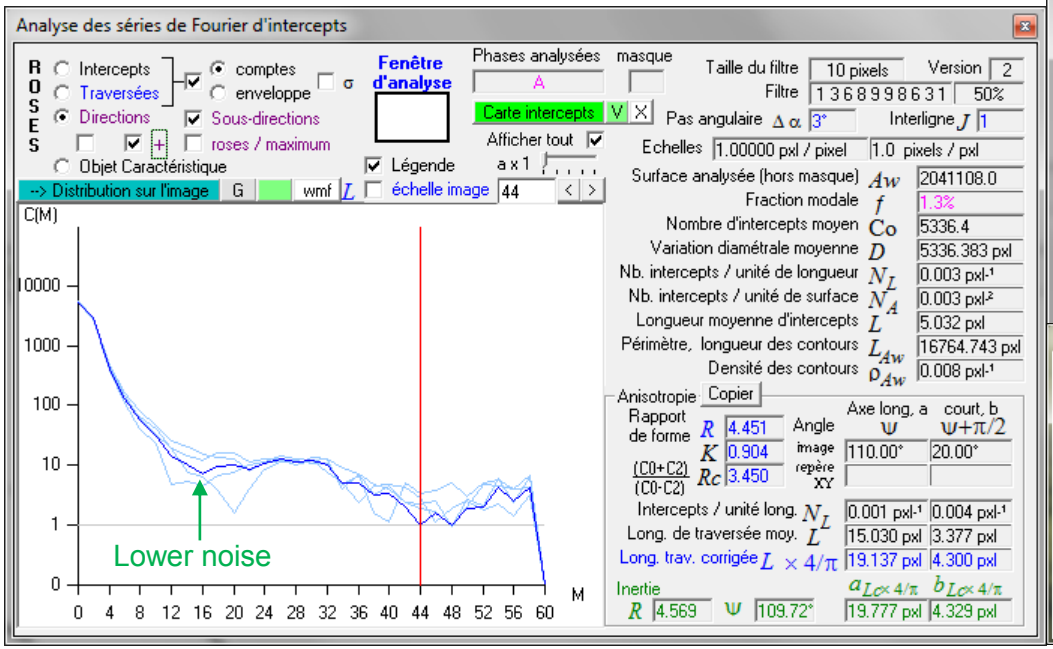


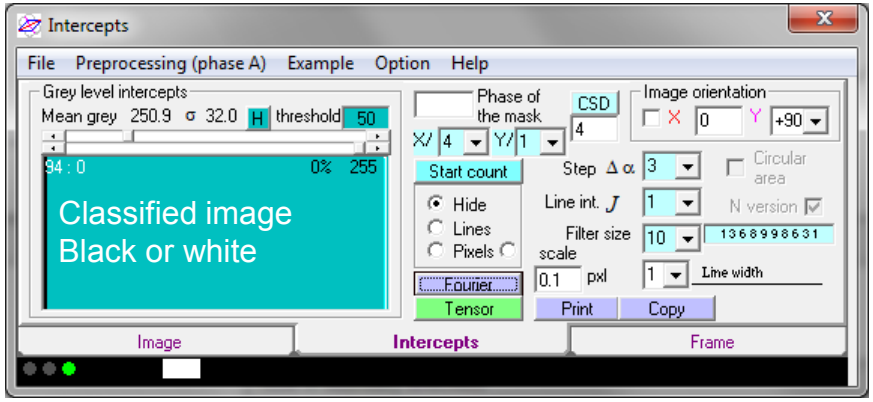
Overprinting of intercepts detection



The new version (see course 6) is designed to process object with long rectilinear edges. The power spectrum of its Fourier series display lower noise and easier threshold of the blank noise. The rose of directions in this example uses 44 components of that spectrum.

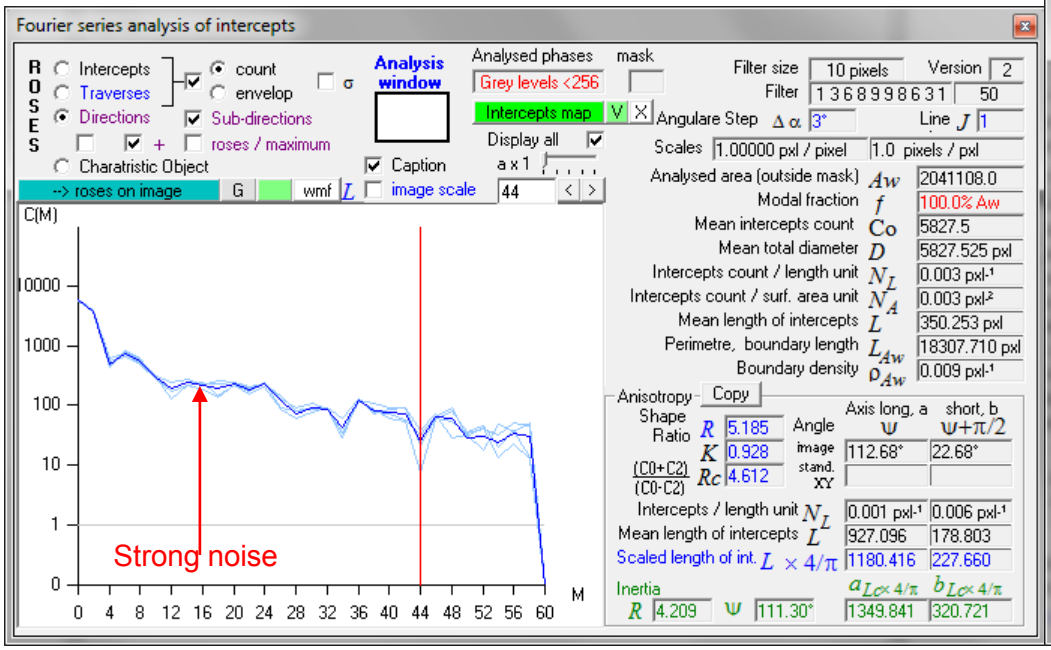


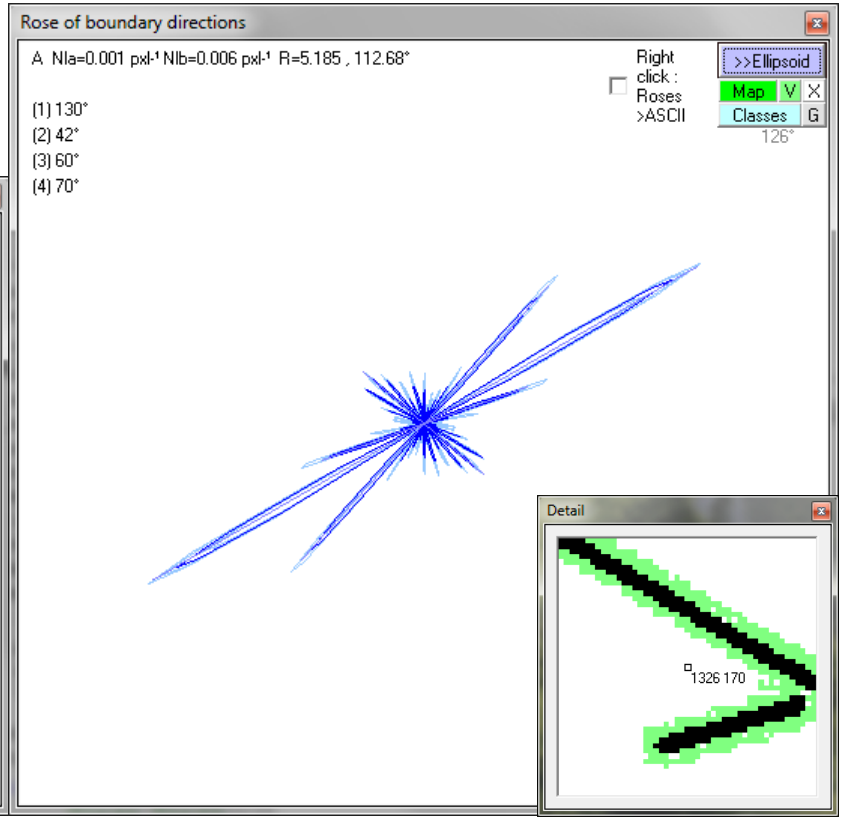


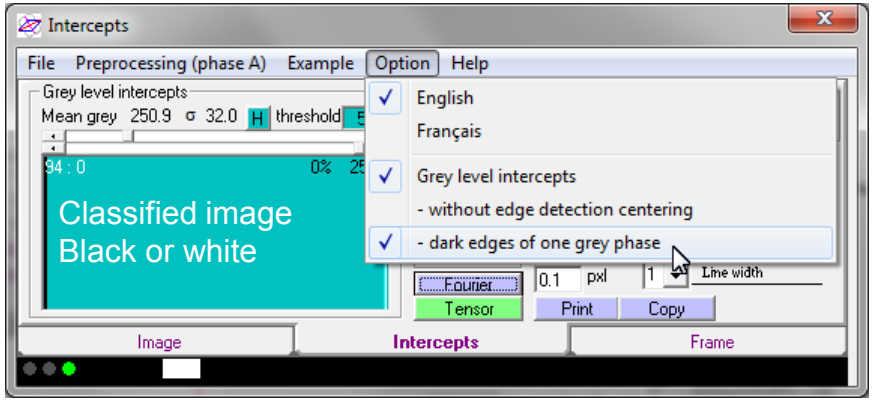


The grey level option can process classified images but as shown here with a strong level of noise.

This is because it try to find two boundary per line and miss a lot of them on 2 pixels thick lines.

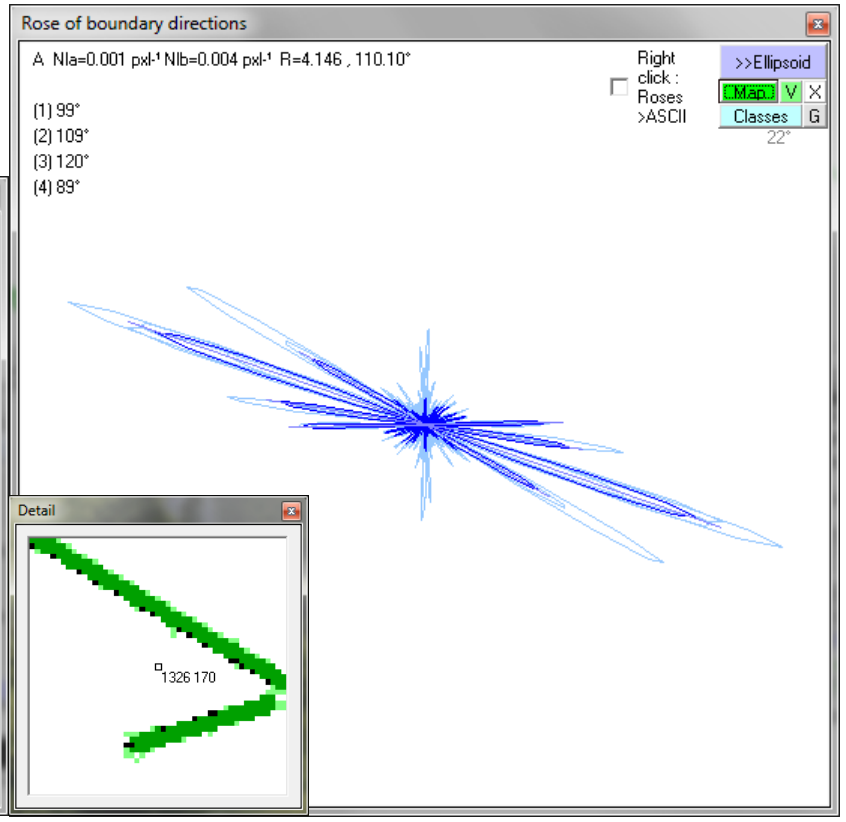


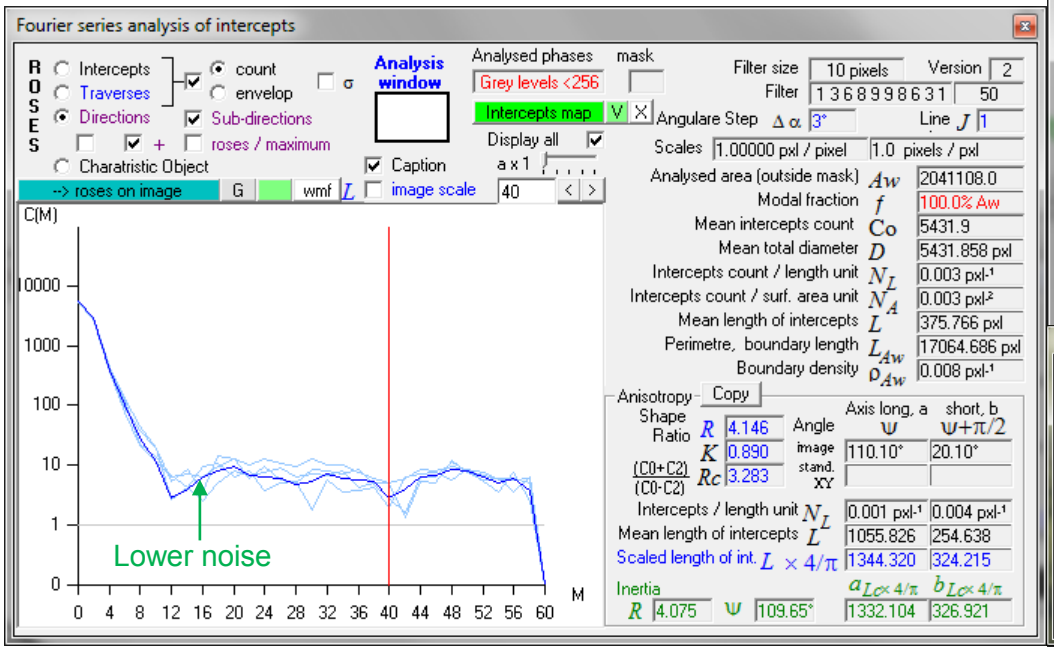


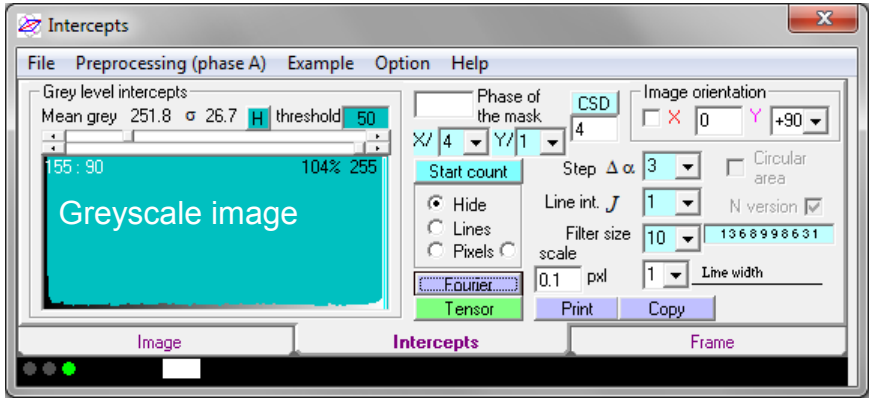


The grey level option "- dark edges of one grey phase" considers that each line is only one boundary (see course 5 p. 6).

This is required for the analysis of faults or lineaments made of isolated more or less thick lines spread out on a background.

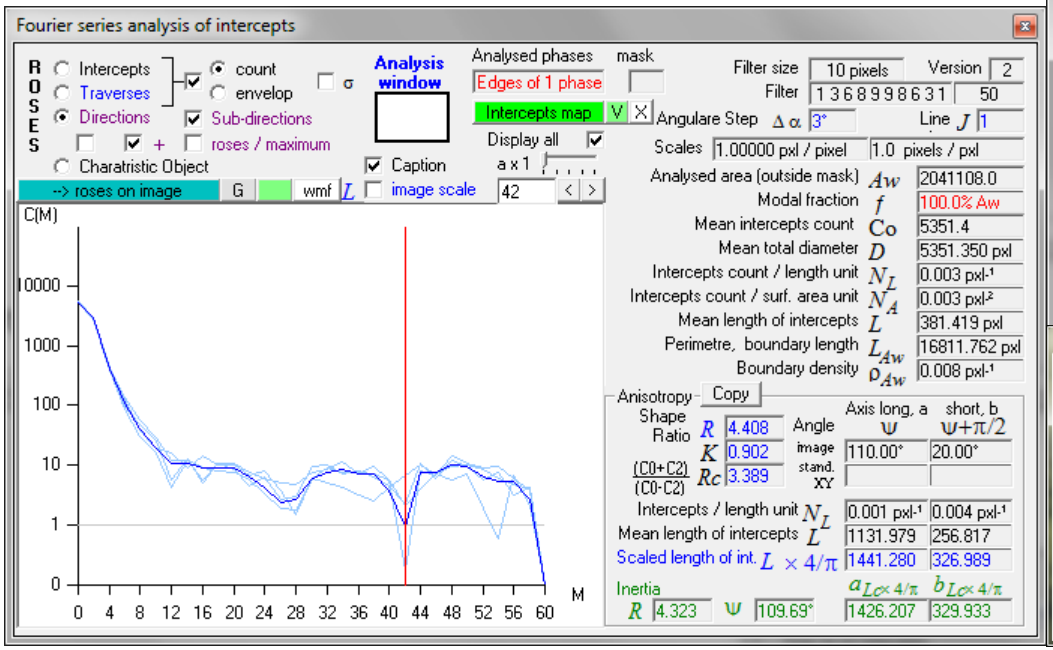


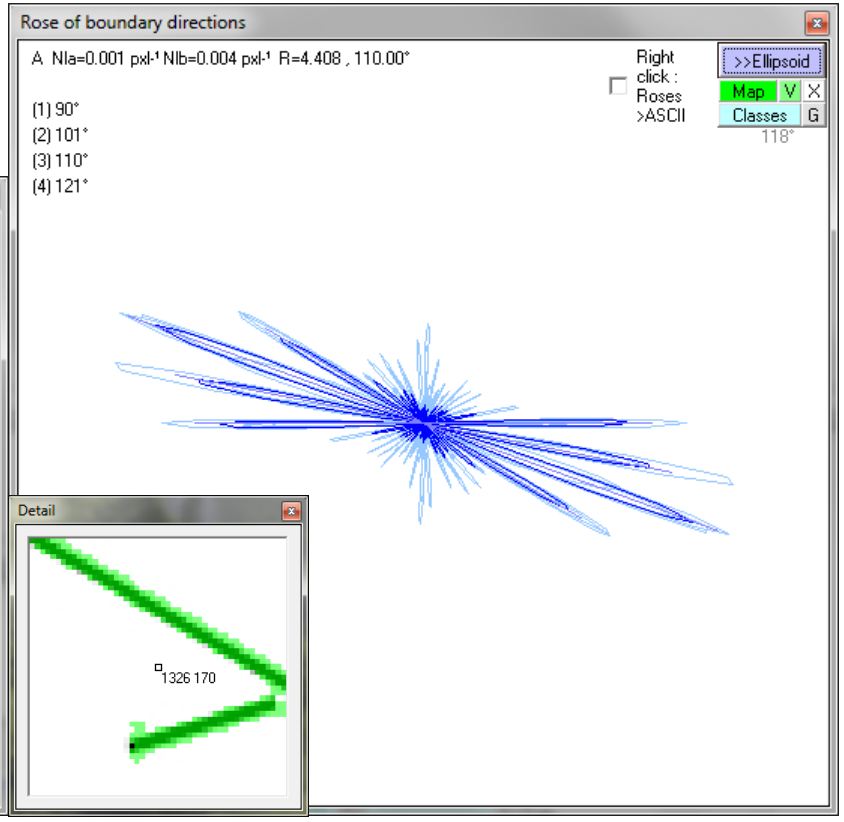


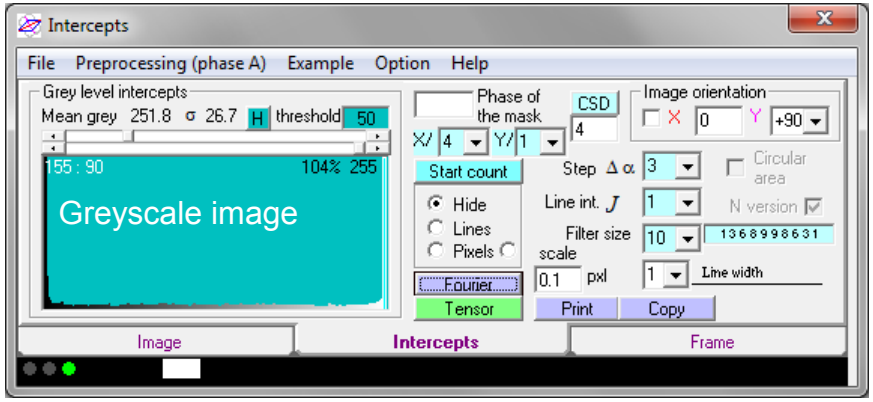


The grey level option “- dark edges of one grey phase” consider that each line is only one boundary.

It can by applied on images without thresholding in black and white. Intermediate grey level smooth out the lines.

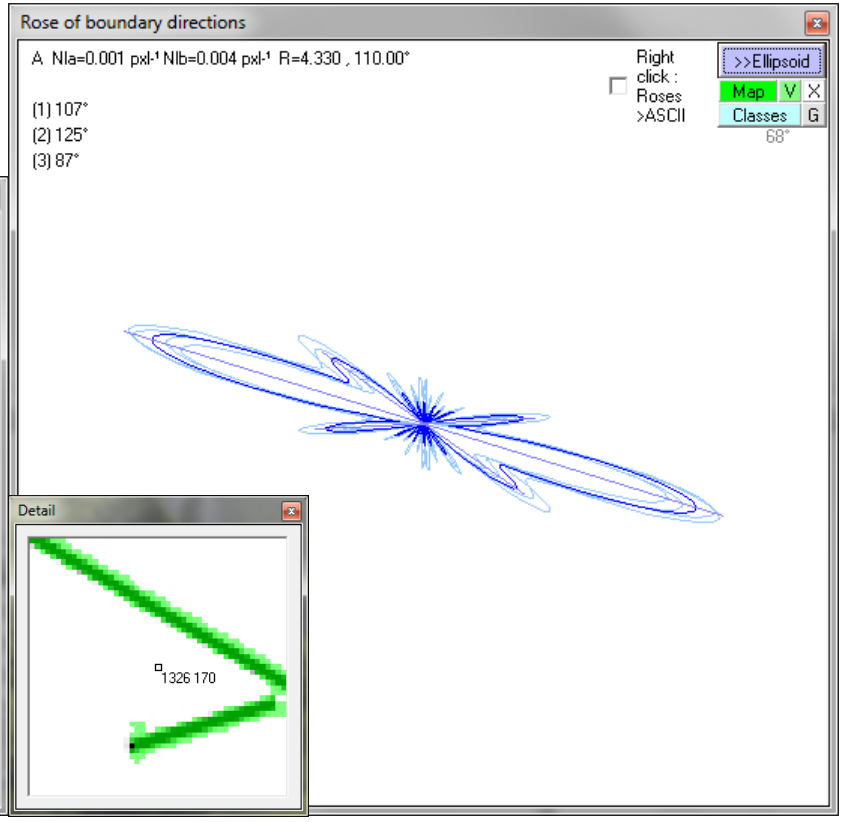


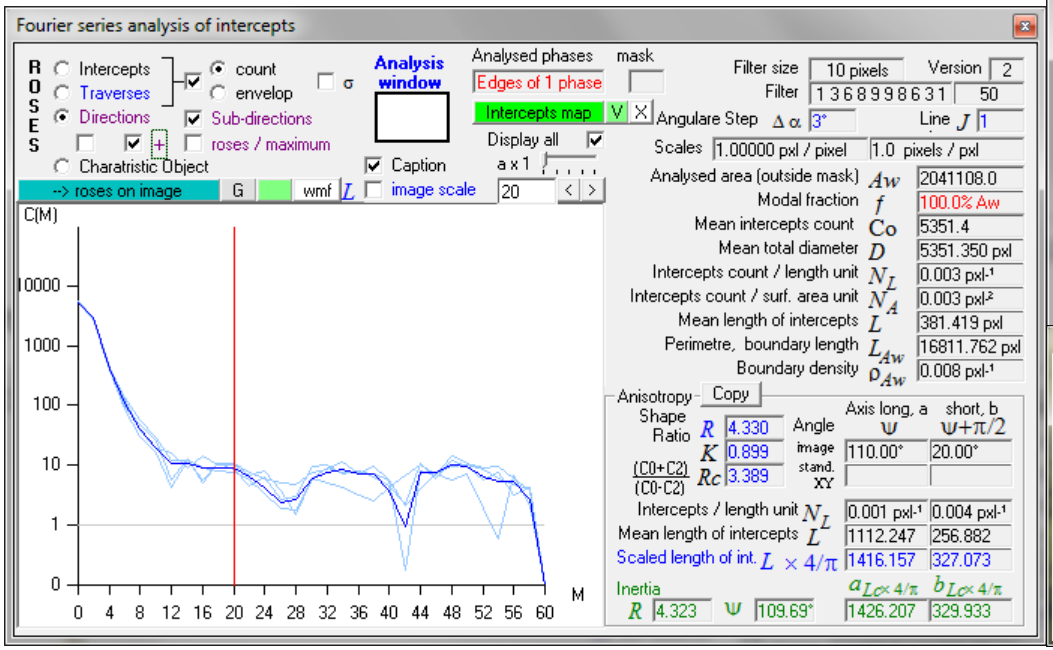


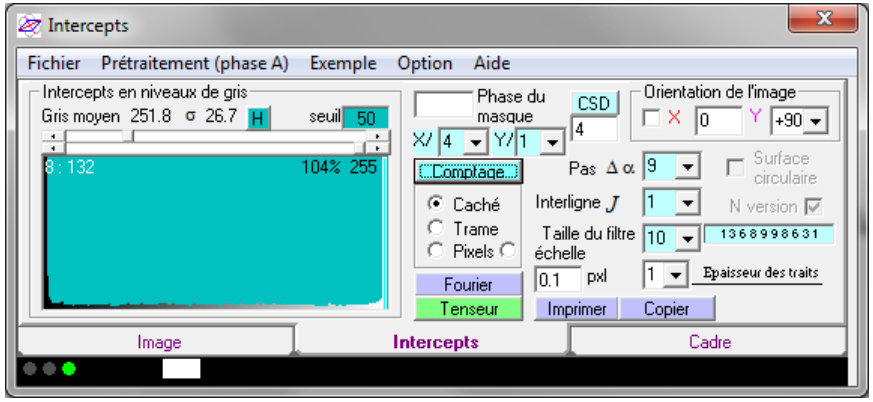


The rose diagram class size is optimized here at 180 / 20 = 9° instead of 180 / 42 = 4.28° in p. 7.

Delta alpha is equal to the smaller class size of a rose diagram.







The setting of alpha step to 9° gives 20 (10 even) power spectrum components gives the results 3 times faster.

When comparing the results with other techniques, don't forget that intercepts are also sensitive to the curvature of the lines, they are not a simple collection of strike.