

Example of image processing on  
joint traces

**"A semi-automated methodology for discontinuity trace detection in digital images of rock mass exposures", T.R. Reid & J.P. Harrison, *Int. J. of Rock Mech. and Mining Sci.* 37(2000) 1073-1089**

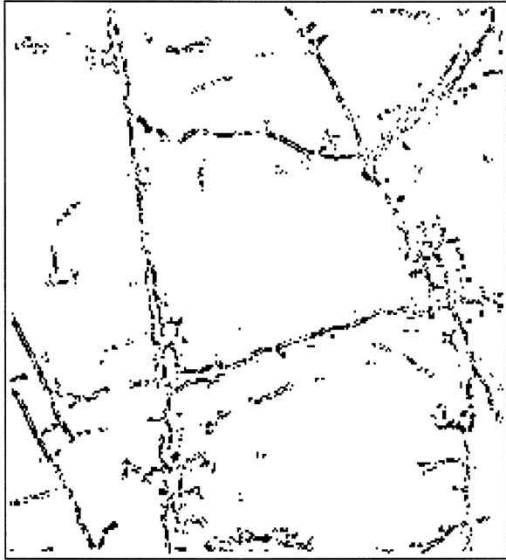
- 1) Greyscale digital image scanning**
- 2) Image enhancement(noise reduction) with Gaussian filter**
- 3) Grey level threshold value selection & ravine pixel labelling**
- 4) Binary dilation, smoothing, thinning & ravine-line segment**
- 5) Ravine-line segment linking → discontinuity trace map**



Greyscale digital image



Image enhancement by Gaussian filter



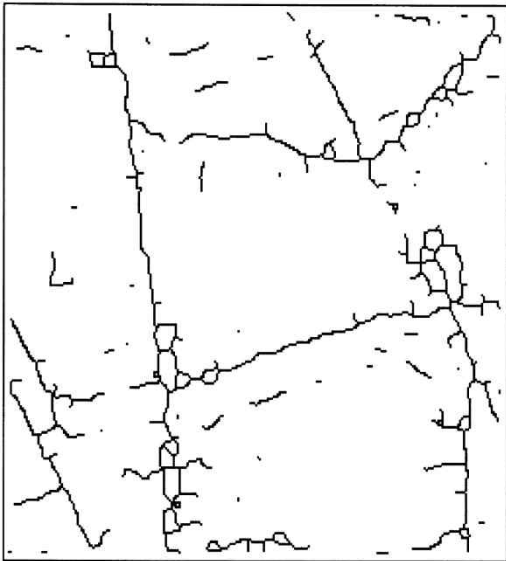
Ravine labeling



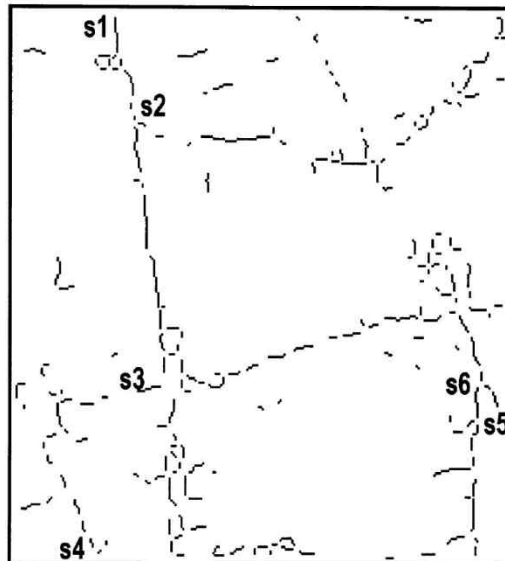
Binary dilation



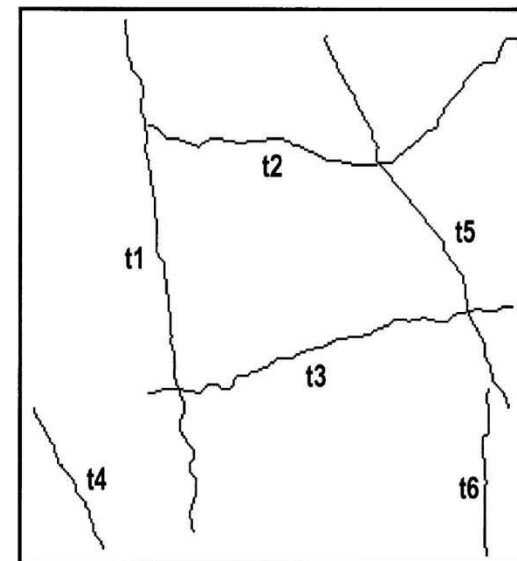
Boundary smoothing



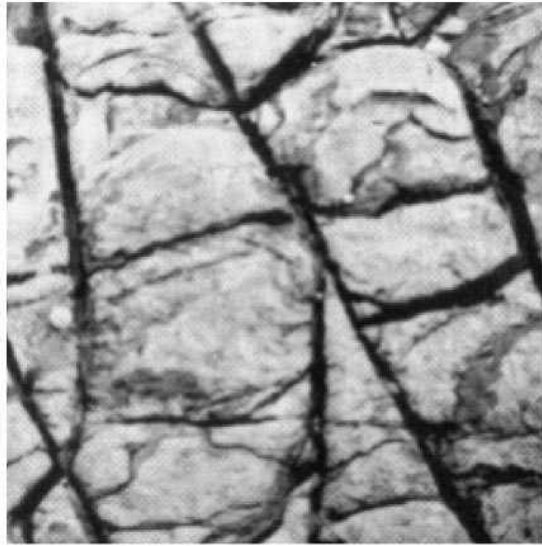
Thinning operation



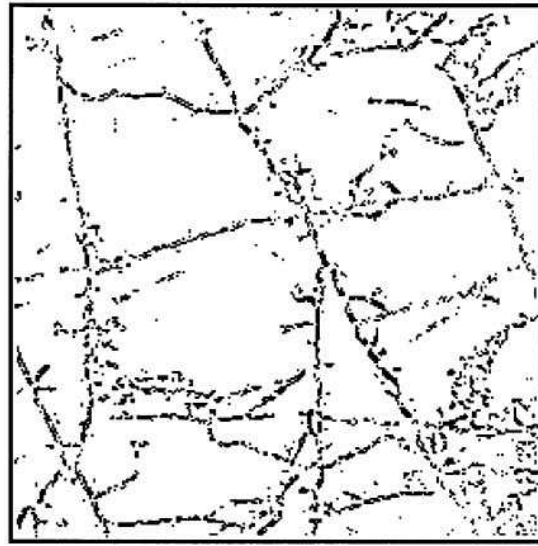
Ravine-line segment



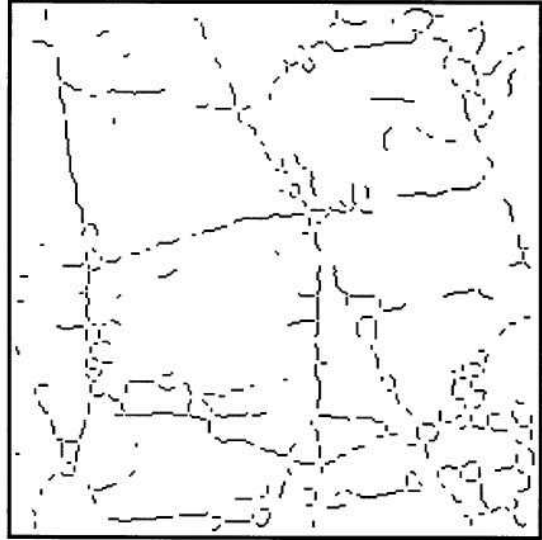
Discontinuity trace map



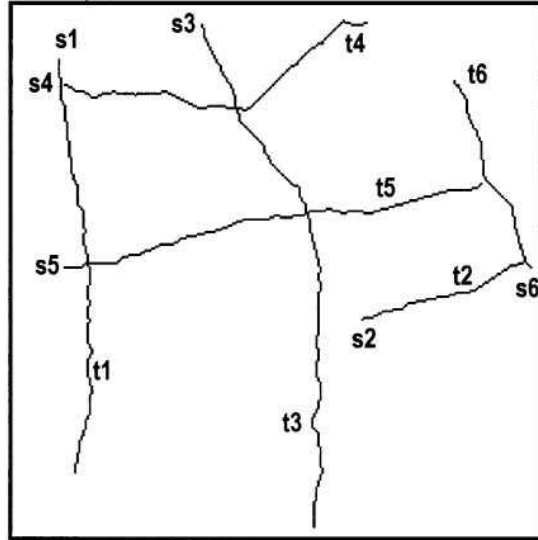
(a)



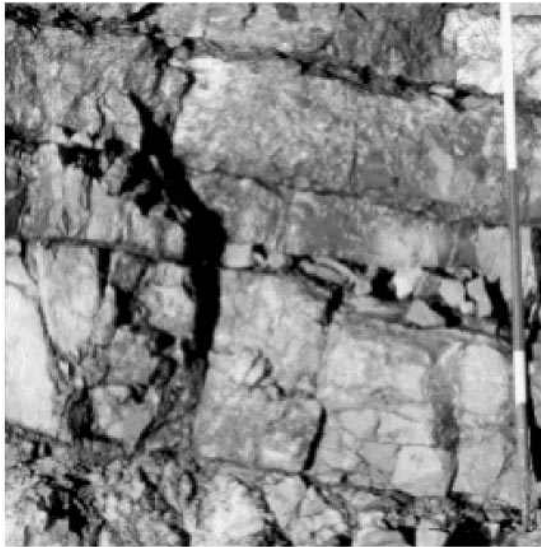
(b)



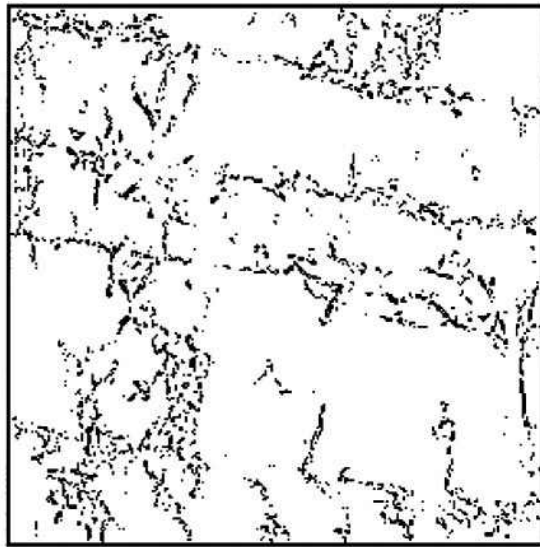
(c)



(d)



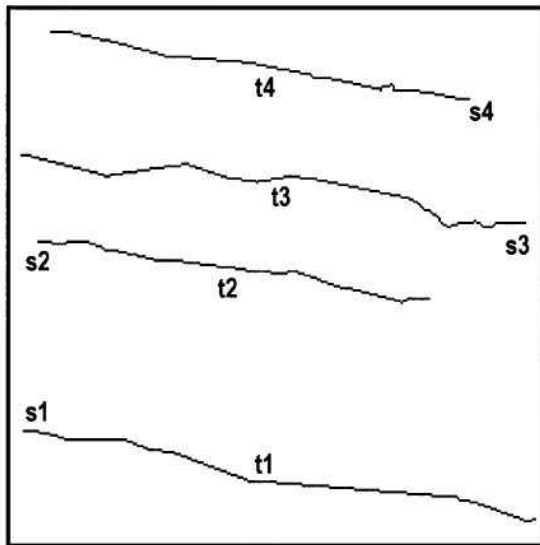
(a)



(b)



(c)



(d)