

Compressed Eroded

$$I_e = \text{JPEG}_{QF=95}(I_0 \ominus K_{35})$$



Compressed Unprocessed

$$I_u = \text{JPEG}_{QF=95}(I_0)$$



Compressed Dilated

$$I_d = \text{JPEG}_{QF=95}(I_0 \oplus K_{35})$$



Top-left corner of size 1000 x 1000



I_e



I_u



I_u



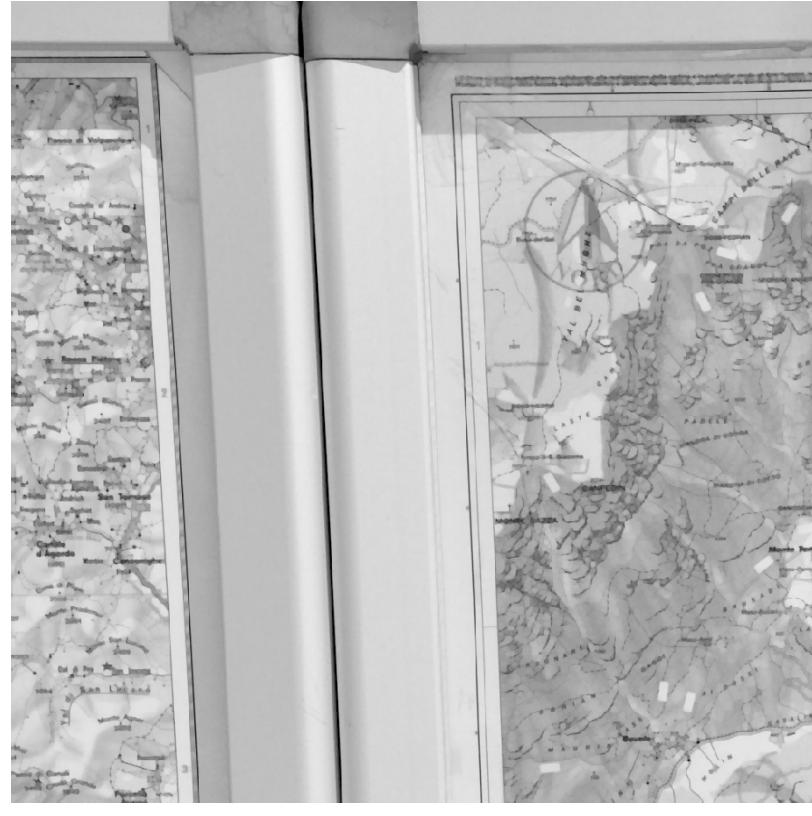
I_d

Closed Images

$$I_e^\bullet = I_e \bullet K_{35}$$



$$I_u^\bullet = I_u \bullet K_{35}$$



Opened Images

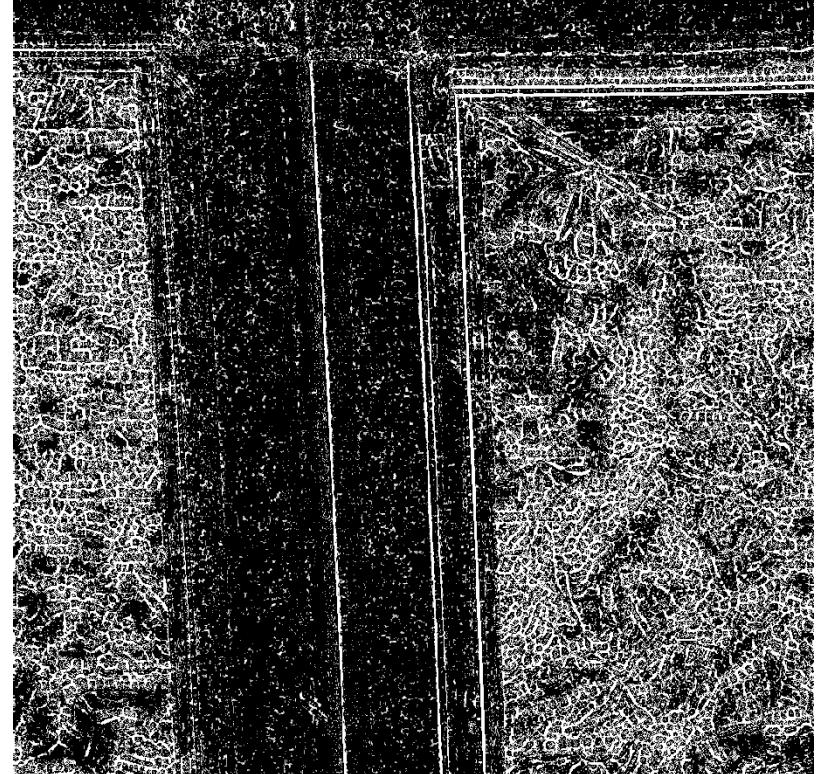
$$I_u^\circ = I_u \circ K_{35}$$



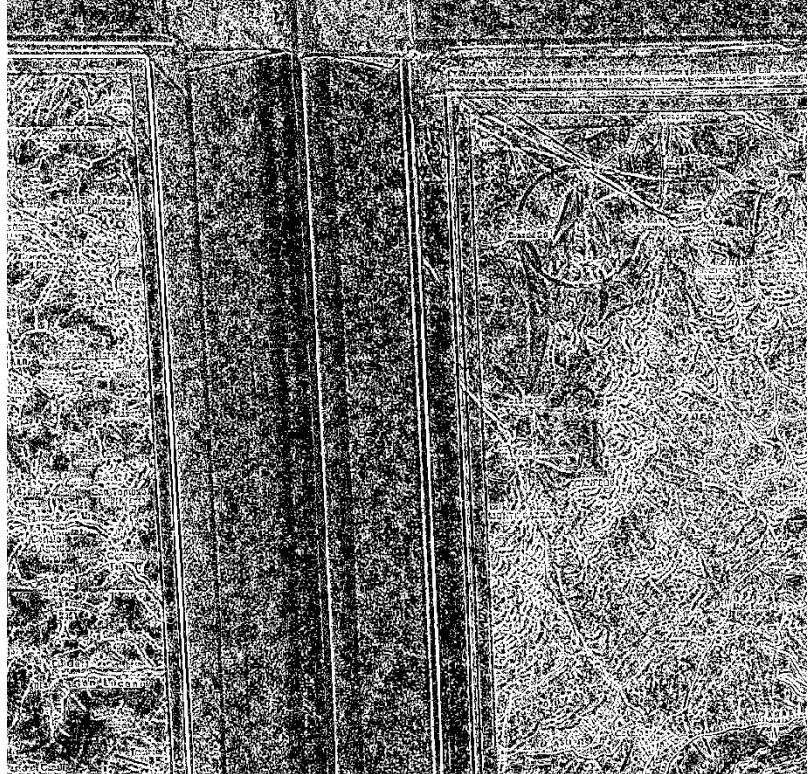
$$I_d^\circ = I_d \circ K_{35}$$

Difference Images (shown in log)

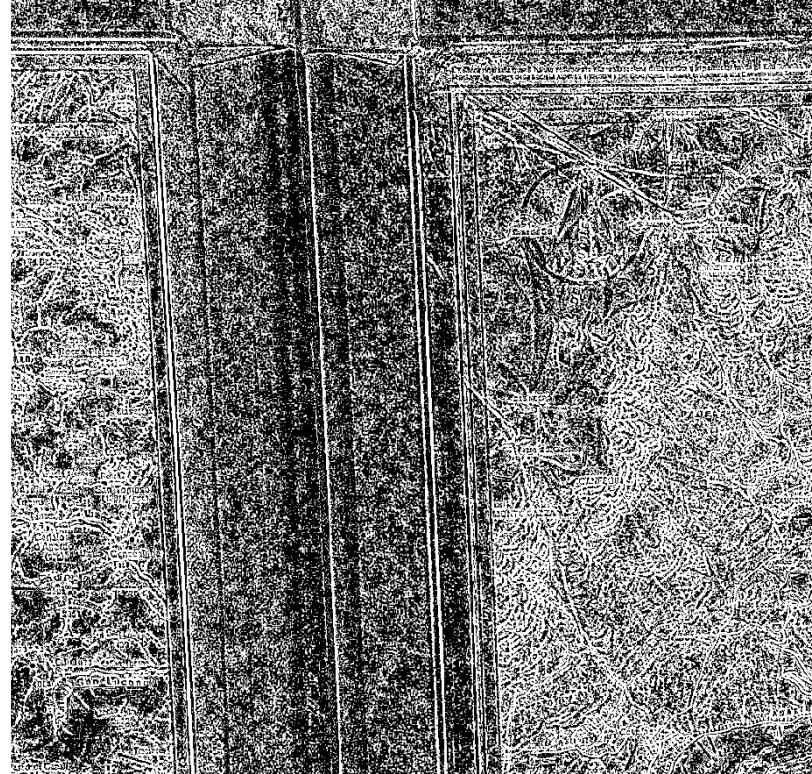
$$I_{e,\bullet}^{diff} = |I_e^\bullet - I_e|$$



$$I_{u,\bullet}^{diff} = |I_u^\bullet - I_u|$$



$$I_{u,\circ}^{diff} = |I_u^\circ - I_u|$$



$$I_{d,\circ}^{diff} = |I_d^\circ - I_d|$$



Histograms of Differences

