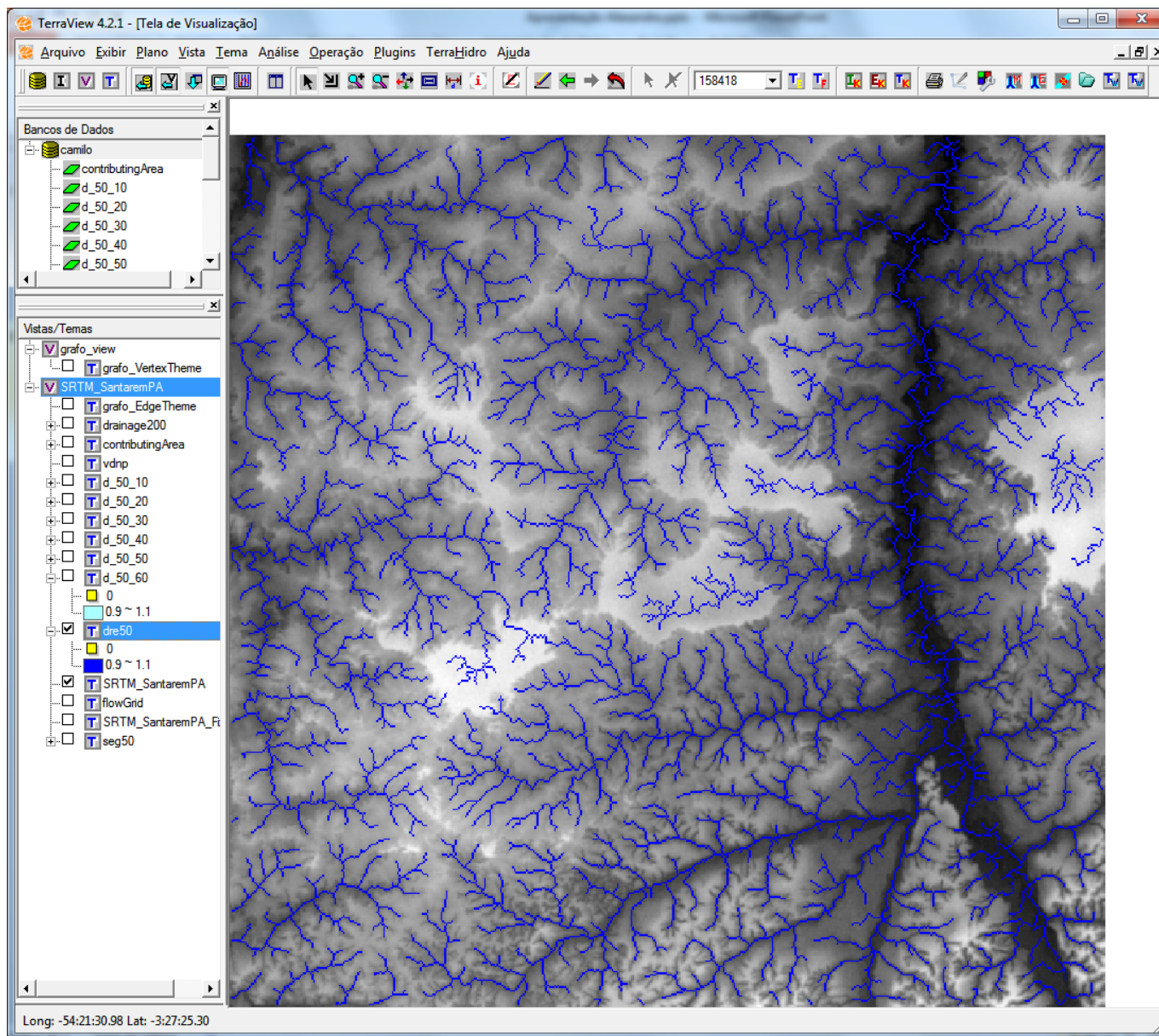


# O algoritmo para extração automática de drenagem do TerraHidro

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*Trabalho de Análise Espacial 2012*

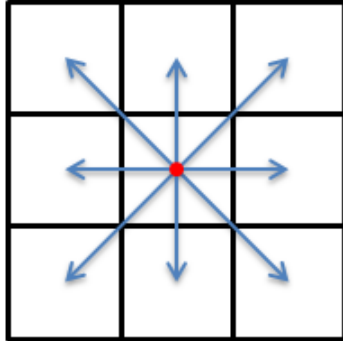
***Alexandre Copertino Jardim***



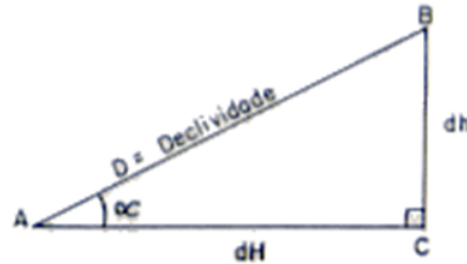
TerraHidro  
Rosim et al. (2003)

Drenagem  
O'Callaghan; Mark (1984)

SRTM  
Farr et al. (2007)



Fairfield; Leymarie (1991)

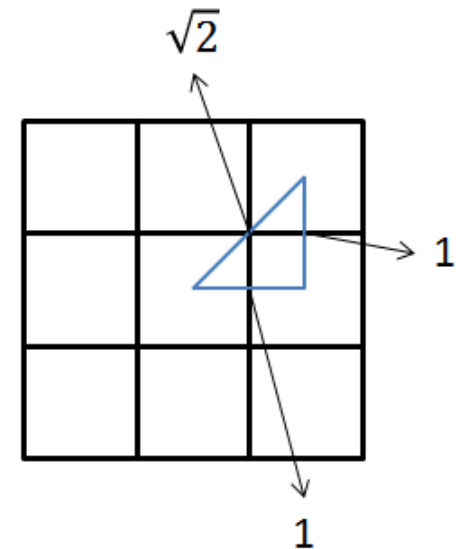


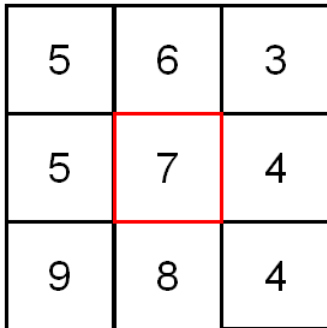
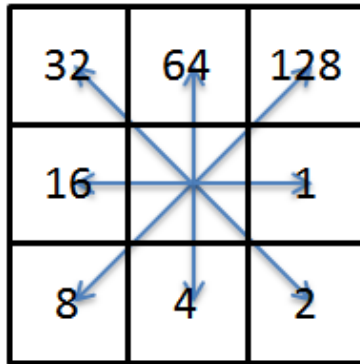
dh = Diferença de altura BC (Eqüidistância vertical)

dH = Distância horizontal AC (distância entre os por

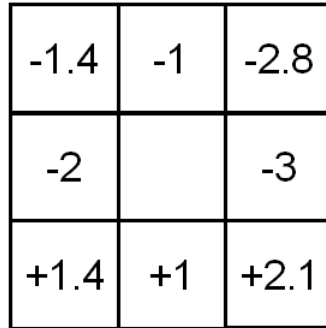
Assim,

Declividade (D) é a relação :  $dh / dH$

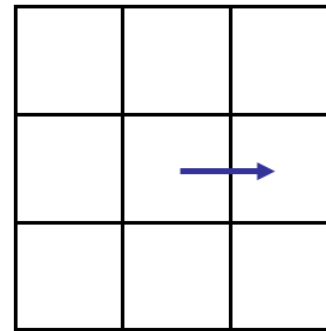




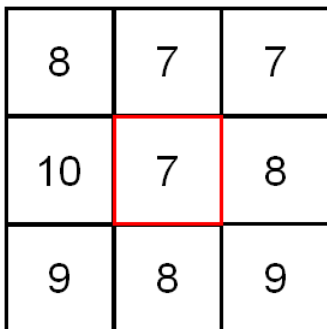
MNT



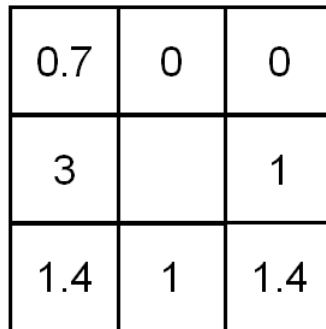
Declividades



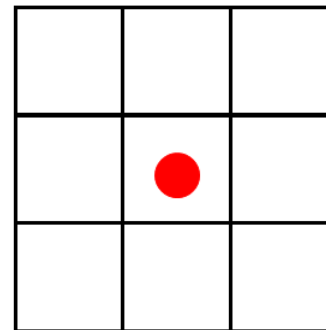
Fluxo Local



MNT



Declividades



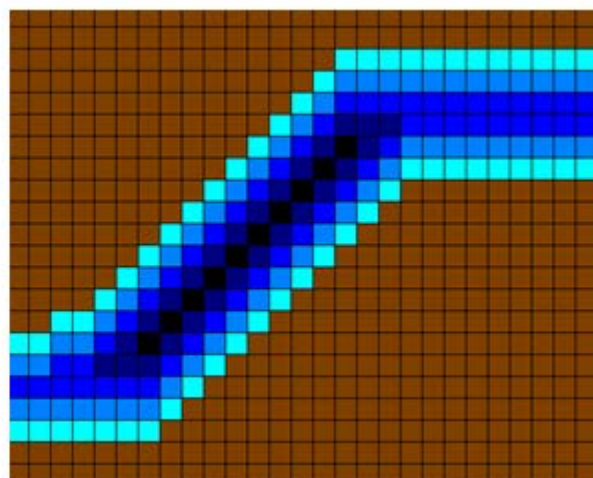
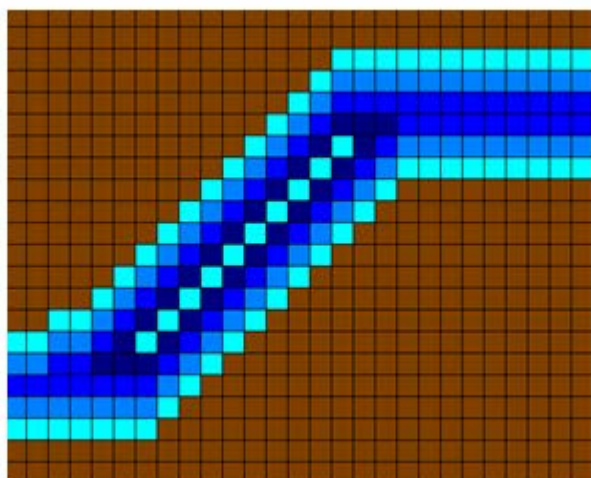
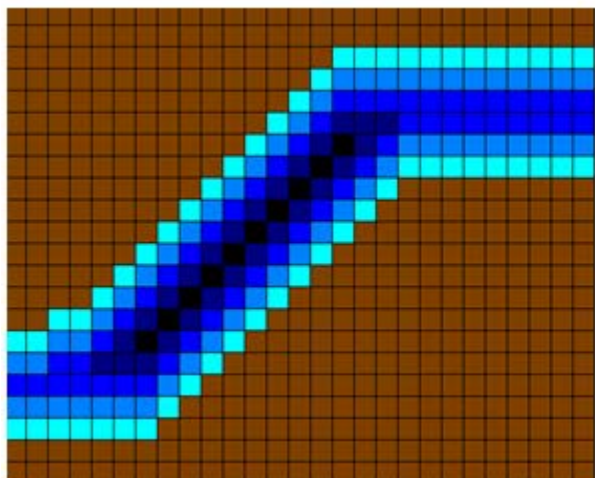
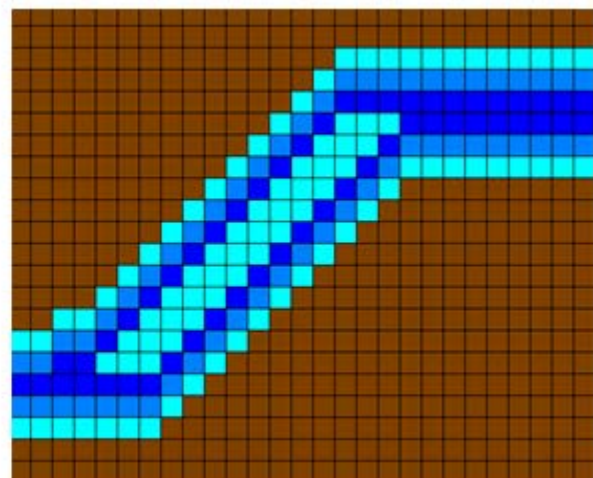
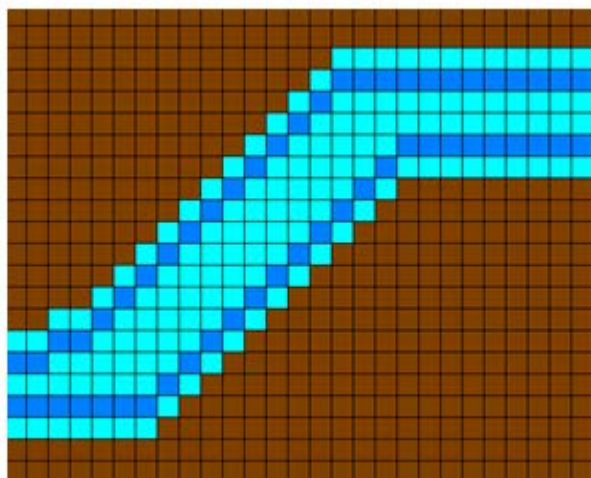
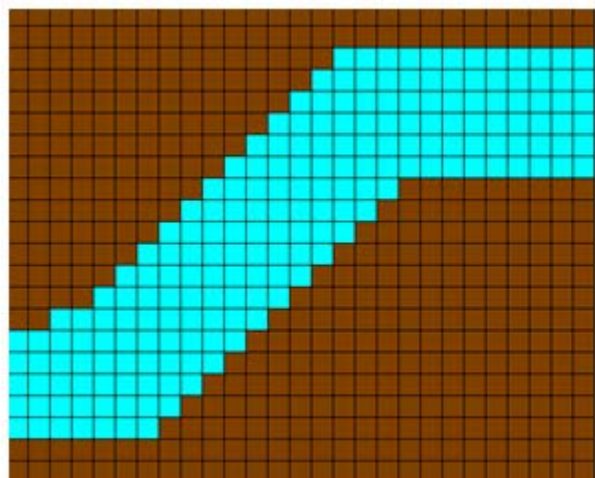
Fluxo Local

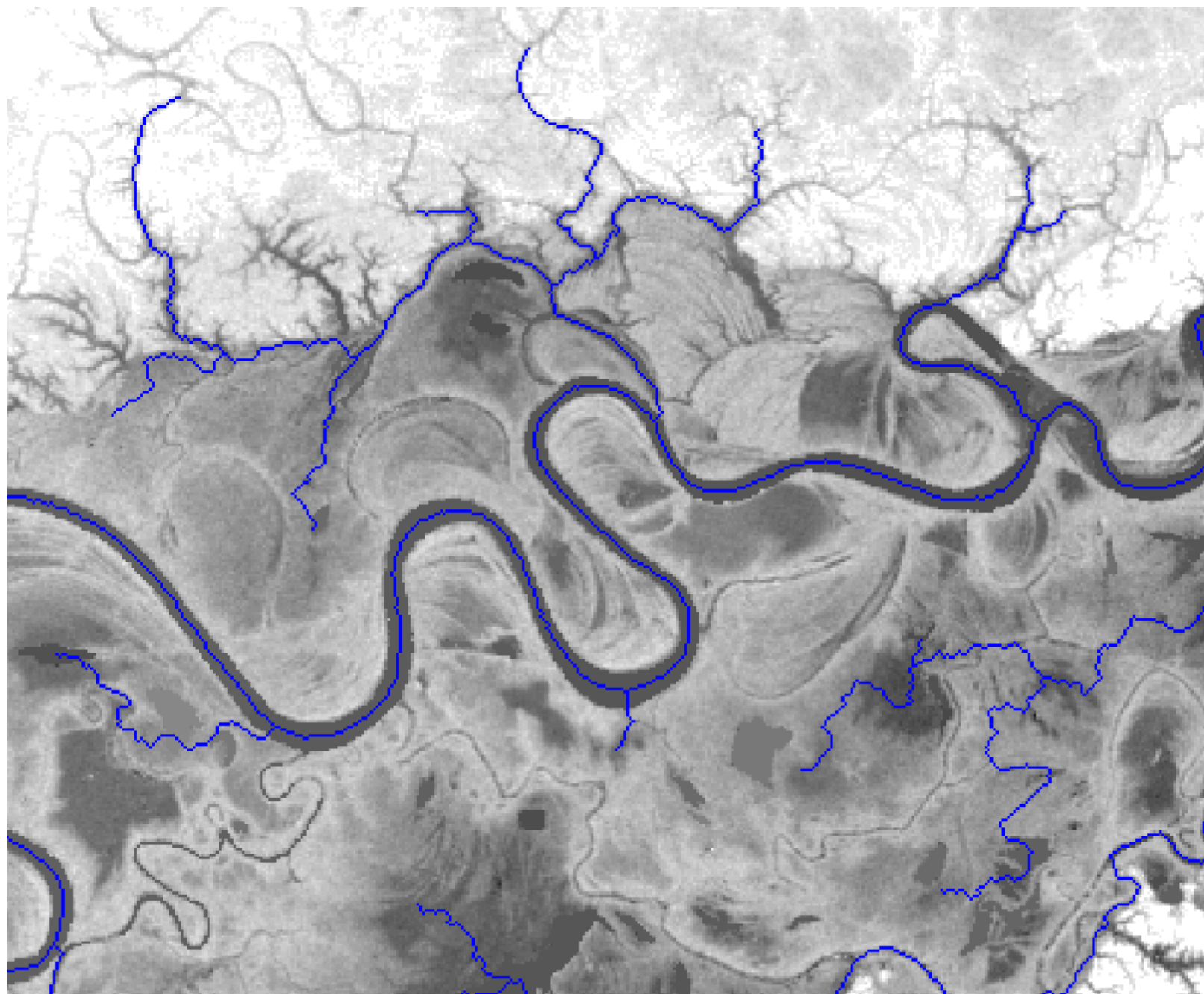


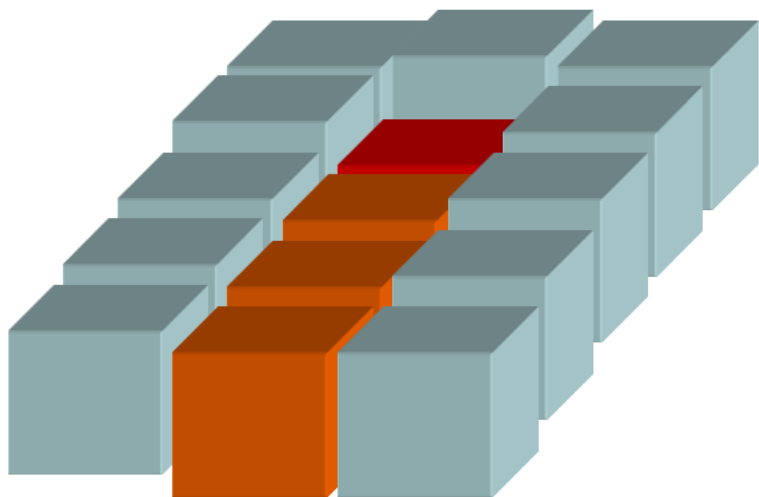
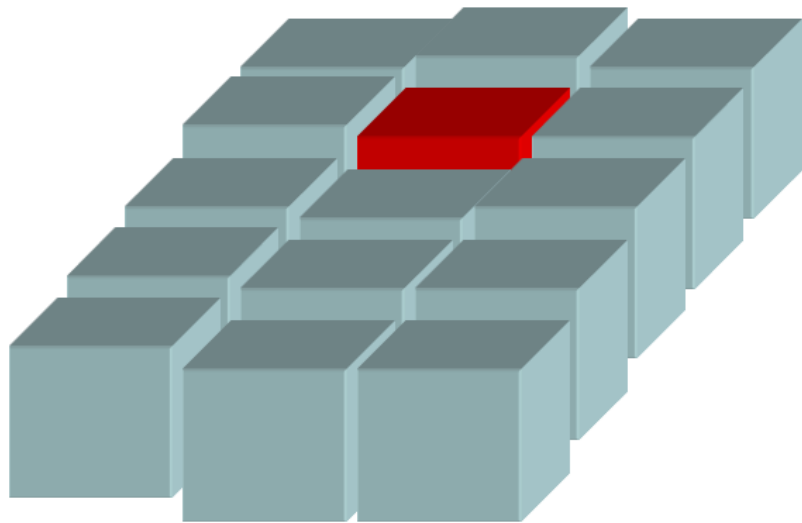
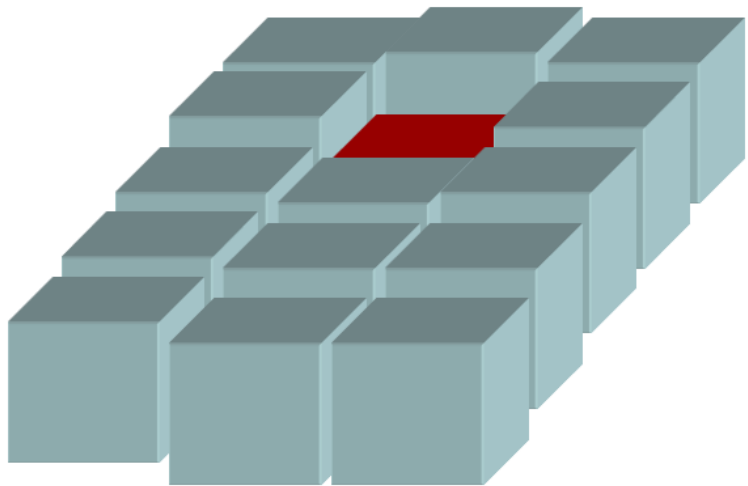
50 m

0 m











8	7	7
10	7	8
9	8	9

$$8 + 7 + 7 + 10 + 8 + 9 + 8 + 9 = 66$$

$$66 / 8 = 8.25$$

8	7	7
10	8.25	8
9	8	9

MNT

MNT

8	7	7
10	7	9
9	8	9
10	9	10



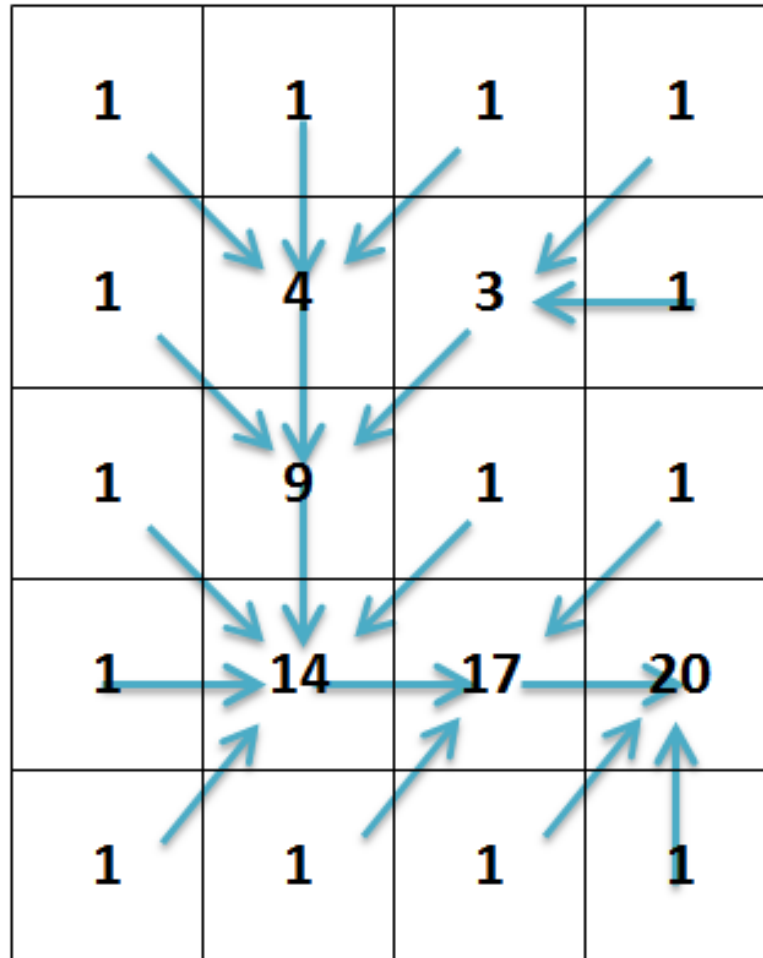
8	7	7
10	8.37	9
9	8	9
10	9	10

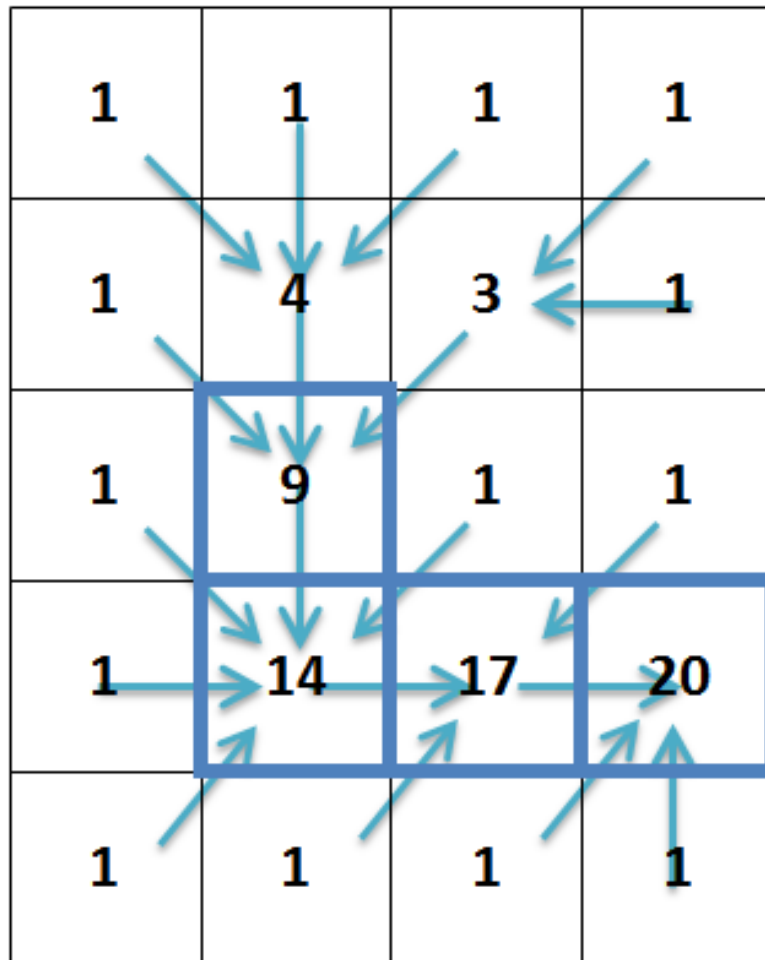


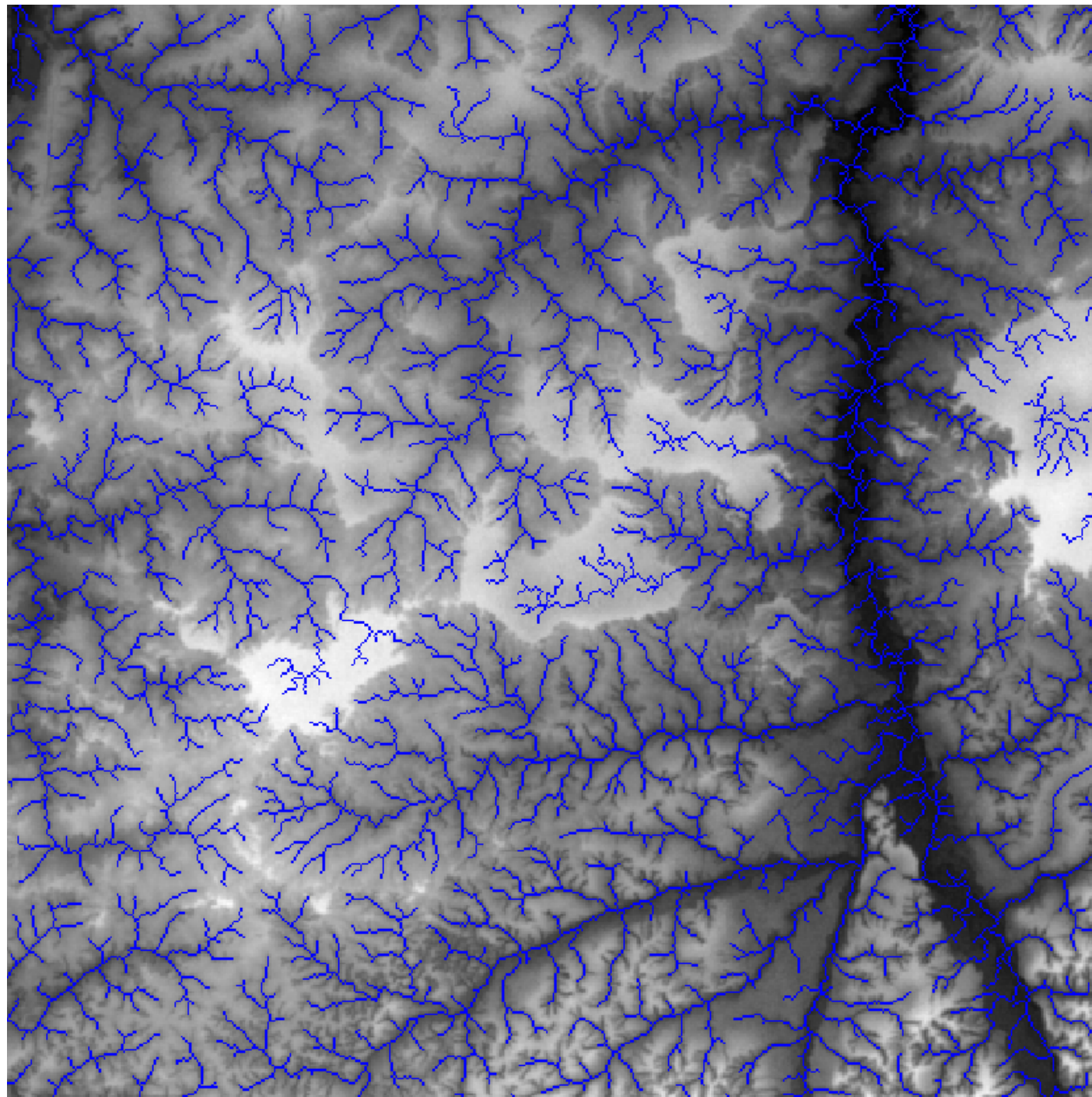
*Priority First Search*  
Dijkstra (1959)



Jones (2002)







260m

Limiar  
50 células

0m



Definir as direções de fluxo para cada célula e corrigir o MNT

Cavar áreas planas

Corrigir fosso utilizando a média das altimetria dos vizinhos

Volta a altimetria antiga do fosso e marca para ser resolvido cavando.

Sim

Algun vizinho virou fosso?

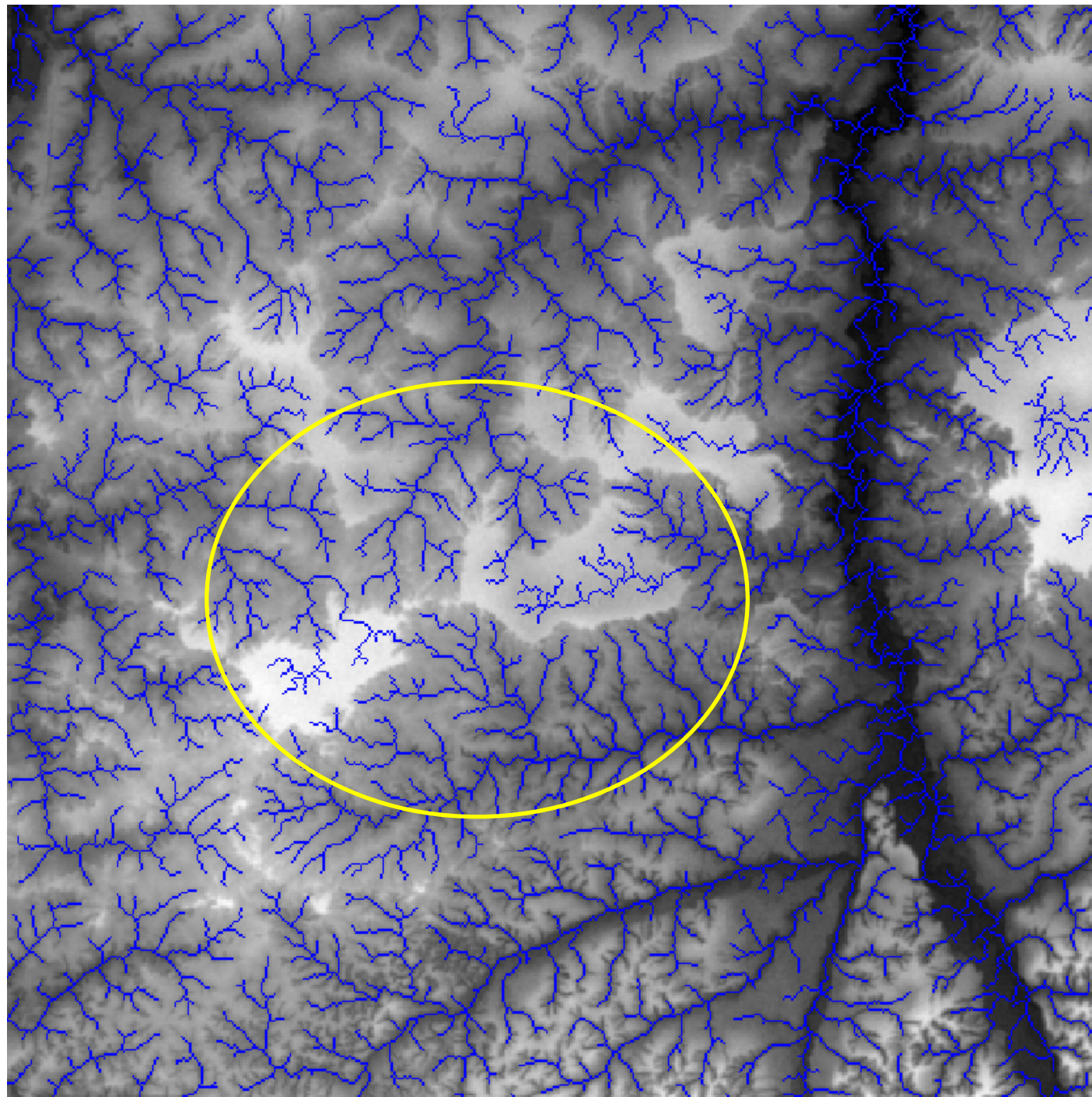
Não

Fosso corrigido, passa para o próximo

Corrigir fossos cavando uma saída

Calcular a área de contribuição acumulada para cada célula

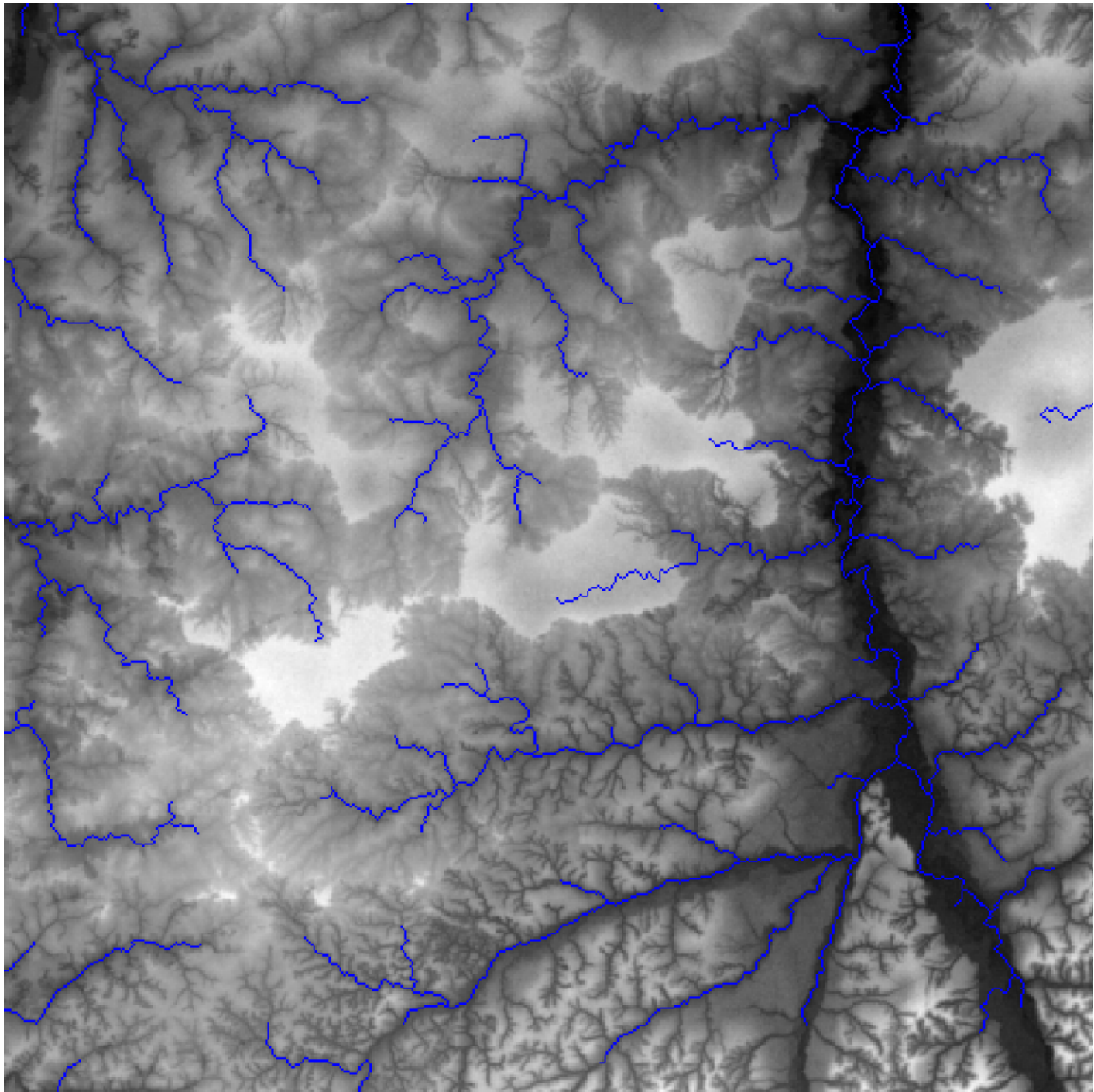
Com base em um limiar de área acumulada extrair a rede de drenagem



260m

Limiar  
50 células

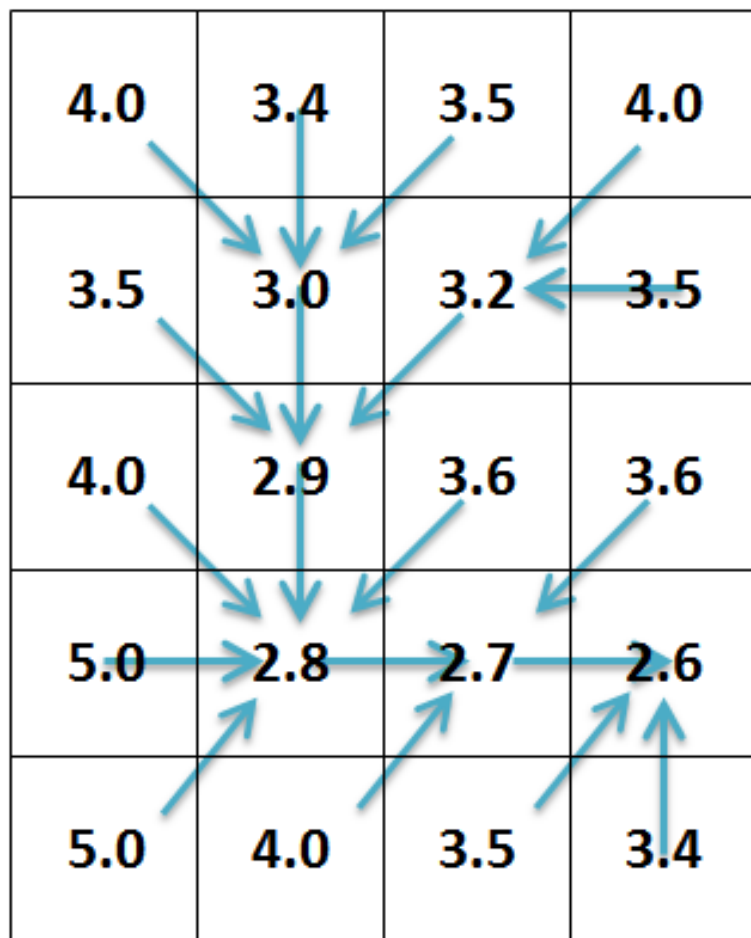
0m



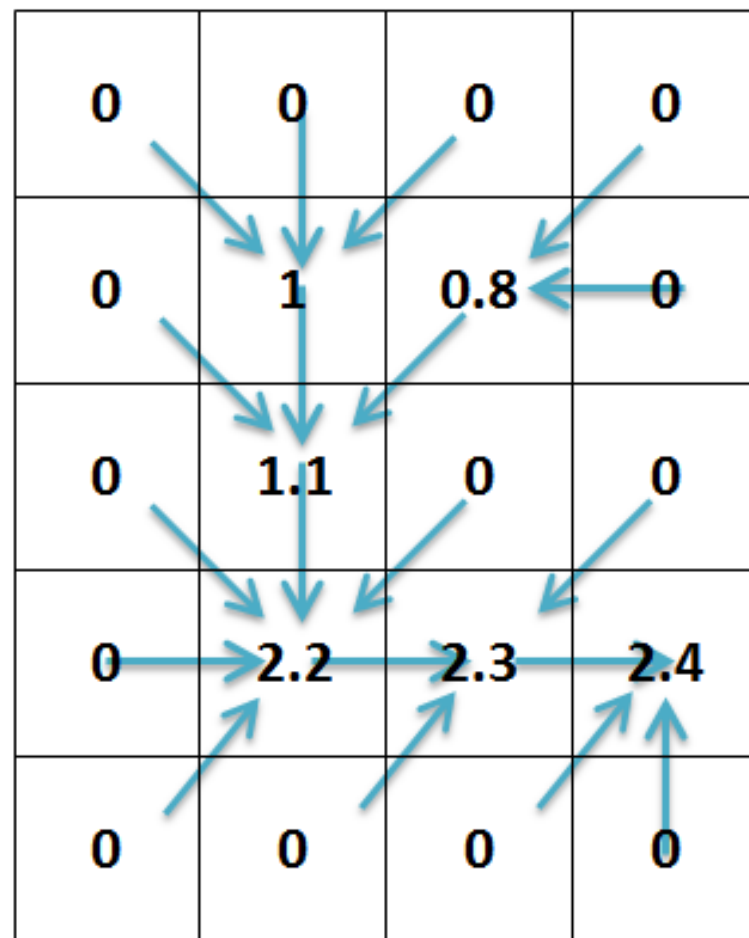
260m

Limiar  
850 células

0m

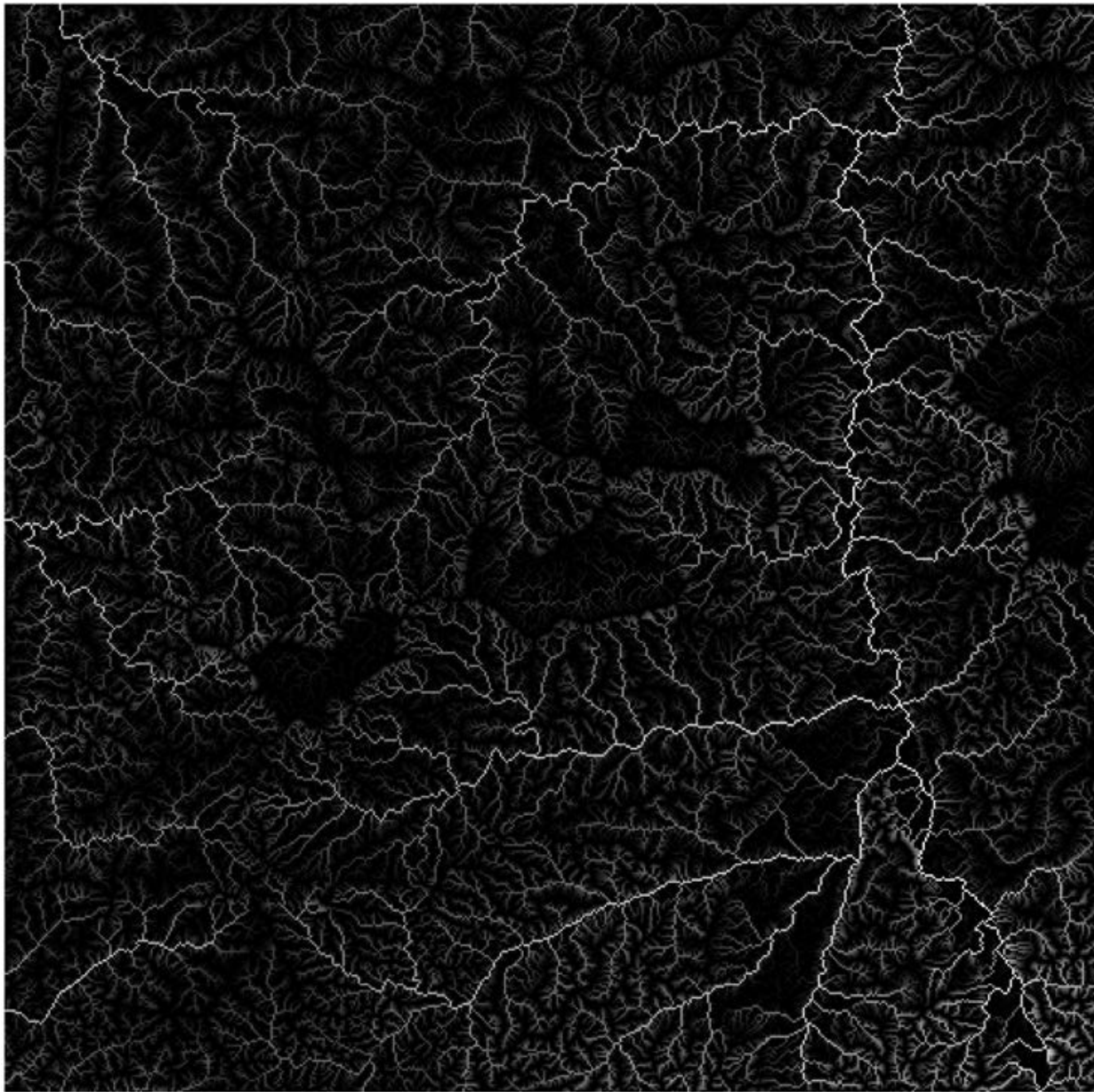


MNT



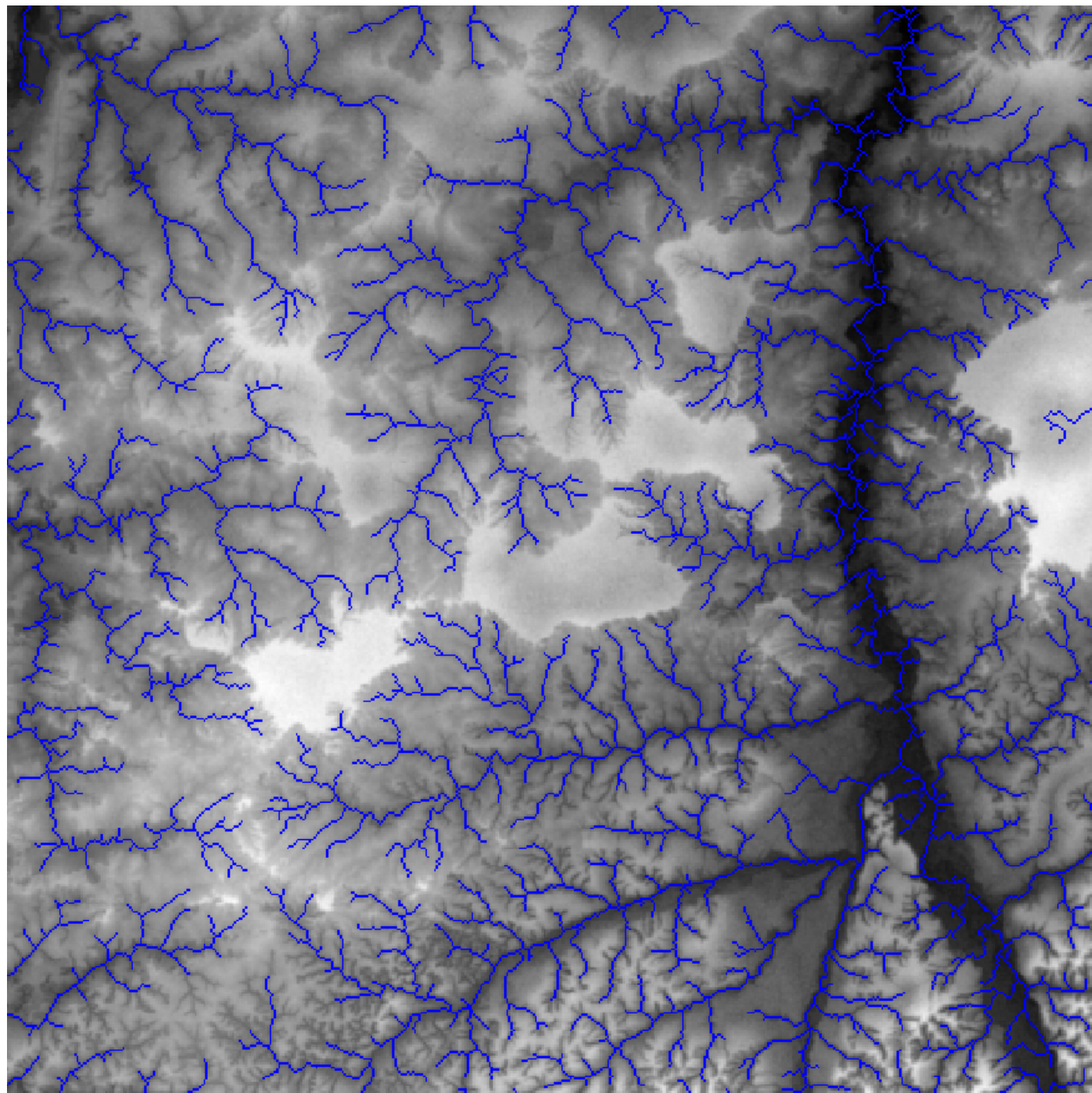
Distância vertical até o topo





226m

0m

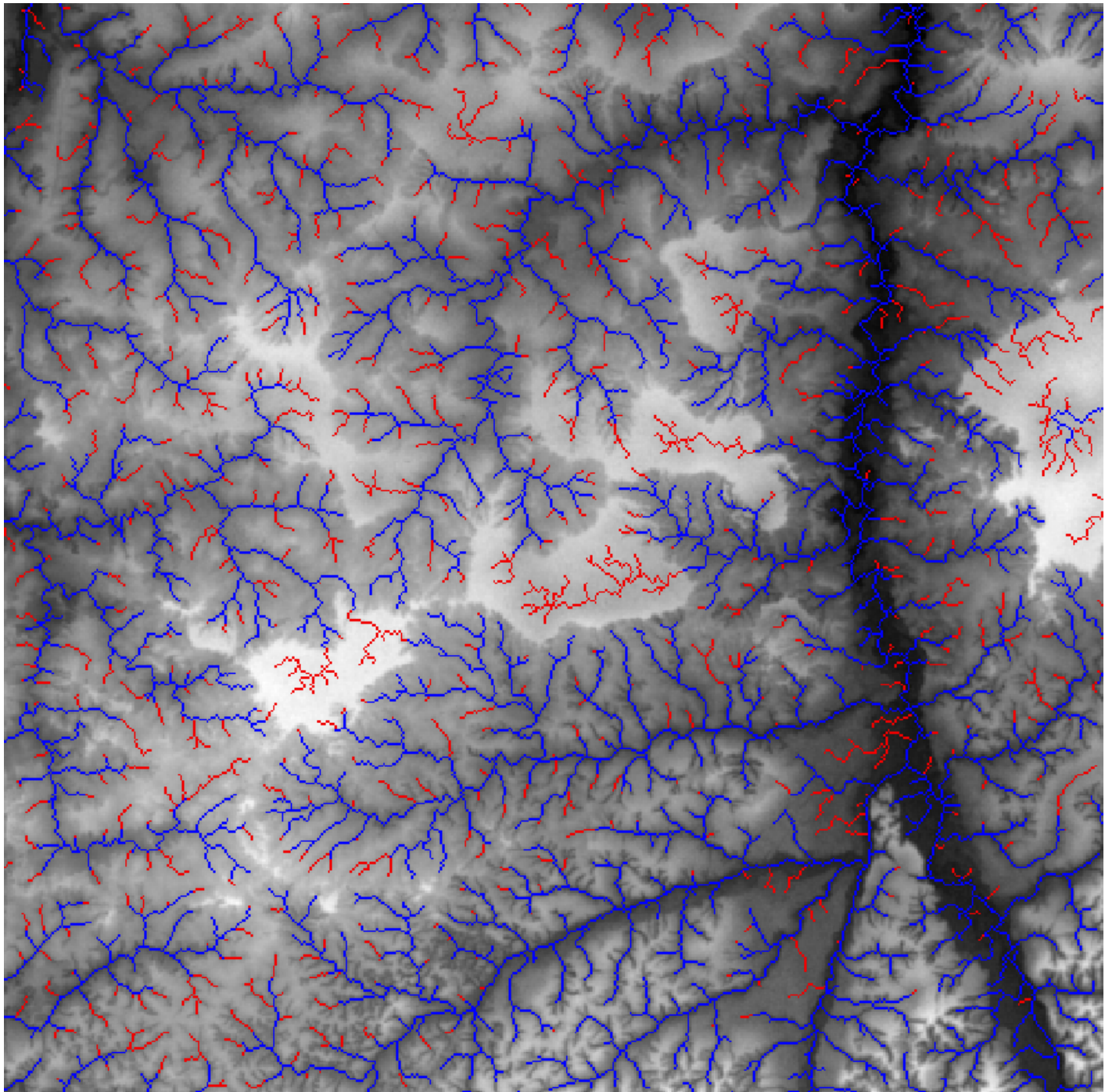


260m

Limiar  
50 células  
60m

0m

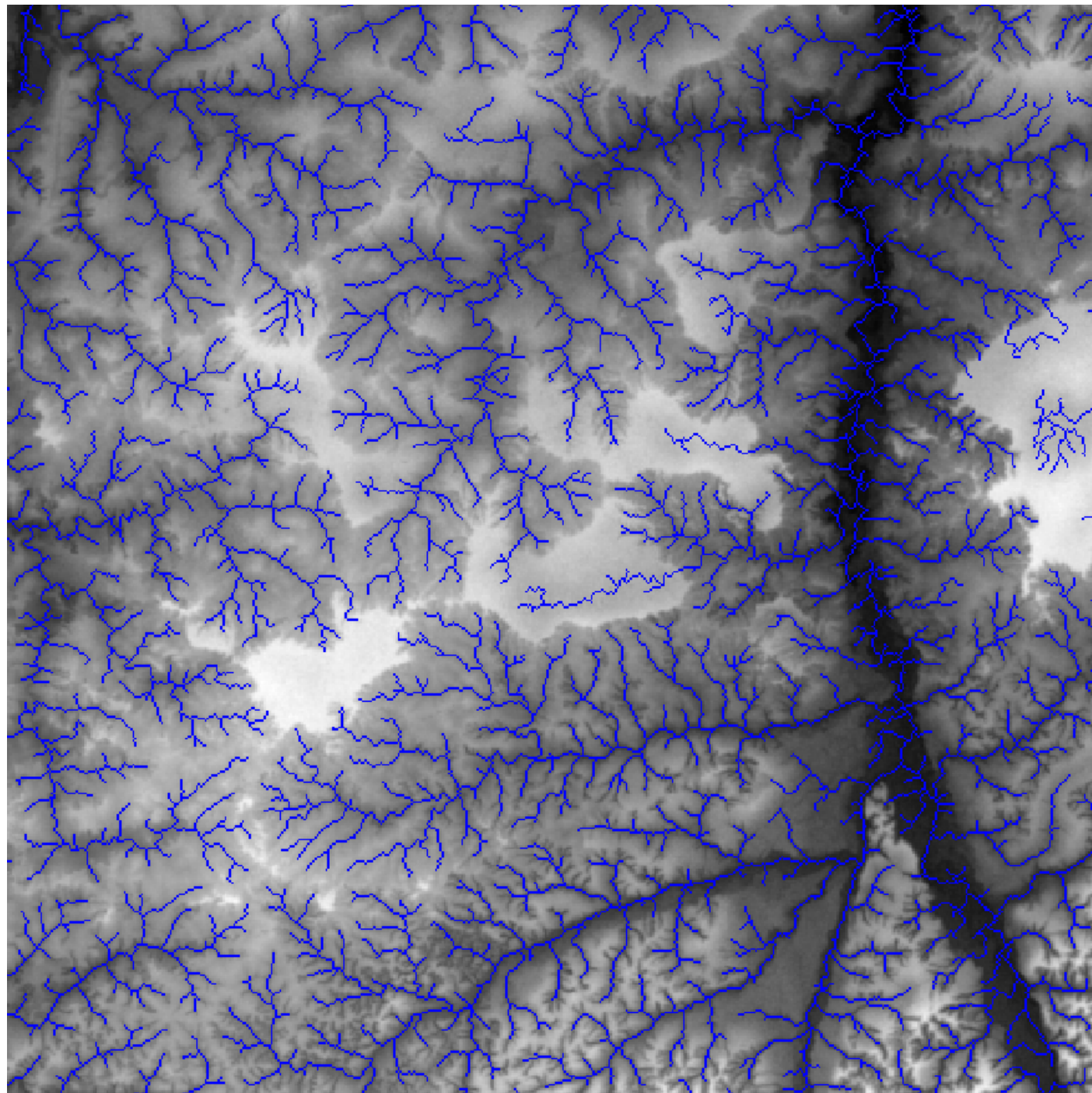




260m

Limiar  
50 células  
60m

0m

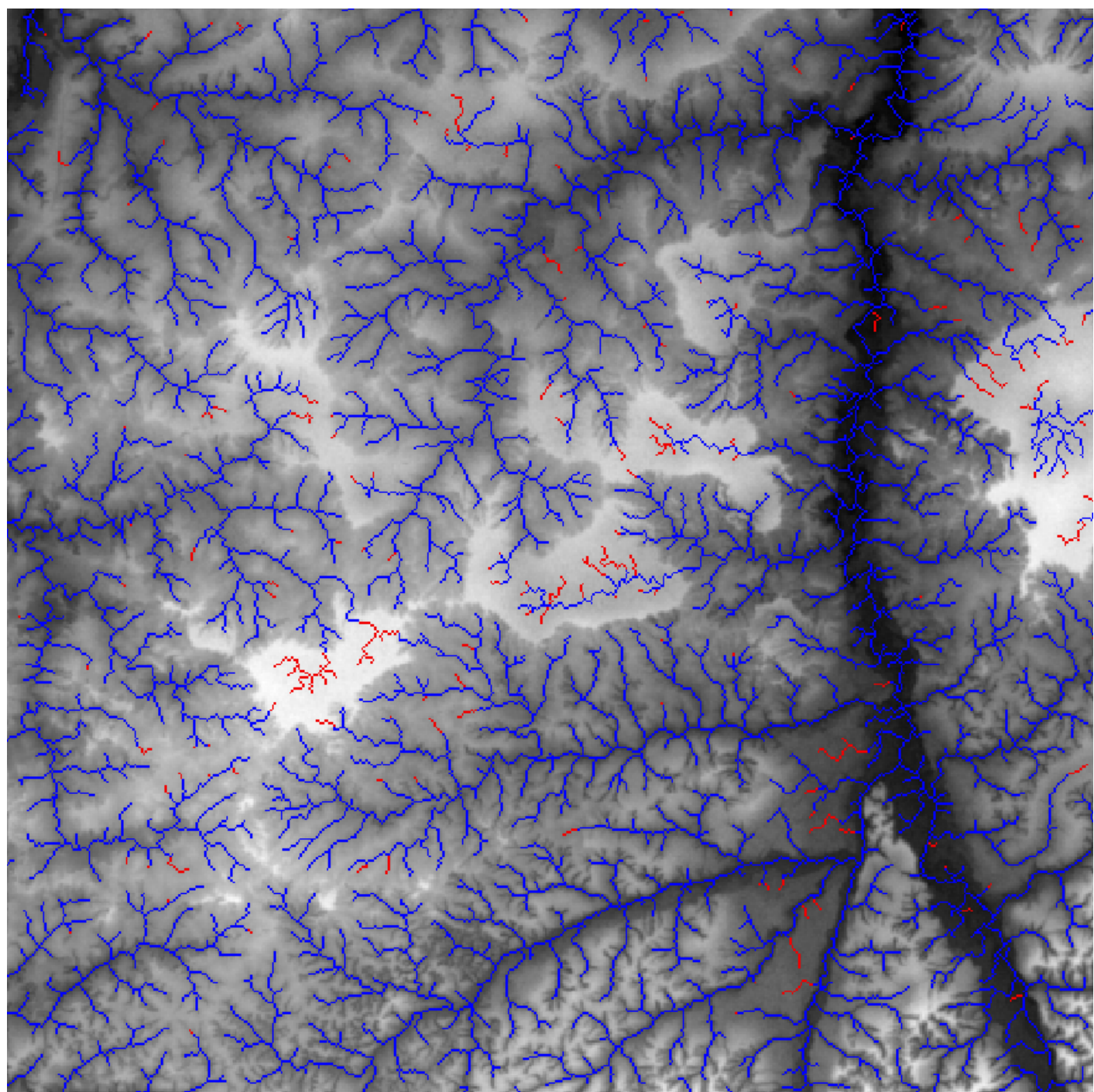


260m

Limiar  
50 células  
30m

0m





260m

Limiar  
50 células  
30m

0m

Definir as direções de fluxo para cada célula e corrigir o MNT

Cavar áreas planas

Corrigir fosso utilizando a média das altimetria dos vizinhos

Volta a altimetria antiga do fosso e marca para ser resolvido cavando.

Sim

Algun vizinho virou fosso?

Não

Fosso corrigido, passa para o próximo

Corrigir fossos cavando uma saída

Calcular a área de contribuição acumulada para cada célula

**Calcular a distância vertical até o topo**

Com base em um limiar de área acumulada e **distância vertical até o topo** extrair a rede de drenagem

# Obrigado

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*FIM*

***Alexandre Copertino Jardim***