



MINISTÉRIO DA CIÊNCIA E TECNOLOGIA  
**INSTITUTO NACIONAL DE PESQUISAS ESPACIAIS**

## **Introdução ao Geoprocessamento (SER-300)**

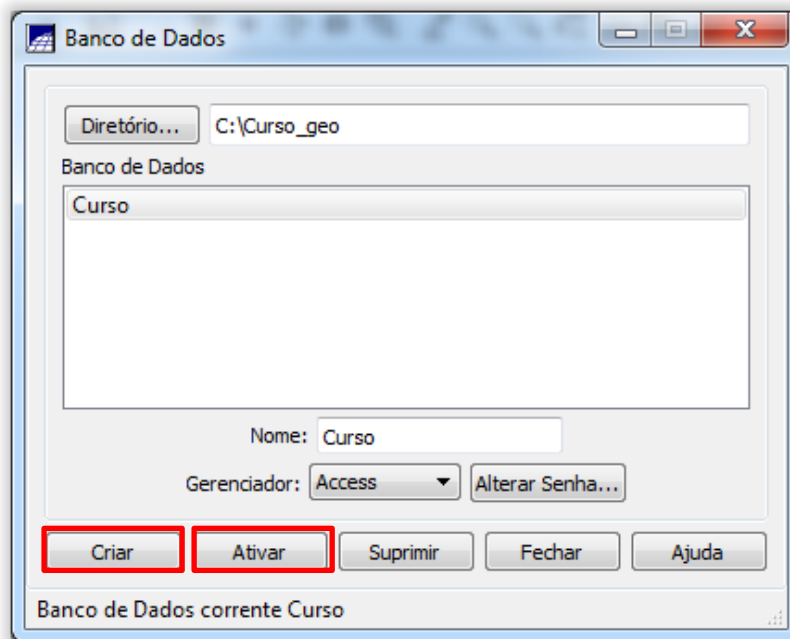
### **Laboratório 3 – Laboratório de MNT (Exercícios Práticos)**

Alana Kasahara Neves

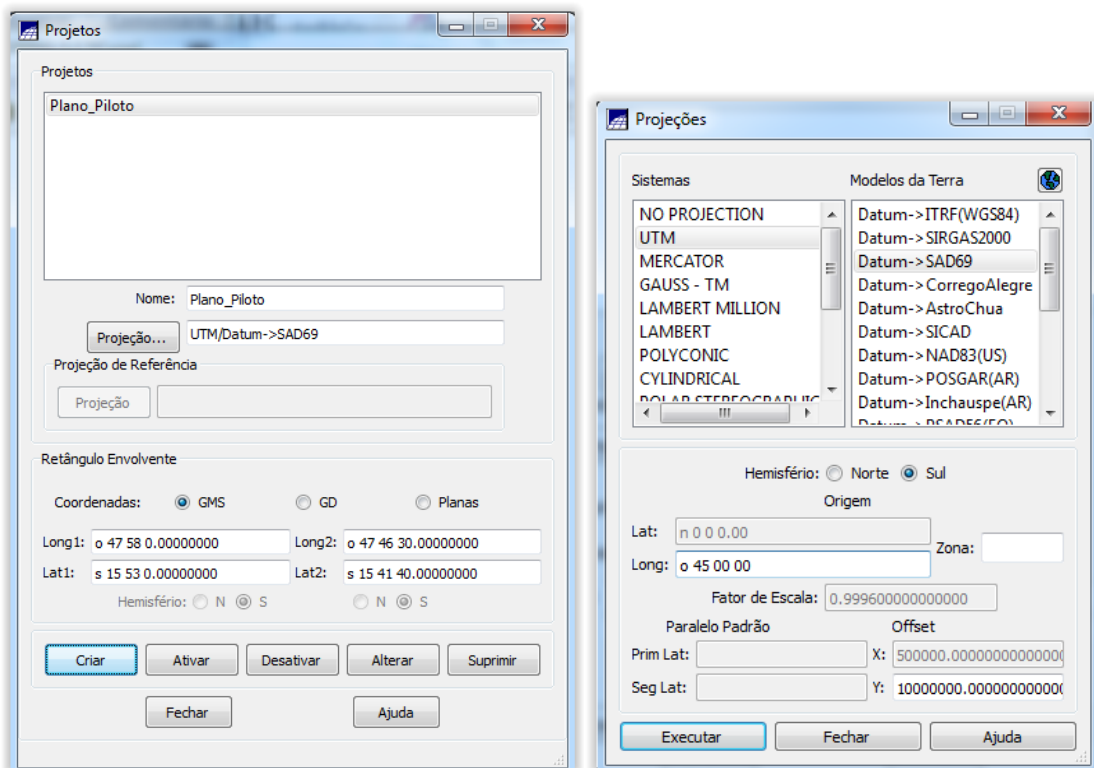
INPE  
São José dos Campos  
2015

## Exercício 1 – Definindo o Plano Piloto para o Aplicativo 1

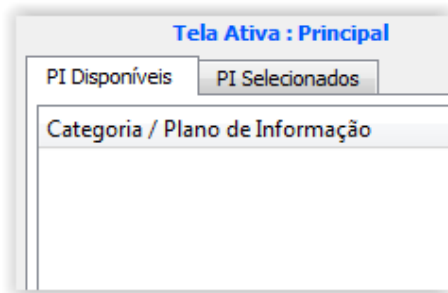
Primeiramente, deve-se criar e ativar o banco de dados denominado “Curso”:



Depois, cria-se o projeto “Plano\_Piloto”:




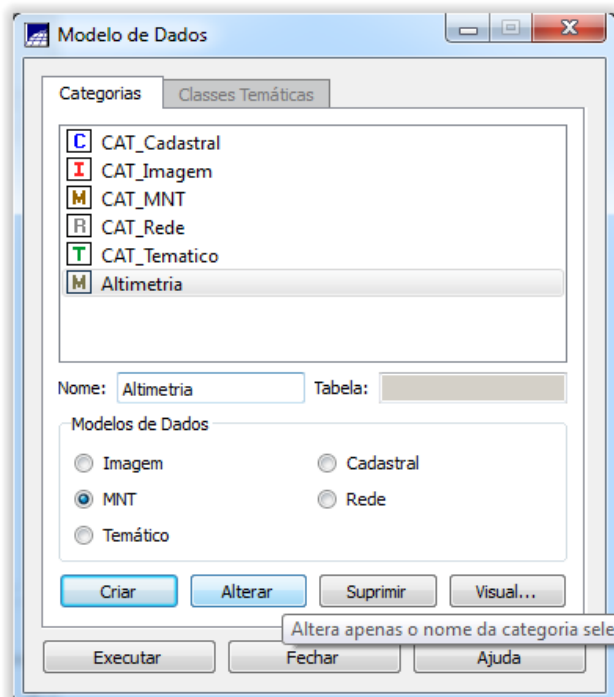
Nesse momento, a lista de Categoria/Plano de Informação ainda está vazia:



## Exercício 2 – Importação de amostras de modelo numérico de terreno

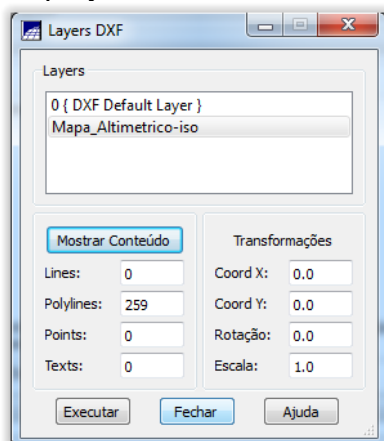
Passo 1 - Importar arquivo DXF com isolinhas num PI numérico

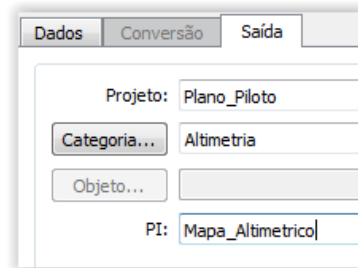
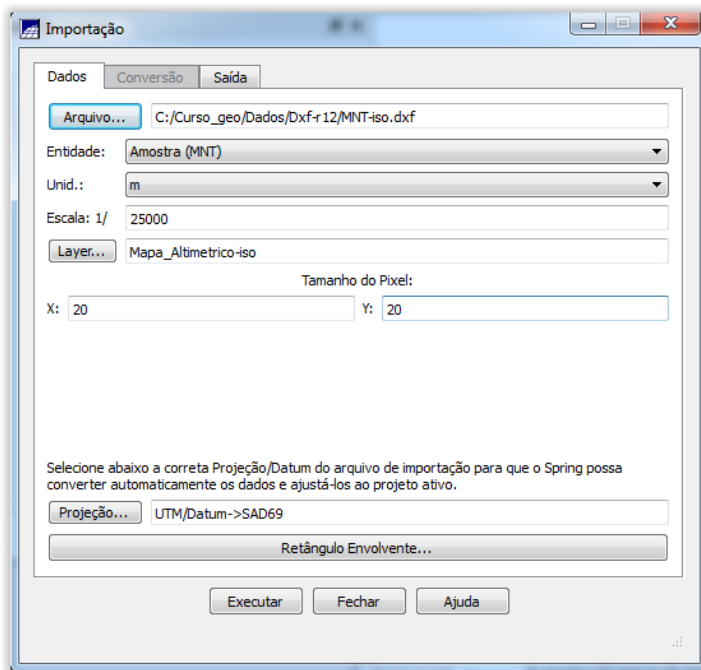
Criando a categoria “Altimetria” em  :



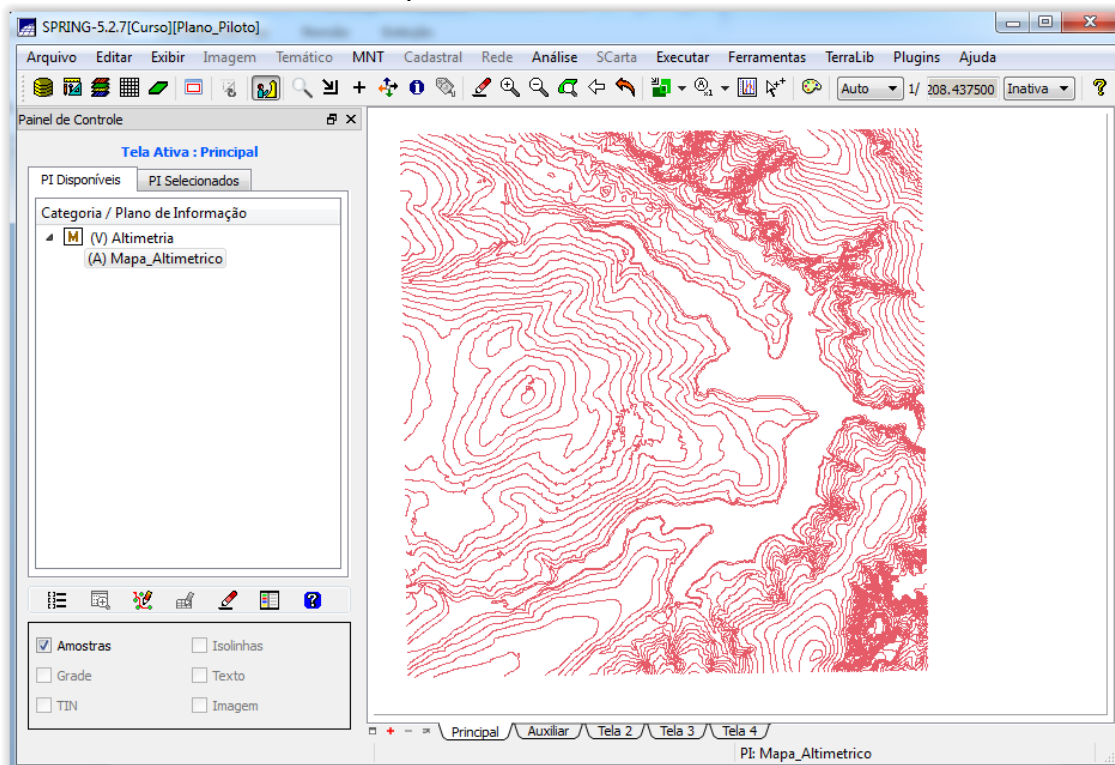
Importando isolinhas de arquivo DXF:

Ao mostrar o conteúdo do arquivo MNT-iso.dxf, podemos observar o número de polylines:





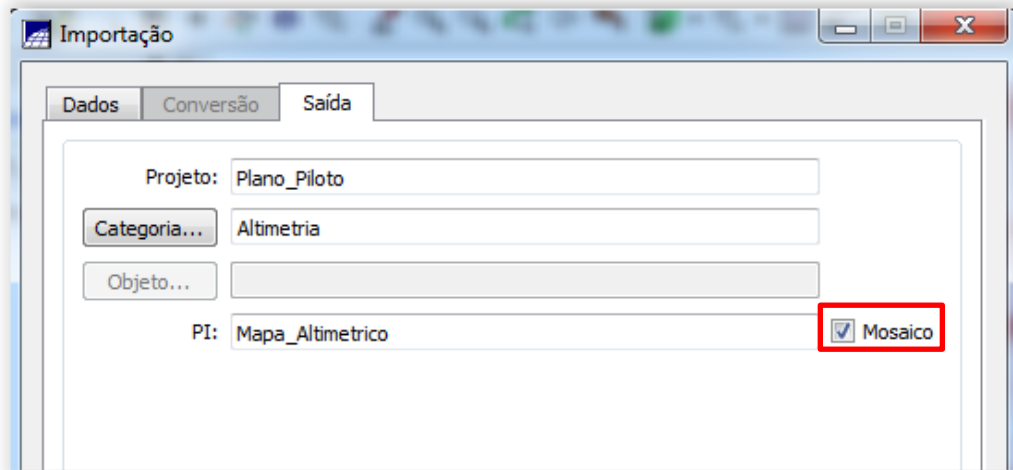
Temos então as isolinhas importadas:



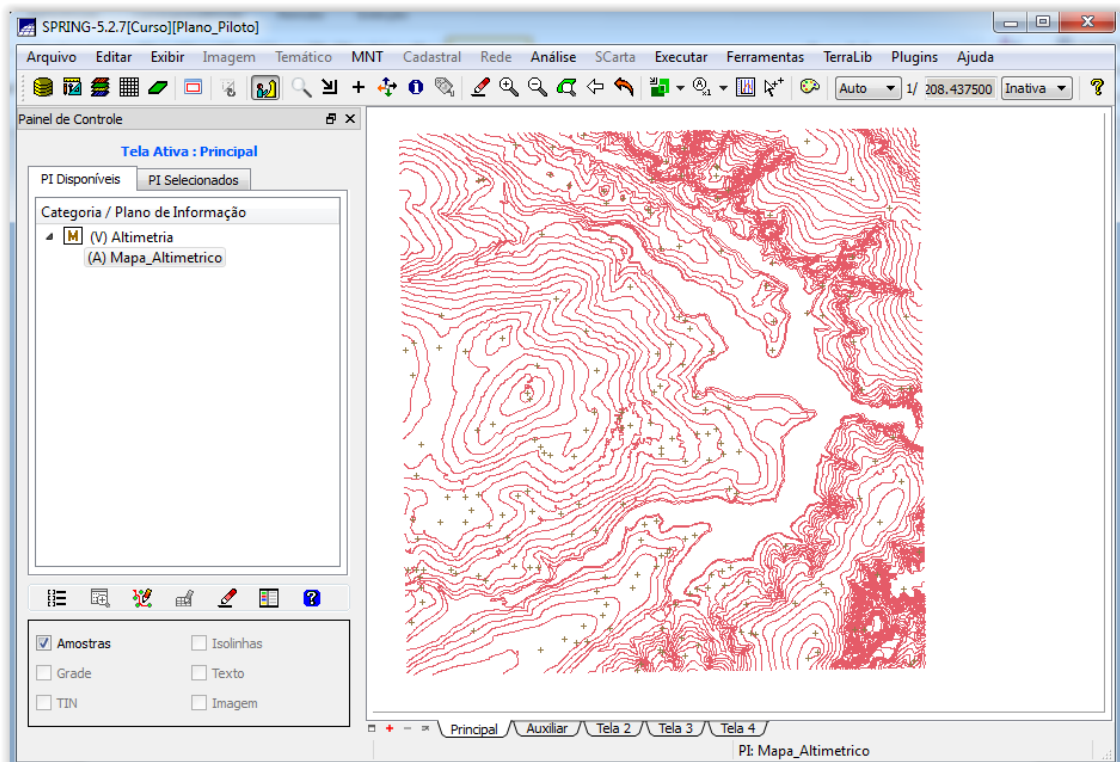
Passo 2 - Importar arquivo DXF com pontos cotados no mesmo PI das isolinhas

Importando pontos cotados de arquivo DXF:

No processo de importação dos pontos cotados, não se pode esquecer de marcar a opção “Mosaico”, na aba de Importação, para que os dois arquivos fiquem no mesmo PI.

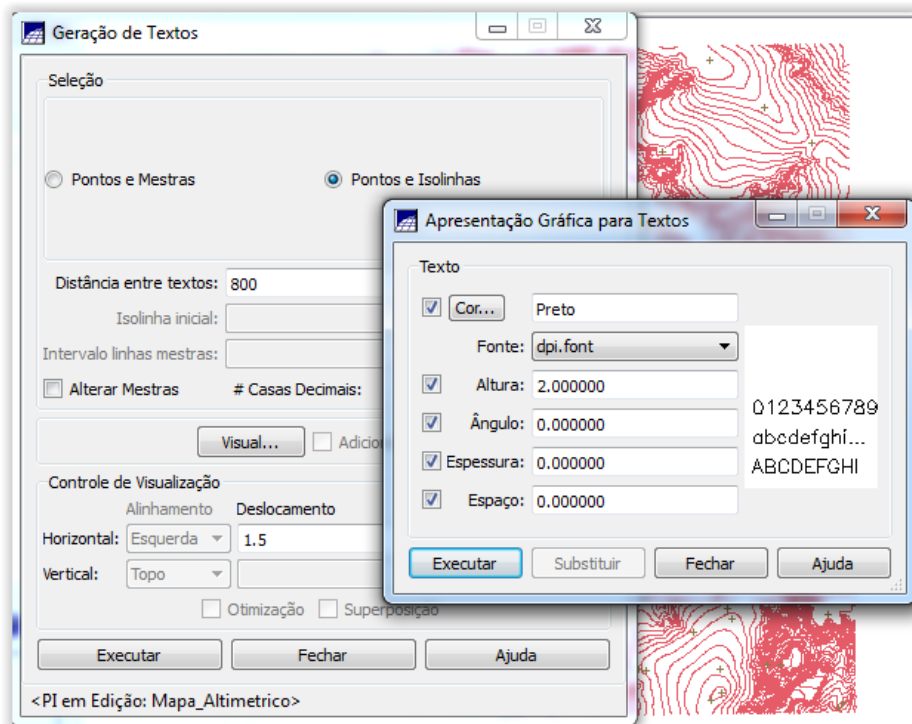


Dessa forma, podem ser visualizados os pontos cotados e as isolinhas:

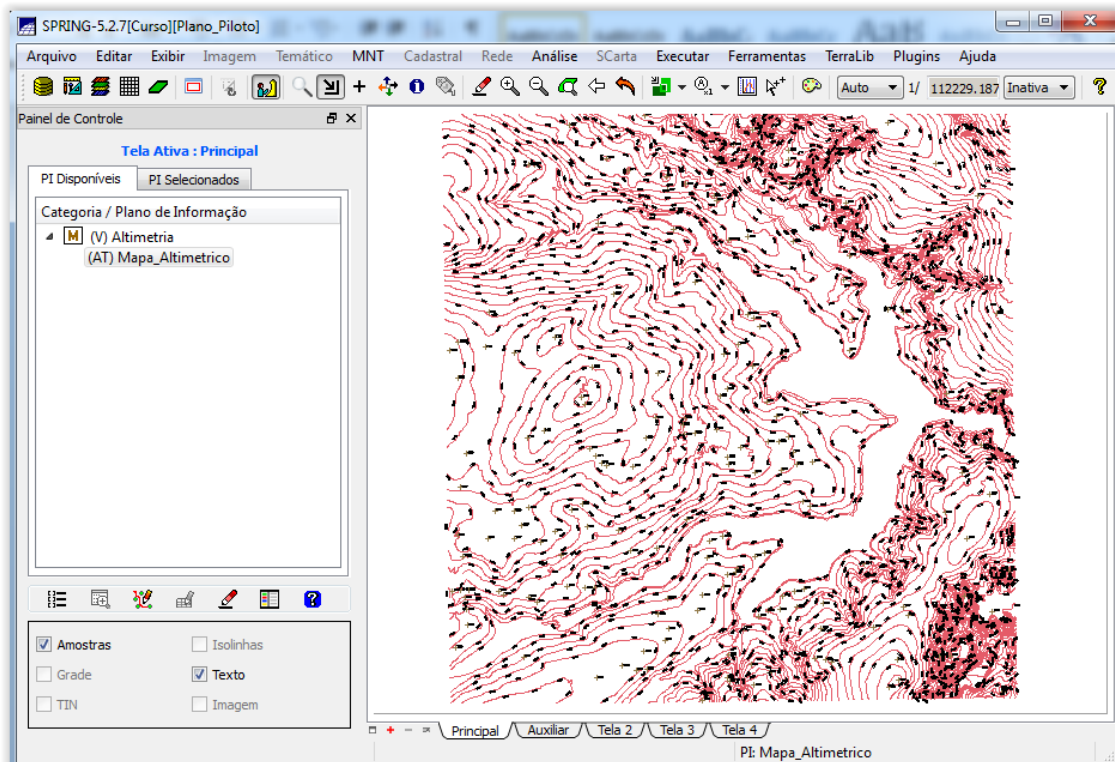


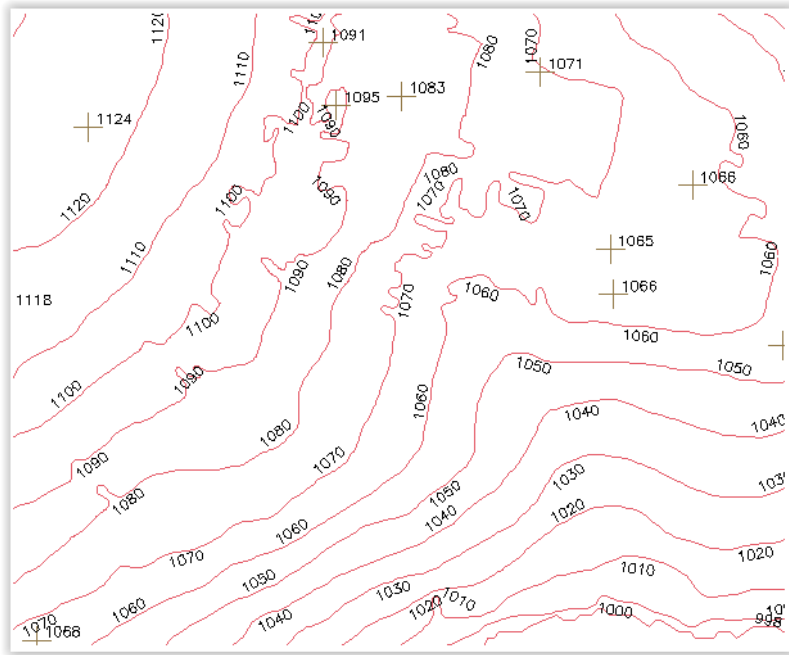
Passo 3 - Gerar toponímia para amostras

Gerando textos para amostras de PI numérico:



Observando o texto na tela de desenho:

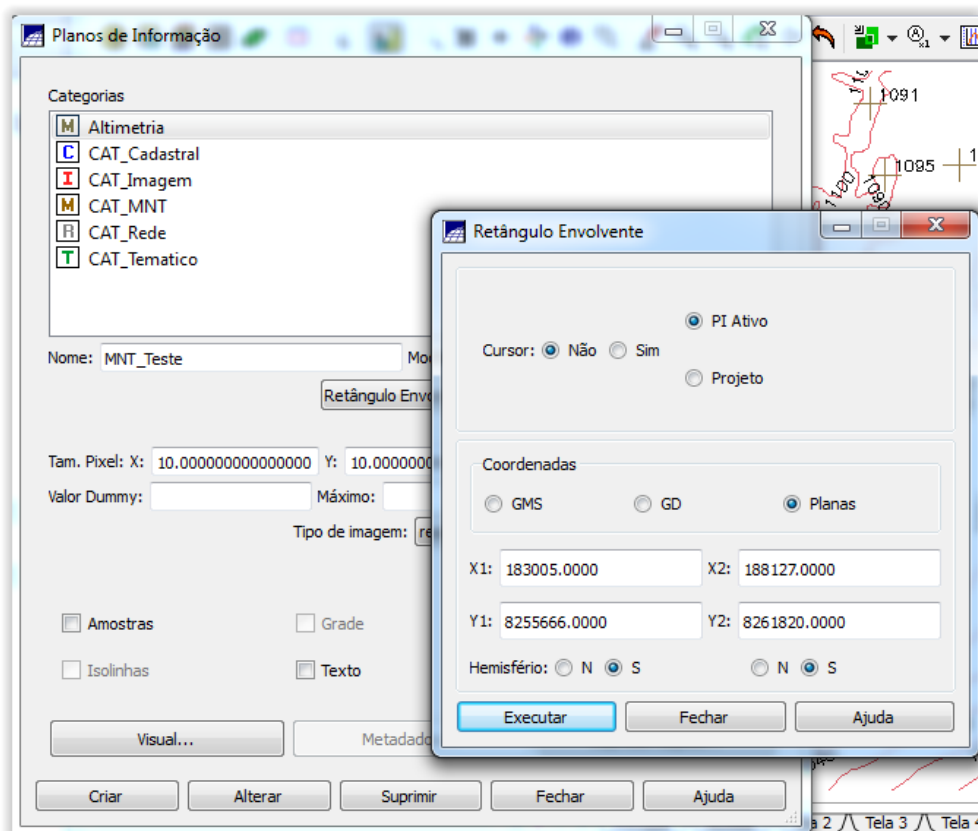




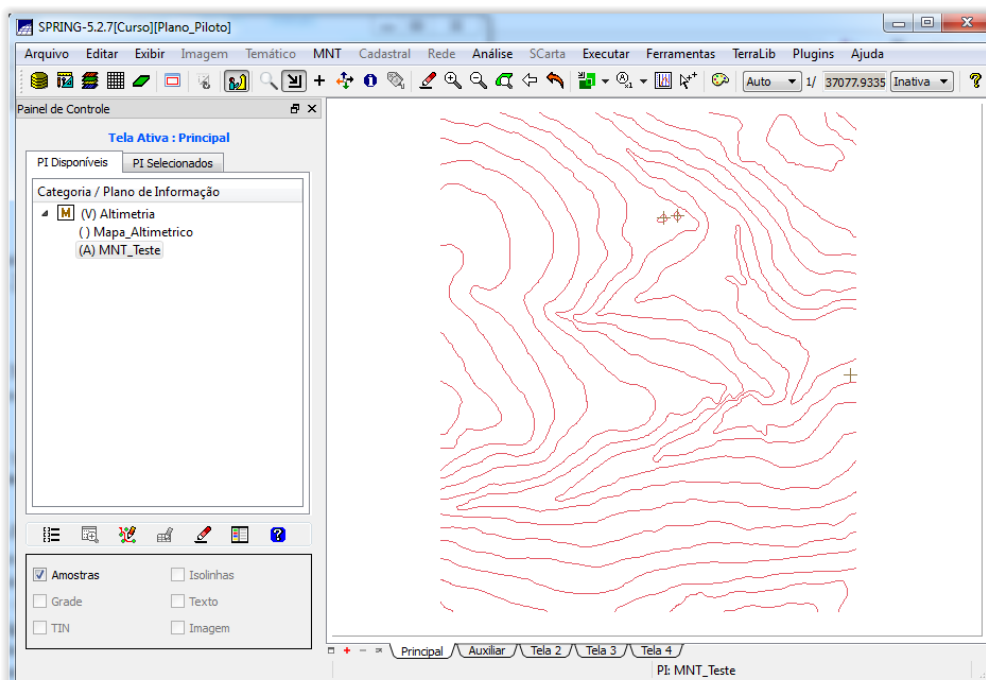
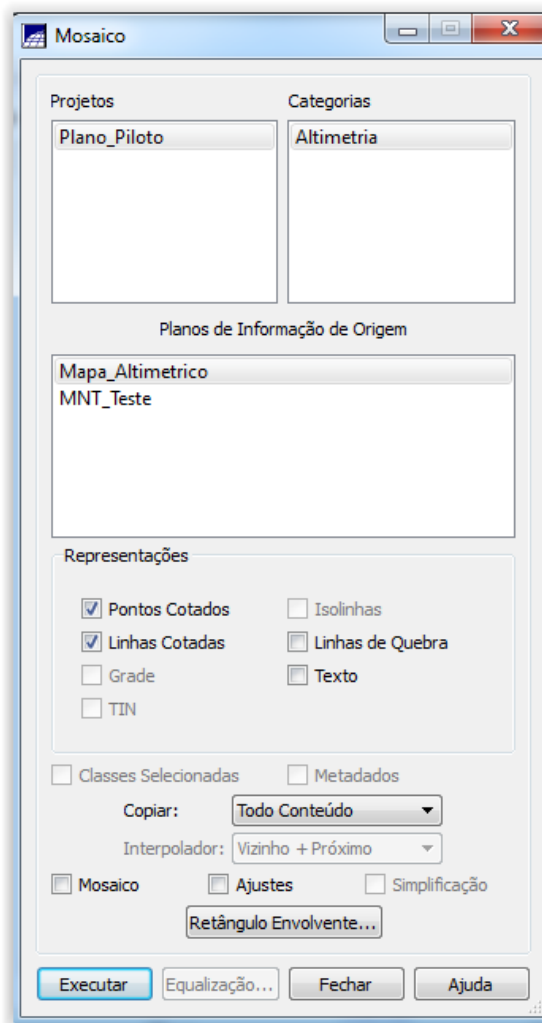
### Exercício 3 – Edição de modelo numérico de terreno

Passo 1 - Criar um novo PI numérico e fazer cópia do mapa altimétrico

Criando PI para edição na tela:

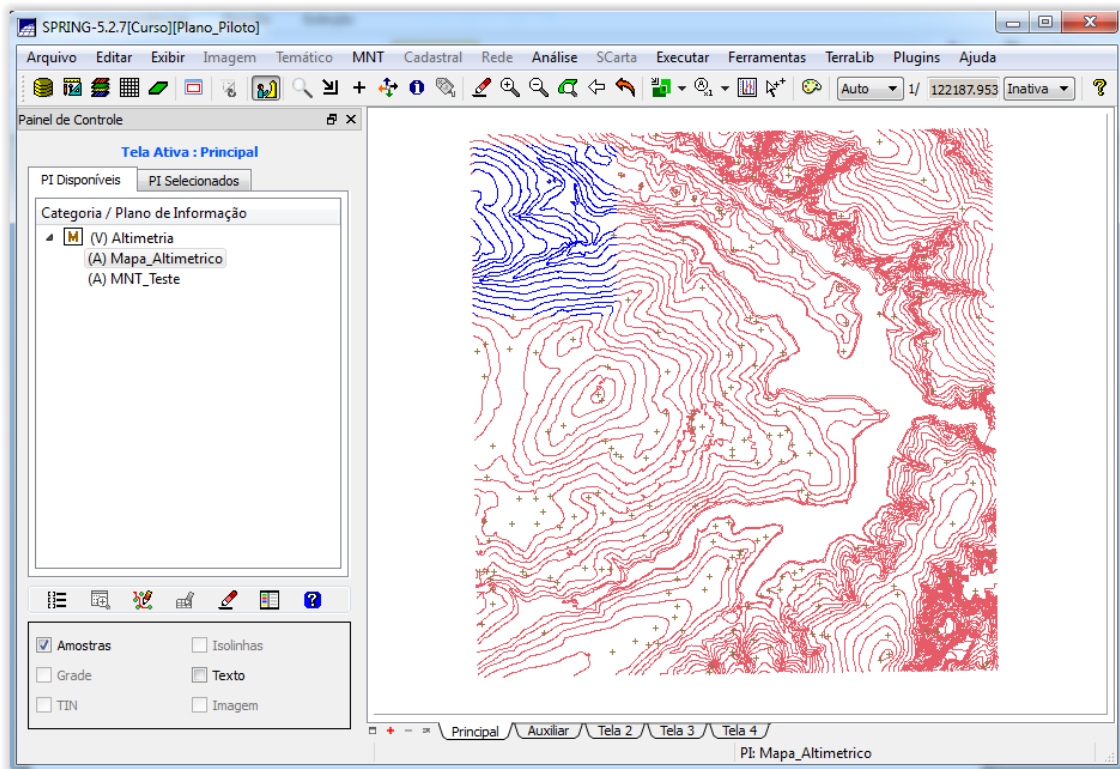


Copiando dados de um PI para outro:



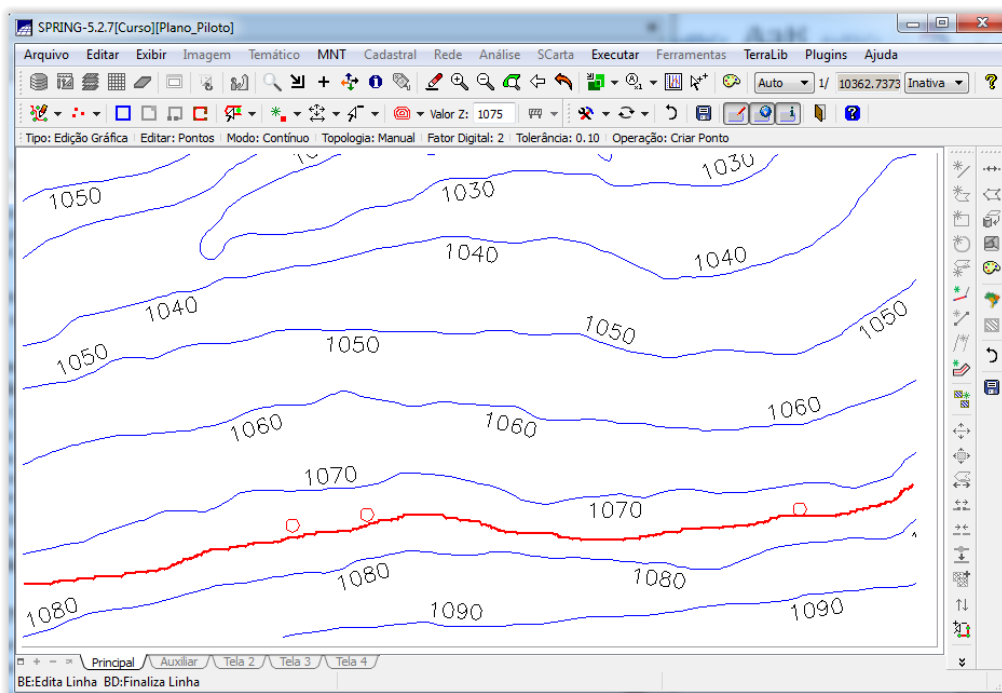


Observe que os dados ocupam uma área menor que o PI “Mapa\_Altimetrico”, já que foi escolhido um retângulo envolvente menor. Abaixo, vemos em azul o PI “MNT\_Teste” e em vermelho o PI “Mapa\_Altimetrico”:

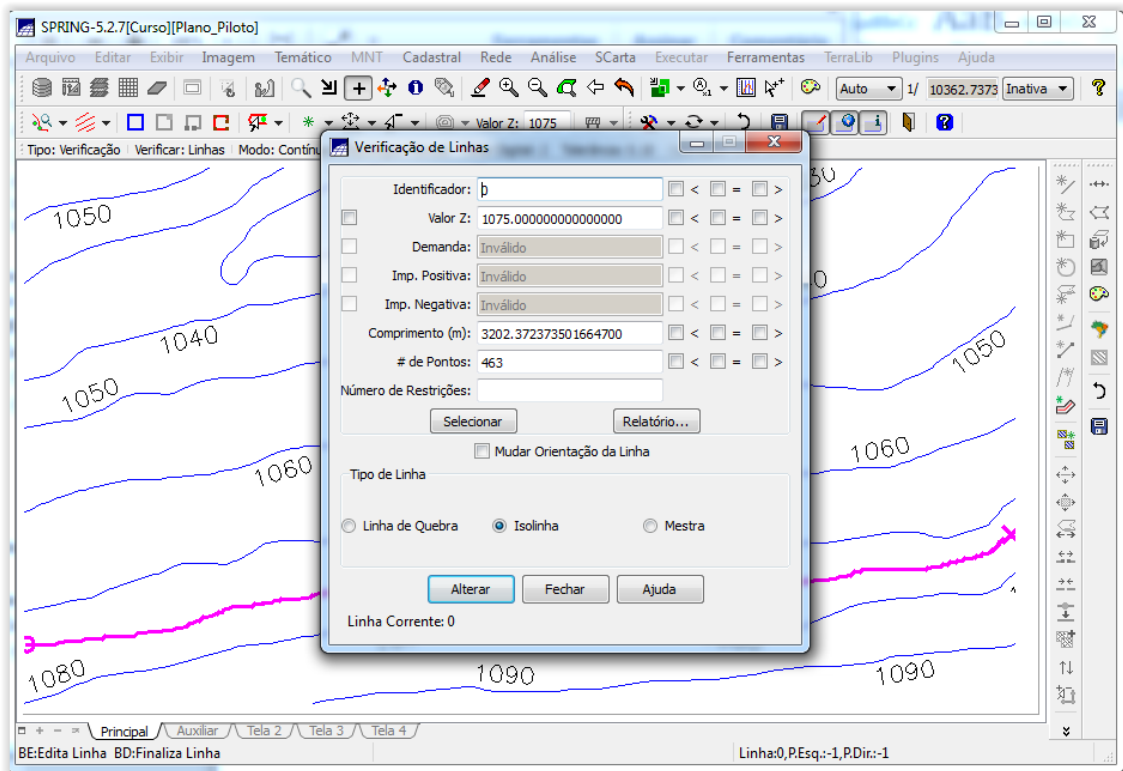


Passo 2 - Editar isolinhas e pontos cotados num PI numérico

Editando isolinhas e pontos:

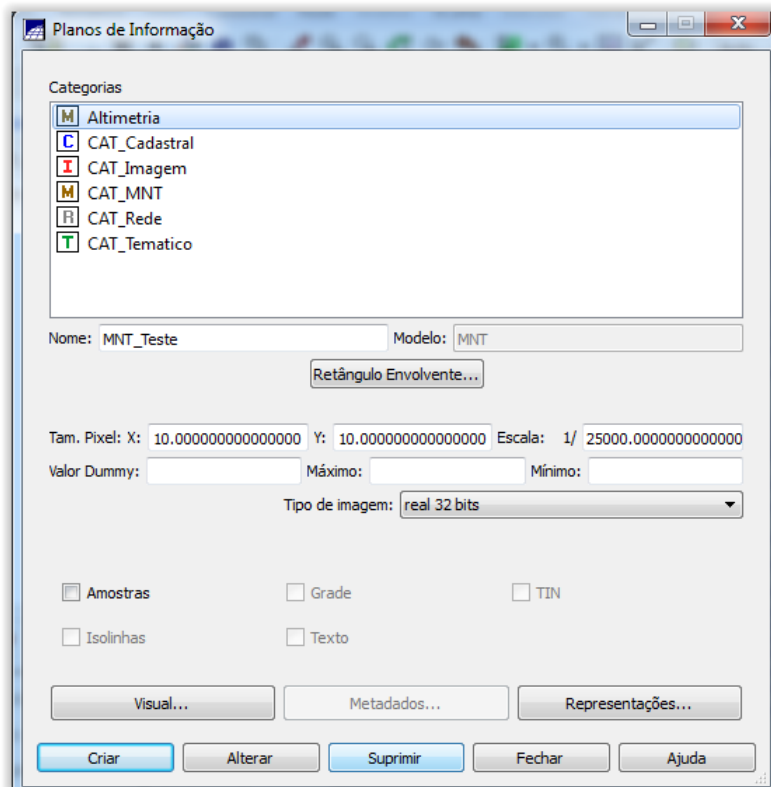


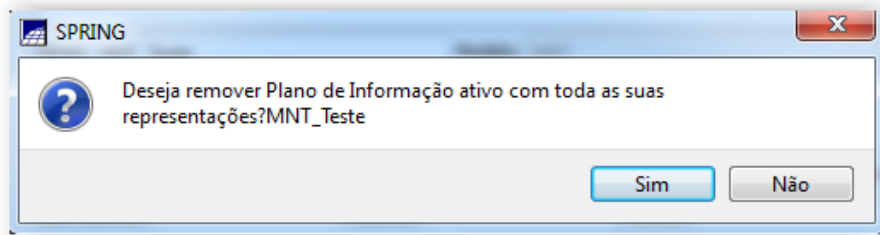
Verificando isolinhas e pontos:



Passo 3 - Suprimir o PI MNT\_Testes

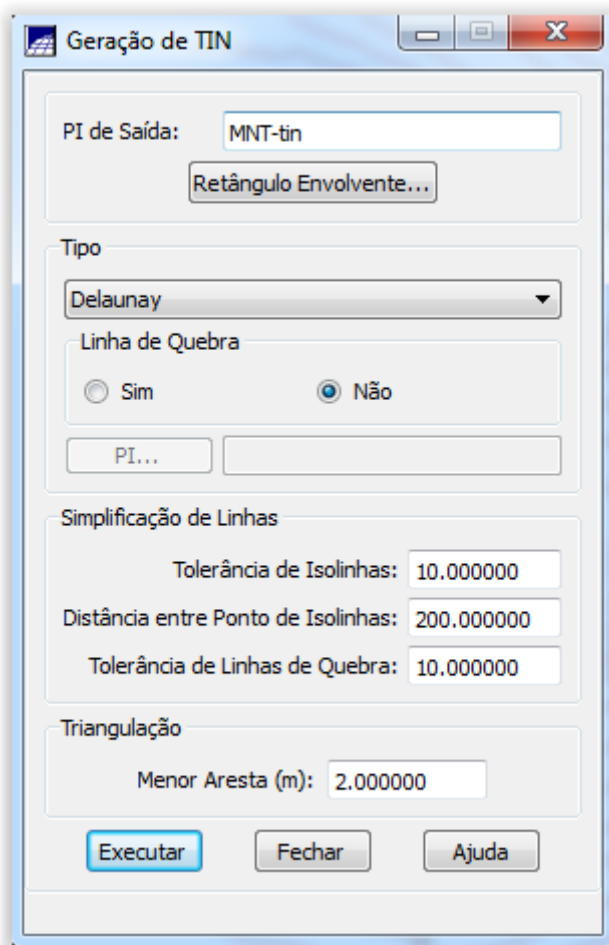
Suprimindo um PI:

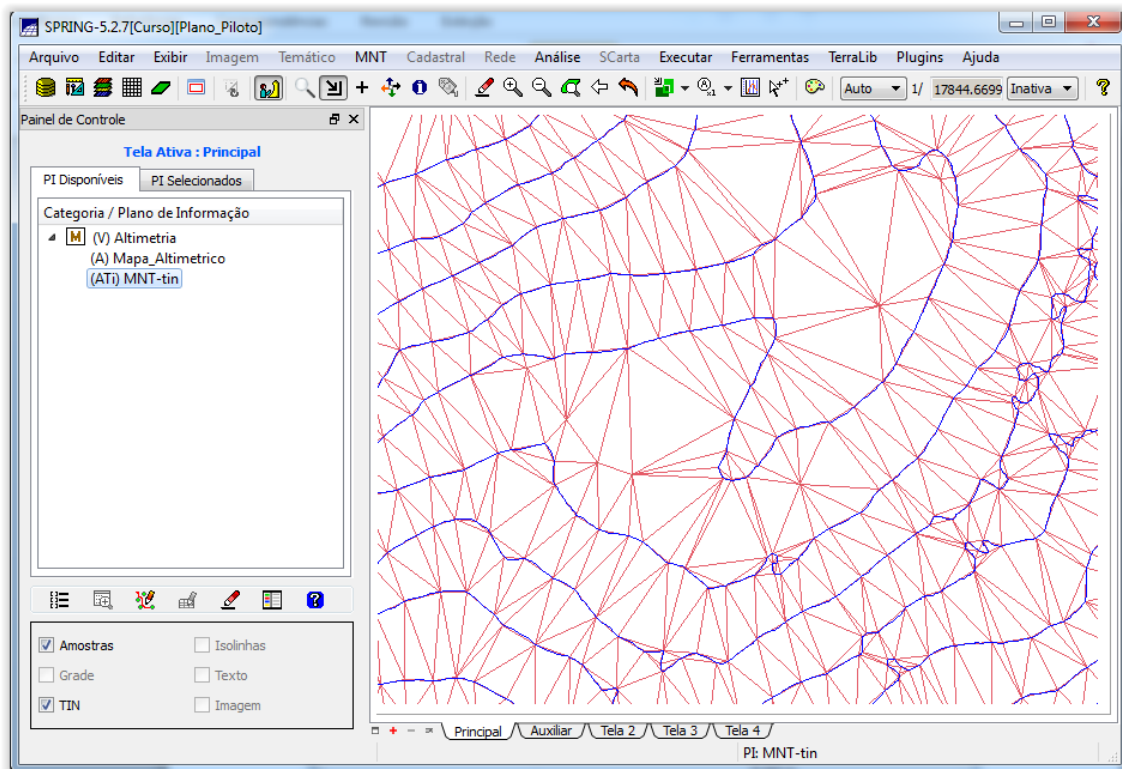




## Exercício 4 - Gerar grade triangular com e sem linha de quebra

Geração de grade triangular sem linha de quebra:

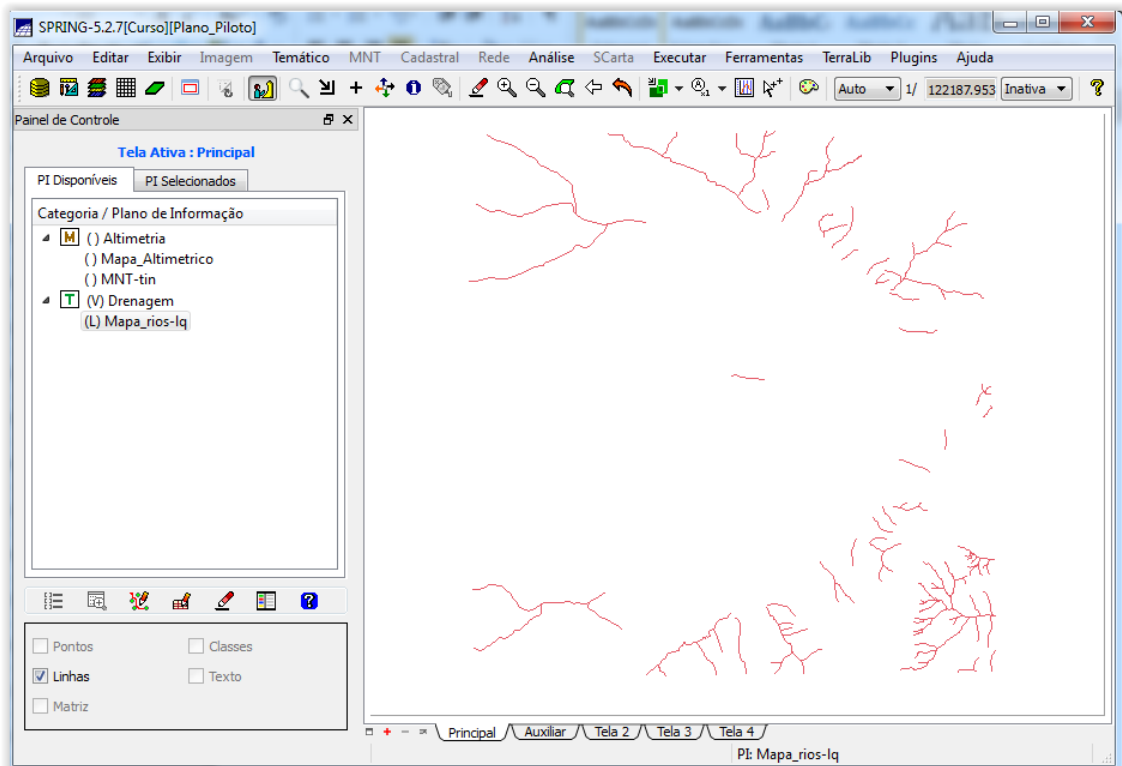




## Geração de grade triangular com linha de quebra:

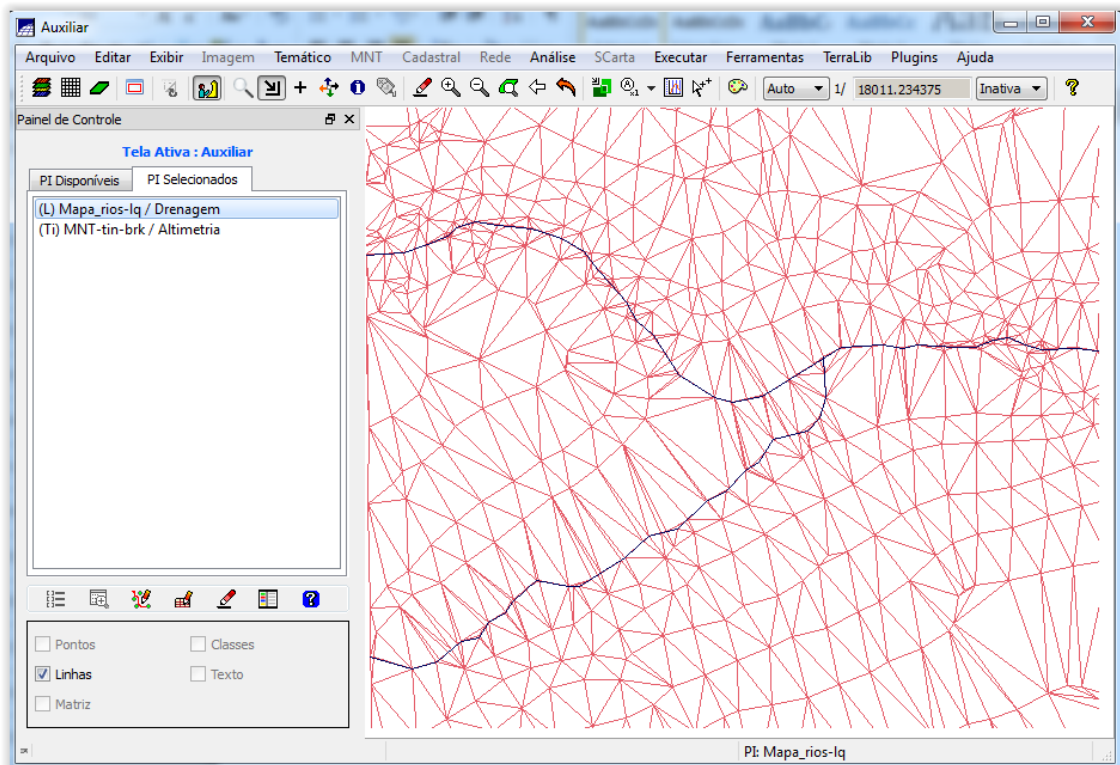
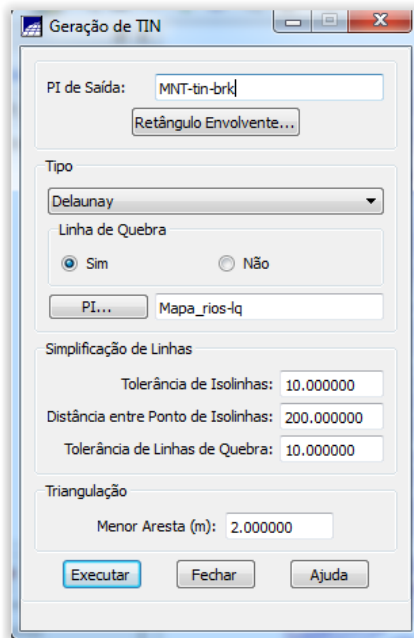
Passo 1 - Importar a drenagem de arquivo DXF para PI temático

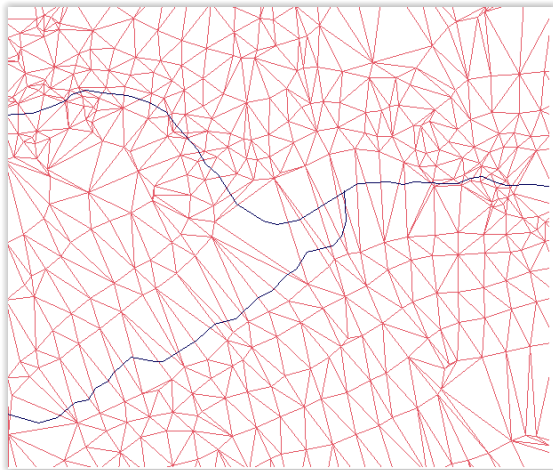
Importando linhas de drenagem de arquivo DXF:



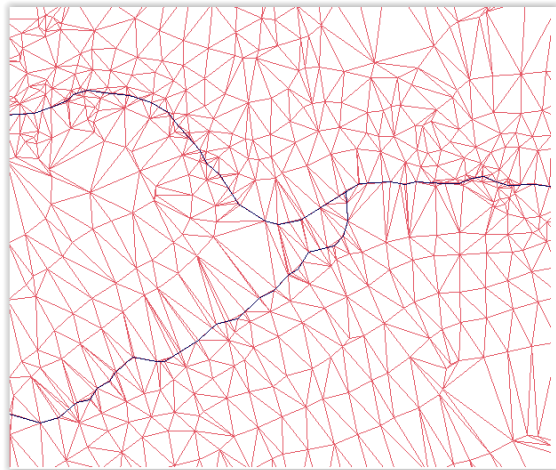
Passo 2 - Gerar grade triangular utilizando o PI drenagem como linha de quebra

Gerando TIN com linhas de quebra:





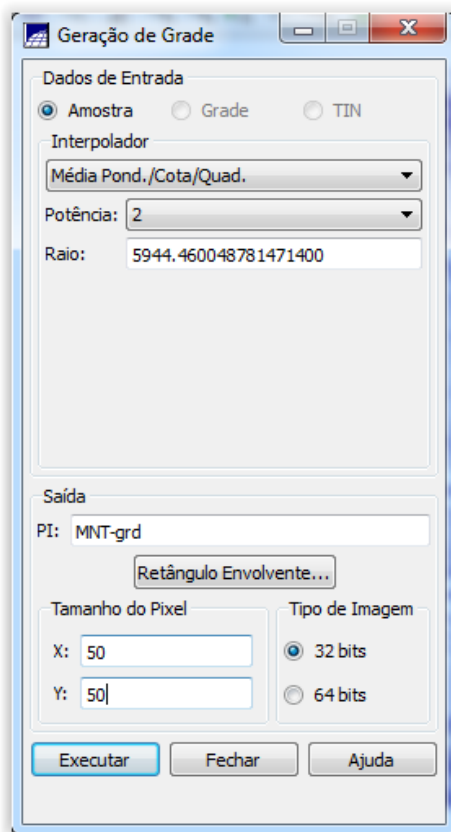
Sem linhas de quebra



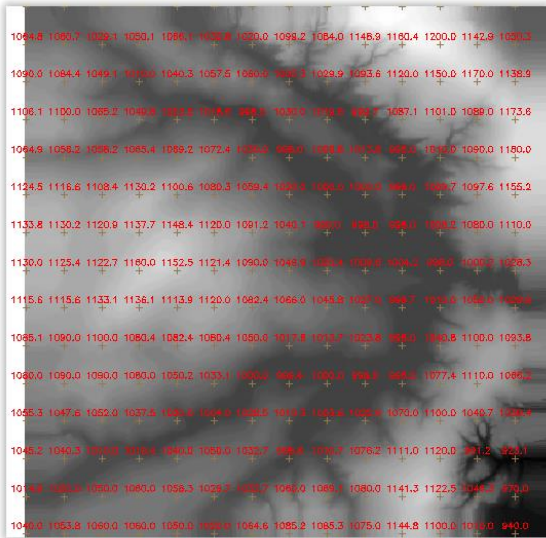
Com linhas de quebra

### Exercício 5 - Gerar grades retangulares de amostras e de outras grades

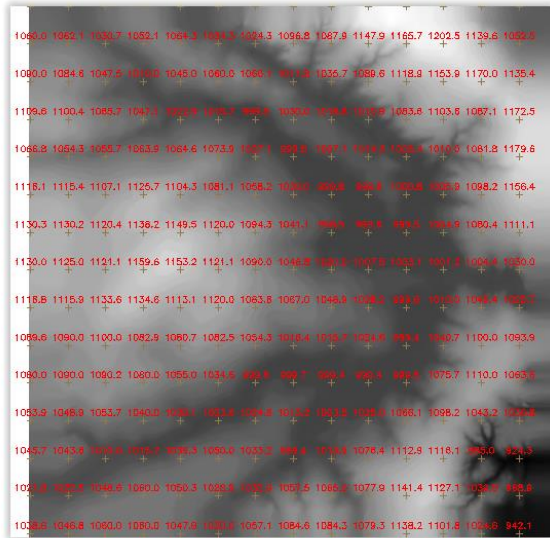
Gerando grade retangular a partir das amostras:



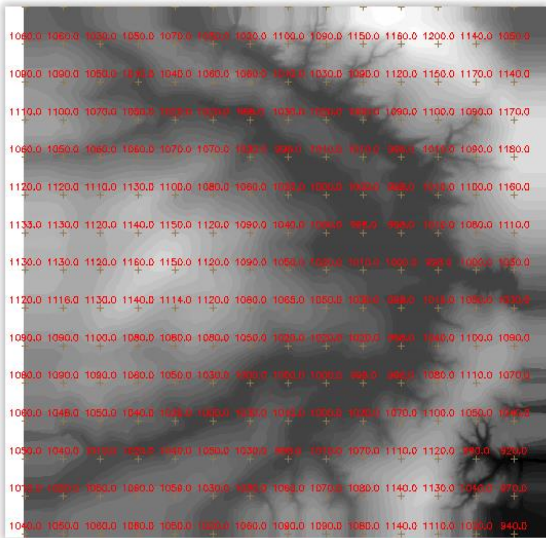
A criação pode ser feita utilizando vários interpoladores. Pode ser visto abaixo a geração com quatro interpoladores diferentes:



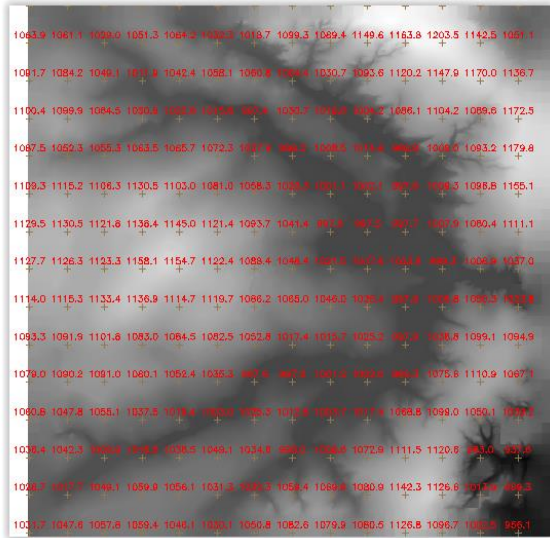
Média pond/Cota/Quad



Média simples

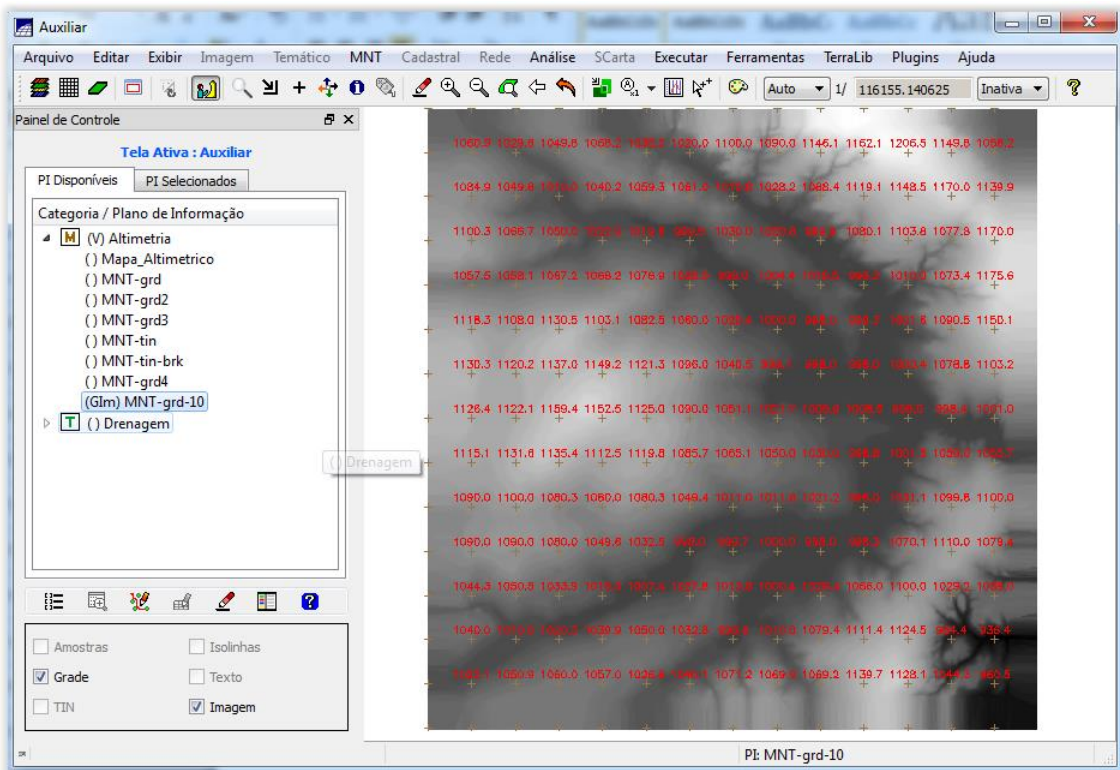
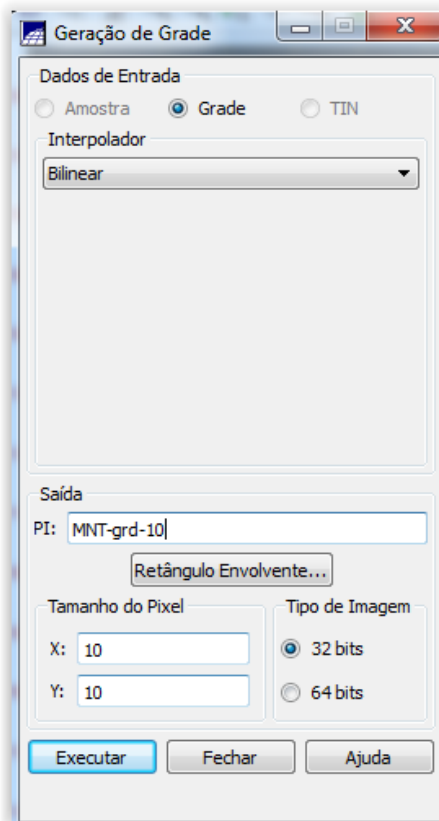


Vizinho mais próximo



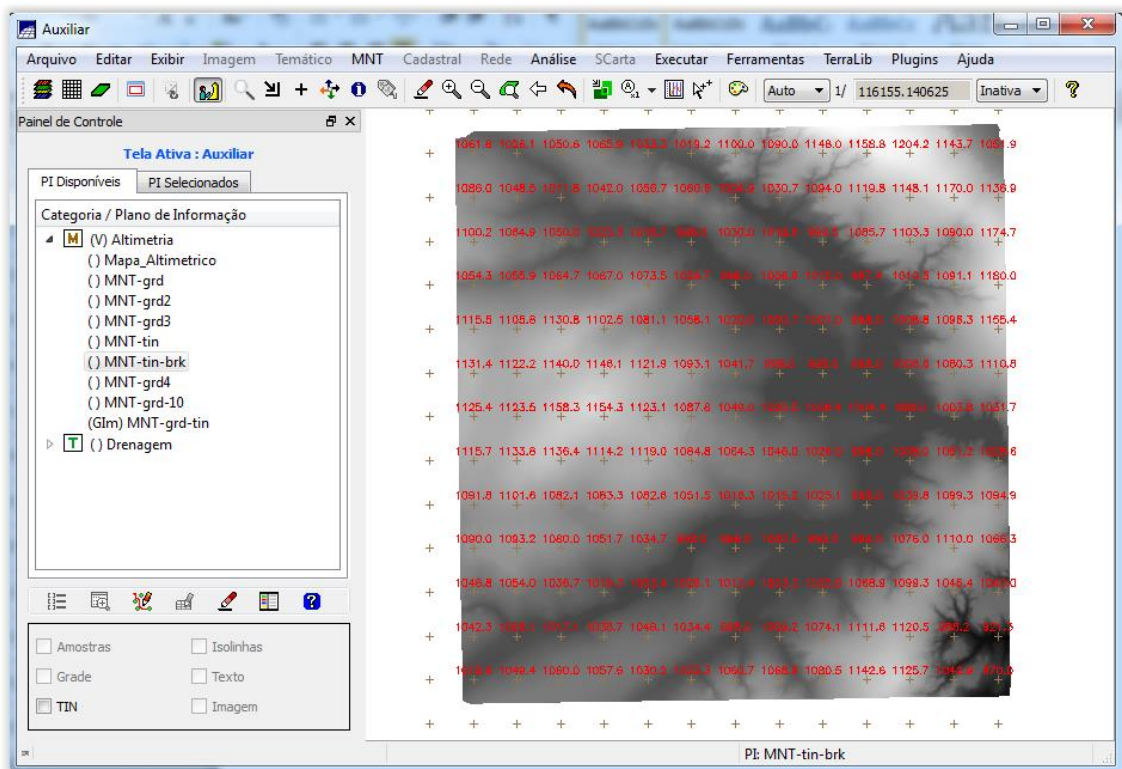
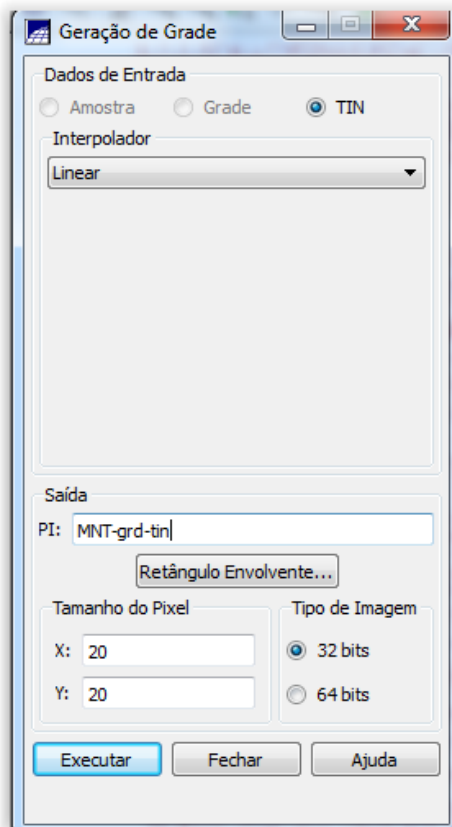
Spline mitasova

Refinar grade retangular a partir de outra grade retangular:



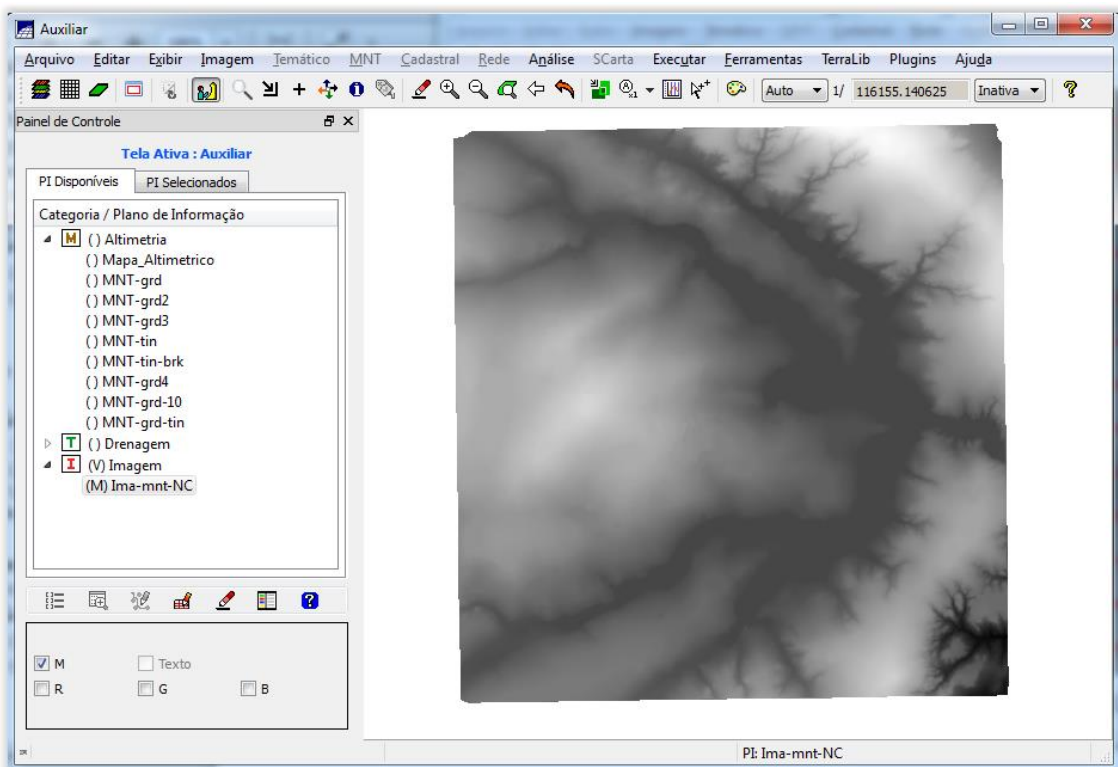
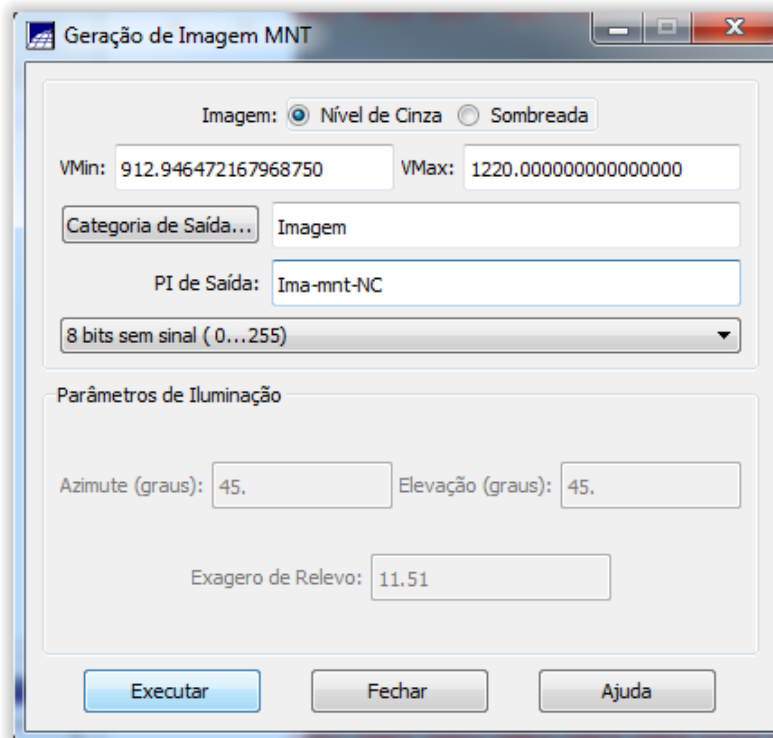


Gerando grade retangular a partir de grade triangular:

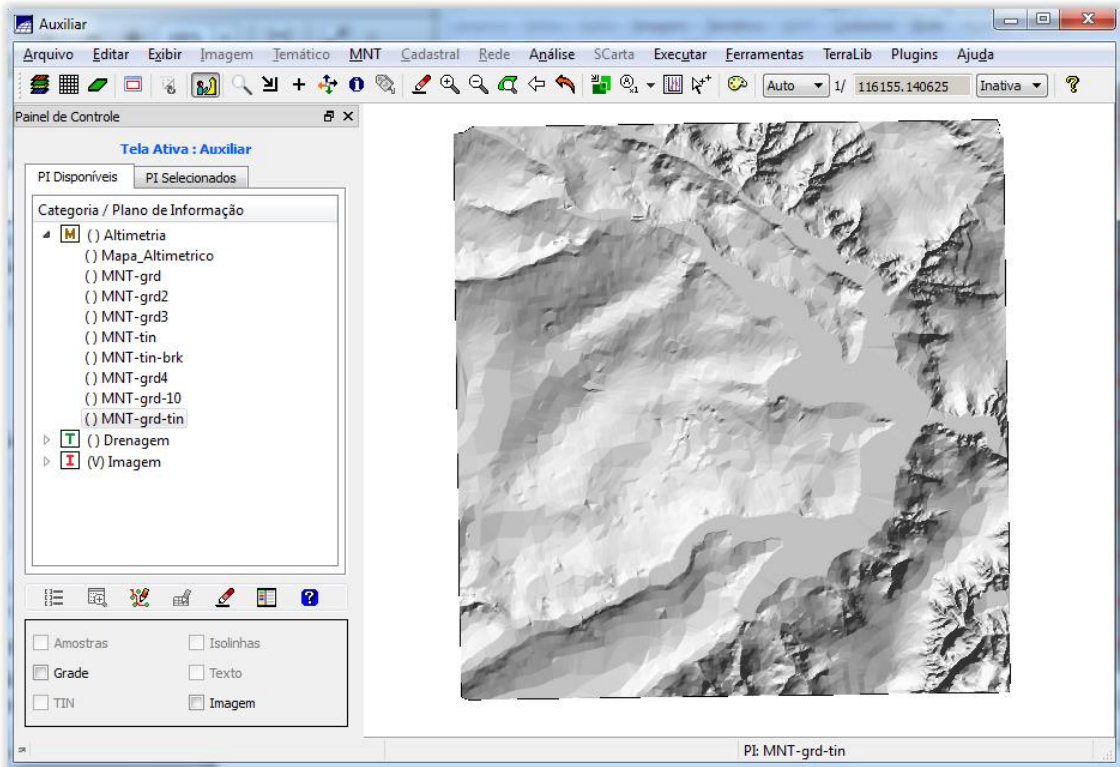
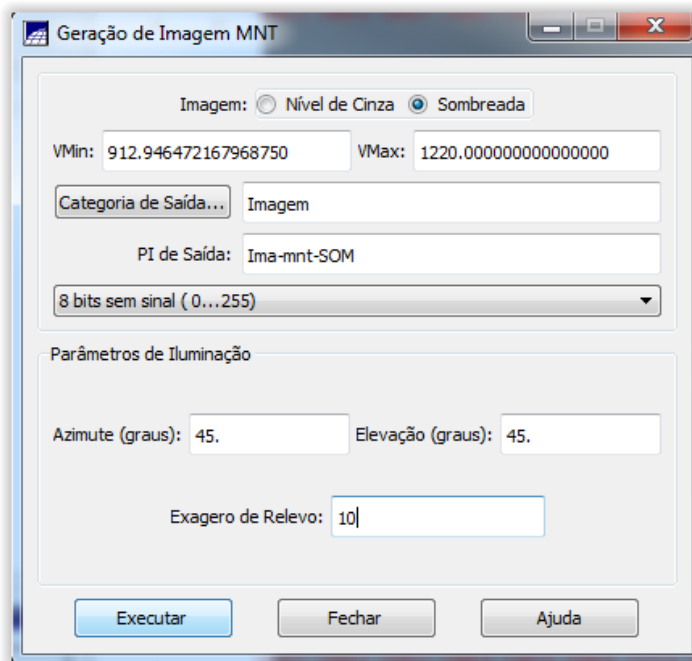


## Exercício 6 - Geração de Imagem para Modelo Numérico

Gerando imagem em nível de cinza:

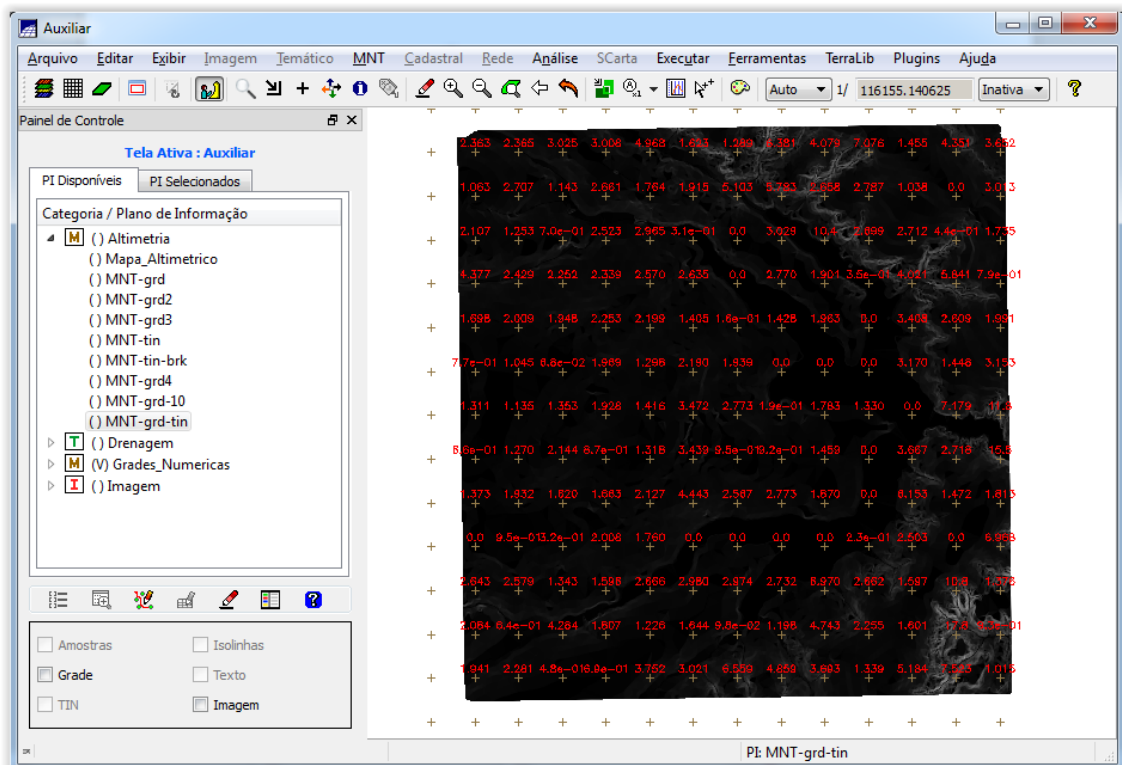
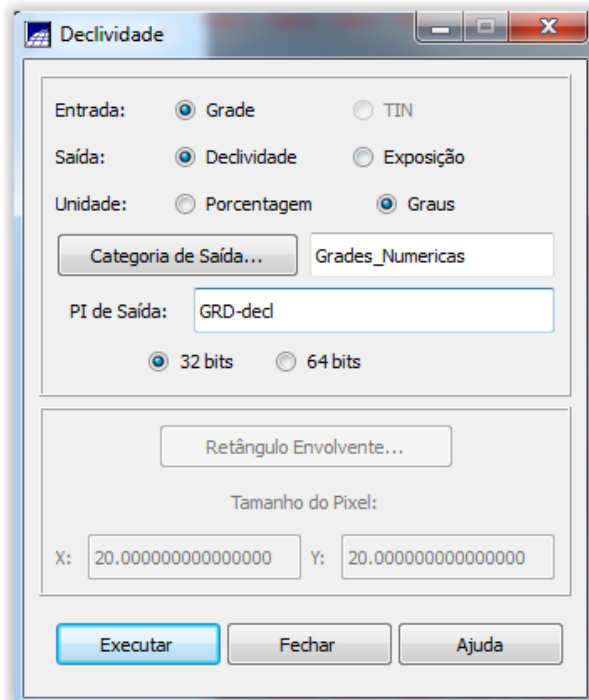


Gerando imagem sombreada:



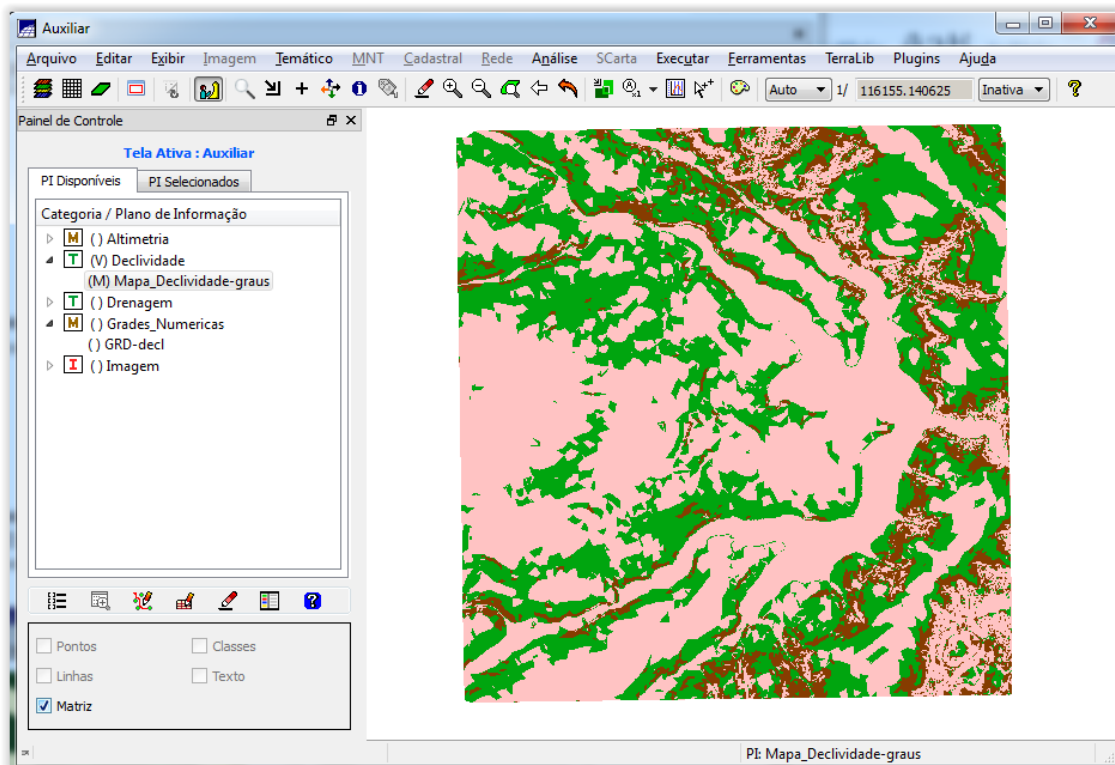
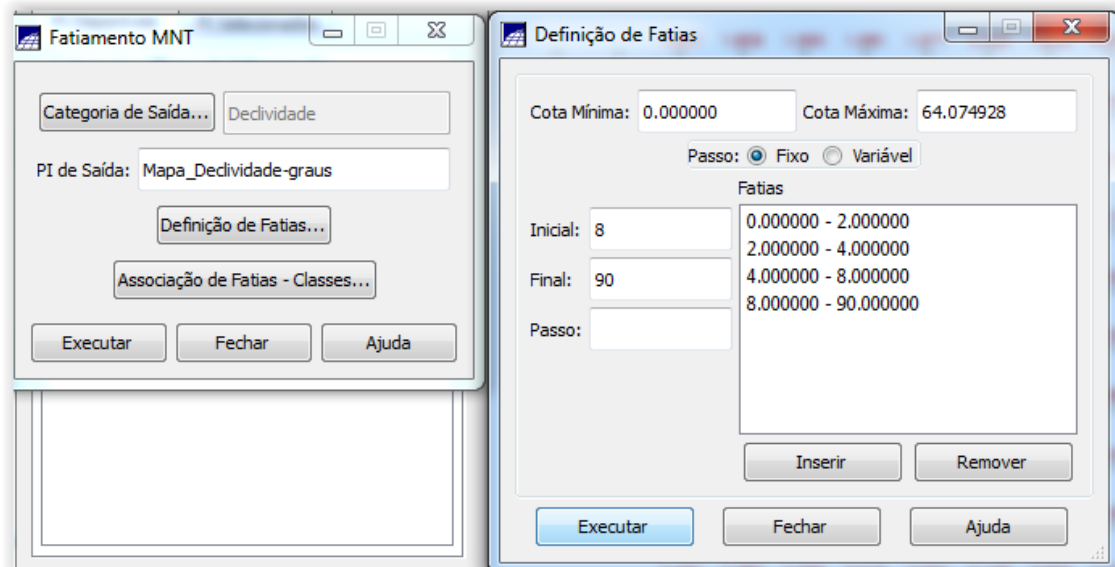
## Exercício 7 - Geração de Grade Declividade

Gerando declividade em graus a partir de grade retangular:



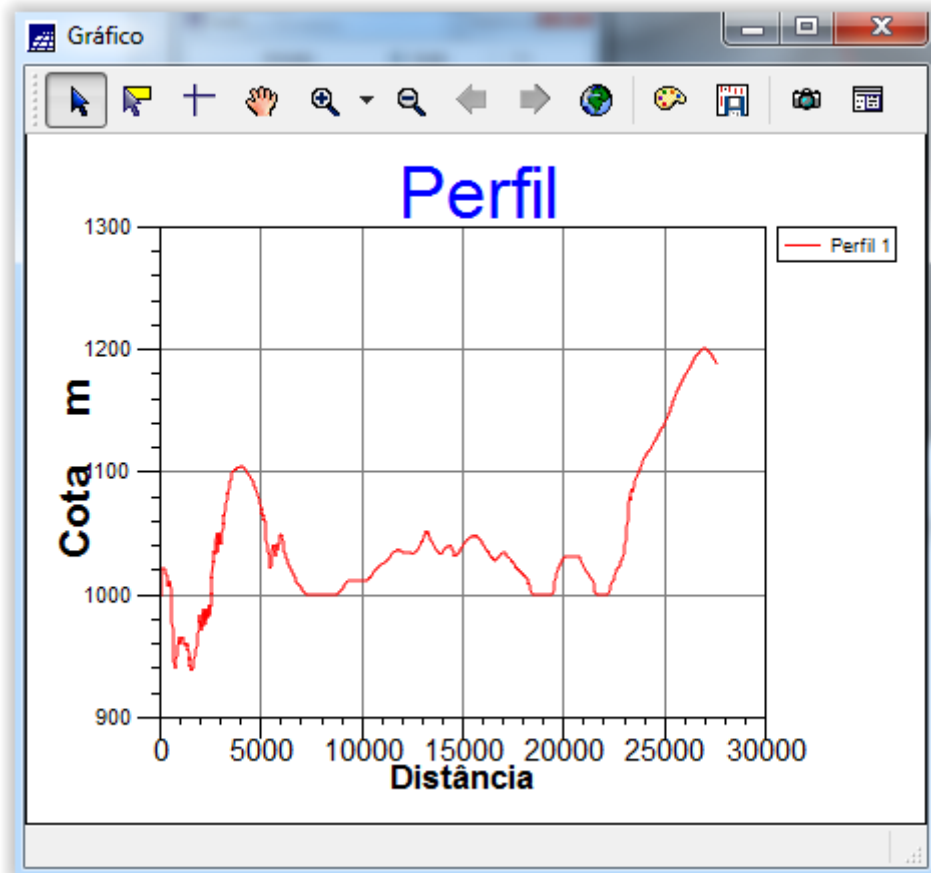
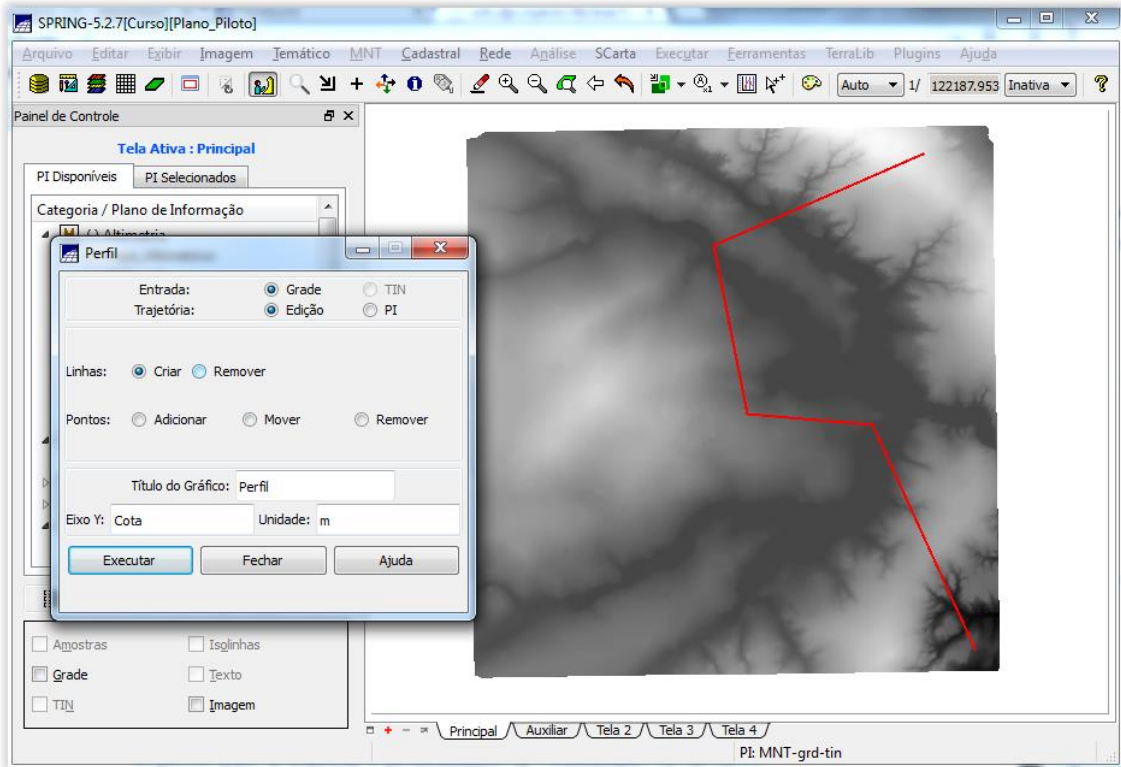
## Exercício 8 - Fatiamento de Grade Numérica – Mapa de Declividade

Fatiamento de grade regular de declividade:



## Exercício 9 - Geração de Perfil a partir de grades

Gerando perfil de trajetória editada na tela:



## Exercício 10 - Visualização de Imagem em 3D

Visualização 3D:

