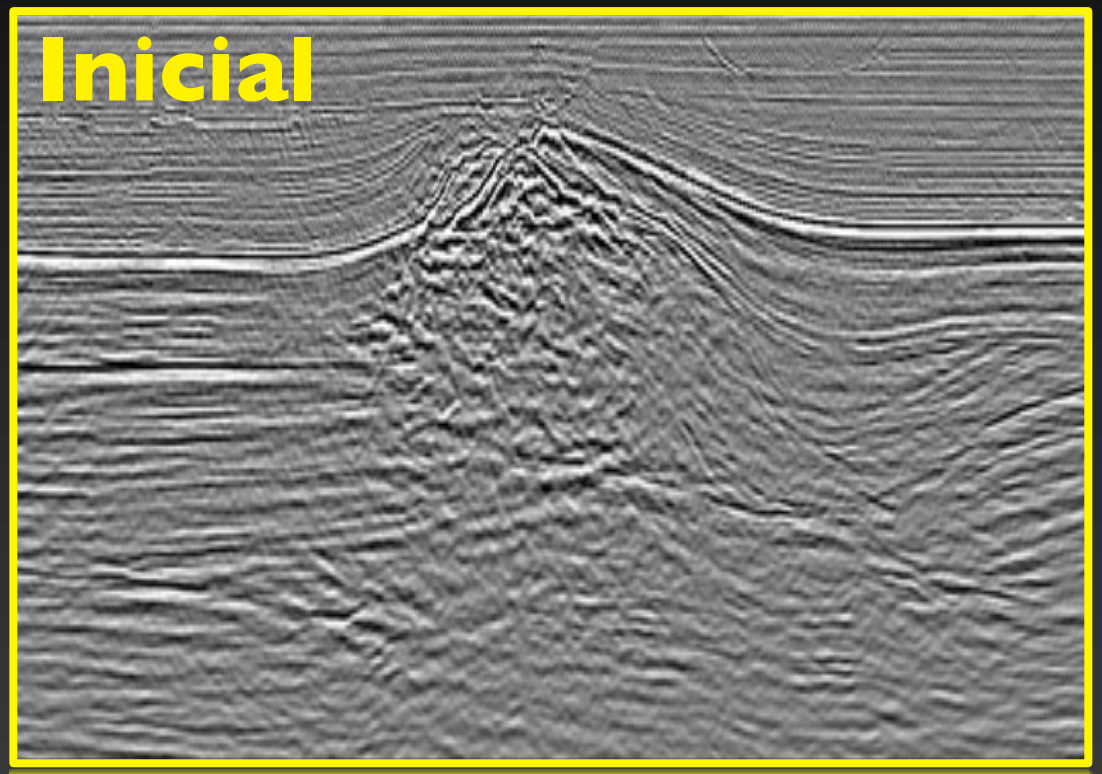
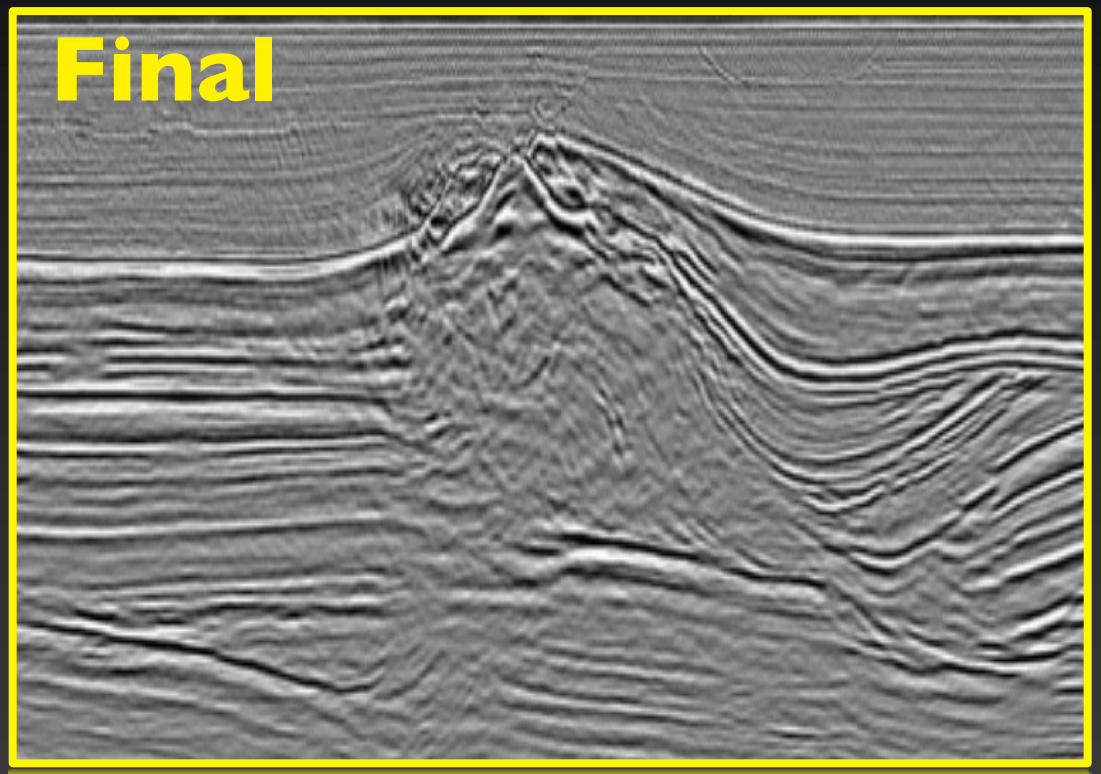
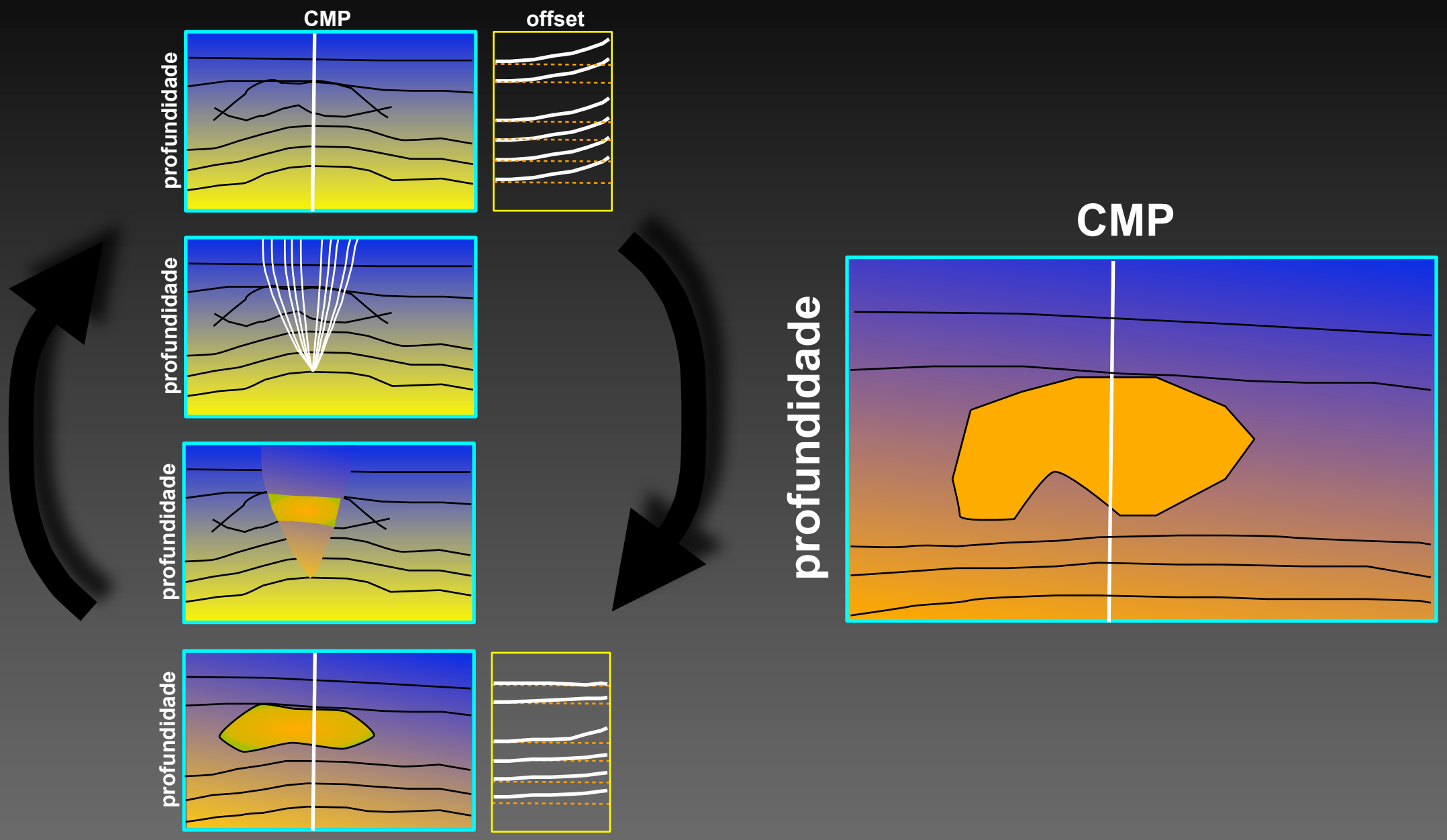
Velocidade de migração com campos de onda

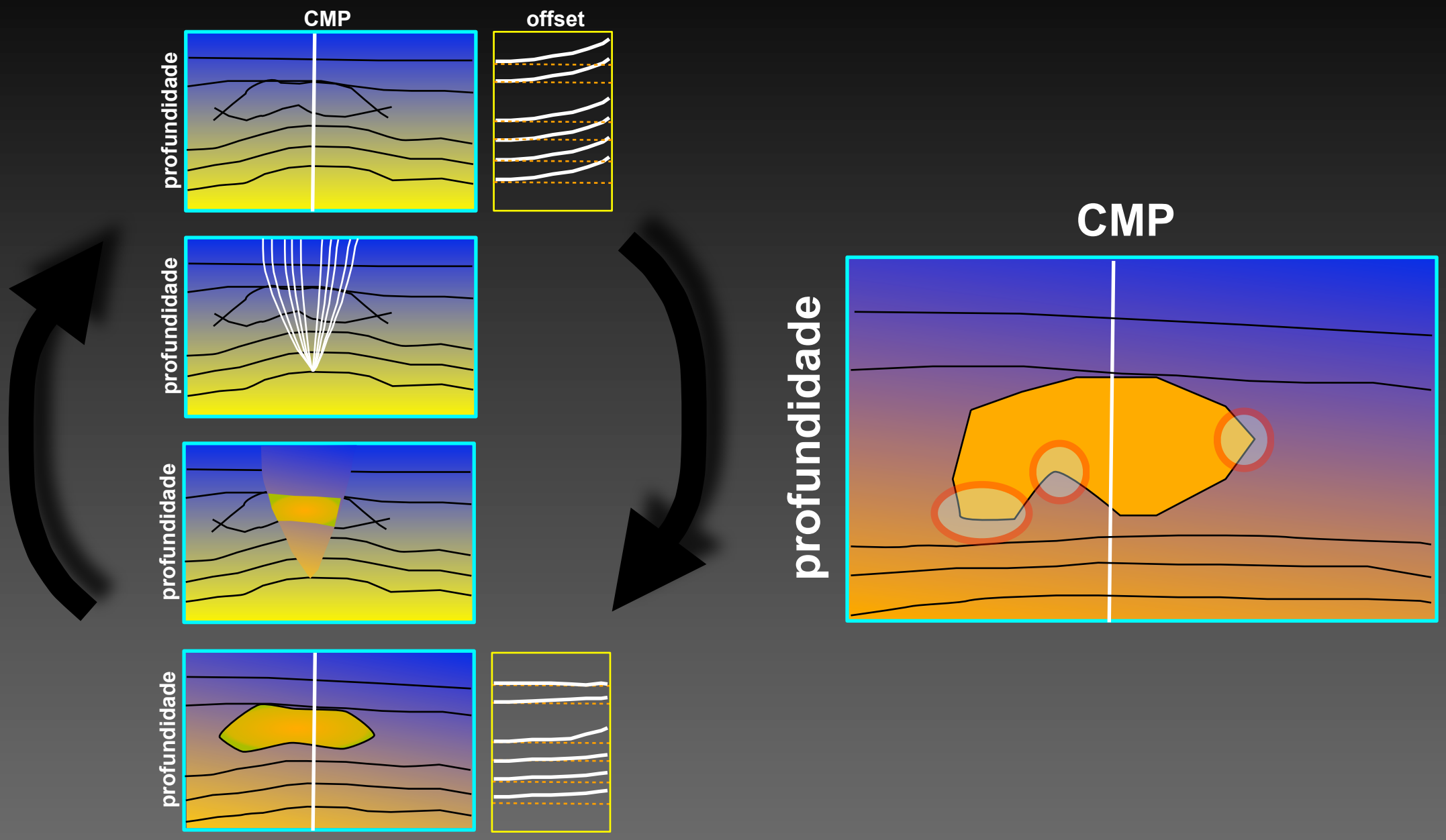




AVMP com tomografia de raios



AVMP com tomografia de raios



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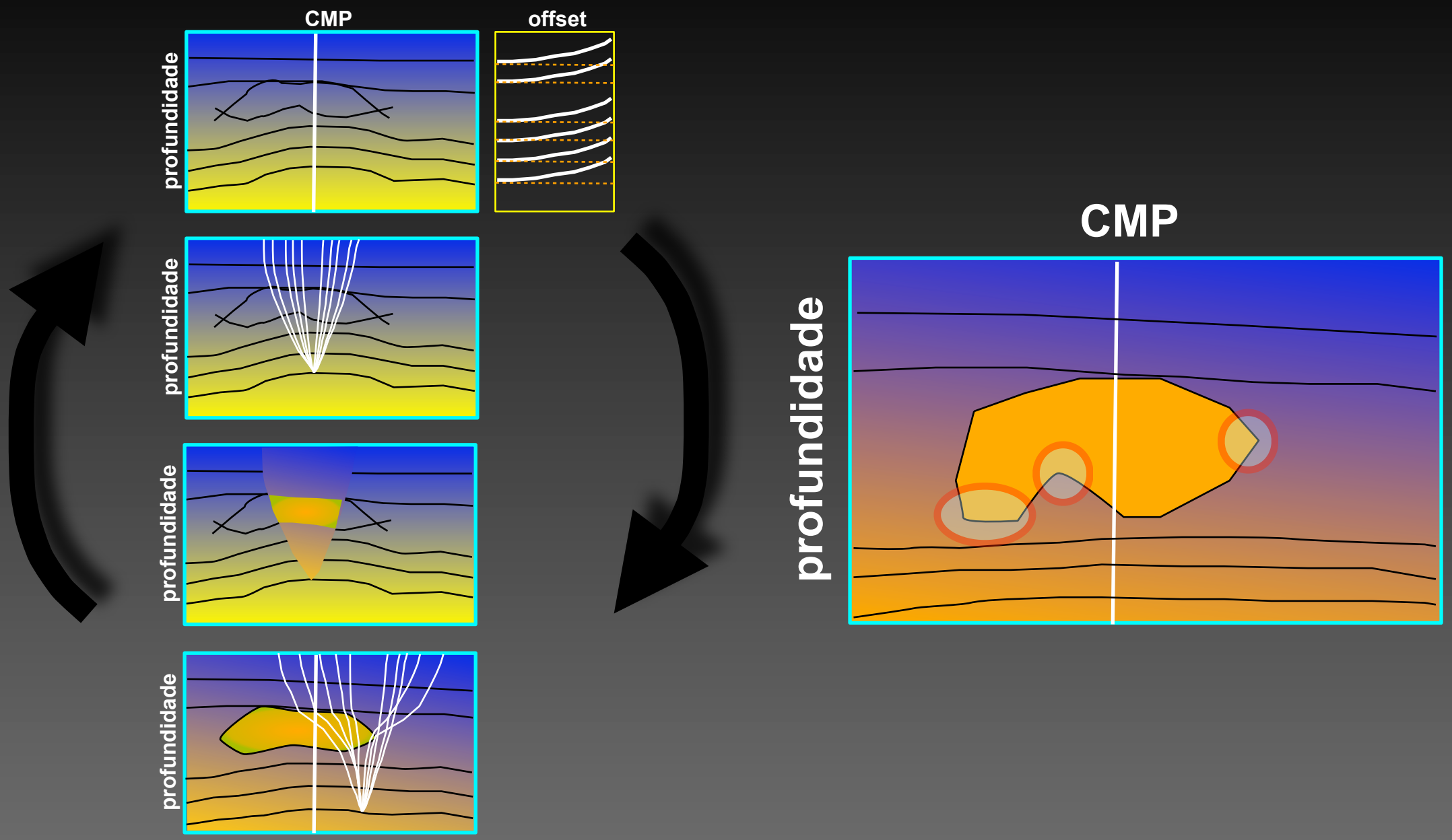
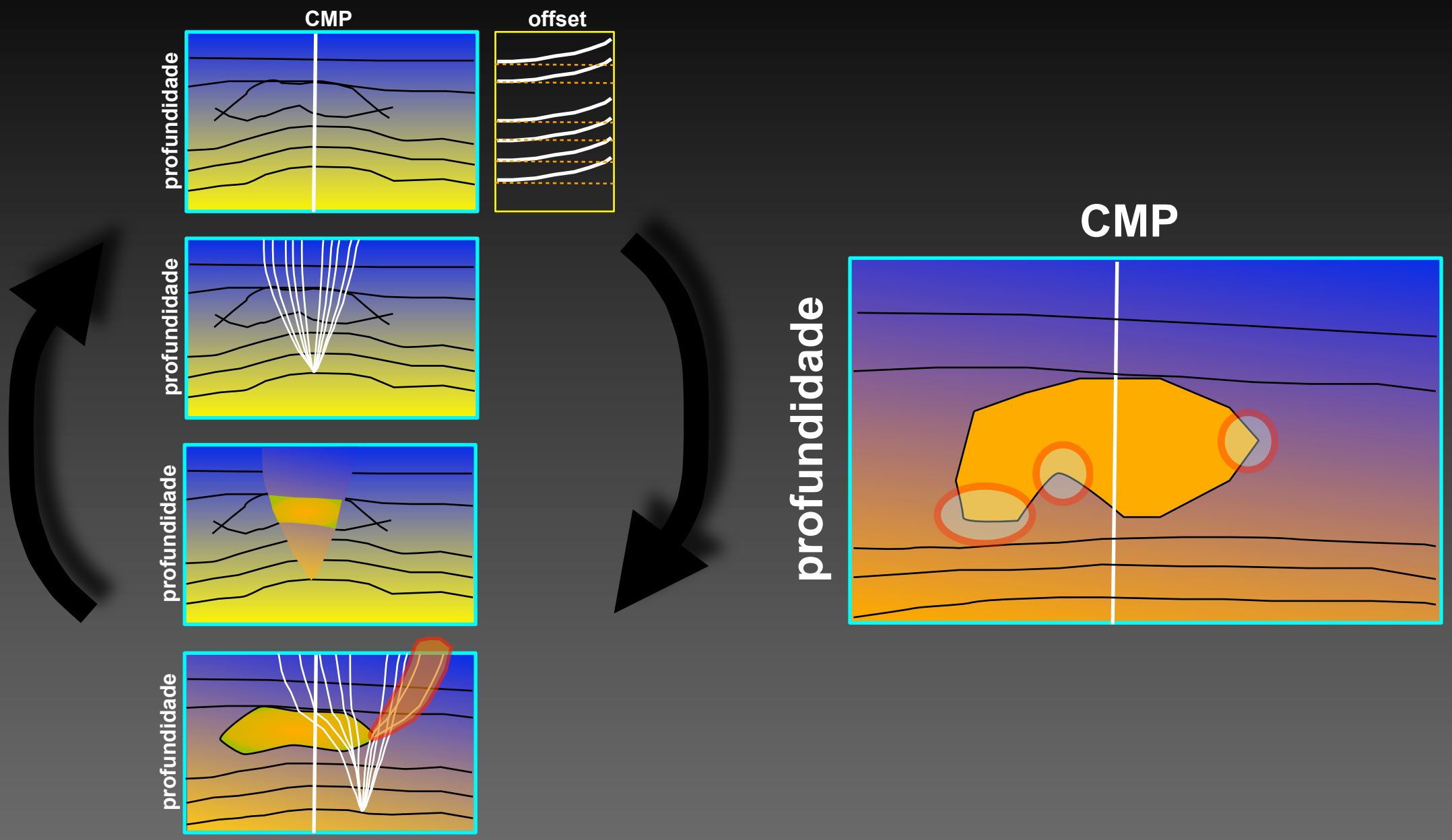
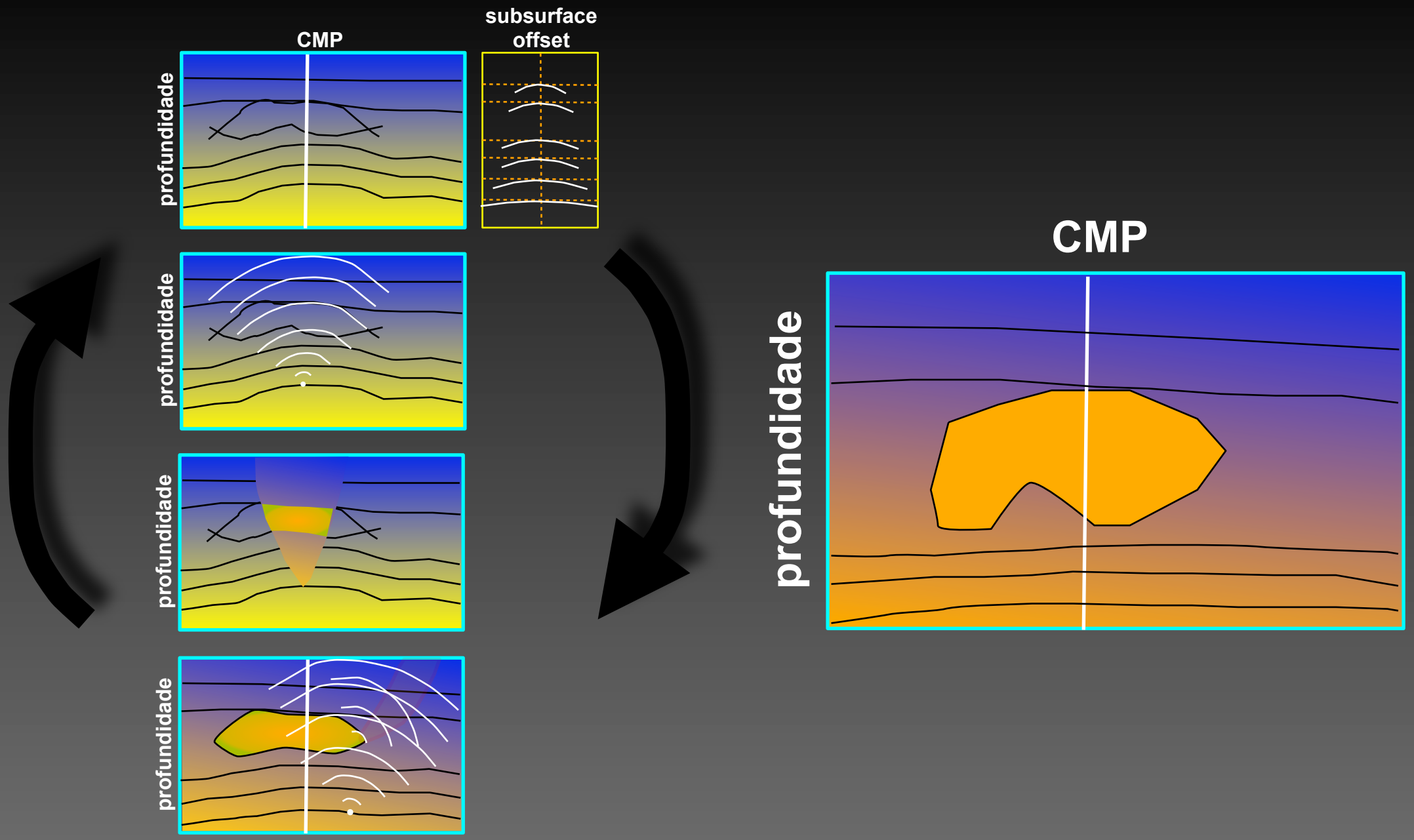


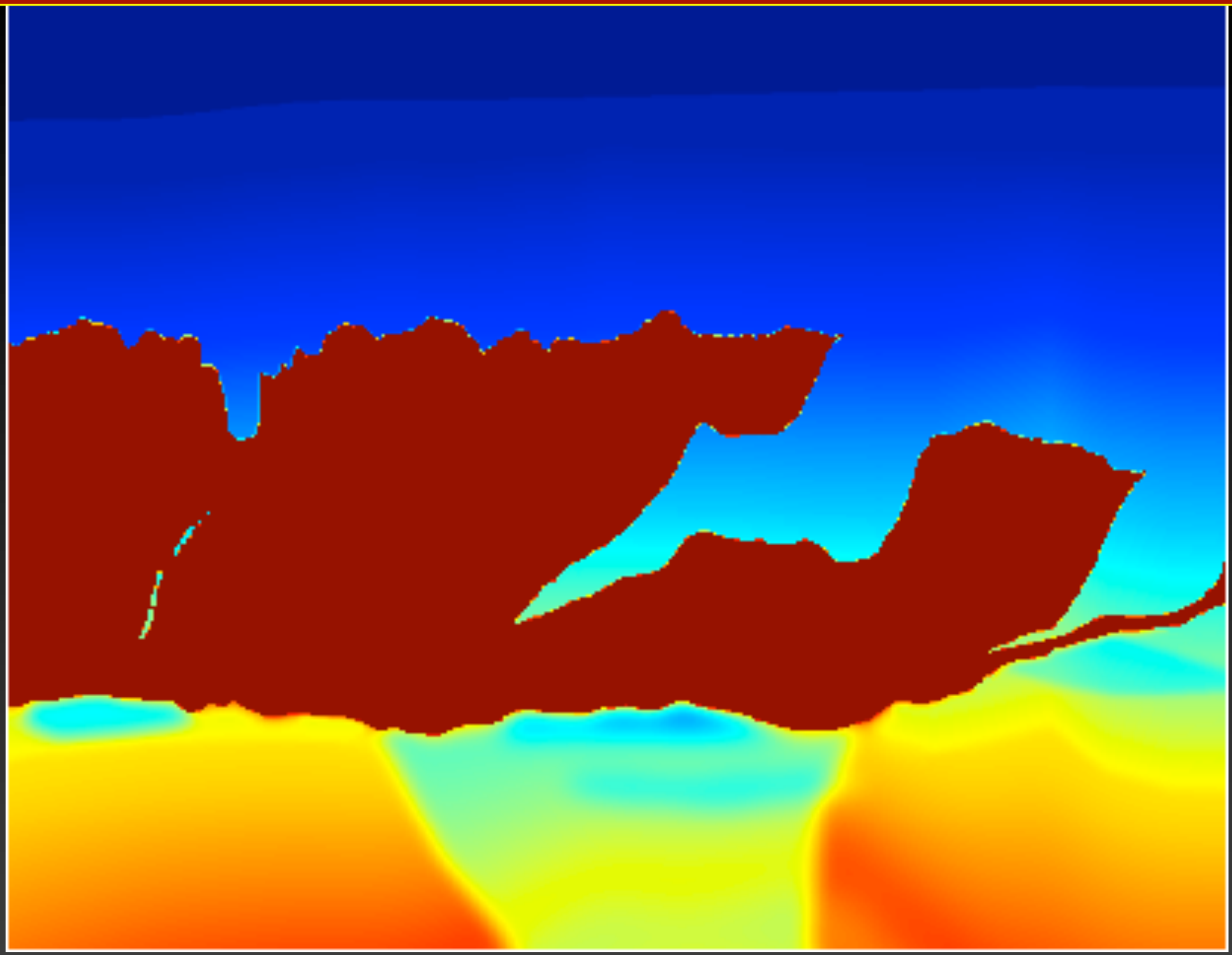
AVMP com tomografia de raios

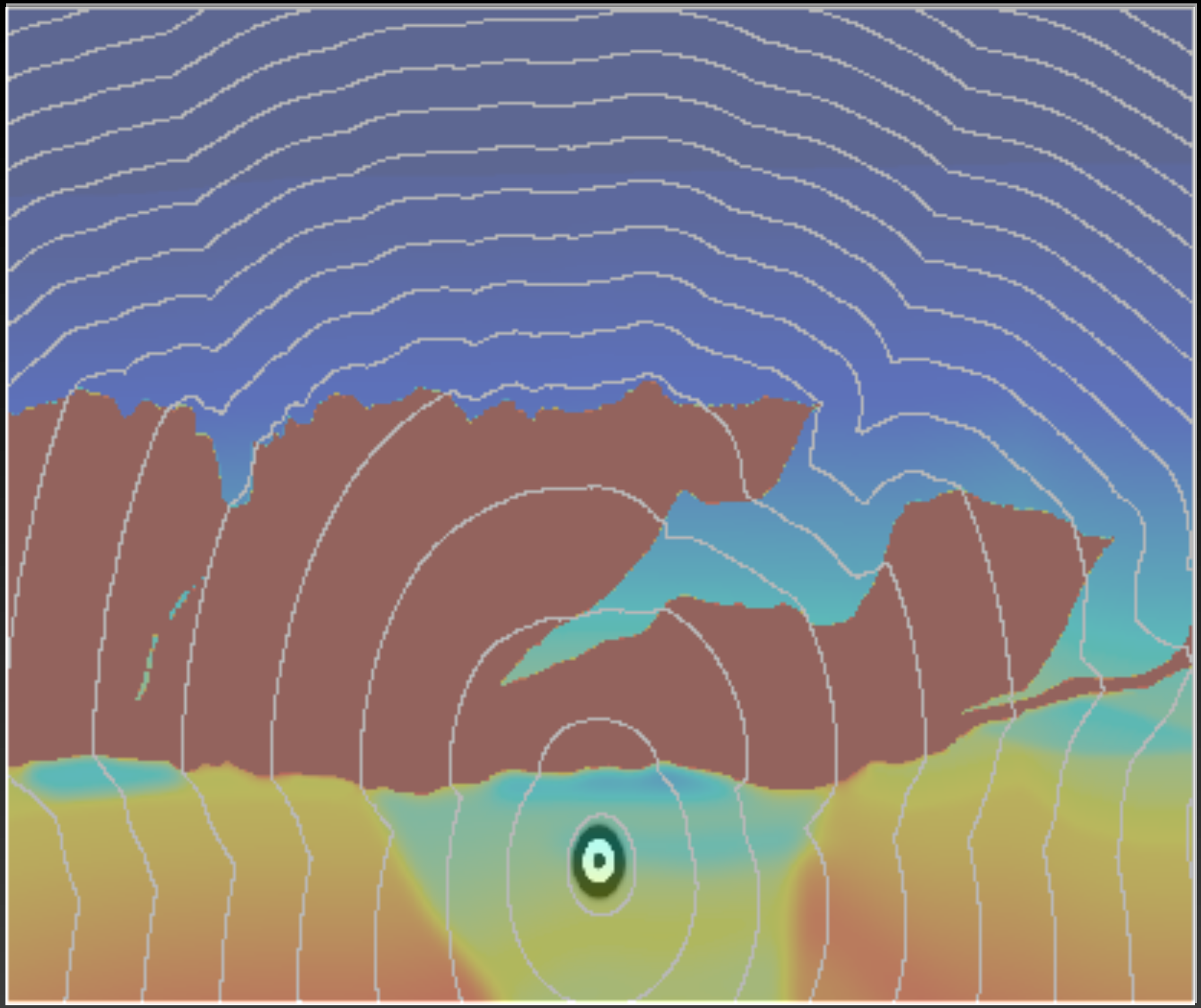


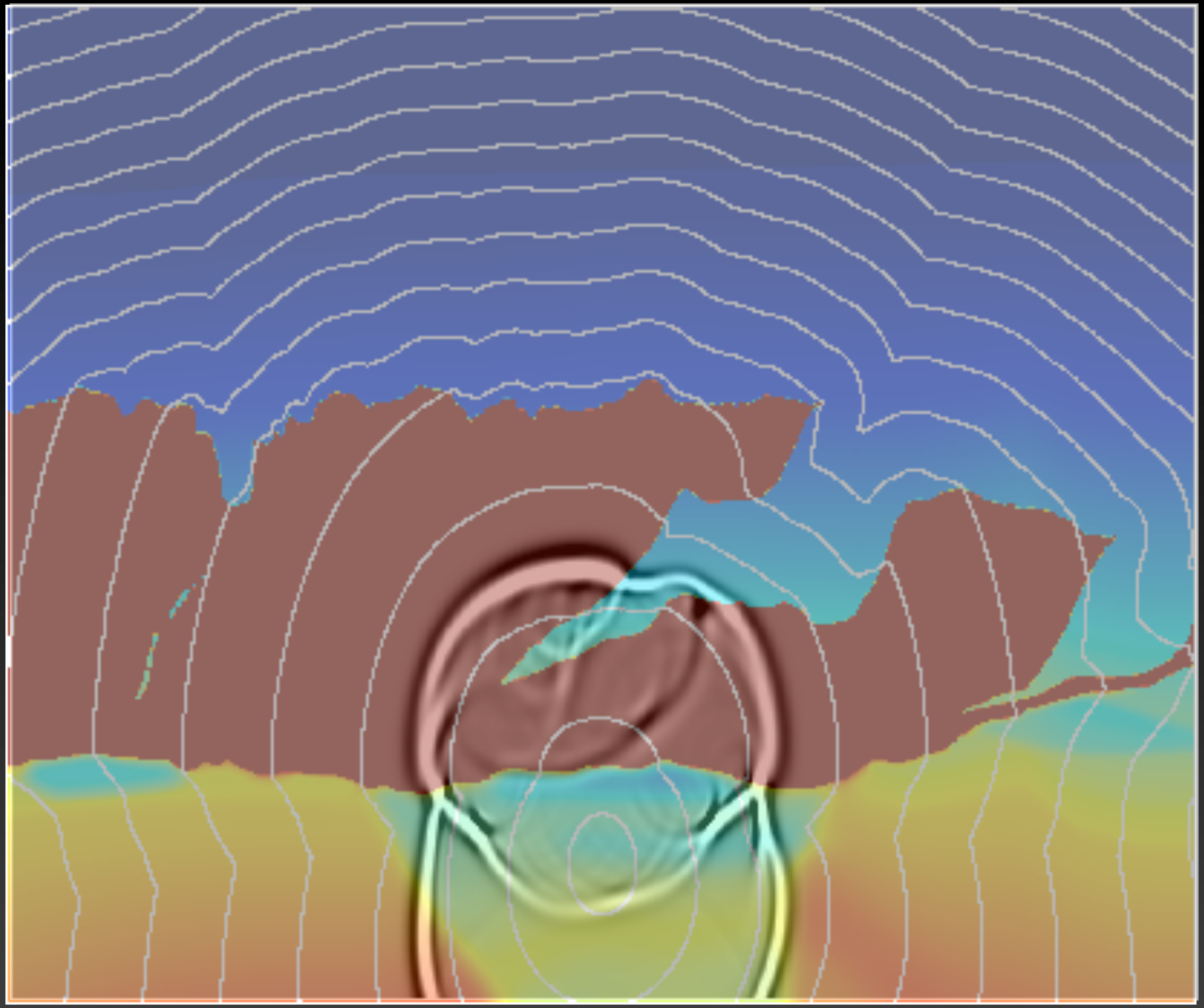
AVMP com tomografia de campos de ondas

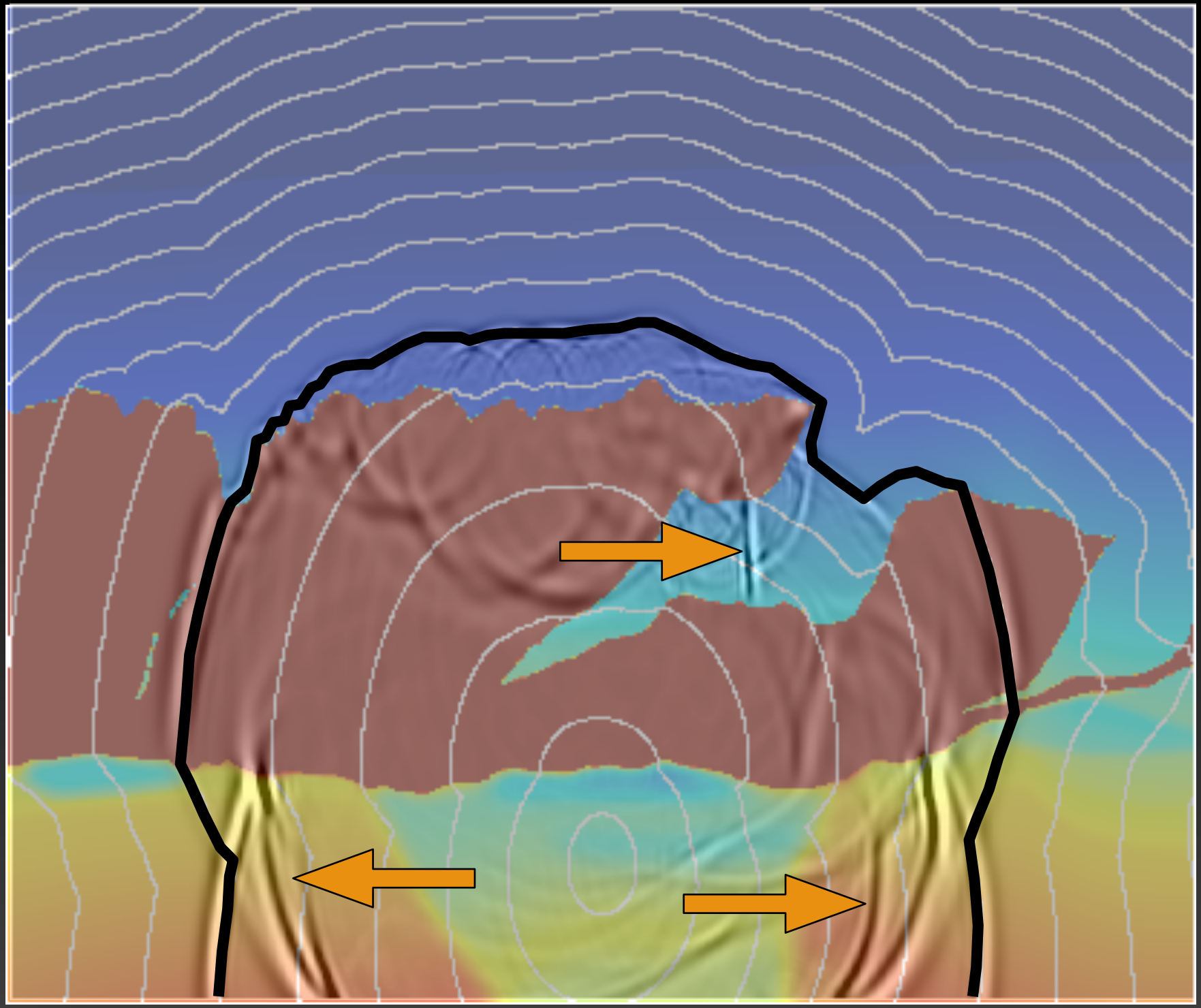


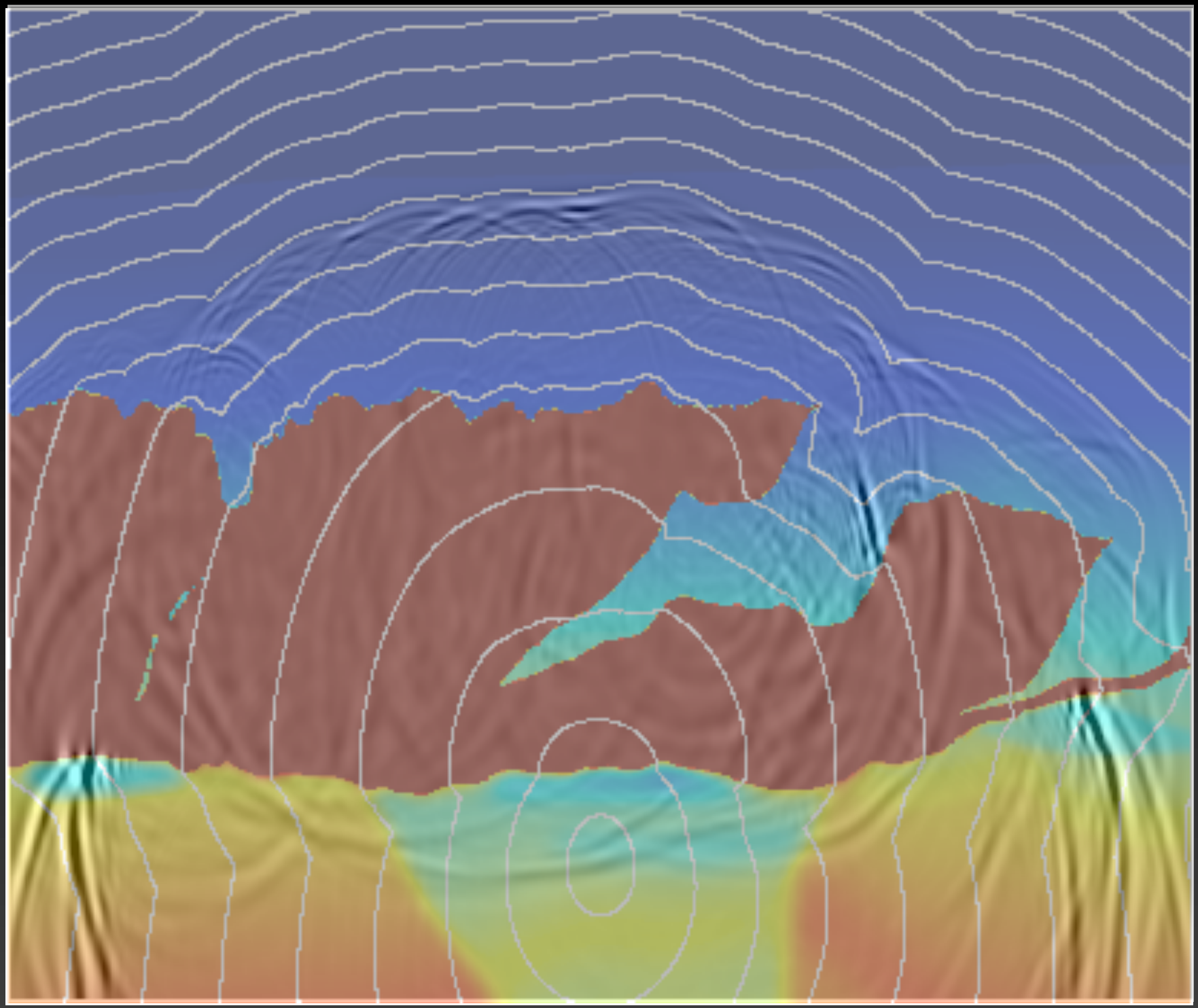
Propagação de campos de onda

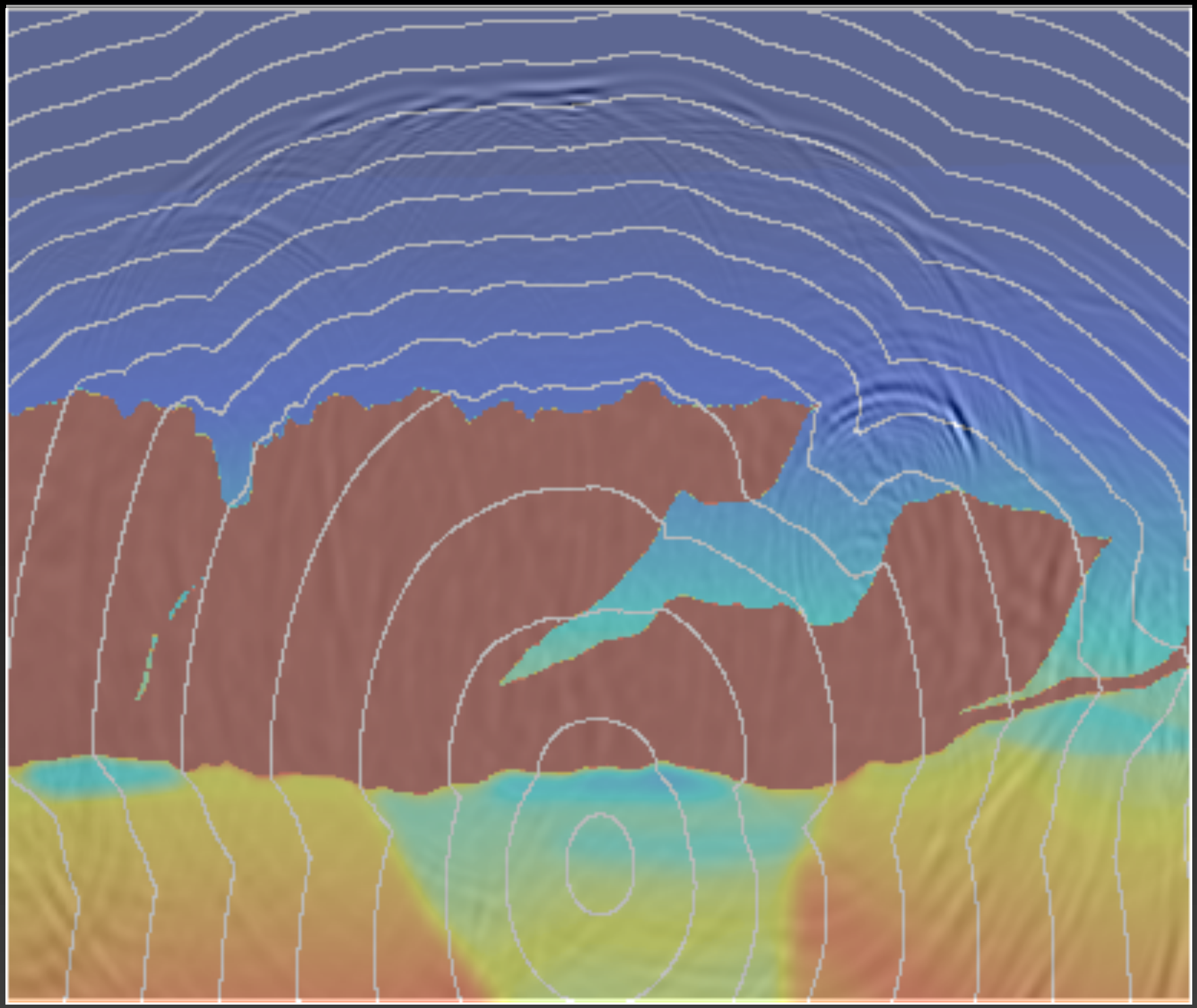












Para geologia complexa ...

- **Para definir velocidades, usar campos de ondas é mais adequado que traçado de raios.**

- **Raramente aplicado em 3D**
  - **Maior custo e menor flexibilidade que métodos por traçado de raios**

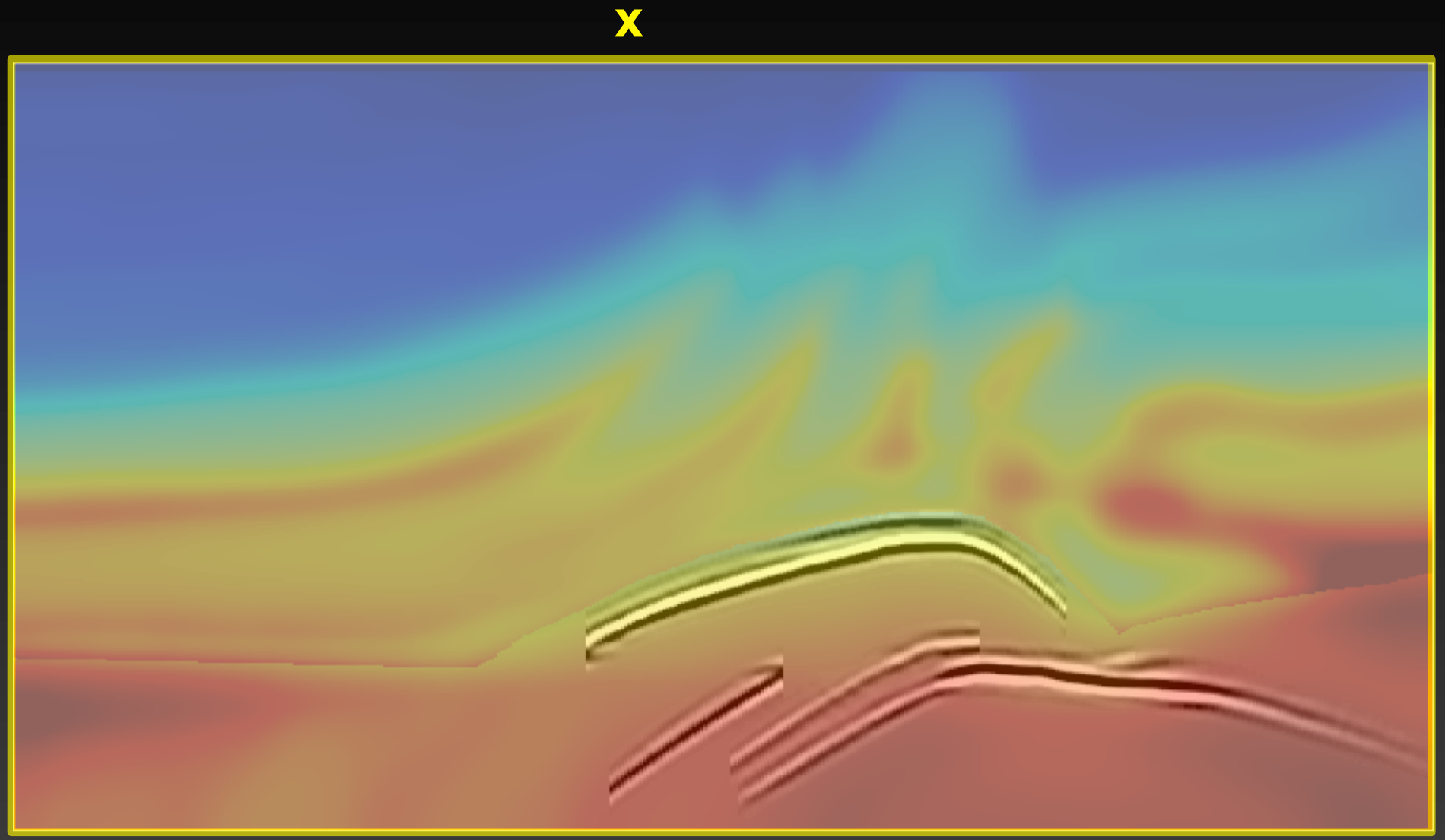
Para uso rotineiro

- **Reduzir custo**
  - **diminuir a quantidade dos dados**
  - **resolver focado num alvo**
- **Aumentar flexibilidade**
  - **incorporar estratégias de métodos por traçado de raios**
- **Manter robustez**
  - **garantir cinemática e amplitudes razoáveis**

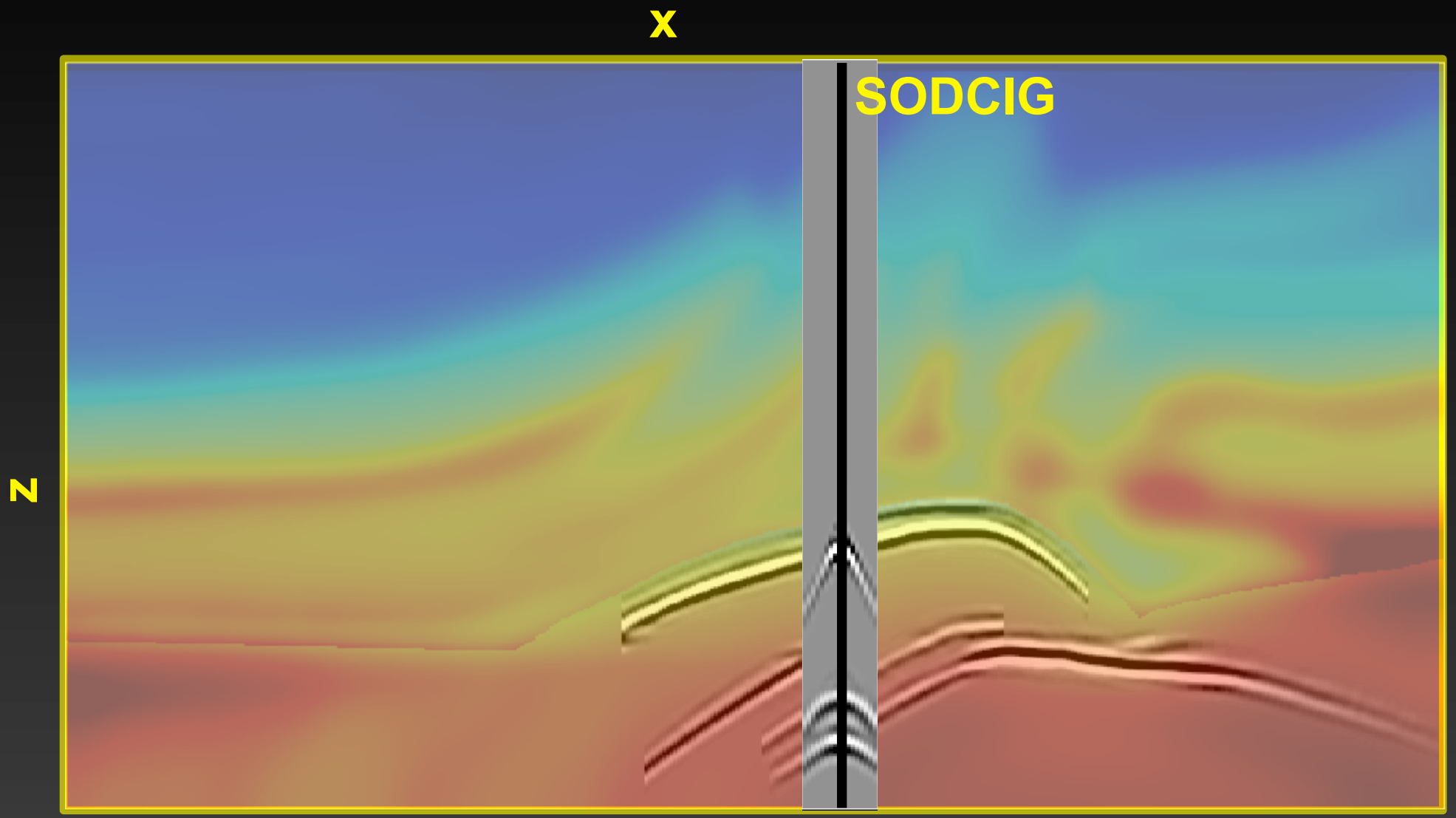
Refletor explosivo pre-empilhamento

- **Generaliza o modelo do refletor explosivo**
- **Usa refletores selecionados como condições iniciais**
  - **Naturalmente incorpora a estratégia baseada em horizontes nos métodos que usam a equação da onda**

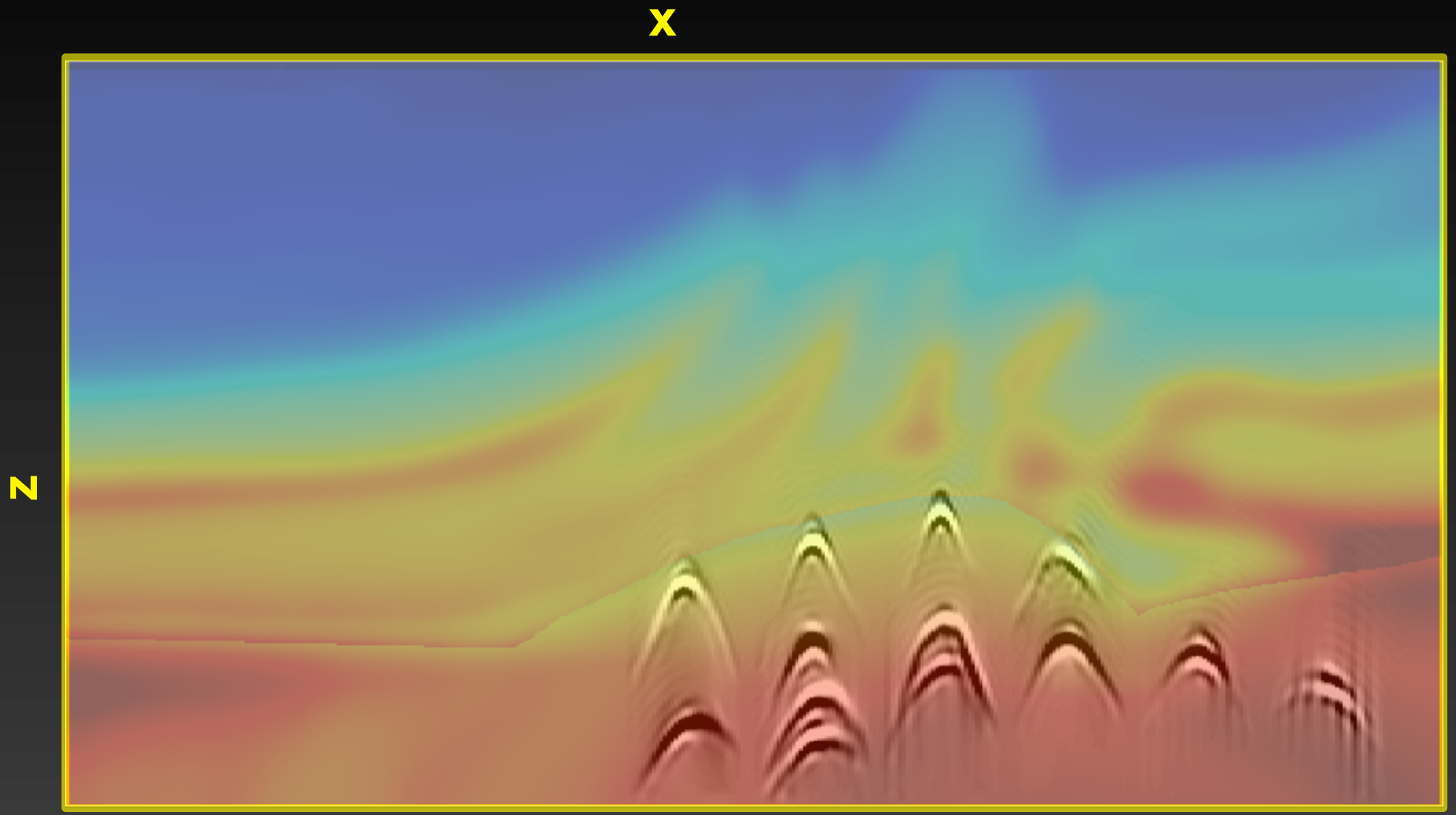
Modelagem do campo de receptores



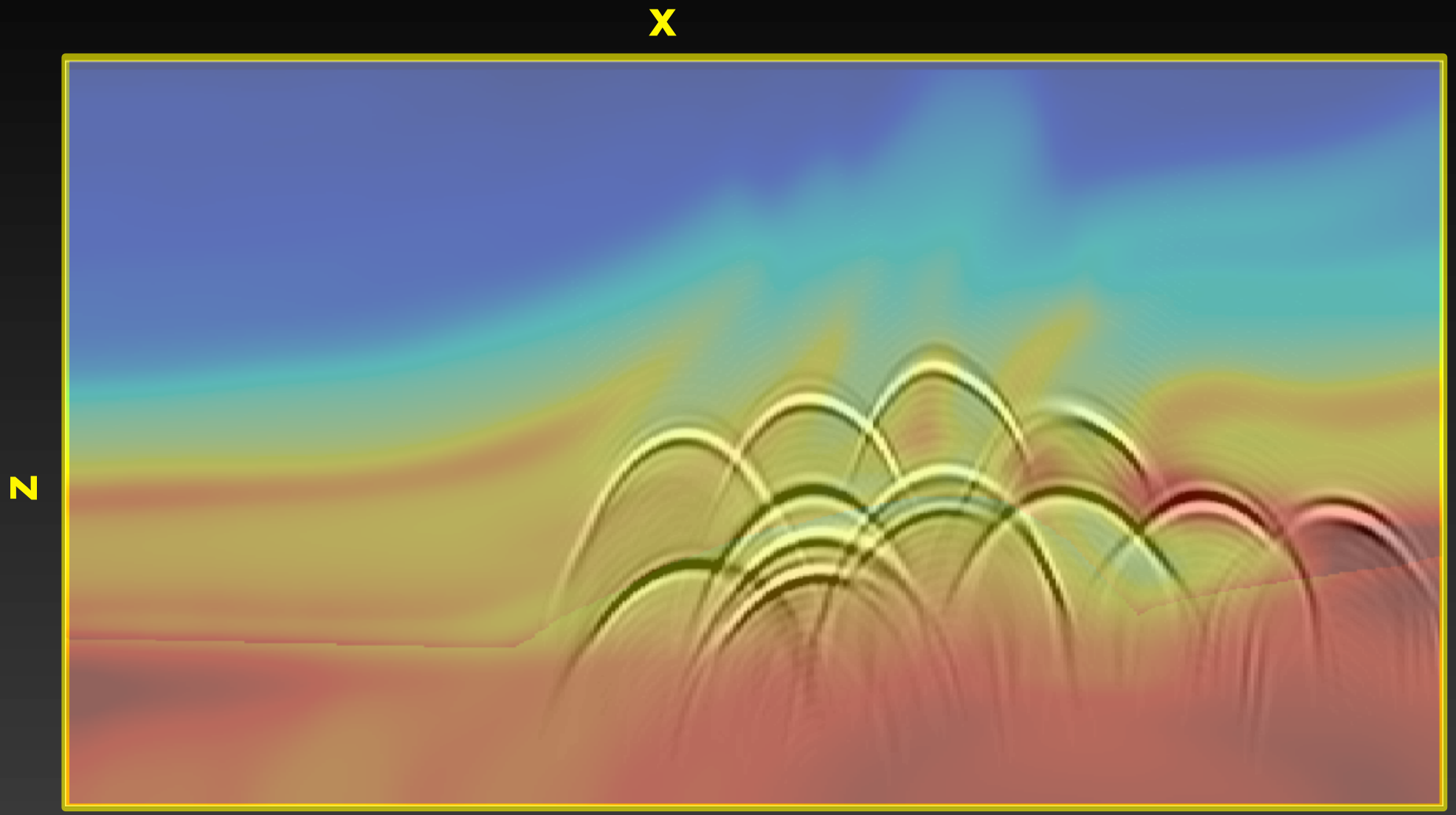
Modelagem do campo de receptores



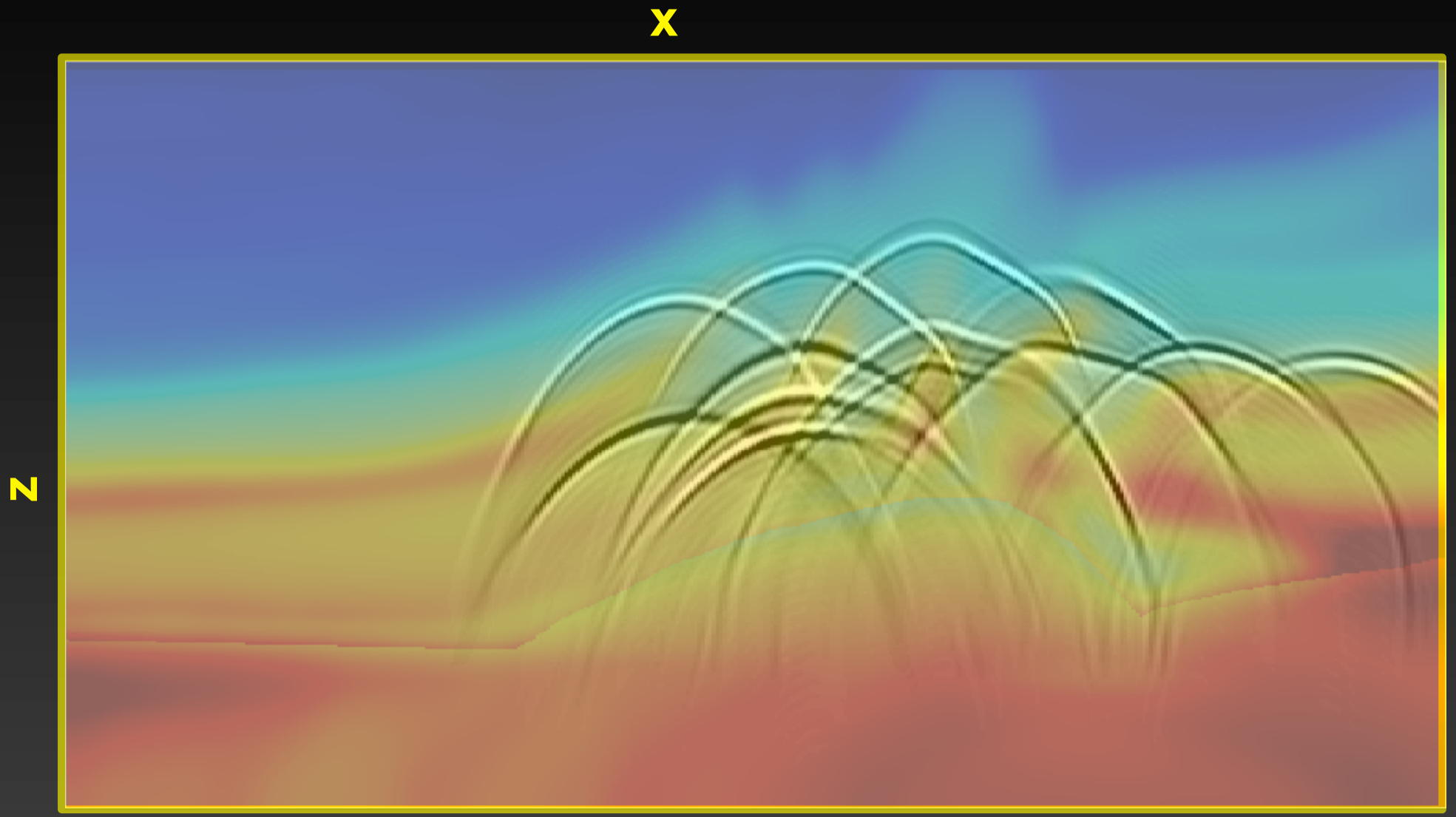
Modelagem do campo de receptores



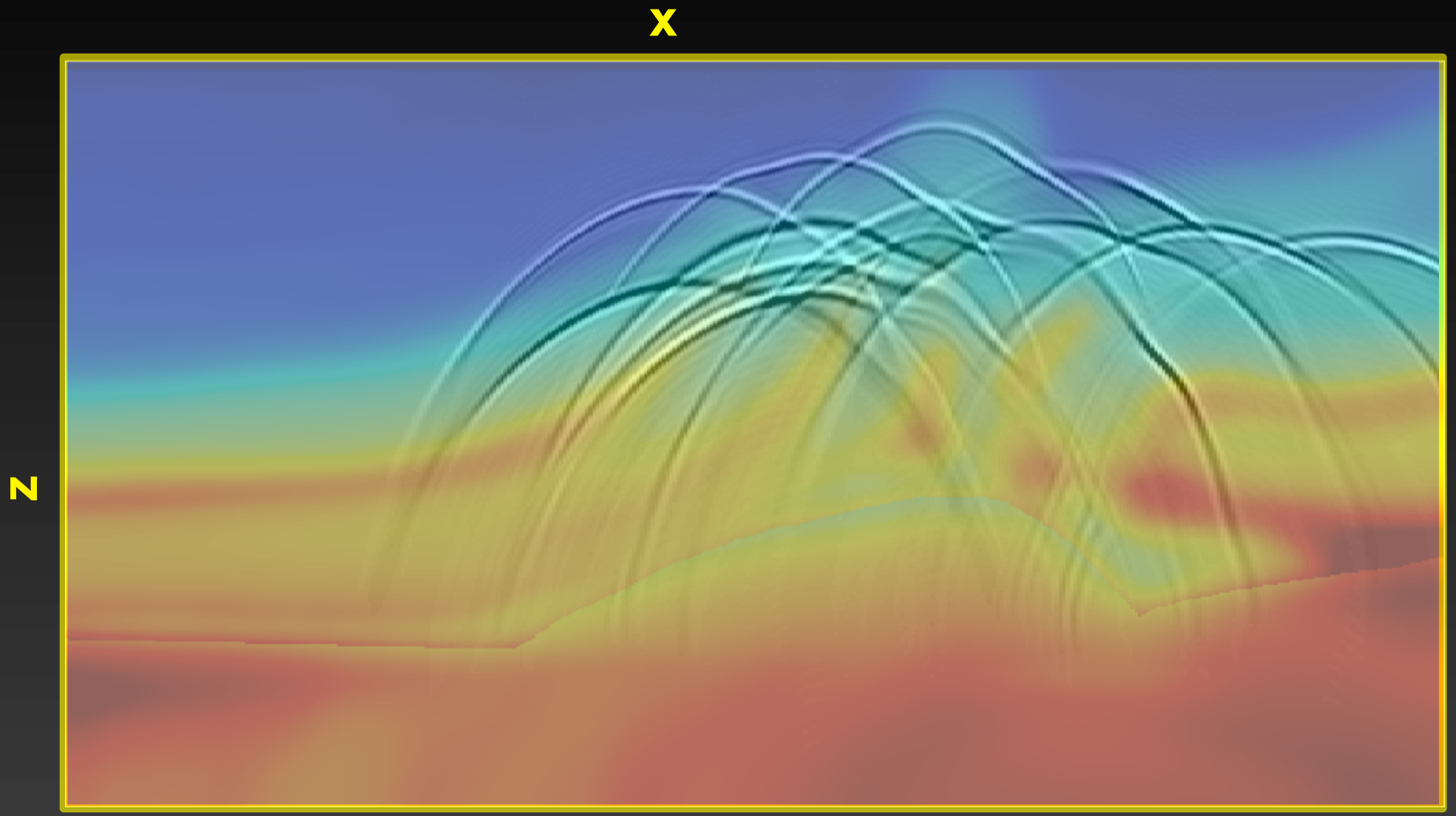
Modelagem do campo de receptores



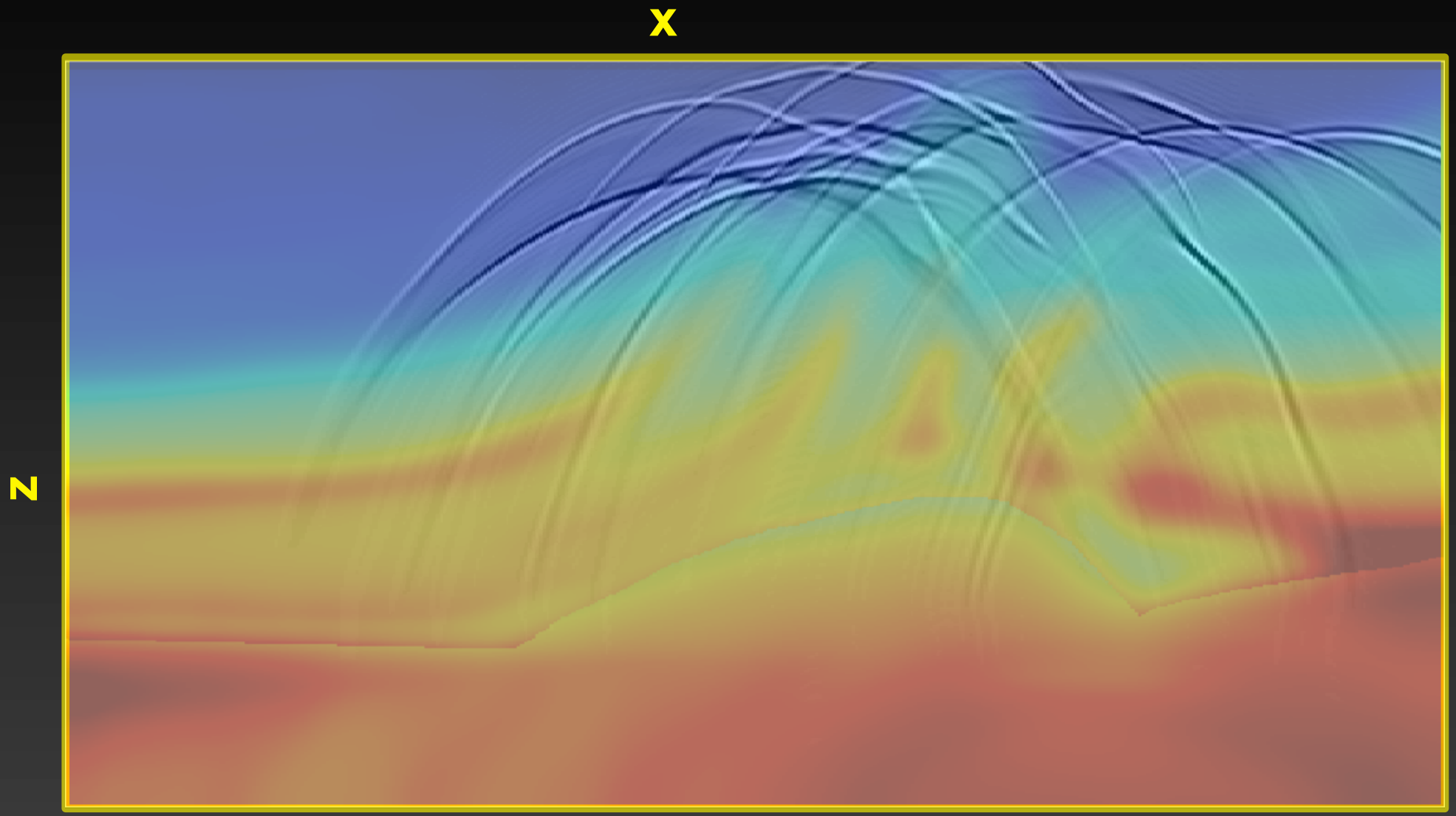
Modelagem do campo de receptores



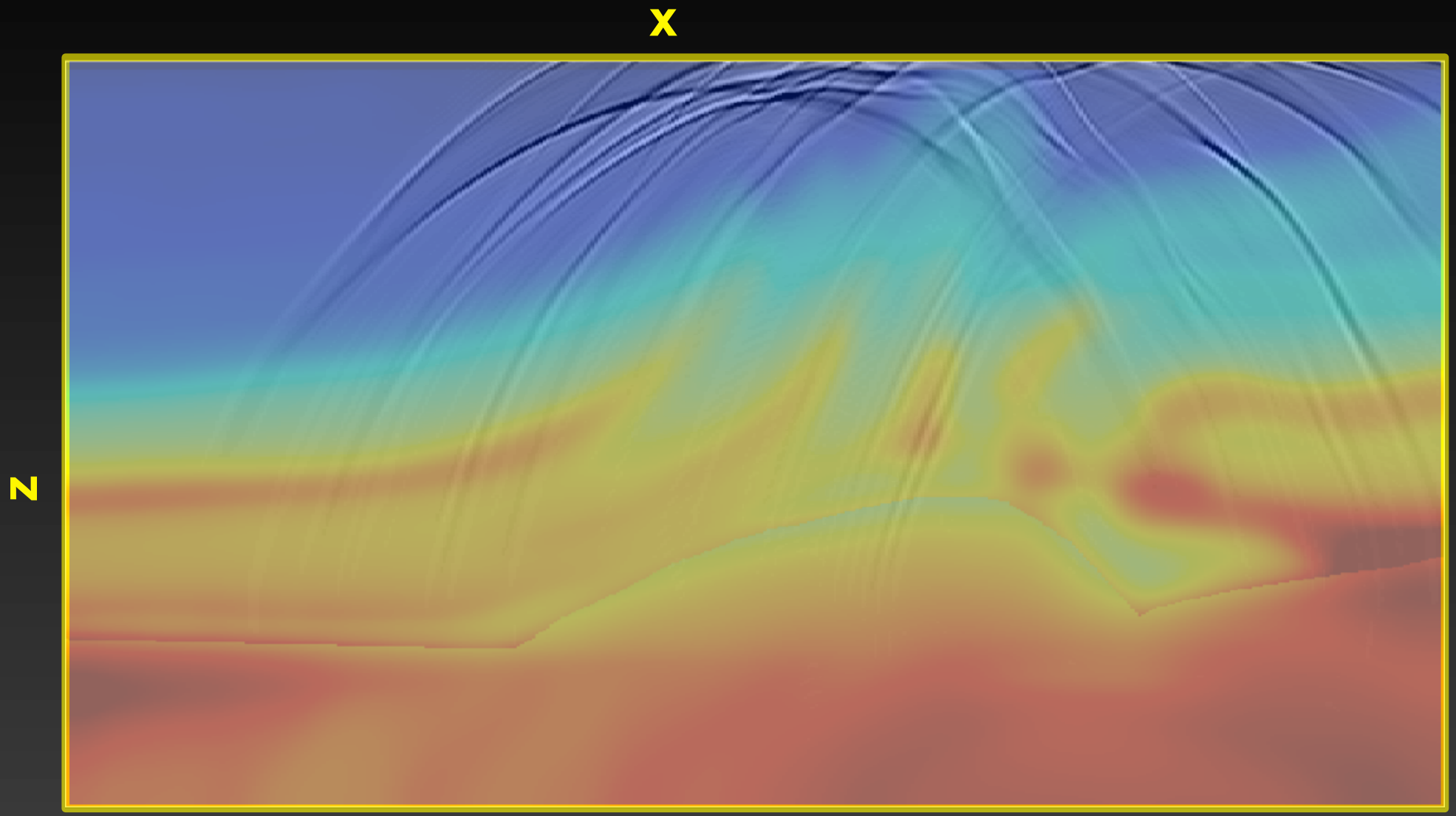
Modelagem do campo de receptores



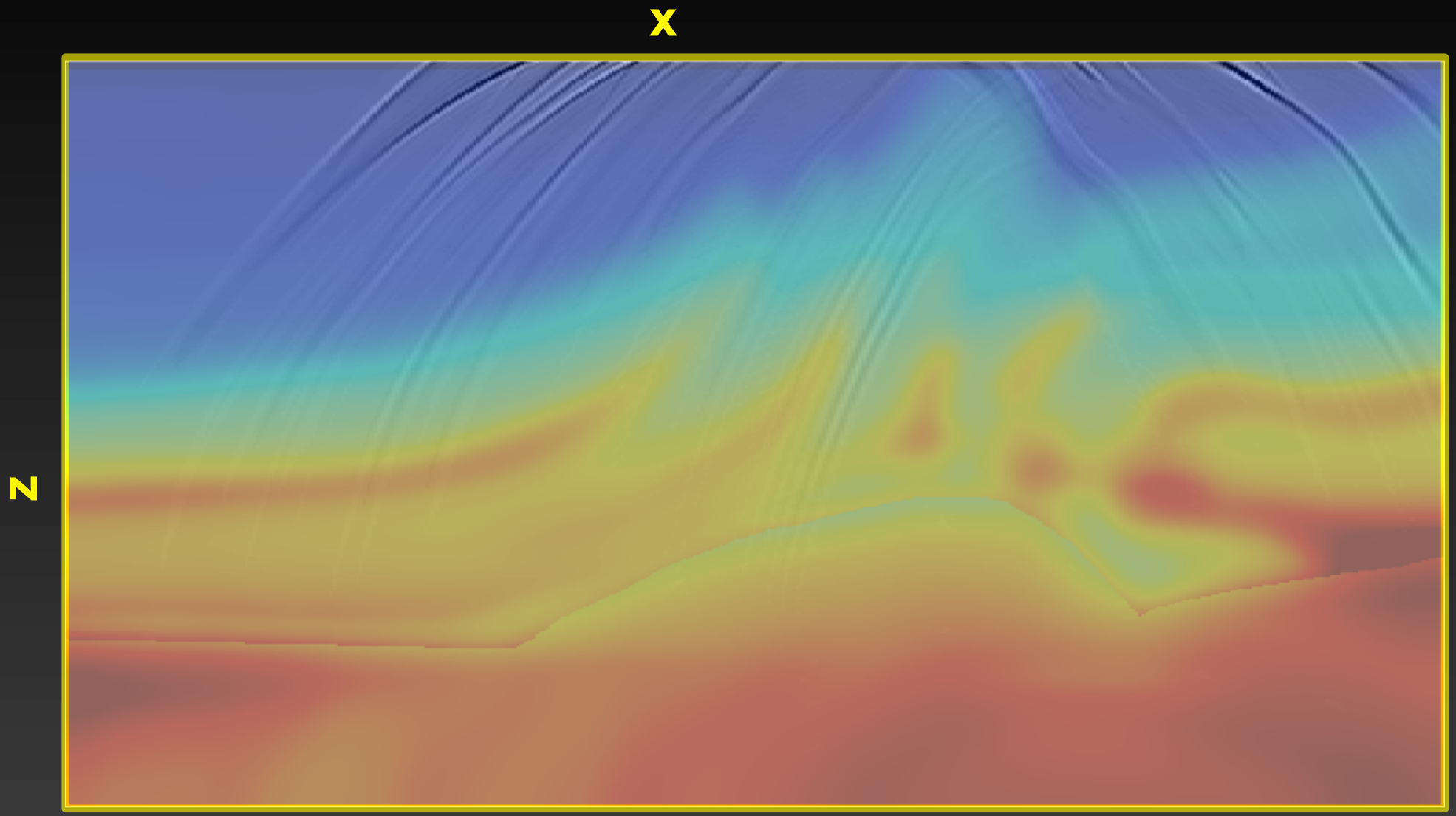
Modelagem do campo de receptores



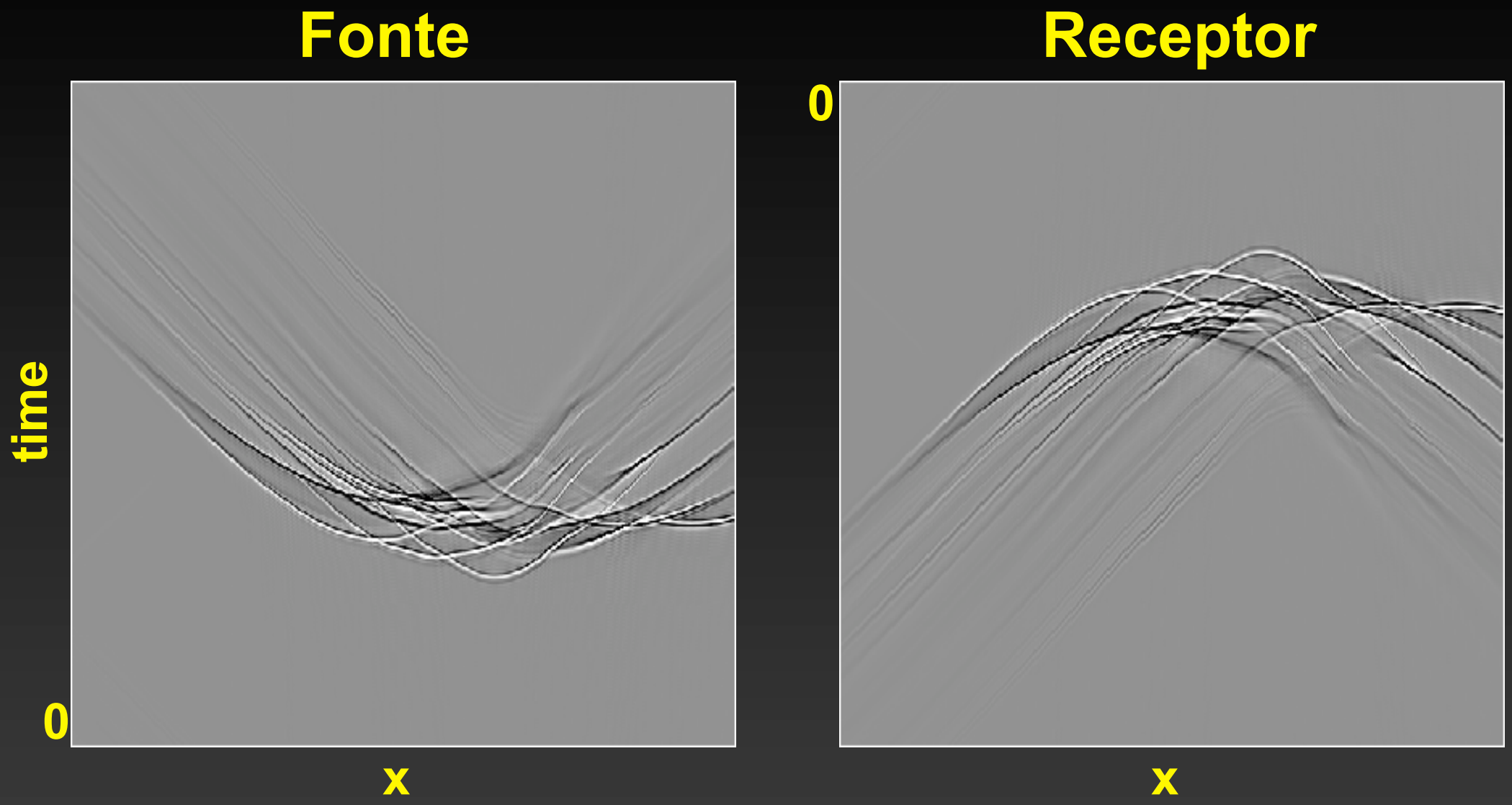
Modelagem do campo de receptores



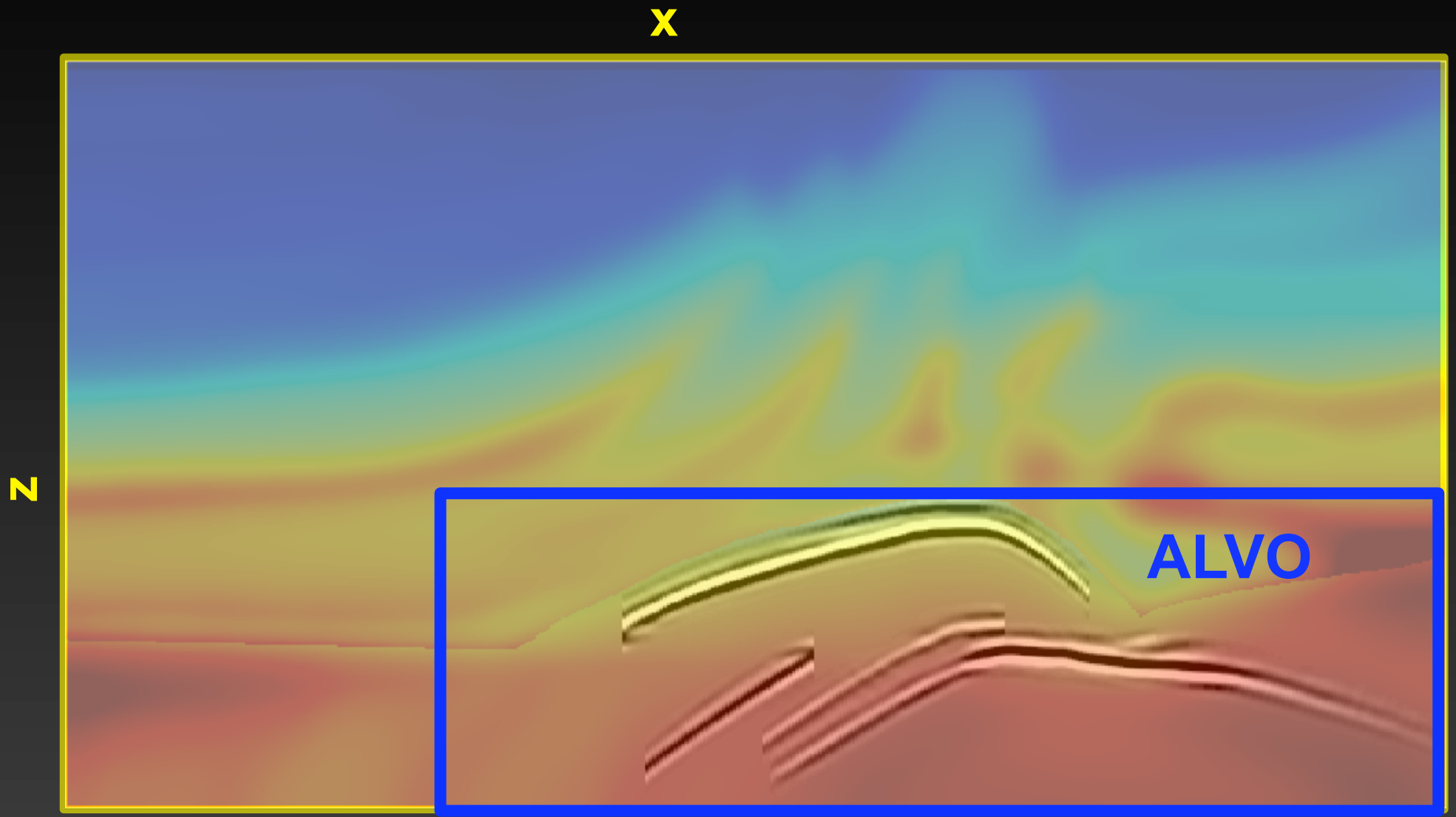
Modelagem do campo de receptores



Dados PERM

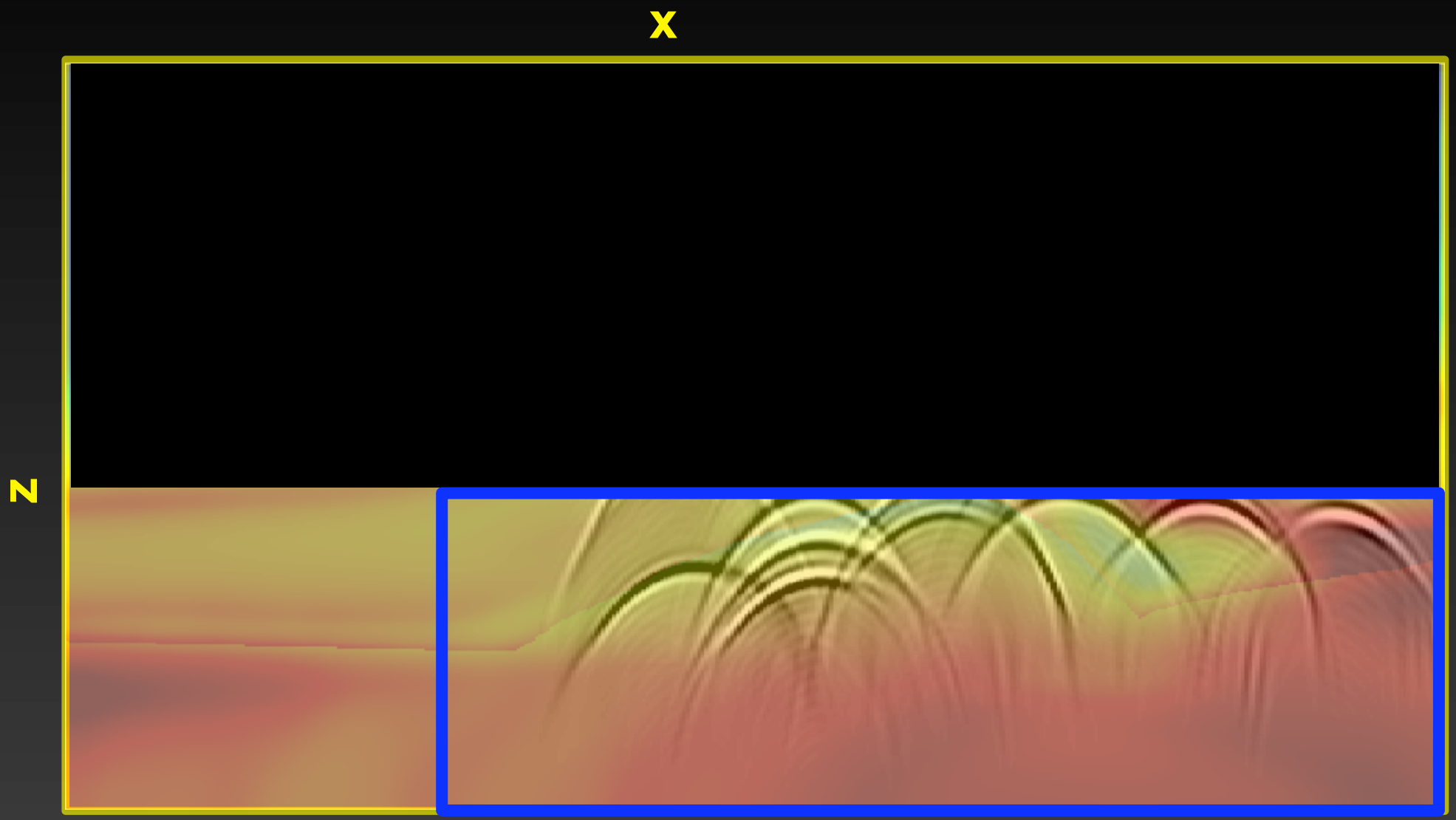


Estratégia focada num alvo



Estratégia focada num alvo

Campos de onda coletados no topo do alvo



REPE: etapas

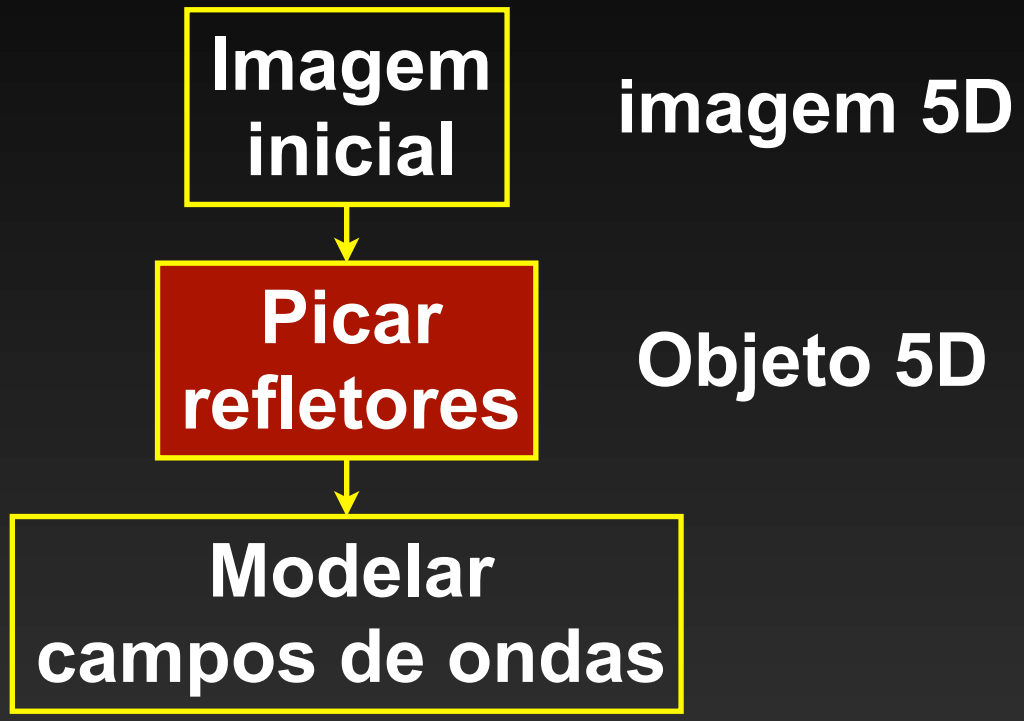
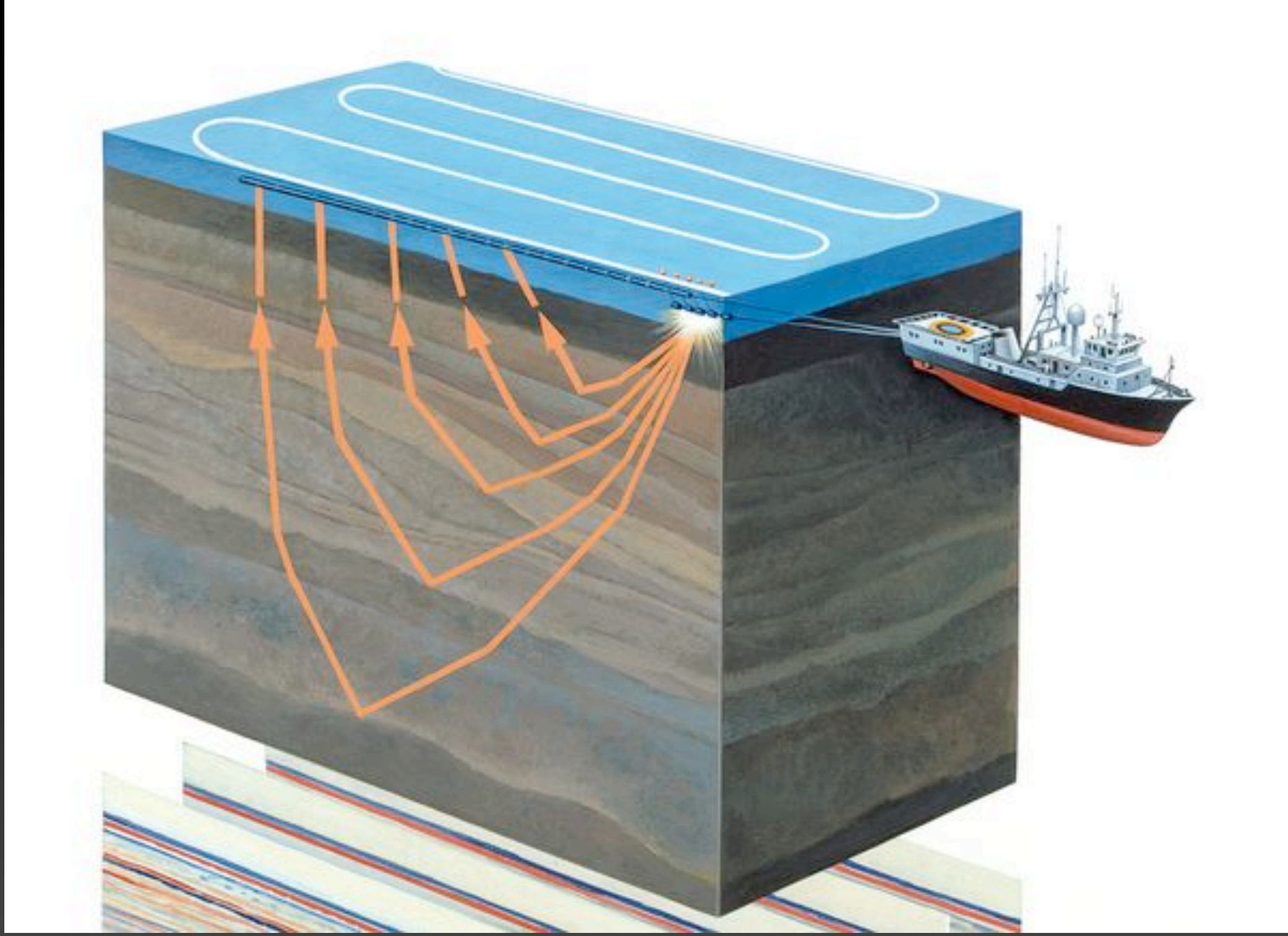


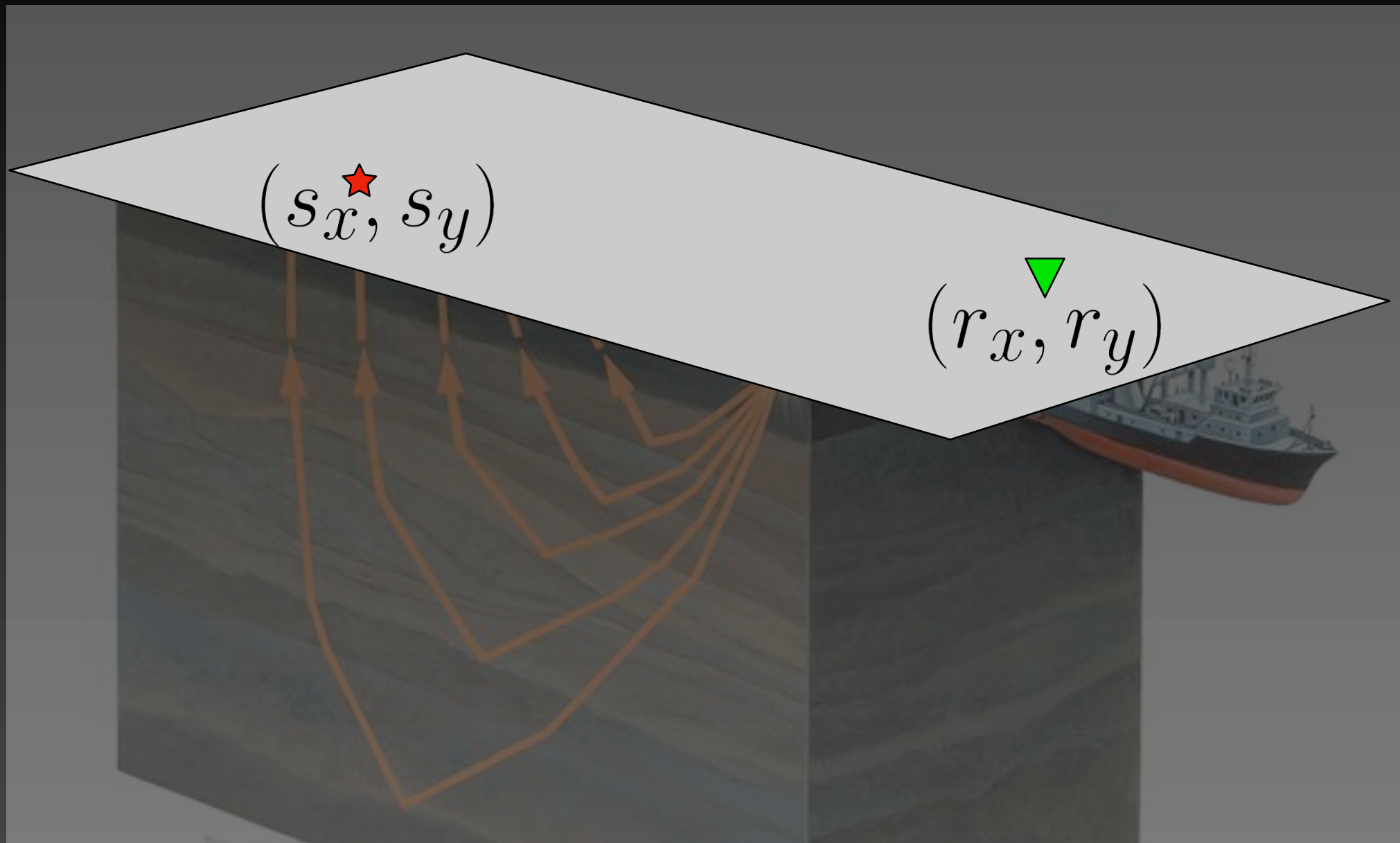
Imagem inicial
imagem 5D
Picar refletores
Objeto 5D
Modelar campos de ondas



http://images.nationalgeographic.com/wpf/media-live/photos/000/180/cache/energy-seismic-exploration-offshore-drilling_18083_600x450.jpg

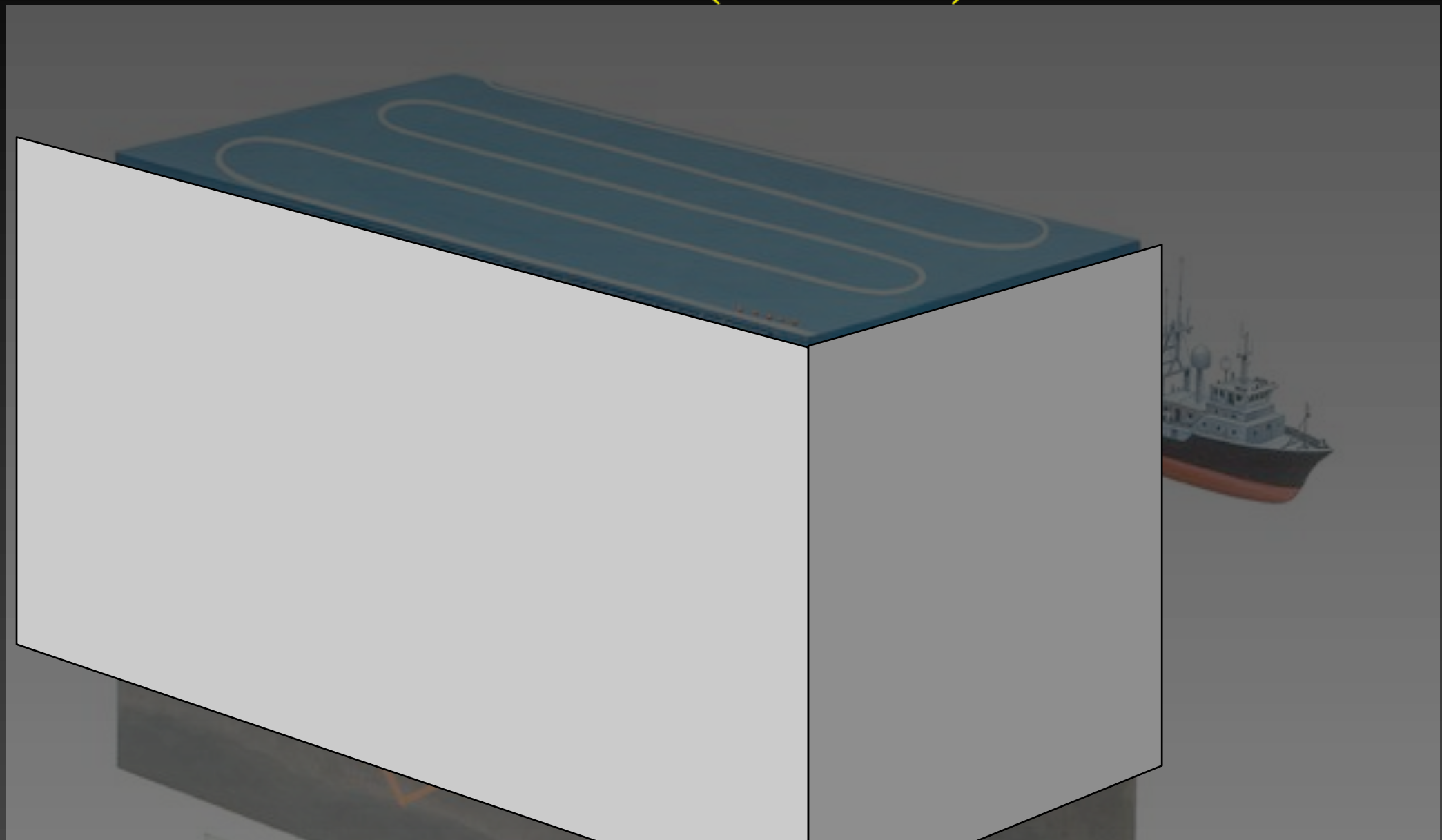
Espaço de dados

$$d = d(\mathbf{s}, \mathbf{r}, t)$$



Espaço da imagem

$$I = I(\mathbf{x}, \mathbf{h})$$

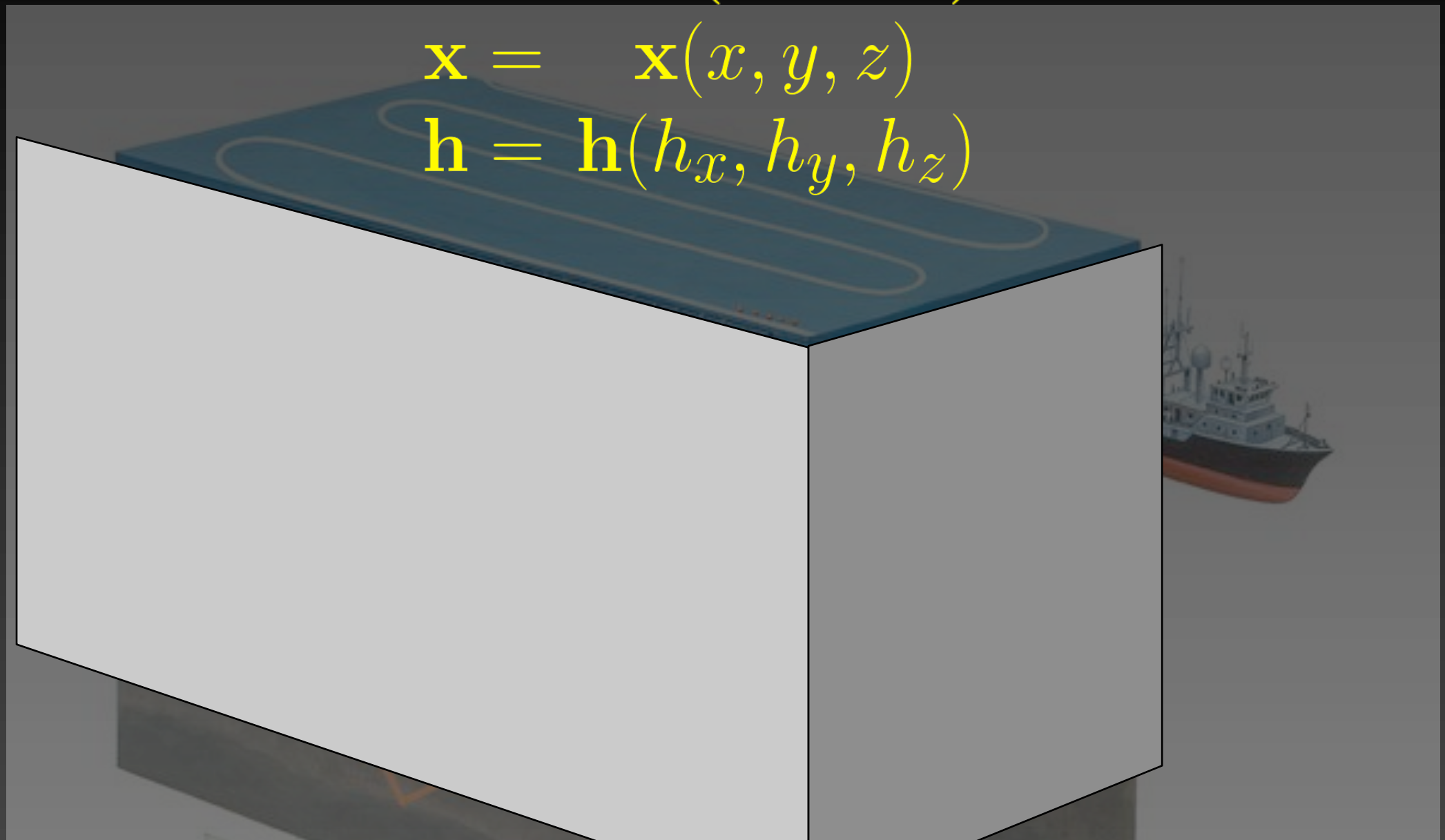


Espaço da imagem

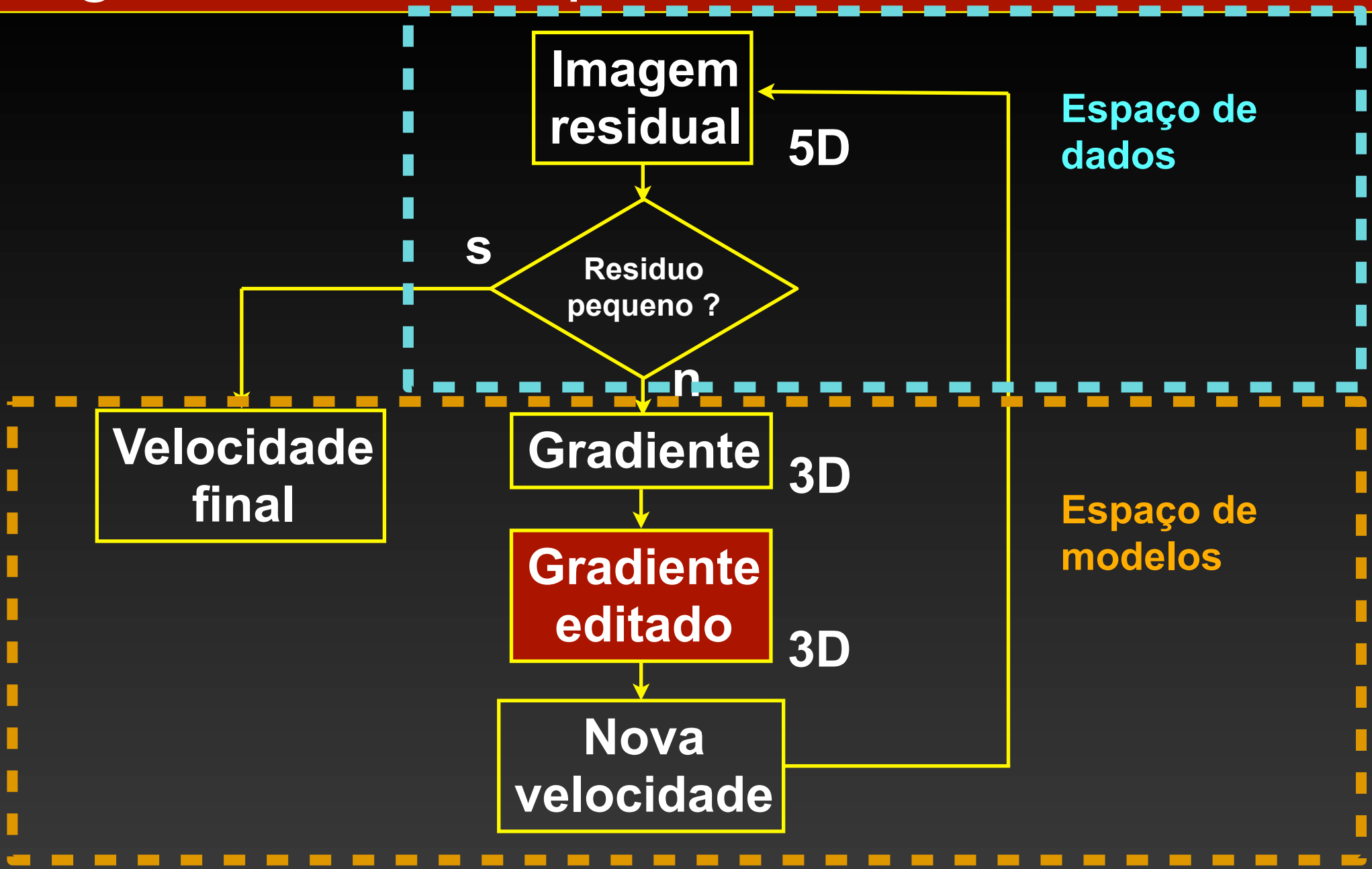
$$I = I(\mathbf{x}, \mathbf{h})$$

$$\mathbf{x} = \mathbf{x}(x, y, z)$$

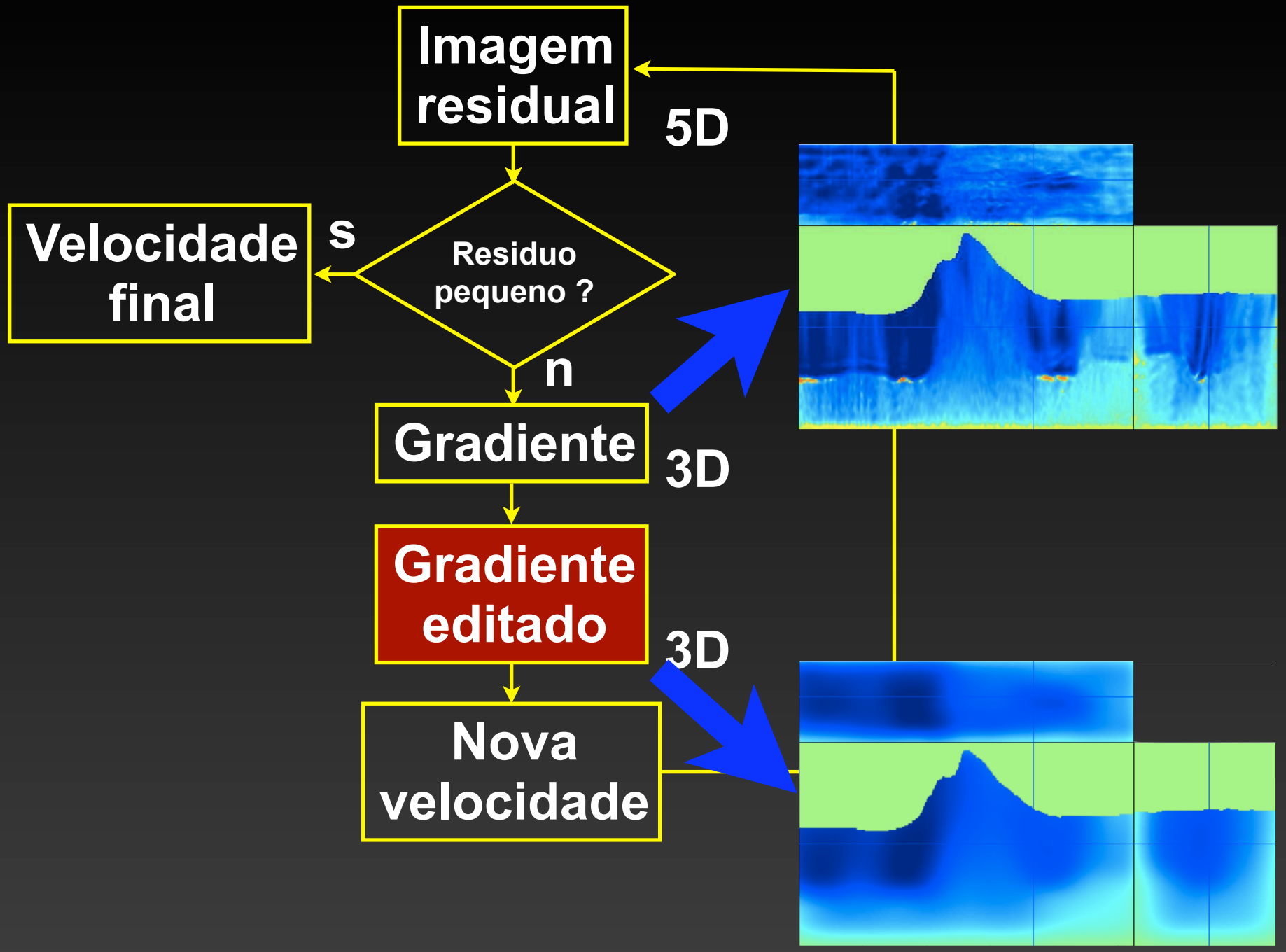
$$\mathbf{h} = \mathbf{h}(h_x, h_y, h_z)$$



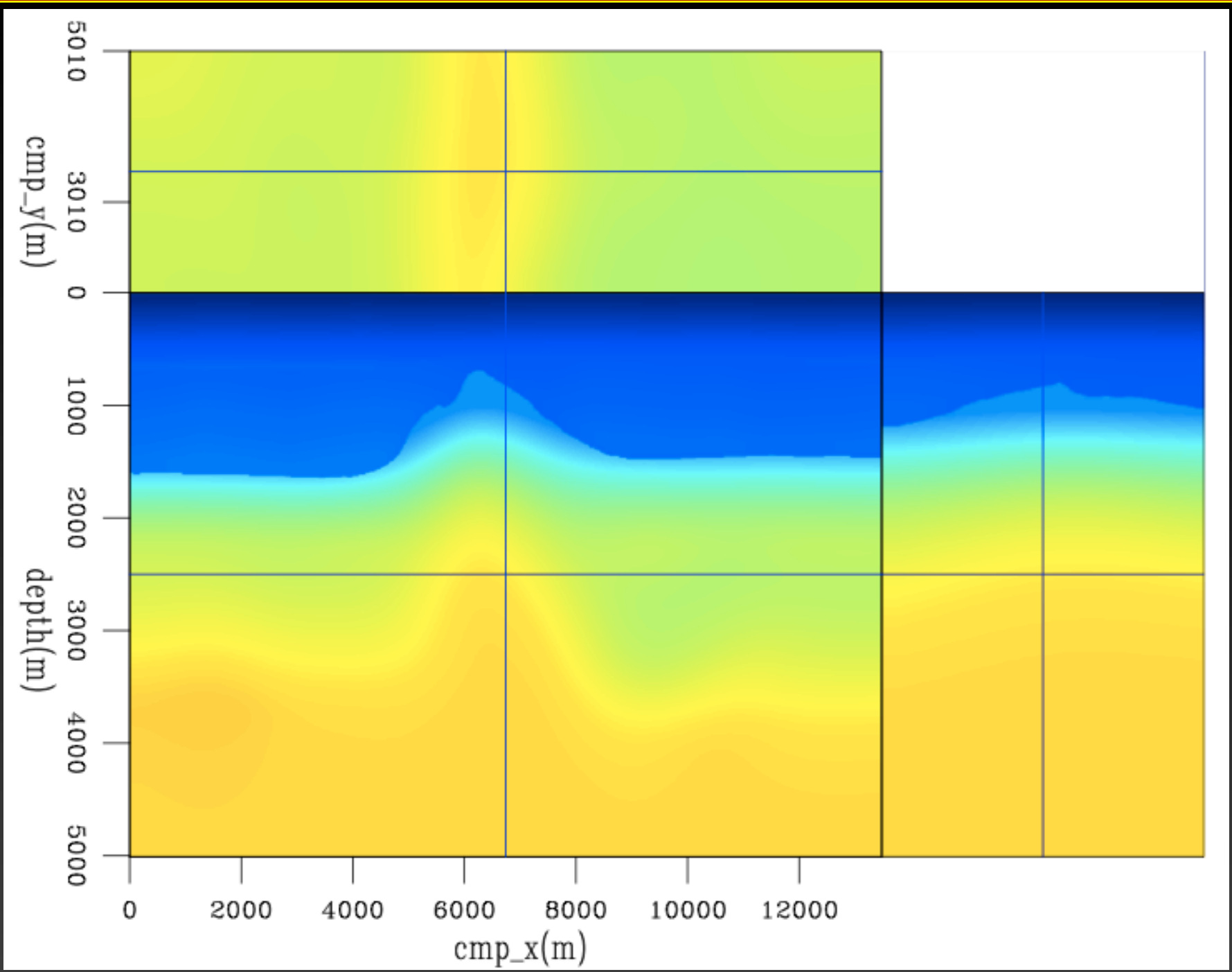
Tomografia com campos de ondas



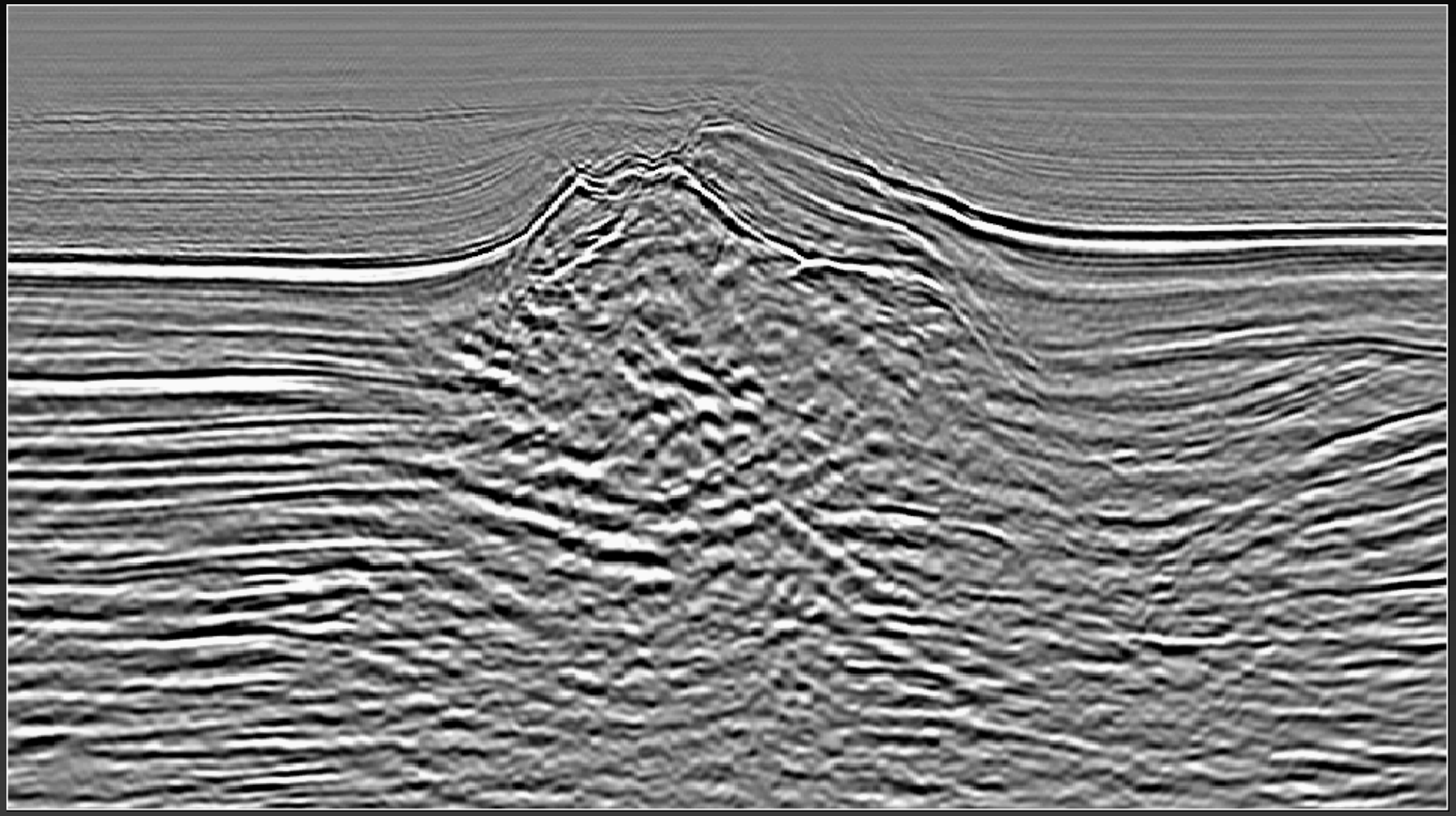
Tomografia com campos de ondas



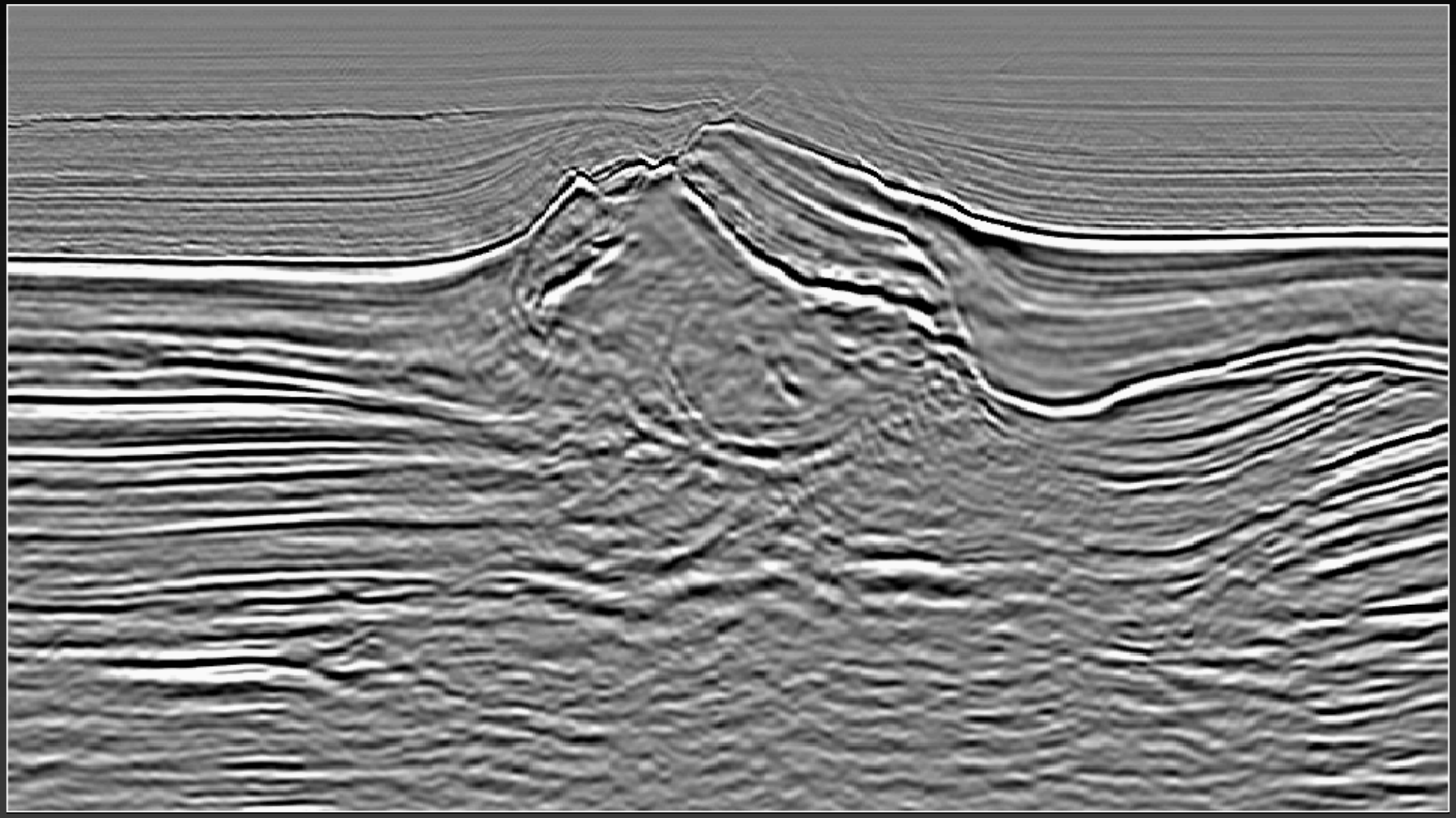
Velocidade inicial



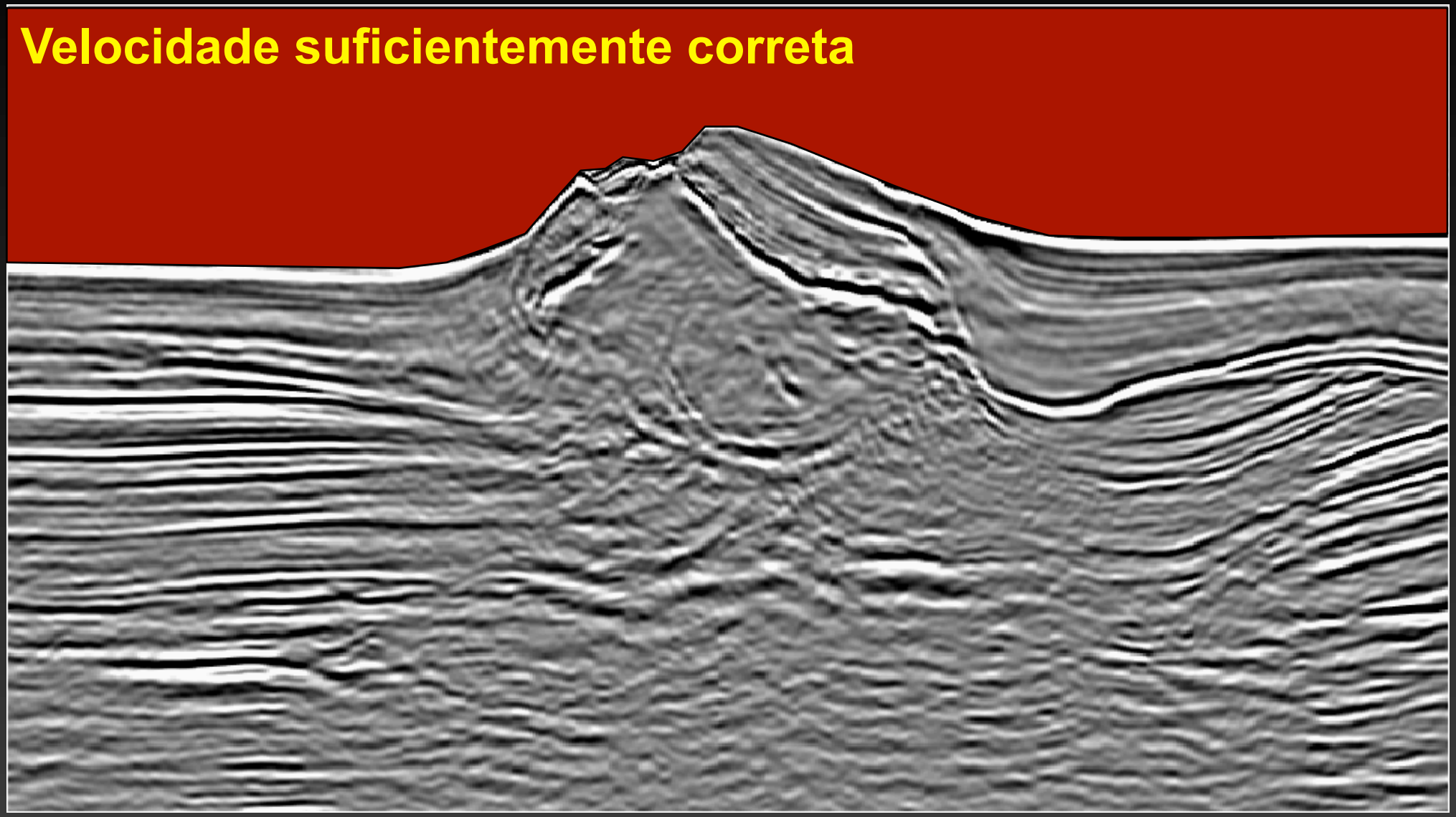
Estratégia para AVMP com campos de ondas



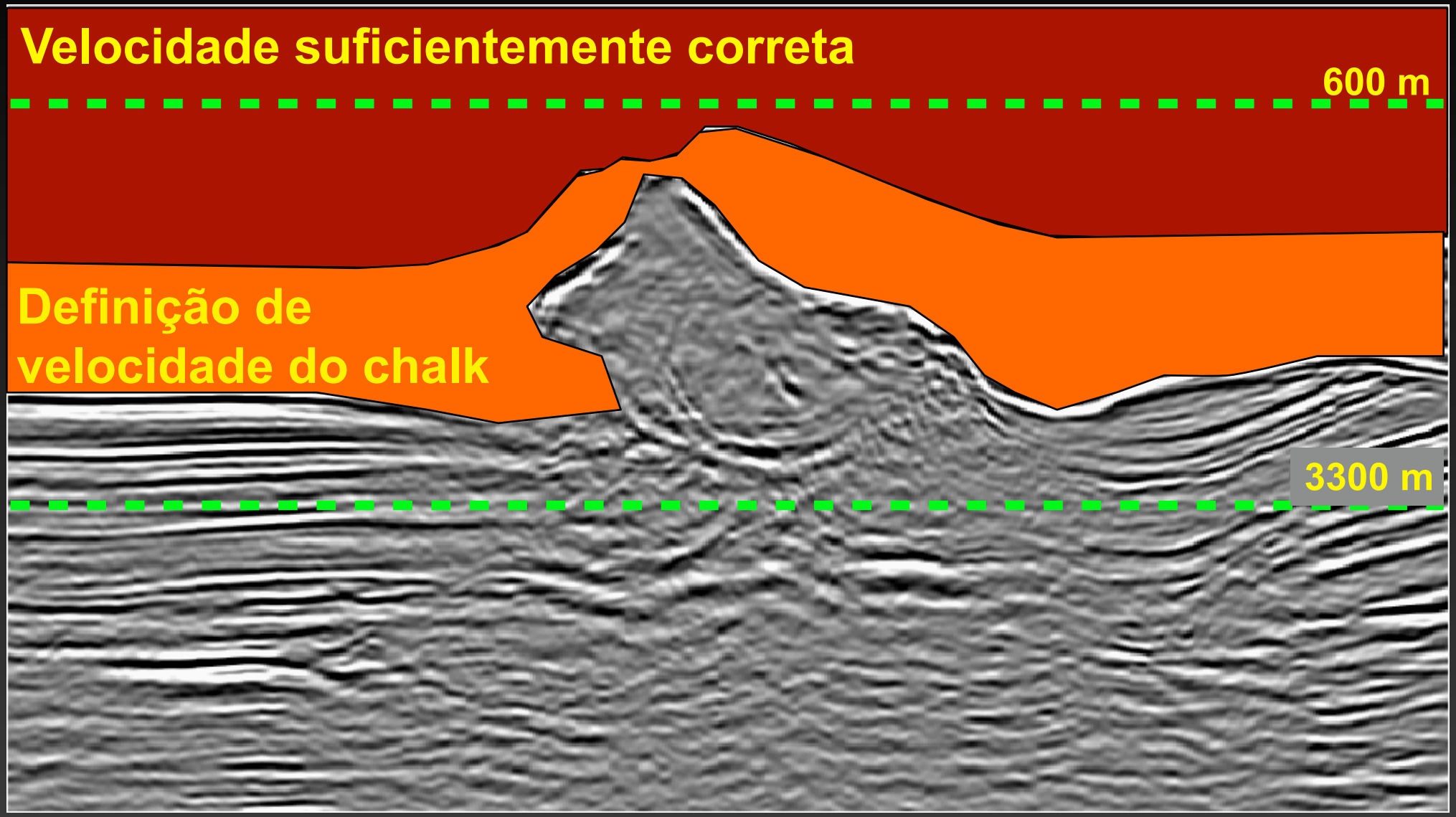
Estratégia para AVMP com campos de ondas



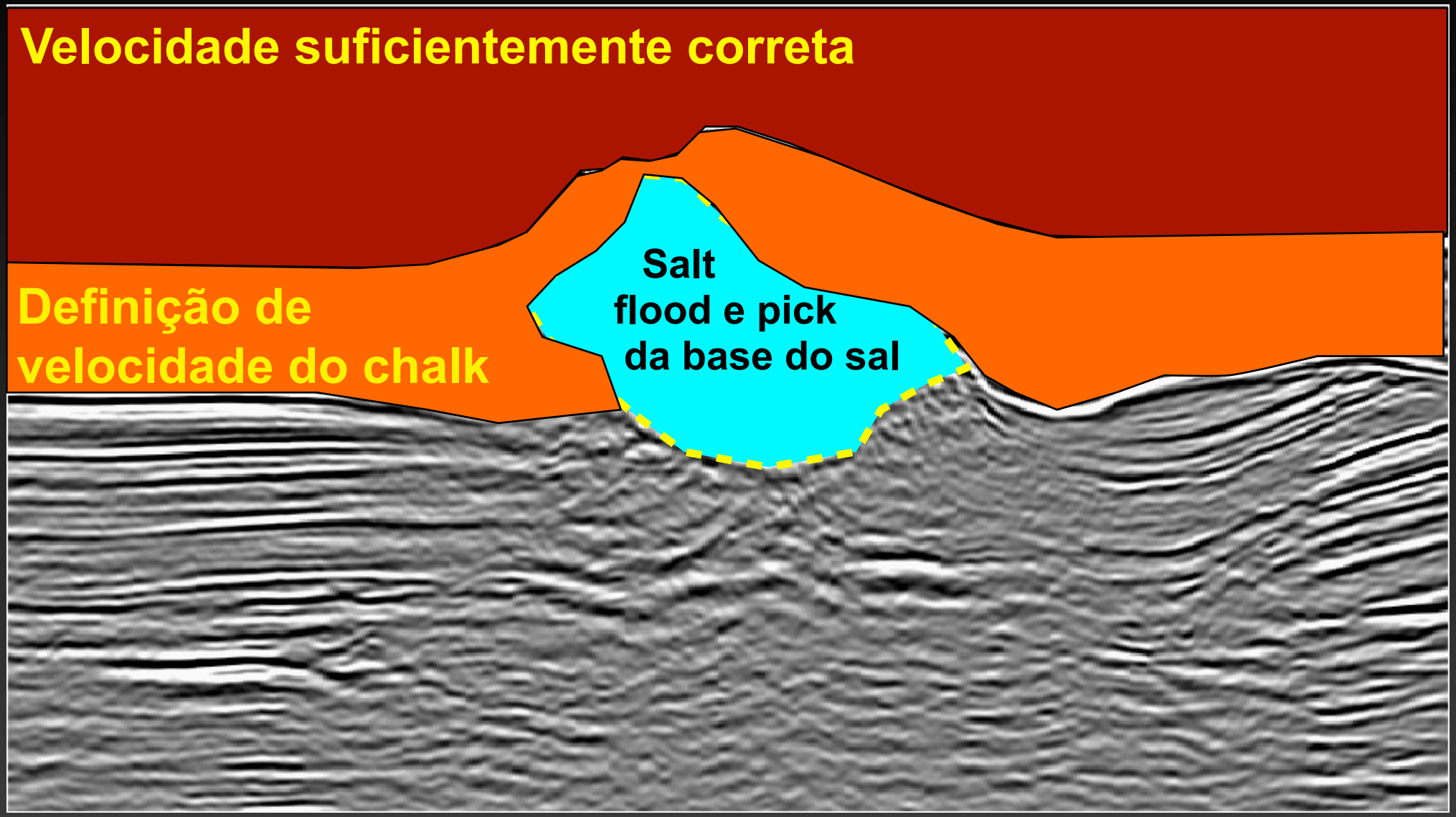
Estratégia para AVMP com campos de ondas



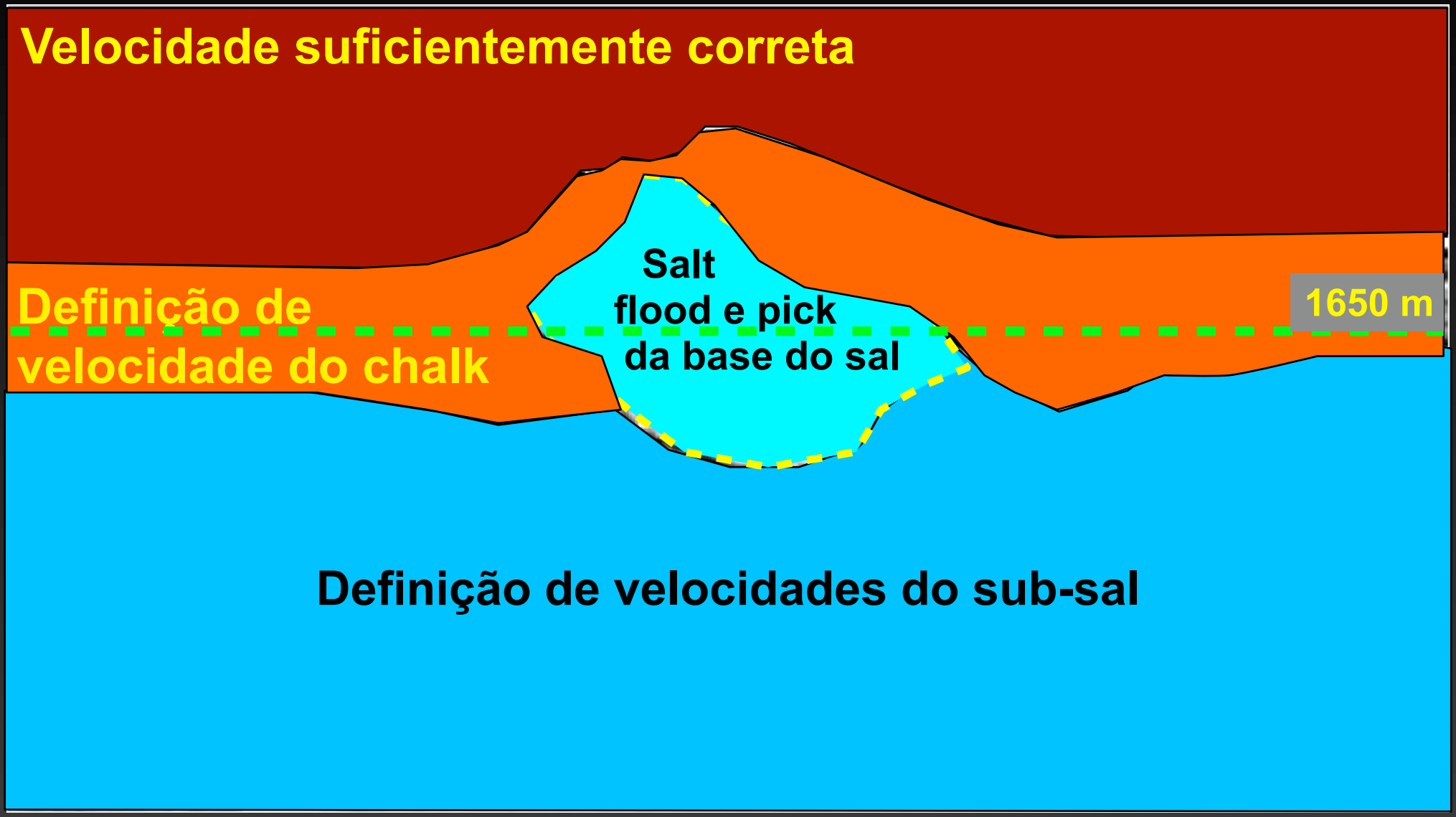
Estratégia para AVMP com campos de ondas



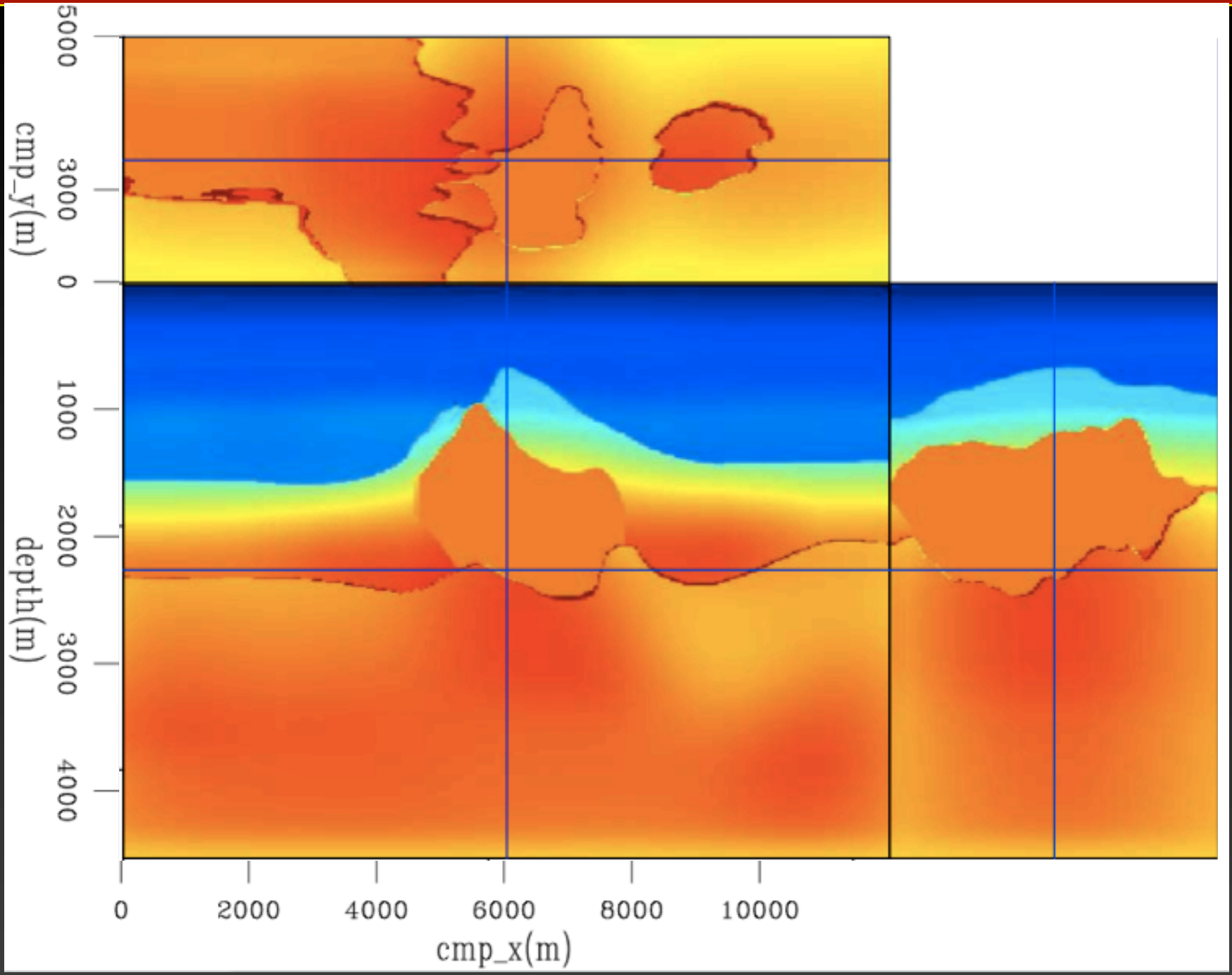
Estratégia para AVMP com campos de ondas



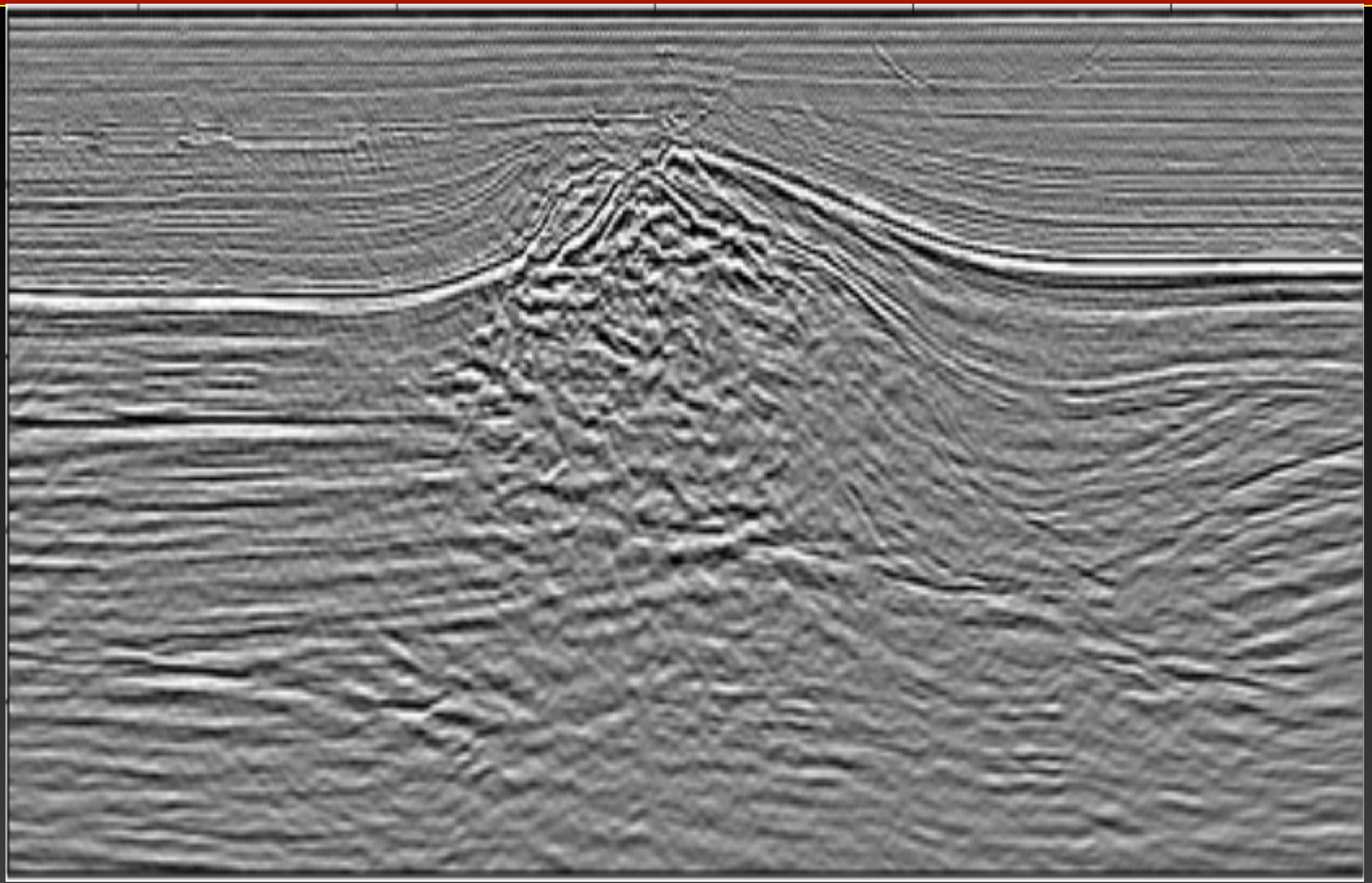
Estratégia para AVMP com campos de ondas



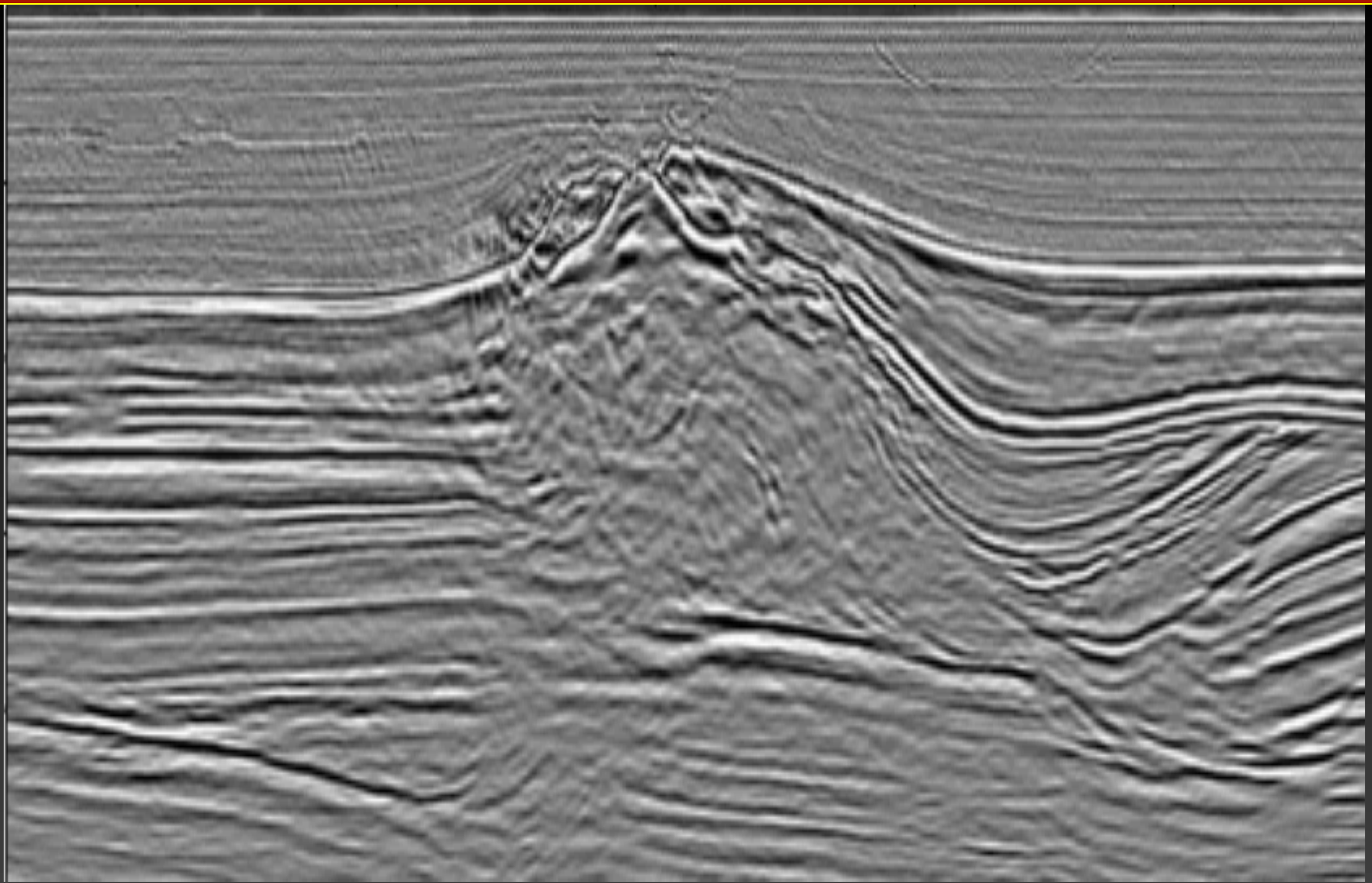
Velocidade final



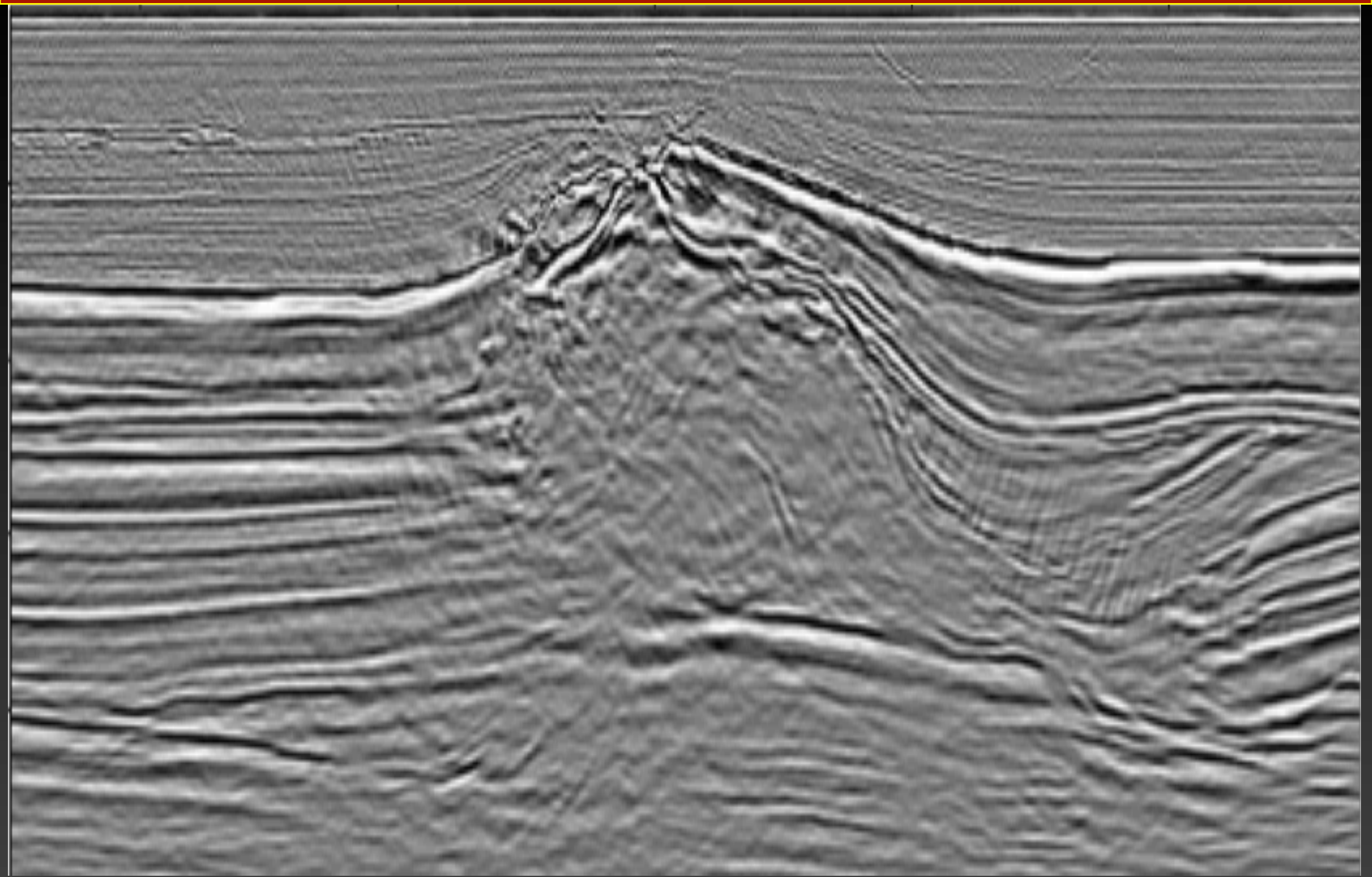
Inicial



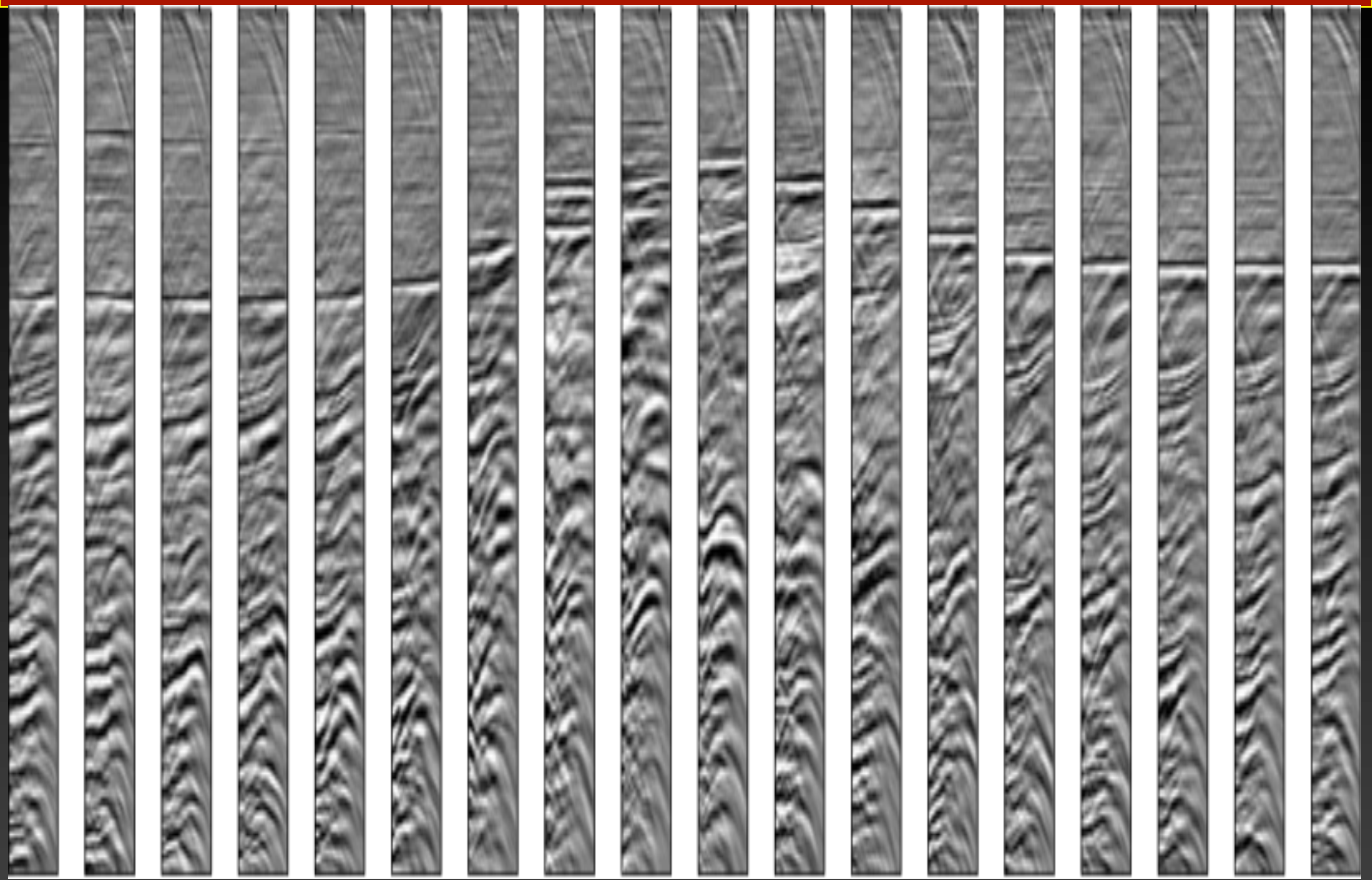
Final



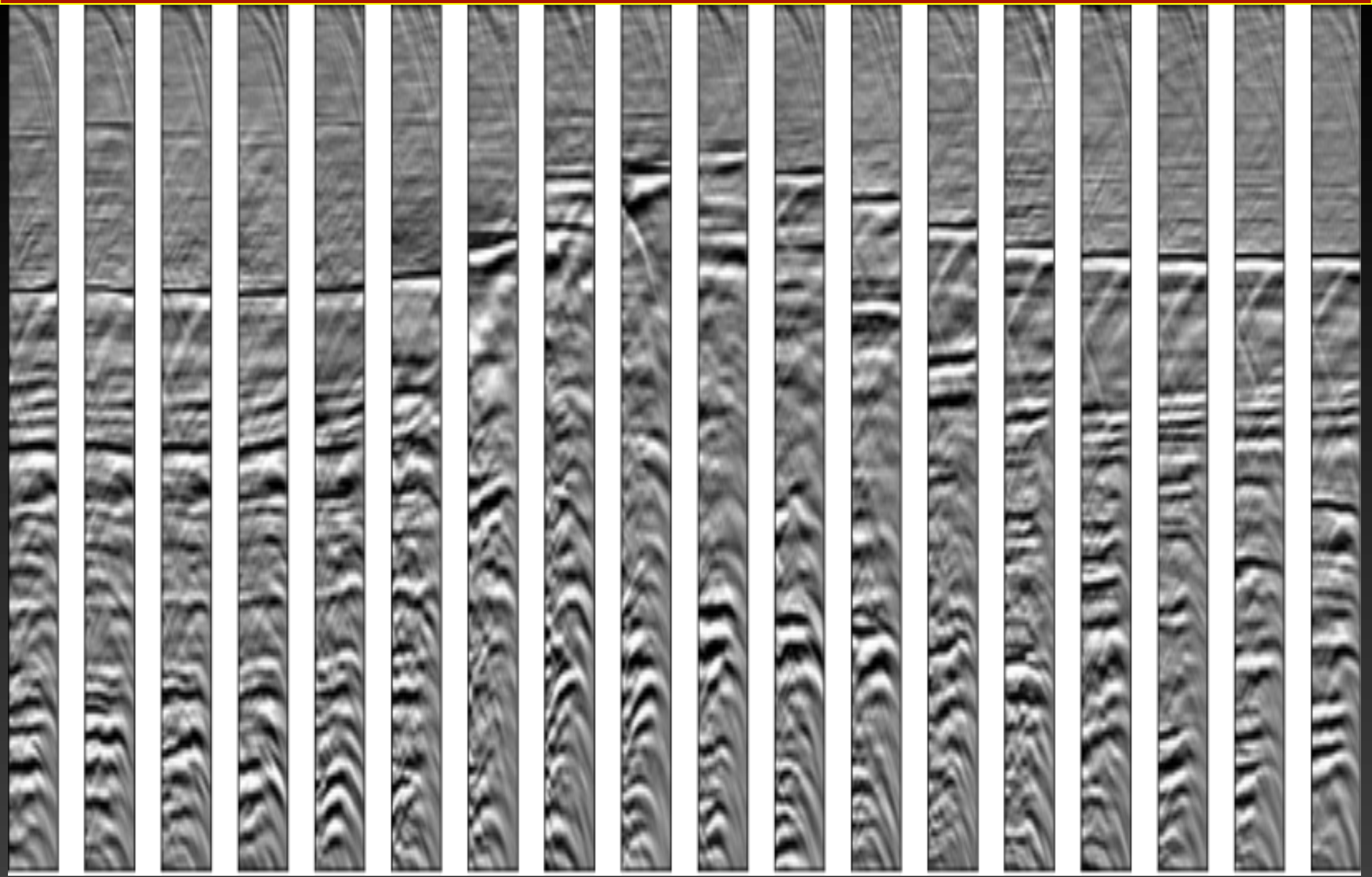
Original



Inicial



Final



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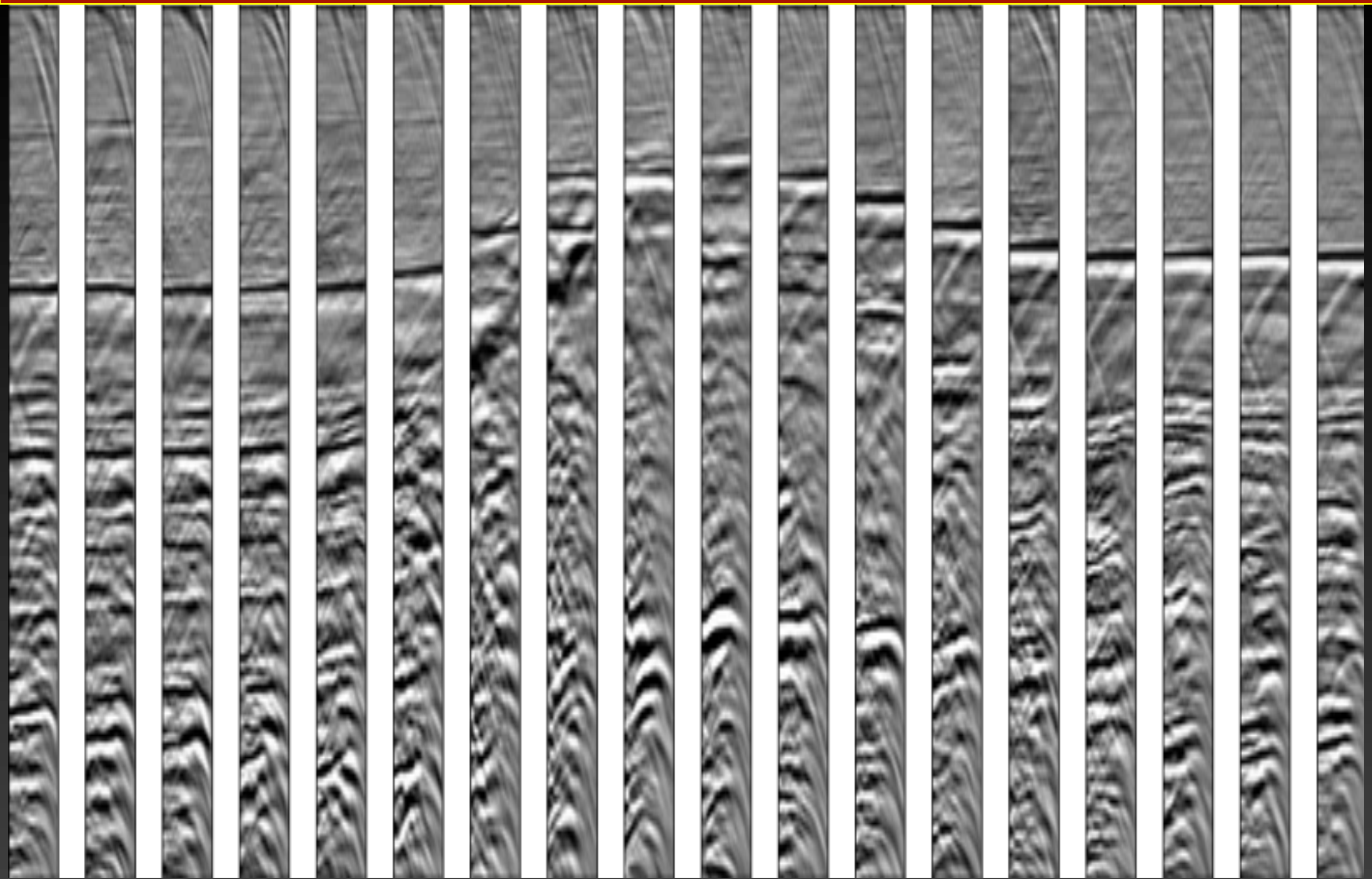
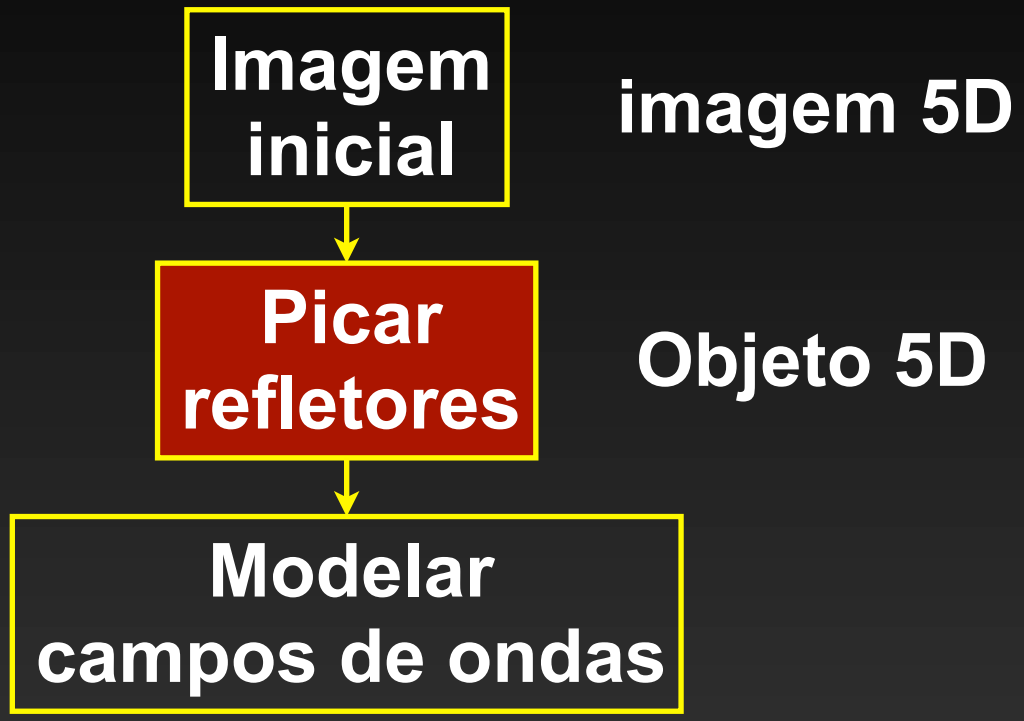
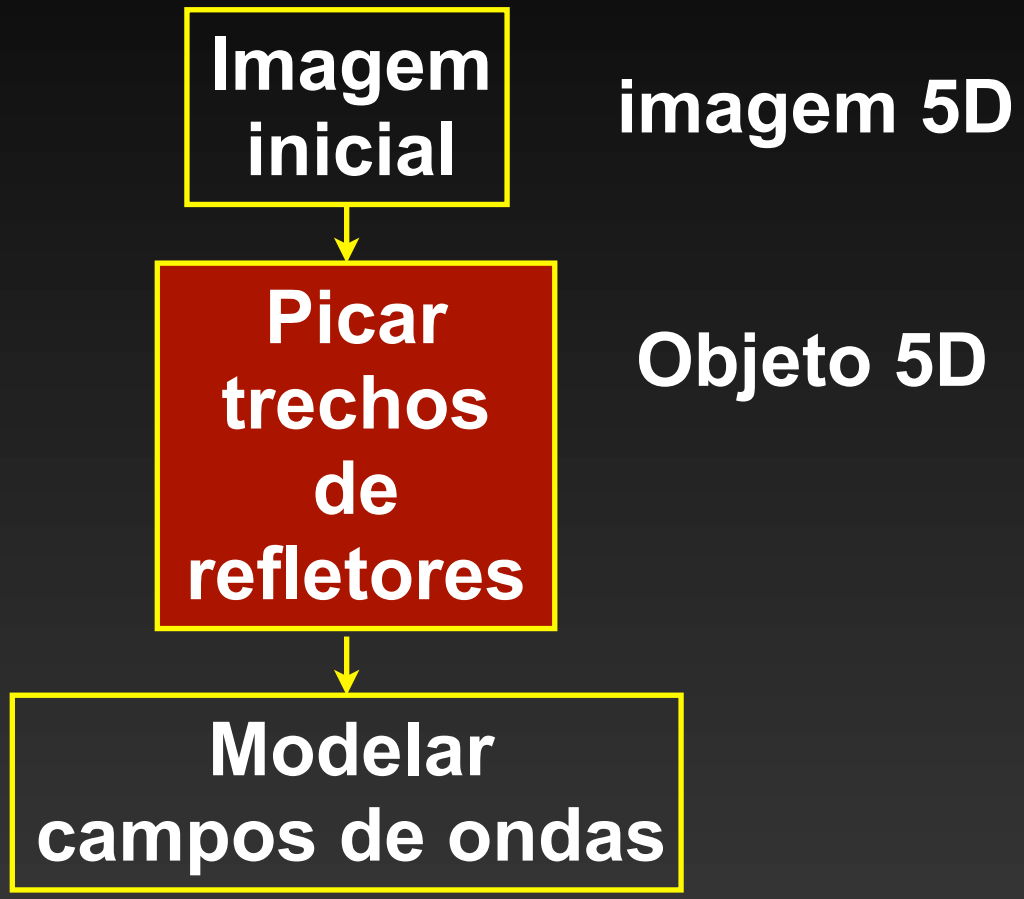


REPE para tomografia de horizontes

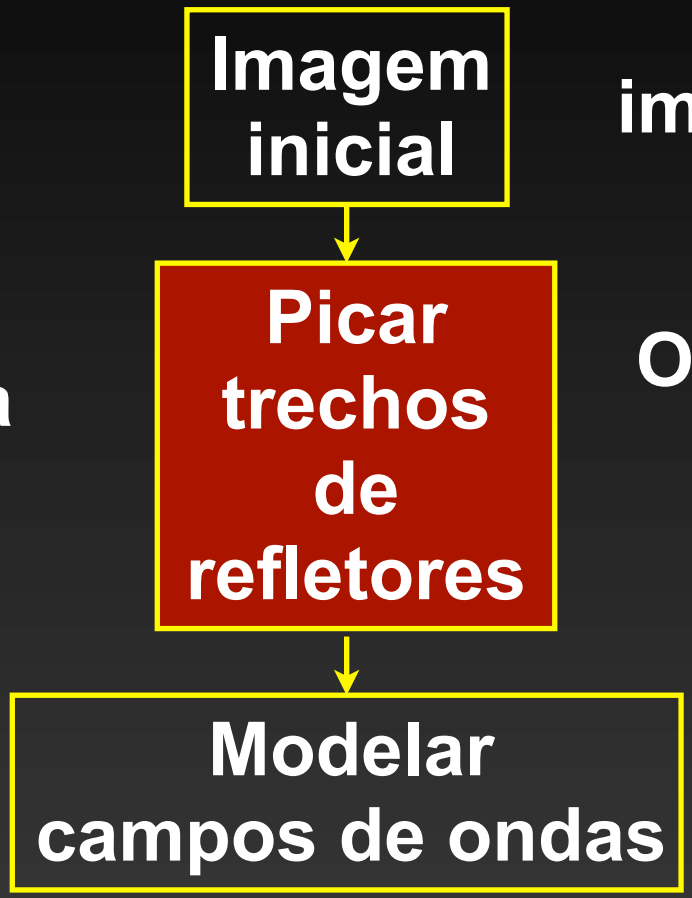


REPE para tomografia de grid



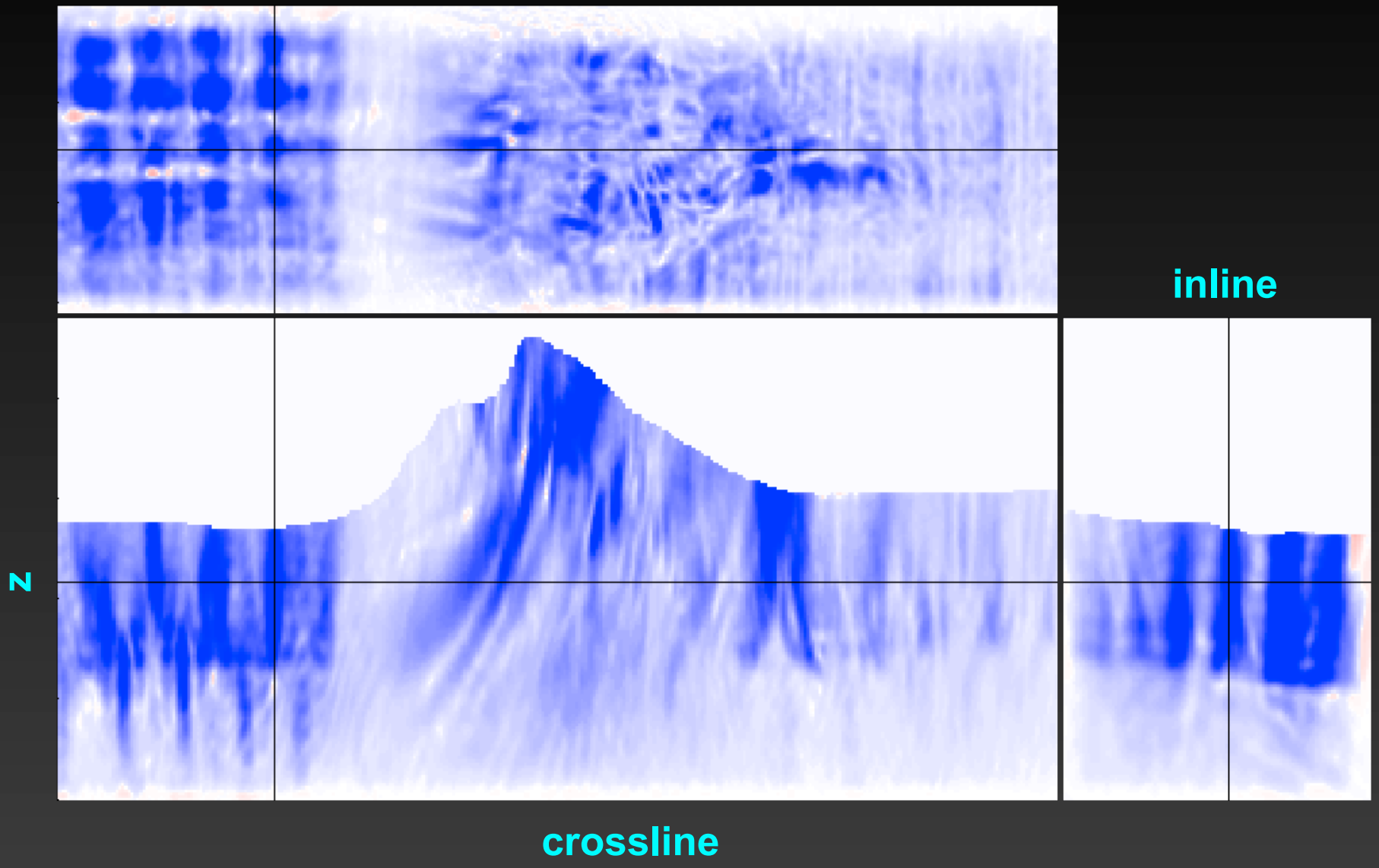
REPE para tomografia de grid

- Uso de coerencia

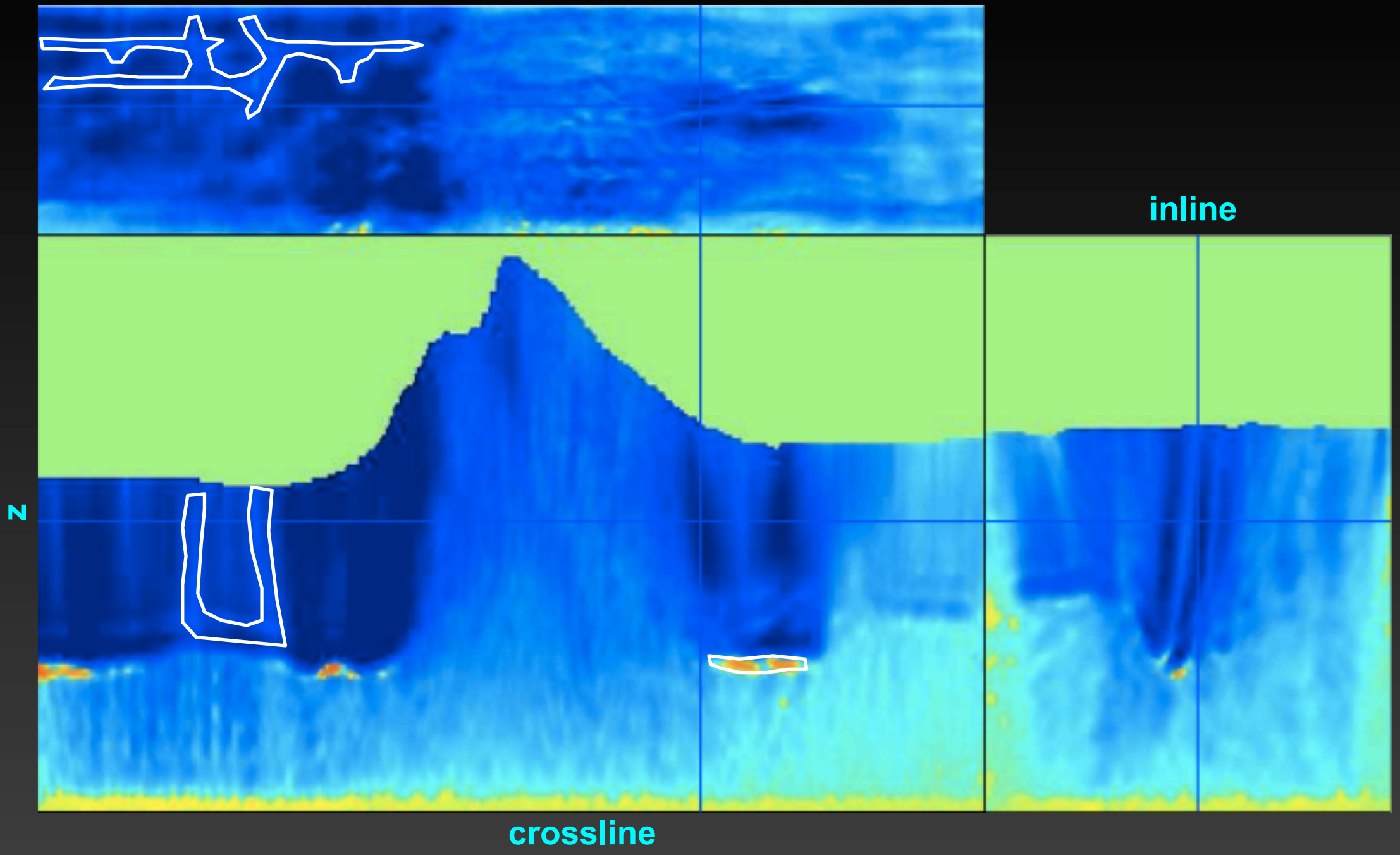


REPE para tomografia de grid

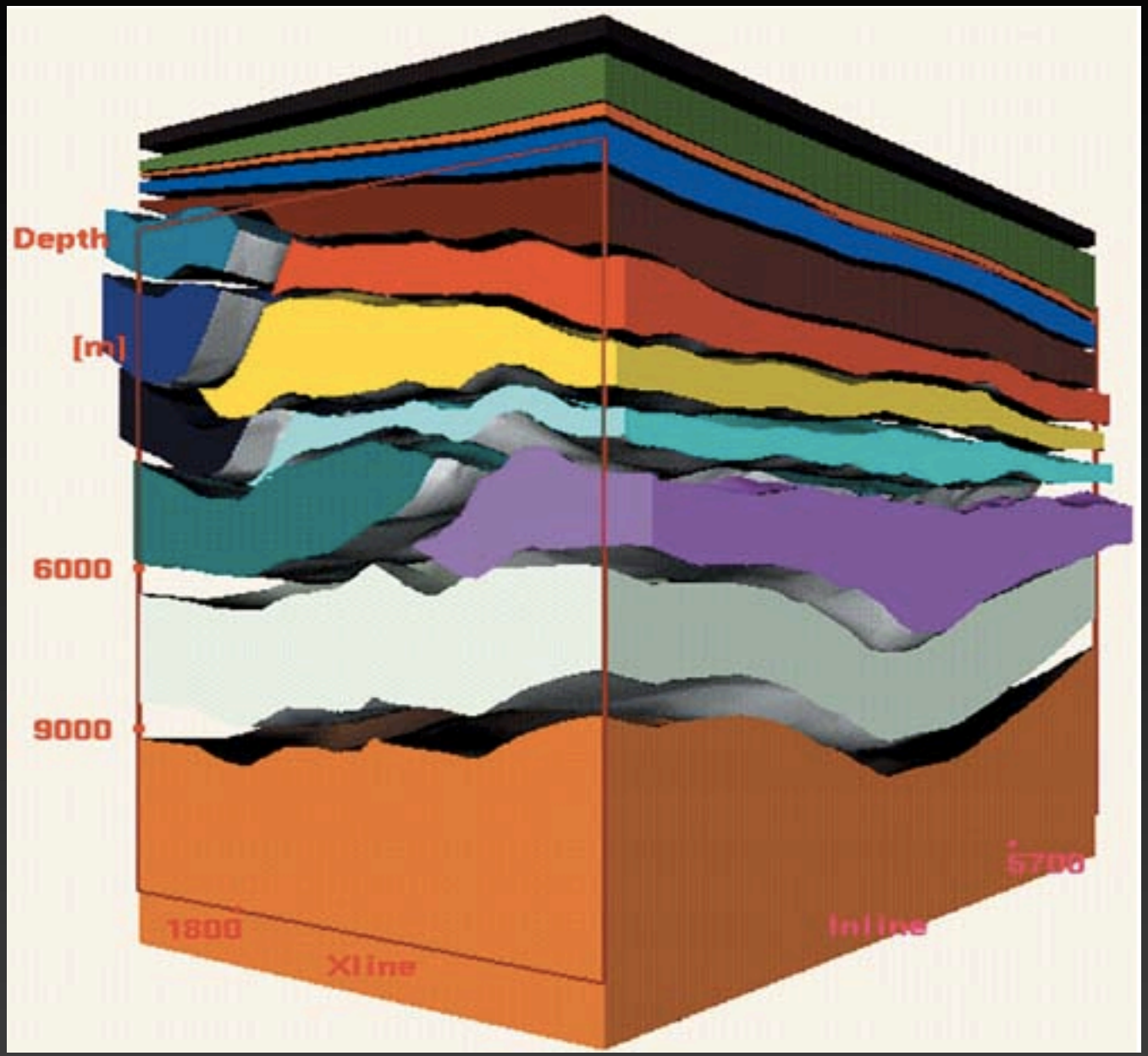
Gradiente com 1 par de REPE



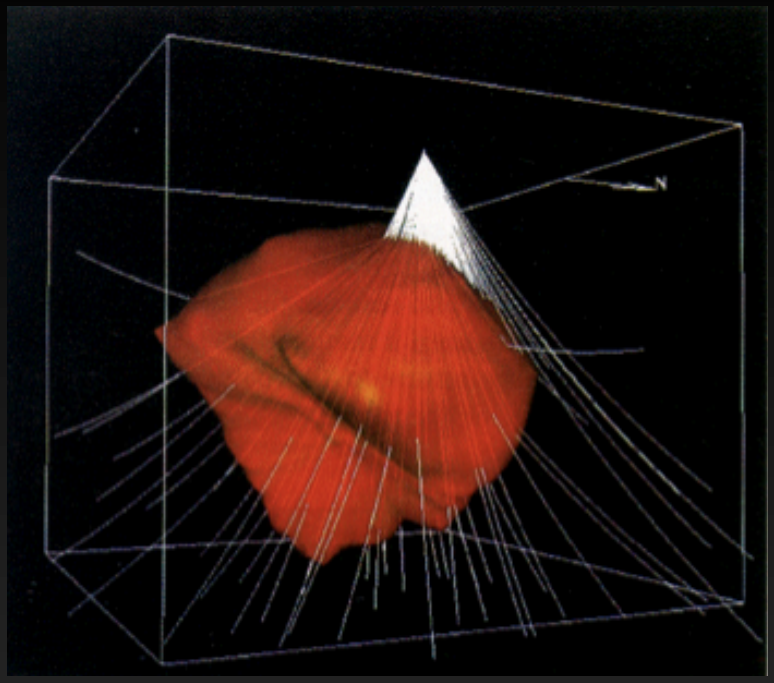
Editando o gradiente ...

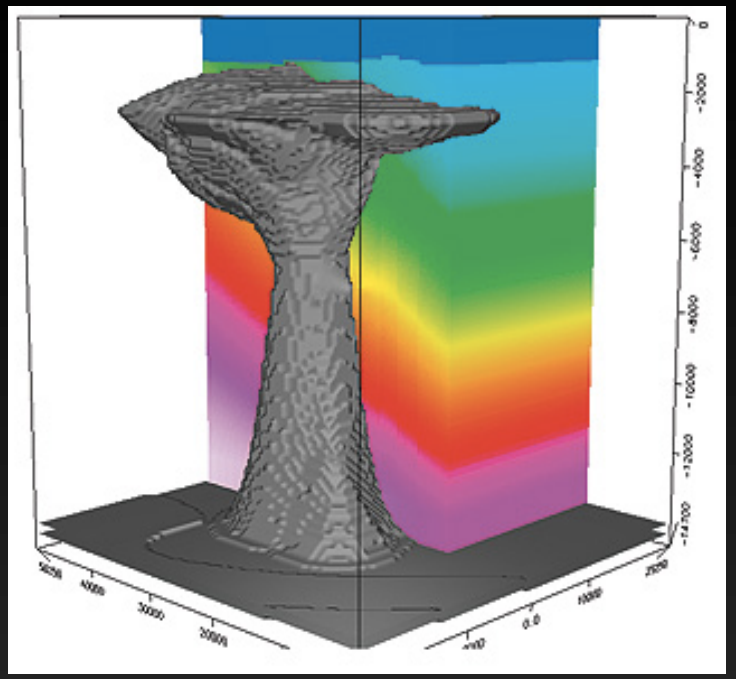


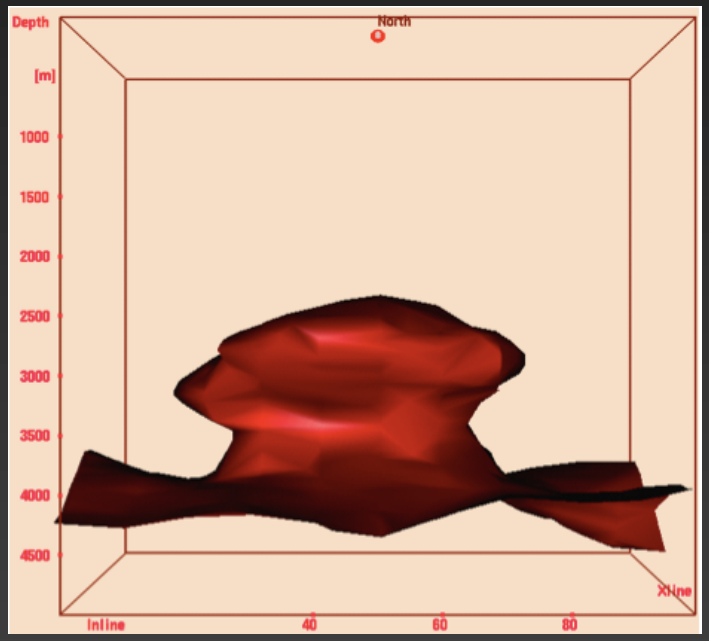
Parametrizando o modelo ...

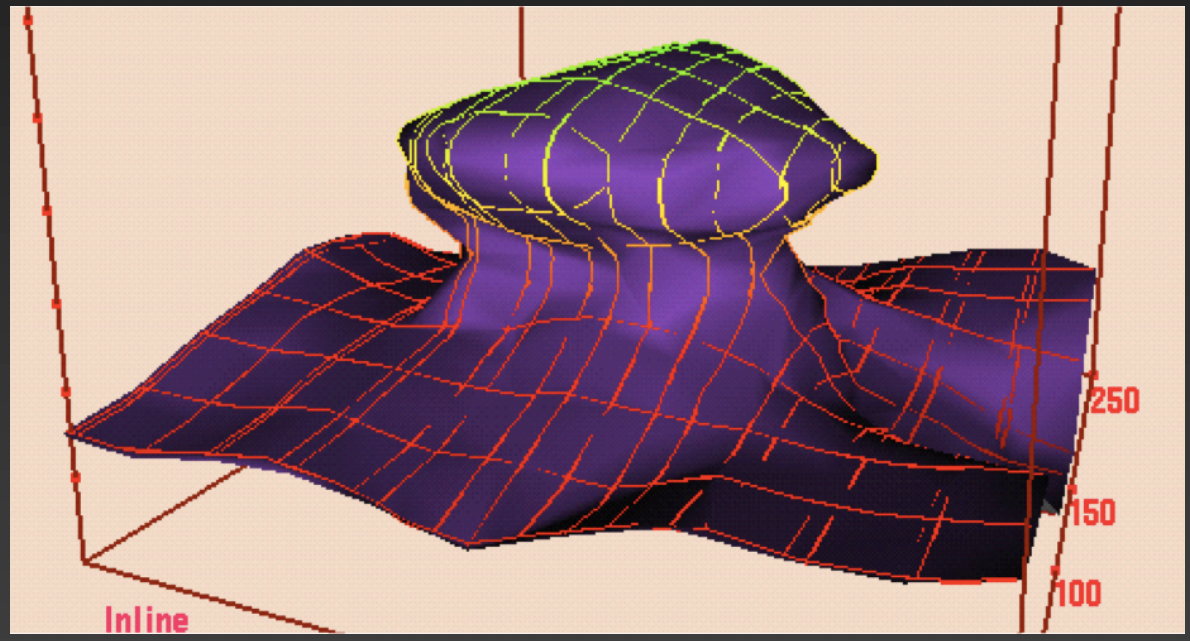


Representando geometrias complexas

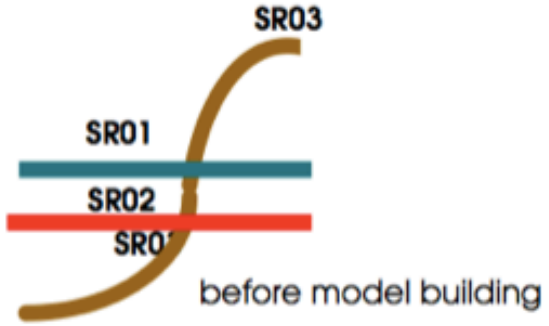






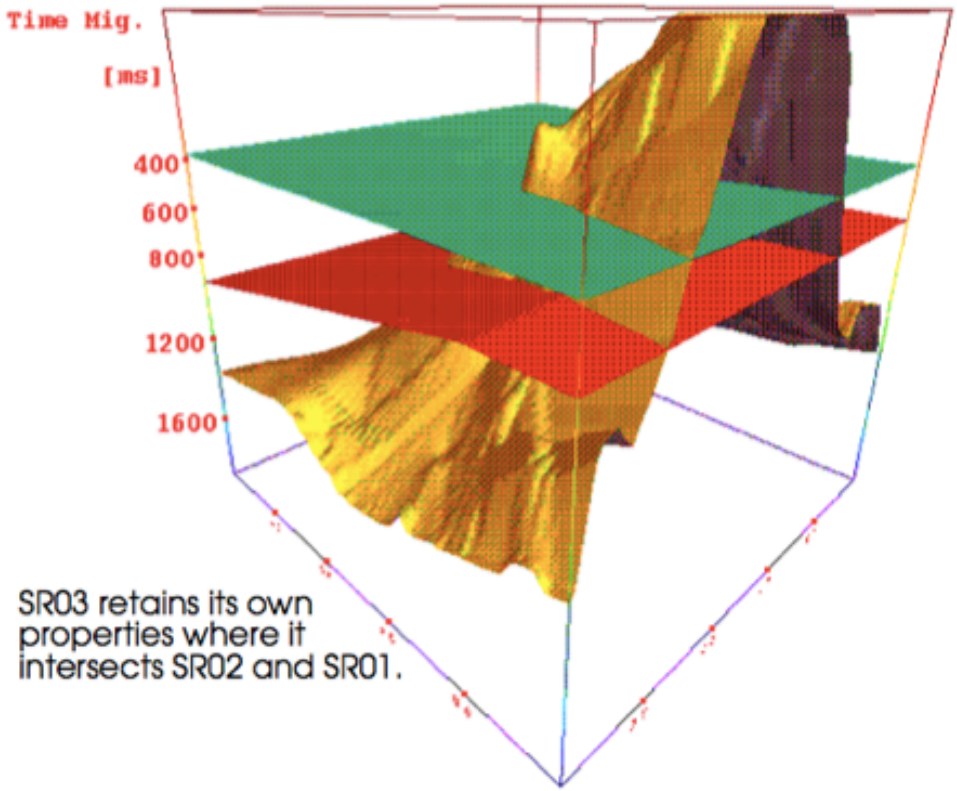


GeoDepth: Construindo o estrutural



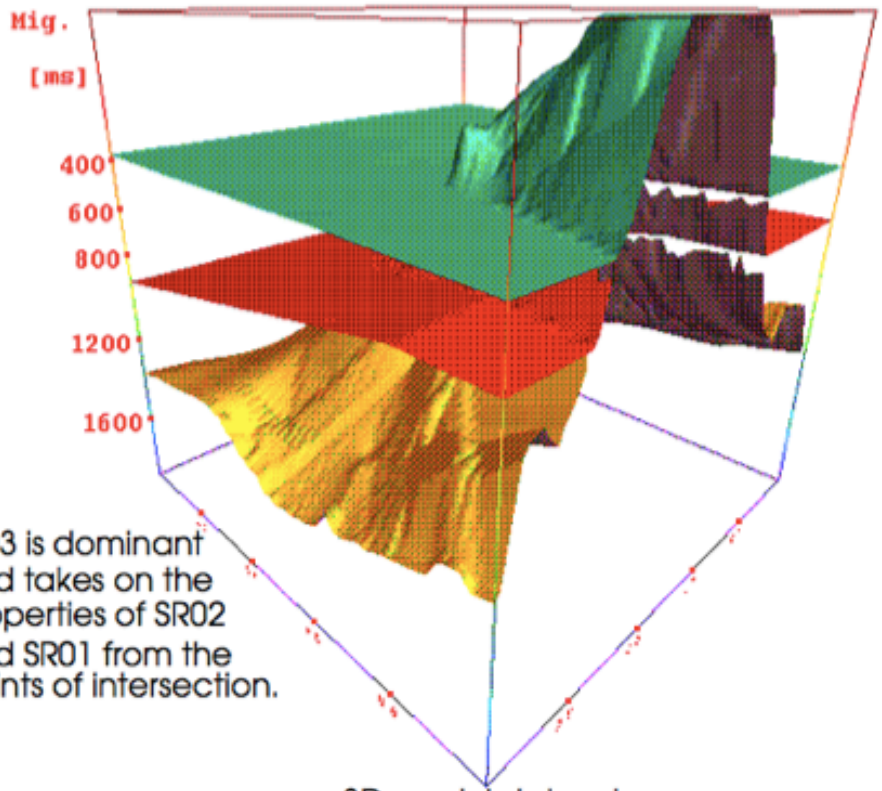
before model building

after model building



SR03 retains its own properties where it intersects SR02 and SR01.

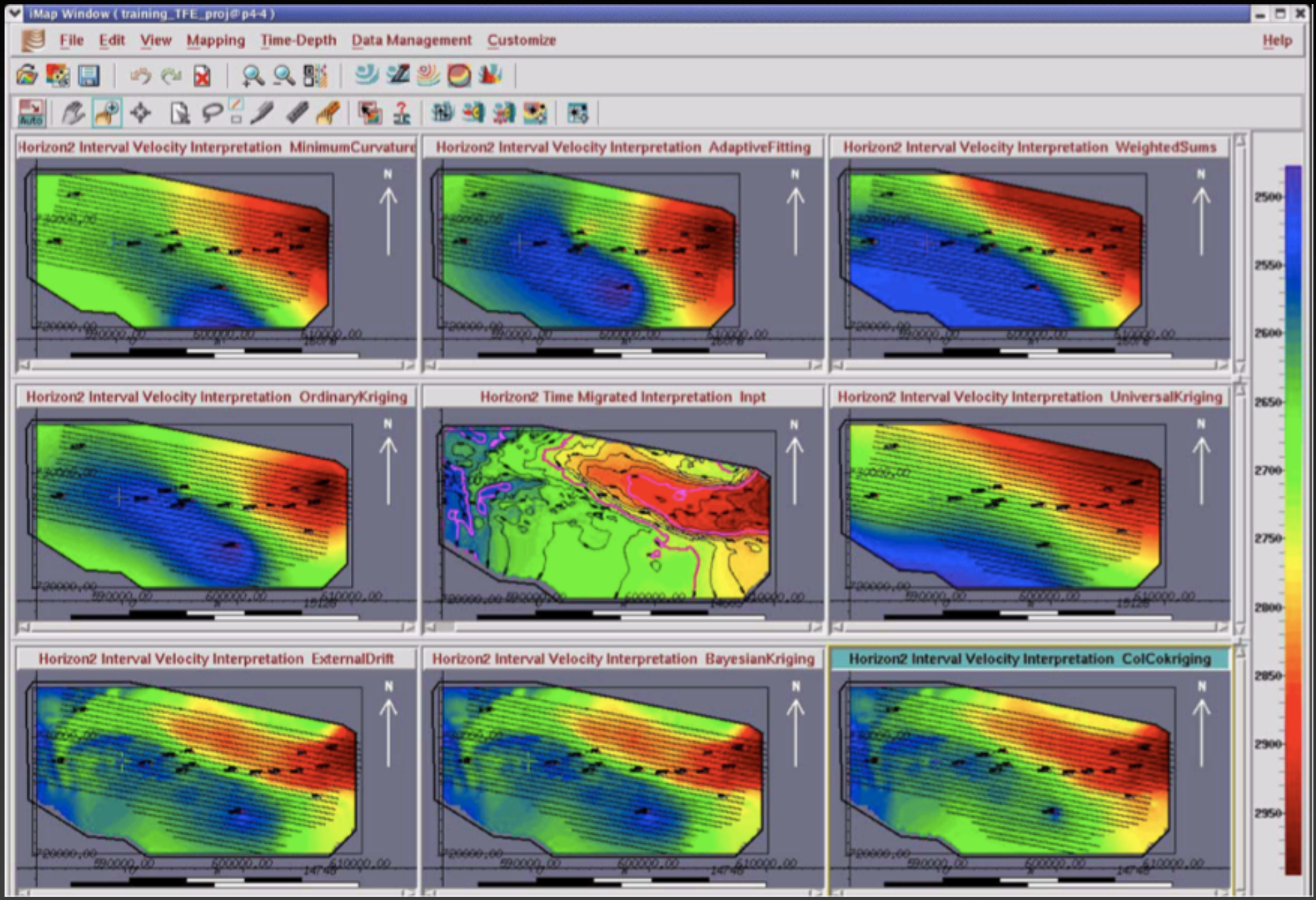
Interpretation dataset before model building



SR03 is dominant and takes on the properties of SR02 and SR01 from the points of intersection.

3D model dataset after model building

GeoDepth: Editando mapas



GeoDepth: Editando mapas

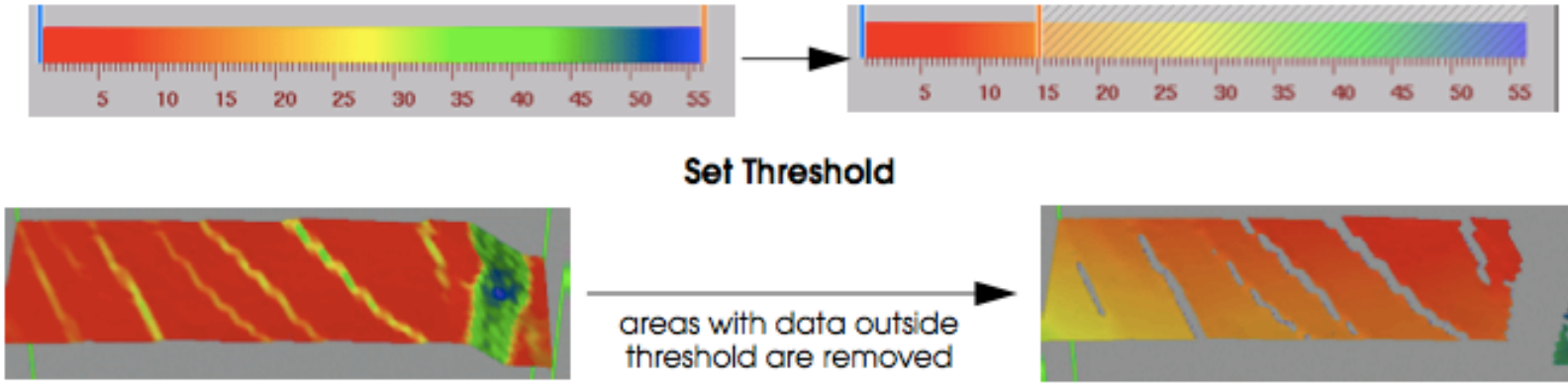


Fig. 45: Set the threshold

Fig. 46: Apply the threshold to the whole grid

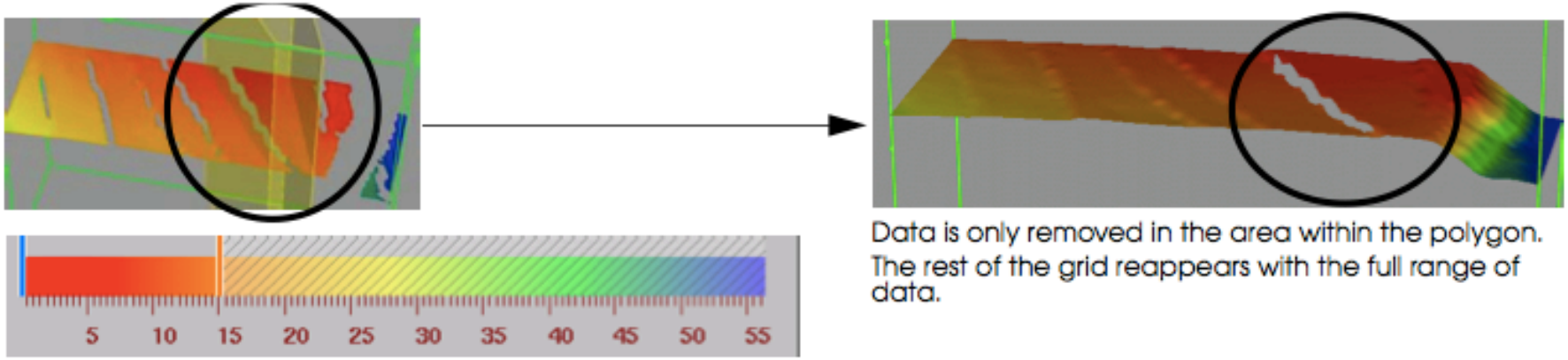
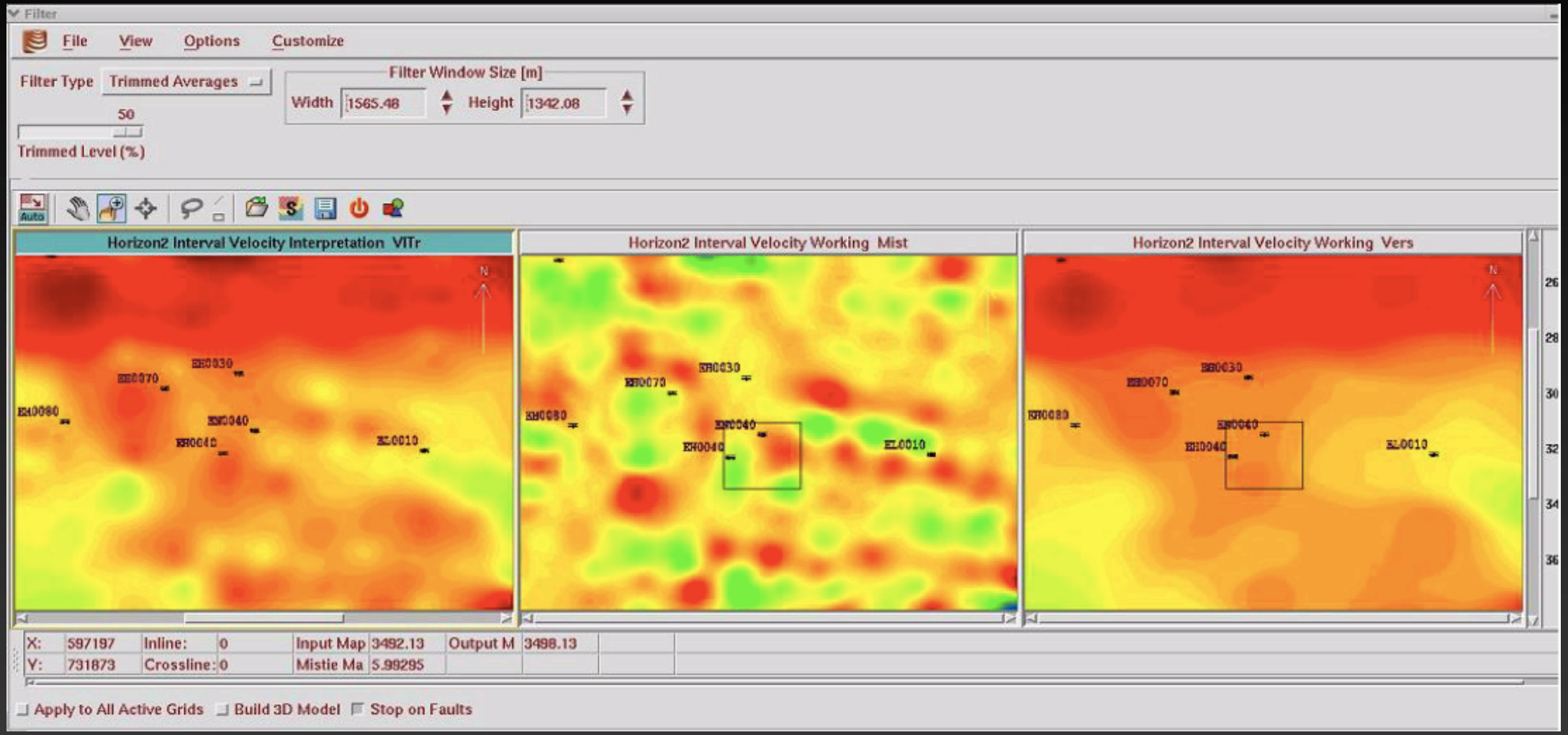
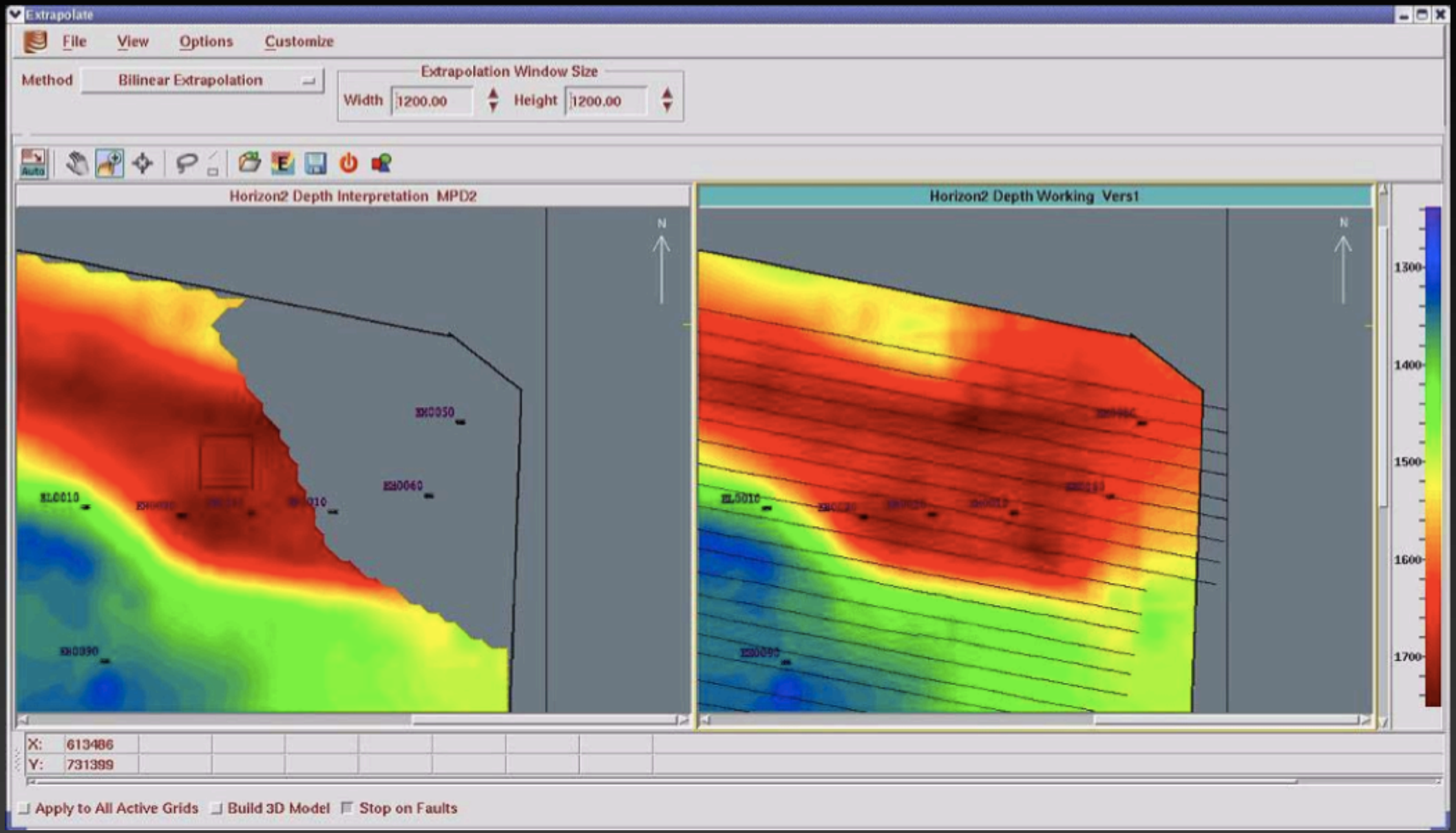


Fig. 47: Apply the threshold only inside the area

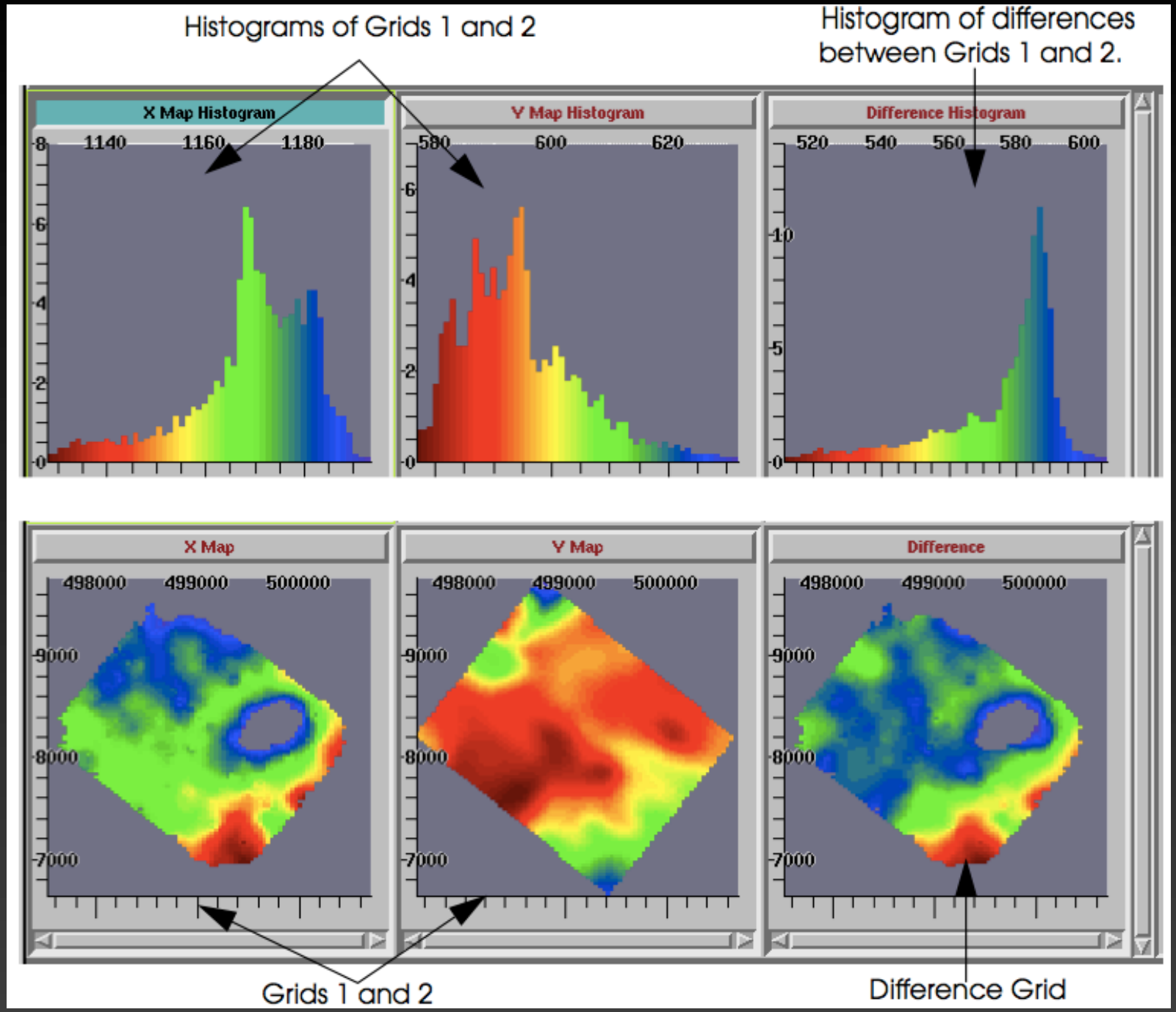
GeoDepth: Suavizando mapas



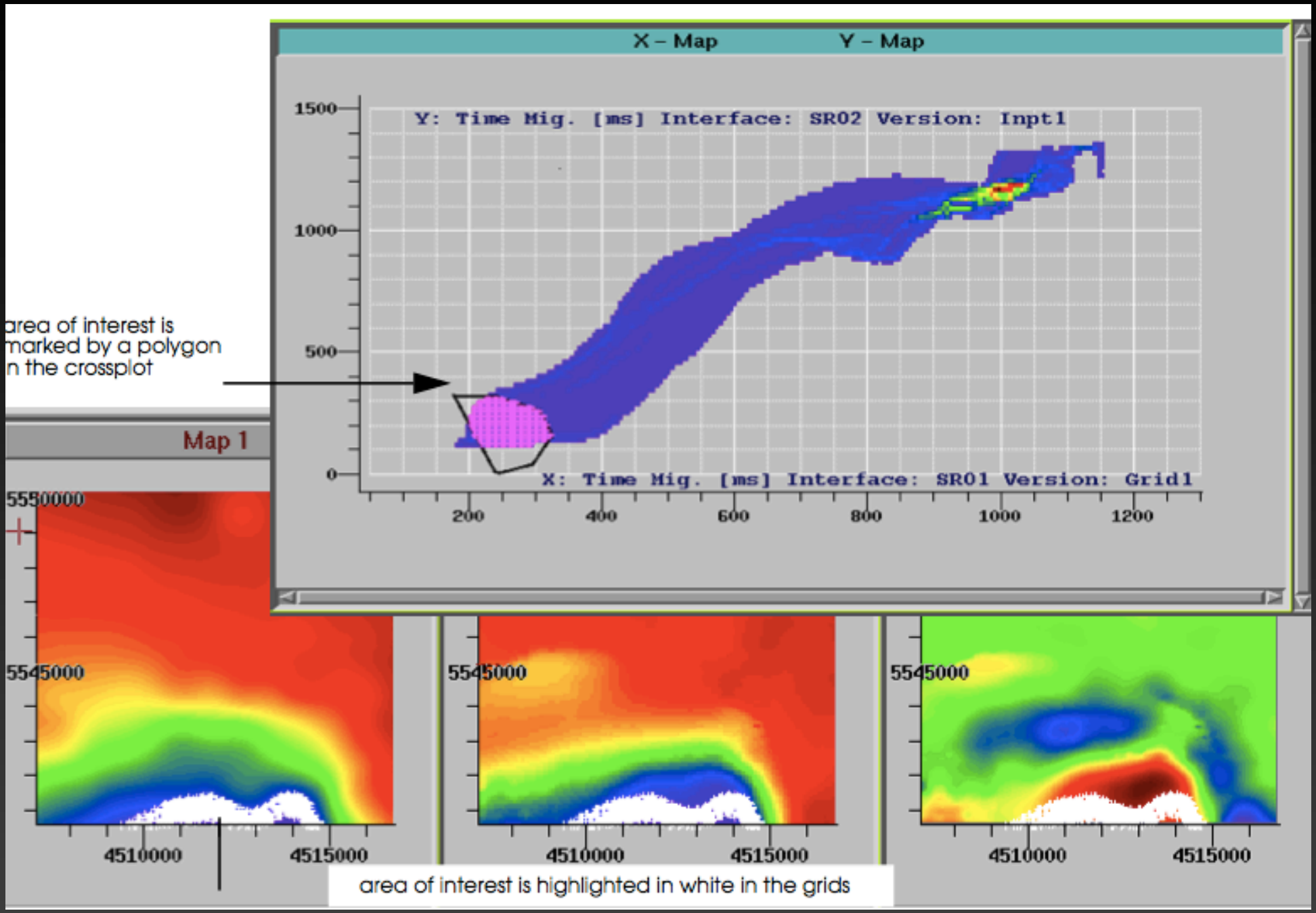
GeoDepth: Extrapolando mapas



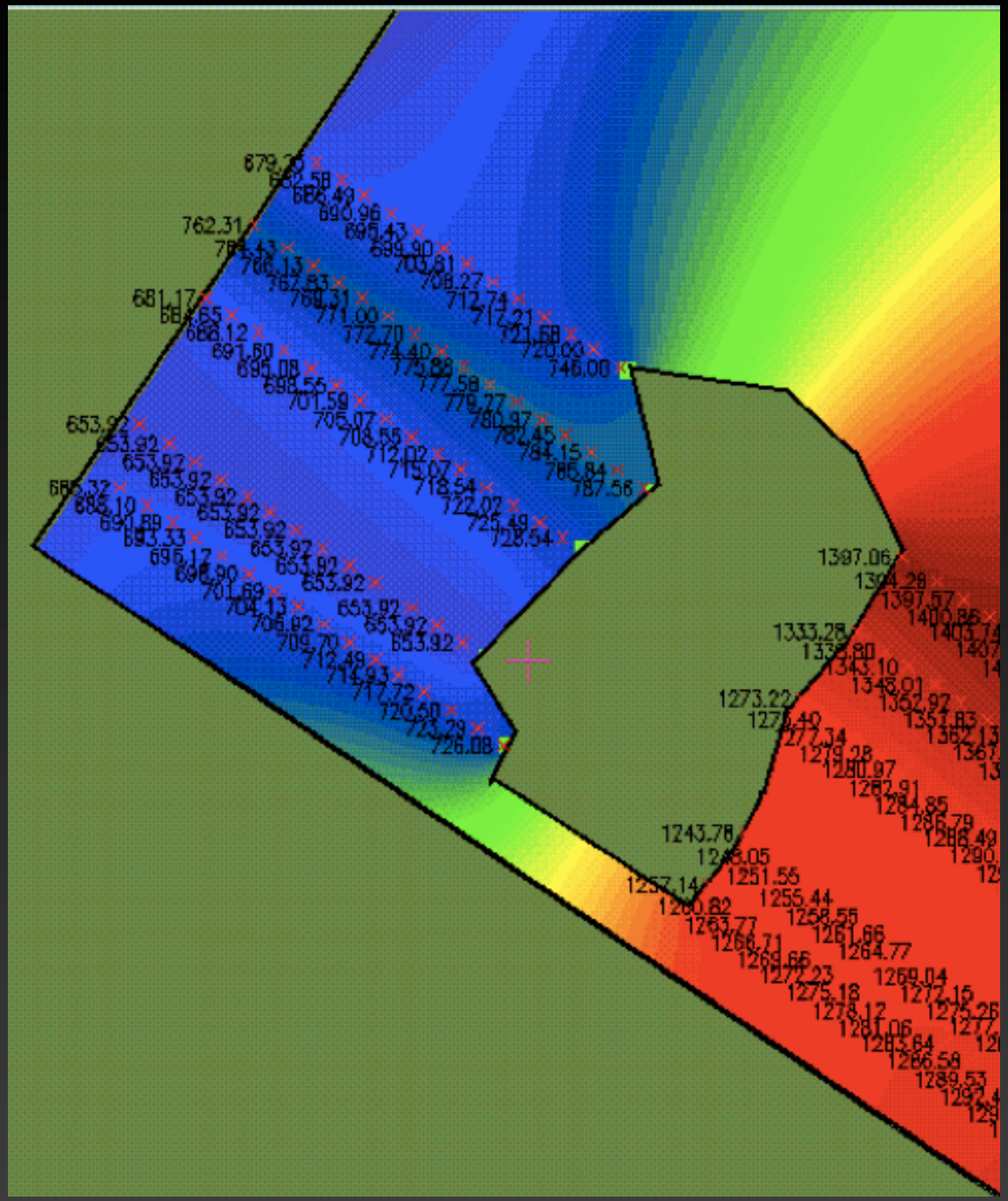
GeoDepth: Editando mapas com histograma



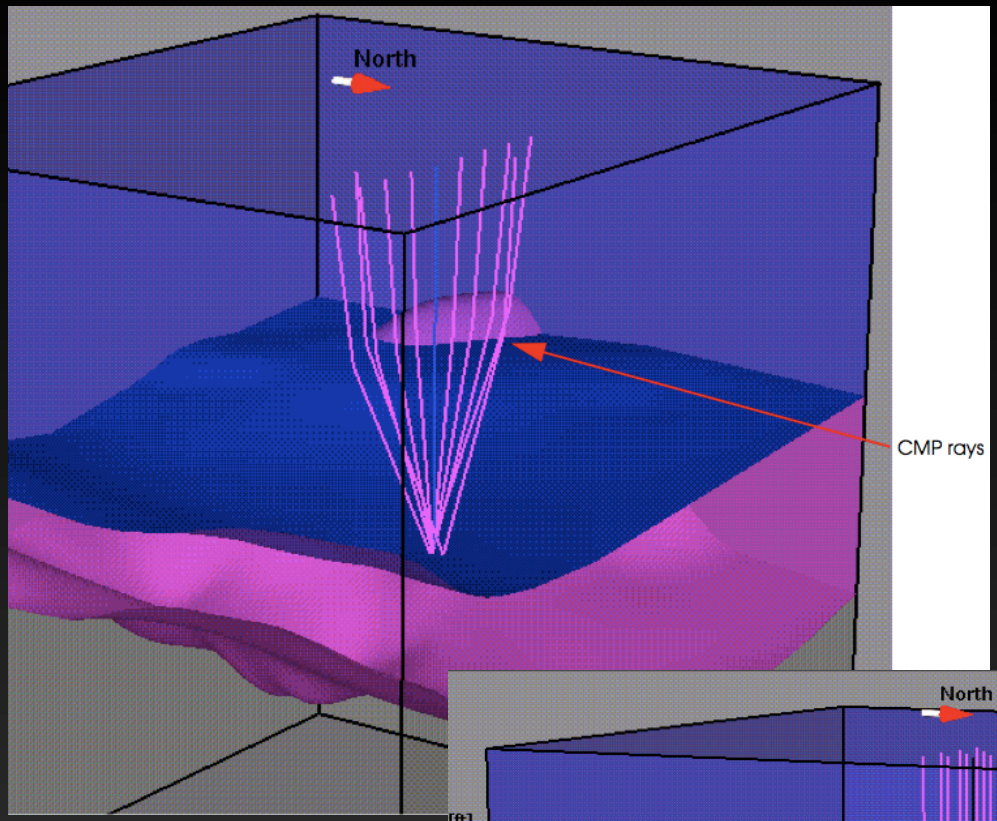
GeoDepth: Editando mapas com crossplot

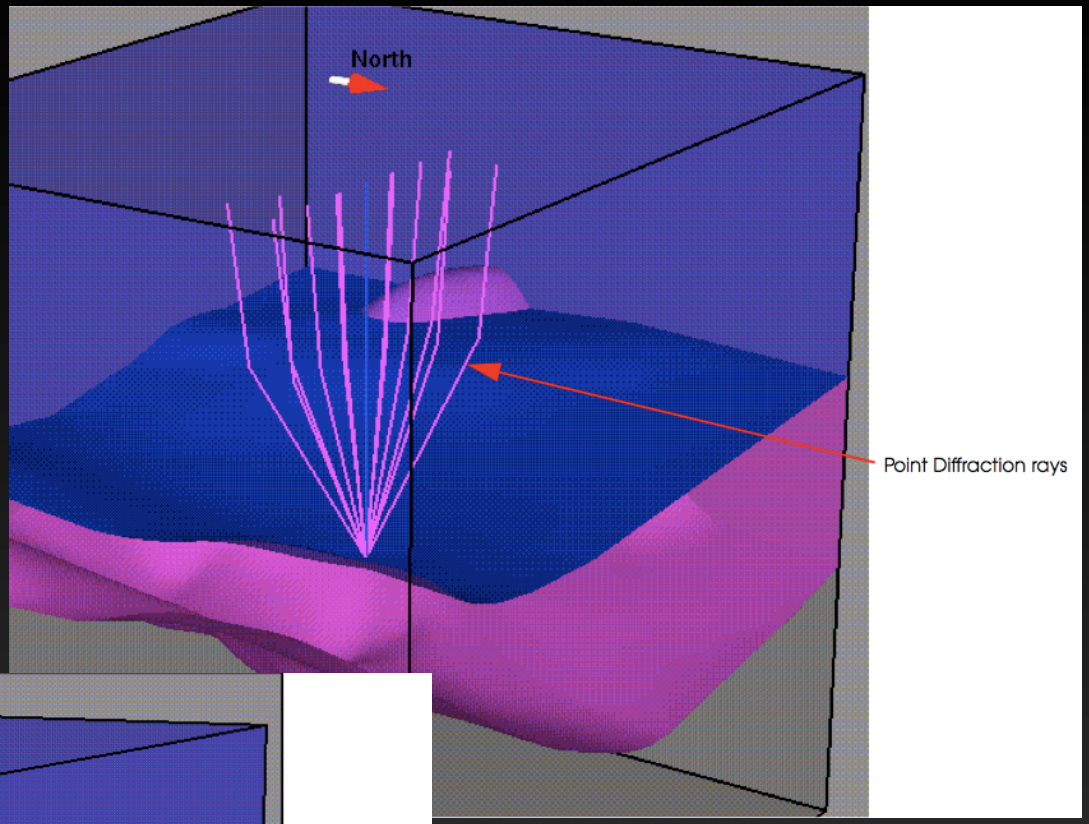


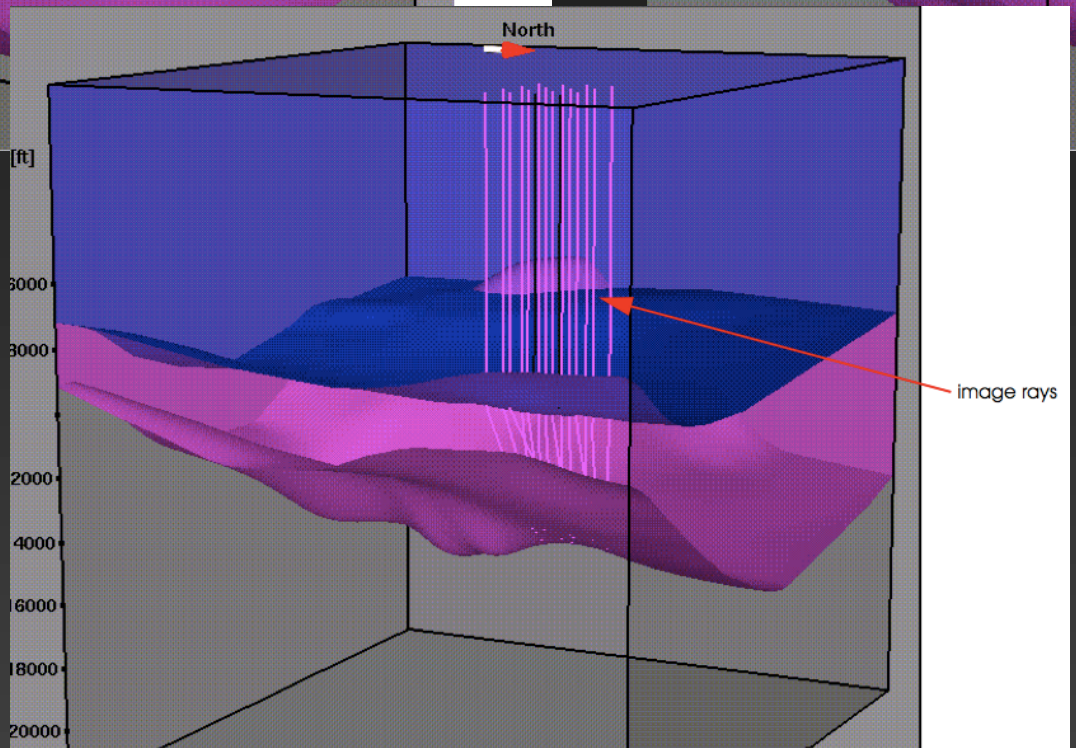
GeoDepth: Editando mapas com pts.controle



GeoDepth: Plotando raios







Considerações finais

- **Tecnologia estratégica**
  - **somente 2 publicações da indústria com exemplos 3D (TotalElf, 2009 e 2010)**
- **Eficiência e flexibilidade**
  - **vantagem competitiva**
- **Ferramentas gráficas**
  - **Interatividade e convergência**