

# URIEL HAZEL SEGURA GONZALEZ

REPORTE 2

Clases 16 y 23 de abril

# RESUMEN CLASE

## 16 DE ABRIL

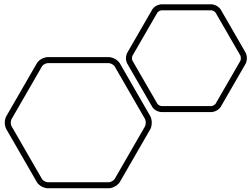
Con el fin de recordar las bases del SOFTWARE “Petrel 2009” tuvimos una breve introducción a sus ventanas, propiedades y funcionamiento.

Seguido de cargar datos sísmicos, fortaleciendo los conocimientos adquiridos y indagando las capacidades del software se comenzó la interpretación.

Concluyendo la clase con los conocimientos para interpretar y fortaleciéndolos con la tarea.

**CONOCIENDO EL ENTORNO**

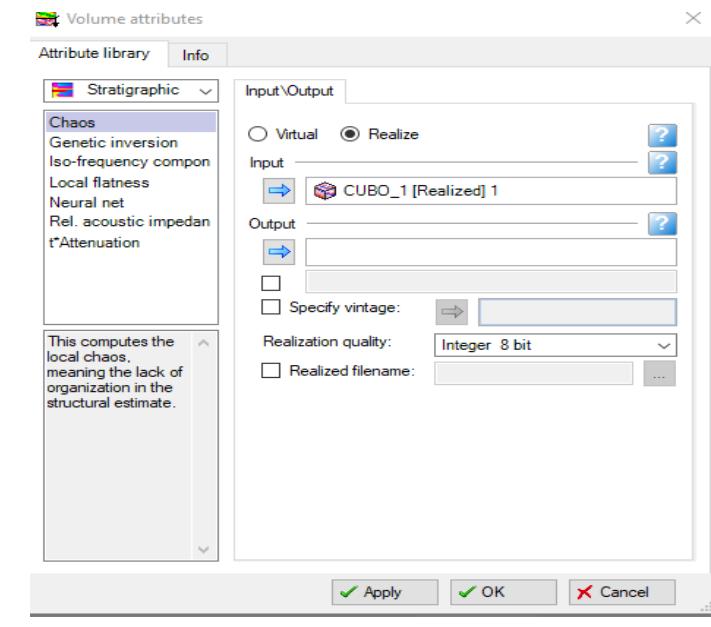
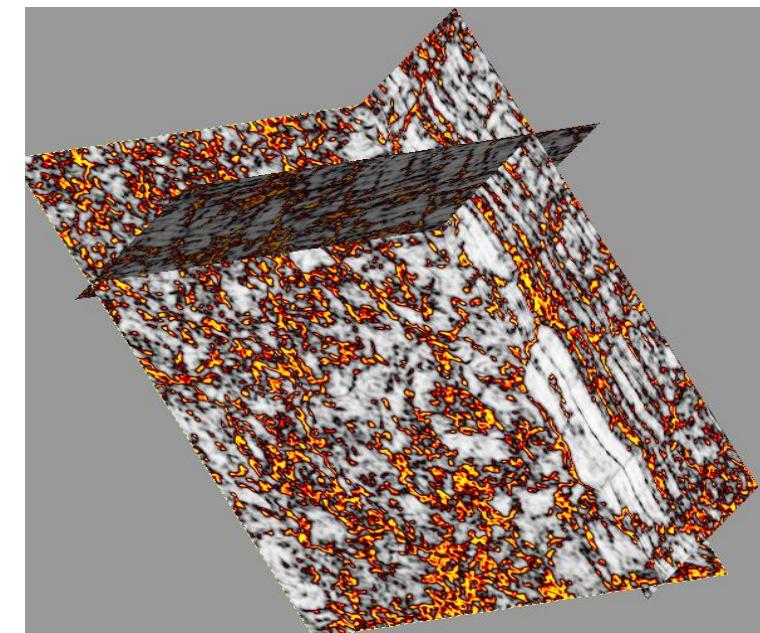
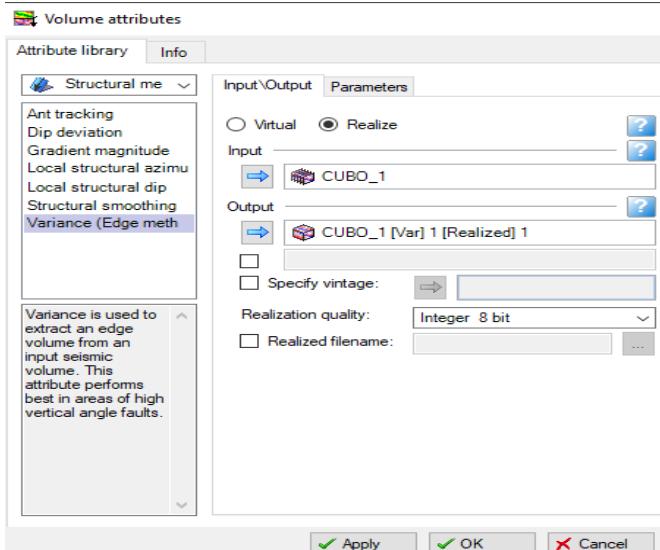
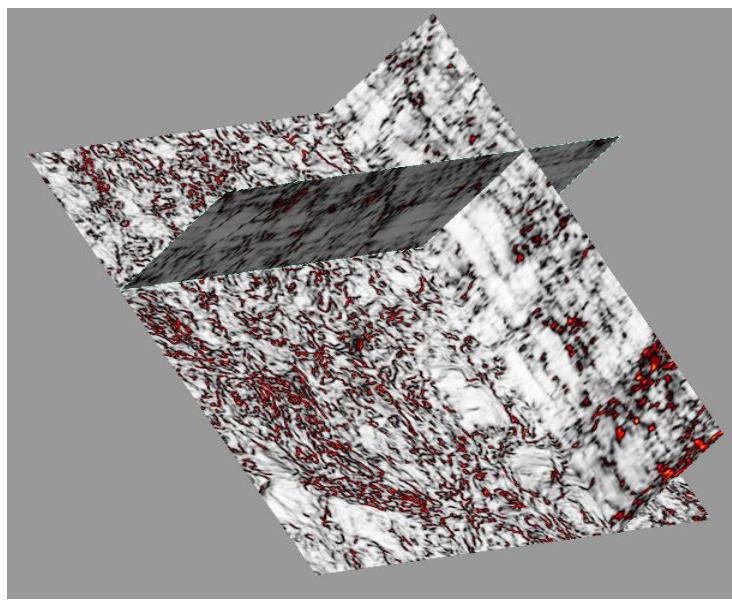
**Alterar diseño-conocer funciones básicas – cargar sísmica**

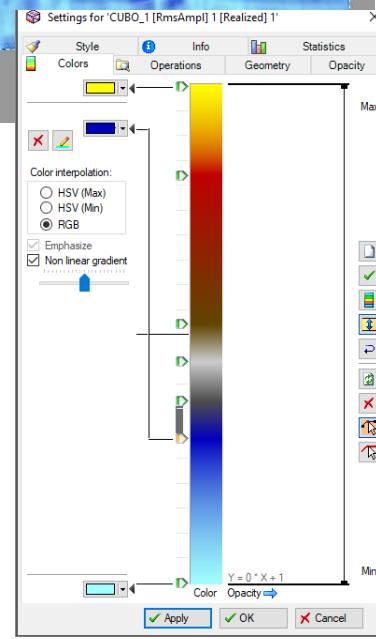
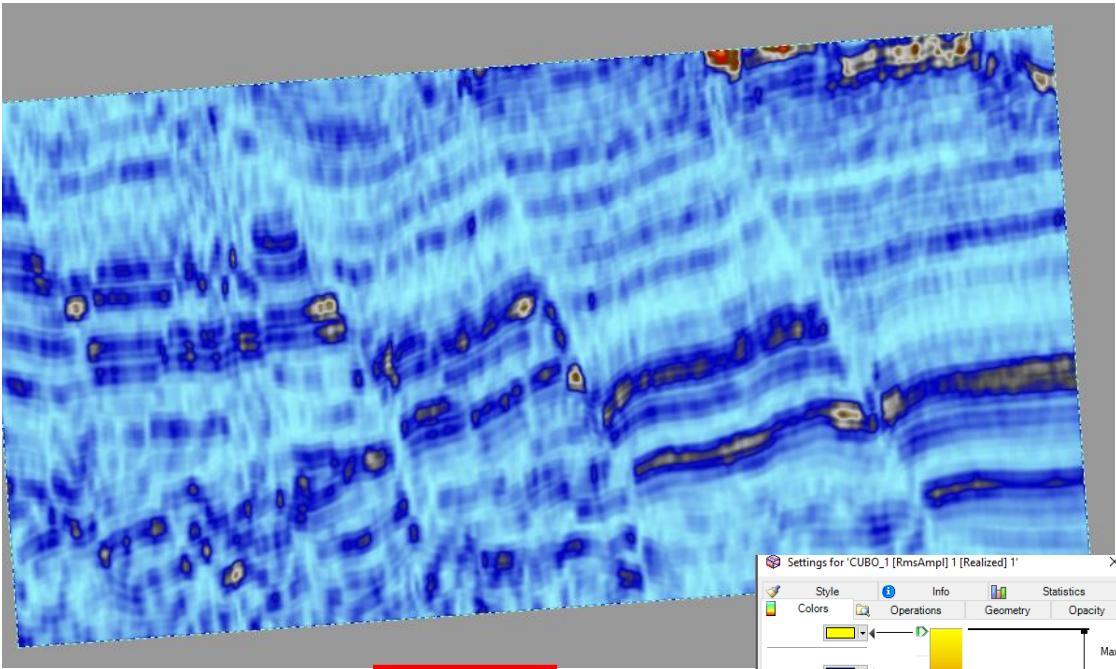


# APLICANDO ATRIBUTOROS

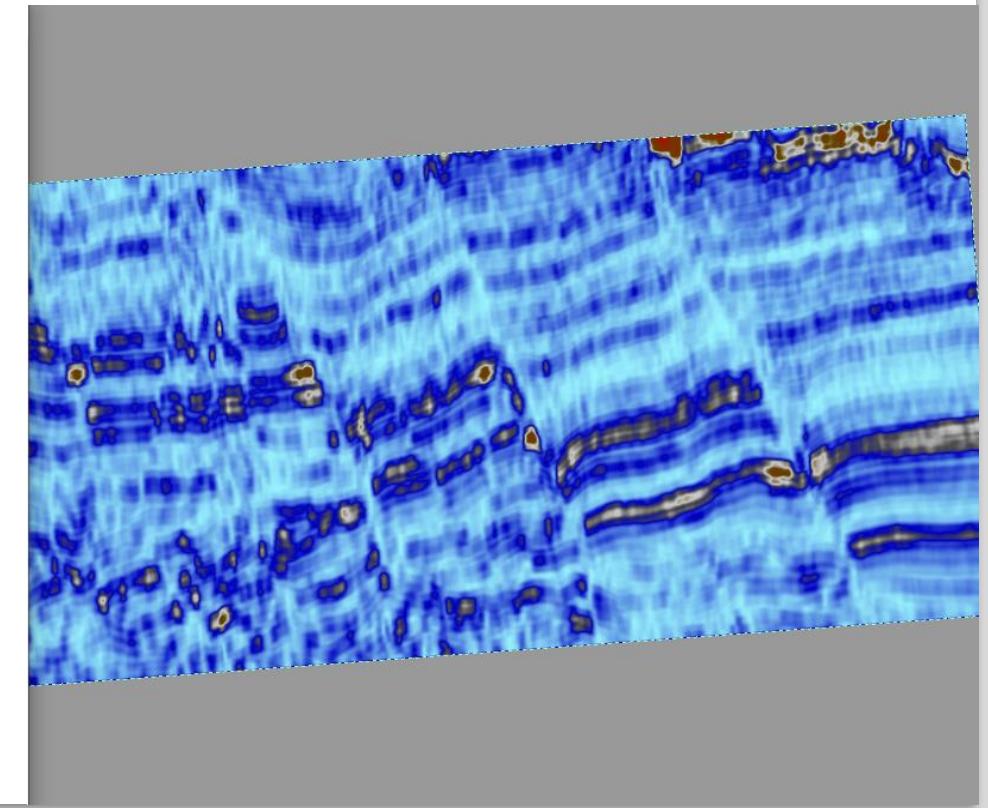
The screenshot shows a software interface with a vertical tree menu on the left. The menu categories include:

- Input
- Stratigraphic modeling
- Geophysics
  - Seismic interpretation
  - Volume attributes (highlighted with a red box)
  - Surface attributes
  - Make velocity model
  - General depth conversion
  - Automatic fault extraction
  - Geobody interpretation
- Structural modeling
- Property modeling
- Upscaling
- Fracture network modeling
- Well engineering
- Simulation
- Utilities
  - Make/edit polygons
  - Make/edit surface
  - Make simple grid
  - Train estimation model
  - Uncertainty and optimization
  - Volume calculation
- Plug-ins



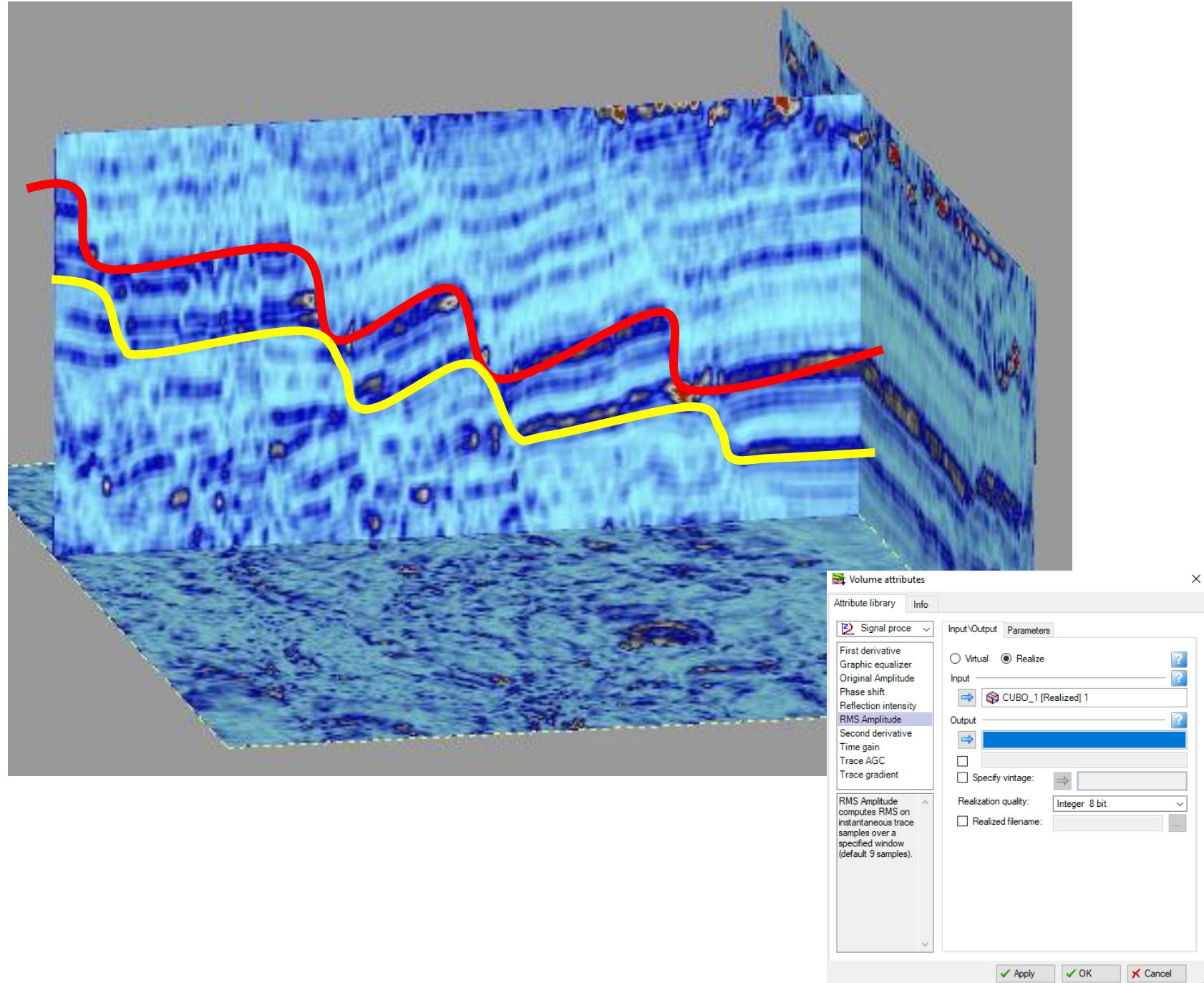


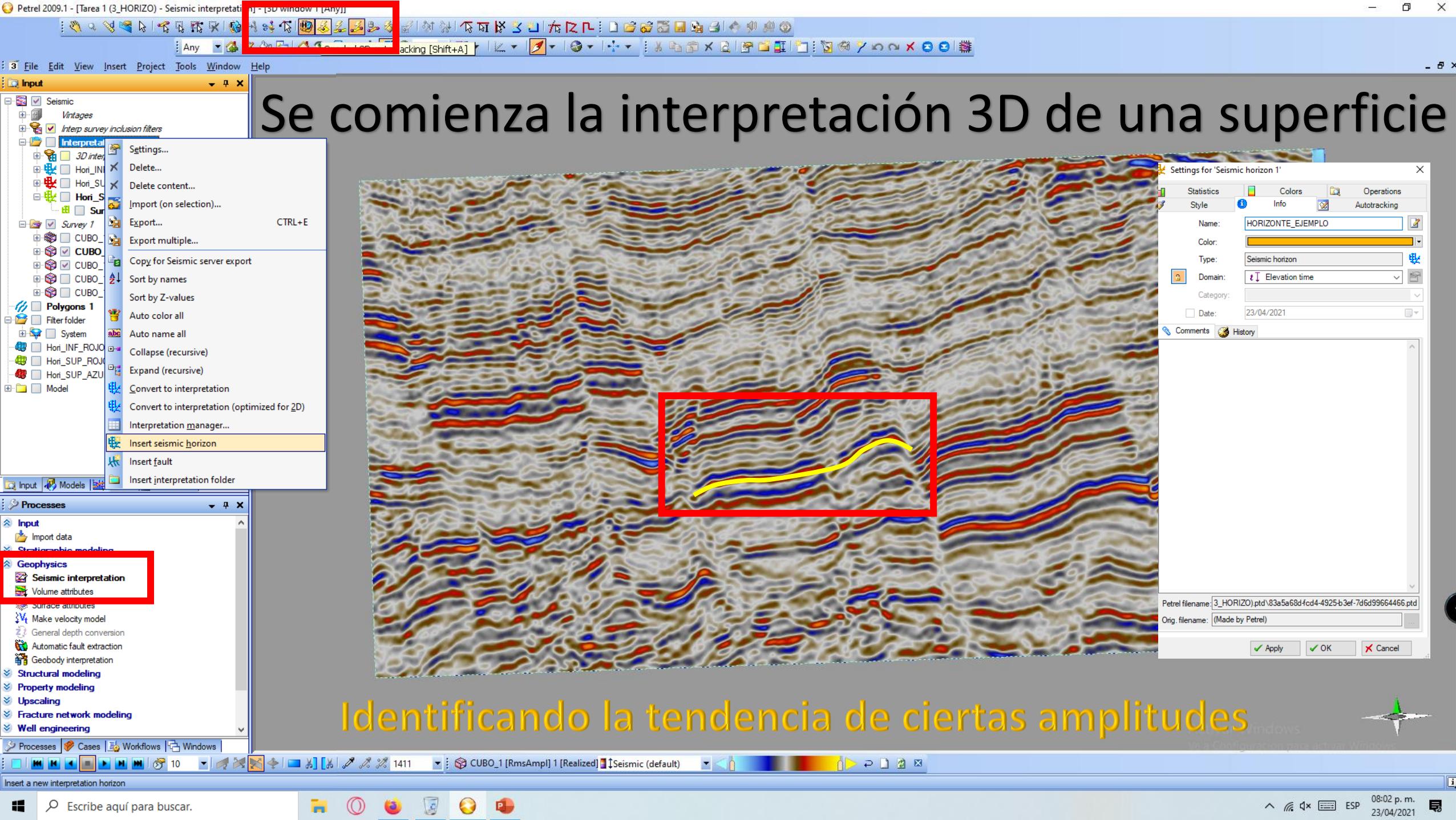
# Trabajo para mejorar visualización



# Con atributos empezar interpretación

- Gracias a los atributos se puede observar un fallamiento muy marcado, como escalonado.
- En conjuntos con los atributos se identificar posibles superficies a identificar







File Edit View Insert Project Tools Window Help

Input

- Seismic
  - Vintages
  - Interp survey inclusion filters
- Interpretation folder 1
  - 3D interp inclusion filters
  - Hori\_INF\_ROJO\_1
  - Hori\_SUP\_AZUL\_3
  - Hori\_SUP\_ROJO\_2
  - HORIZONTE\_EJEMPLO**
- Survey 1
  - CUBO\_1
    - Inline 946
    - XLine 1294
    - CUBO\_1 [Realized] 1
    - CUBO\_1 [RmsAmp] 1 [Realized] 1
    - CUBO\_1 [Var] 1 [Realized] 1
    - CUBO\_1 [Chaos] 1 [Realized] 1
  - Polygons 1
  - Filter folder
  - System
  - Hori\_INF\_ROJO\_1
  - Hori\_SUP\_ROJO\_2
  - Hori\_SUP\_AZUL\_3
  - Model

Input Models Results Templates

Processes

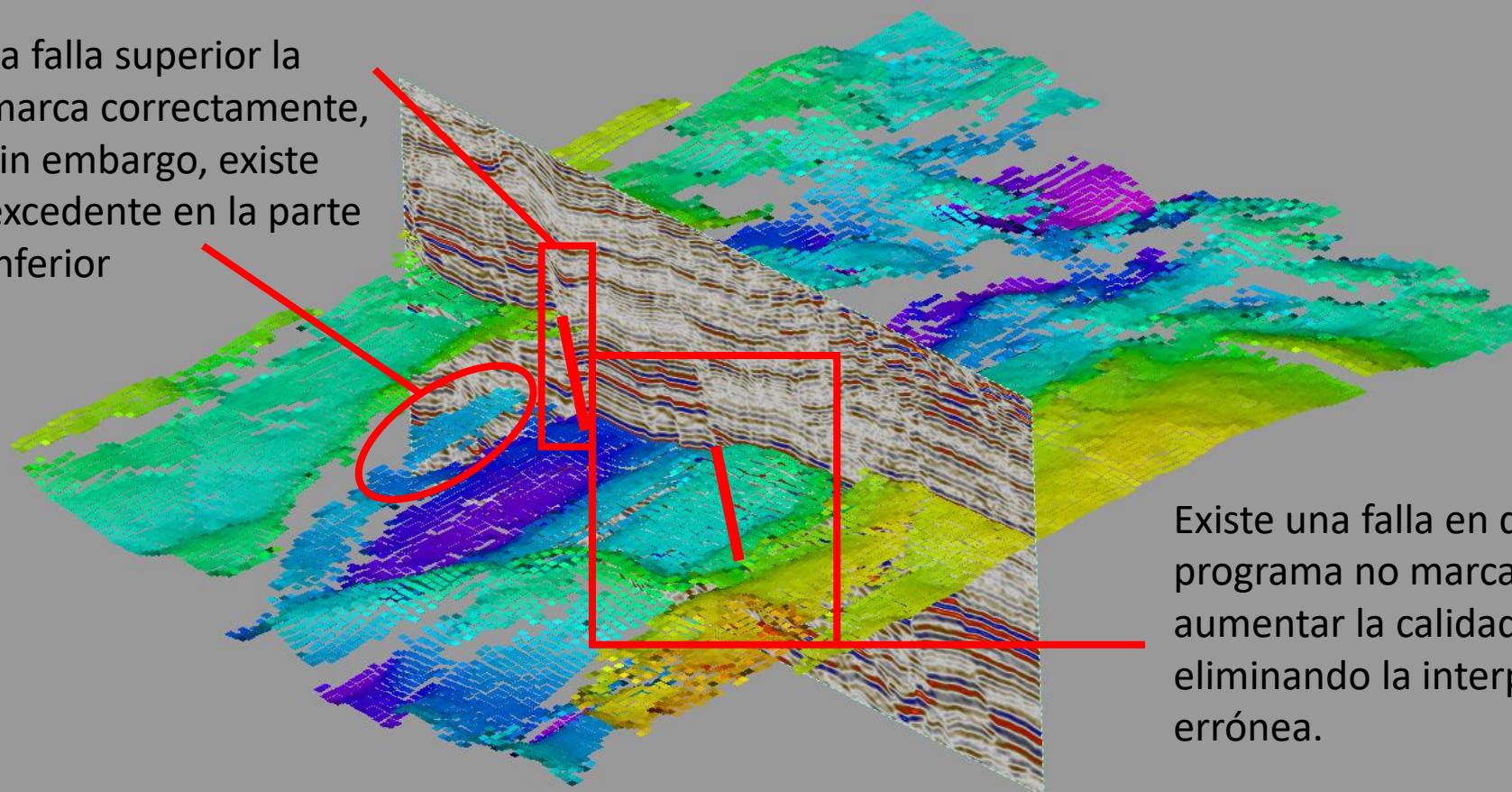
- Input
  - Import data
- Stratigraphic modeling
- Geophysics
  - Seismic interpretation
    - Volume attributes
    - Surface attributes
    - Make velocity model
    - General depth conversion
    - Automatic fault extraction
    - Geobody interpretation
- Structural modeling
- Property modeling
- Upscaling
- Fracture network modeling
- Well engineering

Processes Cases Workflows Windows

10 1294

# Resultado es cual debe mejorarse.

La falla superior la marca correctamente, sin embargo, existe excedente en la parte inferior



Existe una falla en dicha zona la cual programa no marca, se debe de aumentar la calidad manualmente, eliminando la interpretación errónea.



Activar Windows  
Visita Configuración para activar Windows



File Edit View Insert Project Tools Window Help

Input

- Seismic
  - Vintages
  - Interp survey inclusion filters
- Interpretation folder 1
  - 3D interp inclusion filters
    - Hori\_INF\_ROJO\_1
    - Hori\_SUP\_AZUL\_3
    - Hori\_SUP\_ROJO\_2
  - HORIZONTE\_EJEMPLO
- Survey 1
  - CUBO\_1
    - Inline 946
    - XLine 1294
    - CUBO\_1 [Realized] 1
    - CUBO\_1 [RmsAmp] 1 [Realized] 1
    - CUBO\_1 [Var] 1 [Realized] 1
    - CUBO\_1 [Chaos] 1 [Realized] 1
- Polygons 1
- Filter folder
- System
  - Hori\_INF\_ROJO\_1
  - Hori\_SUP\_ROJO\_2
  - Hori\_SUP\_AZUL\_3
- Model

Input Models Results Templates

Processes

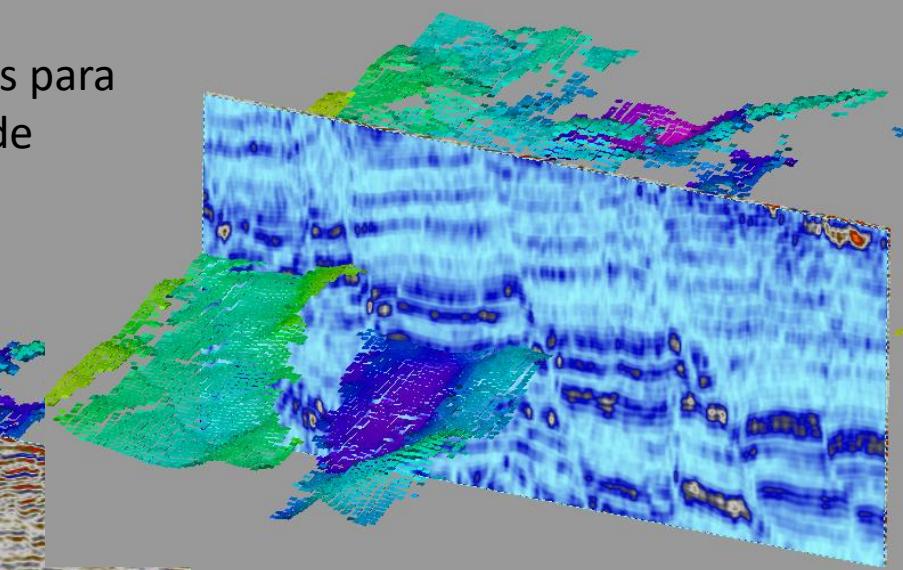
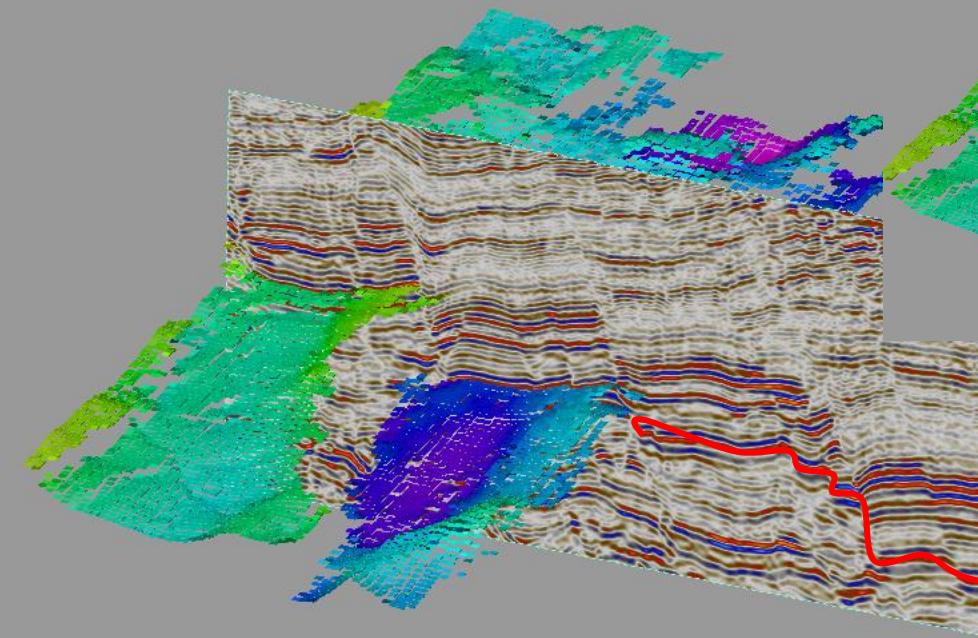
- Input
  - Import data
- Stratigraphic modeling
- Geophysics
  - Seismic interpretation
    - Volume attributes
    - Surface attributes
    - Make velocity model
    - General depth conversion
    - Automatic fault extraction
    - Geobody interpretation
- Structural modeling
- Property modeling
- Upscaling
- Fracture network modeling
- Well engineering

Processes Cases Workflows Windows

10 1294

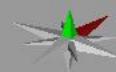
# Se eliminan interpretaciones erróneas

Apoyo visual de atributos para correcta interpretación de superficie



Identificando la tendencia del fallamiento se prosigue manteniendo un control de calidad en cada paso, eliminando lo erróneo y manteniendo el horizonte deseado

Activar Windows  
Visita Configuración para activar Windows





File Edit View Insert Project Tools Window Help

Input

- Seismic
  - Vintages
  - Interp survey inclusion filters
- Interpretation folder 1
  - 3D interp inclusion filters
  - Hori\_INF\_ROJO\_1
    - Survey 1
      - Hori\_SUP\_AZUL\_3
      - Hori\_SUP\_ROJO\_2
    - HORizonte\_EJEMPLO
- Survey 1
  - CUBO\_1
    - Inline 946
    - XLine 1293
    - CUBO\_1 [Realized] 1
    - CUBO\_1 [RmsAmpl] 1 [Realized] 1
    - Inline 1146
    - XLine 1286
    - Z=1830
    - CUBO\_1 [Var] 1 [Realized] 1
    - CUBO\_1 [Chaos] 1 [Realized] 1
- Polygons 1
- Filter folder
- System
- Hori\_INF\_ROJO\_1
- Hori\_SUP\_ROJO\_2
- Hori\_SUP\_AZUL\_3
- Model

Input Models Results Templates

Processes

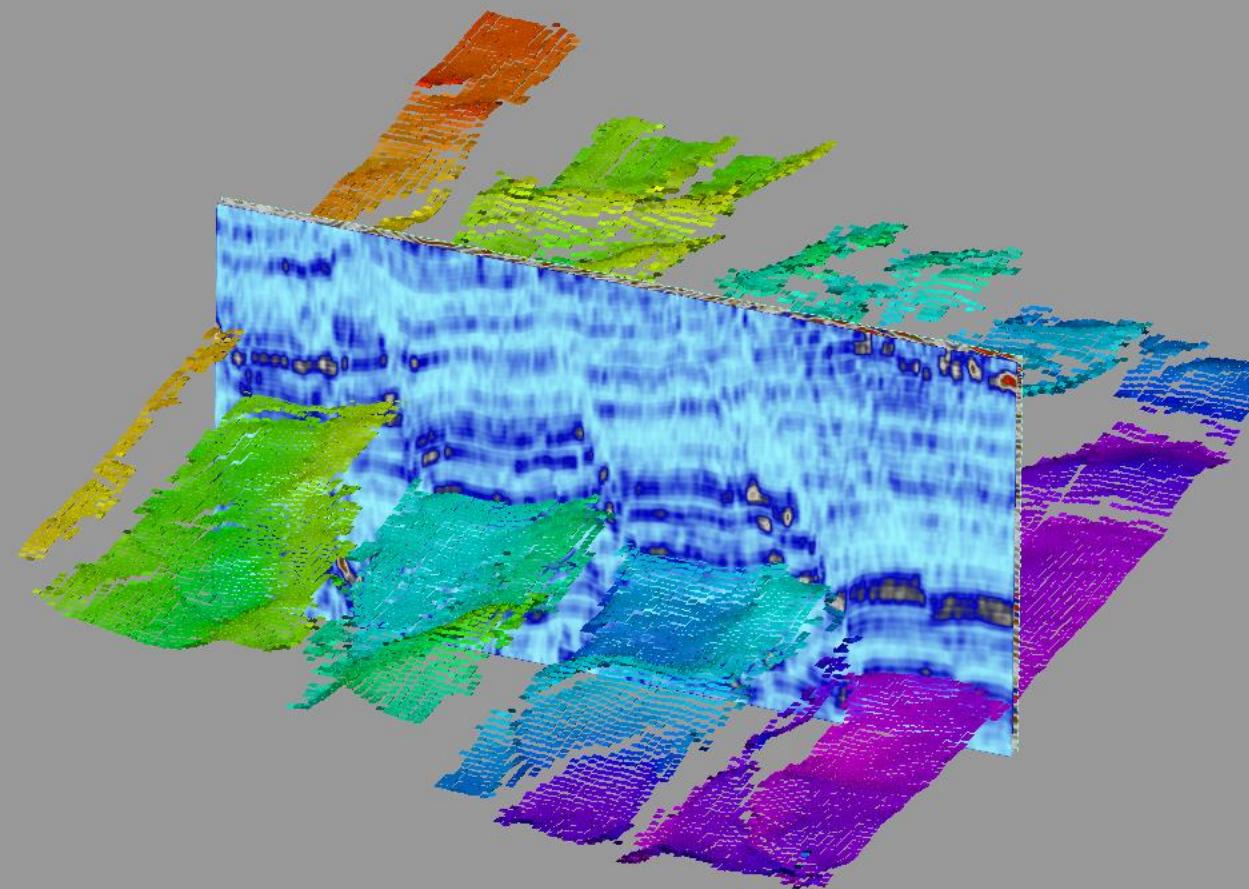
- Input
- Stratigraphic modeling
- Geophysics
  - Seismic interpretation
    - Volume attributes
    - Surface attributes
    - Make velocity model
    - General depth conversion
    - Automatic fault extraction
    - Geobody interpretation
- Structural modeling
- Property modeling
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- Fracture network modeling
- Well engineering

Processes Cases Workflows Windows

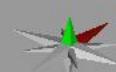
CUBO\_1 [RmsAmpl] 1 [Realized] Seismic (default)

Performed undo

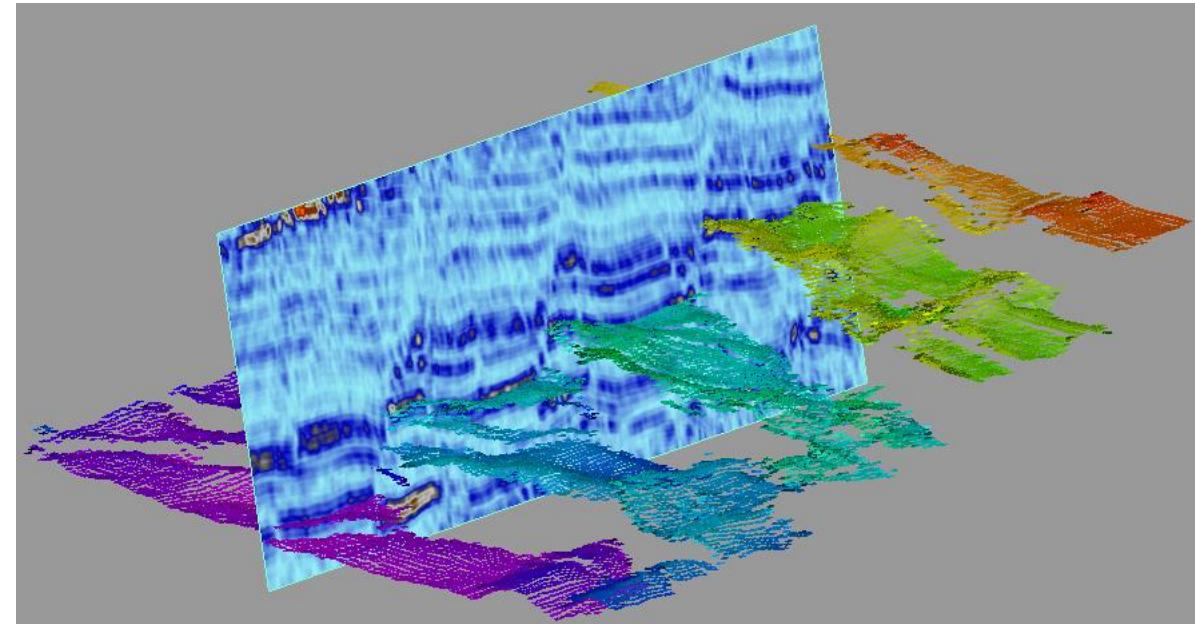
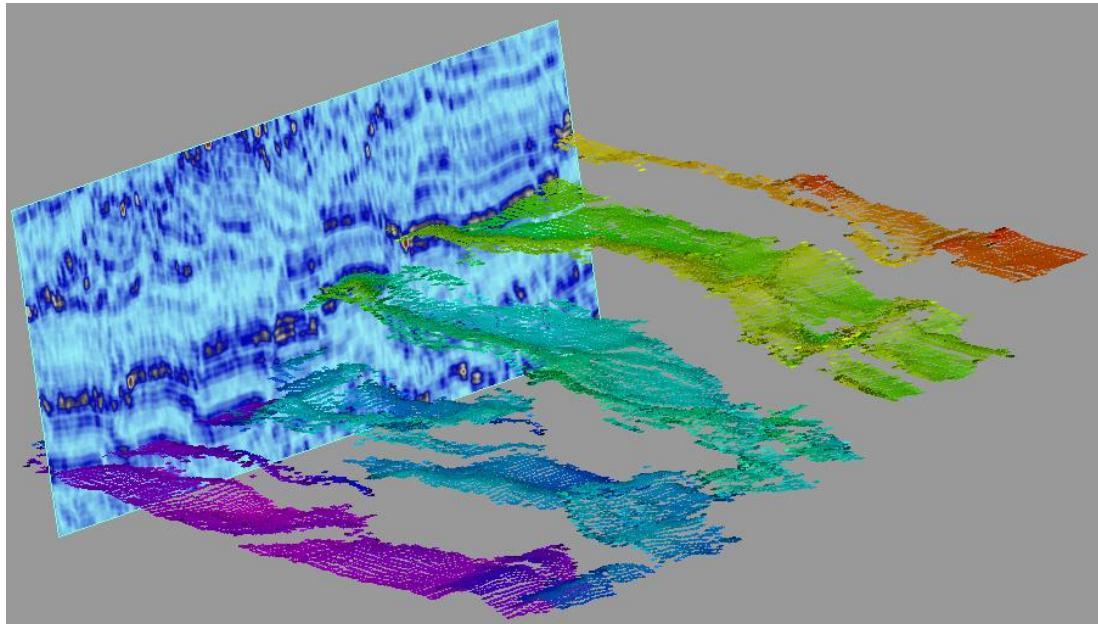
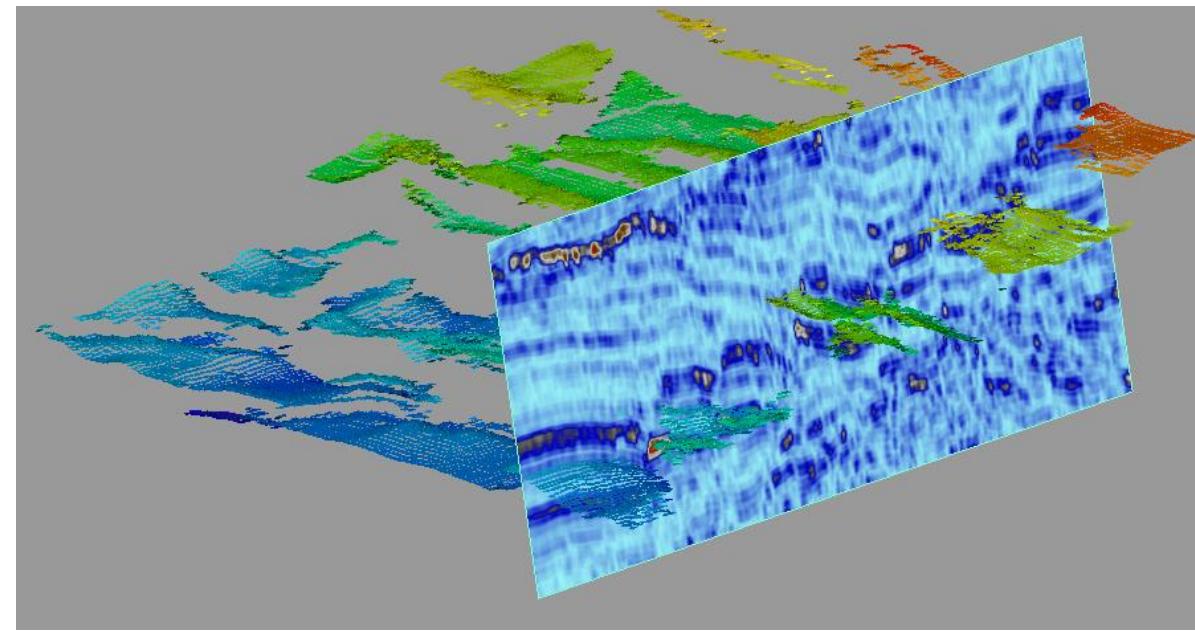
# Repetir proceso hasta obtener resultado deseado



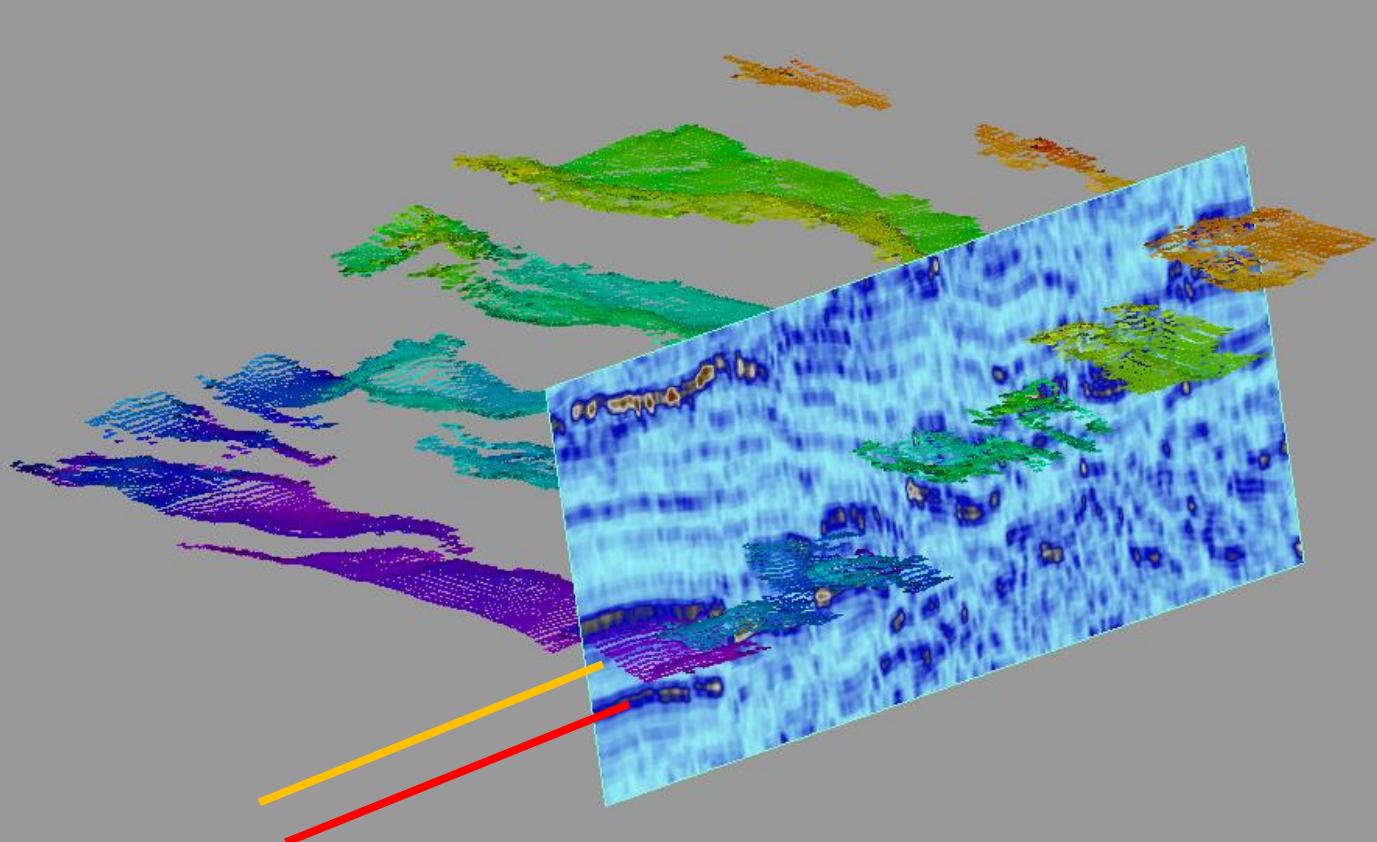
Activar Windows  
Visita Configuración para activar Windows



Se recomienda el análisis en distintos puntos dado que aumenta el error a medida que te alejas del punto donde interpretaste

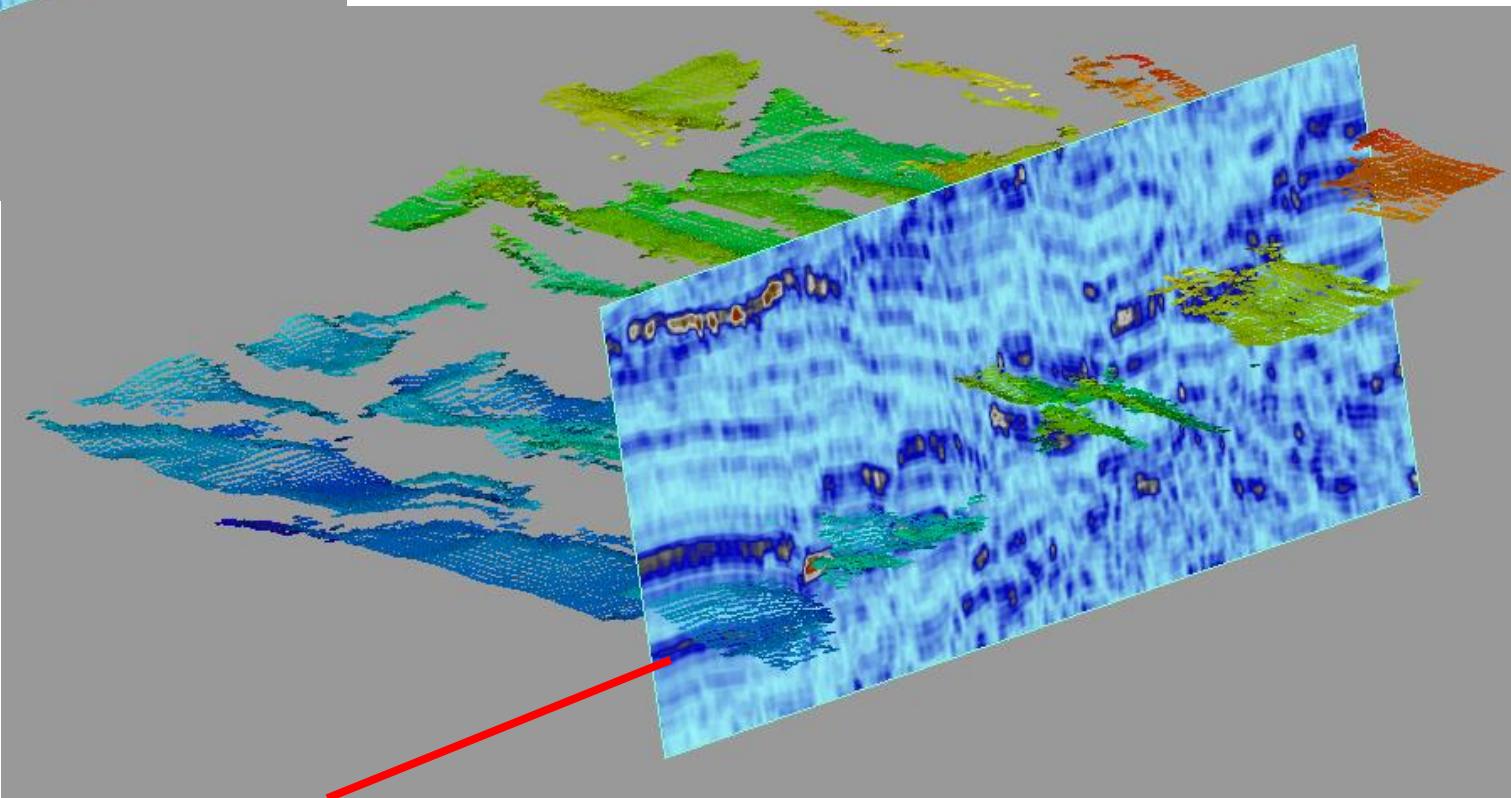


Repetir para  
demás  
superficies



— Superficie 2

— Superficie 1





File Edit View Insert Project Tools Window Help

### Input

- Seismic
  - Vintages
  - Interp survey inclusion filters
- Interpretation folder 1
  - 3D interp inclusion filters
  - Hon\_INF\_ROJO\_1
    - Survey 1
    - Hon\_SUP\_AZUL\_3
    - Hon\_SUP\_ROJO\_2
  - HORIZONTE\_EJEMPLO
- Survey 1
- Polygons 1
- Filter folder
  - System
  - Hon\_INF\_ROJO\_1
  - Hon\_SUP\_ROJO\_2
  - Hon\_SUP\_AZUL\_3
- Model

Input Models Results Templates

### Processes

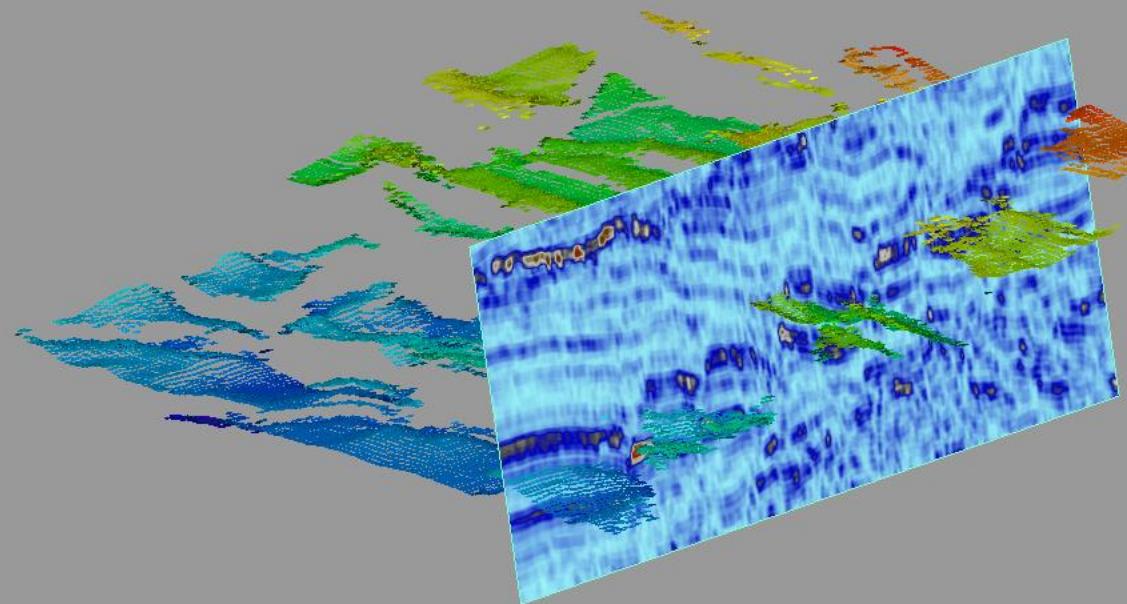
- Input
  - Import data
- Stratigraphic modeling
- Geophysics
- Structural modeling
- Property modeling
- Upscaling
- Fracture network modeling
- Well engineering
- Simulation
- Utilities
  - Make/edit polygons
  - Make/edit surface
- Train estimation model
- Uncertainty and optimization

Processes Cases Workflows Windows

CUBO\_1 [RmsAmp] 1 [Realized] Seismic (default)

Start a new polygon in the active set of polygons

# Realizar Polígono y realizar superficie



Start new polygon on active set of polygons [N]

**Make/edit surface**

Run

Input data: Result surface:

Main input:  Hori\_SUP\_RO  Hori\_SUP\_ROJO\_2

Boundary:  Polygons 1  Name: Hori\_SUP\_ROJO\_2

Fault center lines/polylines

Run for all main input in the same folder  Suggest settings from input...

Post proc Well adjustment Additional inputs

Hints Geometry Pre proc Algorithm

Result surface: If a surface is dropped here, it will be overwritten. If left blank, a new surface will be generated.

Available input data:

- Main or additional input: Can be points, well tops, polygon(s), surfaces or images.
- Surfaces: only resampling will be done.
- Images: the intensity of the color decides the elevation level of the resulting surface.

Boundary:  Can be a closed polygon or a surface.

Fault center lines/closed fault polygons:  Used to mark the faults. The Z-value of the centerline or the polygons will not be used. (available for 'Minimum curvature' only)

Apply  OK  Cancel







Activar Windows  
Visita Configuración para activar Windows





Activar Windows  
Visita Configuración para activar Windows



# RESUMEN CLASE 23 DE ABRIL

Basado en interpretaciones personales de “Superficies” se realizaron los siguientes pasos en la interpretación, los cuales se resumen en:

- Basado en las Superficies realizar Horizontes
- Realizar un mallado
- Aplicar un “Geometrical Modeling” para:
  - Cuantificar la calidad de la interpretación de horizontes
  - Evaluar zonas de interés mediante filtros de amplitud
- Aislar zonas de interés y detallar sus propiedades tales como:
  - Area
  - Profundidad
  - Amplitud



File Edit View Insert Project Tools Window Help

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    - Survey 1
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    - Hon\_SUP\_ROJO\_2
    - HORIZONTE\_EJEMPLO
- Survey 1
- Polygons 1
- Filter folder
  - System
  - Hor\_INF\_ROJO\_1
  - Hor\_SUP\_ROJO\_2
  - Hor\_SUP\_AZUL\_3
- Model
  - INT\_1
  - INT\_2
  - INT\_3

Input Models Results Templates

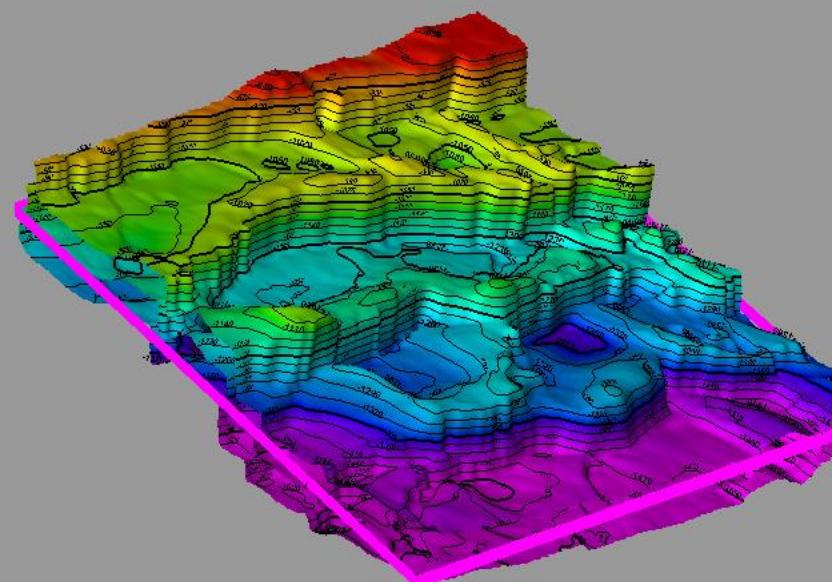
Processes

- Input
- Import data
- Stratigraphic modeling
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  - Seismic interpretation
    - Volume attributes
    - Surface attributes
    - Make velocity model
    - General depth conversion
    - Automatic fault extraction
    - Geobody interpretation
- Structural modeling
- Property modeling
- Upscaling
- Fracture network modeling
- Well engineering
- Simulation

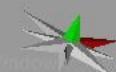
Processes Cases Workflows Windows

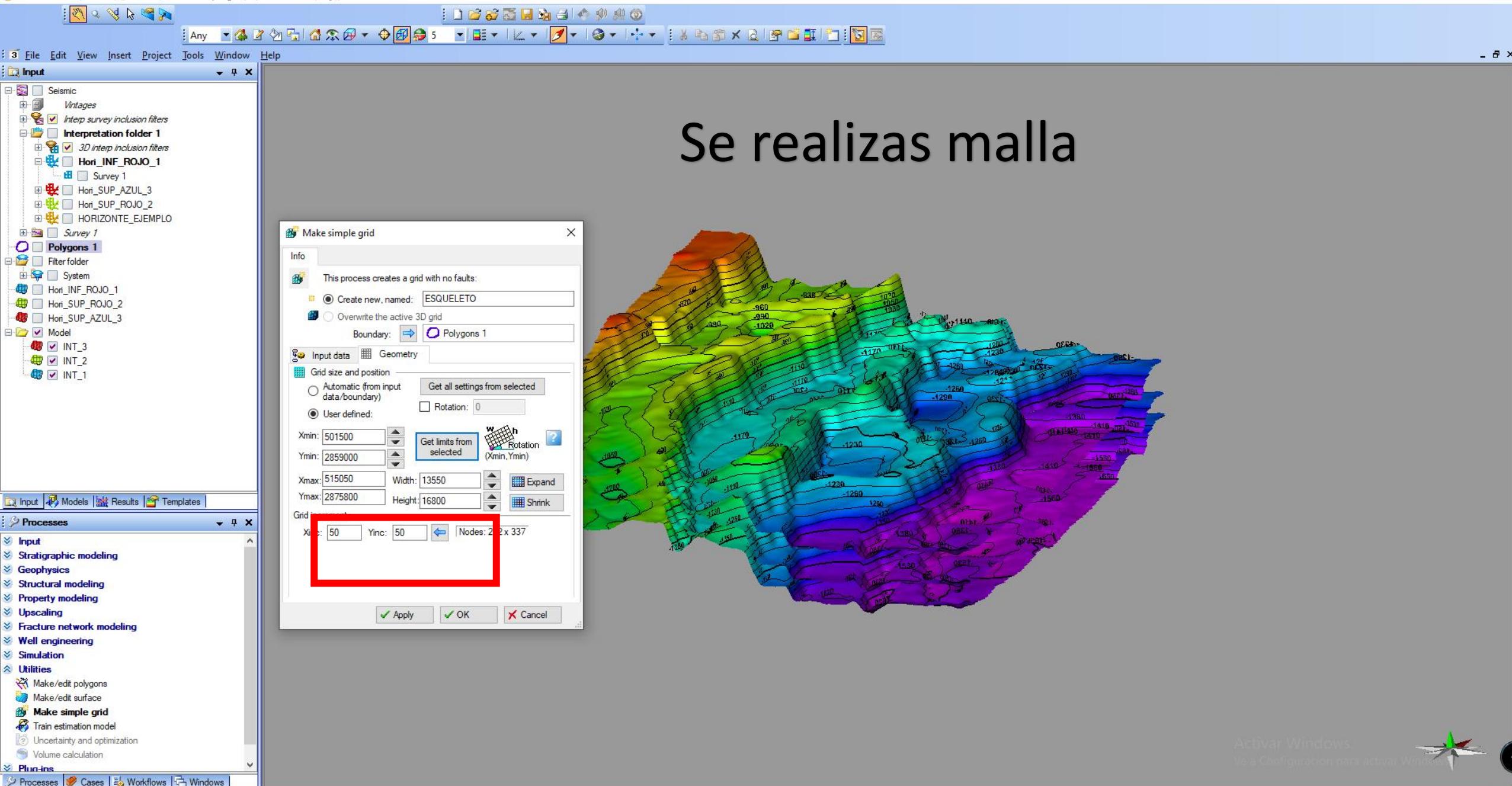
Z = Z + Constant operation is done successfully.

# Horizonte marcado y superficies.

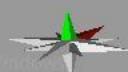


Activar Windows  
Ve a Configuración para activar Windows





Activar Windows  
Ve a Configuración para activar Windows



Any

File Edit View Insert Project Tools Window Help

Models

- New model
- ESQUELETO
- Skeleton
- Faults
- Horizons
- Edges
- Intersections
- Properties
- Fault filter
- Zone filter
- Segment filter

Input Models Results Templates

Processes

- Input
- Stratigraphic modeling
- Geophysics
- Structural modeling
- Property modeling
- Upscaling
- Fracture network modeling
- Well engineering
- Simulation
- Utilities

Make/edit polygons  
Make/edit surface  
**Make simple grid**  
Train estimation model  
Uncertainty and optimization  
Volume calculation

Plugs

Processes Cases Workflows Windows

Activar Windows  
Ve a Configuración para activar Windows

Se puede cambiar la densidad del mallado

Make simple grid with 'New model/ESQUELETO'

Info

This process creates a grid with no faults:

Create new, named: ESQUELETO

Overwrite the active 3D grid

Boundary:

Input data Geometry

Grid size and position

Automatic (from input data/boundary)

User defined:

Xmin: 0 Ymin: 0 Xmax: 1000 Ymax: 1000

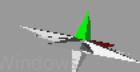
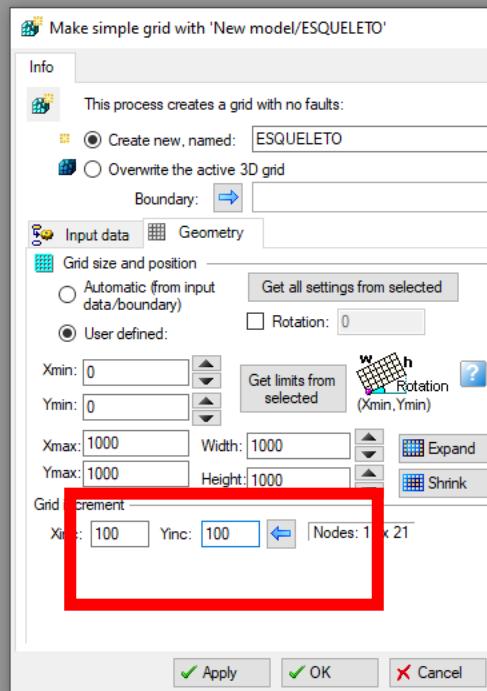
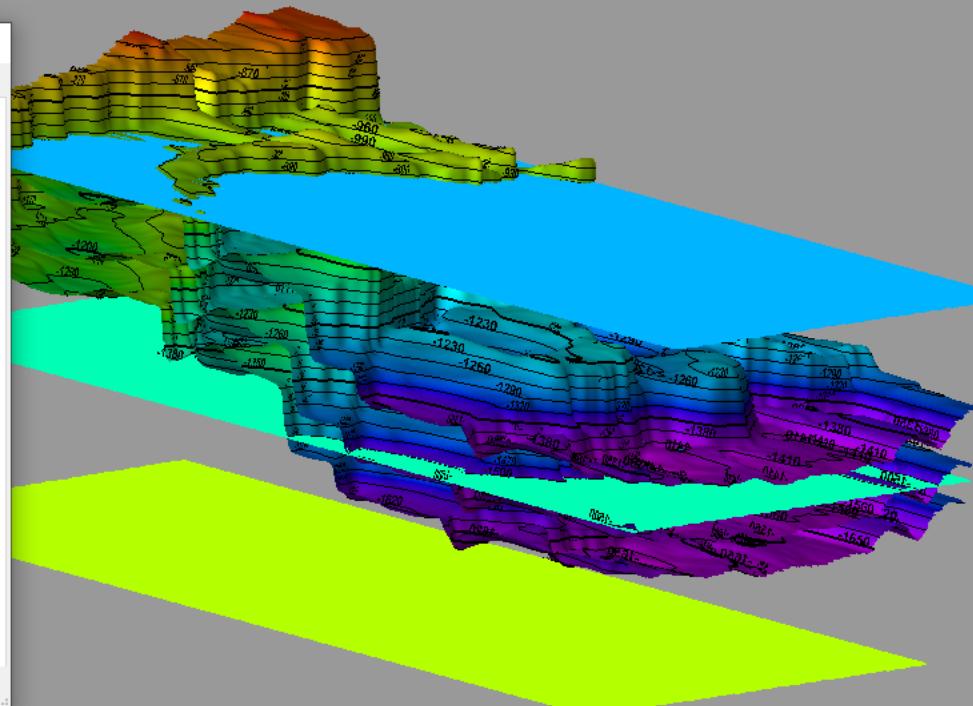
Get limits from selected Rotation (Xmin, Ymin)

Width: 1000 Height: 1000

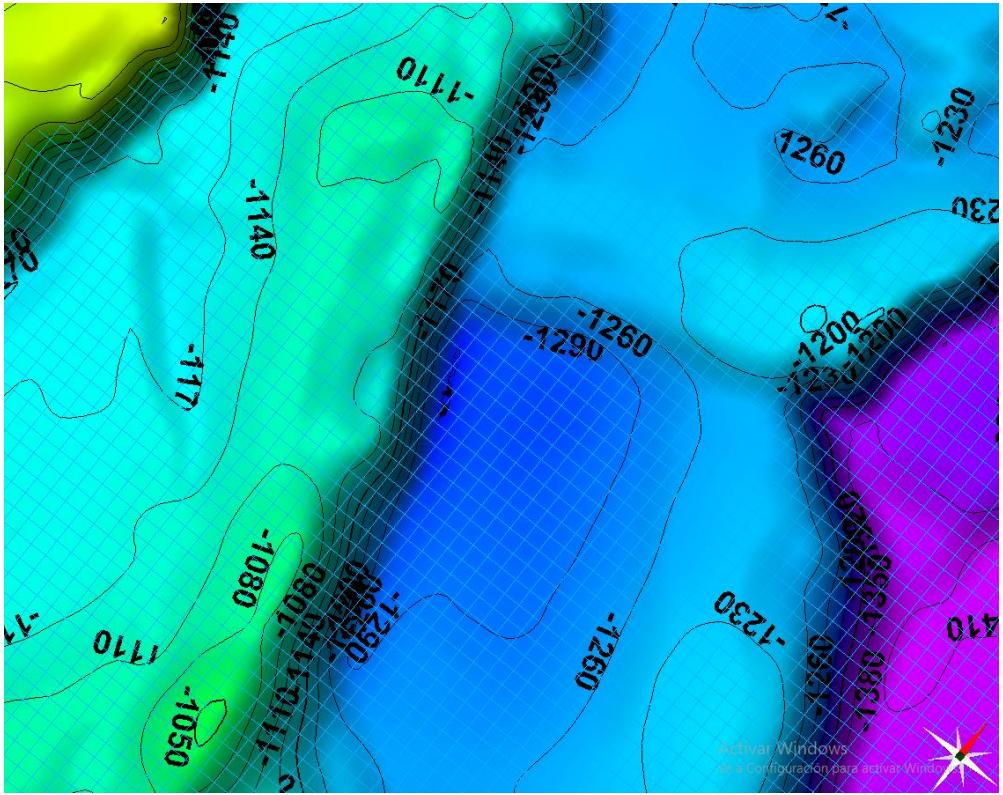
Grid increment

Xinc: 100 Yinc: 100 Nodes: 1 x 21

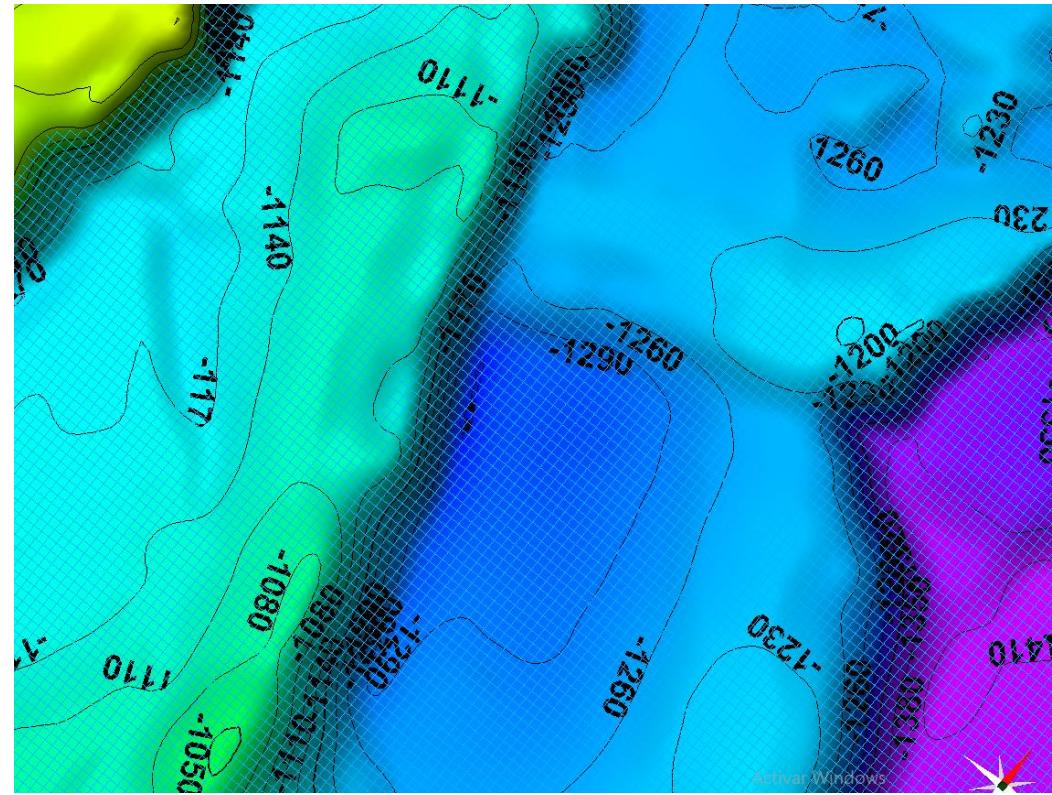
Apply OK Cancel

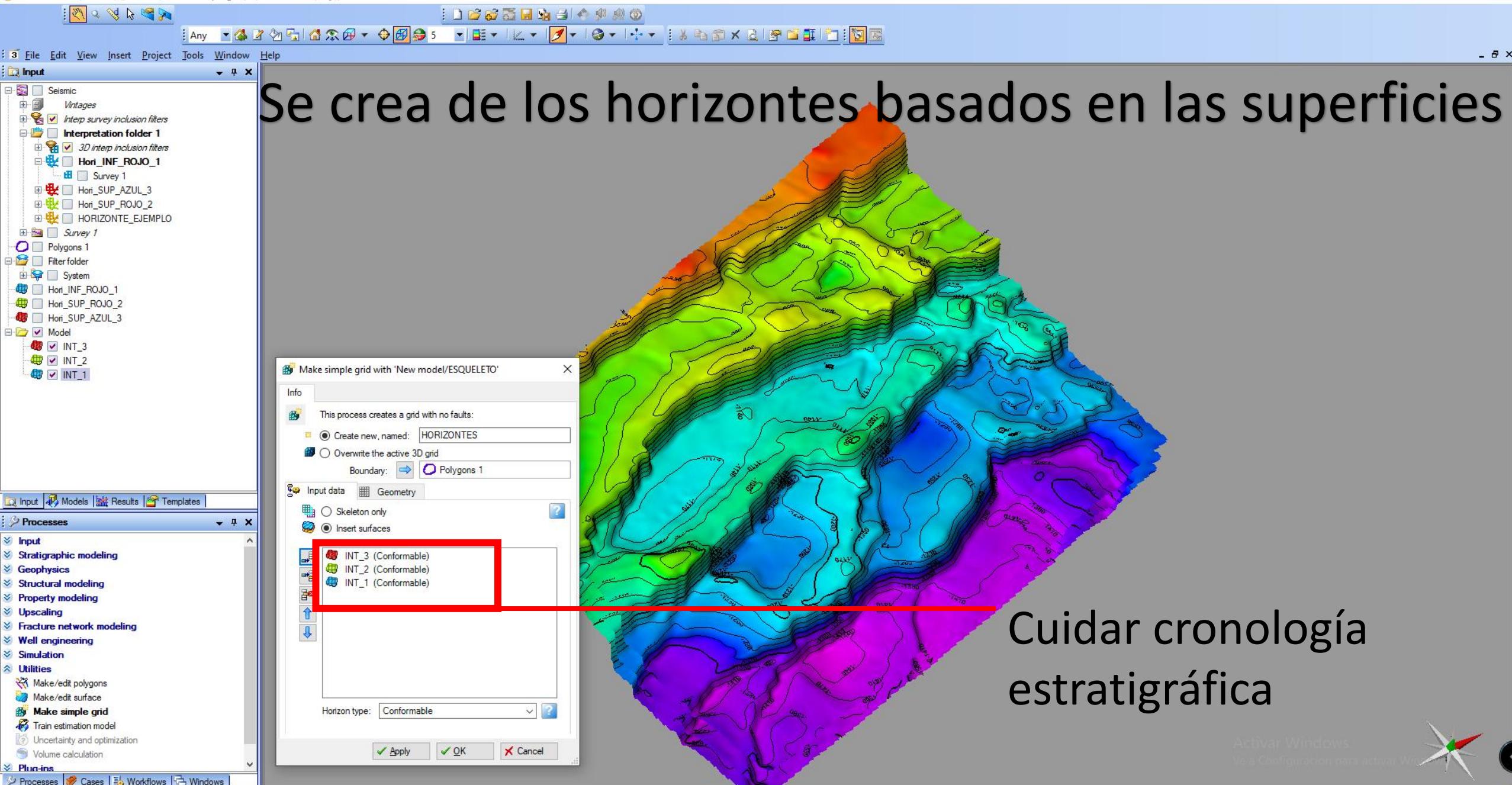


**100 \* 100**



**50 \* 50**





Cuidar cronología  
estratigráfica

Activar Windows  
Ve a Configuración para activar Windows



Con los horizontes importados se realiza  
“Geometrical Modeling”

Geometrical modeling with 'New model/H...'

Settings

Create new property

Overwrite property:

Regenerate name

Select method:

Constant value

Property template:

Constant value

Above contact

Cell angle

Cell height

Absolute or relative depth

Distance to object

Cell inside out

Seismic resampling

Cell volume

Connected volumes

Fault index

Fault and segment index

Seismic geobody assignment

Segment index

Well index

Well region

Zone index

Zone and segment index

Apply

Input Models Results Templates

Processes

Input

Stratigraphic modeling

Geophysics

Structural modeling

Property modeling

Geometrical modeling

Scale up well logs

Data analysis

Facies modeling

Petrophysical modeling

Fault analysis

Upscaling

Fracture network modeling

Well engineering

Simulation

Utilities

Action performed OK

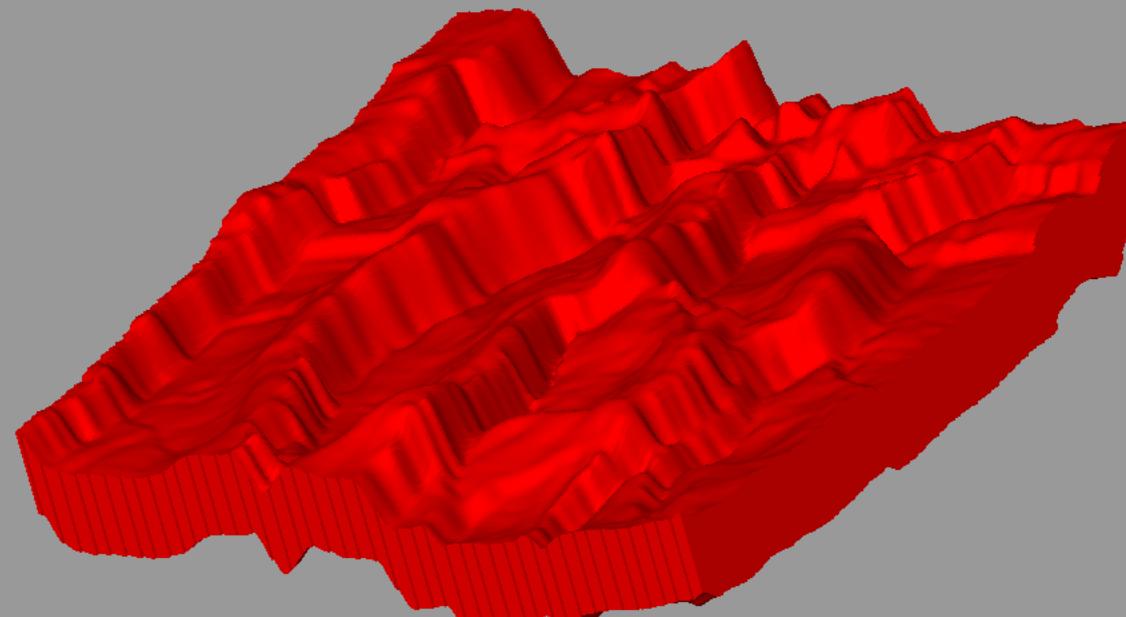


File Edit View Insert Project Tools Window Help

## Models

- New model
  - ESQUELETO
  - ESQUELETO
- HORIZONTES
  - Skeleton
  - Faults
  - Horizons
    - INT\_3
    - INT\_2
    - INT\_1
  - Edges
- Intersections
- Properties
  - V<sub>B</sub> Bulk volume
- Fault filter
- Segment filter

# “CELL VOLUME”



Input Models Results Templates

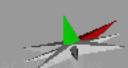
## Processes

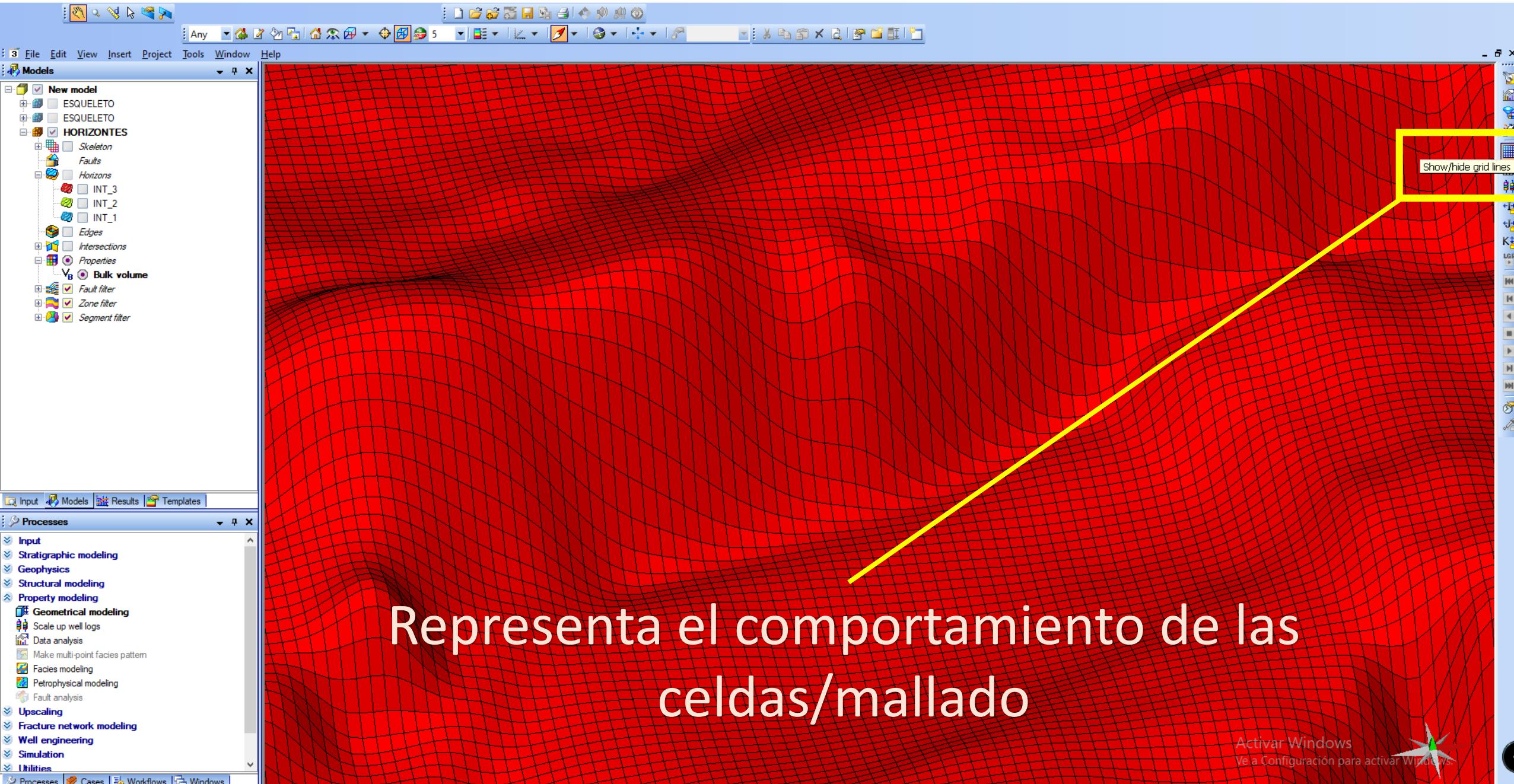
- Input
- Stratigraphic modeling
- Geophysics
- Structural modeling
- Property modeling
  - Geometrical modeling
    - Scale up well logs
    - Data analysis
    - Make multi-point facies pattern
    - Facies modeling
    - Petrophysical modeling
    - Fault analysis
- Upscaling
- Fracture network modeling
- Well engineering
- Simulation
- Utilities

Processes Cases Workflows Windows

Action performed OK

Activar Windows  
Ve a Configuración para activar





Activar Windows  
Ve a Configuración para activar Windows.



Any

File Edit View Insert Project Tools Window Help

Models

New model  
ESQUELETO  
ESQUELETO  
HORIZONTES  
Skeleton  
Faults  
Horizons  
INT\_3  
INT\_2  
INT\_1  
Edges  
Intersections  
Properties  
Zones/Segments  
Fault filter  
Zone filter  
Segment filter

Geometrical modeling with 'New model/H...' X

Settings  
Create new property  
Overwrite property: Zones/Segments  
Regenerate name  
Select method: Zone and segment index  
Property template: General discrete

From main zones  
From all zones  
**From all zones (in hierarchy)**  
From all layers (K)

Apply OK Cancel

Apply changes.

Se secciona en zonas

Se tienen 2 zonas:  
Horizonte 1 – Horizonte 2  
Horizonte 2 – Horizonte 3

Activar Windows  
Ve a Configuración para activar Windows

Input Models Results Templates

Processes

Input  
Stratigraphic modeling  
Geophysics  
Geometric modeling  
Geometrical modeling  
Scale up well logs  
Data analysis  
Make multi-point traces pattern  
Facies modeling  
Petrophysical modeling  
Fault analysis  
Upscaling  
Fracture network modeling  
Well engineering  
Simulation  
Utilities

Processes Cases Workflows Windows

Action performed OK

Escribe aquí para buscar.

08:02 p. m.  
24/04/2021

File Edit View Insert Project Tools Window Help

Models

New model  
ESQUELETO  
ESQUELETO  
HORIZONTES  
Skeleton  
Faults  
Horizons  
INT\_3  
INT\_2  
INT\_1  
Edges  
Intersections  
Properties  
Fault filter  
Zone filter  
Segment filter

Layering with 'New model/HORIZONTES'

Zones

Process for making the layering for each zone

Common settings

Build along: Along the pillars  Horizons with steep slopes   
Use minimum cell thickness: 1  Include proportional/fractions, start from: Top

Settings for each zone

Zone division: Reference surface: Restore eroded: Restore base:

| Name   | Color  | Calculate                               | Zone division | Reference surface    | Restore eroded               | Restore base                 | Start |
|--------|--------|---|---------------|----------------------|------------------------------|------------------------------|-------|
| Zone 1 | Purple | <input checked="" type="checkbox"/> Yes | Proportional  | Number of layers: 15 | <input type="checkbox"/> Yes | <input type="checkbox"/> Yes | Top   |
| Zone 2 | Blue   | <input checked="" type="checkbox"/> Yes | Proportional  | Number of layers: 15 | <input type="checkbox"/> Yes | <input type="checkbox"/> Yes | Top   |

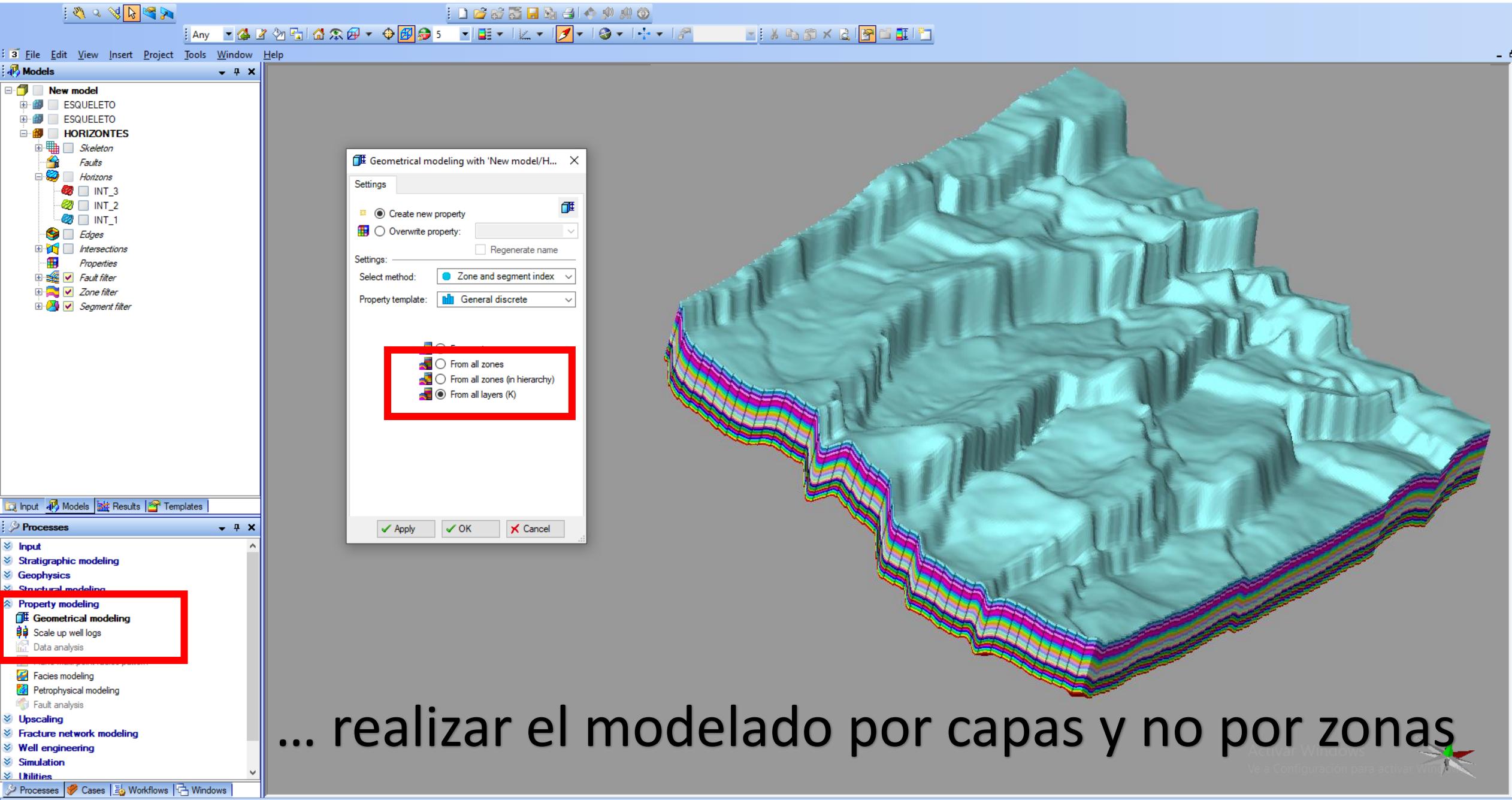
Apply OK Cancel

Processes

Input  
Stratigraphic modeling  
Geophysics  
Structural modeling  
Define model  
Fault modeling  
Pillar gridding  
Make horizons  
depth convert 3D grid  
Make zones  
Layering (highlighted)  
Edit 3D grid  
Make local grids  
Make contacts  
Property modeling  
Geometrical modeling  
Scale up well logs

Activar Windows  
Ve a Configuración para activar Windows

Se selecciona en capas (15 ) para...



... realizar el modelado por capas y no por zonas

Activar Windows  
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Petrel 2009.1 - [Tarea 1 (3\_HORIZO) - Geometrical modeling] - [3D window 1 [Any]]

File Edit View Insert Project Tools Window Help

Input

Seismic  
Vintages  
Interp survey inclusion filters  
Interpretation folder 1  
3D interp inclusion filters  
Hori\_INF\_ROJO\_1  
Survey 1  
Hon\_SUP\_AZUL\_3  
Hon\_SUP\_ROJO\_2  
HORIZONTE\_EJEMPLO  
Survey 1  
CUBO\_1  
Inline 946  
XLine 1467  
CUBO\_1 [Realized] 1

Polygons 1  
Filter folder  
System  
Hori\_INF\_ROJO\_1  
Hori\_SUP\_ROJO\_2  
Hori\_SUP\_AZUL\_3  
Model  
INT\_3  
INT\_2  
INT\_1  
POLIGONO

Input Models Results Templates

Processes

Input  
Stratigraphic modeling  
Geomodeling  
Structural modeling  
Property modeling  
Geometrical modeling  
Scale up well logs

Data analysis  
Make multi-point facies pattern  
Facies modeling  
Petrophysical modeling  
Fault analysis

Upscaling  
Fracture network modeling  
Well engineering  
Simulation  
Utilities

Processes Cases Workflows Windows

Action performed OK

Any

Geometrical modeling with 'New model/H...' X

Settings

Create new property (radio button selected)  
Overwrite property: Bulk volume  
Regenerate name (checkbox)

Select method: Seismic resampling (radio button selected)  
Property template: Seismic (default)

Seismic: CUBO\_1 [Realized]  
Quality: Intersecting  
Average method: Arithmetic  
Use zone/segment filters (checkbox)

Apply OK Cancel

Se Aplica “Seismic resampling” con sísmica de amplitudes

Resultado: Sísmica en relación al horizonte

Horizonte superior

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808 p.m.  
24/04/2021

Any

File Edit View Insert Project Tools Window Help

Models

New model

- ESQUELETO
- ESQUELETO
- HORIZONTES
  - Skeleton
  - Faults
  - Horizons
    - INT\_3
    - INT\_2
    - INT\_1
  - Edges
  - Intersections
  - Properties
    - Zones/Segments
    - Zones/Segments
    - V<sub>B</sub> Bulk volume
    - Seismic (default)
  - Fault filter
- Zone 1
- Zone 2
- Segment filter

Processes

Input

Stratigraphic modeling

Geophysics

Structural modeling

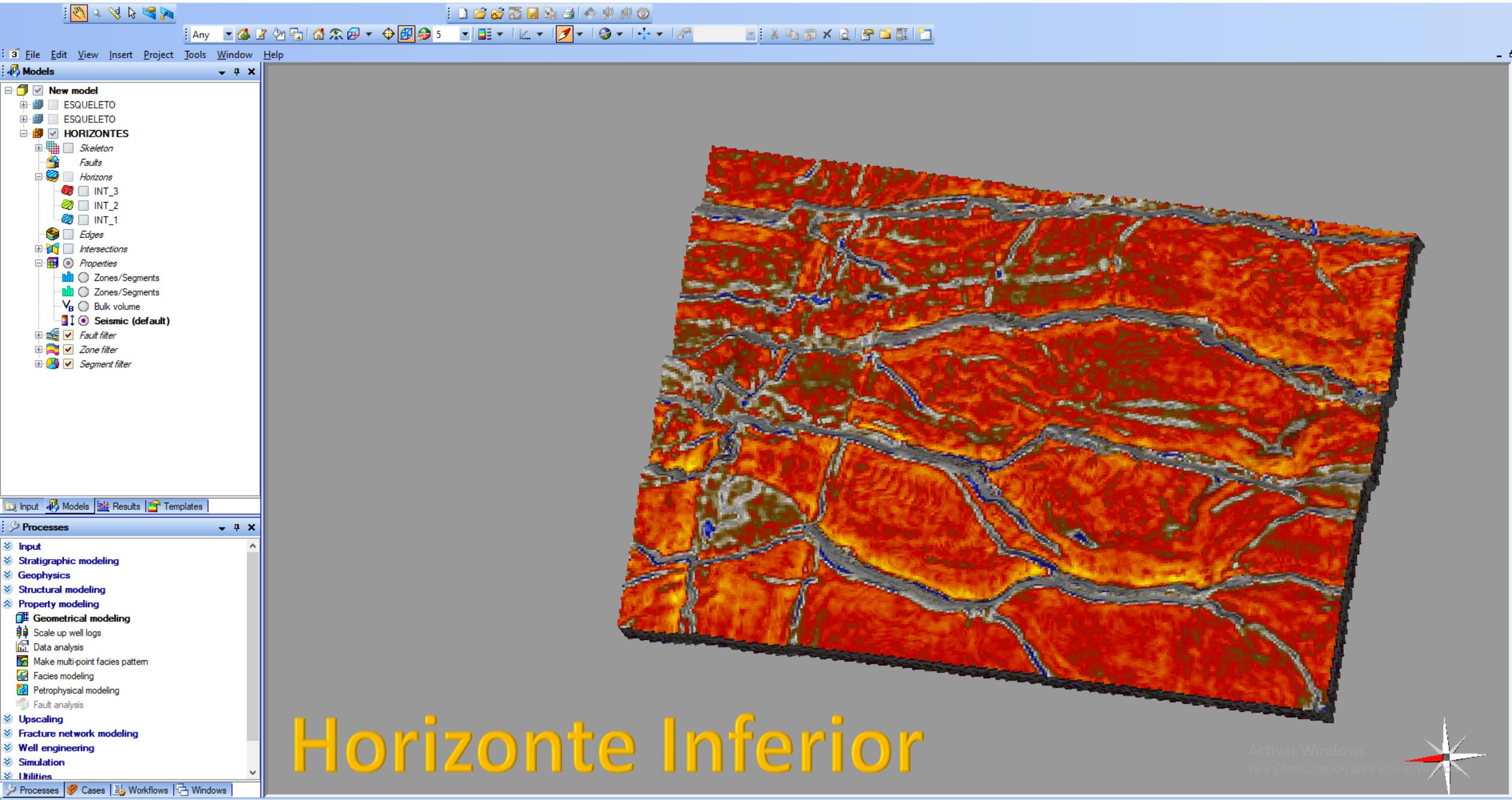
Property modeling

- Geometrical modeling
  - Scale up well logs
  - Data analysis
  - Make multi-point facies pattern
  - Facies modeling
  - Petrophysical modeling
  - Fault analysis
- Upscaling
- Fracture network modeling
- Well engineering
- Simulation
- Utilities

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# Se apaga la visualización de zona 1

# Horizonte Intermedio



# Horizonte Inferior

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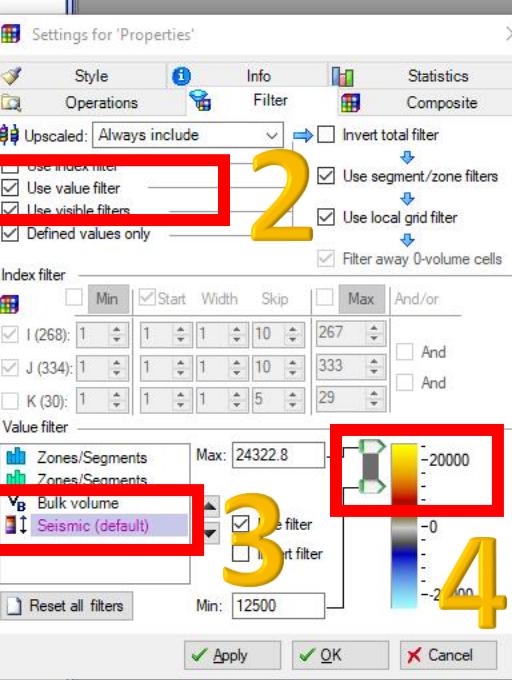


File Edit View Insert Project Tools Window Help

## Models

- New model
  - ESQUELETO
  - ESQUELETO
- HORIZONTES
  - Skeleton
  - Faults
  - Horizons
    - INT\_3
    - INT\_2
    - INT\_1
  - Edges
  - #sections
  - Properties
    - Zones/Segments
    - V<sub>B</sub>
    - Seismic (default)
  - Fault filter
  - Zone filter
    - Zone 1
    - Zone 2
  - Segment filter

1

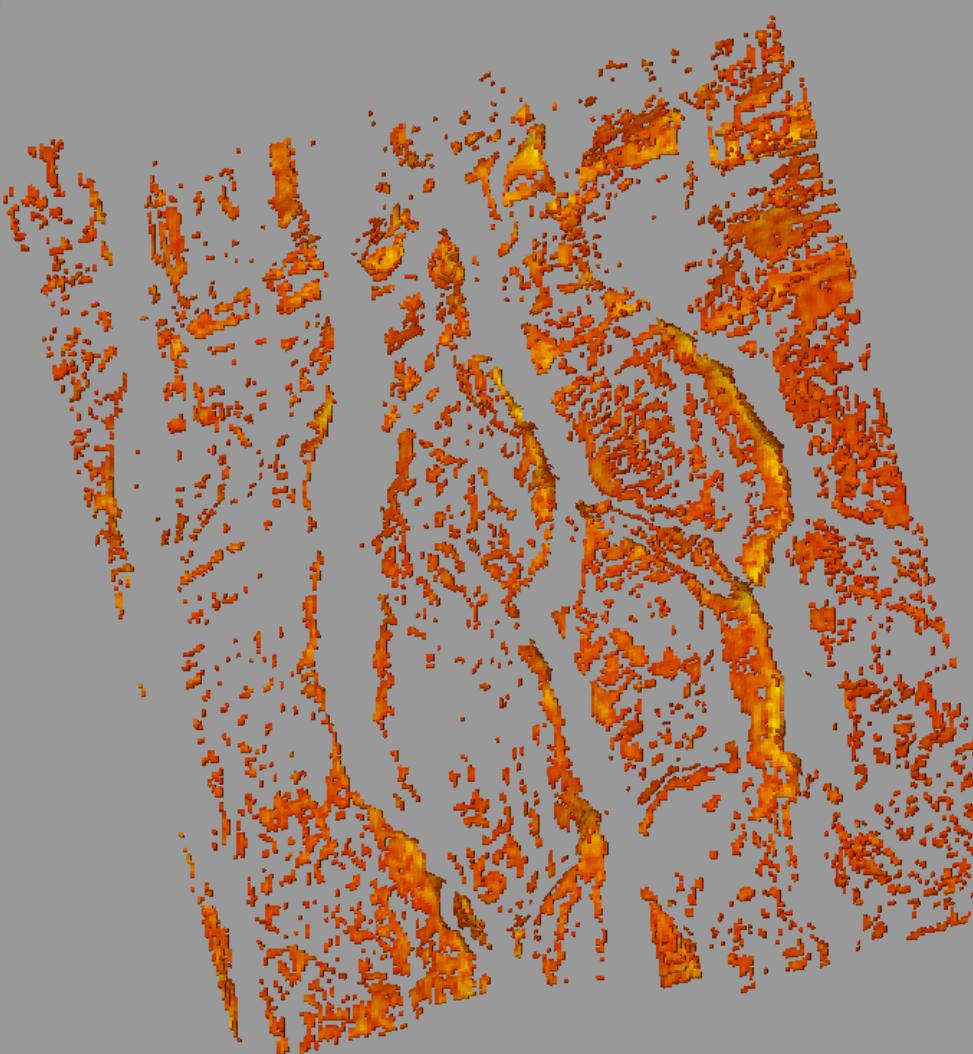
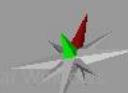


2

3

4

# Se filtran ciertas amplitudes

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Input Models Results Templates

Processes

- Input
- Stratigraphic modeling
- Geophysics
- Structural modeling
- Property modeling
  - Geometrical modeling
    - Scale up well logs
    - Data analysis
    - Make multi-point facies pattern
    - Facies modeling
    - Petrophysical modeling
    - Fault analysis
  - Upscaling
- Fracture network modeling
- Well engineering
- Simulation
- Utilities

Processes Cases Workflows Windows

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08:16 p.m.  
24/04/2021

# Se Aplica “Seismic resampling” con sísmica RMS

**Horizonte superior**

The screenshot shows the Petrel software interface with a 3D geological model displayed in the center. The model features a prominent blue horizon labeled "Horizonte superior". On the left side, there are several toolbars and panels:

- Input Panel:** Shows a tree view of project files, including "Seismic", "Vintages", "Interpretation folder 1", "Survey 1", and "CUBO\_1". A red box highlights the "CUBO\_1" node under Survey 1.
- Processes Panel:** Shows a tree view of modeling processes. A red box highlights the "Geometrical modeling" node under "Structural modeling".
- Geometrical modeling dialog:** A modal dialog titled "Geometrical modeling with 'New model/H...'" is open. It contains settings for "Seismic resampling":
  - "Create new property" (radio button selected)
  - "Overwrite property: Seismic (default)"
  - "Regenerate name" checkbox
  - "Select method: Seismic resampling"
  - "Property template: Seismic (default)"
  - "Seismic: CUBO\_1 |RmsAmp" (selected from a dropdown)
  - "Quality: Intersecting"
  - "Average method: Arithmetic"
  - "Use zone/segment filters" checkbox

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Any

File Edit View Insert Project Tools Window Help

Models

New model

- ESQUELETO
- ESQUELETO
- HORIZONTES
  - Skeleton
  - Faults
  - Horizons
    - INT\_3
    - INT\_2
    - INT\_1
  - Edges
  - Intersections
  - Properties
    - Zones/Segments
    - Zones/Segments
    - Bulk volume
    - Seismic (default)
    - Seismic (default)
  - Fault filter
  - Zone filter
    - Zone 1
    - Zone 2
  - Segment filter

Input Models Results Templates

Processes

Input

Stratigraphic modeling

Geophysics

Structural modeling

Property modeling

- Geometrical modeling
  - Scale up well logs
  - Data analysis
  - Make multi-point facies pattern
  - Facies modeling
  - Petrophysical modeling
  - Fault analysis
- Upscaling
- Fracture network modeling
- Well engineering
- Simulation
- Utilities

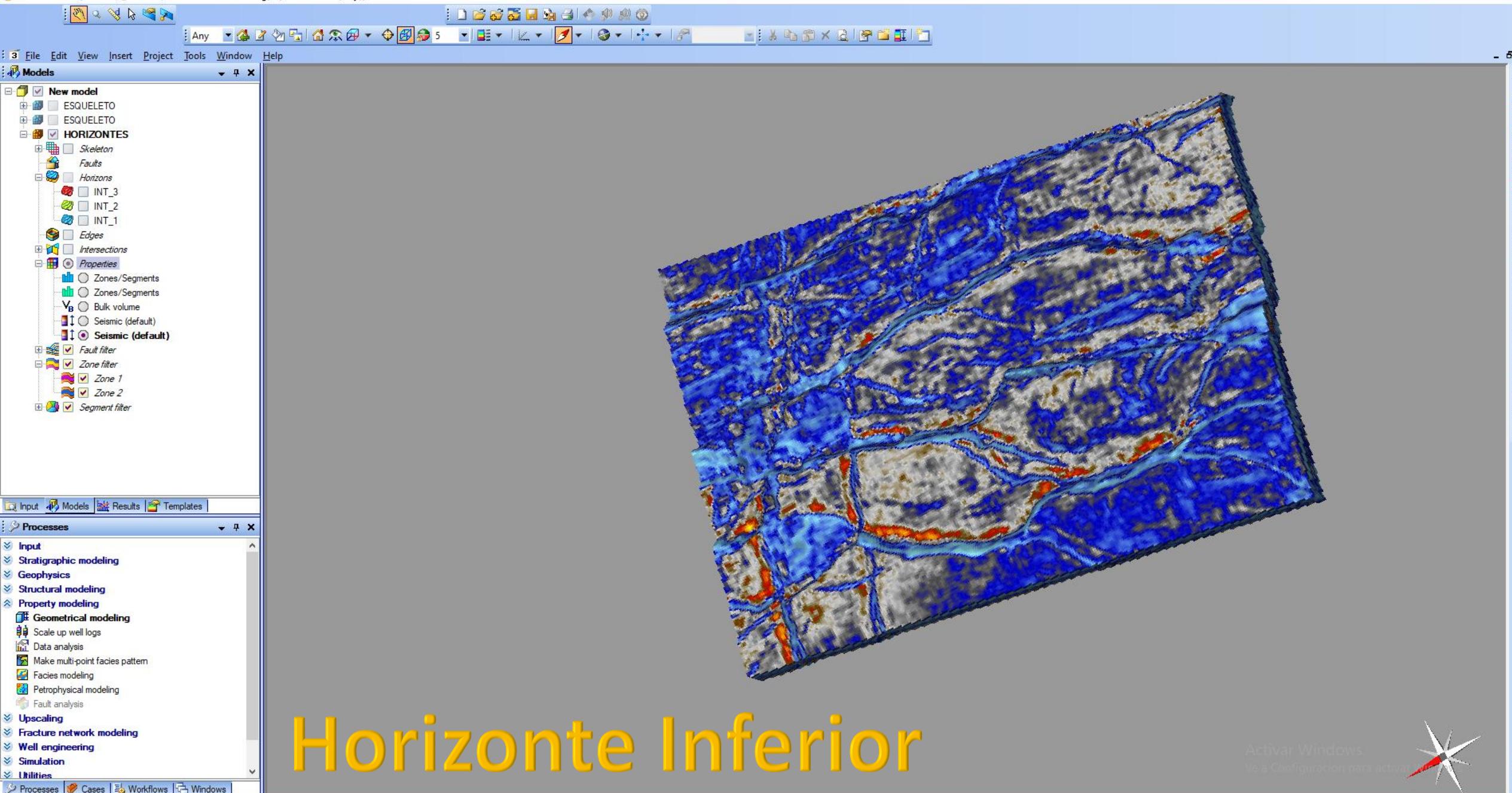
Activar Windows  
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Horizonte Intermedio

Action performed OK

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08:21 p.m.  
24/04/2021

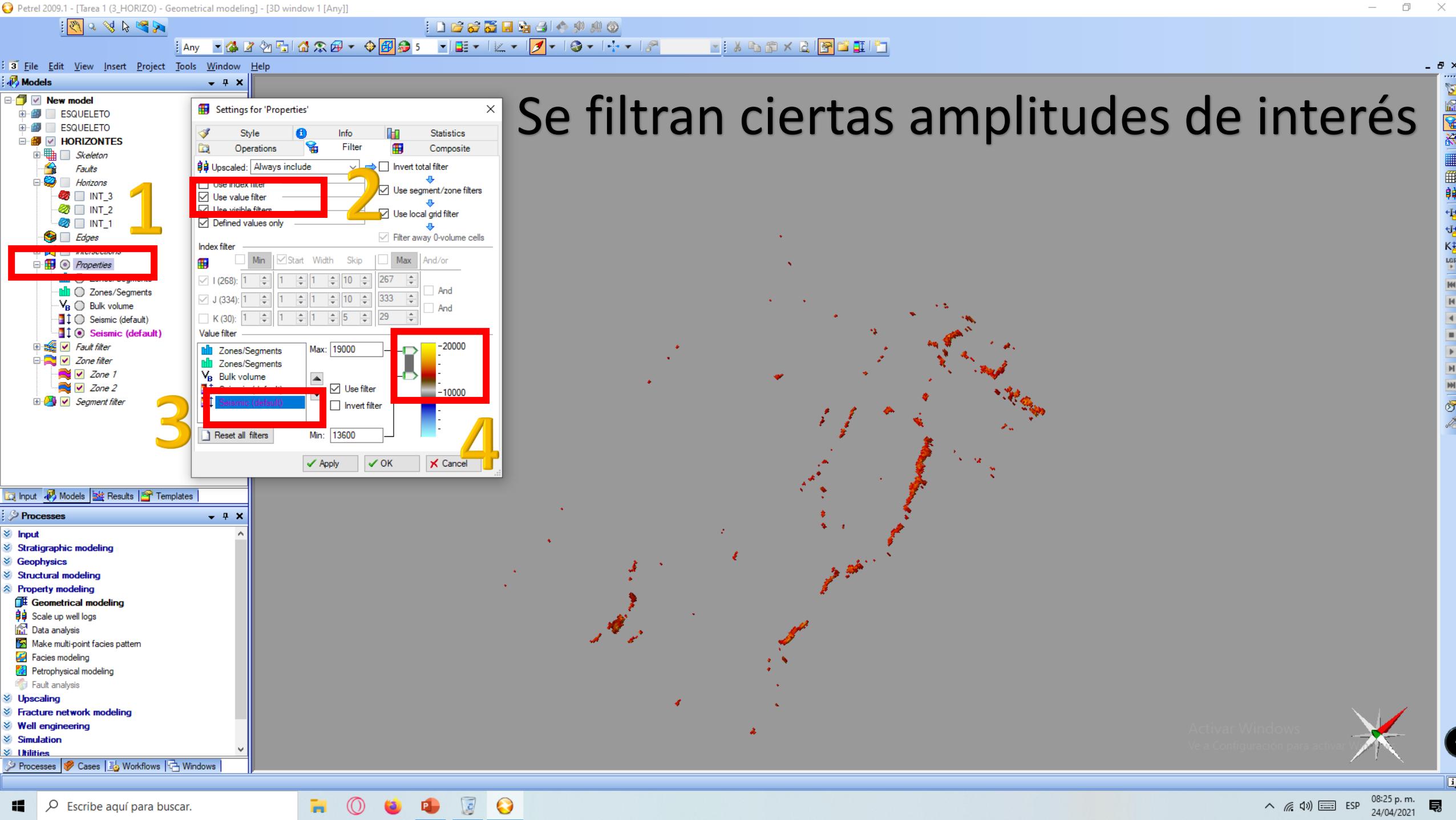


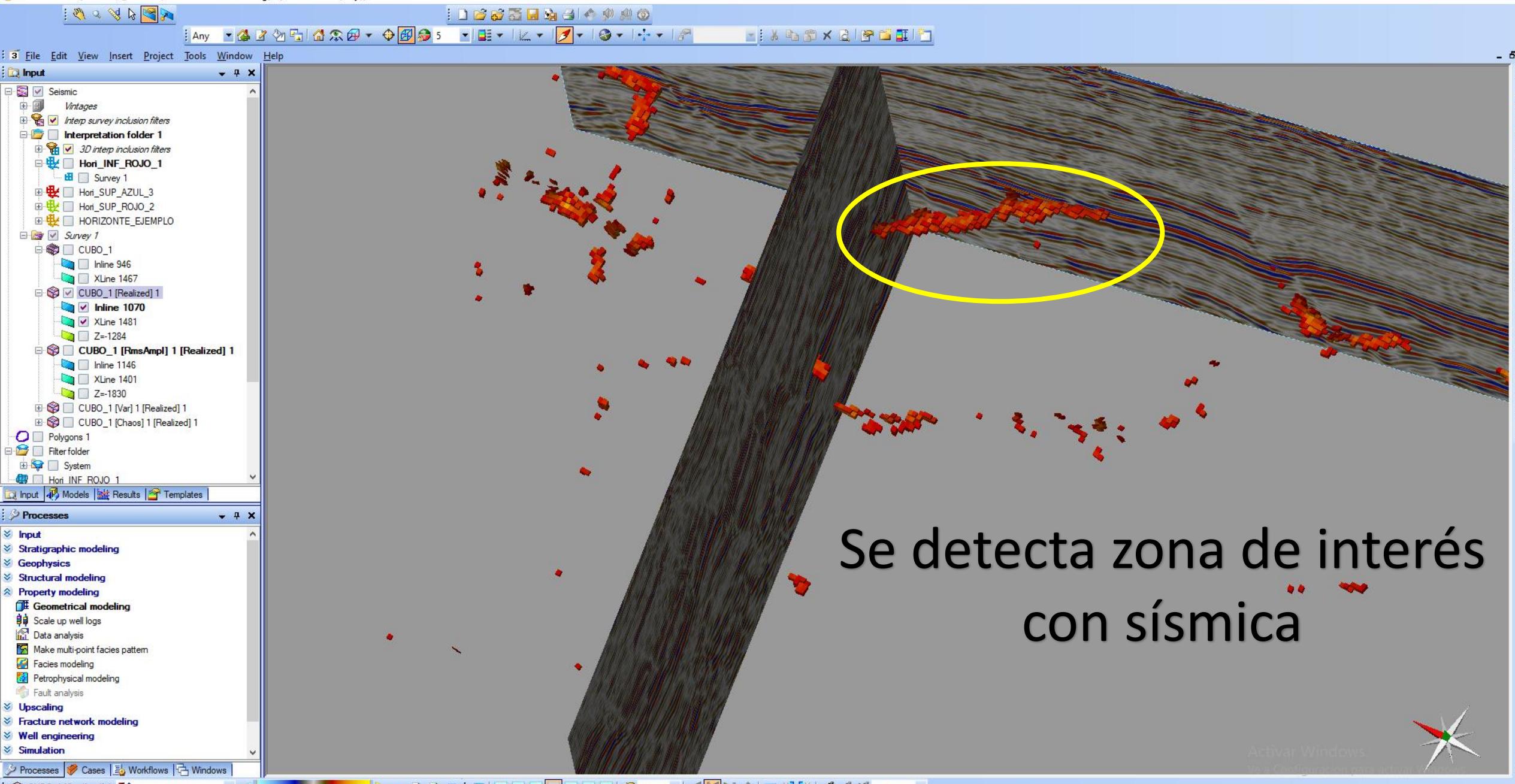
Action performed OK



Escribe aquí para buscar.





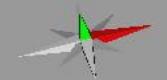


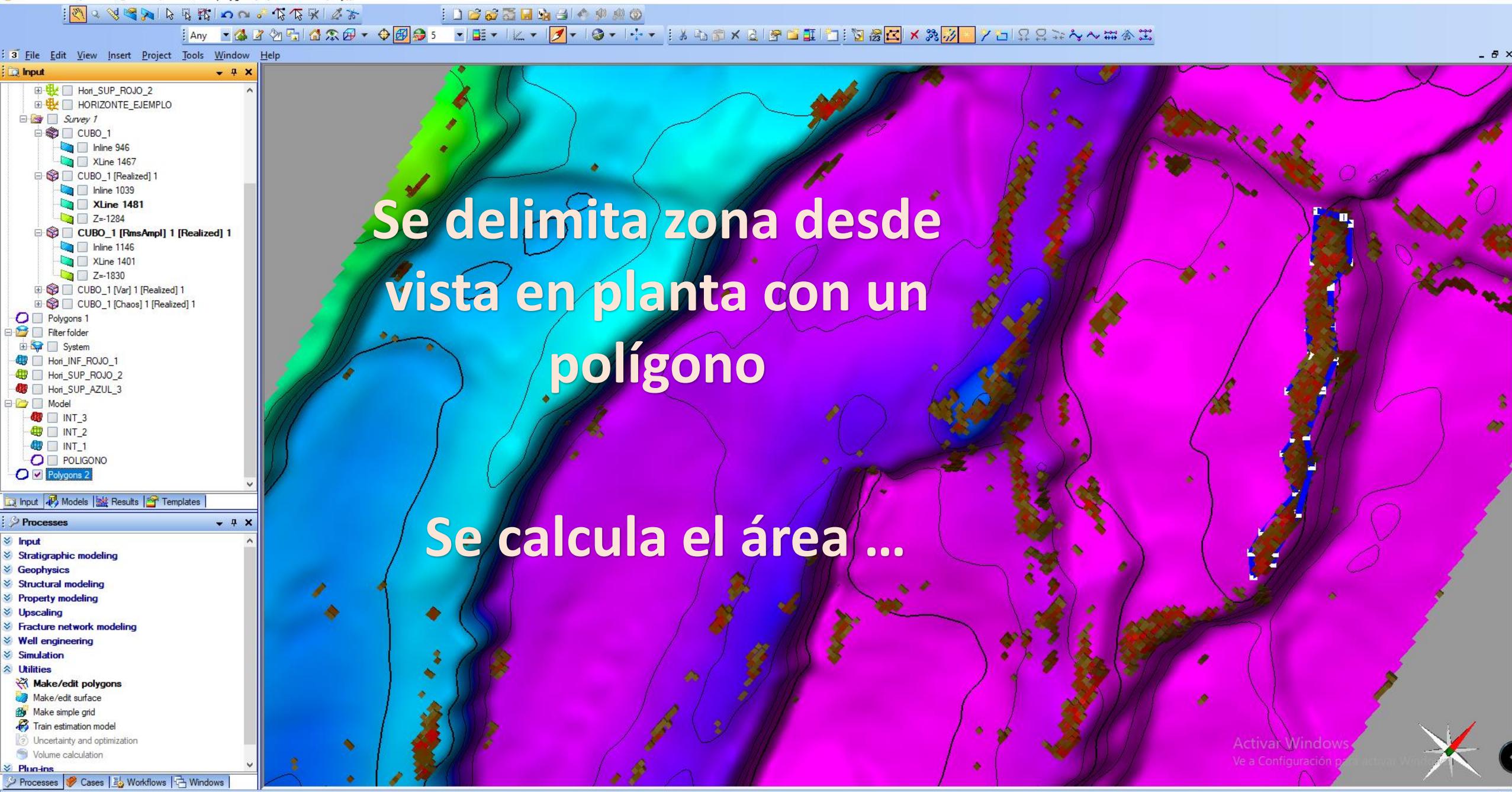
Activar Windows  
Visita Configuración para activar Windows

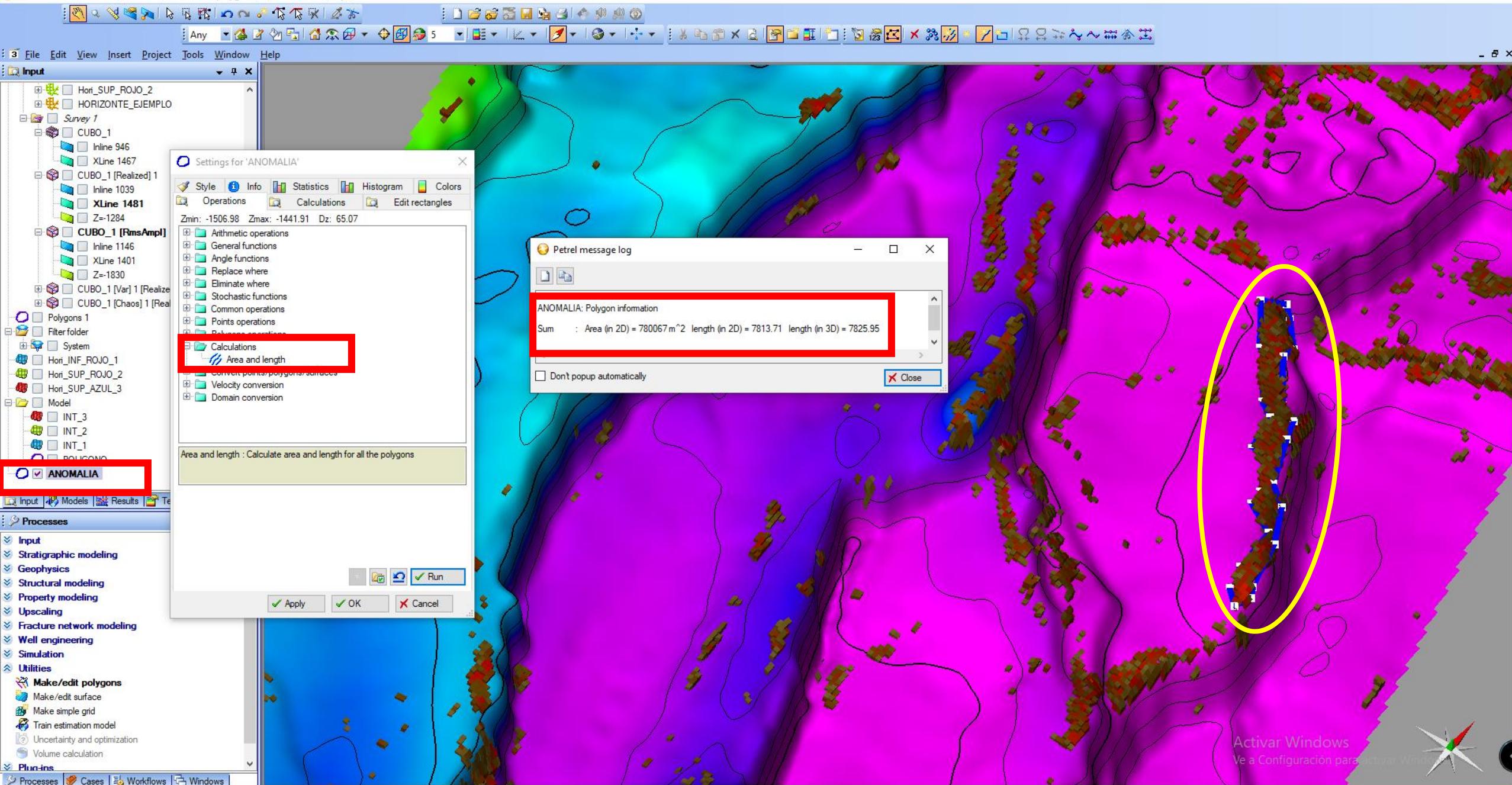




Activar Windows  
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## Models

- New model
  - + ESQUELETO
  - + ESQUELETO
  - + HORIZONTES
    - + Skeleton
    - + Faults
    - + Horizons
      - + INT\_3
      - + INT\_2
      - + INT\_1
    - + Edges
    - + Intersections
  - + Properties
    - + Zones/Segments
    - + Zones/Segments
    - + Bulk volume
    - + Seismic (default)
    - + Seismic (default)
  - + Fault filter
  - + Zone filter
    - + Zone 1
    - + Zone 2
  - + Segment filter

Input Models Results Templates

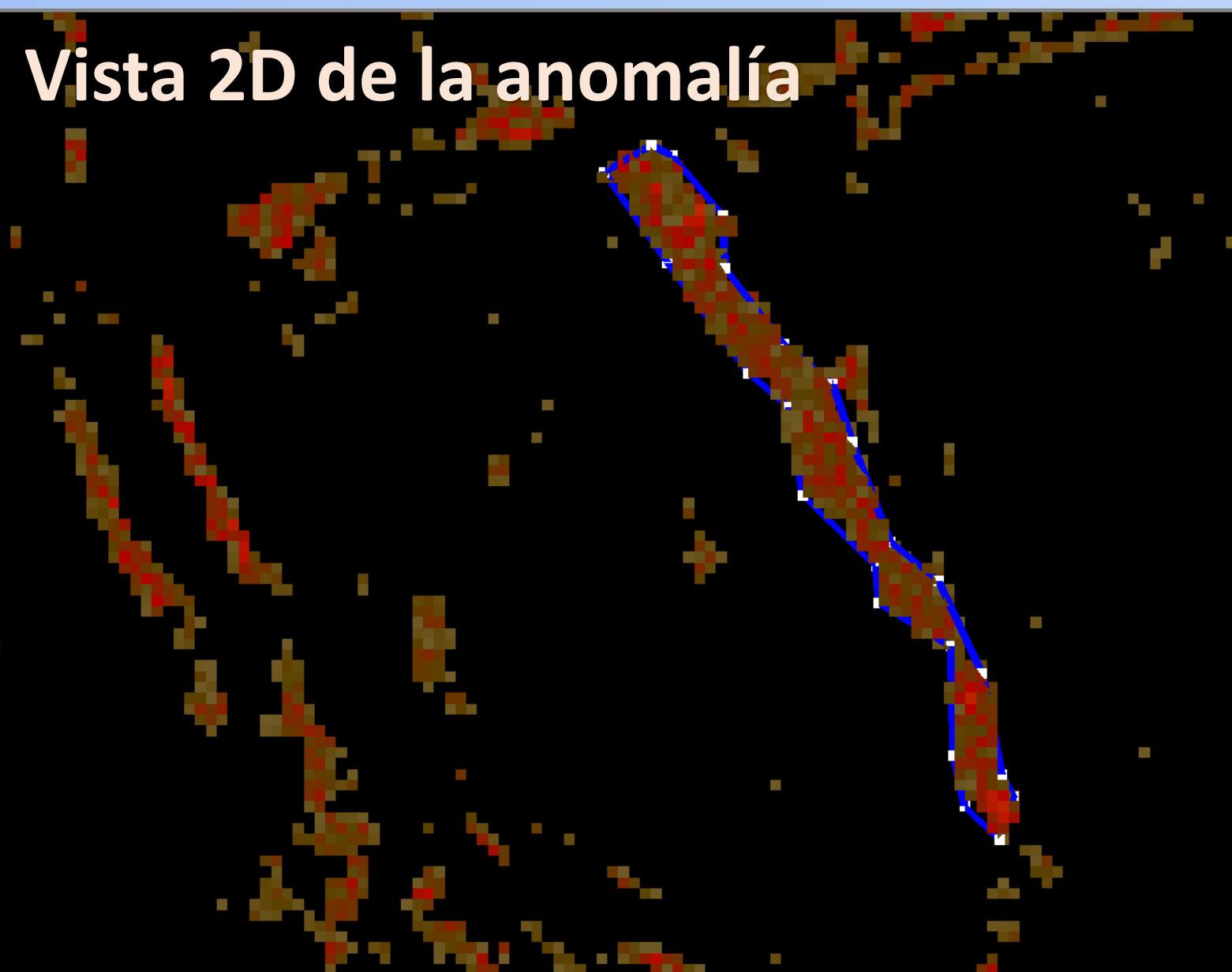
## Processes

- Input
- Stratigraphic modeling
- Geophysics
- Structural modeling
- Property modeling
- Upscaling
- Fracture network modeling
- Well engineering
- Simulation
- Utilities
  - + Make/edit polygons
  - + Make/edit surface
  - + Make simple grid
  - + Train estimation model
  - + Uncertainty and optimization
  - + Volume calculation
- Plugins

Processes Cases Workflows Windows

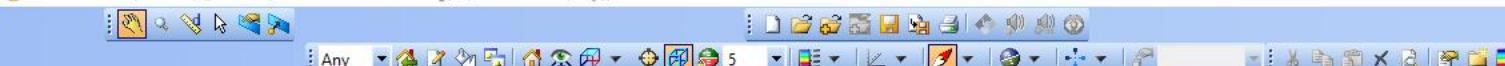
Action performed OK

# Vista 2D de la anomalía



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File Edit View Insert Project Tools Window Help

### Input

- Hor\_SUP\_ROJO\_2
- HORIZONTE\_EJEMPLO
- Survey 1**
- CUBO\_1
  - Inline 946
  - XLine 1467
  - CUBO\_1 (Realized) 1
    - Inline 1039
    - XLine 1481
    - Z=1284
  - CUBO\_1 [RmsAmpl] 1 [Realized] 1
    - Inline 1146
    - XLine 1401
    - Z=1830
  - CUBO\_1 [Var] 1 [Realized] 1
- Polygons 1
- Filter folder
- System
- Hori\_INF\_ROJO\_1
- Hori\_SUP\_ROJO\_2
- Hori\_SUP\_AZUL\_3
- Model**
  - INT\_3
  - INT\_2
  - INT\_1
  - POLIGONO
  - ANOMALIA**

Input Models Results Templates

### Processes

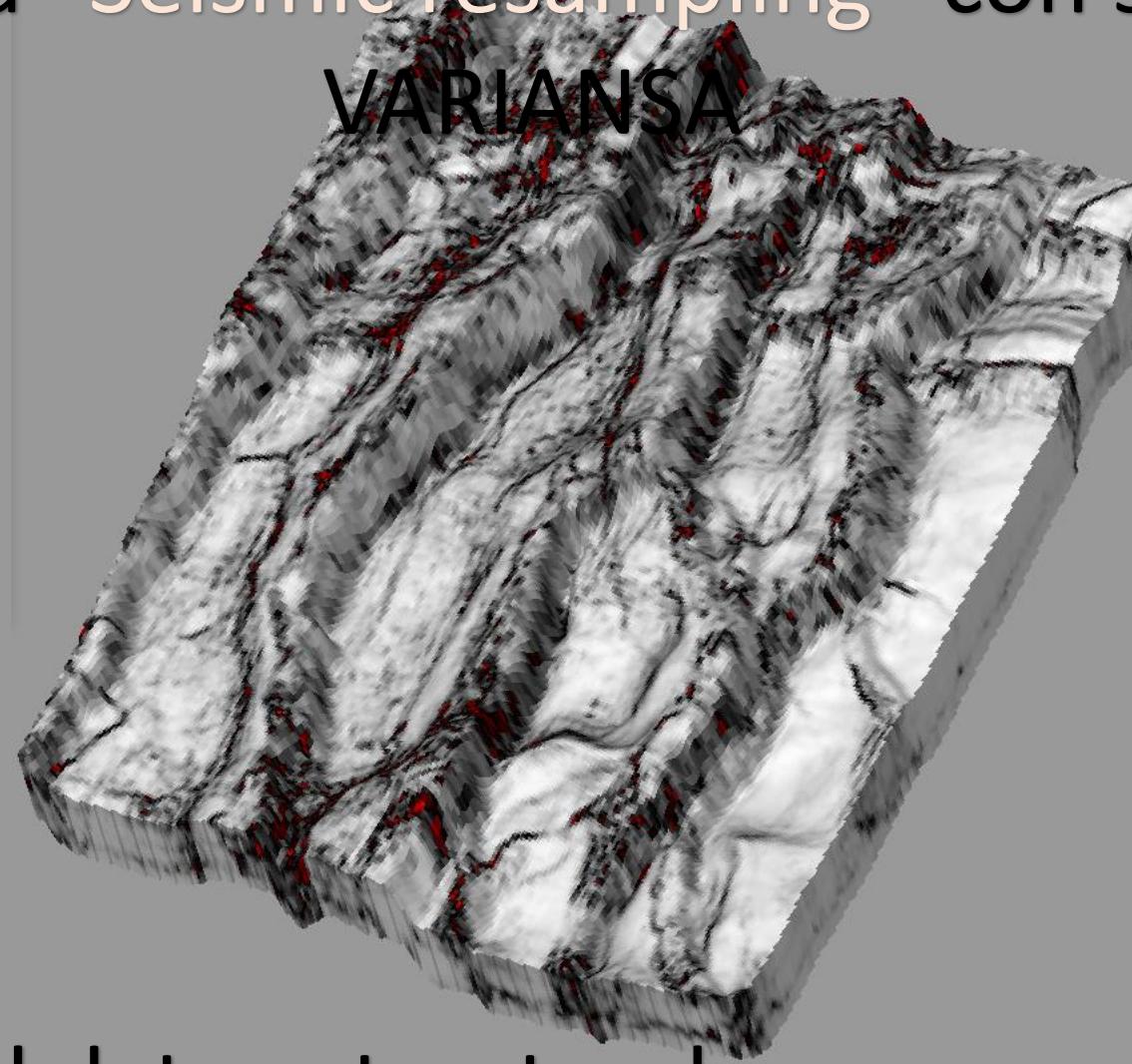
- Geometrical modeling**
- Scale up well logs
- Data analysis
- Make multi-point facies pattern
- Facies modeling
- Petrophysical modeling
- Fault analysis
- Upscaling**
- Fracture network modeling
- Well engineering
- Simulation
- Utilities

Processes Cases Workflows Windows

Seismic resampling... (966478 of 2685360) (about 0.3 minutes to go)

# Se Aplica "Seismic resampling" con sísmica

## VARIANSA



## Filtrando el dato estructural

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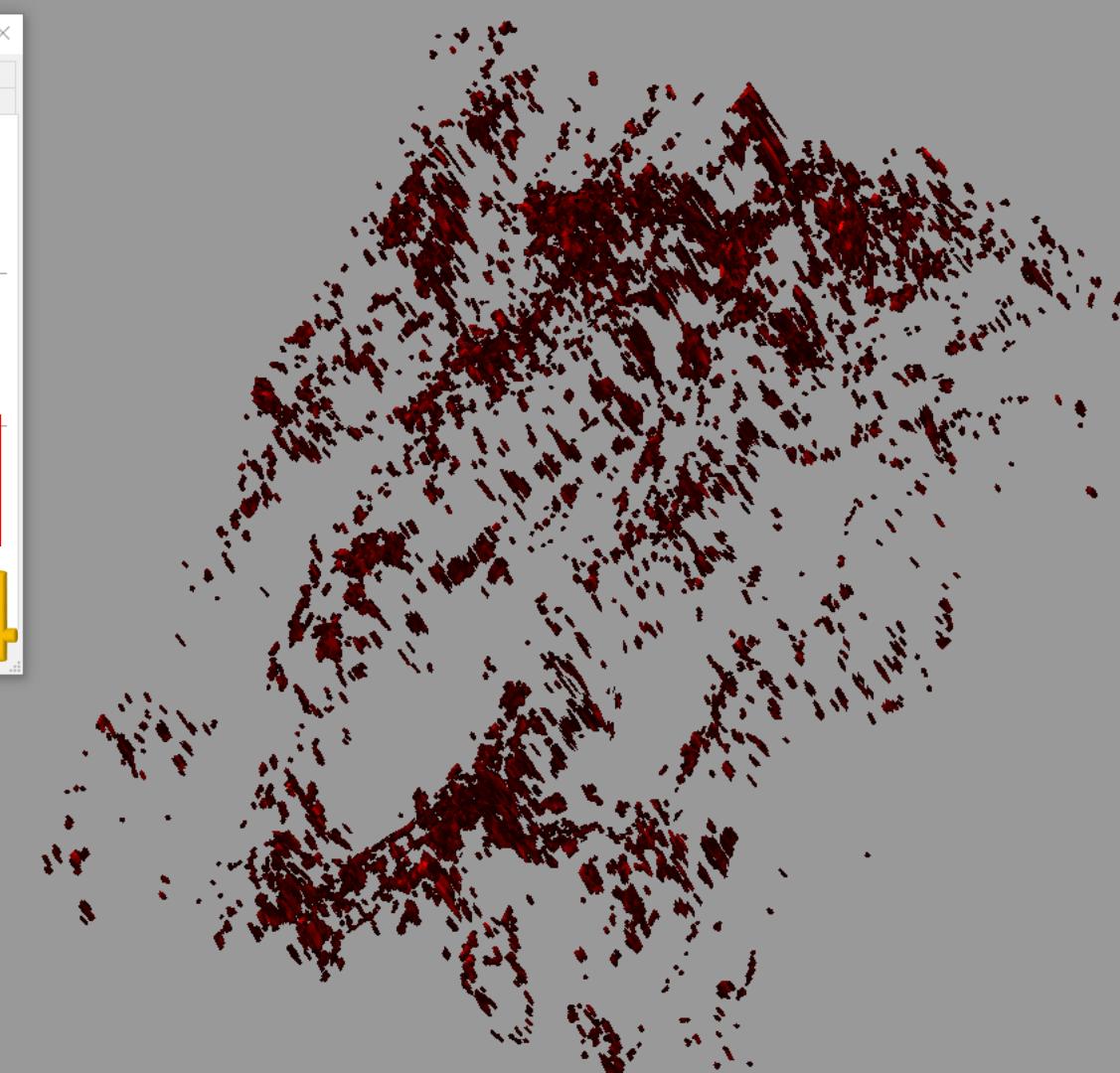
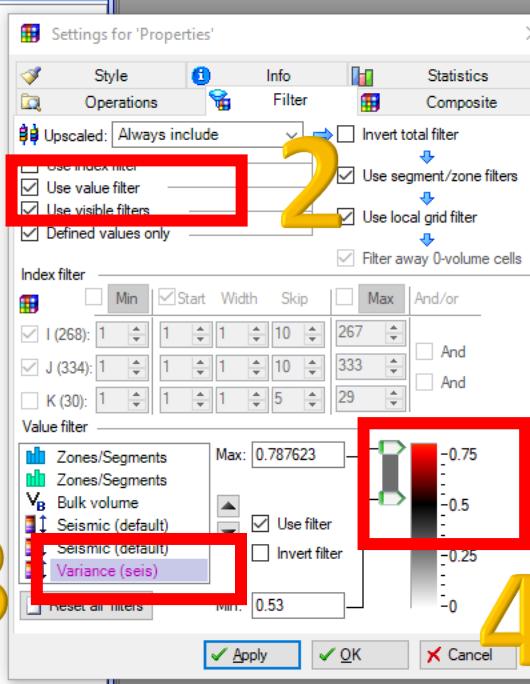
35%



File Edit View Insert Project Tools Window Help

### Models

- New model
- ESQUELETO
- ESQUELETO
- **HORIZONTES**
  - + Skeleton
  - + Faults
  - + Horizons
    - INT\_3
    - INT\_2
    - INT\_1**
  - + Edges
  - + #sections
  - + Properties 1
  - + Zones/Segments
  - + Bulk volume
  - + Seismic (default)
  - + Seismic (default)
  - + Variance (seis) 3
  - + Fault filter
  - + Zone filter
  - + Zone 1
  - + Zone 2
  - + Segment filter



Input Models Results Templates

### Processes

- Input
- Stratigraphic modeling
- Geophysics
- Structural modeling
- Property modeling
  - Geometrical modeling
    - Scale up well logs
    - Data analysis
    - Make multi-point facies pattern
    - Facies modeling
    - Petrophysical modeling
    - Fault analysis
  - Upscaling
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- Well engineering
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Processes Cases Workflows Windows

Action performed OK

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**16 Y 23 DE ABRIL DEL 2021**

# **REPORTE CLASES**

