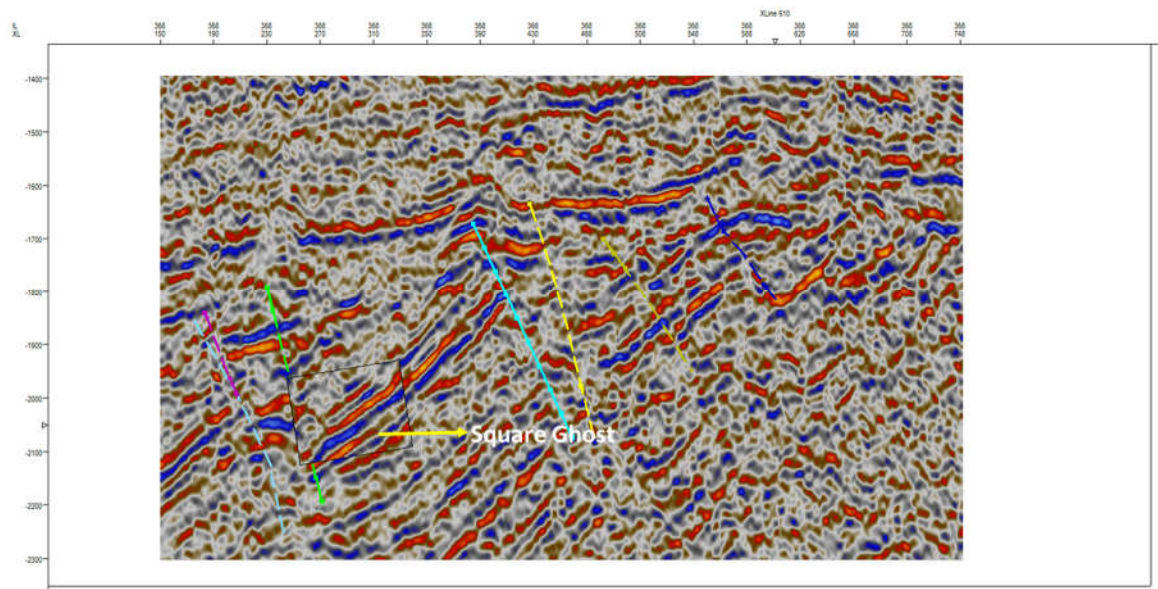


Reference Ideas

Geophysics and Geology:

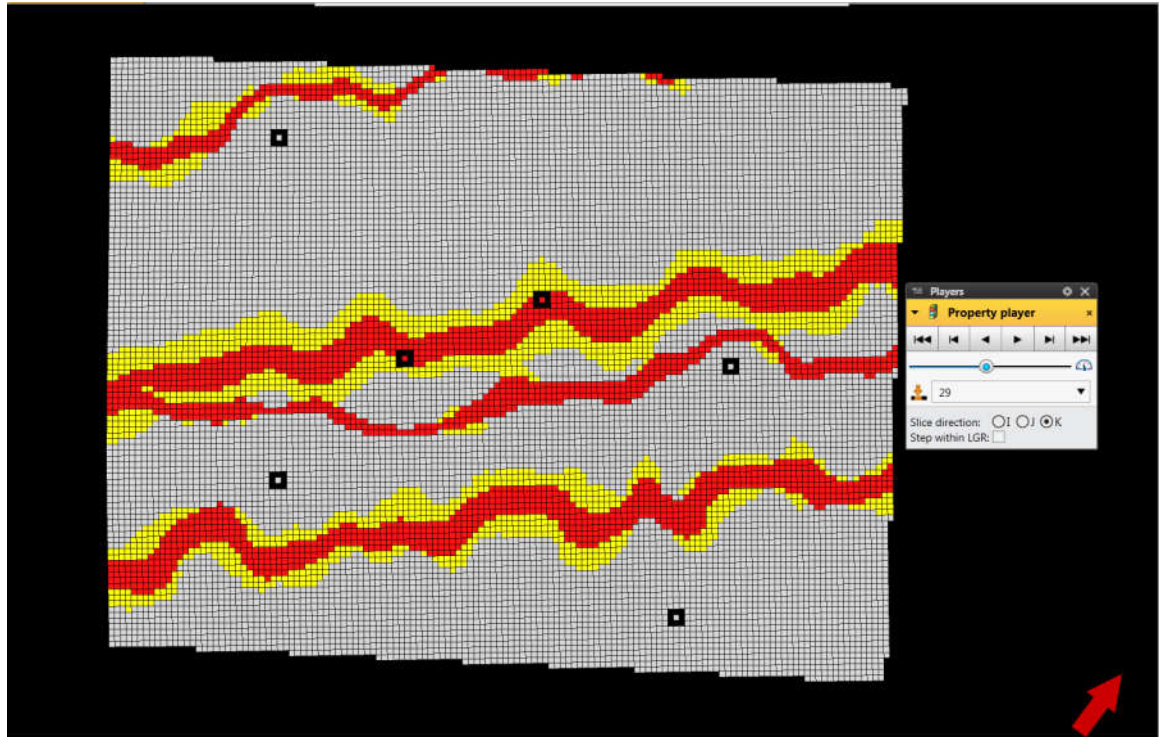
1. Freely ghost in interpretation window

In petrel 2015, the ghost only can be made as a square shape, but in seismic interpretation window if the ghost can be made in freely shape, it will be easier to compare the captured seismic image with other place. For example, if the ghost image can be made only from hanging side, it will be meaningful to compare it with the seismic data in footwall of a fault. Also, if the ghost image can be refreshed timely after it has been rotated in angles, it will be very friendly used. The ghost file should exist in window file.



2. Make a video in petrel

Sometime we want to show our geological model or other achievements dynamically in presentation, such as a video, but now petrel only can display geological model dynamically in project and need to using other software to make a video if we need.so if petrel can make a video from project to PowerPoint easily, it will be better for us to show the achievements to clients.



3. Can petrel spreadsheet be made just like a Microsoft Office Excel

Petrel can show attributes data in spreadsheet, such as KB data in well tops spreadsheet, the spreadsheet looks like Excel but cannot manage data like Excel. For example, if we want to reprocess the KB data in Well manager spreadsheet, we have to process this data in Excel or other statistical software firstly, then we can import it into Petrel, it is time-consuming, so, Can petrel spreadsheet be made just like a Microsoft Office Excel?

The screenshot displays the Petrel software interface. The main window shows a 'Well top spreadsheet for Well Tops 1' with the following data:

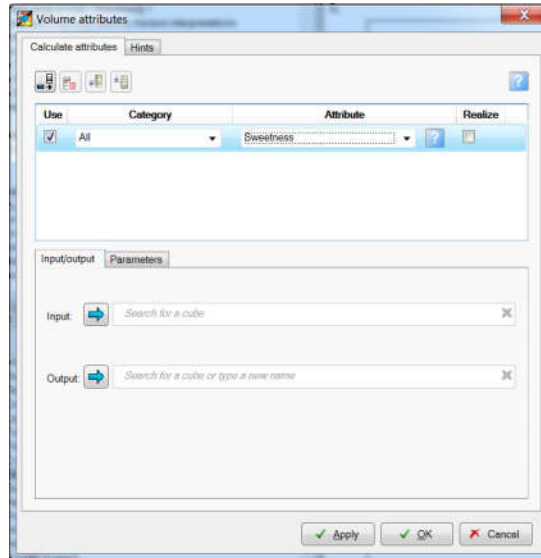
Well Identifier	Surface	Geological age	TWT	TST	Interpreter	Observation number	Dip Angle	Dip Azimuth	Missing	Confidence factor	Used by Dep. Conv.	Used by Geo Mod
1	DW1	A_top									/Yes	/Yes
2	DW1	B_top									/Yes	/Yes
3	DW1	B_base									/Yes	/Yes
4	DW2	A_top									/Yes	/Yes
5	DW2	B_top									/Yes	/Yes
6	DW2	B_base									/Yes	/Yes
7	DW3	A_top									/Yes	/Yes
8	DW3	B_top									/Yes	/Yes
9	DW3	B_base			VPerash2						/Yes	/Yes
10	DW4	A_top									/Yes	/Yes
11	DW4	B_top									/Yes	/Yes
12	DW4	B_base			VPerash2						/Yes	/Yes
13	DW5	A_top									/Yes	/Yes
14	DW5	B_top									/Yes	/Yes
15	DW5	B_base									/Yes	/Yes
16	DW6	A_top									/Yes	/Yes
17	DW6	B_top									/Yes	/Yes

The 'Well manager' window shows the following data:

Name	UWI	Drilling structure	Well datum name	Well datum value	TD (TVDS)	TD (MD)	Spool date	Operator
1	DW6		KB	0.0	4581.0	4581.0		
2	DW1		KB	0.0	4601.0	4601.0		
3	DW2		KB	0.0	4561.0	4561.0		
4	DW4		KB	0.0	4578.0	4578.0		
5	DW5		KB	0.0	4561.0	4561.0		
6	DW3		KB	0.0	4581.0	4581.0		
7	Test1		KB	0.0	4561.0	4561.0		
8	Test2		KB	0.0	4581.0	4581.0		
9	Test3		KB	0.0	4501.0	4501.0		
10	Test4		KB	0.0	4561.0	4561.0		

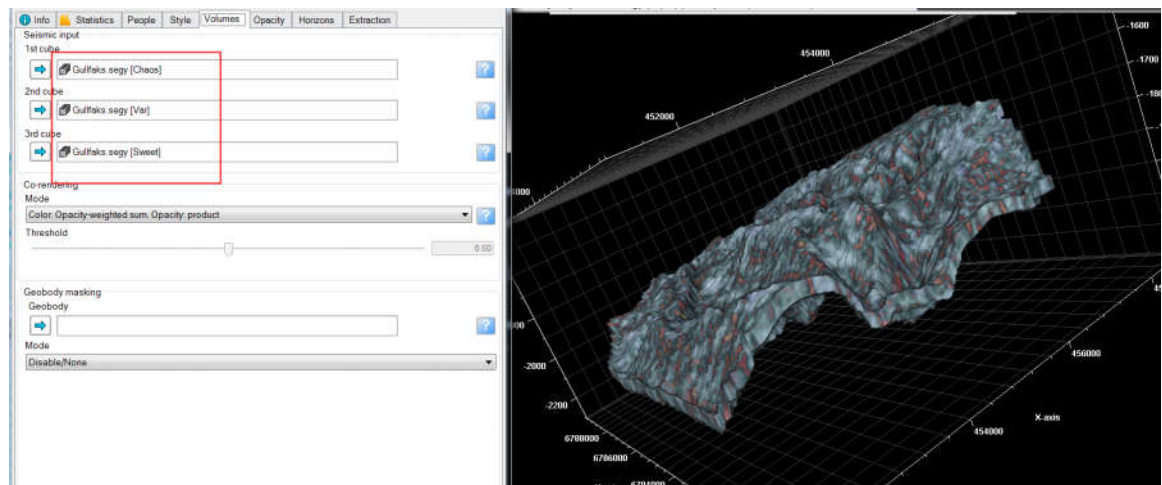
4. New Seismic algorithm

Extends Petrel volume attributes by adding one of new seismic attributes.



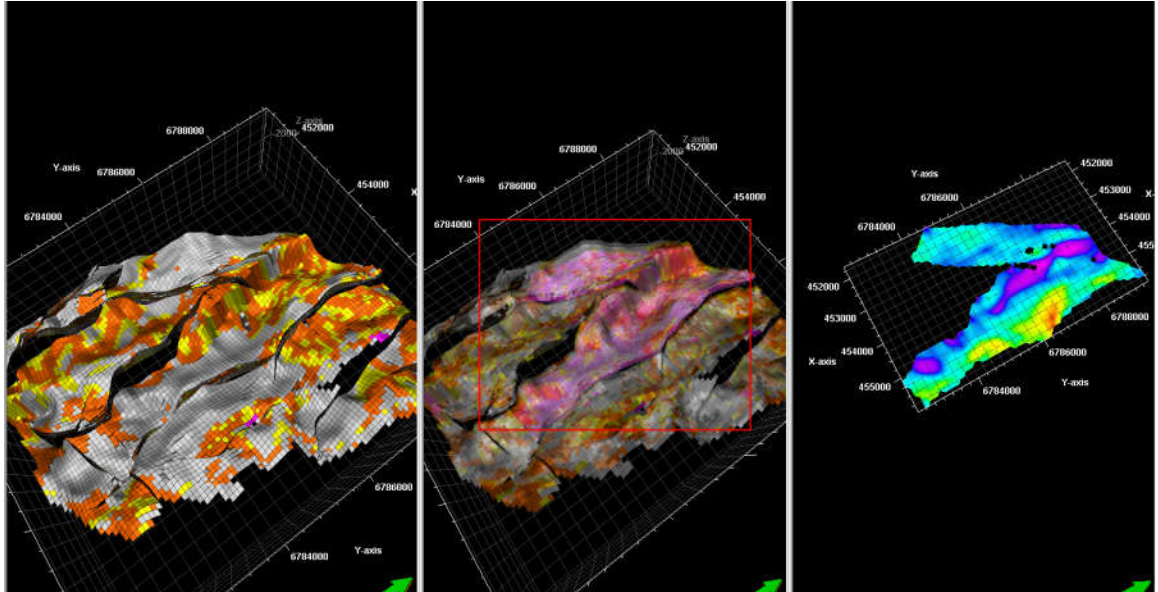
5. Surface attributes blending

Extends Petrel RGB Blending by add surface attributes blending without seismic data. Usually attributes blend need the seismic data, this limited the research when lack of seismic but having surface attributes.



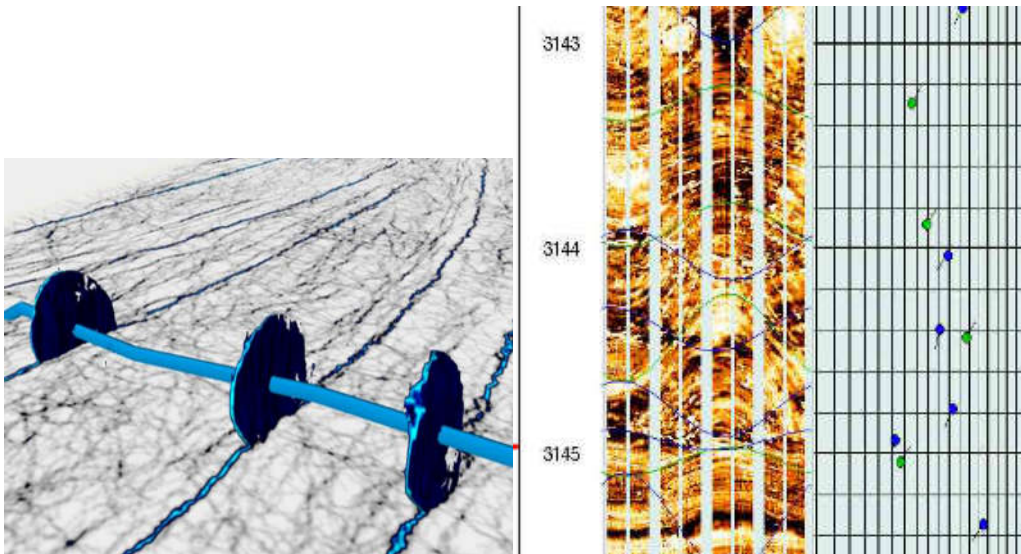
6. Volume connected research

After facies modeling, calculate connected volume could help to find sand body, channel, or karst area. Extend Petrel by auto generating attributes maps (Poro, Perm) for each connected volume.



7. Abstract ant tracking result to well

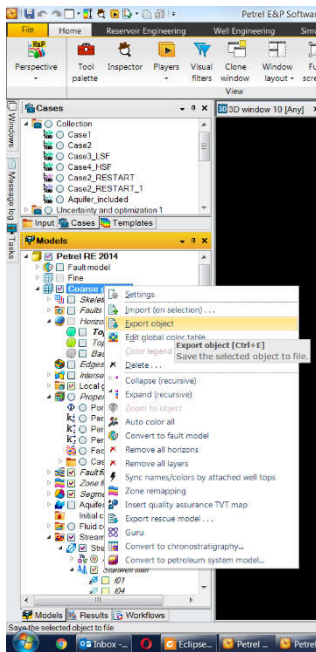
Extend Petrel by auto abstracting ant tracking results around well and calculating the dip angle and azimuth to compare seismic results to well FMI interpretation.



Reservoir Engineering:

1. Export Grid that connected to wells

When we export well connection data in Models Pane, Petrel export all the grids that well penetrates, as shown in following picture for now:



The results show as:

COMPDAT

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-----
'P01' 35 15 1 1 /
'P01' 35 15 2 2 /
'P01' 35 15 3 3 /
'P01' 35 15 4 4 /
'P01' 35 15 5 5 /
'P01' 35 15 6 6 /
'P01' 35 15 7 7 /
'P01' 35 15 8 8 /
/

```

This results can't tell which grid is perforated. While under many circumstances, engineers are very interested into the grids that are perforated by wells. So now if we only want to export grids that are connected (perforated) to wells, we have to make a dummy simulation case and extract the relevant keywords from it. Which is not so convenient.

If we can develop a plugin that can export perforated grids in Petrel very quickly, that would be a useful tool.

2. Filtered display of streamline

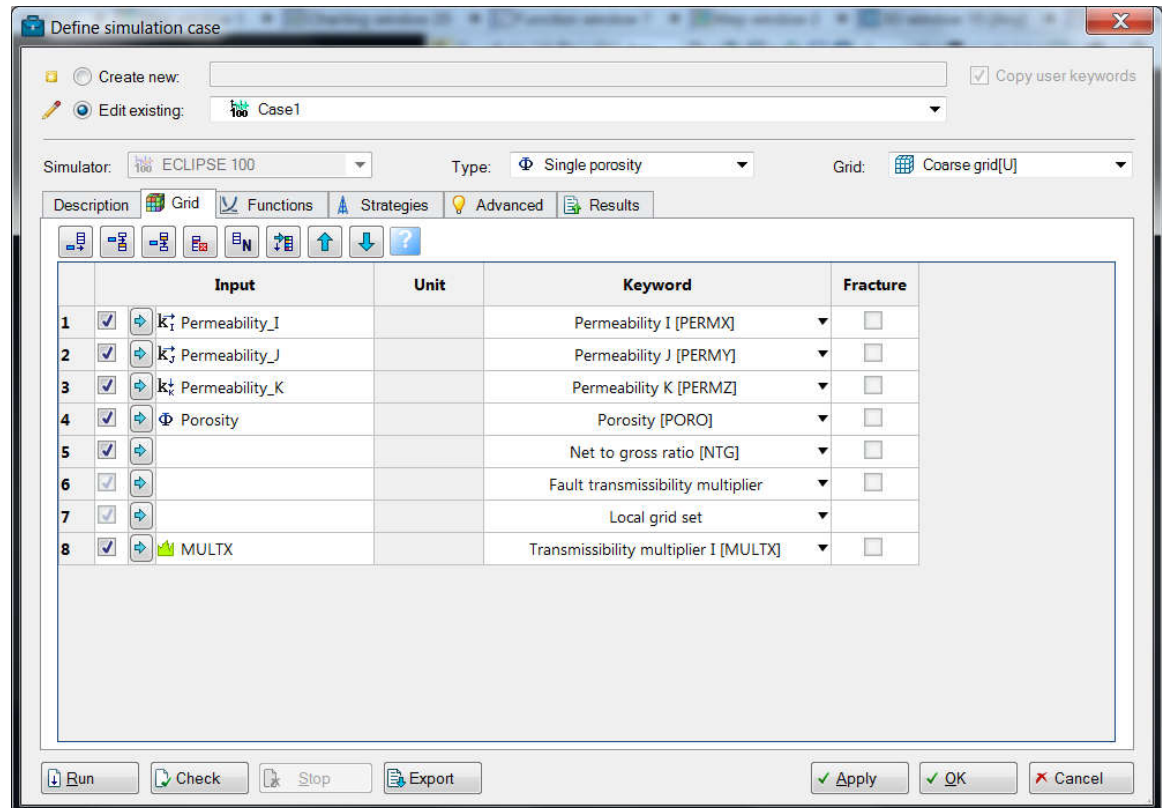
Develop a plugin that can display streamline using varies of filter. For example, draw a closed polygon in Petrel, and show only the streamlines that within the polygon, or show streamlines with different density. The filter function for property display in 3D window is great in Petrel, but not so great for streamline display.

So if we can develop a plugin to cover this shortage that would be great. And the filtered display of streamline is very useful for report.



3. Input MUTLX (MULTY, MULTZ) that can vary with time for history match

Now in Petrel, MULTX (MULTY, MULTZ) must be input in define case process, shown as follows:



The disadvantage of this method is that the property that be input here can't varied with time. When we matching our simulation results with observed data, sometimes we need to change transmissibility with time, especially for the grids that surrounding a wells. For now, if we want to do this, we have to add keywords manually in the simulation case.

So to maximize the advantage of Petrel interface, if we develop such a plugin that can change MULTX (MULTY, MULTZ) without going to keywords that would be very useful.

4. Video recording is also very useful for reservoir engineering part. For example, make a video of pressure change with time, which is very intuitive oto show the potential change of the reservoir.