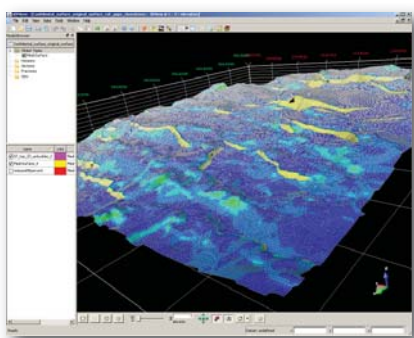


In Structure World this month there is some more detail about 4DRestore. We've been restoring volumes in 3DMove for ten years and we're really excited about the new possibilities. In Interpreter Tips we look at depth to detachment estimates. Plus there's an introduction to our work with universities to help train the next generation.



4DMove – the new dimension is here now.

4DRestore is a new module of 4DMove providing rapid geomechanical restoration of 3D volumes and surfaces. Using a mass-spring solver, which is significantly faster than finite element solutions (8 to 10 times faster), users can build and test multiple scenarios in a very short space of time. 4DRestore can be used in conjunction with the traditional geometrical restoration algorithms in 2DMove and 3DMove or as a standalone modelling workflow.



The workflow based approach in 4DMove ensures that 4DRestore will be usable by a wide range of industry professionals, not just expert structural geologists. The user is guided through a step by step workflow and scenarios can be routinely saved and edited.

The mass-spring solver allows:

- heterogeneous 3D transport (non-plane strain);
- dynamic restoration of displacement on faults (fault gaps are closed as the restoration is taking place);
- passive surfaces and volumes to be handled at the same time;
- restoration runs in a reasonable amount of time!

The new implementation provides for automated fault gap closure for both hard and soft-linked systems. This eliminates extensive model conditioning and rebuilding between time-steps and represents a major breakthrough in the workflows to create time-stepped

palinspastic models for basin modeling and hydrocarbon systems analysis. The same technique also gives fault damage zone information allowing new insights into fault seal evolution.

Outputs from 4DRestore such as strain and stress, uncertainty, misfit analysis and movement vectors can be delivered in a variety of formats, including directly to a geocellular model.

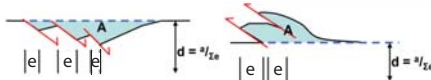
Want more info? Contact geo@mve.com

Interpreter Tips:

How to calculate depth to detachment.



A common problem in both normal and thrust faulting is how do we estimate depth to detachment where we have picked a horizon and a small segment of the fault. To do this we draw a "regional" which is the starting level of the faulted horizon. If we can't identify the un-faulted "footwall" we can still use the technique but it will only give us a locally valid answer.



The next stage is to measure and add up the offsets "e" (extension or contraction) on the faults and the area A below or above the regional.

Depth to detachment "d" below the regional is then given by dividing "A" by the sum of "e". We can use this to guide our fault picking at depth and we should check that the value we get for "d" is geologically sensible. For example that it coincides with a know weak layer (salt, shale) or is within the mid crust where we might expect a brittle-ductile transition. Very large fault systems may detach at base crust but if we get a large answer for "d" this is often a clue that have a strike slip system or a problem correlating the horizon or picking the faults.

More info? E-mail Louise at help@mve.com

First university field mapping workshop held in Glasgow



The first workshop to support our Field Mapping Training Initiative for students through the use of structural software to directly integrate their field observations, utilise validation and modelling tools to create a digital framework model took place in Glasgow in January. Representatives attended from Geology departments in the UK, Netherlands, Italy and the US.

It is expected that the first students will be working with the software on their lap tops in this seasons mapping projects.

Interested? Contact Alan at info@mve.com

Silver Anniversary Events

To help celebrate our anniversary this year we'll be attending the following events:

- GEO08 Bahrain, March
- AAPG San Antonio, 20-23 April
- Public Training, Glasgow - 1-2 April
- South American Roadshow - Q1
- ODIN Workshop - Q1
- Silver Anniversary User Conference - Oct 08,

More info? E-mail Sarah events@mve.com



For more info on anything in this column call +44 (0)141 332 2681 or email help@mve.com