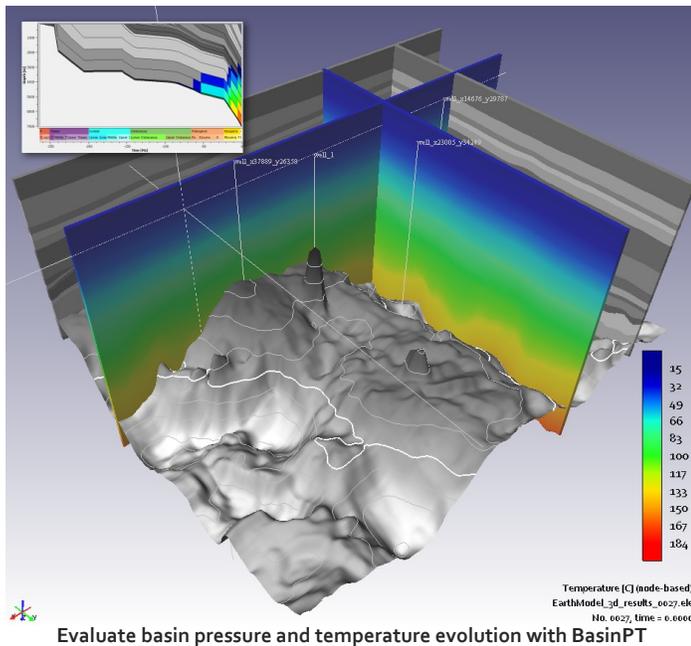


Permedia™ BasinPT

Permedia™ BasinPT is used to forward model pressures and temperatures in an evolving mesh. Coupling a flexible calculator that uses the latest mathematics and computational efficiencies with rapid model building workflows, BasinPT allows you to model basin geometries and lithologies through time to create 2D and 3D models quickly and easily.



Evaluate basin pressure and temperature evolution with BasinPT

Featuring rapid calculations, flexible boundary conditions, lithology proportion and facies-based rock property assignments, and custom scripting, use BasinPT to investigate the impact of different petrophysical scenarios on your pressure model.

Forward model pressure and temperature on an existing mesh built using tools such as Petrel, Gocad or Trinity, or use Permedia's rapid basin model building workflows to build sophisticated 2D and 3D models.

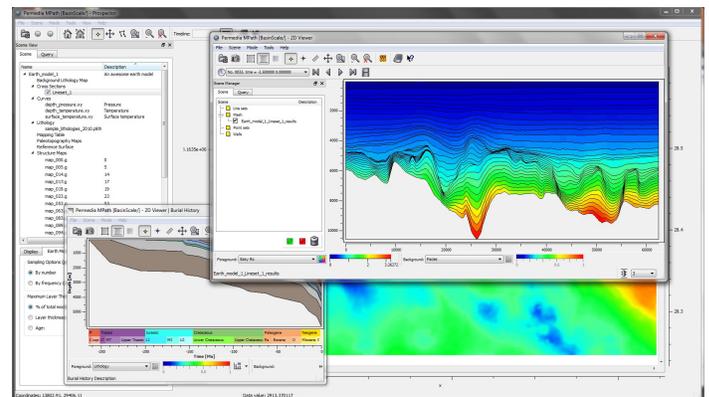
Couple BasinPT with petroleum generation and expulsion modules to create inputs into Permedia Migration for an end-to-end basin modeling workflow.

Rapid Earth modeling

Use Permedia Prospector to build basin models on the fly from a set of stacked depth maps:

- Drag horizons into Prospector and assign ages and types.
- Use basin model pre-processing tools to fix crossed grids, fix holes and extend grids, create grids from pointsets using functions or kriging, and smooth and refine grids.

- Pick any point in the map to view burial histories calculated on the fly.
- Create a cross section from a transect and view it in 2D Viewer; changes to the transect are immediately reflected in the cross section, and changes to any of the maps automatically update the model.
- Assign rock property information to horizons and conduct a pressure and temperature simulation (in 2D or 3D) while building your model.
- Use the migration solver to query the dynamic cross section.
- Assign source properties to the horizons to be carried forward into any 3D model.



Build the structural framework in Prospector

Flexible lithology properties

The underlying rock property system is easily extensible and can handle dynamic mixing of rock properties. While other tools only allow lithology assignments to be based on constants or discrete maps, Permedia BasinPT accepts lithology proportions and mixes their properties on the fly. Rock properties themselves are defined as curves, which can in turn be specified using any equation for maximum flexibility.

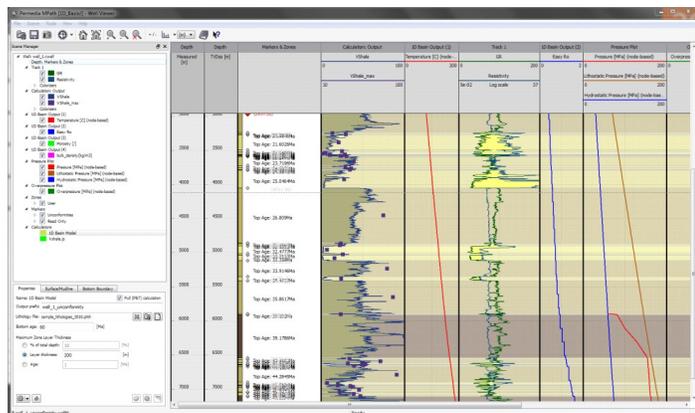
Flexible boundary conditions

All boundary conditions can be specified in many different ways. For example, temperature boundaries can be specified using constants, depth curves, time curves, heat flux maps or curves, and using a full lithosphere model.

Both pressure and temperature boundary conditions can be set to vary through time, for different parts of the model. This is useful, for example, to open a boundary to mimic a pressure sink as a result of outcropping or accessing a hydrostatic aquifer outside of the model's area of interest.

1D, 2D and 3D

The same simulation engine is used for 1D, 2D and 3D workflows. Build 1D basin models using Permedia Well Viewer, an extensible, integrated well viewer and data analysis system.

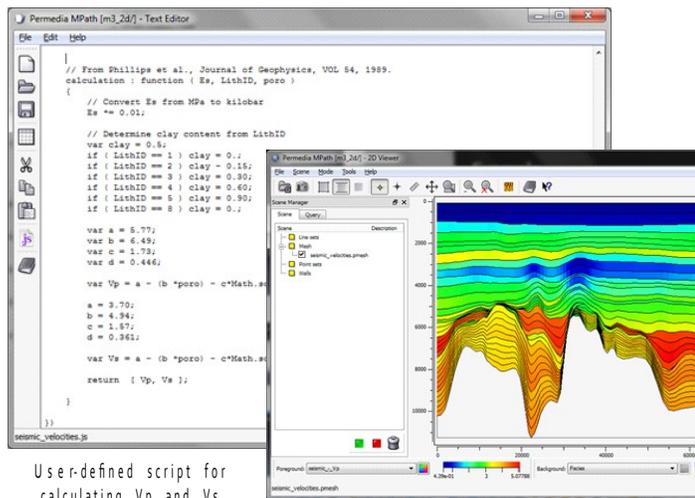


1D basin modeling in Permedia Well Viewer

Extend output with scripts

Permedia BasinPT provides dozens of outputs (temperature, overpressure, sediment maturity, mud weight, etc.). If there's a property that you would like to derive from the output of BasinPT, you can extend the calculator using scripts – no need for special compilers and the language is easy to learn. For example, you can take BasinPT output and derive seismic velocities based on a relationship between effective stress, clay content and porosity.

You can also use this scripting system to link with proprietary calculators and workflows.



User-defined script for calculating Vp and Vs

Results of Vp and Vs script

Pore Pressure Integration can be used to calculate pore pressure from 3D seismic velocity data, and integrate results from BasinPT.

You can define regions in the data volume and apply different calibrations to each. Calculation results can be viewed interactively in 2D or 3D. When changes are made, the viewers can be updated to reflect the new values, allowing an iterative workflow whereby any changes can be evaluated locally prior to recalculating the whole volume.

Part of a broader solution for pore pressure prediction

In addition to BasinPT, Permedia software includes a suite of complementary tools for conducting pore pressure studies. Each tool can be used individually, or in conjunction with Permedia Pore Pressure Integration, a revolutionary new tool for combining pressure data from multiple sources.