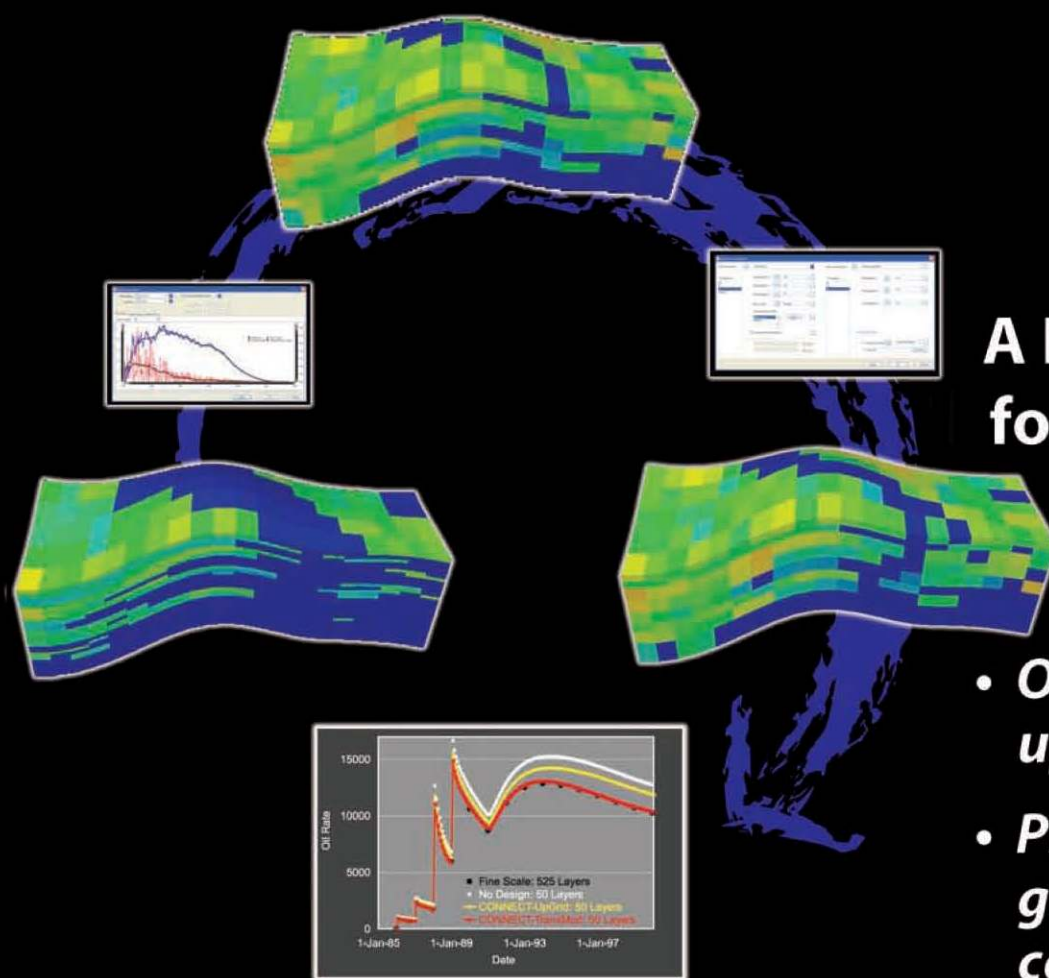




CONNECT™

90% Solution with 10% Effort



**A New Plugin
for PETREL®**

- *Optimize your upscaling design*
- *Preserve geological connectivity*
- *Reduce simulation time*





90% Solution with 10% Work

CONNECT™ is a new PETREL® plug-in that facilitates reservoir description and assessment process by providing connectivity between::

- Fine scale and coarse scale models
- Grid blocks of reservoir models
- Static and dynamic models
- Different types of data sources

Currently, it consists of two modules to design optimum vertical layering (UpGrid) and to preserve geologic connectivity (TransMod) of your fine scale reservoir models. With CONNECT you get 90% accuracy of your fine scale dynamic behavior with 10% of your model size, which translates into 100 times faster flow simulations.

UpGrid Going from geological model with millions of cells to a simulation model requires a careful upscaling of the fine scale grids so that dynamic performance of the geological model is preserved. Using proportional upgridding (as available in PETREL) would result in combining layers which will have different petrophysical properties. We have developed a new algorithm which allows combination of layers such that pressure profile at fine scale is preserved. The layers - which have similar pressure distributions - are combined first, and the layers with distinct pressure profiles are isolated. By preserving the dynamic behavior, the resulting upscaled model is able to reproduce the behavior of the fine scale model with 10 % of the effort. In addition to combining the layers correctly, the program also is able to provide guidelines in terms of optimum number of layers needed to preserve the fine scale, dynamic, behavior.

Features of the program:

- PETREL® plug in
- Well defined work flow
- Computationally efficient
- Provides graphical procedure to select the optimum number of grid blocks

- Determines the optimum number of layers needed to preserve dynamic characteristics of fine scale model

TransMod Transferring fine scale grids to coarse scale grids requires upscaling of fine scale properties. Upscaling individual coarse grids may not allow us to properly account for connectivity across these grids based on fine scale model. This can result in overly optimistic performance when the model is coarsened. TransMod provides a simple procedure where the fine scale transmissibilities are preserved in an upscaled model. Running the program provides modified transmissibilities which can be used as an input to ECLIPSE simulator. Adjusting connectivity results in significant improvements in preserving fine scale dynamic behavior in the upscaled model. Using this model in association with UpGrid would allow the user to significantly upscale geological models while preserving their dynamic characteristics.

