

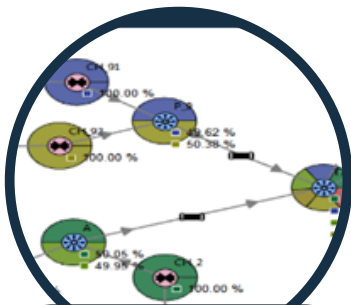
tNavigator[®]

Rock Flow Dynamics

INTEGRATED ASSET MODELLING

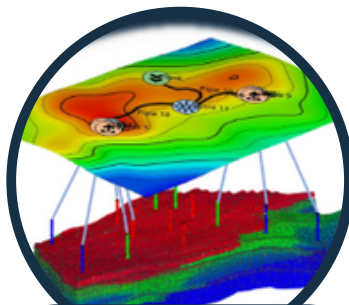
WWW.RFDYN.COM

The operational conditions and pressure drop in the surface equipment can have a significant impact on the reservoir behavior. For this reason, tNavigator Network Designer allows the engineers the inclusion of the upstream facilities design, altogether with the reservoir dynamic modeling. This enables a better understanding of the performance of a given development strategy and to analyze the effect of surface facilities on the wellbore and subsurface state.



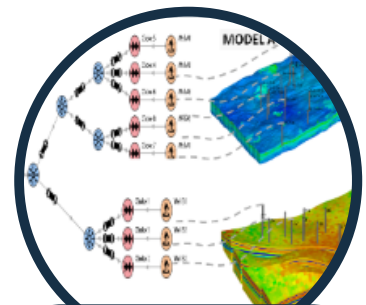
SURFACE NETWORK

System of equations describing surface pressure, rates, and temperature. This module counts with a vast library of surface facility objects, allowing for multi-editing and individual setting.



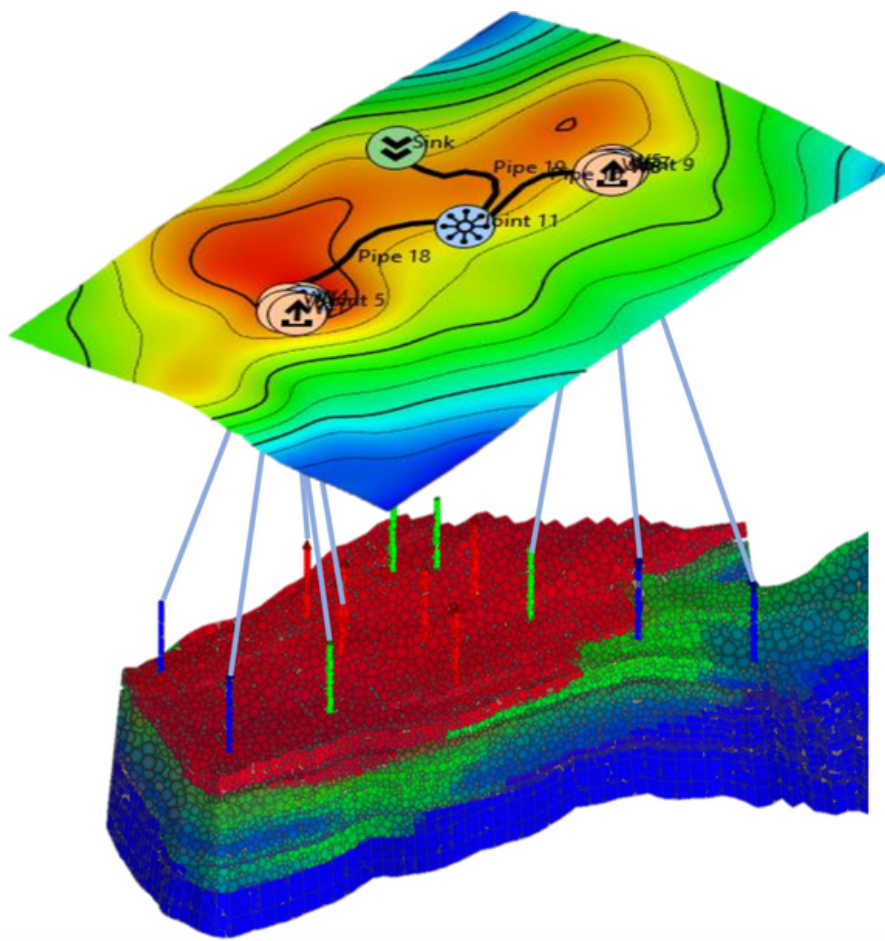
FULLY IMPLICIT SOLVER

The system of equations for the integrated model is solved implicitly at each time step. A well is modeled by a network connected to the surface network. Objects are visualized in 2D according to their real coordinates.



RESERVOIR COUPLING

Fully implicit coupling of multiple reservoir models by common surface network. This enables fluids with different multicomponent PVT models to mix in a wide range of pressure and temperature values.



ABOUT US

tNavigator, developed by Rock Flow Dynamics, is a one-stop comprehensive reservoir management solution that leverages modern computing architecture to deliver superior speed, scalability & ease-of-use for integrated static and dynamic modelling from reservoir to surface networks.

Promoting cross domain collaboration, tNavigator is a single environment that enables subsurface teams to work together to navigate your reservoir and not lose any time or data by moving between applications. In tNavigator you will find unique integrated workflows from geophysics to reservoir modelling, allowing geoscientists to construct a robust interpretation and reservoir model of their field. In the same interface, models can then be instantly carried forward to reservoir simulation, allowing for thorough analysis and evaluation of the field, and for your team to make informed decisions on your assets.

INTEGRATED MODEL

A model including “reservoir + well + surface network”. It is a joint system of equations describing the physical processes in a reservoir, the changes of pressure and temperature in the wellbore and in the surface network.

A fluid model is created once and used at all stages of the system. The integrated model is calculated under the constraints provided by the surface network, i.e., all controls will be replaced with the controls set in the surface network model.

SURFACE – SUBSURFACE COUPLING

The linkage between the dynamic model and the integrated system is made via the well connections. There are two approaches to “couple”:

- Integration via well connections (by default)
- Integration via well heads

An integrated well is equivalent to a source object with a constant rate of mixture components.

UNIFIED GUI

tNavigator allows the synchronized visualization of the rates, pressure, temperatures etc. along the integrated model (surface network, subsurface dynamic model, well model and PVT variations) in only one graphical interface.

The constitutive models can be managed in a single window: PROJECT MANAGER. Therefore, there is no need for importing of initial data or exporting results between projects.