

■ Multi-Porosity ■ Multi-Permeability ■ Multi-Components

Multi-Talented **COMET3** for Unconventional Reservoirs

COMET3 is an essential engineering tool for any company interested in maximizing natural gas and crude oil recovery from unconventional reservoirs. It is an industry preferred model for fractured reservoirs, coalbed methane, gas-bearing shales and sandstones, and fractured carbonates.

COMET3 offers true triple porosity, dual permeability capability for accurate modeling of naturally fractured reservoirs with matrix porosity and gas desorption. New multi-component capability allows better evaluation of enhanced coalbed methane recovery using carbon dioxide, nitrogen or mixed gas injection. **COMET3** provides modern and rigorous solution techniques and has a fully implicit wellbore algorithm.

Comet3

Fractured Reservoir Simulator

Principal Features

COMET3 is a three-dimensional, finite-difference fractured reservoir simulator designed for unconventional gas and black oil problems.

Applications

COMET3 is an excellent engineering tool for planning field development and modeling reservoir performance.

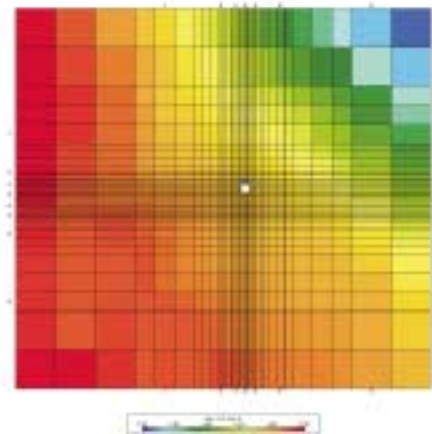
Utility

COMET3 is designed for ease-of-use with a menu-driven program interface:

- **Triple Porosity/ Dual Permeability:** Rigorously handles the release and transport mechanisms of desorption, diffusion and Darcy flow through a dual permeability network (matrix and fractures).
- **Three Component Gas Sorption:** Defines the non-linear relationship between free and adsorbed multi-component gas mixtures (methane, nitrogen and carbon dioxide) as a function of methane concentration using extended Langmuir isotherms.
- **Two-Phase Flow:** Models two-phase flow (gas-water, oil-water, or gas-oil) through either a single-or dual-permeability network.
- **Complex Conditions:** Aquifer functions allow the modeling of water influx and recharge. Stress-sensitive permeability and porosity, matrix shrinkage and swelling, hydraulically fractured and cavitated wells can be modeled.
- **Fully 3-dimensional:** Accurately handles thick, layered reservoirs and multiple, independent zones.

- **Fractured Reservoirs:** Coalbed methane, fractured shales, tight, fractured sands and carbonates can all be modeled using **COMET3**.
- **Enhanced Methane Recovery:** Compositional features enable operators to examine N₂, CO₂ or mixed gas injection for their coal seam and gas shale reservoirs, and forecast gas production resulting from the process.
- **Gas Storage Reservoirs:** Models gas injection and deliverability for gas storage facilities.
- **Mine Degasification:** Features allow determination of gas production and degasification effectiveness from gob wells and horizontal boreholes. Examine the effect of nearby surface mining on CBM recovery.

- **Graphics Capability:** Automated production plots plus color displays for reservoir properties.
- **Data Conversion:** Metric and English units.
- **Automated Features:** Automated time step selection to reduce computational time; gas PVT package for automatic generation of gas properties; automated computation of well productivity indices; batch processing of multiple simulation runs.
- **New Program Version:** **COMET3** benefits from a long and continuous development program that is committed to maintaining and improving the software now and years in the future. The recently released new program version features improved compatibility with Windows operating systems, a new program interface for easier use and dynamic memory allocation for more gridding flexibility.



Dynamic memory allocation allows gridding of larger problems.

For more information on **COMET3**, please contact:
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