

REAL TIME IN-SITU PVT PREDICTION

What is PVT^{MOD}

PVT^{MOD} is a system for predicting petroleum fluid properties from wireline formation tests. The service provides a real-time simulated PVT analysis, via an internet link, calculated from geochemical parameters and pressure gradients derived from formation pressure tests. The PVT^{MOD} service is offered via a joint venture formed between GeoMark Research and Baker Atlas.

How does PVT^{MOD} Work

PVT^{MOD} combines petroleum geochemistry and reservoir fluid databases with wireline formation pressure tests to predict downhole petroleum fluid PVT properties in real time. The PVT^{MOD} algorithms are developed from a worldwide database of reservoir fluid properties. By combining predicted geochemical representations of source rock type, thermal maturity and biodegradation with formation test tool measurements, PVT parameters can be predicted prior to the collection of physical samples.

With the geochemical parameters drawn from each depositional basin and the other input data from the formation test (pressure gradient, formation pressure and temperature), a set of PVT parameters is calculated using the algorithms. These are typically within 10-15% of laboratory values when tuned on a basin level and more accurate when further tuned by region and field. Importantly, PVT^{MOD} D predictions, unlike PVT properties measured from physical samples, are free of oil-based mud contamination errors.

Why use PVT^{MOD}

Conventional PVT lab results, which often take several weeks or months to be delivered to the customer, are based on the analysis of a limited number of downhole hydrocarbon samples retrieved by wireline sampling or drill stem testing. PVT^{MOD} provides a real-time method for generating fluid properties for each reservoir unit of interest. PVT^{MOD} results are unaffected by all levels of OBM drilling contaminants.

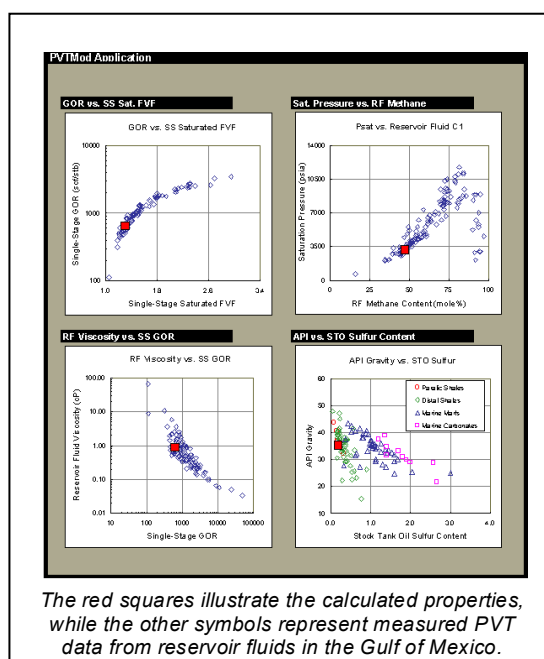
PVT^{MOD} has the ability to evaluate zones which are not sampled due to well conditions or high rig costs. As long as a sufficient number pressure tests are obtained, an accurate PVT report is possible.

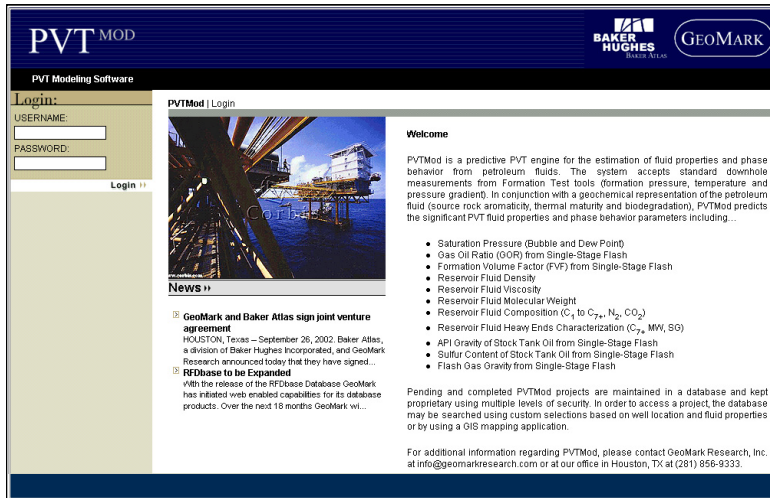
Security & Organization

PVT^{MOD} projects are maintained in a web-enabled database and kept proprietary using multiple levels of security. In order to access a project, the database is searched using custom selections based on well location and fluid properties or by using a GIS mapping application.

What Data are Provided

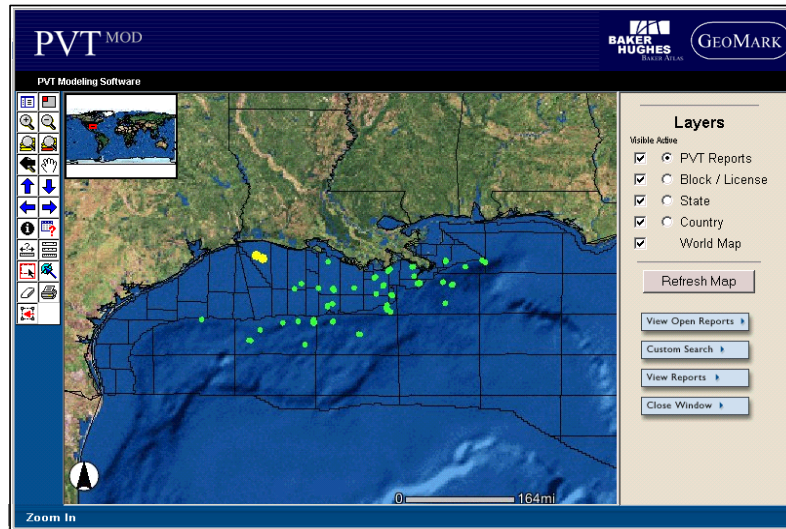
- Saturation Pressure (Bubble and Dew Point)
- Gas Oil Ratio (GOR) from Single-Stage Flash
- Formation Volume Factor (FVF) from Single-Stage Flash
- Reservoir Fluid Density Reservoir Fluid Viscosity
- Reservoir Fluid Molecular Weight
- Reservoir Fluid Composition (C1 to C7+, N2, CO2)
- Reservoir Fluid Heavy Ends Characterization (C7+ MW, SG)
- API Gravity of Stock Tank Oil from Single-Stage Flash
- Sulfur Content of Stock Tank Oil from Single-Stage Flash
- Flash Gas Gravity from Single-Stage Flash





PVT^{MOD} is designed to provide real-time simulated PVT properties calculated from pressure gradients and geochemical parameters. Calculated PVT parameters are typically within 10-15 percent of laboratory values when tuned on a basin level and more accurate when further tuned by field. Importantly, PVT^{MOD} predictions are free of oil-based mud contamination and available without the collection of physical samples

PVT^{MOD} projects are maintained in a database and kept proprietary using multiple levels of security. In order to access a project, the database may be searched using custom selections based on well location and fluid properties or by using a GIS mapping application. The relationships used in PVT^{MOD} were developed from geochemical parameters and a worldwide PVT database.



For Additional Information Contact:

Headquarters

GeoMark Research, Ltd.
 9748 Whithorn Drive
 Houston, Texas 77095
 Tel: 281/856-9333
 Fax: 281/856-2987

Gulf Coast Laboratory

GeoMark Research, Ltd.
 115 Zonolite Street
 Lafayette, Louisiana 70508
 Tel: 337/261-4002
 Fax: 337/261-5045

e-mail: info@geomarkresearch.com
www.GeoMarkResearch.com
www.GeoMarkPVT.com
www.RFDbase.com