

RFD^{base}

RESERVOIR FLUID DATABASE

Internet-enabled database for the organization, storage, review,
and manipulation of reservoir fluid analyses

GeoMark Research has launched **RFDbase**, an internet-enabled database for the storage, review and manipulation of all petroleum fluid analyses. This “universal” database consists of a series of modules directed toward specific exploration and exploitation functions with each application-based module fully linked to the other modules. Additionally, all modules within the **RFDbase** structure are exportable to databases holding other types of data (rock properties, wireline measurements, etc).

The various modules of this database are discussed in this proposal, and can be viewed at www.RFDbase.com. The website contains a demonstration routine allowing visitors access to all search and display functions on a limited set of selected samples. Please contact GeoMark for a full demonstration of the **RFDbase** program.

OBJECTIVES

The **RFDbase** application has a number of functions in addition to the ability to store and maintain all analytical petroleum fluid reports. The mapping interface may be used to search for specific fluid studies or to locate similar fluids (based on geochemical and bulk characteristic classifications) in different geographic regions. These “similar” fluids may be further utilized in estimating fluid properties or parameters, and in linking to commercial or in-house simulation programs.

Some of the specific functions of **RFDbase** are listed below.

- The proprietary data is protected with different levels of user access based upon permissions established by member companies. Levels include overall access, partner access, and limited access for “tight-holes”.
- Electronic or hardcopy reports can be generated directly from the database. The reports are exported into standard Excel file formats or from the Adobe Acrobat PDF file containing the original hardcopy.
- An important feature allows for extensive data searching by fluid properties, field information, etc. Additionally, a web enabled Geographical Information System (GIS) mapping application provides for data searching and comparative analyses in a more visual environment.
- The program allows for real time plotting of selected data or data sets.
- With the mapping interface, comparisons of multiple fluids on a geographical basis can be made.
- Data are easily exported to Excel for the development of fluid property correlations and mathematical relationships.

DATABASE SECURITY

All data/reports are protected with cascading levels of user access based upon established permissions. Levels include Open access, Corporate access, and Proprietary access for tight-holes wells.

Not only is proprietary data protected from other participants; the existence of such data is not available or even indicated during GIS mapping or numerical searches. If a company wishes to “share” data with another participating company, a password adjustment allows only the specific data to be exchanged while maintaining overall confidentiality.

DATABASE DESIGN

RFDbase has been developed as an interactive web interface overlaying a Microsoft SQL Server database populated with the petroleum fluid data. The database applications are hosted off-site offering electronic and physical security, as well as broadband access for member companies.

It is important to note that GeoMark has previously constructed geochemical database modules; much of that data was generated using consistent methods in our laboratory. However, portions of the remaining modules are populated with data from other laboratories where inconsistencies may exist between experimental methods and processing techniques. Where available, these variations are recorded and quantified in the database.

In the next section of this proposal we list each of the modules that are active, or being developed, as part of the **RFDbase** database.

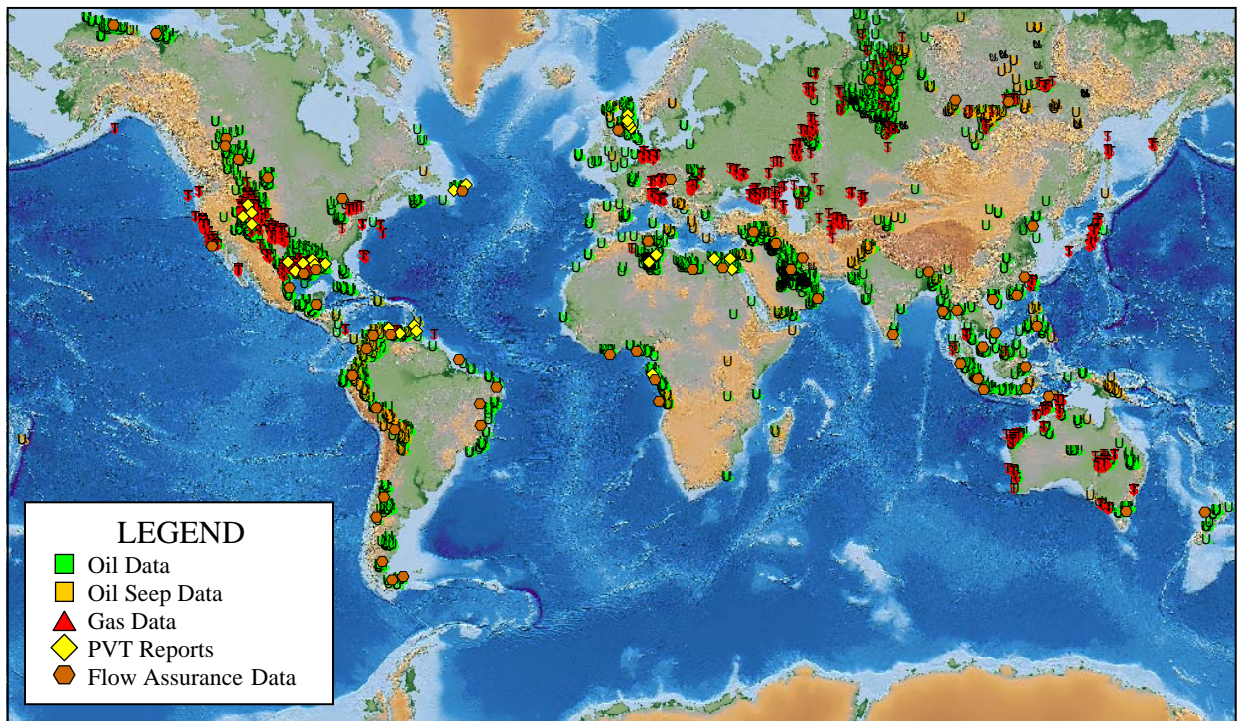


Figure 1. Distribution of samples in the RFDbase Database.

PRICING

The price of the various database modules is directly tied to the purchase of the individual datasets. Development costs are built into the cost of the data purchases, and will not be charged separately. Please contact us for prices for individual modules.

TIMING

All of the modules discussed above are currently offered via the www.RFDbase.com website.

For Additional Information Contact:

GEO-MARK RESEARCH, INC.
9748 Whithorn Drive
Houston, Texas 77095

Tel: 281/856-9333
Fax: 281/856-2987
e-mail: info@geomarkresearch.com

RFD^{base} Modules

PVT Data _____ **PVT Module**

The PVT module is fully functional for the storage, review and manipulation of complete PVT reports. The database is divided into a “closed” section for the storage of confidential reports, and a large “open” section for the storage of non-exclusive reports accessible to all participants. This database stores all data in a standardized format for easy comparison of data, and also house all reports in original formats.

Gas Analyses _____ **Gas Analysis Module**

GeoMark currently maintains two separate gas analysis databases (Global and Gulf of Mexico) that hold a total of 4,300 gas analyses worldwide. Over 95% of these analyses have both compositional and carbon isotope measurements. Both of these databases are accessible via the RFDbase website.

Oil Analyses _____ **GOMOIL & OILSTM**

Through the OILSTM (Oil Information Library System) and GOMOIL (Gulf of Mexico OILS) databases GeoMark provides access to over 6,000 crude oil geochemical analyses. Participating companies have access to the databases and can contribute oil samples for free analysis by GeoMark. The results of these analyses will be held confidential by GeoMark for a negotiated period of time and are then added to the databases. This provides an analytical source for the participants and populates the databases with new samples. During each year GeoMark will also add new samples to the databases from its' collection of regional study samples, thus assuring that the databases grow substantially each year.

Source Rock Analyses _____ **XTRAX**

GeoMark is now offering the XtraxTM (Source Rock Extract Analysis Database) as a complement to its existing OILSTM (Oil Information Library System) program. This database contains all the analytical and complementary data for a selection of source rock samples. All the extract biomarker and isotopic analyses have been performed by GeoMark, thus assuring compatibility to the OILSTM data.

Flow Assurance _____ **Flow Assurance Module**

Over the past 2 years GeoMark has performed a series of geochemical studies designed to establish a baseline understanding of flow assurance problems. These “problematic” studies were performed to investigate the relationship between different oil types (i.e. different source environments, thermal maturities, and degrees of biodegradation) and paraffin and asphalt stability. The results from these studies form the bases for the flow assurance module.

Water Analyses _____ **H2OCHEM Module**

This database contains produced water analyses. Additionally, space is allocated in the database for the storage of injection water properties applicable to waterfloods.

Enhanced Oil Recovery Data _____ **gEOR Module**

The EOR module contains data related to secondary and tertiary recovery programs including swelling tests, rising bubble experiments, slim tube tests, etc.