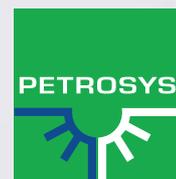


THE SECRETS OF A MAPPING GURU, REVEALED.



Unearth A Masterpiece.™

AN INSIDER'S GUIDE TO ENLIGHTENMENT

Petrosys mapping gurus are made, not born. The transformation feels effortless.

The work of petroleum exploration and production professionals has never been more challenging. Whatever you can do to expand your vision is eminently worthwhile.

Petrosys puts the power of seamless integration in your hands, along with 3D visualization, surface modelling calculations and more. So you can test, refine and resolve uncertainties. And make the most of your current workflow and all your preferred data sources. Quickly and economically.

The result: a map that helps you improve productivity, achieve greater success and attain mapping guru status.

Unearth a masterpiece with Petrosys.™

EMBRACE YOUR FREEDOM TO INTERPRET AND DEFINE.



Mapping & Visualization

2-5

Petrosys mapping software gives you everything you need to display exploration, production and geographical data in the most compelling, relevant way. Add to that our 3D visualization tools, and you're able to combine map views with effective representations of surface models to facilitate, validate and present the interpretation and decision-making process.



Surface Modelling & Volumetrics

6-9

Gridding, contouring and volumetrics calculations. A diverse range of algorithms, methods, smart interpolation and weighting techniques. Petrosys provides sophisticated, integrated surface modelling tools so you can compute complex subsurface structures and estimate volumes, taking faults into account – quickly and accurately. And track your steps so you can easily repeat them or tailor them with alternate data.



Direct Connectivity & Data Management

10-11

The beauty of Petrosys software is that it allows you to tap seamlessly into all of your vital data sources: OpenWorks, GeoFrame, Finder, SMT, Petrel, Petra, Oracle, ArcSDE – you name it – and from there combine interpretation, modelling, queries and reports to create your masterpiece. Throw in our dbMap™ data management capabilities, including PPDW support, and you've found compatibility, flexibility and improved productivity.



Petrosys Compatibility, Leadership & Support

12

As an independent mapping software specialist, Petrosys engineers technology to enhance your existing workflows – by leaps and bounds. Public training and customized on-site programs have mappers up to speed in no time, and our famous global support team is on the spot, always. With well over 20 years of experience and nonstop innovation, no wonder Petrosys is the choice of 250+ leading E&P firms around the world.

Mapping & Visualization

The Petrosys map canvas lets you explore all the possibilities that lead to more valuable conclusions and the extraordinary maps that reveal them.



DYNAMIC PRESENTATION IS A PETROSYS TRADEMARK.

LAYERS OF INSIGHT

Mapping is a natural way to bring together information and ideas from various sources. Petrosys makes mapping easy, providing direct interfaces to the specialized applications and data stores geoscience professionals count on. The result: better communication, more quickly, and with lower support and learning overheads than with other mapping systems.

AN INTUITIVE, FLEXIBLE MAP

Display, review and refine data at every stage. An intuitive interface and a range of graphical display and montage tools let you create meticulous maps for routine interpretation and development scenarios, as well as technical and economical presentations.

GEOSCIENCE ORIENTED AND TAILORED

Integration is the key. Petrosys brings acquisition, processing and interpretation information together simply, quickly and thoroughly.

You can access and post a complete range of seismic, well, surface, contour, fault and associated data, including locations, formation tops/thicknesses, as well as other pay-zone parameters.

Work with directional surveys to compute and post well tracks and downhole formation intercepts with

resulting downhole tops immediately available for gridding, contouring or other displays.

Petrosys seismic base maps, ribbon maps and other subsurface representations can be automatically added as layers. Then choose data such as times, depths or velocities to post against shotpoints, along with 3D inlines, x-lines and bin grids. Compute isochron or isopach data on the fly.

You can also post fault cuts and other key segment information in your seismic interpretation, with the option of controlling the annotation and interpolation across segment breaks.

EXPLORE WITH BUBBLE MAPS

Easily construct bubble maps and pie charts, including computed segment scaling, from well and point data.

IMPRESSIVE SPATIAL FUNCTIONALITY

Display geographical data such as leases, field outlines, political boundaries and more from various image and vector formats, including ArcSDE, Oracle Spatial, ArcShape, ZGF, GeoTiff and other GIS sources. A CGM+ interpreter option can be used to montage seismic sections and well logs into maps, while ECW, MrSID and JPEG2000 handling provides effective support for vital background aerial photographs or remote sensing imagery.



Petrosys supports the functionality that E&P professionals prefer when working with well data from a map view.



Seismic information accessible through Petrosys provides the primary shapes for most petroleum subsurface modelling and offers access to a growing inventory of 2D and 3D seismic knowledge, easily and effectively.

HANDLE DATA BETTER. GET SMARTER ANSWERS, FASTER.

A DYNAMIC, FLEXIBLE MAP BASE

Thanks to our map sheet libraries, even novices can be creating company standard maps immediately. Petrosys map bases can be rotated to suit field outlines, and can include user-defined title blocks and scale bars with run-time text, index maps, color bars and context-sensitive legends.

ROBUST COORDINATE MANAGEMENT

Petrosys maps are constructed from a full range of map projections and geodetic datums, converting disparate coordinates from various data sources to that of the map, based on an industry-standard EPSG library of coordinate reference systems.

DRAW, INTERACT, POLISH

Drawing tools enable the interactive addition of lines, shapes, text boxes and well symbols for annotation of a map, and the pasting of detailed text reports.

Clicking on lines, wells, surfaces, contours and outlines intuitively triggers interaction with your data.

This provides context-sensitive access to various forms of data query, editing and display modification, including effective contour, fault, polygon and boundary editing tools.

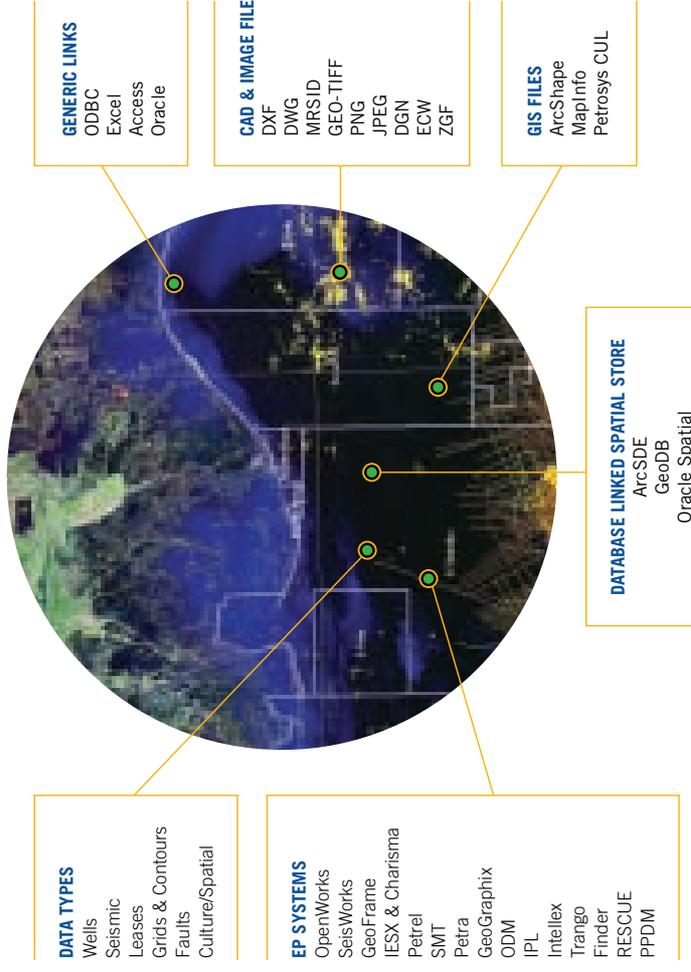
Overposting of text can be reduced, by automatically suppressing

annotations that would display on top of existing annotations, or interactively corrected.

EFFECTIVELY PUBLISH AND REPORT

Raster drivers capable of large-format anti-aliased output and borderless mapping make it easy to publish and report your work. Maps can be directly integrated into PowerPoint or output to a variety of image formats, including CGM. A web map services option makes published Petrosys maps accessible to internet and WMS-capable browsers.

ONE MAPPING SYSTEM FITS ALL YOUR NEEDS.





3D VIEWS PUT PROJECTS IN PERSPECTIVE.

3D visualization makes it much easier to understand the relationships between surfaces and the exploration and production assets and activities connected to them.

EXTEND PRESENTATION OPTIONS

Petrosys greatly expands your vision, allowing you to use a collection of Petrosys grids, Landmark, GeoFrame, Petrel and other surfaces, well tracks, projected maps and raster images to build up and display compelling 3D models.

Petrosys' established display list technology is applied to the construction and manipulation of the display, providing a powerful and familiar user interface.

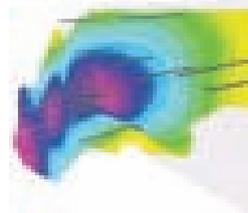
You can also take advantage of horizontal and vertical clipping planes, multiple light sources, a raster hard copy facility and full interactive controls from any Windows, Linux or Unix desktop.

The bottom line: you can work confidently with a complex collection of surfaces and produce maps of extraordinary precision and detail.

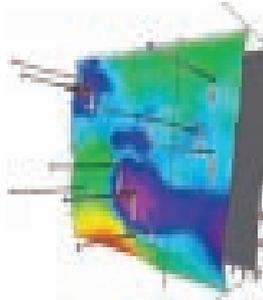
CONTROL SURFACE MODEL QUALITY

Displaying Petrosys computed grids in 3D views, along with the associated well data, is an excellent way to controlling the viewer's understanding of the subsurface structure.

This understanding is complemented by the ability to directly visualize



A collection of complex surfaces can be manipulated and viewed from virtually any perspective, allowing you to see clearly both the surface and the subsurface knowledge.



In Petrosys 3D, it's very easy to review surface intercepts and to validate the proposed relationship of your well, zone and structures in the process.

surfaces from GeoFrame, OpenWorks, ArcSDE, Petrel, Petra, GoCad, ArcSDE, RESCUE models and more.

A range of translucent surface rendering options allows closely overlapping surfaces to be examined concurrently at any viewing angle.

Surface coloring can use any of Petrosys' color gradient models, and can be based on either Z values or information coming from alternate grids. Porosity, permeability or other reservoir attributes can be laid over the structure, and time-variant information can be added to show four-dimensional histories of reservoir behavior.

BRING SURFACE AND SUBSURFACE KNOWLEDGE TO LIGHT

By draping raster images on surfaces, it's possible for potential field or other information not available in grid form to be tied to locations on surfaces in depth, or to clarify the geographic position of subsurface points by overlaying satellite images.

Complete Petrosys maps can be displayed on any surface or on horizontal reference planes, providing a link from the 3D view to detailed maps. This allows you to include additional information such as lease outlines, pipeline routes, rivers and coastlines.

INTEGRATE WELL KNOWLEDGE

Well tracks and downhole information from the Petrosys well data file and other popular industry data sources can be posted and annotated to allow visual correlation of downhole and computed surface data.

GET A CLEARER PICTURE. REDUCE UNCERTAINTY & RISK.

COST-EFFECTIVE VISUALIZATION

Petrosys 3D visualization is engineered to work in affordable Windows, Linux and Unix desktop environments. The viewer includes an off-screen raster hard copy option for presentation-quality imaging as well as the ability to publish your 3D scene as a movie.

Petrosys' visualization allows the comprehensive data presented in map views to be put in the 3D context of an interactively viewable representation of wells, surfaces and geographical data.

Surface Modelling & Volumetrics

Gridding, contouring and volumetrics calculations are synonymous with mapping in the petroleum industry. Petrosys provides the industry's most widely used and well-integrated tools for the job.



PRECISION GRIDDING & CONTOURING ARE YOURS.

Take advantage of our comprehensive suite of graphical and editing operations to present a better understanding of subsurface data for more successful drilling and exploitation programs.

HIGH-PERFORMANCE GRIDDING

Data acquired from wells can be combined with information from 2D and 3D seismic surveys or other sources. Petrosys gridding takes into account faults and other discontinuities, and provides a range of options so that you can apply your geological or engineering knowledge to the process.

The gridding workflow delivers velocity, well and reservoir parameter models, contour and color fill maps, and detailed volumetrics estimates. Petrosys grid operations form the basis for standard procedures such as tying seismic velocities or depths to well data; mapping well proximities and sample densities; back interpolating smoothed velocity, time or depth data to wells or seismic lines; estimating reservoir extents; depth conversions; and volumetric computations.

DIRECT CONNECTIVITY, IMPROVED SURFACE CREATION

In a single pass, combine interpreted seismic horizon data from SeisWorks, GeoFrame and SMT; formation tops from Finder, GeoFrame, Petra and OpenWorks; well data from PPDMM databases, digitized contours, XYZ data files, generic spatial data and more.

Grids can be imported from a range of data sources and exported in formats compatible with Eclipse, VIP and other popular reservoir simulators. Petrosys supports writing grids directly back to OpenWorks and Petra databases and into RESCUE models.

A RANGE OF OPTIONS PUTS YOU IN TOTAL CONTROL

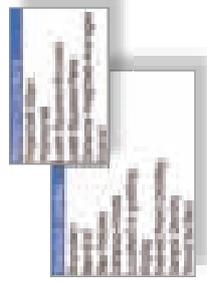
Grid values are initially estimated on a coarse grid to provide good interpolation between sparse samples, and are then progressively refined to create a precise model of densely sampled areas. This smart weighting technique creates an excellent surface representation that faithfully matches the input data within the cell size constraints with both small and large gaps reliably interpolated.

Smoothing can be applied during and after the gridding process, and the resultant grids can be automatically clipped to within a given distance from the sample locations used.

An optional interactive graphics display lets you monitor the computation, which can be interrupted if the computation is to be restarted with modified parameters or data. At each stage of the cell subdivision process, Petrosys estimates and reports the deviation of the computed grid from the raw data, providing numeric feedback on gridding quality.



The unique sample data editor provides a preview of the data extracted (potentially from many sources) for gridding in map and histogram view. This allows quality control of input data, removal of spikes and the addition of control points for extrapolation beyond the sample data area.



Choose from a range of gridding methods based on various curve fitting, spatial averaging and geostatistical methods.

SERIOUS EXPLORATION WORK DEPENDS ON IT.

PETROSYS EXPECTS AND UNDERSTANDS FAULTS
You can use faults directly from your interpretation system, or bring them into Petrosys to enhance them interactively. You control the process, organizing and managing your data so that discontinuities and regional trends are carefully incorporated and accurately represented.

Petrosys tools allow you to handle many different types of faults and to avoid problems, such as improperly connected faults or incomplete breaks. Smart weighting, grouping and interpolation methods let you enhance resolution and better manage discontinuous surfaces. Regional trends can be taken into account by adding faults later.

WHAT'S MORE, OUR STATE-OF-THE-ART COORDINATE REFERENCE SYSTEM (CRS) AWARENESS MEANS THAT GRIDS CAN BE CONVERTED AND RE-PROJECTED BETWEEN UTM ZONES AND GEODETIC DATUMS, AND DISPLAYED CORRECTLY IN REGIONAL MAPS AND 3D VIEWS.

MAINTAIN LARGE DATASETS QUICKLY, EFFICIENTLY

Petrosys grid management technology gives you the power to do more with less. Work with sparsely

light-shaded, orthocontour, posted value, dip/azimuth and high/low displays. Consistent, interactive displays can quickly become high-resolution hard copy using a range of plotting systems. You can color fill from grids and digitized or edited contours, and take advantage of a slope-based interpolation algorithm for smooth surface rendering, even with coarse grids. Choose continuous or step-based interpolation, depending on the surface.

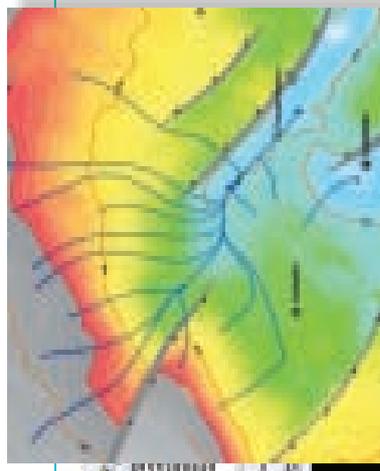
You can illuminate the shape of a surface, as if by a single light source, a particularly effective method of investigating fine details that would otherwise be obscured by major structural features.

RGB or HLS color gradients can be edited interactively, and then saved, restored and exchanged between projects. A reference color bar can be interactively positioned anywhere in the map or legend area.

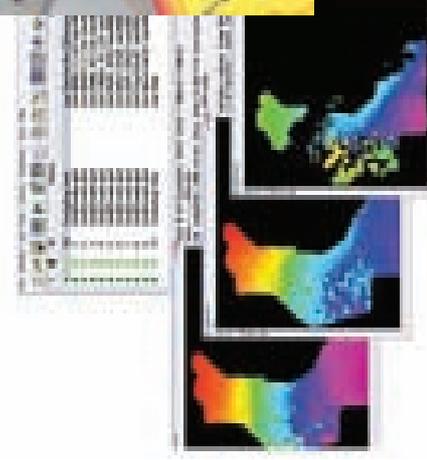
EFFECTIVELY MAP STRUCTURES

Petrosys mapping includes color fill,

EXPLORE, REFINE, RESOLVE.



The on-screen multi-resolution display is designed for continuous use and, like all Petrosys displays, it's fully interruptible and interactive. Separate rendering methods can be selected for interactive and hard copy displays.





ACCOUNTABLE VOLUMETRICS & MODELLING WORKFLOWS.

CAPTURE VALUABLE WORKFLOWS

All of the Petrosys gridding, contouring and volumetrics functions are wrapped into an effective workflow manager. This tracks the steps you take in such a way that you can tailor your workflow, repeat it with alternate data, create a record of the process and turn a sophisticated sequence of routine computations into a reliable routine task.

For instance, you might want to develop a workflow that requires a complex sequence of steps to produce a small number of outputs – perhaps just a top, base and thickness grid – from a number of inputs where one or more of the inputs is being edited externally. You can easily create a workflow task that helps you reapply a processing sequence to quickly see the net effect on the output as the input data is being changed in the external source.

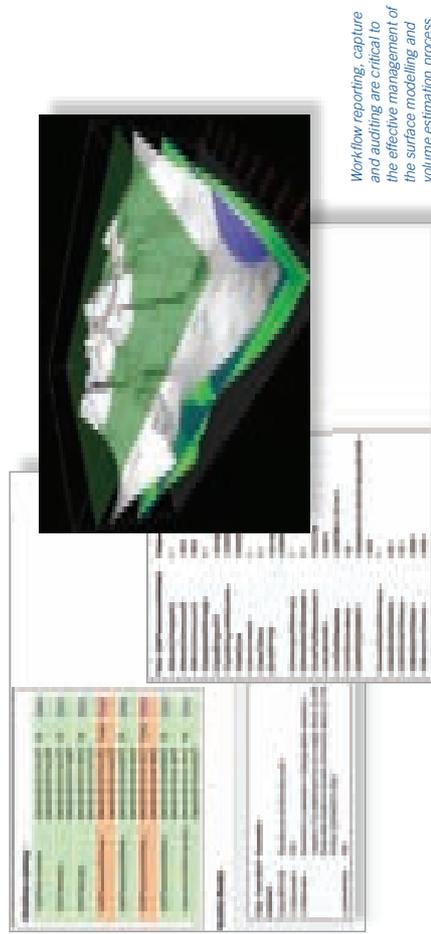
VALIDATE YOUR RESULTS

Perhaps you're starting with an interpreted time surface in SeisWorks

and picked tops in OpenWorks. Your workflow might be the creation of top and base surfaces to the reservoir by gridding the time surface; depth converting to min/most-likely/max scenarios using three different velocity models; adjusting the six (top/base for min/likely/max) grids to the reservoir picks on the wells; truncating the three reservoir picks to an accepted basement depth model; computing the thickness grids; calculating the three volume estimates; and calculating a range of difference grids to illustrate the range of error in the scenarios relative to one another.

This entire workflow might take only a minute to run, but you want to run it every 20 minutes as your SeisWorks interpretation changes. With Petrosys workflows, this is easy; just click 'Rerun Workflow' to run the whole sequence again, as many times as you like.

CAPTURE, RETAIN WORKFLOWS & METADATA.



Workflow reporting, capture and auditing, are critical to the effective management of the surface modelling and volume estimation process.

Slice volumetric reports provide a powerful representation of economic worth. Here, barrel estimates of gas, oil and water are shown in depth increments.

WITH PETROSYS, YOUR OUTPUT SPEAKS VOLUMES.

TEST ALL GEOLOGICAL POSSIBILITIES

In E&P, you need to consider geological scenarios by running modelling calculations with a range of values for one or more parameters. For example, you might be doing a depth map in which you want to assess the impact of different smoothing parameters and grid-cell sizes on the volume of a structure.

The key is creating multiple scenarios, which can be interpreted using different parameters. After you've built your standard workflow, simply use a 'Workflow Parameters' option to identify those parameters you'd like to change

work can be recorded in an open format that ensures long-term accessibility.

The XML output lends itself to further processing in company-specific knowledge management or other document automation systems. In addition, Petrosys provides workflow reports that output this information in easily readable HTML (web) formatted pages.

THE ULTIMATE PROOF OF PERFORMANCE: LEGITIMATE, DEFINITIVE VOLUMES
A true mapping guru is a master of volumetrics, able to turn interpreted geological surfaces and reservoir

Using our integrated surface modelling tools, you can easily compute complex subsurface structures that take faults and other discontinuities into account. And track your steps so you can repeat them with alternate data or ideas in a reliable, routine workflow.

and set them to be presented interactively when the workflow is run. You can add a workflow step that allows the user to enter remarks and capture metadata about the process interactively.

CREATE AN AUDITABLE PROCESS

The grid header includes much of the metadata information needed to work out who, why, where, when and from what a grid was computed.

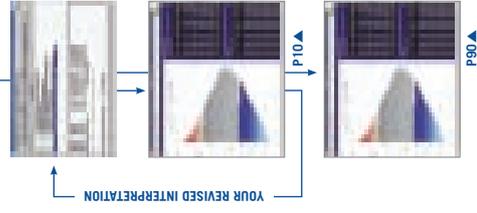
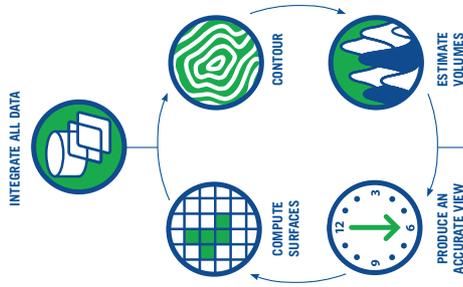
Since all of the workflow logic, input sources and much of the output are recorded in XML files, it's possible to use the workflow input and XML logging output to create an audit trail of your computations. In this way, the total control environment associated with the

characteristics into quantifiable estimates of potential petroleum reserves.

Petrosys puts specialized resources at your service so you can calculate volumes in a variety of ways; for example, from a depth grid representing top structure, or from a pair of grids specifying the top and base of a reservoir, or from a net pay grid.

In the critical review process, slice volume charting and in-depth reporting make it easier for management and geoscientists to apply their knowledge of reservoir geometries to better understand the predicted volumes, and to move forward with confidence.

YOU NEED TO:



Direct Connectivity & Data Management



Mapping and modelling with Petrosys is a natural way to bring together facts and ideas from a range of disciplines and data sources.

INTEGRATION IMPROVES EFFICIENCY & RELIABILITY.

Petrosys provides direct interfaces to virtually all of the specialized applications used by E&P professionals. As a result, Petrosys maps help E&P teams communicate better, more quickly, and with lower support and learning expenditures.

ONGOING DEVELOPMENT
As systems, communications and industry trends evolve, Petrosys continues to develop interfaces to provide the most effective integration with the widest range of critical E&P applications and data sources at any given time.

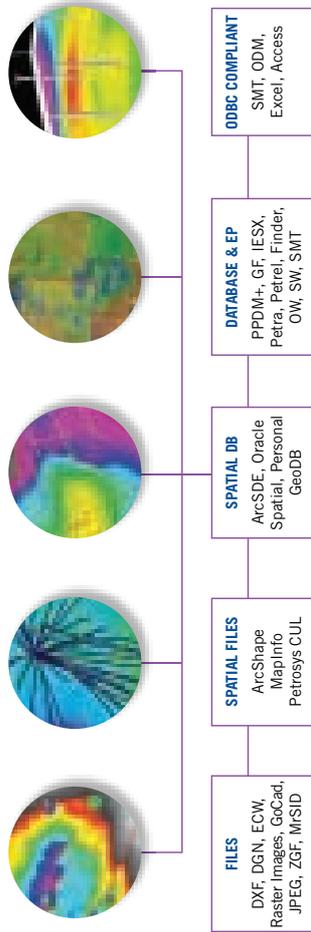
INSTANT ACCESS, PROVEN RESULTS
Petrosys links you directly to the most popular interpretation, vendor-

specific and generic database systems. Underlying functionality provides rich querying and reporting options, and allows you to manage E&P databases built along PPDM lines, including many in-house databases.

Simultaneous direct connectivity to multiple databases saves time, eliminates the potential for error in data movement and, at the same time, allows you to control quality information from different sources and compare project and corporate data stores.

A wide range of Petrosys output drivers ensures that your maps are readily accessible in hard copy, digital, screen and web formats.

Mapping Modelling Browsing Reporting Visualizing



dbMap™ KEEPS DATA SECURE & VALID.

dbMap adds the full power of an E&P industry-standard relational database to the spatial querying, analytic and presentation facilities of the Petrosys suite.

Mapping gurus need freedom and flexibility to explore. But at some point, others will want to understand your revelations. dbMap allows you to gather, assimilate, validate and organize data from a wide range of sources and create a secure and valid corporate knowledge bank everyone can use, regardless of their application.

ACCESS EXISTING DATABASES

The Public Petroleum Data Model (PPDM) is widely used in the E&P industry. With Petrosys, you customize the interfaces that link actual PPDM databases to the expected model of the dbMap environment, and tailor the query and editing screens to reflect the specific business needs of your own in-house databases.

The dbMap application gives you instant access and adds tremendous value as you more clearly define your data and the relationships within it. To protect the long-term integrity of your data, built-in features continuously validate incoming and stored data, helping to identify potential data-entry problems and maintaining a complete history of changes for key data types.

QUERYING AND REPORTING

Starting with a map view of an area, you can bring up relevant wells, seismic lines, lease outlines or other information 'live' on screen. From there, you can easily browse information about the object, such as a well header and tops data, which is linked to interactive map-driven selections. Use map areas, data content and other queries to build lists of objects, such as wells or seismic lines, and then run

queries and reports to substantiate the selected data. A spreadsheet querying facility lets you create a list of information by clicking items in the map view.

SHARE THE WEALTH

dbMap makes it easy to share information within and across teams and locations. And since dbMap is open and accessible, you're never locked in to any one software vendor. The Oracle environment can be extended and distributed to give your organization optimal access using current and future technology.

CREATE A LIVING DATA STORE

By managing your information in a well documented relational data store that is regularly accessed and updated in line with evolving technology, you can be sure that information entered once will be available forever.

MANAGE DATA SECURITY

dbMap and Oracle security and confidentiality mechanisms are independent of vulnerable underlying computer operating systems or network protection mechanisms. Direct access to data is controlled using Oracle security, for which dbMap provides a user-friendly administrator toolset.

DATABASE ESTABLISHMENT AND CONSULTING SERVICES

If you haven't already started a PPDM data store, Petrosys can provide all the systems and data management required, as we've done for clients around the globe who are now using our software to great advantage.



The intuitive nature of Petrosys helps mappers work with all types of related data quickly and thoroughly. In this case, an intelligent map view of wells within leases defines the firm's business and spatial relationships more clearly.



Greater reservoir understanding is paramount. With Petrosys, visual and textual data is easily displayed together so that all related data can be considered in context.

“The Mapping Guru”

Your First Name

Your Last Name