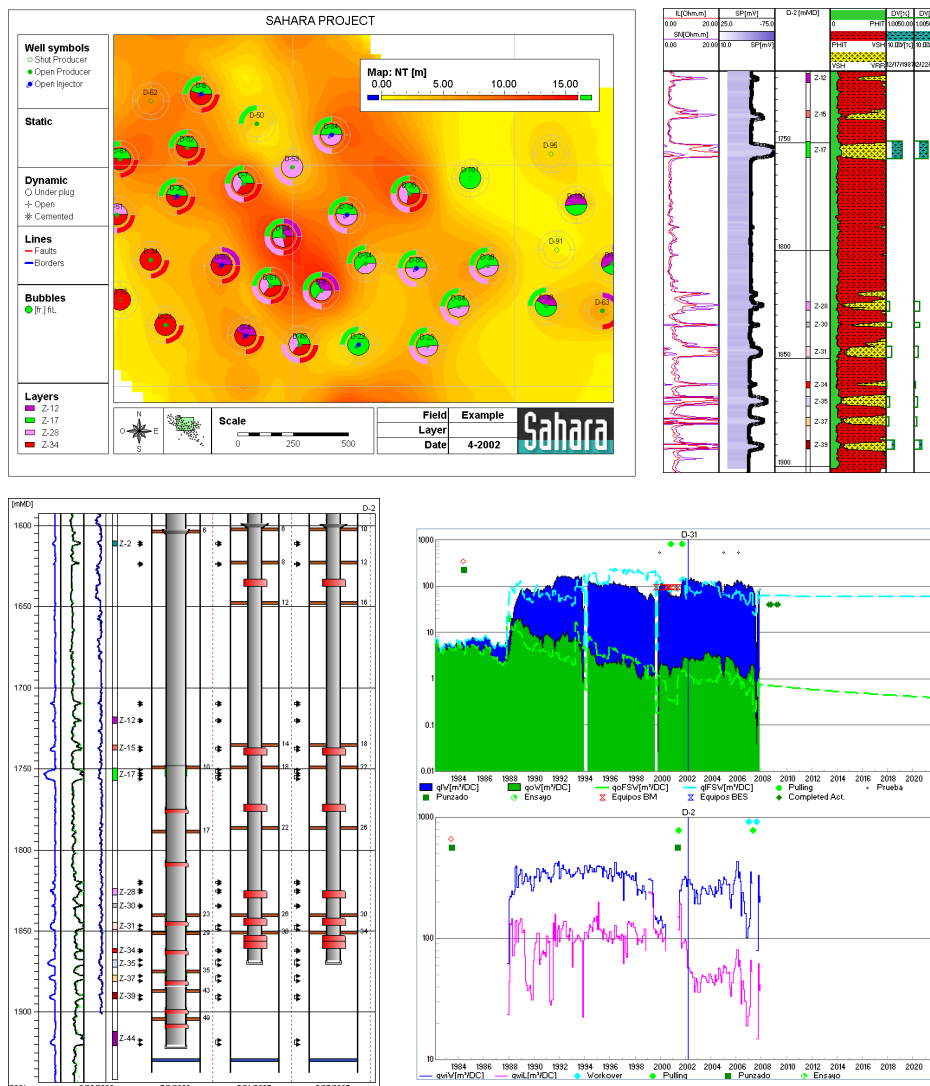


VISUALIZATION, ANALYSIS AND RESERVOIR MANAGEMENT SOFTWARE

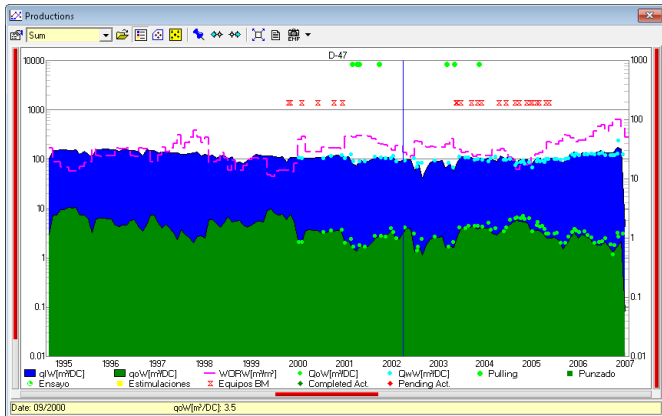
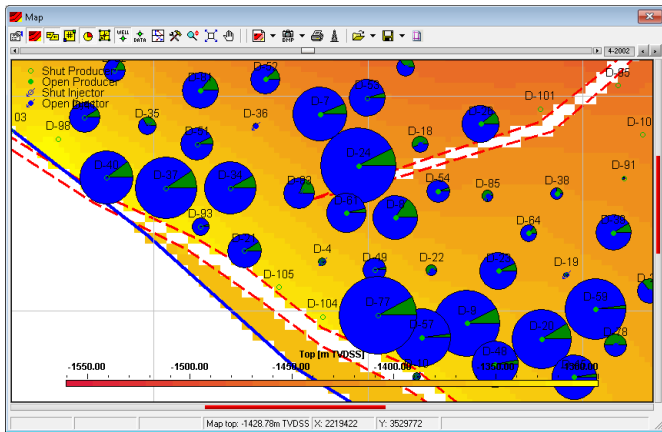
Sahara helps to keep organized all the information required to comprehend the physical behavior that drives a reservoir. It offers multiple visualization windows, permitting information to be globally accessed and visualized in 2 and 3 dimension charts. Several configurable reports allow our users to obtain valuable information for their analysis and decision making.

Sahara presents as well a wide array of more specific tools: from basic Petrophysical Analysis tools, an Analytical Waterflooding Simulator, Statistical Analysis, Surveillance specialized reports and charts, to PVT analysis and Surface Facility calculations, among many others.



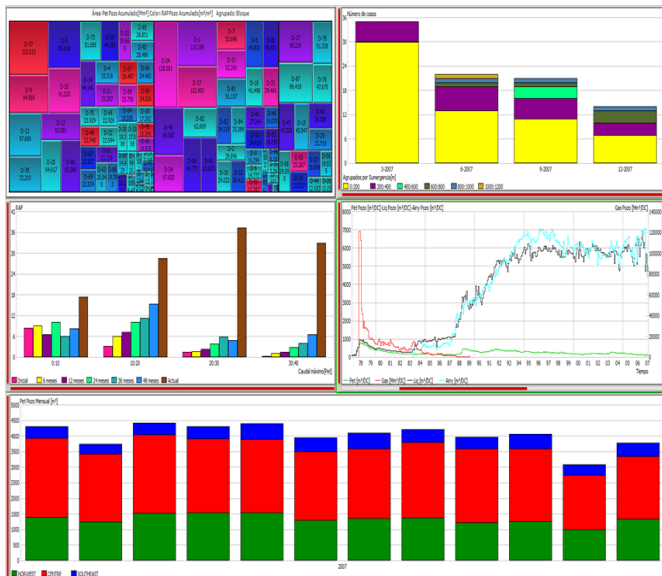
Sahara's windows communicate with each other, integrating their data and allowing information to be globally accessed.

Sahara



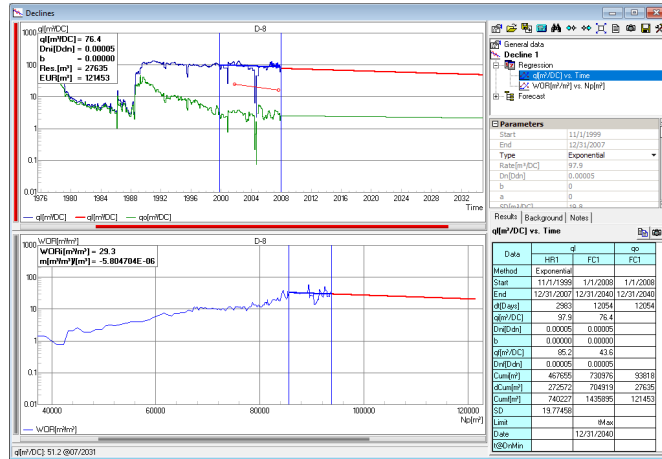
VISUALIZATION AND ANALYSIS TOOLS

Sahara facilitates easy access and visualization of all the information associated to a single well. Just by clicking on a well in the Map window, all the other visualization windows are updated, showing the available data selected to be displayed for that well.



DIAGNOSIS AND MANAGEMENT TOOLS

This set of tools helps to make quick and efficient decisions. The different charts available offer the possibility to build a customized set of plots, designed in order to obtain diagnosis results and perform the surveillance of the oilfield in an easy way. This advanced visualization tools make it possible to distinguish features that characterize each well among other wells into a group.



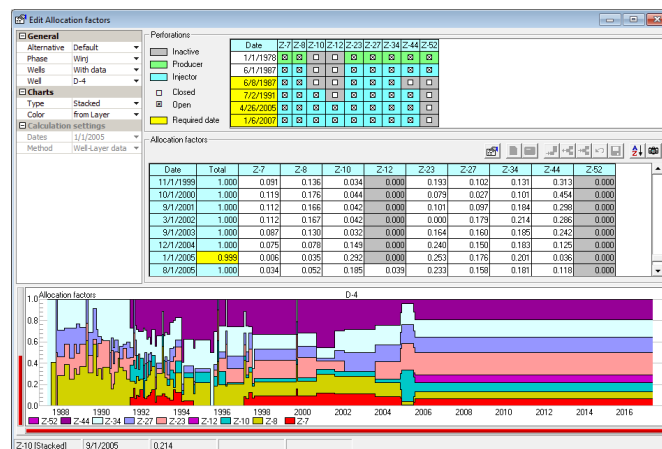
PRODUCTION FORECASTS

The Declines window presents all the classic options to fit production data and a great variety of tools to generate production forecasts. It is also possible to create type wells in order to use them in the Forecast Exercises tool, to manage different drilling and/or workover schedule alternatives. These combined tools allow visualizing and planning production forecasts.

Well	Date	Oil	Gas	Water
D-1	10/1973	27.5	7.2	51978
D-2	5-1978	57.0	8.4	5-1978
D-3	9-1978	6.7	1.7	5-1978
D-4	1-1978	31.3	5.0	4-1978
D-5	9-1978	31.8	5.4	4-1978
D-6	2-1978	34.5	3.8	5-1978
D-7	2-1978	18.8	5.0	5-1978
D-8	2-1978	100.5	8.6	4-1978
D-9	5-1978	87.6	8.8	5-1978
D-10	3-1978	33.6	5.5	6-1981
D-11	11-1980	4.0	1.7	
D-12	7-1989	30.9	6.1	4-1978
D-13	4-1978	57.7	16.4	5-1978
D-14	9-1988	22.0	4.1	5-1978
D-15	3-1978	19.7	6.8	5-1978

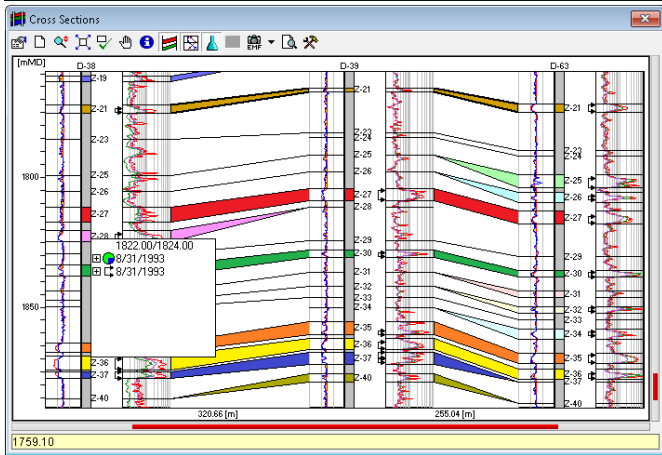
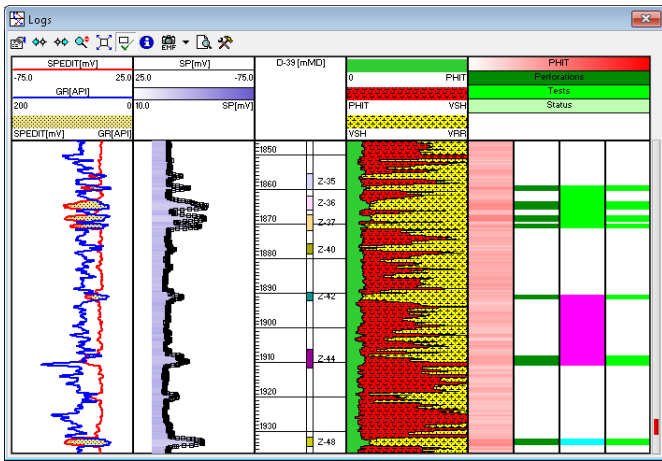
REPORTS

Accessible from all Sahara's windows, the reports allows visualizing the available information in a tabular way for a more convenient access.



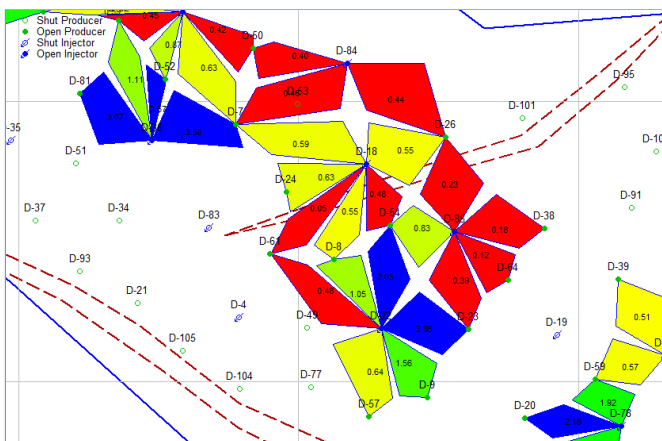
PRODUCTION BACK ALLOCATION

Sahara offers multiple possibilities to calculate allocation factors for production back-allocation. It is possible to store several allocation alternatives, allowing multiple level allocation as well as easy analysis of different allocation criteria.



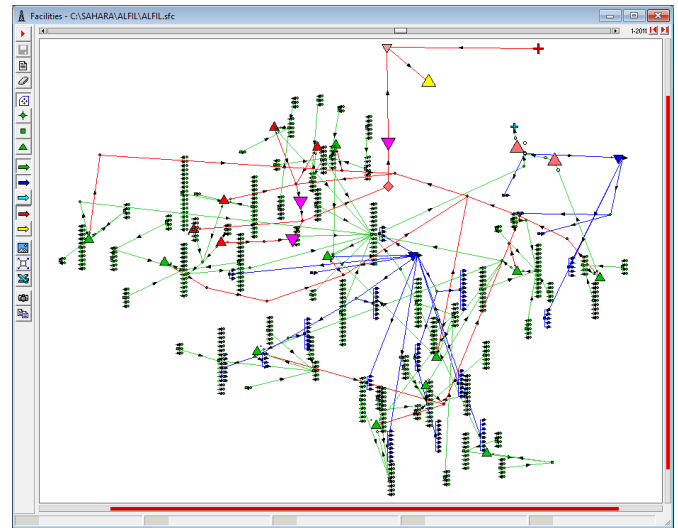
PETROPHYSICAL TOOLS

Using this group of tools, it is possible to perform a basic petrophysical analysis. These tools are used to generate synthetic logs, (SW, PHI, RW, VSH, or any user defined calculation), obtain petrophysical data from logs using cutoffs, interpolate well data to obtain grids, operate between grids and perform volumetric calculations. Cross sections and 3D views help visualize the geological model.



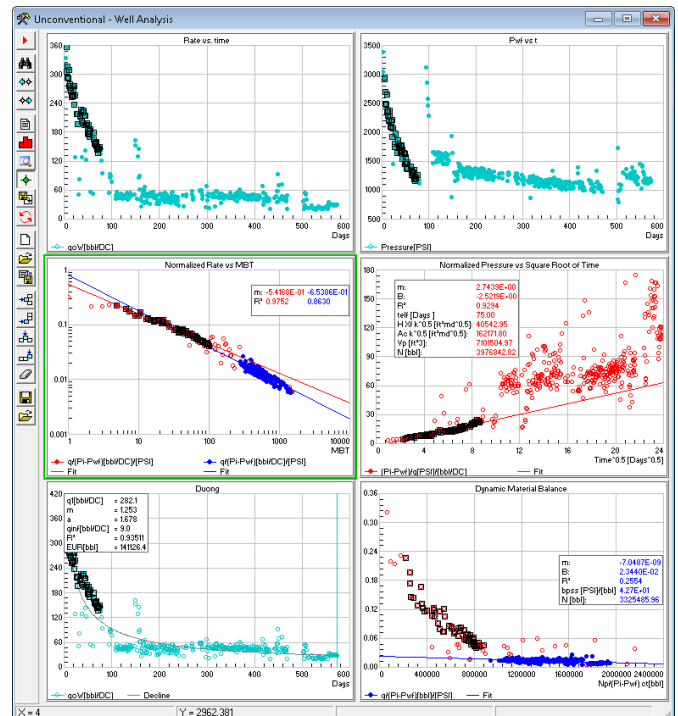
WATERFLOODING SIMULATOR

With our multi-layer Analytical Pattern Simulator it is possible to generate a fast waterflood model and obtain production forecasts using any of the analytical methods available. The low amount of input data and time required, and the integration with our statistical tools make this a powerful tool for analyzing waterfloods.



FACILITIES

The Surface Facilities tool allows visualizing, editing and doing calculations related to fluid and electric energy networks. Analysis can be performed in more than one scenario, using both historical production and forecast scenarios. Reports allow consulting variance between operation and design values to identify bottlenecks. Multiple charts, tables and bubble maps are available to visualize the information needed for the analysis.



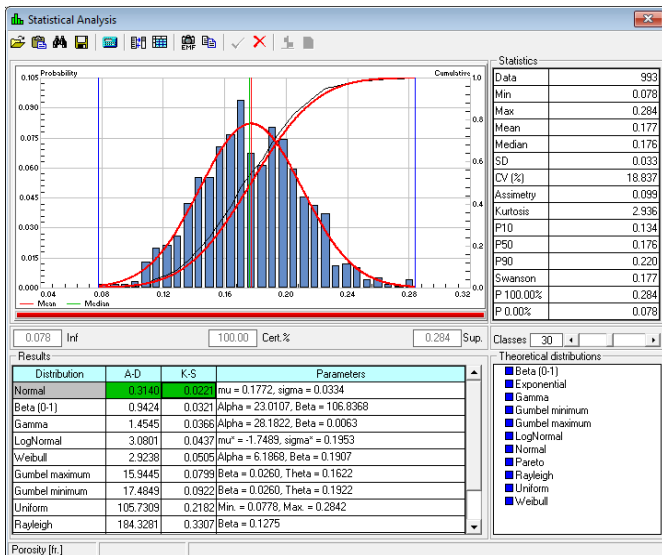
UNCONVENTIONAL

Sahara Unconventional is a complete suite of tools and methodologies exclusively designed to analyze unconventional resource data. It allows making a thorough well by well analysis, and defining different workflows to standardize the job. Group and statistical analysis tools are available to perform analog well analysis, generate specialized statistical forecasts and study the behavior of important variables and new wells.

Template	Status	Schedule	Frequency	Data range	Months	Last run	Destination
Allocation factors	Enabled	Weekly	Monday	Last run			C:\Sahara\Templates
Cementations	Enabled	Weekly	Monday	Last run			C:\Sahara\Templates
Chemical Analysis-SRB	Enabled	Weekly	Monday	Last run			C:\Sahara\Templates
Chemical Analysis-TSS	Enabled	Weekly	Monday	Last run			C:\Sahara\Templates
Chemical Analysis-Water	Enabled	Weekly	Monday	Last run			C:\Sahara\Templates
Daily productions	Enabled	Daily		Last run			C:\Sahara\Templates
ESP	Enabled	Weekly	Monday	Last run			C:\Sahara\Templates
Layers	Enabled	Monthly	Day 1	All			C:\Sahara\Templates
Meeting	Enabled	Weekly	Monday	Last run			C:\Sahara\Templates
Pressure	Enabled	Monthly	Day 1	Last run			C:\Sahara\Templates
Production controls	Enabled	Daily		Last run			C:\Sahara\Templates
Productions	Enabled	Monthly	Day 1	Last run			C:\Sahara\Templates
Scattered data	Enabled	Monthly	Day 1	Last run			C:\Sahara\Templates
SRP	Enabled	Weekly	Monday	Last run			C:\Sahara\Templates
Tests	Enabled	Weekly	Monday	Last run			C:\Sahara\Templates
Well Dynamic Attributes	Enabled	Monthly	Day 1	All			C:\Sahara\Templates
Well-Layer Data	Enabled	Weekly	Monday	Last run			C:\Sahara\Templates
Wells	Enabled	At project startup		All			C:\Sahara\Templates
Wellworks-All	Enabled	Weekly	Monday	Last run			C:\Sahara\Templates

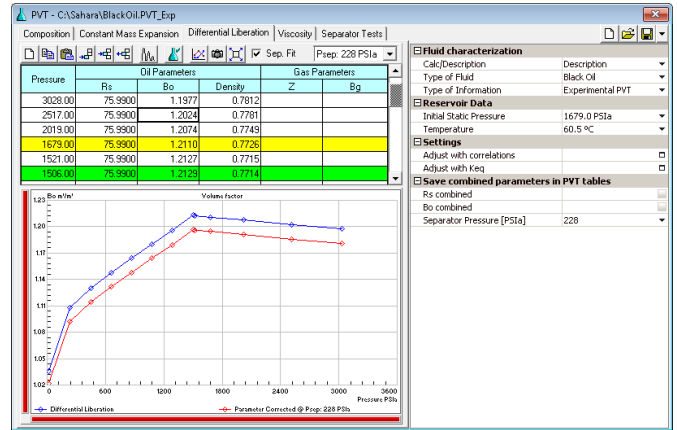
CONNECTIVITY

Data can be imported into Sahara from multiple sources. The most convenient way is to link to the company's database systems. In that way, updating information can be scheduled and will be performed automatically. It is also possible to import data directly from all classic E&P application file formats. Easy exporting and reporting data within Sahara is available from all our windows.



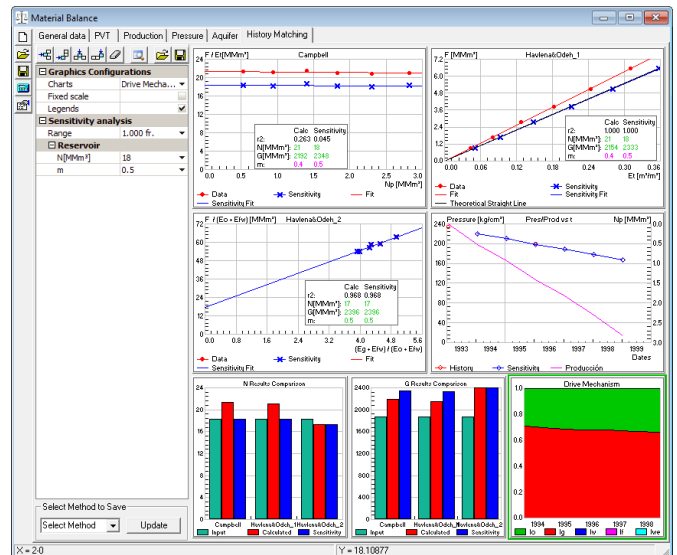
MONTECARLO SIMULATIONS AND STATISTICAL ANALYSIS TOOLS

It is possible to perform any stochastic calculation using traditional Montecarlo or Latin Hypercube simulations. Input distribution hypothesis can be assigned determining their parameters, percentiles or fitting the best distribution from collected data in the Statistical Analysis tool. This window is available for different purposes and allows analyzing a set of data or results from stochastic simulations in a statistical way.



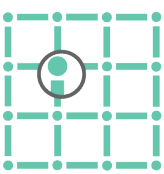
PVT ANALYSIS AND THERMODYNAMIC SIMULATOR

Different ways to obtain PVT parameters are available depending on fluid type. It is possible to generate PVT tables using correlations or importing external data. Additionally, information related to laboratory tests can be loaded in order to validate the experiments. As an additional tool, the Thermodynamic Simulator enables to calculate equilibrium constants based on fluid composition at any pressure fitting only two parameters.



MATERIAL BALANCE

This tool allows fitting historical production data for black oil, dry, wet and condensate gas. While doing the analysis it is possible to determine the reservoir drive mechanisms. It also provides different methods to estimate original oil/gas in place depending on fluid type and available data.



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