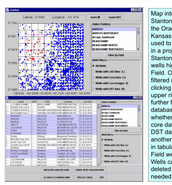
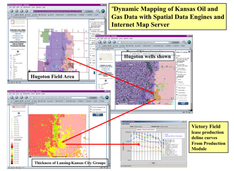
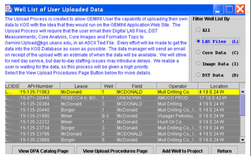
Project Definition and Workflow for Geo-Engineering Modeling



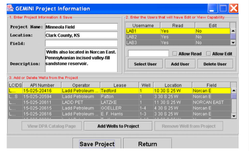
Map interface showing wells in Stanton County that reside on the Oracle database at the Kansas Geological. Interface is used to select wells to include in a project on Arroyo Field in Stanton County. Map shows wells highlighted from Arroyo Field. Other fields can also be filtered using this dialog by clicking on the field in the upper right box. Wells can be further filtered based on other database information including whether they have LAS files, core data, core images, and DST data. The lower dialog is another option to view the wells in tabular form where Arroyo Field wells are highlighted. Wells can be selected or deleted into a project as needed.



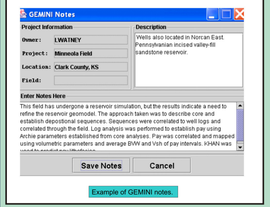
Software tools such as ESRI's ARC IMS MapServer help to assemble and display information available in public-domain databases such as at the KGS.



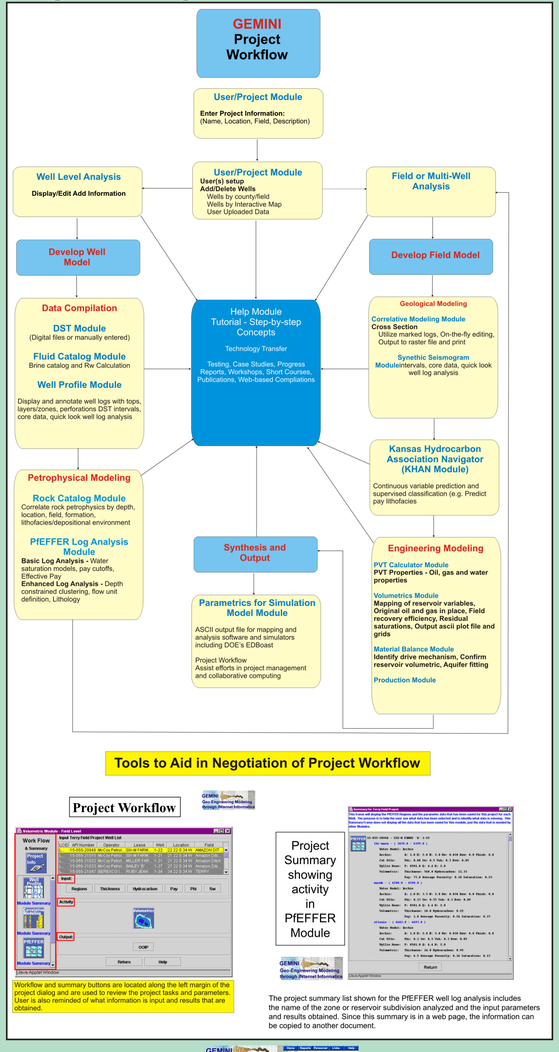
Example of data uploaded into a GEMINI project.



Dialog showing project for Minneola Field demonstration. The users who share the project are listed along with the list of wells included in the project. The user can add or remove wells and enter petrophysics and multi-well analyses from this dialog.



Example of GEMINI notes.



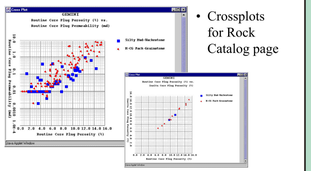
Tools to Aid in Negotiation of Project Workflow

Workflow and summary buttons are located along the left margin of the project dialog and are used to review the project tasks and parameters. User is also reminded of what information is input and results that are obtained.

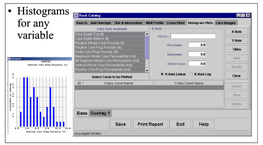
The project summary list shown for the PfEFFER well log analysis includes the name of the zone or reservoir subdivision analyzed and the input parameters and results obtained. Since this summary is in a web page, the information can be copied to another document.

GEMINI Geo-Engineering Modeling through INternet Informatics www.kgs.ku.edu/Gemini

Rock Catalog Module

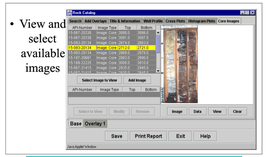


- Crossplots for Rock Catalog page



- Histograms for any variable

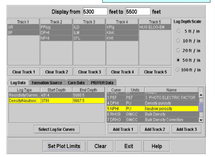
Histogram tabbed area of Rock Catalog is used to generate simple histograms to examine the families of information in an attempt to delineate coherent petrofacies.



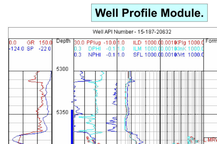
- View and select available images

Core images can also be accessed through the Rock Catalog or through the Well Profile alongside the depth

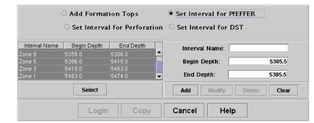
Well Profile (Marked Log)



Dialog used in Well Profile that is used to select depth interval, depth scale, curve type and tracks, formation tops database, core data to display, and provide quick look log analysis (saturation parameters such as Sw using PfEFFER). User sets plot limits which include scales in tracks and color of curves.

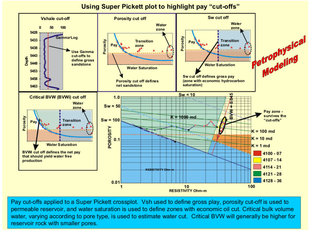


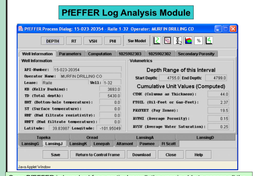
Screen capture of well profile that includes core analyses plotted as small circles, formation tops from database, and location of core images along right margin.

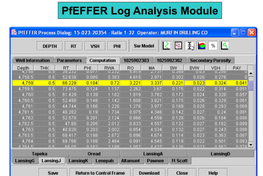


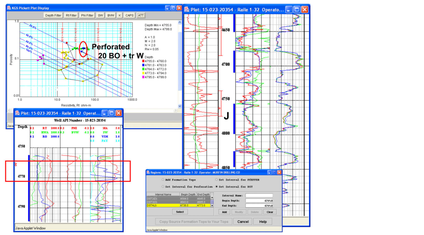
When mouse is clicked in an active log window in the Well Profile module, a pop-up windows appears that is used to add formation tops, set intervals for PfEFFER (log analysis), and establish perforated and DST intervals.

Petrophysical Modeling and PfEFFER



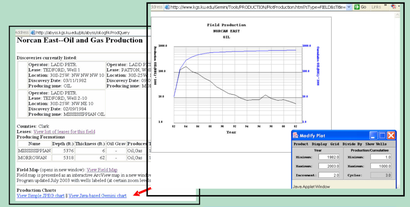






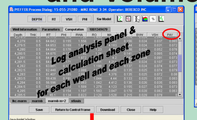
Production Module

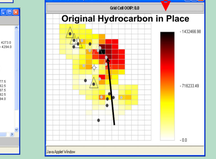
Production-Time And Bubble Maps



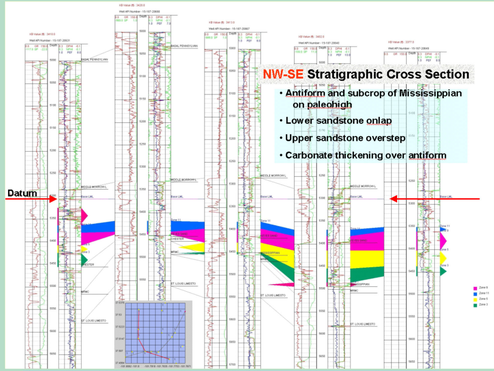
GEMINI production plot launched from web browser next to the production data. User is able to manipulate the chart using the interactive dialog.

Integrated Log Analysis and Volumetrics



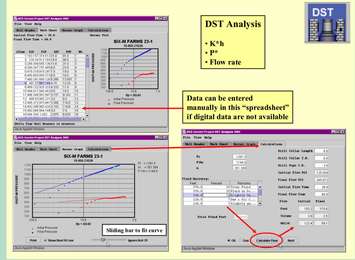


Cross Section Module

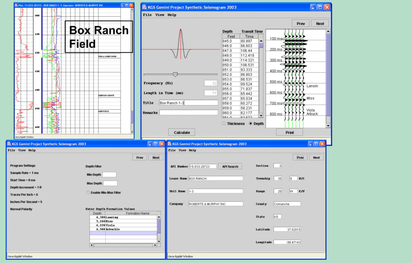


Cross section module builds cross sections on-the-fly. Software reads tops and allows the user to add stratigraphic horizons. User selects structure or stratigraphic datums for display.

Drill-Stem Test Module



Synthetic Seismogram



Series of Java applets showing the well profile in upper left, identifying the Viola Limestone and potential pay interval highlighted by the red arrow. The synthetic seismogram is in the upper right. Subsequent dialogs are shown to annotate depths and stratigraphic datums on the time plot.