

PETROPHYSICAL CORNER

Spectrum Spreadsheet Package Is as Easy as ...

Author's Note:

In this issue the second annual listing of petrophysical software appears. I would like to thank all the people who helped to pull this list together, particularly Steve Prenskey of the USGS who contributed a list of his own. Although a mammoth task, we have made every effort to compile a complete and accurate directory. Please write me if there are any omissions or errors. Geobyte will update the list if necessary.

A number of readers have expressed an interest in performing petrophysical calculations with spreadsheets. So as a departure from what counts as normal in this column, I have reviewed a petrophysical system that runs in Lotus 1-2-3.

Many readers have expressed an interest in performing petrophysical interpretations using spreadsheets. We have offered several examples in previous columns.

META/LOG is a set of templates designed to be run in Lotus 1-2-3 version 2.01 or higher on an MS DOS (3.0 or higher) computer with at least 640k of RAM, VGA or EGA graphics, and preferably with a hard disk.

Ross Crain, proprietor of Spectrum 300 Mindware, has been in the petrophysics and computer worlds for over 27 years. His experience and expertise show in the META/LOG product.

The well-written manual guides the new user



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easily into the system. Petrophysical formulae and expert rules are explained in terms that any 1-2-3 user will grasp quickly. The petrophysics sections are well-explained and should be understood easily by the novice log analyst.

On loading the main template into Lotus 1-2-3, the user becomes aware that it was put together by someone who knew what he was doing. The whole thing is driven internally by a number of cleverly devised macros — each invoked with a key stroke. Typing [ALT] H brings the user to the help section where all the main key macros are described.

The template is broken into a set of sections, each with its own function, but all integrated with one another. The main sections are:

- ✓ Well header, containing well information, formation tops, tests, cores, perforations etc.
- ✓ Log analysis, performing all the standard open hole (and a few cased hole) calculations.
- ✓ Knowledge engineering, containing a large number of rules on picking the most appropriate log analysis technique given the logs available and the type of lithology in the zone.
- ✓ Core analysis.
- ✓ Exploration economics, calculating the economic impact of the petrophysical calculations and making recommendations based on its conclusions.
- ✓ DST and RFT analysis.
- ✓ Predefined graphs using the 1-2-3 graphic capability to provide standard cross plots and a variety of log plots.

The system also provides sections in which

users build their own modules with their own formulae or algorithms.

The system was designed to operate in either US or metric units and will transfer from one to the other by typing {ALT} M. The most interesting part of the system is the expert system, which helps the novice user find the best log analysis technique. This routine is invoked by typing {ALT} E. A series of questions must be answered, most with a 1 or 0 (for yes or no) concerning curves available, etc. A data section must be filled out with either contiguous or noncontiguous log data and then the calculation started.

Data can be imported from an ASCII file by using an internal macro written so as to avoid pilot errors (I tried to break this part of the system but it withstood my efforts). Outputs are in the form of various reports, graphics, ASCII format files, etc. — all invoked by macros.

The many functions built into this system cannot be adequately described in the space available here. All the functions have been well-designed and executed. I am impressed. My only complaint is that the version I tested does not run under Symphony (some of the menu items invoked in the macros are different on the Symphony system causing errors — not too difficult to fix if you are a high-level user with some time). Figure shows some output examples.

There is virtually enough power here to run a small exploration company. Lotus 1-2-3 users should find this product useful and easy to use.

Program Availability

For more information, contact:

E. R. Crain P. Eng.
Spectrum 2000 Mindware
Box 29, Site 3, R.R. 2
Rocky Mountain House
Alberta, Canada T0M 1T0

Price: Canadian \$950 includes a diskette (3.5-inch or 5.25-inch), full manuals and free phone support. Additional training and installation are at normal consulting rates.

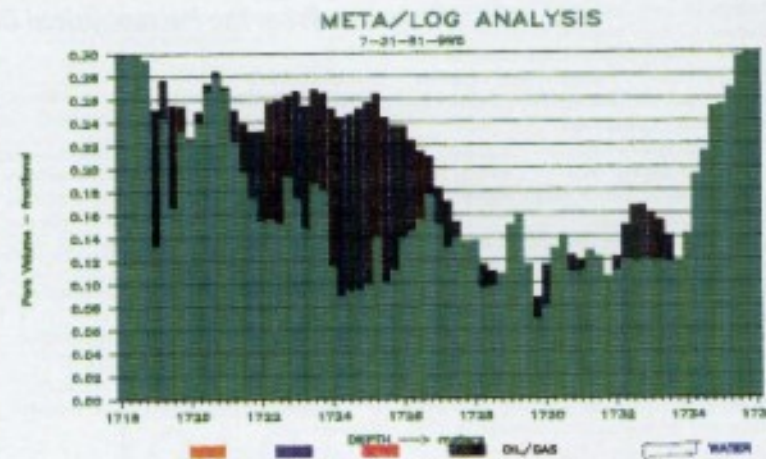
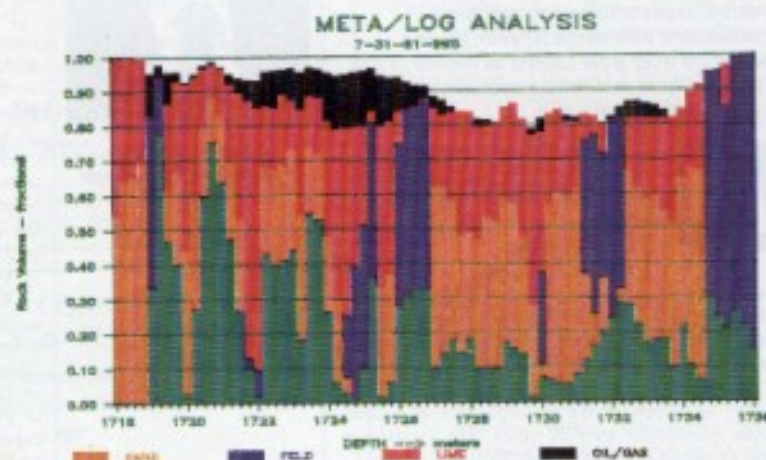
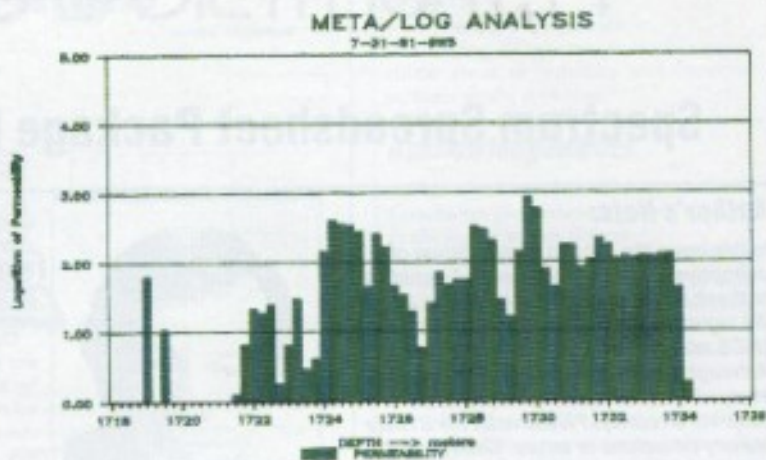


Figure 1: Examples of Meta/Log output.