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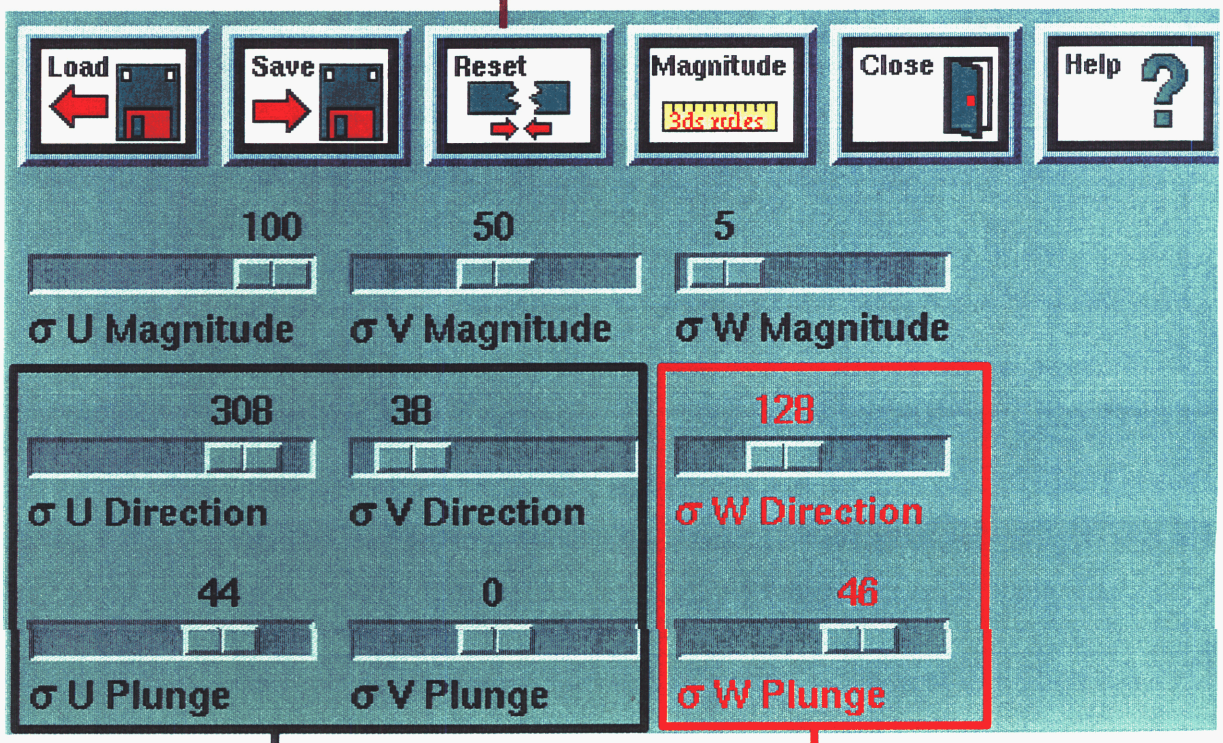
Magnitude Tool Continued

Stress orientations are shown in degrees and are selected by using the left and middle **mouse buttons** with the orientation control **sliders**. The labels of the first axis selected will turn **red**. The **direction** and **plunge** of the **first–selected axis** may be entered. Only **direction** changes are allowed for the **other two axes**. Pressing the reset button will **reset** the orientations and allow selection of a new first–selected axis. Directions range from 0 to 360 and plunges range from 0 to 90 in order to enable any measured or simulated 3D stress orientation.

Reset orientation by selecting the reset button.



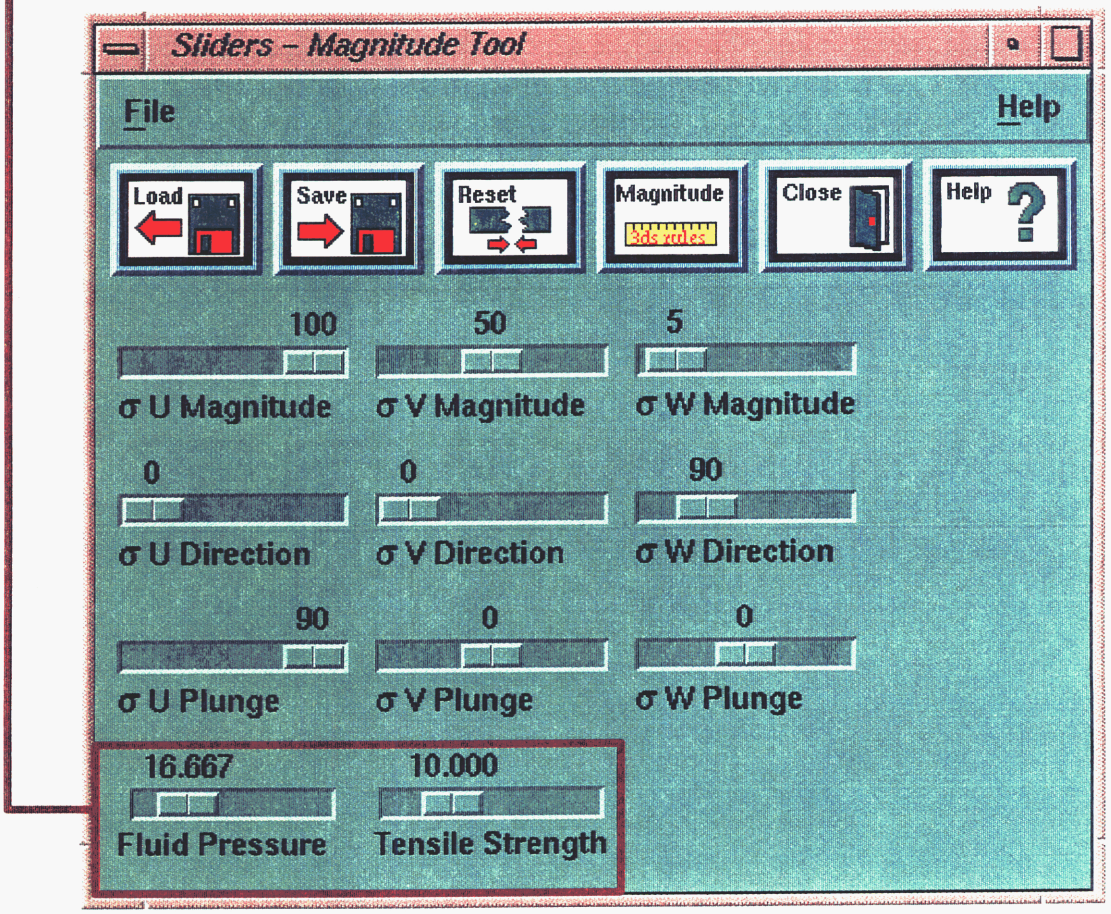
Other axes labels are black. Only direction may be modified.

"First–selected" axis labels are red. Direction and plunge may be modified.

Exit Help

Magnitude Tool Continued

Fluid pressure and tensile strength may be used when computing leakage factor (see **options**). Values are changed by using the left and right mouse buttons.



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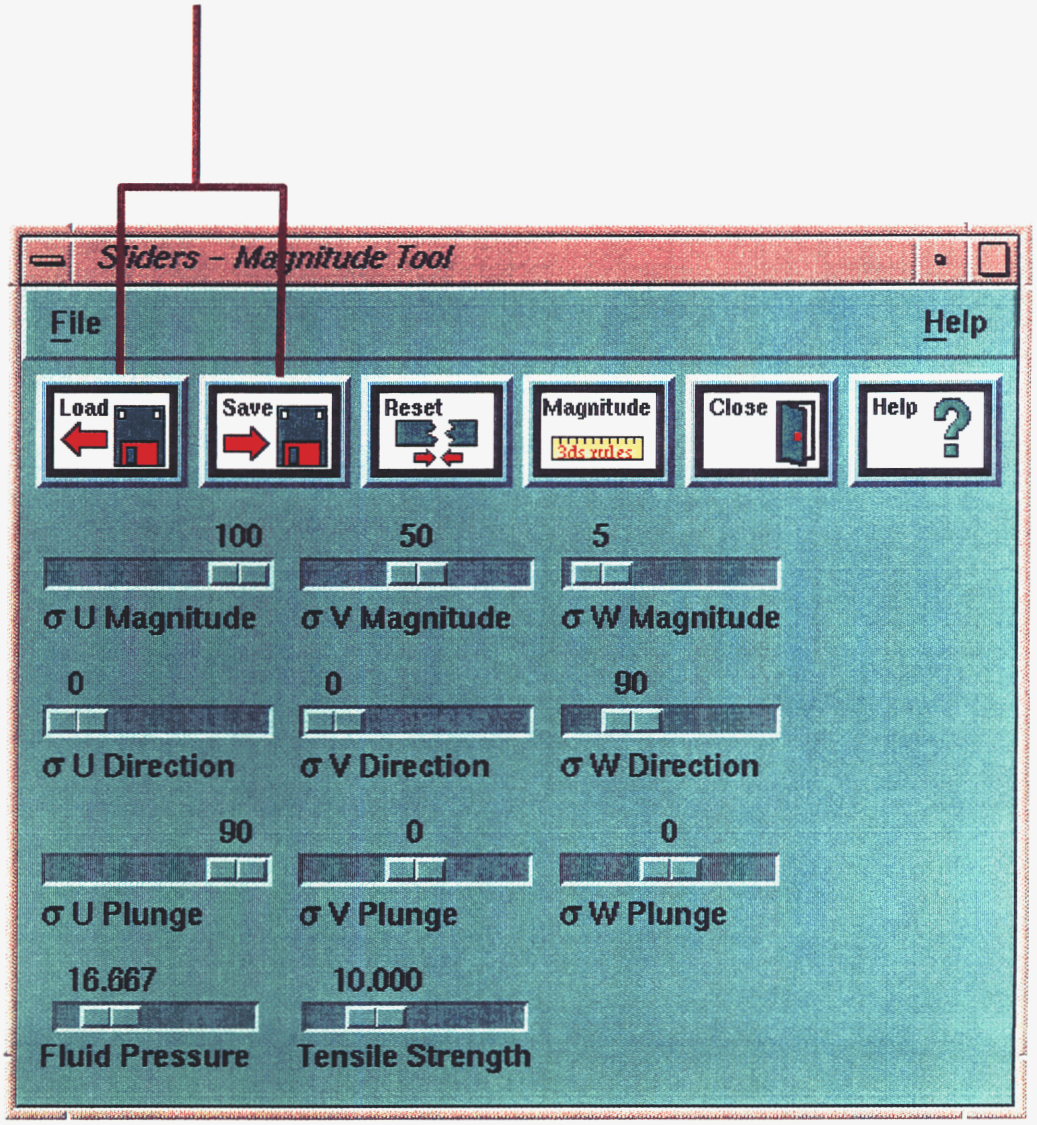
Magnitude Tool Continued

Stress magnitudes and orientations may be saved by pressing the save button and specifying a file name. These values may then later be reapplied by using the load button and choosing a file.



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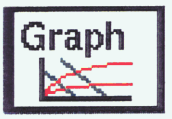
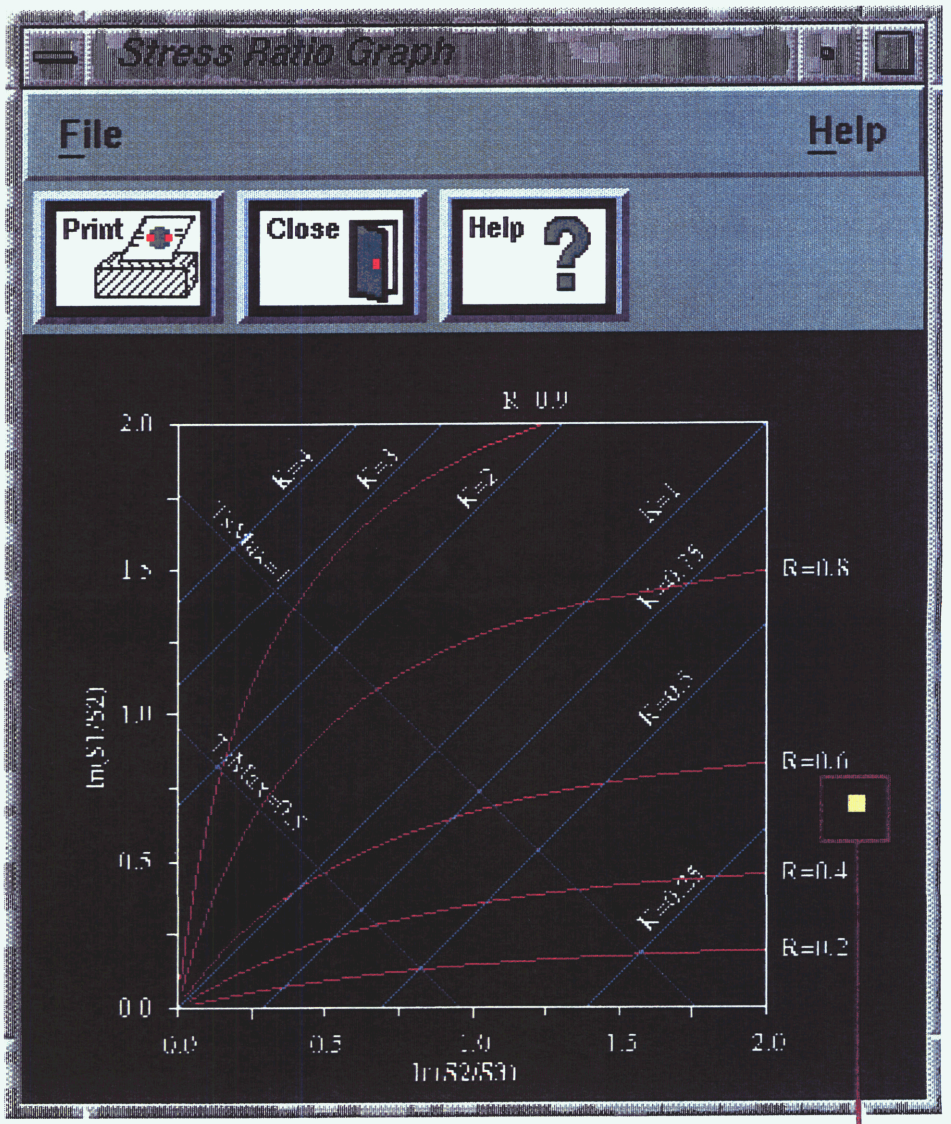
Stress Ratio Graph



Use the **stress ratio graph** window to select the desired stress magnitude ratios by holding down the **left mouse button** and moving the cursor to the desired stress state and releasing the mouse button. The **right mouse button** toggles between a logarithm base 10 (log–log) and natural logarithm (ln–ln) scale.



Cursor position

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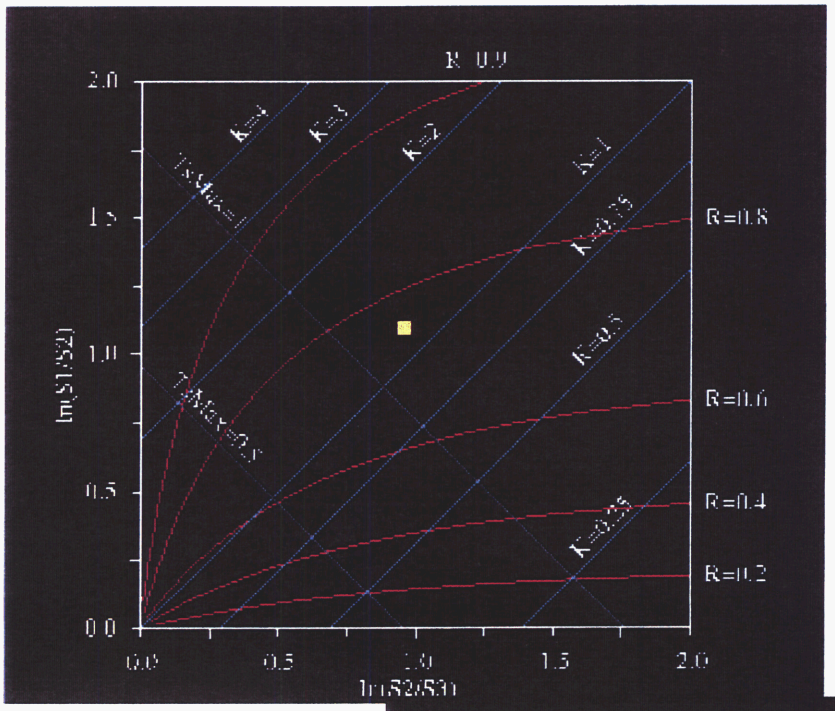
Stress Ratio Graph Continued

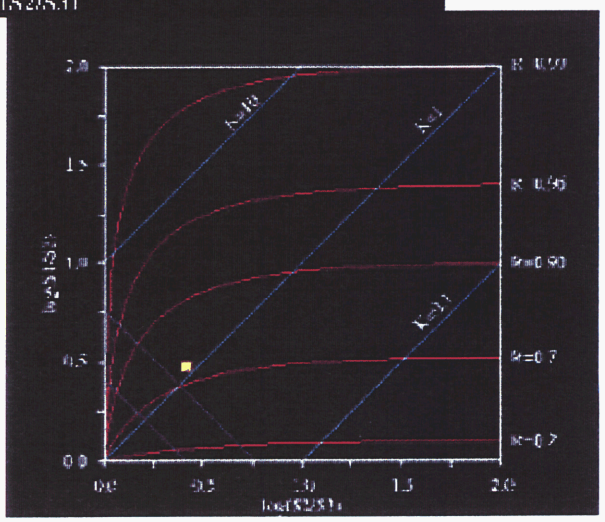
The stress ratio graph displays a **yellow square** whose location is based on the stress ratios of σ1 to σ2 along the y–axis and σ2 to σ_3 along the x–axis of the plot. σ1 is the magnitude of the maximum principal stress, σ2 is the intermediate principal stress, and σ3 is the minimum principal stress. In addition to showing the location of the current stress state on a logarithmic scale, the graph also shows where the current stress state lies relative to plots of the following parameters:

$$K = (\sigma1 / \sigma2) / (\sigma2 / \sigma3)$$

$$R = (\sigma1 - \sigma2) / (\sigma1 - \sigma3)$$

TsMax = maximum slip tendency of all fault orientations for a given stress state.





Natural logarithm scale

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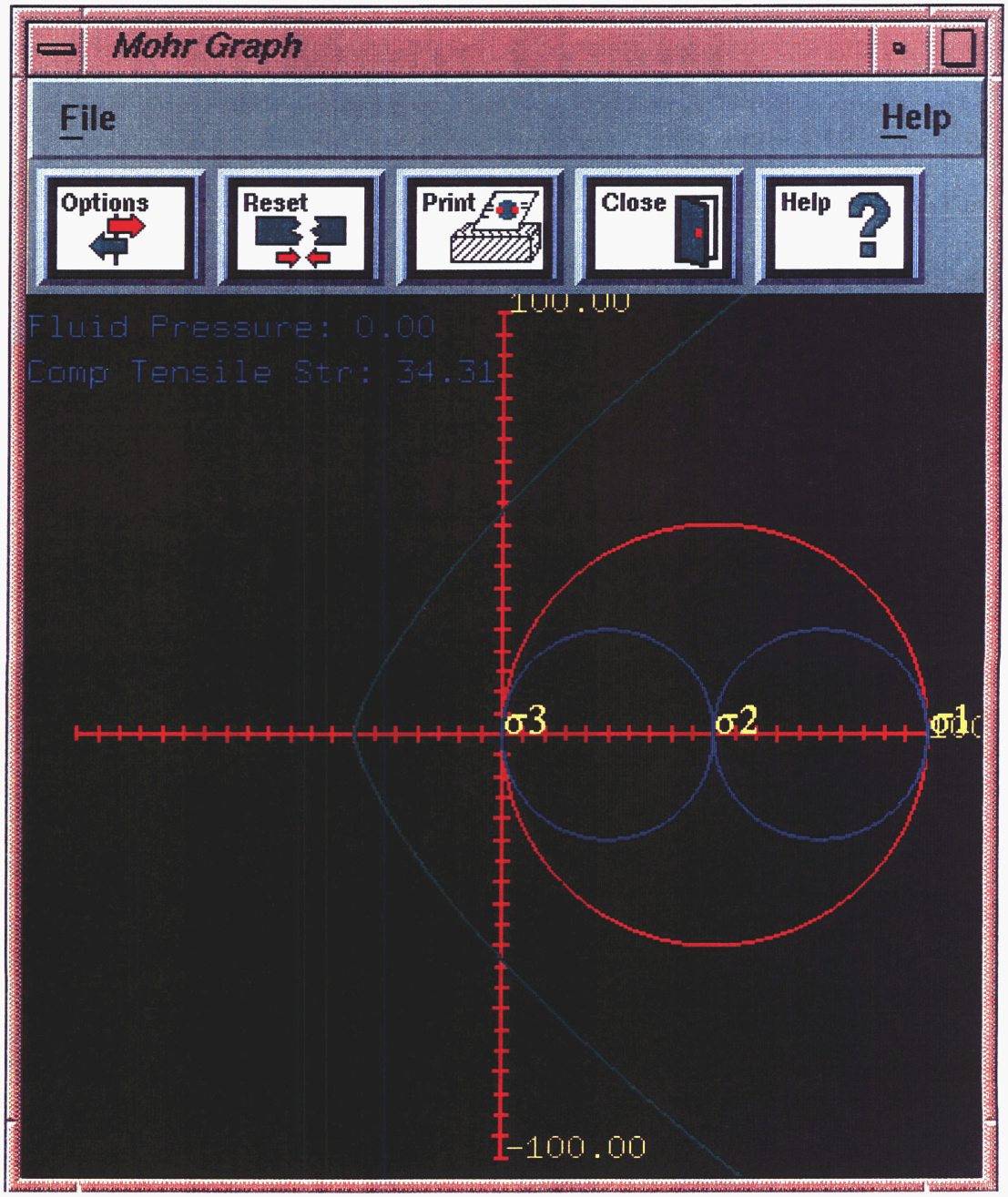
Mohr Graph

The Mohr Graph allows the user to apply stress and fluid pressure to a specified type of rock and visualize the result. The result of the stresses and fluid pressure on the rock is displayed in a traditional Mohr Graph.



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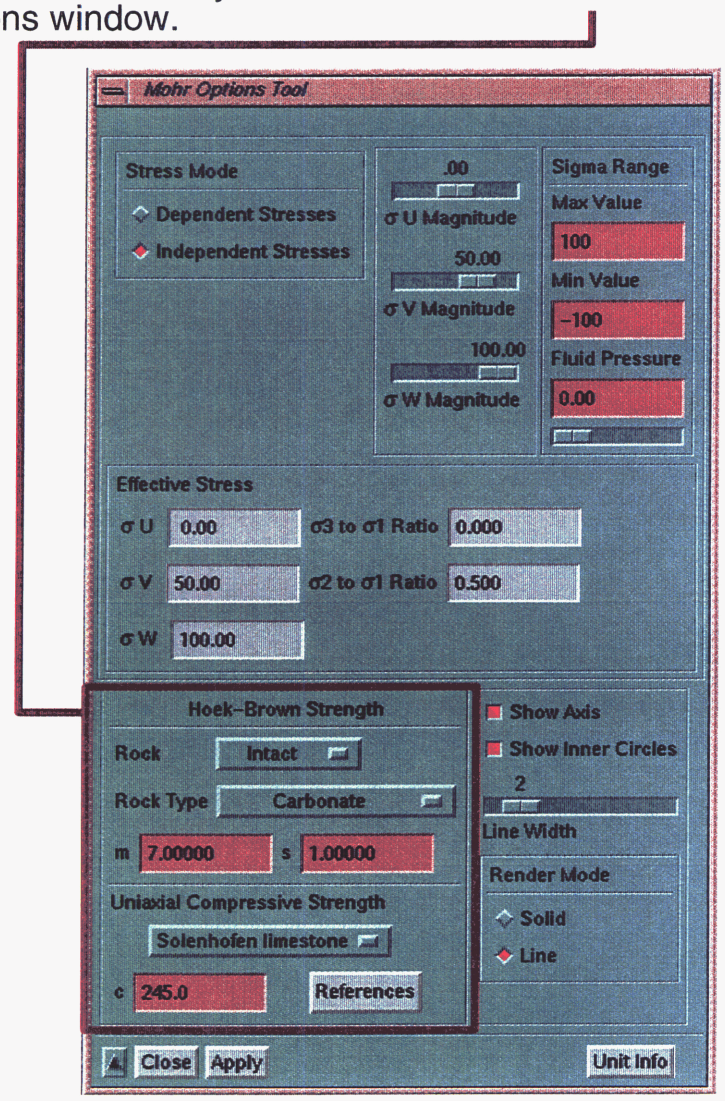
Mohr Graph Continued

The rock attributes may be altered in the Hoek–Brown Strength portion of the Options window.



In particular, the user may enter the quality, material type, and specific rock test results to work with pull down menus. The variables m, s, and c may be entered via text fields.