

## Welcome

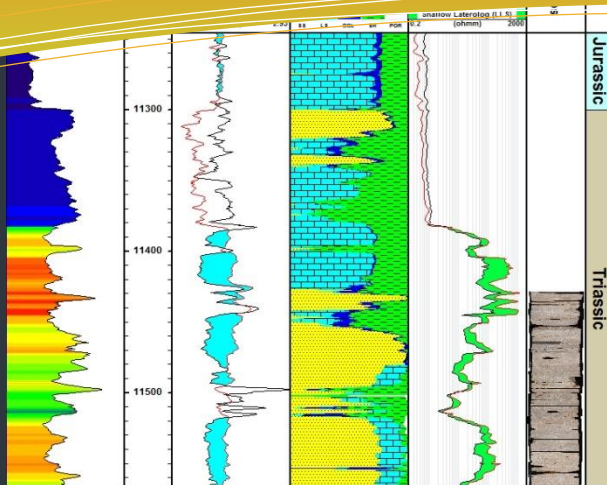
Here is the latest edition of TerraNotes. As you may notice we have changed the format of the newsletter to give it a more modern look.

We have also upgraded the website, more on that in the newsletter.

Other topics covered in this issue include matrix operations in the TCL module, and a revisit to the LASProbe free utility we have on offer through the web site.

We hope that you are all well and thank you for your ongoing support and use of the software during these difficult times.

Stay healthy and if you are a current user please keep on using the TerraStation. If you are not a user, then contact us for how to become one.



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## Website Overhaul

We have recently overhauled our web site. The primary driving force for this was due to the 'back end' portion of the web site needing to be upgraded for server security reasons. However, we took the opportunity to change things a little. You will notice a slightly 'crisper' look. We have also streamlined some of the menus. On the whole though we have tried to keep the layout familiar to users that visit the site regularly.

One consequence of this upgrade was that we had to recreate the user accounts for those clients that have existing maintenance and ongoing rental agreements, and who download the software updates we issue on a regular basis.

Those users should have received an email to this effect in late September. It requires you to login and change the password on the account from the one that we used to re-initialize the account.

If you are having problems accessing your account please do not hesitate to let us know. Contact information can be found on the back page of this newsletter.

The website address is:

<https://www.terrasciences.com>



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## Mogi-Coulomb failure criterion added to Pressure Modeling and Stress Analysis modules

Recently added to the pressure Modeling and Stress Analysis modules is the Mogi-Coulomb failure criterion.

This has gained favor over the Mohr-Coulomb criterion as it includes intermediate principal stress and thus can give a more realistic minimum required mud weight.



## TCL adds Matrix Operations

Matrix algebra functions have been added to TCL recently. A brief summary of the capabilities are described.

Matrices are two dimensional data structures containing rows and columns of variables. They can be hard numbers such as 2.5, or can be one of the various types of TCL supported variables (e.g. a curve value VGR, or a constant C34)

Matrix algebra forms the basis for some lithological modeling methodologies and other computations. This gives you a way to perform your own processing of matrices.

The commands used to manipulate matrices in TCL almost all begin with the word MATRIX and are generally followed by a sub command. The exception is the command to print out the contents of a matrix. This is one of the PRINT group of commands.

The commands are as follows:

MATRIX – this command has no sub command and is used to create a matrix.

MATRIX COPY – copies the contents of one matrix to another.

MATRIX ADD – adds two matrices together, or alternatively can add a single value to each element of the matrix.

MATRIX SUBTRACT – subtracts one matrix from another matrix, or alternatively can subtract a single value to each element of the matrix.

MATRIX MULTIPLY- multiply two matrices together, or alternatively, multiply each element of a matrix by a value.

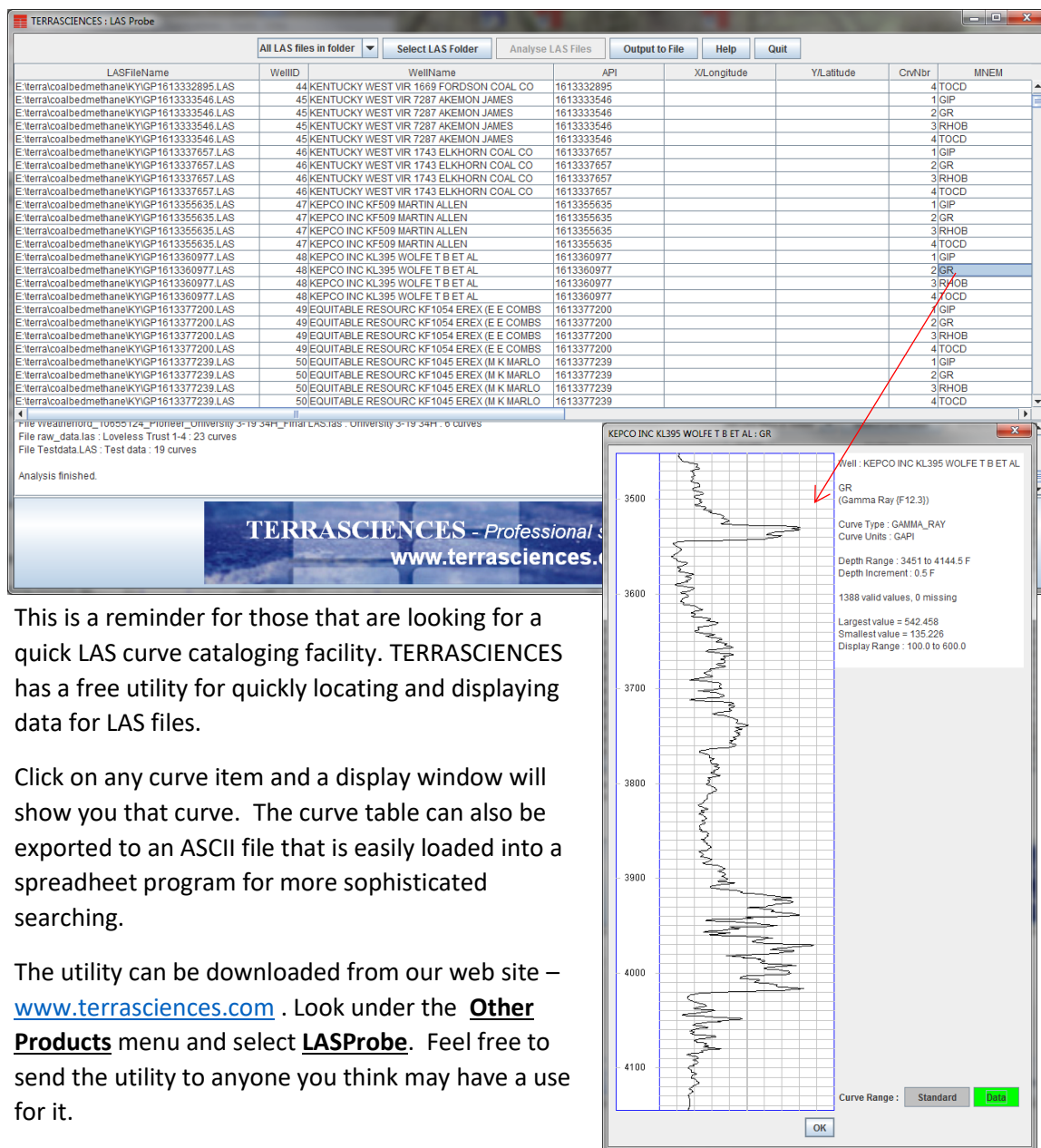
MATRIX INVERSE – inverts a matrix, if possible.

MATRIX TRANSPOSE – transposes a matrix. That is flips the rows and columns.

Finally there is a PRINT MATRIX command to output the contents of a matrix to the report file.

There is a more detailed document on how to utilize matrices in TCL available from TERRASCIENCES if you want it. Simply contact your support office.

# LASProbe – a free utility for Windows



This is a reminder for those that are looking for a quick LAS curve cataloging facility. TERRASCIENCES has a free utility for quickly locating and displaying data for LAS files.

Click on any curve item and a display window will show you that curve. The curve table can also be exported to an ASCII file that is easily loaded into a spreadsheet program for more sophisticated searching.

The utility can be downloaded from our web site – [www.terrasciences.com](http://www.terrasciences.com). Look under the **Other Products** menu and select **LASProbe**. Feel free to send the utility to anyone you think may have a use for it.

## Recent Additional TerraStation Enhancements

### Histograms

Histograms can now access the individual elements of array curves. For example if you wanted to histogram individual elements of NMR or CMR Porosity arrays.

See Petrophysical Analysis->Histogram.

### Pressure Modeling

We have added a constant 'K' to the poroelastic equation as a way to convert Young's Modulus from dynamic to static.

If  $K = 1$ , Y is dynamic. K is a parameter. Note: If Poisson Ratio is a parameter under Rock Properties, as a parameter it can pick up a curve that is a static PR. Between that and K you can get a static Young's Modulus.

### Q: Can I plot multi well stereonets?

A: Yes you can. You can do this using the Clarity module that is a part of every TerraStation installation. It can be found under the **Tools** menu of the main TerraStation menu bar.

### Q: How do I see what I am licensed to?

A: Click on the Help menu of the main TerraStation menu bar. Select the License Info option.

This will display a list of the modules that you have access to as well as how long the license is for.



## Upcoming Events\*

**Int. Conference on Radioactive Waste Management.**  
Vienna, Austria.. 1<sup>st</sup>-5<sup>th</sup> November 2021

**PETEX 2021.**  
London. 23<sup>rd</sup>-25<sup>th</sup> November 2021

**AAPG 2022 Annual Conference & Expo.**  
Houston, TX. April 10-13<sup>th</sup>, 2022

**AAPG 2022 International Conference & Expo.**  
Cartagena, Colombia. April 19-22<sup>nd</sup>, 2022

**EAGE 2022 83<sup>rd</sup> Annual Conference & Exhibition.**  
Madrid, Spain. June 5-9<sup>th</sup>, 2022

**SPWLA 2022 Annual Symposium.**  
Stavanger, Norway. June 11-15<sup>th</sup>, 2022

\*TERRASCIENCES is not necessarily exhibiting at these events.

TerraNotes October 2021



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