

TerraNotes

The official newsletter of TERRASCIENCES

Current TerraStation II version: v7.364

Well Log Curve Upscaling in TerraStation

We have recently added the ability to upscale well log data to seismic scales using an extracted wavelet and a time curve.

The capability is located in **Petrophysics - Curve Utilities - Filtering - Upscale Time Filter**. This is available to all users.

Provide the input curve to be upscaled. Supply an output curve in which to store the upscaled curve.

Supply a time curve in msec and in either one way or two way time. Such a curve can be computed externally and then loaded via LAS or some other format. Or the Synthetic Seismogram module can be used to generate a time curve.

Supply an ASCII text file containing the time based filter in msec – usually an extracted wavelet on the same time basis as the Time curve (OWT or TWT). The file should simply have one filter value per line. An example wavelet is shown on the right.

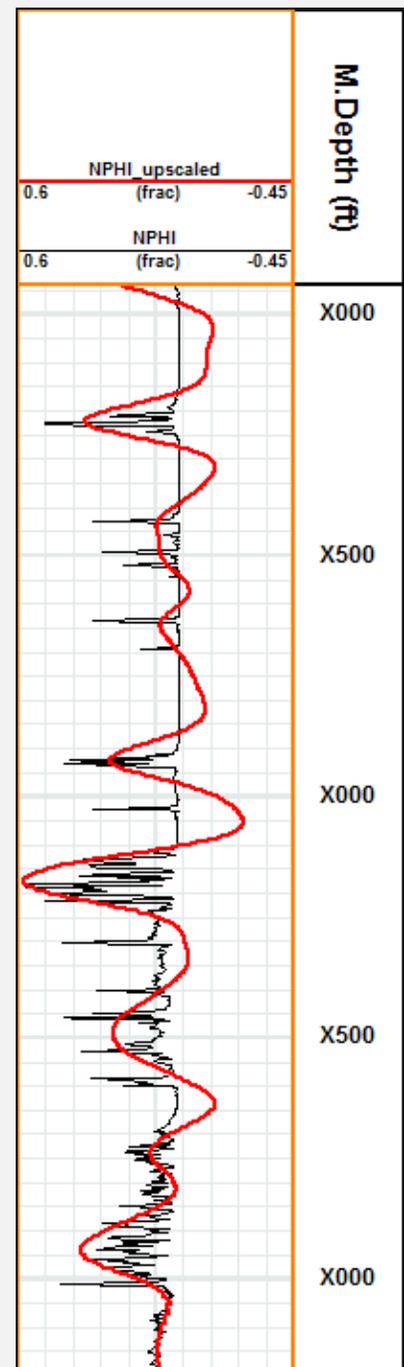


Specify the filter size – use zero to have the entire filter in the file be used (up to the maximum of 1,000 elements)

On pressing **Accept**, the TIME curve is used to get the input curve values from the appropriate depths. The input curve (now referenced in time) is convolved with the wavelet and the result output as the upscaled curve again using the TIME curve to store the appropriate filtered values at each depth. The input and output curves are displayed in the main display window.

Thanks go to Andy May of Kinder Morgan for the suggestion and guidance with this capability.

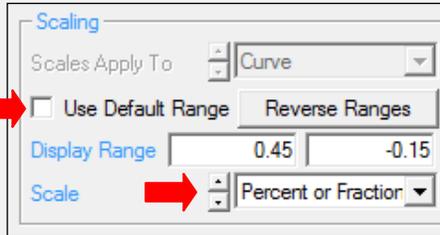
In addition, we have added an option to compute upscaled rock moduli using Backus Averaging. This is located in the **Sonic Waveform - Data Control - Compute Rock Properties** option. Set the **Output Mode** to Backus Upscaling and supply an Upscale Filter length (in feet). The resulting moduli are output to curves called C11, C13, C33, C44 and C66. We also store the Backus averaged rho, dtc, and dts in curves called rho_Backus, dtc_Backus and dts_Backus respectively. This does require a license to the Sonic Waveform module.



Auto-detecting percent/fraction units in IMAGELog

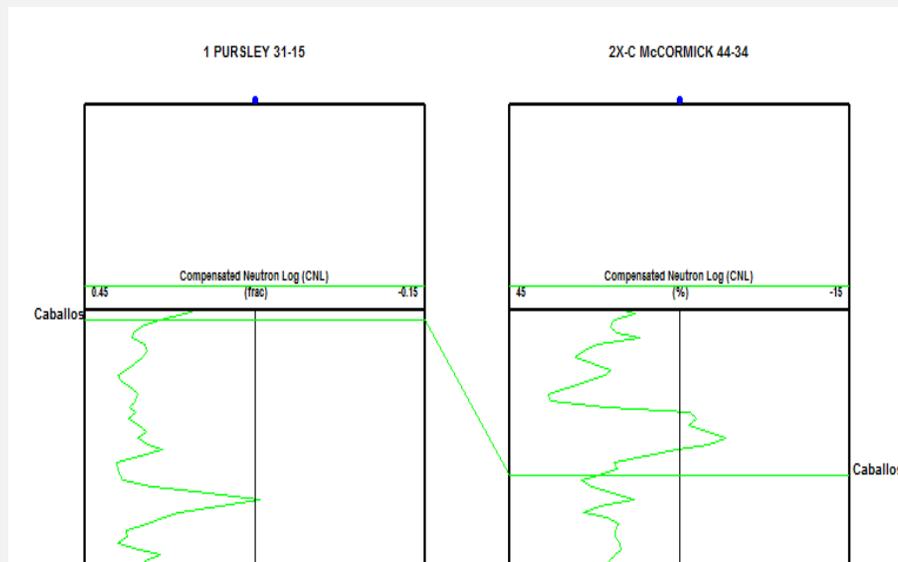
We recently added the ability for IMAGELog to auto-detect whether a curve's unit is percent or fraction and adjust the display range accordingly.

In order to activate this capability you must first uncheck the **Default Range** box on the **Display Attributes** tab of a curve in a curve track.



Next click on the **Scale** toggle and there is now a third option called **Percent or Fraction**.

This becomes useful when one is using the same template for multiple wells within a cross section, or just a standard template to look at wells one at a time. For example...



The well on the left has the CNL curve in fractional units; the one on the right is in percent. By using the **Percent or Fraction** setting, the same template can be used for both wells. In the past you would either have had to convert one of the curves to the same units as the other, or have two curve entries in the track to deal with both cases.

This functionality was primarily aimed at dealing with the mess that neutron logs can cause, but also applies to any curves which may be in percent or fractional units, such as saturation curves and computed porosities.

Upcoming Shows in the USA this year

TERRASCIENCES will be exhibiting at the annual AAPG convention and at the SPWLA symposium in 2015. The first will be the AAPG. It is being held in our hometown of Denver, Colorado between the 31st May and the 3rd June. We will be at booth 1927.

The second show is the SPWLA Annual Convention which is being held in Long Beach, California between the 19th and 22nd of July.

If you get the chance to visit any of these shows, please feel free to drop by our booths for a chat.

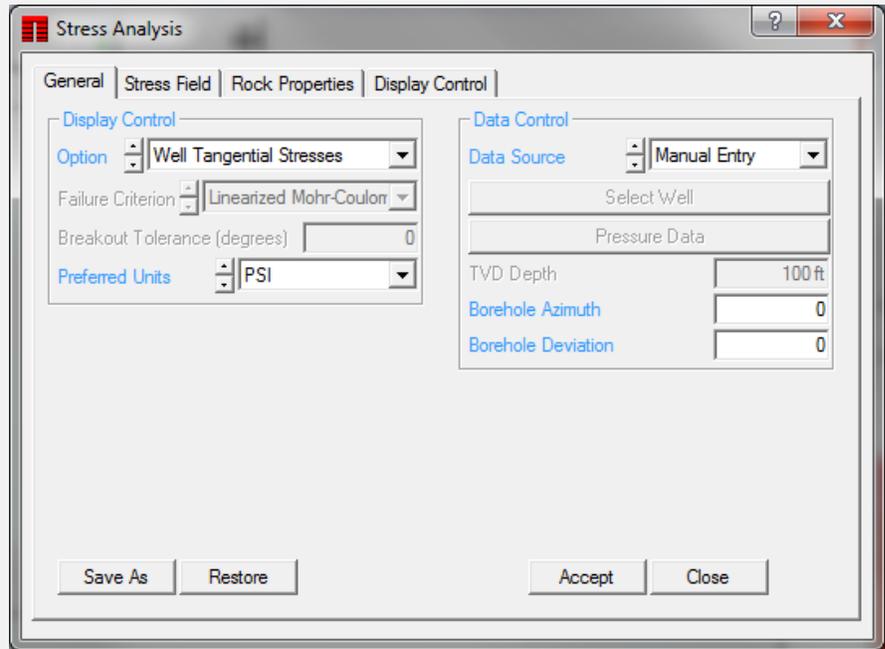
Newsletter Archive

Just a brief reminder that you can access any of the past editions of TerraNotes on our website. Simply click on the **Client Center** menu and choose **Newsletters**. There are many technical tips and articles on features in the software that may be of use.

Introducing the use of the “tree-list” item to our User Interface

Over the past several months we have become concerned with the potential overloading of the interface panels with more and more capabilities. In the past the use of the “tabbed” property sheet allowed us to present interface options without too much difficulty. However, in some areas we were starting to see serious crowding of user interface items in order to provide the options requested by users.

One example of this is the **Stress Analysis** module controls. Prior to version 7.363 when you activated this module a tabbed property sheet was displayed



Now the interface is designed around the ‘tree-list’. The tree-list item is the area on the left hand edge of the panels shown below. It allows us to split out the various user interface items in to more specific categories rather than bunching, sometimes disparate, functions together on the same panel.

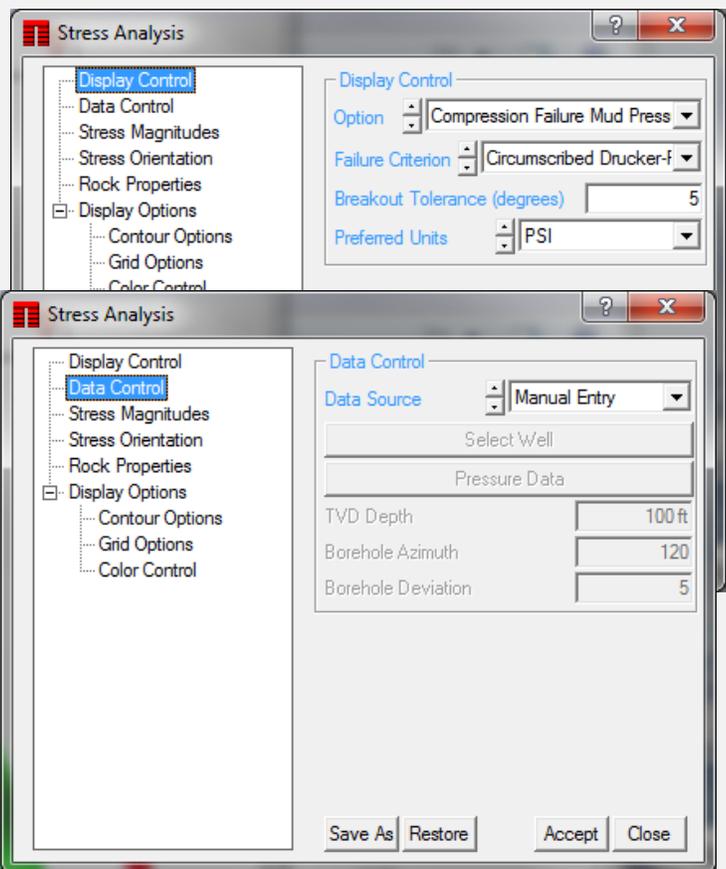
Studies have shown that users can have difficulty finding options once the number of items on a panel exceed about 8 items.

So in the two examples shown on the right, we have split the **Display Control** and **Data Control** section of the old ‘General’ tab into two separate branches on the tree-list. Each having a specific description of what is on each branch, as opposed to the somewhat generic term ‘General’ that was used on the old tabbed interface panel.

An additional benefit is that most of the tree-list windows are actually slightly smaller than the tabbed property sheet making it a little less intrusive on the screen.

With v7.363, the **Edit - Preferences** was replaced by the tree-list approach, as was the **Petrophysics – Histogram** module, and the Base Map property sheet when using mapping functions.

Over the next several releases you may see other windows be replaced by the tree-list control panel.



Displaying IMAGELog templates within the Dip Analysis Module

For some time now it has been possible to display any template you like down the right hand side of the stereonet/rose diagram display within the Dip Analysis module. Until we allowed this, the things that could be displayed were restricted to lithology, stratigraphy, a couple of curve tracks and a SCAT track. In many cases this is more than adequate. However, there are times when users have requested additional track displays. It was becoming a serious matter to continually add options to do this, so we took the route of allowing a template to be displayed instead.

Bear in mind that the space for such displays is somewhat restricted on the Dip Analysis display window. To do this click on the **Strat/Lith/Facies/IL** tab on the **Display Preferences** window.

Dip Analysis Display Preferences

Stereonet | Rose/Strike Plot | SCAT Track | Curve Track | Curve Track (2) | **Strat/Lith/Facies/IL**

Stratigraphy Control

Display Stratigraphy Track?

Data Source: Well Stratigraphy

Rank to Use: 1

Fill Style: Both

Lith/Facies

Display Lithology/Facies Track?

Data Source: Facies

Data Set: A

Category To Display: All

Black Edge Mode: Off

Fill Mode: Color & Pattern

Pick Usage: Selected Zone Only

Map Picks Control

Select Map

Map Pick Display: None

IMAGELog track

IMAGELog Form: Off

Restore Template | Save Template

Save As | Restore | OK | Cancel | Apply

Dip Analysis - Borehole Imaging demos - FMI Carbonate section (3250.0 - 3500.0 m) Constraints: None

Well Name: **FMI Carbonate section**

Stereonet interval: 3250.00 to 3500.00 mtrs Schmidt (Lower) Data source: Pick Set A

Rose bin size: 10.0°

Rose rim value: Auto

Azimuth Plot

Mud wt: 10.10 lb/g

N = 750

BEFORE

Dip minimum: 0.00

Dip maximum: 180.00

Dip quality cutoff: 0.00

Dip fill cutoff: 0.00

AFTER

Dip minimum: 0.00

Dip maximum: 180.00

Dip quality cutoff: 0.00

Dip fill cutoff: 0.00

Legend:

Unclassified	1
Auto pick 1	693
Heterolithic	27
Sandstone bed	18
Fault	4
Conductive fracture	7

Select the desired option, right click for more options

77.860 3298.37

87.274 3279.55

Set the **IMAGELog Form** setting to **With Header** or **Without Header**. This switches any track headers for the template on or off.

Press **Restore Template**, and select the desired IMAGELog template.

Note the Formation View track now displayed down the right hand side.

US OFFICE

TERRASCIENCES Inc.
26 West Dry Creek Circle,
Suite 360,
Littleton
CO 80120
USA

Tel: (303) 794 5511
Intl: +1 (303) 794 5511

Fax: (303) 794 7755
Intl: +1 (303) 794 7755

Sales Email:
sales@terrasciences.com

Support Email:
support@terrasciences.com

UK OFFICE

TERRASCIENCES Ltd.
Palace Chambers
41 London Road
Stroud, Glos.
GL5 2AJ
United Kingdom

Tel: (01453) 767683
Intl: +44 (1453) 767683

Sales Email:
sales@terrasciences.co.uk

Support Email:
support@terrasciences.co.uk

www.terrasciences.com

We suggest keeping the template to a few tracks at the most – although this is not a requirement. Also keep in mind that the entire active depth interval is displayed at once, so you might want to avoid things like lots of horizontal grid lines, excessive depth labels, etc. In fact we suggest not having a depth track in the template and just allow the depth labels displayed by the module itself to be sufficient.

The module's specific display capabilities of a stratigraphy track, lithology, facies, SCAT/tadpole and two separate single curve tracks are still available so the template ability is really more of an optional extra.

One final thing, any IMAGELog track in the template that is displaying data by interval allows you to click on an interval and the main stereonet/rose display will change to be just for that interval. Tracks such as rose diagram, stereonet, interval graph, lith/facies, stratigraphy and Mohr diagram have this ability.

Restoring From Recently Used Templates

Just a quick reminder that you can access a list of your most recently used IMAGELog templates by simply clicking on the **File** menu item and then choosing **Restore Recent**. See an example below....

