

TerraNotes

Current TerraStation II version: v7.454

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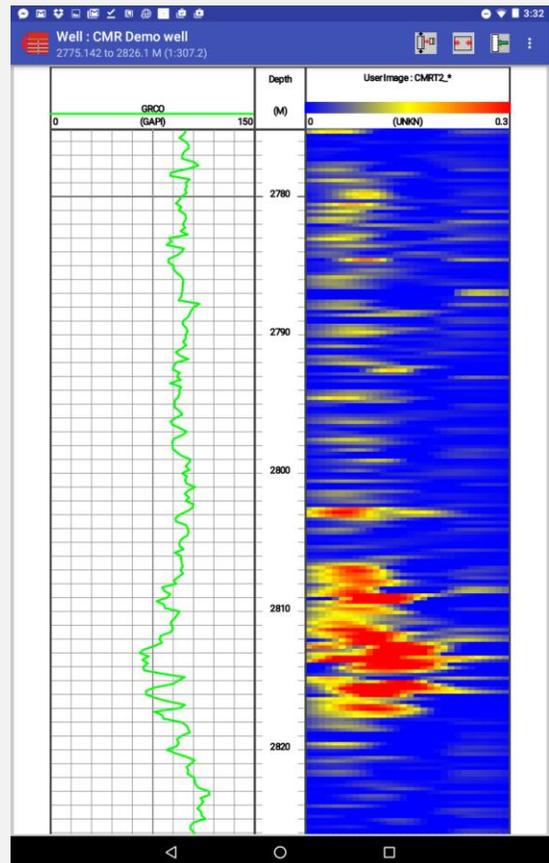
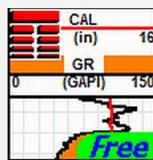
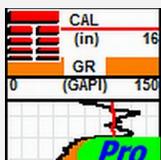
Updated Android App for Viewing LAS files

We have updated our 'app' for Android based tablets and phones. It will now handle irregularly sampled data, that is LAS files with a STEP of 0 (zero).

The app is called TLAS and is for the display of LAS data. The app comes in two forms; a free ad supported version, and a Pro version which is ad free and has more display capabilities.

The Pro version allows users to define and save their own display template, as well as display LWD images and other circumferential images. The Pro version costs US\$25 and is free of advertising.

You can find TLAS by going to the Google Play Store and searching for TERRASCIENCES. The Play Store can be found here: <https://play.google.com/store>.



LAS Probe – a free Utility for Windows

Terrasciences released a free utility for quickly locating and displaying data for LAS files.

LASFileName	WellID	WellName	API	XLongitude	YLatitude	CrvNbr	MNEM
E:\terra\coalbedmethane\KYGIP1613332895.LAS	44	KENTUCKY WEST VIR 1669 FORDSON COAL CO	1613332895			4	TOCD
E:\terra\coalbedmethane\KYGIP1613333546.LAS	45	KENTUCKY WEST VIR 7287 AKEMON JAMES	1613333546			1	GIP
E:\terra\coalbedmethane\KYGIP1613333546.LAS	45	KENTUCKY WEST VIR 7287 AKEMON JAMES	1613333546			2	GR
E:\terra\coalbedmethane\KYGIP1613333546.LAS	45	KENTUCKY WEST VIR 7287 AKEMON JAMES	1613333546			3	RHOB
E:\terra\coalbedmethane\KYGIP1613333546.LAS	45	KENTUCKY WEST VIR 7287 AKEMON JAMES	1613333546			4	TOCD
E:\terra\coalbedmethane\KYGIP1613337657.LAS	46	KENTUCKY WEST VIR 1743 ELKHORN COAL CO	1613337657			1	GIP
E:\terra\coalbedmethane\KYGIP1613337657.LAS	46	KENTUCKY WEST VIR 1743 ELKHORN COAL CO	1613337657			2	GR
E:\terra\coalbedmethane\KYGIP1613337657.LAS	46	KENTUCKY WEST VIR 1743 ELKHORN COAL CO	1613337657			3	RHOB
E:\terra\coalbedmethane\KYGIP1613337657.LAS	46	KENTUCKY WEST VIR 1743 ELKHORN COAL CO	1613337657			4	TOCD
E:\terra\coalbedmethane\KYGIP1613356635.LAS	47	KEPCO INC KF509 MARTIN ALLEN	1613356635			1	GIP
E:\terra\coalbedmethane\KYGIP1613356635.LAS	47	KEPCO INC KF509 MARTIN ALLEN	1613356635			2	GR
E:\terra\coalbedmethane\KYGIP1613356635.LAS	47	KEPCO INC KF509 MARTIN ALLEN	1613356635			3	RHOB
E:\terra\coalbedmethane\KYGIP1613356635.LAS	47	KEPCO INC KF509 MARTIN ALLEN	1613356635			4	TOCD
E:\terra\coalbedmethane\KYGIP1613360977.LAS	48	KEPCO INC KL395 WOLFE T B ET AL	1613360977			1	GIP
E:\terra\coalbedmethane\KYGIP1613360977.LAS	48	KEPCO INC KL395 WOLFE T B ET AL	1613360977			2	GR
E:\terra\coalbedmethane\KYGIP1613360977.LAS	48	KEPCO INC KL395 WOLFE T B ET AL	1613360977			3	RHOB
E:\terra\coalbedmethane\KYGIP1613360977.LAS	48	KEPCO INC KL395 WOLFE T B ET AL	1613360977			4	TOCD
E:\terra\coalbedmethane\KYGIP1613377200.LAS	49	EQUITABLE RESOURC KF1054 EREX (E E COMBS	1613377200			1	GIP
E:\terra\coalbedmethane\KYGIP1613377200.LAS	49	EQUITABLE RESOURC KF1054 EREX (E E COMBS	1613377200			2	GR
E:\terra\coalbedmethane\KYGIP1613377200.LAS	49	EQUITABLE RESOURC KF1054 EREX (E E COMBS	1613377200			3	RHOB
E:\terra\coalbedmethane\KYGIP1613377200.LAS	49	EQUITABLE RESOURC KF1054 EREX (E E COMBS	1613377200			4	TOCD
E:\terra\coalbedmethane\KYGIP161337239.LAS	50	EQUITABLE RESOURC KF1045 EREX (M K MARLO	161337239			1	GIP
E:\terra\coalbedmethane\KYGIP161337239.LAS	50	EQUITABLE RESOURC KF1045 EREX (M K MARLO	161337239			2	GR
E:\terra\coalbedmethane\KYGIP161337239.LAS	50	EQUITABLE RESOURC KF1045 EREX (M K MARLO	161337239			3	RHOB
E:\terra\coalbedmethane\KYGIP161337239.LAS	50	EQUITABLE RESOURC KF1045 EREX (M K MARLO	161337239			4	TOCD

File vveairnerid_10050124_Pioneer_University 3-19-34F_Final LAS.las : University 3-19-34F : 6 curves
File raw_data.las : Loveless Trust 1-4 : 23 curves
File Testdata.LAS : Test data : 19 curves
Analysis finished.

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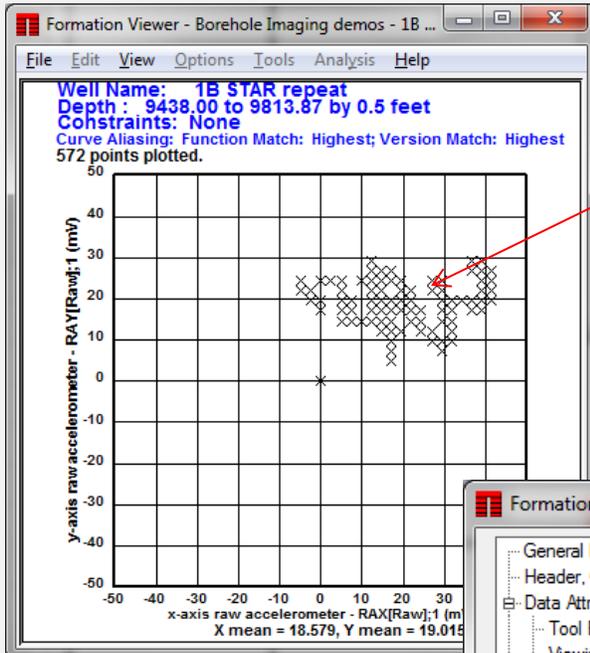
Click on any curve item and a display window will show you that curve.

The table can also be exported to an ASCII file that is easily loaded into EXCEL.

The utility can be downloaded from our web site – www.terrasciences.com . Look under the **Products -> Other Products** menu and select **LAS Probe**. Feel free to send the utility to anyone you think may have a use for it.

Accelerometer Quality Control Plot

We have added functionality to the X/Y accelerometer QC plot to correct the plot for deviation.



This first plot shows the result of cross plotting the X/Y accelerometer data without correcting for hole deviation. Note the scattering of the data. It is not obvious if the accelerometers were functioning correctly from this plot.

By checking the box labeled **Correct Acc X v Y for Deviation** and performing the plot again

Depth Interval	
Top Depth: (> 9438.0)	9438.000 ft
Bottom Depth: (< 9813.9)	9813.867 ft

QC Displays		
	Minimum	Maximum
<input checked="" type="checkbox"/> Automatic Scaling		
AX: RAX[Raw];1	-50	50
AY: RAY[Raw];1	-50	50
Acc Z	0	0
MX: RMX[Raw];1	-80	20
MY: RMY[Raw];1	-80	20

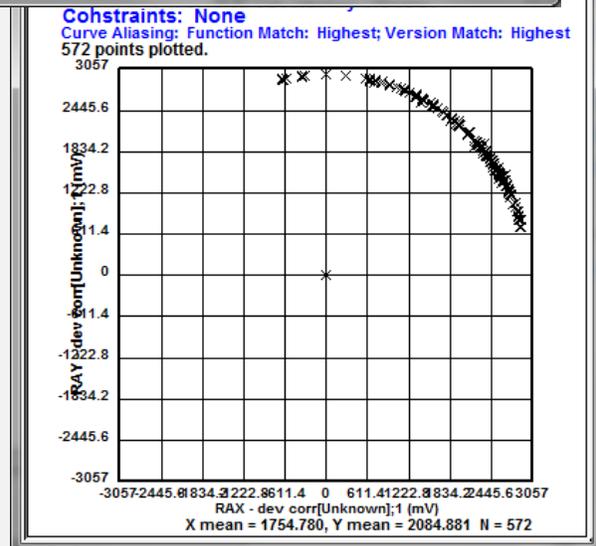
Caliper (inches): 10

Acc X v Y | Mag X v Y | Acc Z | Calipers

Correct Acc X v Y for Deviation

Save As | Restore | Close

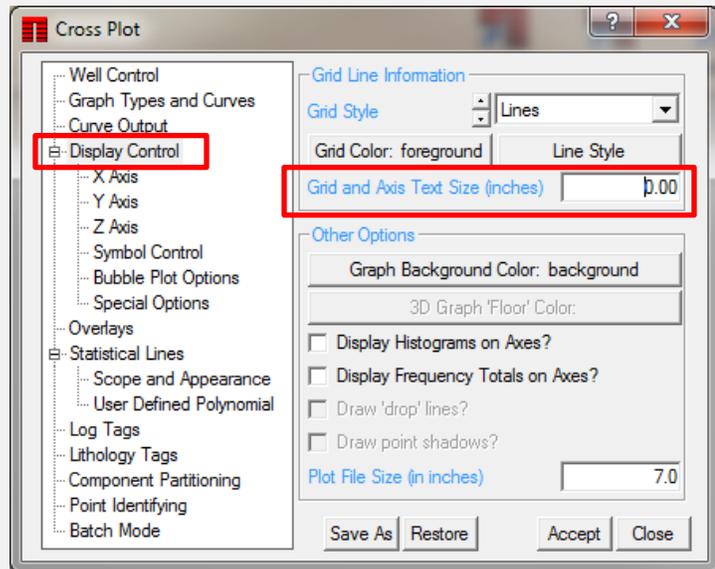
We now see the points plot along a circular arc. This indicates that the accelerometers were performing correctly during the recording of the data.



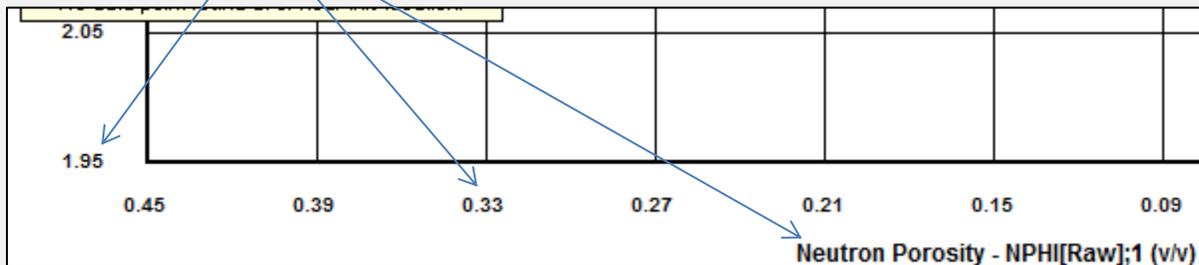
Crossplot Grid Annotation

We recently added a size control for the text that makes up the axis labels and axis title text on crossplots.

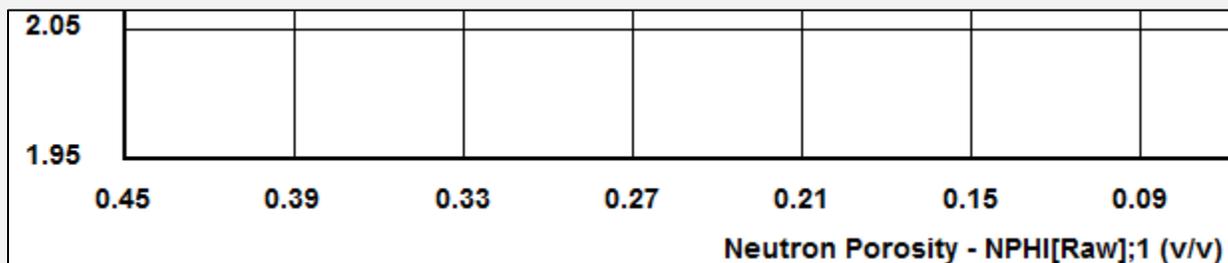
On the **Display Control** panel there is now an option called **Grid and Axis Text Size (inches)**. When it is set to zero, the standard text sizes are used.



This is the text sizes when using the default (zero) setting. The grid labels use 0.125 and the axis titles use 0.15 inches.



If you change the value to something other than zero, then both labels and titles are drawn with the same size. For example, this uses 0.175 as the size. Note both labels and axis titles are the same height.



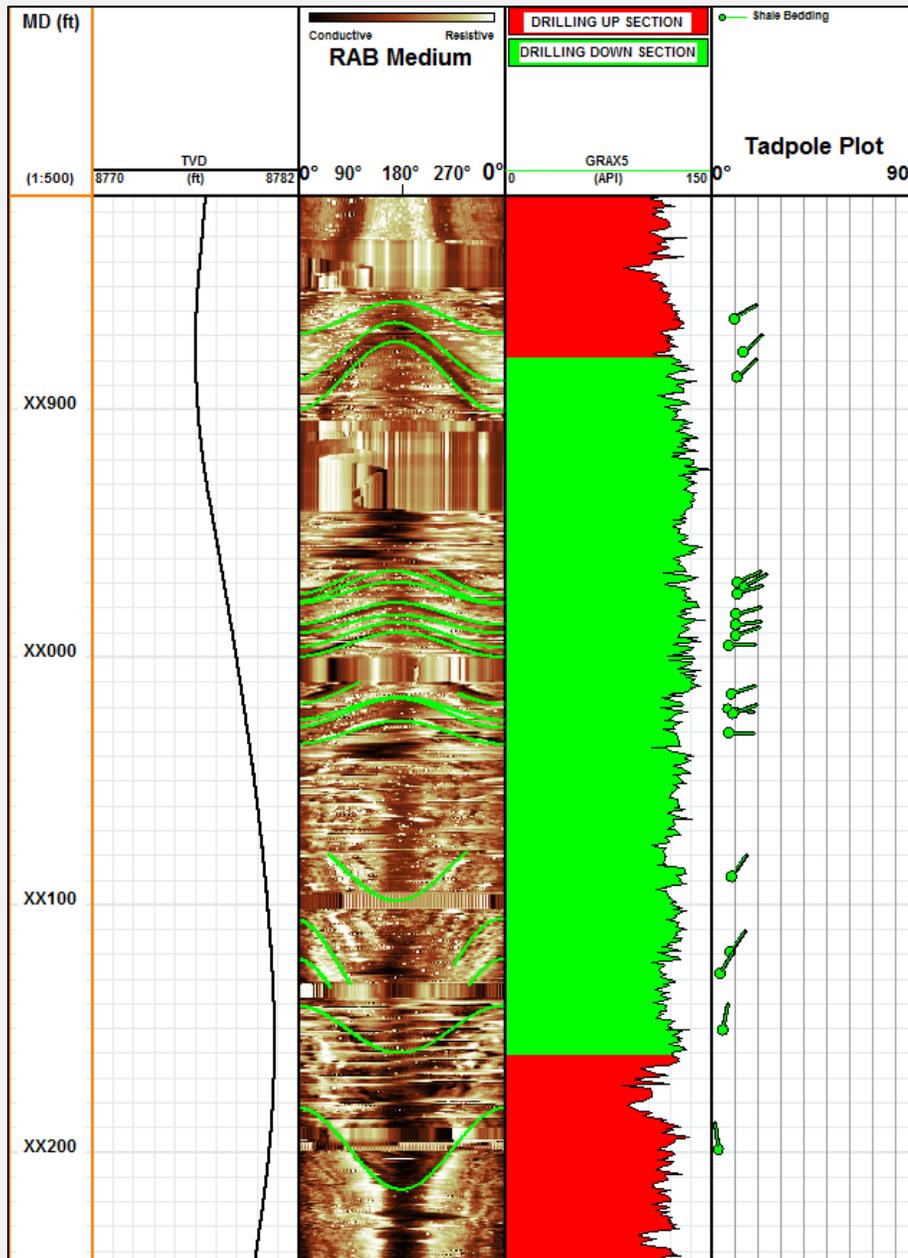
TCL Corner – An Up/Down Section Drilling Indicator

As many you know, TCL is a powerful programming language used to unleash the imagination of our users. Here is an example of a short routine that creates a pair of flags indicating when the drill bit is going up section or down section that may prove useful in horizontal well displays.

```
* Bed Penetration indicator preparation.
*
* Create drilling up and down flags. Two flag curves
* are created to make shading in IMAGElog easier.
*
DECLARE TEMP
DECLARE MDPREV
DECLARE TVDPREV
DECLARE TVD1
DECLARE DIRECTION 0
CREATE CURVE UP_FLAG
CREATE CURVE DOWN_FLAG
*
MDPREV = V'M.Depth'
*
* Main loop control
*
BEGIN
TVD1 = TVD
TEMP = @SETDEPTH(MDPREV)
TVDPREV = @GETVALUE(TVD)
*
* skip if a missing TVD value
*
IF (TVDPREV = -999)
  GOTO LOOP
ENDIF
*
* deal with instances where two consecutive TVD
* values are identical.
*
IF (TVDPREV = TVD1 & DIRECTION = 1)
  TVDPREV = TVDPREV + 0.1
ENDIF
IF (TVDPREV = TVD1 & DIRECTION = 0)
  TVDPREV = TVDPREV - 0.1
ENDIF
*
* set the two flag curves appropriately.
*
IF (TVD1 < TVDPREV)
  VUP_FLAG = 1
  VDOWN_FLAG = 0
  DIRECTION = 1
ELSE
  VDOWN_FLAG = 1
  VUP_FLAG = 0
  DIRECTION = 0
ENDIF
:LOOP
MDPREV = V'M.Depth'
ENDBEGIN
END
```

It uses a previously computed TVD curve as the main input and computes two flag curves - UP_FLAG and DOWN_FLAG.

Combined with IMAGELog you can generate a useful indicator track as to the direction of drilling in the hole.



The fourth track is actually two tracks. The first uses a gamma ray curve and the two flag curves to display the red and green shading. The second track is simply a second curve track with the gamma ray curve drawn in black and overlain on top of the shading track.

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