# WellCAD™ 5.5 · release fact sheet

# Highlights

**New in Image & Structure Interpretation:**

Linear Structure Picking (e.g. fold axis)
Partial Picks
Terzaghi Correction
Revised BHI Data Import

**New in the Basic module:**

Spinner Flowmeter Calibration Workspace
Flow Velocity and Volume Flow Process
Improved Flowmeter Workspace

**New in WellCAD Basic**

Integrated Script Editor
pyWellCAD BETA

## Linear Structure Picking (ISI module)

Linear structures or lineations are penetrative linear elements within a rock and can be compared to a vector intersecting the borehole cylinder. The origins of lineations can be complex and may be caused by recrystallization, dissolution or rotation of minerals (Mineral Lineations) or may be produced by deformation or intersection of planar structures (Geometric Lineations such as a fold axis).

**The new Lineation Log allows interactive picking the orientation, presentation, and classification of linear structure features.**
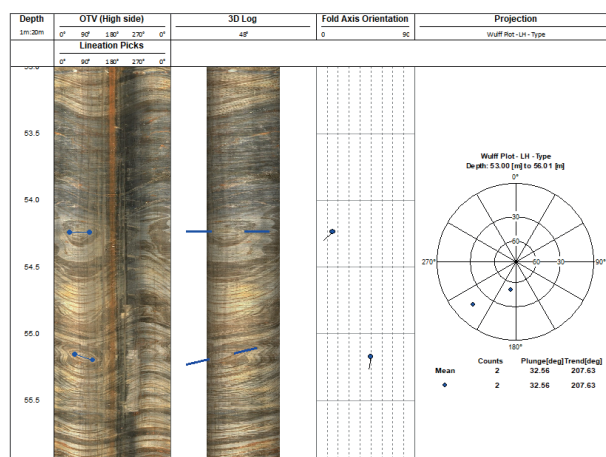


The example shows picks of fold axis orientations using the Lineation Log.

## Partial Picks (ISI module)

In an unwrapped borehole image, a partial structure (e.g. eroded bedding plane) is seen as a segment of a sinusoid. The classic way of picking planar features from a borehole image has been extended to manually pick one or multiple visible segments of a sinusoid. A Feature Depth - the depth of the visible segment - and the center depth of the full sinusoid are derived and available in the data table.
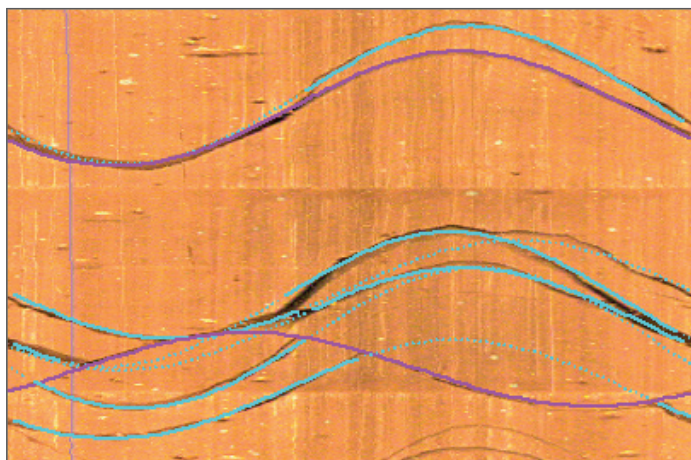


Left image: Partial picks (blue) show the continuation of the full sinusoid (dotted blue line) and allow picking of multiple visible segments (solid blue).
Right image: Borehole wall image before picking.

## Terzaghi Correction (ISI module)

The statistical analysis of geological structure picks along a borehole axis causes an orientation sampling bias. Planar features intersecting the borehole axis perpendicularly are easier to detected compared to features intersecting the borehole axis at a high angle (almost parallel).

**The Terzaghi correction applies a weighting factor based on the acute angle between structure and borehole axis to each pick prior to deriving statistics.**

## Process Performance Improvements (ISI module)

The performance of the Color Classification and Image Normalization processes have been improved by a factor 5 and more.
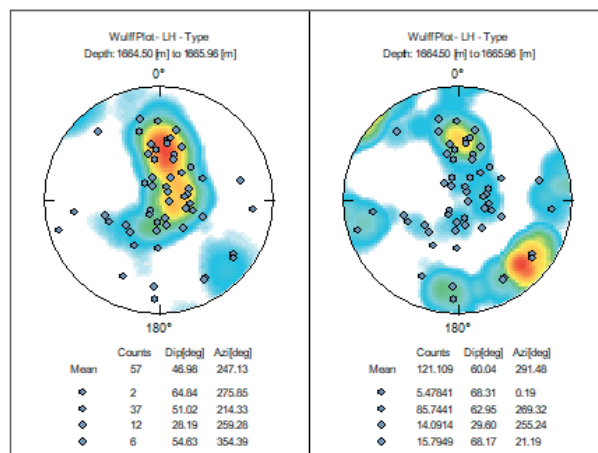


Polar projection diagram without Terzaghi correction (left) and with the correction applied (right).

## Borehole Image (BHI) Data Loading (LIS/DLIS module)

BHI tools exist with various configurations of pads, number of sensor buttons, and data packaging. Two dialog boxes have been added to ease the process of reconstructing oriented images from the imported data.

The new BHI data import process will allow you to adapt the tool configuration to the imported data channels and preview the image before commencing the final conversion.

It replaces the previous FMS/FMI import Wizard.
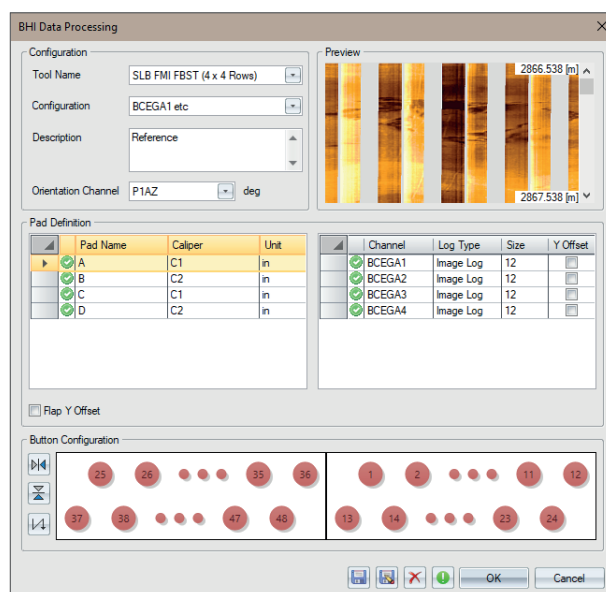


The BHI Data Import is one of two new dialog boxes that assist the user to import borehole image data.
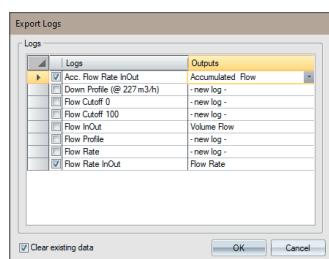
## Workspace Data Export

Data from WellCAD workspaces can be pushed into already existing logs of the borehole document.
A confirmation from the user will be required when amending or overwriting data.
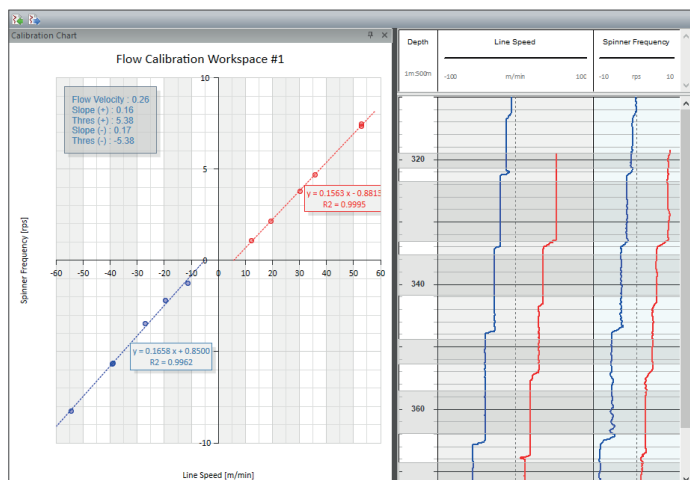


## CoreCAD

New lithology dictionaries for the Shell 1995 series are now available in the Dictionaries folder.

New core description templates for a basic description of Carbonates and Clastics have been added to the Templates folder.
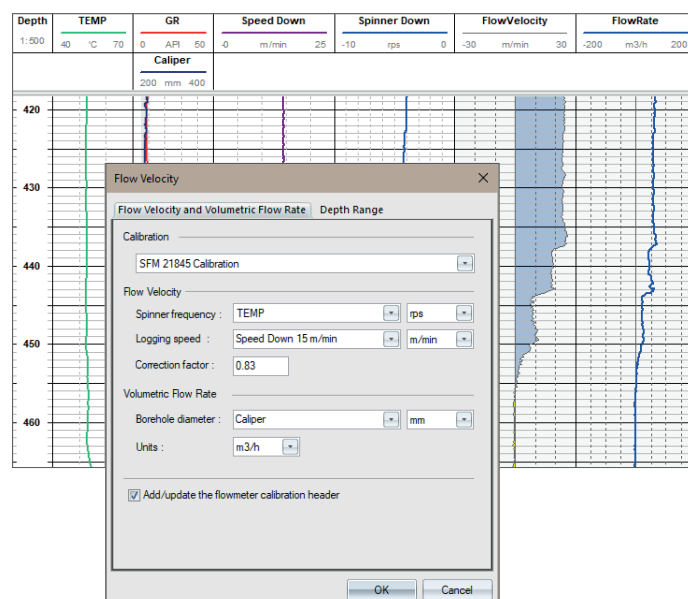
Spinner Flowmeter Calibration workspace with calibration cross-plot and calibration data selection.

## Spinner Flowmeter Calibration (Basic module)

The workspace takes line (or logging) speed and spinner frequency curve pairs of calibration runs, computes interval averages over user defined zones and adds the data to a cross-plot. A linear regression applied to the data will provide the calibration model which will automatically be saved as part of the borehole document containing the calibration data.

## Flow Velocity and Bulk Flow Process (Basic module)

This process can be used to compute a flow velocity from measured spinner frequency data and apply a compensation for the logging speed. If borehole caliper information is available (either as a log or constant value) the volumetric flow rate (e.g. in m3/h or gal/h) can be calculated. A calibration model created in the Spinner Calibration Workspace is required for compensations of cable speed and calculations carried out by the process.



Calibration models can be used in the Flow Velocity process which is part of the WellCAD Basic module.
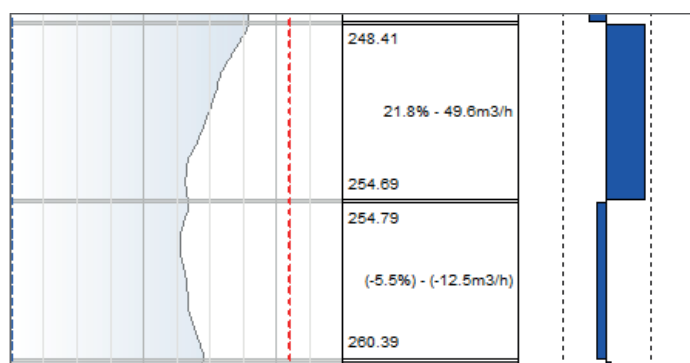


Boundaries can be inserted with a single SHIFT + left click

## Flowmeter Workspace Improvements (Basic module)

The Flowmeter Workspace has been improved to handle in-flow and out-flow situations.

Instead of defining no-flow zones by dragging an interval the option to add boundaries between calculation intervals with a single SHIFT + left click combination has been added.

# WellCAD™ 5.5 · release fact sheet

## Script Editor (Automation module)

The new Script Editor in WellCAD is fully embedded in the software and allows the creation and execution of Visual Basic Scripts (VBS). It is planned to release a version supporting Python scripts later in 2022. Besides syntax highlighting and quick launch buttons the editor offers an Object Browser to insert methods, parameters and properties conveniently with a double click.

pyWellCAD, a WellCAD module for Python, is under development and will be officially released later in 2022. A BETA version of pyWellCAD, acting as wrapper for the current COM implementation, will be available with WellCAD v5.5.
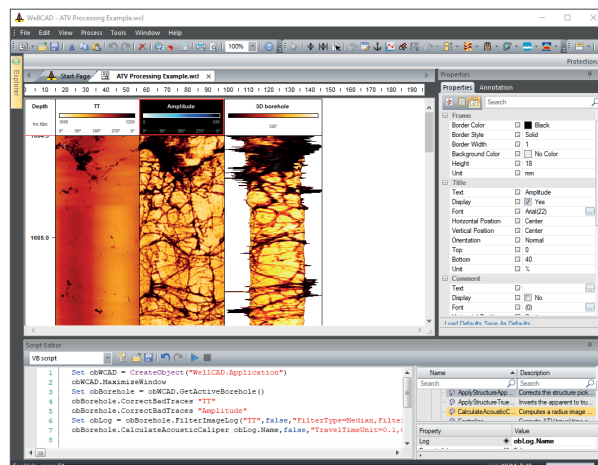


The new script editor shares the advantages of docking toolbars and can be positioned in our outside the WellCAD window

## TVD Process (Basic module)
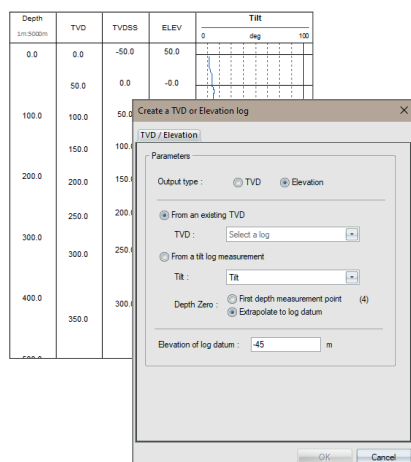


The new TVD process provides an easy tool to create TVD depth systems or Elevation axes.

## ROP Process (Basic module)
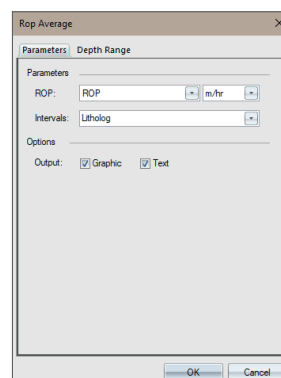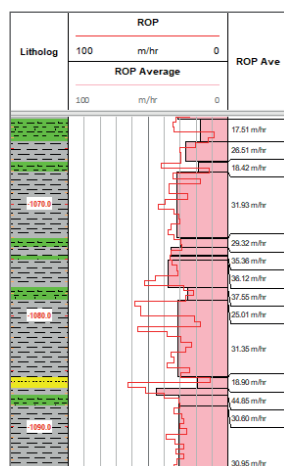


Computing the average Rate Of Penetration (ROP) over depth intervals requires a special process. The output is available as a text and graphical option.

## Cement Bond Index and Compressive Strength Process
(Basic module)

Two new processes are available as part of the Full Waveform Sonic (FWS) processing add-on. The Cement Bond Index is derived by comparing the signal attenuation in partially cemented zones and intervals of good cementation while the Compressive Strength of bonded cement for a specific casing type can be estimated from the amplitude of the first casing arrival.
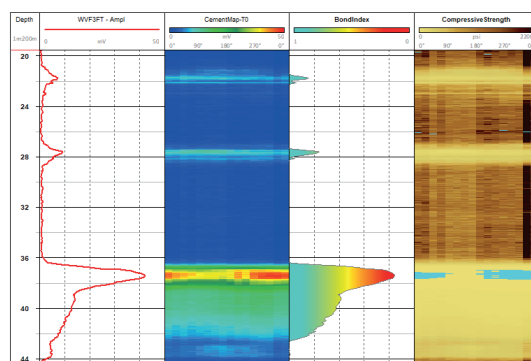


Bond Index (track 4) and Compressive Strength (track 5)