TerraStation II – Borehole Imaging

Technical Specifications

Data Import and Management

- Borehole Image data loading from LAS, LIS, DLIS.
- Supports all known wireline, LWD and MWD imaging devices.
- Allows Up to 30 image data sets per well.
- Can handle images that are in RGB as well as images in raw data units (ohmm, mmhos, etc).
- Data can be True or Magnetic North referenced images.
- Calipers can be diameters or radii.
- Data editor to allow all orientation and button data to be examined. Provides for numerous arithmetic operations on data including computation of missing orientation data.
- Splice and insert image data sets.

Data QC

- Borehole Image Data exported as LIS or DLIS.
- Plot of Z acceleration corrected for deviation.
- Plot of X vs Y magnetometer plot with re-computation of orientation data option.
- Plot of x vs Y accelerometer with option to correct for deviation.
- Caliper plot showing all calipers on the tool.
- Selectively switch off any pad on pad and pad/flap type devices.

Processing

- Accelerometer (speed) correction (*).
- Pad to Pad/Flap Correlation (*).
- Button Correlation (*).
- Swing Arm correction.
- Button Equalization – vertical equalization. Can be done using data from all pads, or treat each pad separately.
- Dead button handling.
- Pad Normalization
- Pad/Flap normalization – if appropriate for the device.
- EMEX correction
- Gain correction. Several gain functions provided.
- Image calibration to any input. User definable window size. Includes a SQRT (R *PHI) function.
- Manual "window shade" shift operation.
- Button shifting options.

Data Display

- Perform static and dynamic normalization display. Equal size increment or equal size bin methods.
- User definable color maps.
- Apply filters – edge detection, sharpening, smoothing filters.
- 2D and 3D display option.
- 3D Borehole visualizer option showing well with image and picks in 3D space. Can be viewed from any angle.
- Display data from buttons as curves.

Interpretation capabilities
- User definable pick feature scheme.
- Pick features manually with several different options for using mouse and/or keyboard.
- Automatic and semi-automatic feature detection options for rapid picking.
- Filter picks – to display only those types of features you wish.
- Pick and display breakouts, linear features and vugs.
- Pick partial features – truncated against other features or terminated within the borehole wall.
- Group editing functions to allow multiple features to be deleted, re-categorized, and other operations.
- Compute fracture density, bias corrected density, fracture aperture (Luthi, Excess Conductance methods), rotate picks in the borehole, shift picks, recomputed picks based on new orientation data without have to re-pick them.
- Compute fracture separation, bed bounded height, fracture length, area/volume, areas of vugs.
- Export picked features to various ASCII format files.

Data Analysis
- Sand count function computes percentage, cumulative percent or cumulative height of up to 8 categories of image. Cutoff points can be set interactively on a histogram of image data distribution.
- Rescale function to scale image data to range between 0 and 1 for use in certain third party software.
- Convert apparent dips to true dips.
- Full stereonet based dip analysis module – Schmidt, Wulff, 3D and Tangential grid stereonets, strike/rose plots, dip walkaway, azimuth vector, cumulative dip plots, Mohr Circle plots.
- Statistical analysis reports – simple and vector means, eigenvectors, Fisher statistics.
- Interactive fold axis fitting to dip/azimuth plot.
- Compute heterogeneity indicator.

Additional Capabilities
- Display picked features using a variety of track types, including tadpole tracks, SCAT type displays, rose diagrams and stereonets.
- Display images in cross section (*).
- Flatten image on single or multiple structures.
- Image "magnifier" function. Allows viewing of image at full resolution in a separate window.
- Display image data as a color coded histogram down the borehole.
- Ability to create 'infilled' images from pad tool image data to present full borehole coverage.

* May need to license additional module.

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