

RockWash™

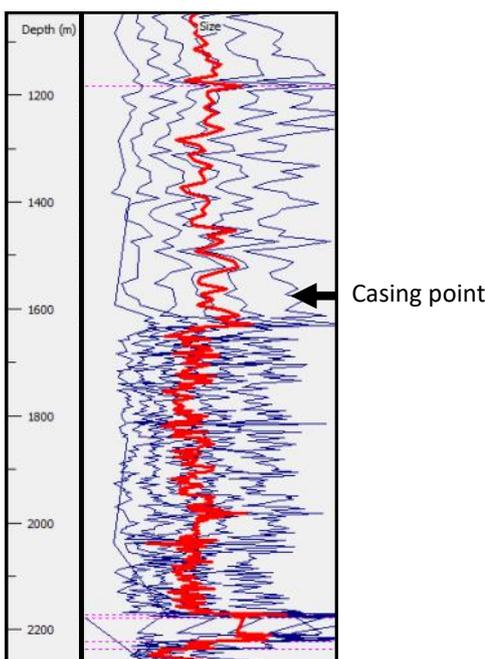
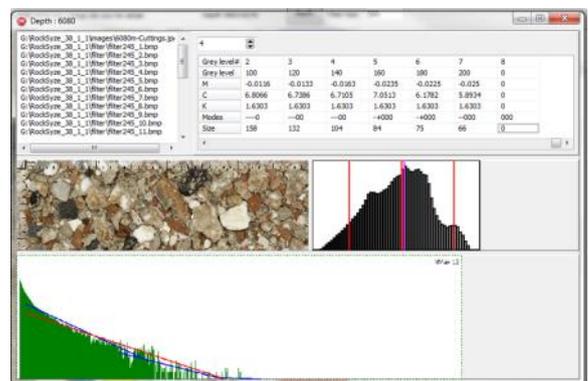
RockSyze Cuttings Analysis

RockWash and Conwy Valley Systems have developed the unique RockSyze analytical method, for evaluating geometric trends reflecting varying characteristics and quality of drill bit cuttings samples, using PhotoSTRAT data.

Individual cuttings samples can be interpreted subjectively by the human eye. However, the subtle variation in cuttings morphology and colour from one sample to another is difficult to achieve without optical image analysis. High resolution digital images of cuttings samples, washed and prepared using the Rock-Wash system, can now be analysed using multiple image views to interpret cuttings characteristics.

The captured data is used to develop trends for an entire well, or a specific well section, for cuttings size, modality and colour. Anomalies and trends in the data can be used to assist with both geological interpretation of cuttings and analysis of drill cuttings quality as a reflection of drilling efficiency.

Cuttings images are optically analysed at different grey scales to evaluate the size and modality of cuttings for each cuttings sample. Each subsequent image is statistically compared to the previous image in order to establish whether there is a trend in cuttings size and modality.



The size and shape of drill bit cuttings is determined by a combination of the formation properties (hardness and consistency) and the drilling factors (type and size of bit, drilling parameters and mud type). A change in any of these parameters can result in an observable change in the size and morphology of cuttings.

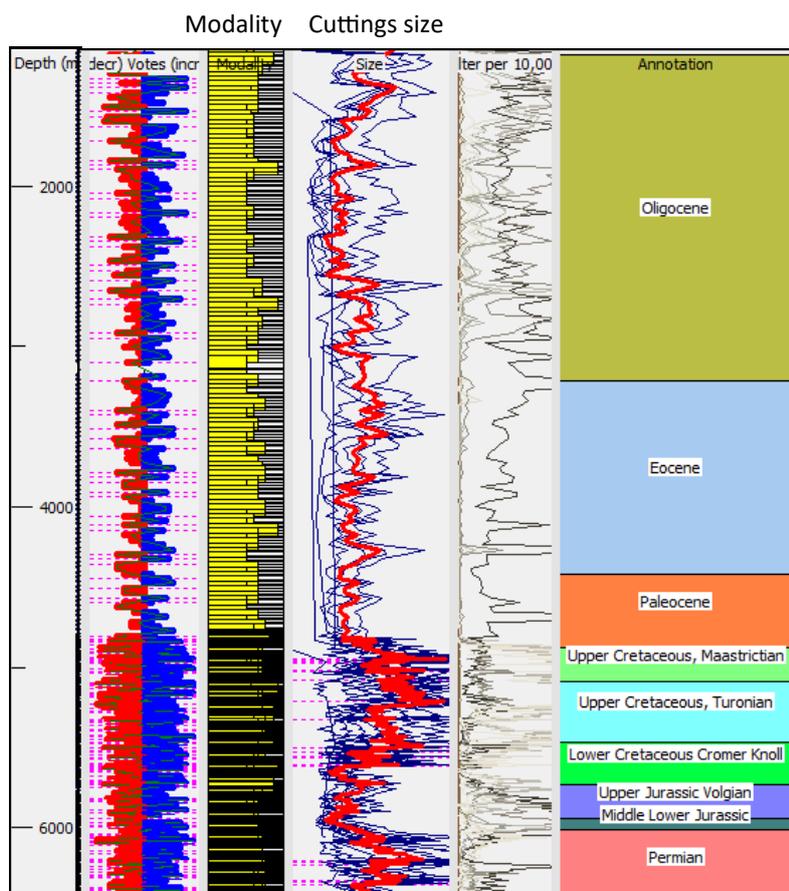
The example well section (left) was drilled through the same siliclastic formation from 1100m to 2200m and clearly illustrates the effect on cuttings size of a change in bit size and type after casing the well at around 1600m.





RockSize data

Well 38/1-1 UK Central Graben



Soft shales and loose sand

Massively bedded largely homogeneous shales becoming firmer with depth

Chalk with chert

Calcareous marl

Interbedded sand, shales and coal

Carbonates and shales

The RockSize data from well 38/1-1 above illustrates different trends for different lithologies in the well on a large scale.

The data can also be used to identify lithology changes on a finer scale as illustrated by the data below from the same well. RockSize data was able to identify several discrete lithology changes improving the interpretation of cuttings lithology.



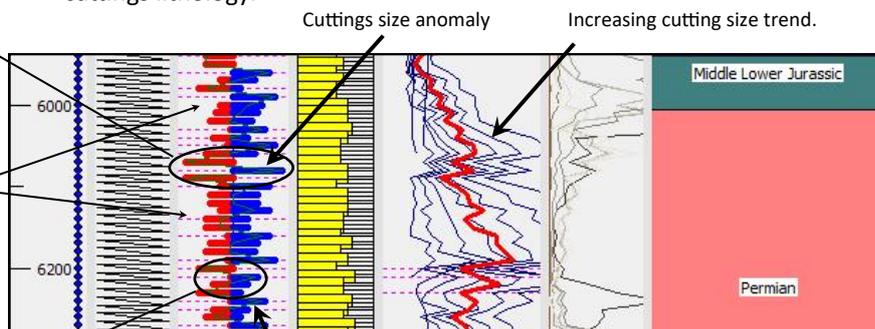
Red shale layer



Carbonate mudstones



Organic shale



Cuttings size anomaly

Increasing cutting size trend.

Cuttings size anomaly

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