






Review of drill results for Adrok survey in Norway

Introduction

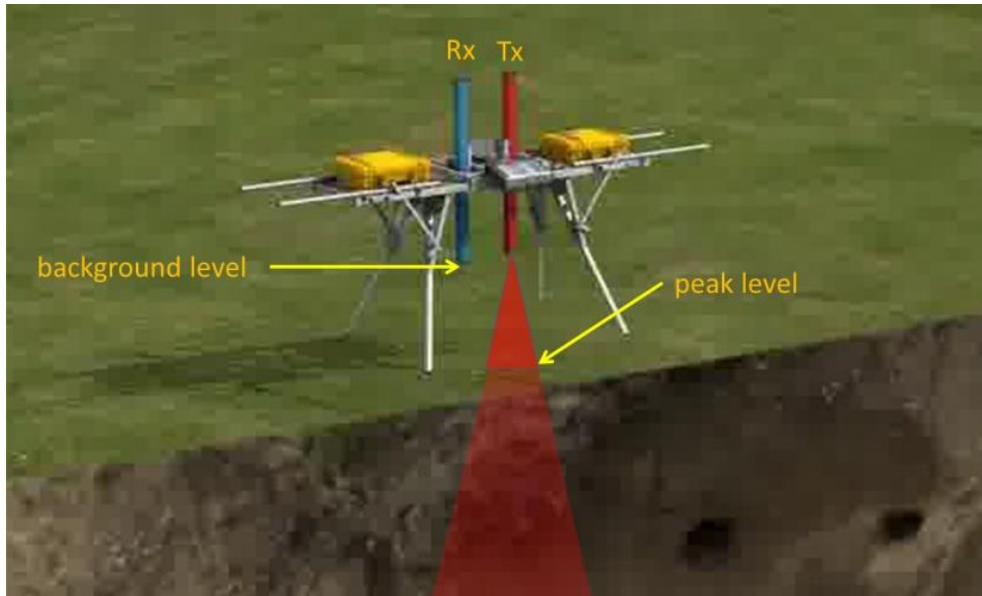


-  Drill Log location
- Profile Scan 
- WARR Lines 

Adrok has reviewed initial data processing and analysis for the three sites scanned in Southern Norway in October 2022.

The results which were produced in December 2022 have been compared with the drill data (provided in January 2023).

Data Collection

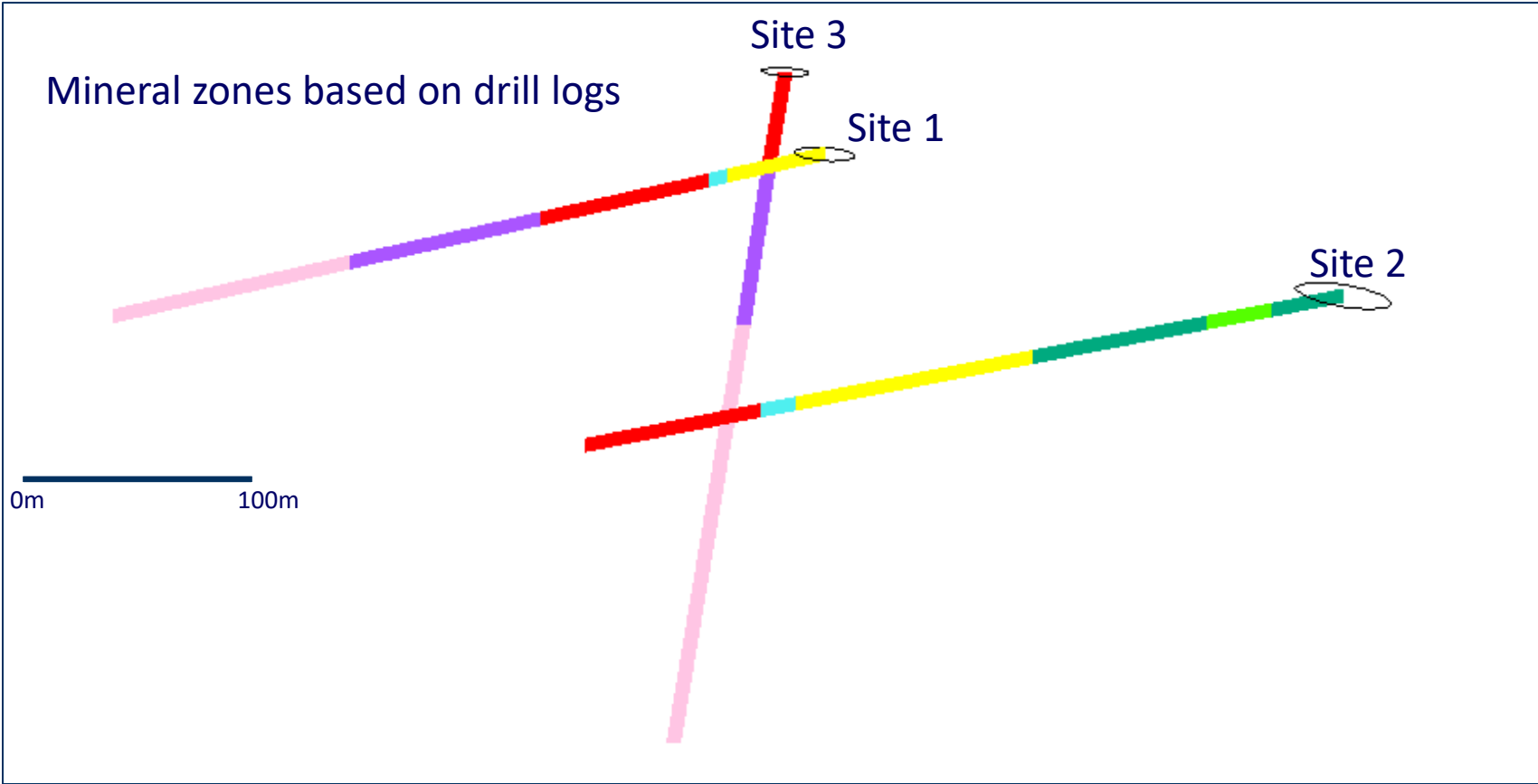


- Line of transmitters in Wide Angled Reflection & Refraction (WARR) mode creates beam (Synthetic Aperture Radar, SAR based phased array); separating transmitter (Tx) from stationary receiver (Rx)
- For **Stare** scans Tx & Rx are stationary.
- Profile Scans (**P-Scans**) move Tx & Rx along scan line to produce 2-D imagery

Mineral Zones

South-West

North-East



7 mineralogical zones are included in the three drill logs.

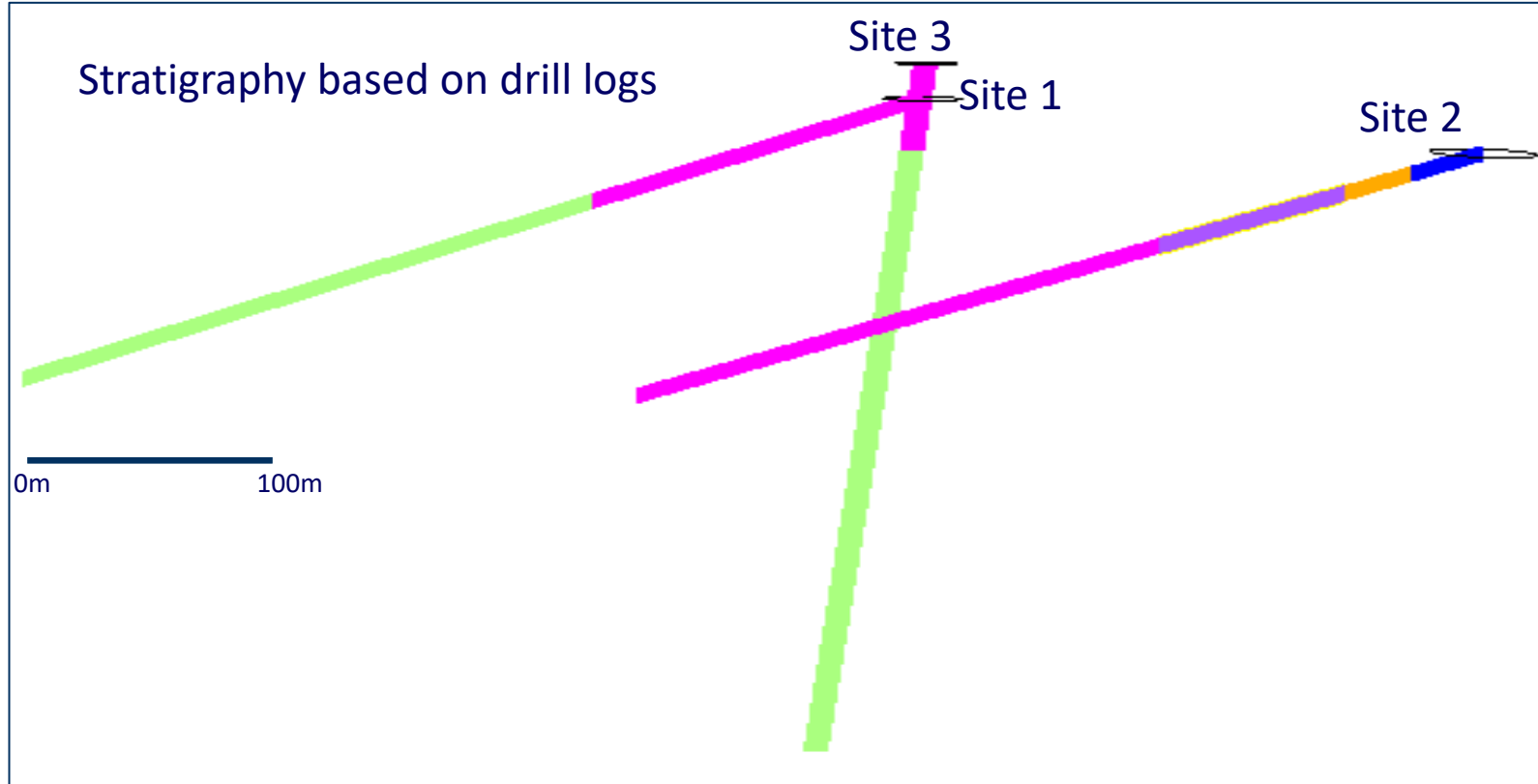
These drill logs are compared with the results from ADR to gain a better understanding of what the ADR results tell us about the mineralisation of this region.



Stratigraphy

South-West

North-East

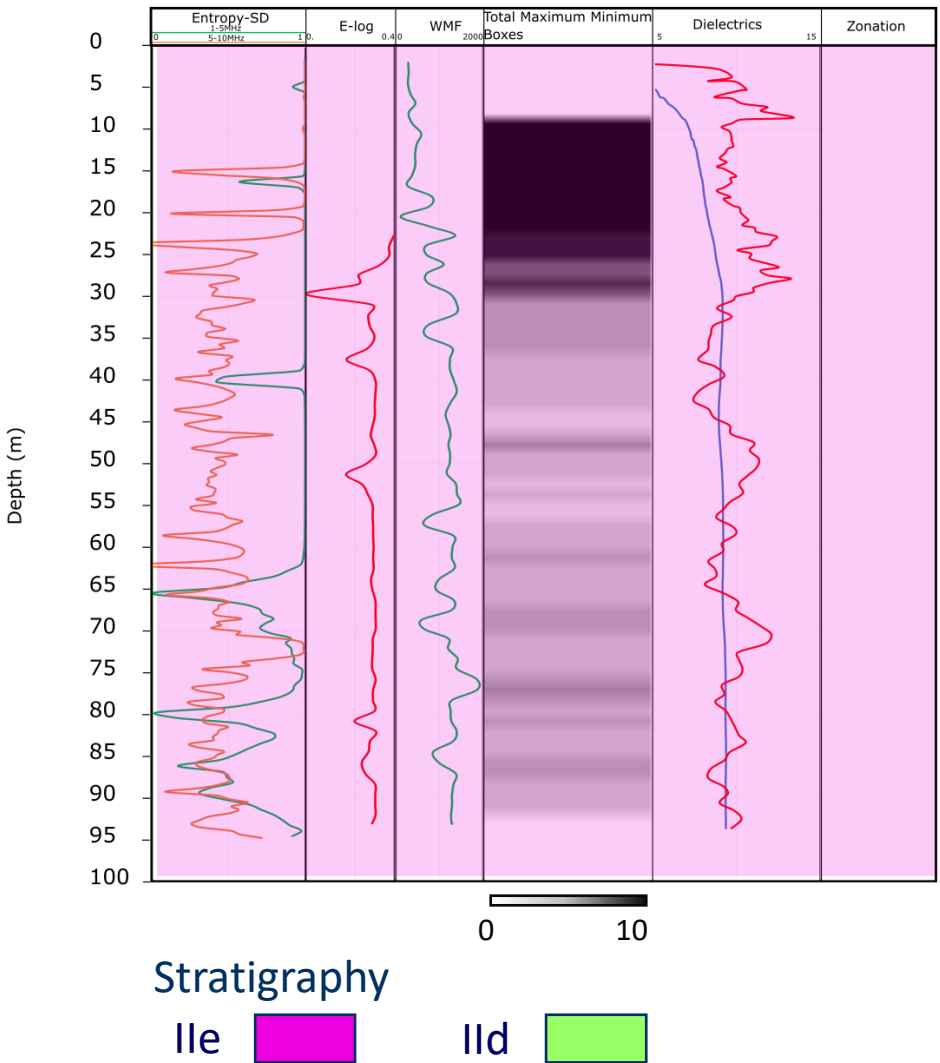


- 5 stratigraphic units are included in the three drill logs
- These drill logs are compared with the results from ADR to gain a better understanding of what the ADR results tell us about the stratigraphy of this region.

Stratigraphy

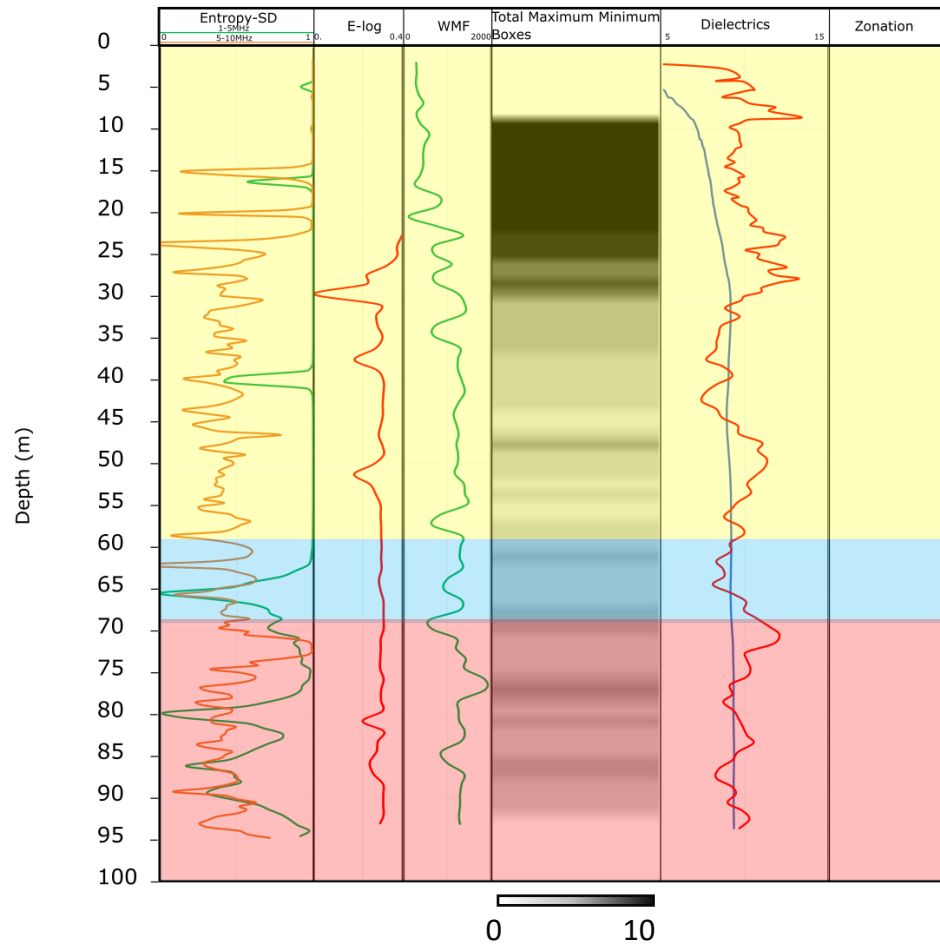
Ivc Ile Ivb Ild Iva

Zonation & Stratigraphy Site 1



- The stratigraphy drill results are compared with the ADR parameters used for Zonation.
- When the stratigraphy is super-imposed over the location of Site 1 V-bore only a single stratigraphic unit can be identified as Ild is over 100m below the ground surface.
- However, relatively few changes in values are seen below 28m. Those changes above 28m could be due to beam saturation.
- The changes that are present below 28m are several large troughs in the 1-5Mhz range, small troughs in the E-logs and fluctuations in WMF between 500 and 2000.
- In terms of identifying stratigraphy. This is a poor result.

Zonation & Mineralogy Site 1

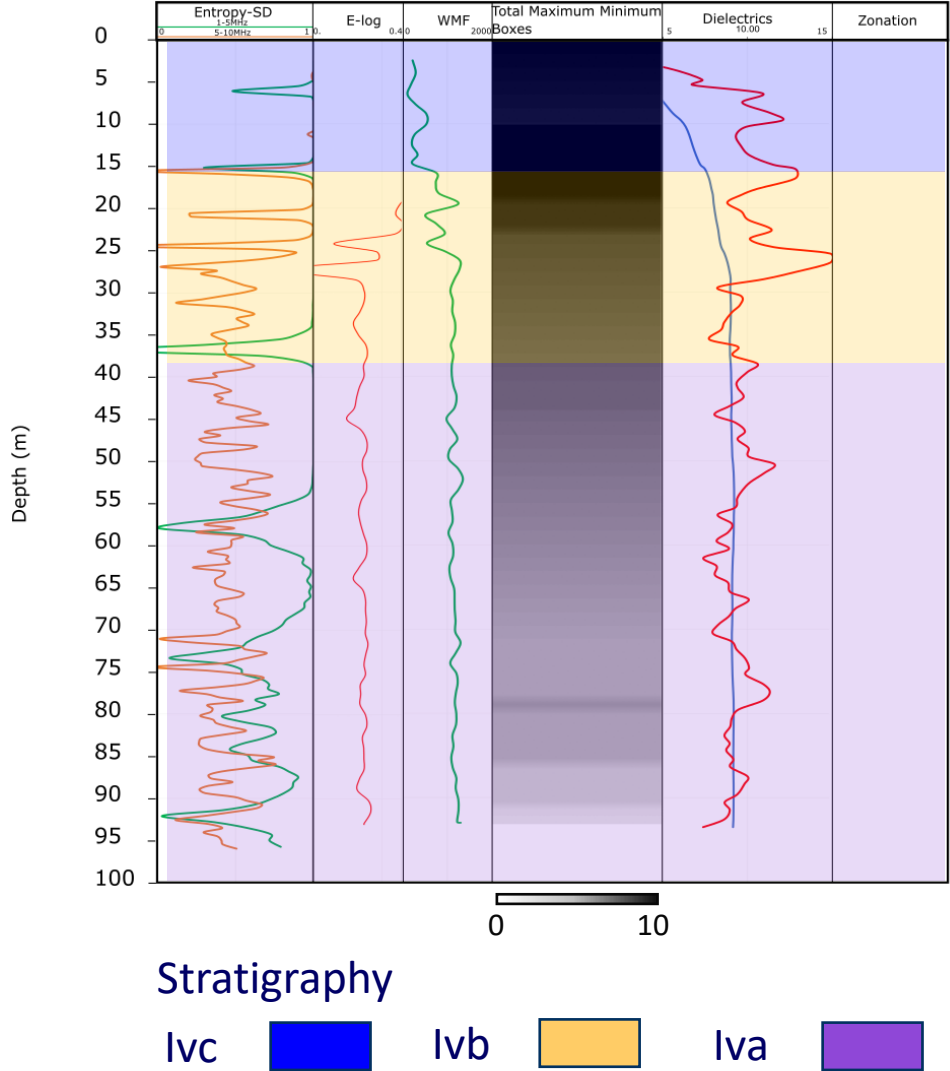


Mineral Zones

B		Plagioclase, orthopyroxene, clinopyroxene, ilmenite, magnetite, moderate apatite
B Low		Plagioclase, orthopyroxene, ilmenite, magnetite, decreased apatite
B High		Plagioclase, orthopyroxene, clinopyroxene, ilmenite, magnetite, higher apatite

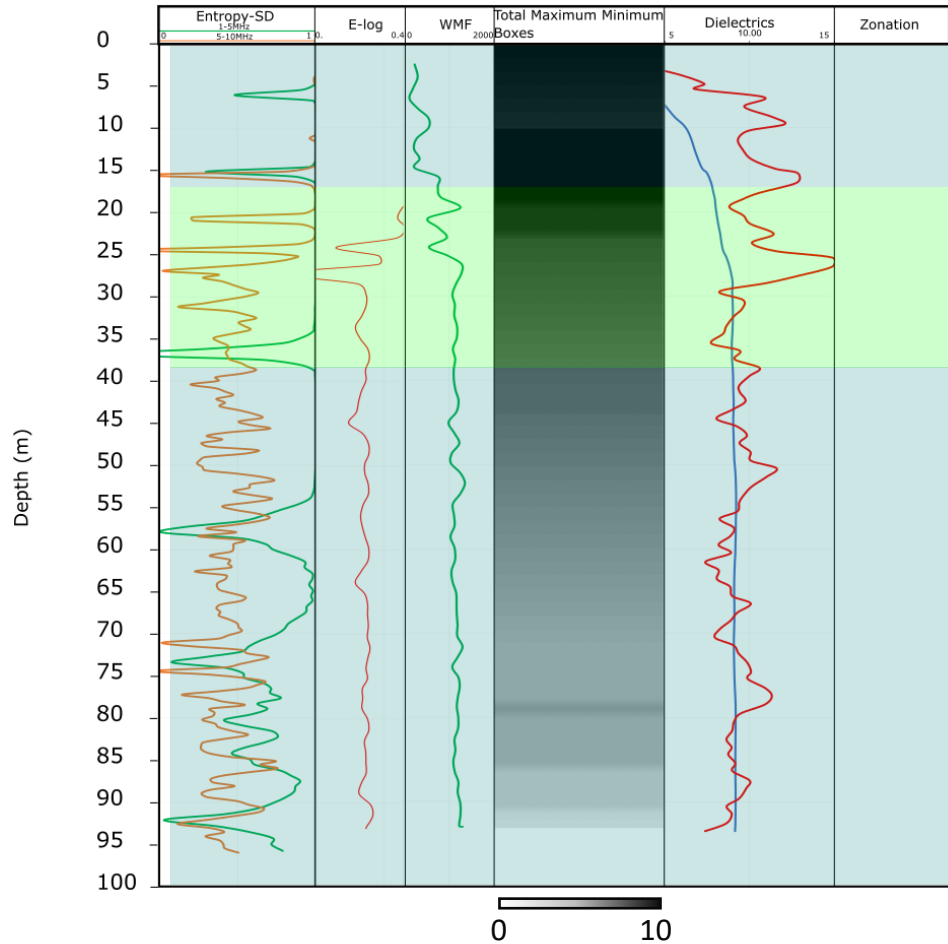
- The mineral zones are compared with the ADR parameters used for Zonation.
- When the mineral zones are super-imposed over the location of Site 1 V-bore three mineral zones can be identified. The main mineral difference in the three zones is the relative proportion of apatite.
- Zone B is identified relatively high values in 1-5Mhz frequency range.
- Zone B Low is identified by lows in dielectric moderate values in WMF and multiple troughs in the 5-10MHz frequency range
- Zone B High is identified by lows in both 1-5Mhz and 5-10 MHz and also WMF values in excess of 1000 with dielectric values never exceeding 10.
- This is a good result.

Zonation & Stratigraphy Site 2



- The stratigraphy drill results are compared with the ADR parameters used for Zonation.
- When the stratigraphy is super-imposed over the location of Site 2 V-bore, three stratigraphic zones are crossed.
- Ivc is identified by highs in 5-10Mhz, high E-log values, lows WMF values and moderate dielectrics. The upper section could be affected by the beam saturation as the trend is similar to Site 1 despite differences in geology.
- Ivb is identified by lows in the 5-10Mhz, a trough in the E-log and a broad range of dielectric values.
- Iva is identified by moderate values in 5-10Mhz, constant values of 0.2 for the E-log, values of approximately 1000 for WMF and values below 11 for dielectrics.
- This is a good result.

Zonation & Mineralogy Site 2

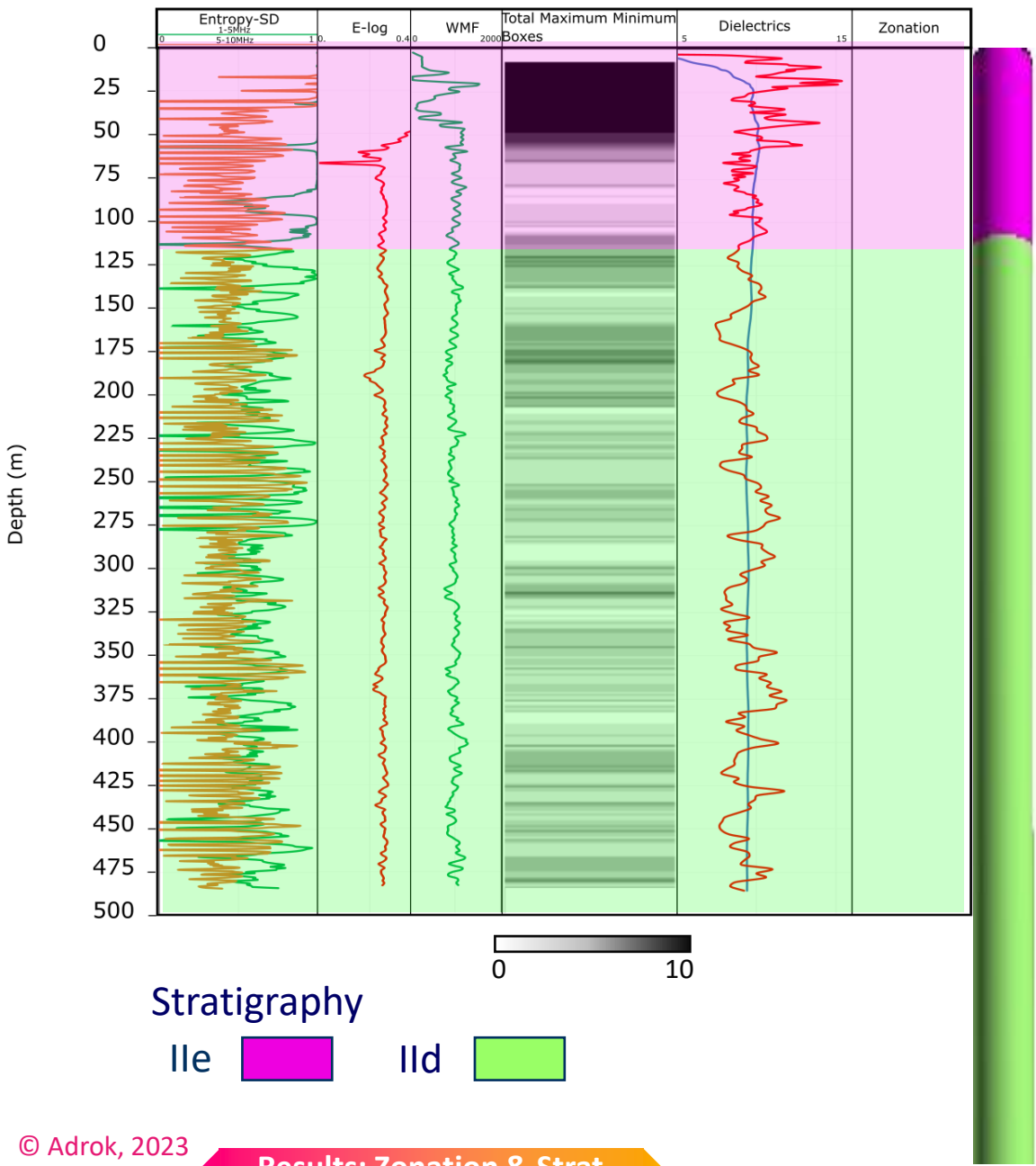


Mineral Zones

- C FW Plagioclase, orthopyroxene, ilmenite
- C FW High Plagioclase, olivine, ilmenite, magnetite

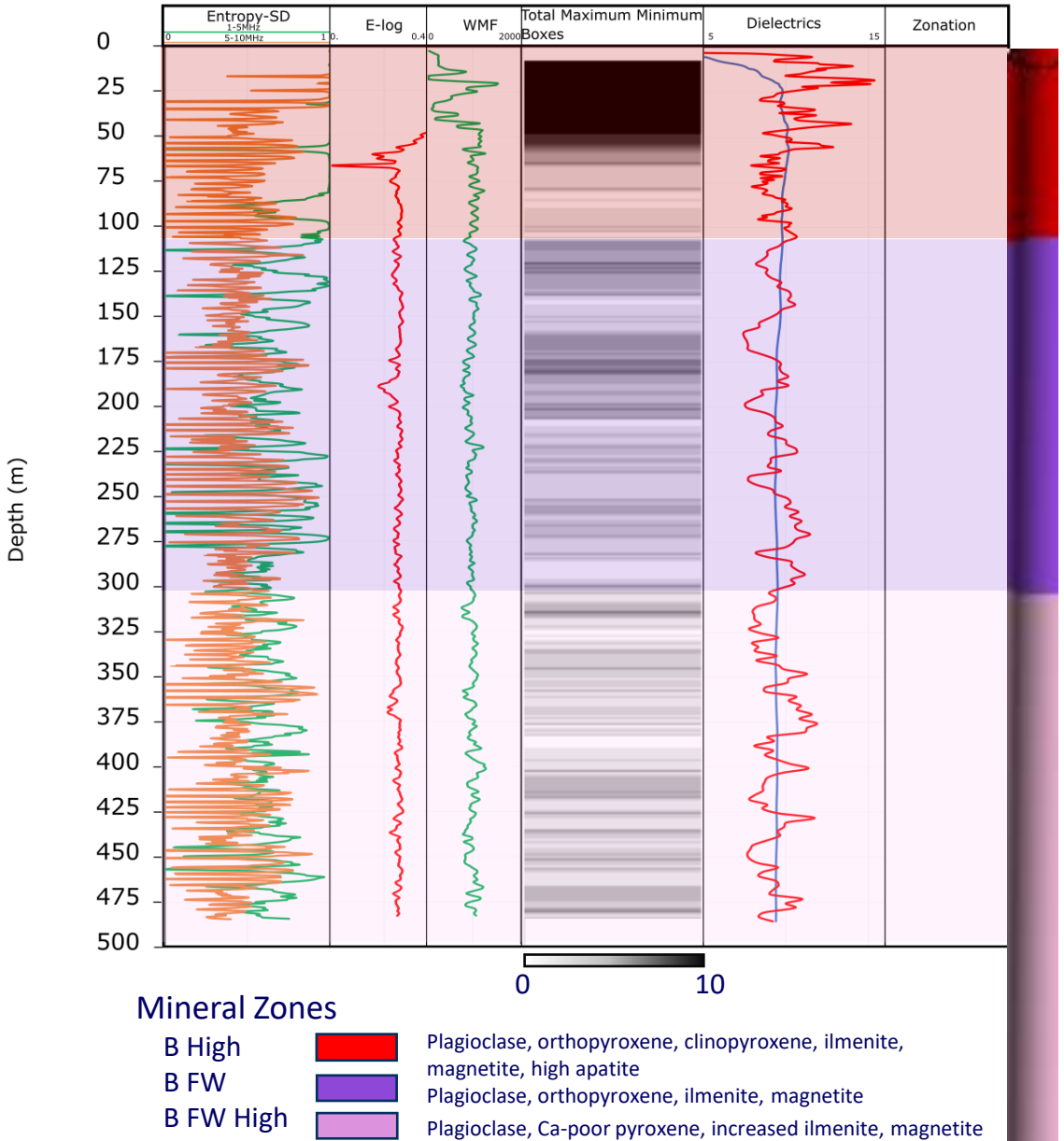
- ☀ The mineral zones are compared with the ADR parameters used for Zonation.
- ☀ When the minerals zones are super-imposed over the location of Site 2 V-bore, two mineral zones are crossed
- ☀ Zone C FW is identified highs in 5-10Mhz, high to moderate E-log values, lows WMF values and moderate dielectrics. The upper section could be affected by the beam saturation.
- ☀ Zone C FW High is identified by lows in the 5-10Mhz, a trough in the E-log and a broad range of dielectric values.
- ☀ The boundaries between the two zones is identified by troughs in the 1-5Mhz frequency range.
- ☀ This is a good result.

Zonation & Stratigraphy Site 3



- ☀ The stratigraphy drill results are compared with the ADR parameters used for Zonation.
- ☀ When the stratigraphy is compared to all the parameters used for the zonation, there are now distinct changes in the ADR parameters below 75m apart from the Entropy-Standard Deviation datasets.
- ☀ Troughs in the lows in the Entropy-Standard Deviation 1-5MHz at 107m corresponding to the boundary between Ile and IId but when looking at the data as whole there are numerous other stratigraphic boundaries that could be present such as 130m and between 225m-275m.
- ☀ This is a moderately good result as we have identified the key boundary in the stratigraphic units.

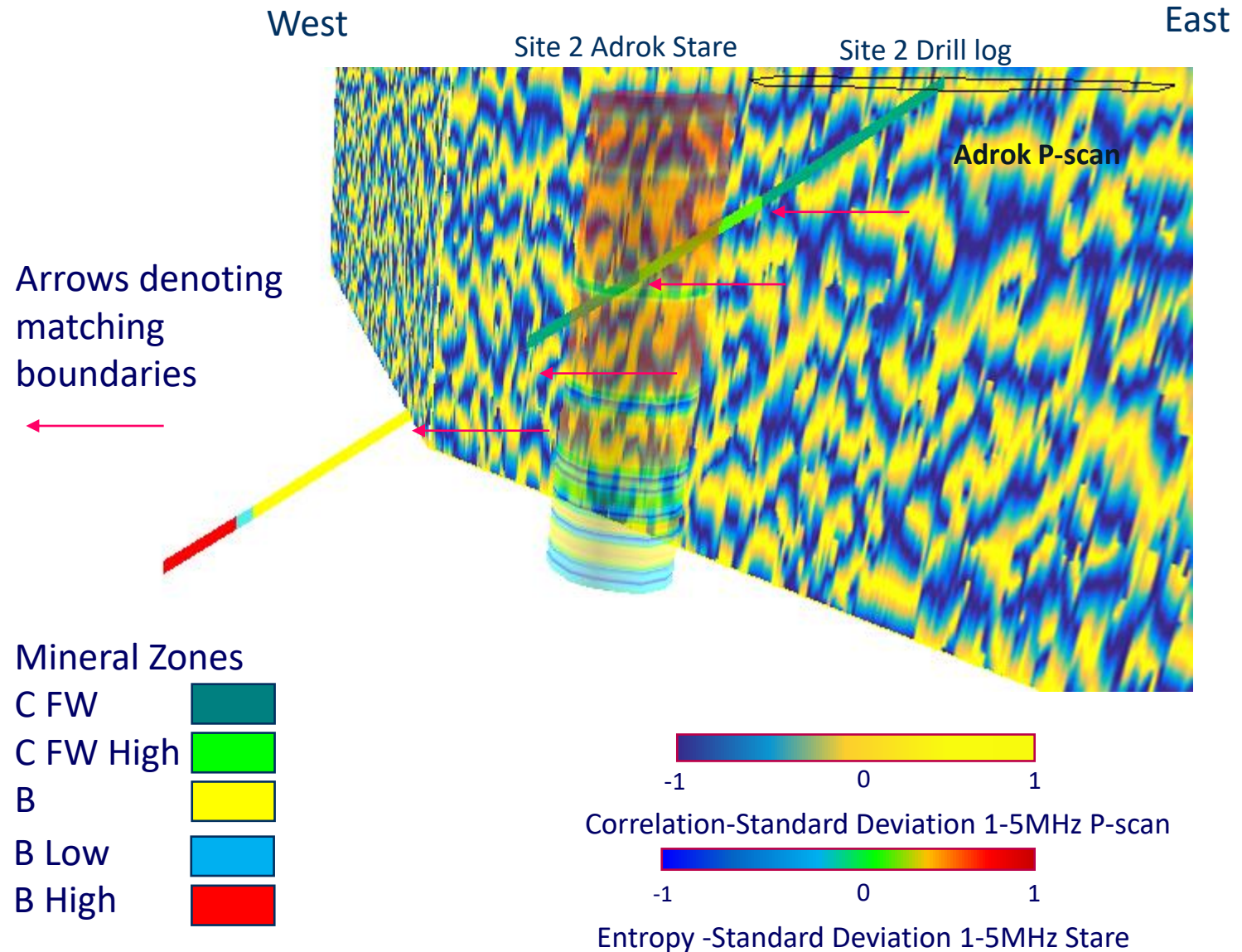
Zonation & Mineral Zone Site 3



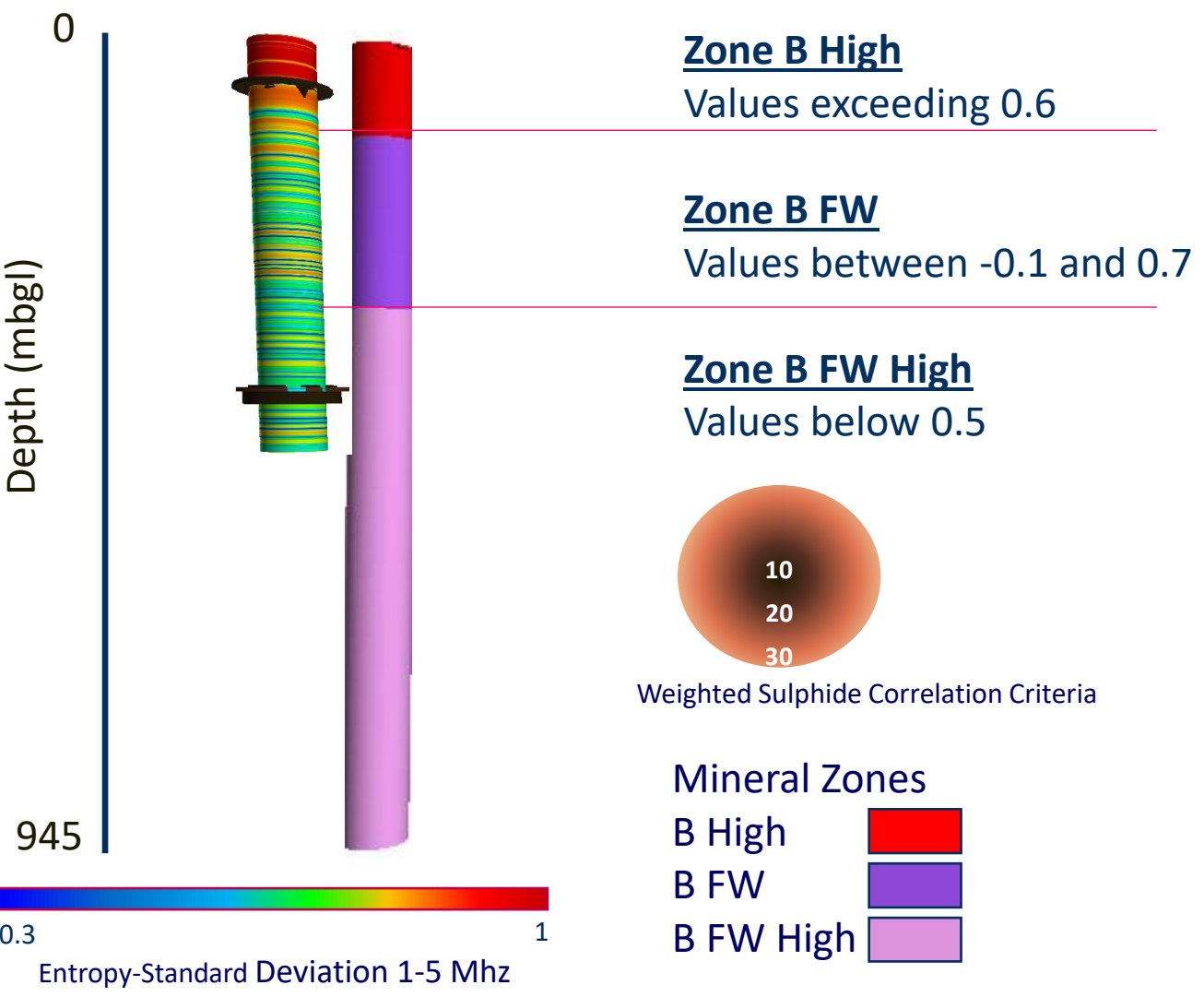
- 🌈 The mineral zones are compared with the ADR parameters used for Zonation.
- 🌈 When the mineral zones are compared to all the parameters used for the zonation, there are no distinct changes in the ADR parameters below 75m apart from the Entropy-Standard Deviation datasets.
- 🌈 Lows in the dielectrics correspond to the boundaries between the mineral zones as in some case does the Entropy-Standard Deviation results for 1-5MHz.
- 🌈 E-logs and WMF show little variation below 70m. However, there are only minor compositional differences in the mineral zones and it is not clear how the minerals are distributed within the section.
- 🌈 The results suggests possible boundary identification between mineral zones and this a moderately good result.

Site 2 Correlation - Standard Deviation and Zone

- When the correlation and entropy-standard deviation results are compared with the drill log.
- Boundaries between zones are identified in Adrok's results by lows in Correlation-Standard deviation 1-5MHz or Entropy-Standard Deviation 1-5Mhz, although there are false positives which may indicate more subtle changes in geology such as minor changes in the relative composition of different minerals.
- This a moderately good result.



Site 3 WSCC & Entropy-Standard Deviation and Zones



- Boundaries between Mineral Zones are determined by lows in the Entropy-Standard Deviation 1-5MHz.
- No sulphide mineralisation is recorded in the drill data. However, increasing ilmenite in Zone B FW could be caused by the increased presence of highly reflective titanium a key component of ilmenite. Further research would be needed to confirm if the WSCC technique could be used to see a none sulphide bearing mineral such as ilmenite.
- The upper WSCC disc could be associated with calcium within the apatite, again not a sulphide, but another low density, highly reflective metal.

Conclusions

- 🌈 The subtle changes in ADR parameters could be reflecting changes in mineral composition.
- 🌈 The lack of variability in the Total Boxes, E-log and Weighted Mean Frequency results do reflect the relatively homogeneous nature of the geology indicated by the drill logs.
- 🌈 The 1-5Mhz results for both entropy and correlation could indicate boundaries between mineral zones or more subtle changes in mineral composition.
- 🌈 The strongest mineral changes could be identified by the Weighted Sulphide Correlation Criteria (WSSC).

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