

Forsmark site investigation

Correlation of Posiva Flow Log anomalies to core mapped features in KFM06A and KFM07A

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February 2006

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This report concerns a study which was conducted for SKB. The conclusions and viewpoints presented in the report are those of the authors and do not necessarily coincide with those of the client.

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Abstract

The difference flow logging with the Posiva Flow Log/Difference Flow (PFL) method and core mapping with the Boremap system in the core drilled boreholes KFM06A and KFM07A in Forsmark were conducted during 2004. The data have been used to identify the geology of individual flow anomalies.

The results in this report have been delivered as a database to SKB. A few general results are shown in Table 1. In several cases a flow anomaly can be connected to several fractures if they are close to the anomaly. In most of these cases, it may be one of the interpreted fractures, some of them, or even all of them that correspond to the anomaly.

Table 1. Flow anomalies in KFM06A, and KFM07A.

| Object | KFM06A | KFM07A |
|---|--------|--------|
| Total No of PFL anomalies. | 99 | 26 |
| No of PFL anomalies mapped as "Certain". | 70 | 19 |
| No of Geological features (fractures and crush zones) identified with distance < 0.2 m from PFL anomaly. | 204 | 47 |
| No of Geological features (fractures and crush zones) identified with distance 0.2–0.4 m from PFL anomaly. | 4 | 2 |
| No of Geological features (fractures and crush zones) identified with distance 0.4–0.5 m from PFL anomaly. | 0 | 0 |
| No of Geological features (fractures and crush zones) identified with distance > 0.5 m from PFL anomaly. | 0 | 2 |
| No of PFL anomalies not correlated to open fractures. | 7 | 0 |
| Number of sealed fractures (broken/unbroken) within a distance of 0.1 m from PFL anomalies not correlated to open fractures or crush zones. | 10/0 | 0/0 |
| Number of sealed fractures (broken/unbroken) a distance of > 0.1 m from PFL anomalies not correlated to open fractures or crush zones. | 2/0 | 0/0 |

Sammanfattning

Flödesmätningar med Posiva Flow Log/Difference Flow (PFL) metoden samt kartering med Boremap-systemet i kärnbrorrhålen KFM06A och KFM07A i Forsmark utfördes under 2004. Dessa data har använts för att identifiera de geologiska egenskaperna hos de flödesanomalier som identifierats.

Resultaten som presenteras i denna rapport har levererats i databasformat till SKB. En översiktlig sammanfattning av utvalda resultat finns i tabell 1. I flera fall har en flödesanomali kunnat kopplas samman med ett flertal sprickor, förutsatt att dessa ligger nära anomalin. Flödesanomalin kan i de flesta av fallen sannolikt förklaras med att en, flera eller till och med alla de sprickor som tolkats svarar mot anomalin.

Tabell 1. Flödesanomalier i KFM06A och KFM07A.

| Objekt | KFM06A | KFM07A |
|--|--------|--------|
| Totalt antal PFL anomalier. | 99 | 26 |
| Antal PFL anomalier tolkade som "säkra". | 70 | 19 |
| Antal geologiska objekt (sprickor och krosszoner) som identifierats inom ett avstånd av <0,2 m från en PFL anomali. | 204 | 47 |
| Antal geologiska objekt objekt (sprickor och krosszoner) som identifierats inom ett avstånd av 0,2–0,4 m från en PFL anomali. | 4 | 2 |
| Antal geologiska objekt objekt (sprickor och krosszoner) som identifierats inom ett avstånd av 0,4–0,5 m från en PFL anomali. | 0 | 0 |
| Antal geologiska objekt objekt (sprickor och krosszoner) som identifierats inom ett avstånd av > 0,5 m från en PFL anomali. | 0 | 2 |
| Antal PFL anomalier som inte kan korreleras till öppna sprickor. | 7 | 0 |
| Antal slutna sprickor (broken/unbroken) inom ett avstånd av 0,1 m från PFL anomalier som inte kan korreleras till öppna sprickor eller krosszoner. | 10/0 | 0/0 |
| Antal slutna sprickor (broken/unbroken) inom ett avstånd > 0,1 m från PFL anomalier som inte kan korreleras till öppna sprickor eller krosszoner. | 2/0 | 0/0 |

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Appendix 3 Correlation of Posiva Flow Log anomalies to core mapped features in Forsmark (KFM01A to KFM05A) – Update of figures previously reported in R-04-77

1 Introduction

The difference flow logging with the Posiva Flow Log method and core mapping with the Boremap system in the core drilled boreholes KFM06A and KFM07A at Forsmark were conducted during 2004. The locations of the boreholes within the Forsmark area are shown in Figure 1-1.

The results from the Posiva Flow Log/Difference Flow (PFL) method were reported in /Rouhianien and Sokolnicki 2005a/ and /Sokolnicki and Rouhianien 2005b/. Data from the PFL, Boremapping and BIPS images were received from the SICADA database.

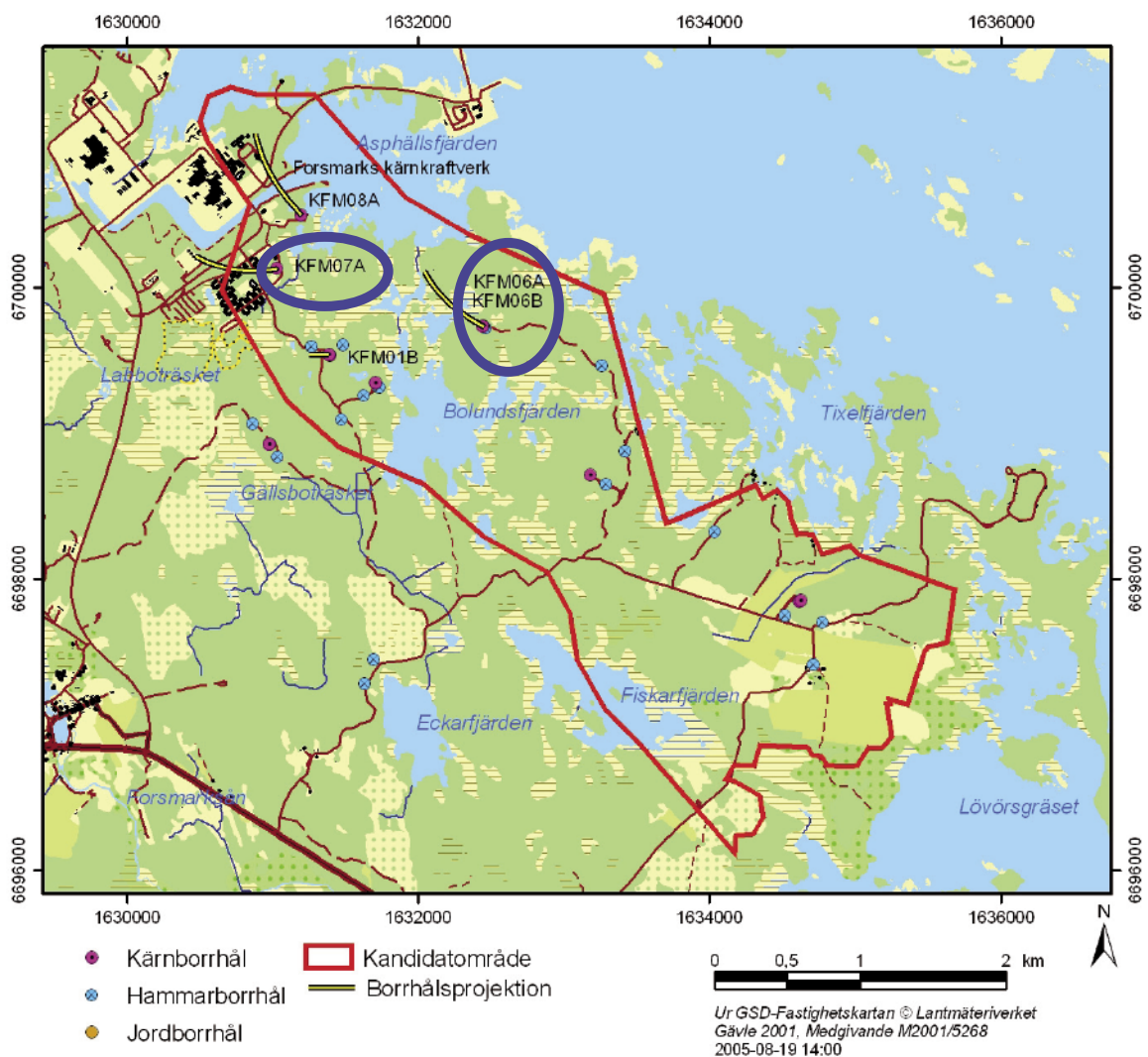


Figure 1-1. Location of core-drilled boreholes KFM06A and KFM07A at Forsmark.

2 Objective and scope

The main objective for the work leading to this report was to identify which geological features mapped as fractures or crush zones that correspond to flow anomalies identified with the Posiva Flow Log/Difference Flow (PFL) method.

The identification of these geological features was made in two cored boreholes KFM06A and KFM07A at Forsmark.

The results are presented in this report and have also been delivered as a database to SKB (indicated as “database” in the text below).

The report has three appendices. Appendix 1 shows data from the KFM06A borehole and Appendix 2 shows data from the KFM07A borehole. Appendix 3 is an updated version of the report by /Forssman et al. 2004/. The difference between Appendix 3 and /Forssman et al. 2004/ is that all figures in Appendix 3 are in colour.

3 Methodology

Hydraulically conductive features (flow anomalies) have been correlated to mapped geological features (fractures and/or crush zones). Below, the interpretation methodology is described.

Data used:

- 1) Boremap data.
- 2) BIPS images with BDT-files showing mapped features as fractures, crush, foliation etc.
- 3) Interpretation of Posiva Flow Logg (PFL) anomalies from the overlapping measurements.

3.1 Boremap data

During drilling, marks are made in the borehole wall approximately every 50 m. These marks are used to make length corrections of borehole logging and borehole mapping. A Calliper tool is used to get a reference for the length correction.

The Boremap data of geological features in SICADA that have been length corrected are described in the BDT-file, with the same length correction. The image of the borehole wall from the BIPS-file may deviate cm-dm from the trace shown with the BDT-file, due to that linear correction is made between the drilling marks. In the figures and tables below it is always the corrected length for the BDT-trace that is compared to the PFL flow anomaly.

It should be noted that the features seen in the BIPS image with traces according to BDT-file correspond to fractures, rock contacts etc. and there is, unfortunately, no indication on the lines of which type of object that is shown.

BIPS resolution, with SKB standard logging procedure, is in the vertical direction approximately 1 mm and in the horizontal direction 0.66 mm in a borehole with diameter 76 mm, the lower detection limit is thus more or less 1 mm. However, sometimes apertures are set to a value within 1.0–0.5 mm for “open” and “partly open” fractures when the geologist estimates the aperture from the BIPS image and the core. In these cases the fracture may be mapped as “1 = visible in BIPS” or “0 = not visible in BIPS” in column `VISIBLE_IN_BIPS`(code). The aperture in percussion holes are also estimated from BIPS and should normally be 0 (sealed) or 1 mm or larger. In some cases the geologist has even for percussion holes estimated apertures as small as 0.5 mm.

During the core mapping process each fracture is classified as Broken or Unbroken. Fracture aperture is classified as Certain, Probable and Possible. In SICADA each fracture is classified as Sealed, Open or Partly Open based on this information. Partly Open fractures refers to all fractures that do not cut the core entirely but have (1) altered or weathered fracture planes or are (2) associated with a measurable aperture in the borehole wall using BIPS to indicate an edge of a fracture.

In more detail, the following is made during mapping:

1. If the fracture splits the core it is mapped as broken, otherwise unbroken.
2. If an aperture is seen in BIPS and the core is unbroken, the fracture is mapped as partly open. If the core is broken the fracture is mapped as open. The aperture is mapped in BIPS and is intended to represent an approximate mean aperture (mean aperture as seen on the borehole wall, may not have much to do with hydraulic aperture).
3. Sometimes when the core is broken no aperture is seen in BIPS. If the core pieces fit badly the aperture is set to 0.5 mm and the fracture is mapped as open and probable. If it is a good fit between the pieces and the surfaces are not fresh, the aperture is set to 0.5 mm and the fracture is mapped as open and possible. If there is a good fit between the pieces and the surfaces are fresh, the aperture is set to 0 mm and the fracture is mapped as sealed.

Generally, it is not possible to see in the BIPS-picture if a certain fracture is open or not. Some fractures look quite open in the picture, but the database says they are sealed and sometimes even unbroken. We have therefore only used the information available in the data file to determine if a fracture is open or sealed. When evaluating the pictures we have focused on the ones mapped as “open” in the database, therefore we have not controlled that all fractures who are said to be “Visible in BIPS” really **are** visible and the other way around. We have, though, found open, possibly flowing fractures said to be “Visible in BIPS” that cannot be found in the BIPS picture. These cases have been noted in the appendices. Concerning “Visible in BIPS”, possibly the mapping geologist have had slightly better possibilities to identify fracture traces in the BIPS image than we.

In the appendix pictures, the resolution is not quite as good as in the BIPS-pictures. The pictures are also slightly smaller and include white correlation lines and the black arrows we have added. This makes it even harder to see if a fracture looks open or not (but, as mentioned above, it cannot be done using only the BIPS-pictures either).

It should be quite easy to find the fractures in the database if you have the appendix pictures. In the picture itself, you can find information about strike, dip and adjusted secup. The secup could, though, be hard to get if the fracture has a high amplitude. If you have the text that goes with the pictures in the appendix, this should not be a problem, because all fractures correlated to the anomaly are listed in secup-order. The adjusted secup for a sinusoidal fracture trace is the mean value of the adjusted secup trace.

3.2 PFL data

3.2.1 Position in the borehole of the flow anomaly

The PFL data and corrections made are in detail described in /Rouhianien and Sokolnicki 2005a/ and /Sokolnicki and Rouhianien 2005b/.

Accurate length scale of measurements is difficult to achieve in long boreholes. The main cause of inaccuracy is stretching of the logging cable. The stretching depends on the tension of the cable that in turn depends, among other things, on the inclination of the borehole and on the friction of the borehole wall. The cable tension is higher when the borehole is measured when the cable is moving upward. The cables, especially new ones, may also stretch out permanently.

The length marks in the borehole wall (occurring every 50 m) are detected with the SKB calliper tool. The length scale is firstly corrected according to these length marks. Single point resistance (SPR) is also recorded simultaneously with the calliper logging.

Since SPR is recorded during all measurements, all flow measurement sequences can then be length corrected by synchronising the SPR results with the original calliper/SPR measurement.

In spite of the length correction described above, there are still length errors due to following reasons:

- 1) Point interval in flow measurements is 0.1 m in overlapping mode. This could cause an error ± 0.05 m.
- 2) The length of the test section is not exact. The specified section length denotes the distance between the nearest upper and lower rubber disks. Effectively, the section length can be longer. At the upper end of the test section there are four rubber disks. The distance between these is 5 cm. This will cause rounded flow anomalies, there may be detected flow already when a fracture is between the upper rubber disks. These phenomena can only be seen with short step length (0.1 m). This could cause an error of ± 0.05 m.
- 3) Corrections between the length marks can be other than linear. This could cause error ± 0.1 m in the calliper/SPR measurement.
- 4) SPR curves may be imperfectly synchronized. This could cause error ± 0.1 m

In the “worst case”, the errors of points 1, 2, 3 and 4 above are summed up. The total estimated error for geological features located far from a length mark would then be ± 0.3 m.

Near the length marks the situation is slightly better. In the “worst case”, when the errors of points 1, 2, and 4 above are summed up, the total estimated error would be ± 0.2 m for geological features located near a length mark.

Accurate location is important when different measurements are compared, for instance if the flow logging and borehole TV are compared. In that case the situation may not be as severe as the worst case above since parts of the length errors are systematic and the length error is nearly constant for fractures near each other. However, the error of point 1 is of random type.

Fractures nearly parallel with the borehole may also be problematic. Fracture location may be difficult to accurately define in such cases.

3.2.2 Flow anomaly uncertainty

The existence of a flow anomaly is sometime uncertain and in such a case it is marked as “uncertain” in the database and in the appendices.

3.3 Correlation of Boremap data and PFL anomalies

Assumptions:

- As a first assumption the open and partly open fractures as well as crush zones are assumed to be possible flowing features.
- It is assumed that the precision of the position (L) in the borehole of the PFL- anomaly is not on the dm level. If an open, partly open fracture or crush zone is within ± 0.5 m of a PFL-anomaly it is assumed that it can correspond to the PFL-anomaly (in a few cases larger differences have been accepted). The nearest distance in dm from the fractures trace (a sinus-shape line) on the borehole wall to depth L is judged and documented in the database (PFL-anom. Confidence) and the actual deviation (Deviation fr. L (+ downwards, dm)) of the open, partly open fractures or crush zones from L, defined positive if the fracture is located below (higher value) L.
- A few **sealed fractures** have been indicated as possible flowing features if the core has been broken AND adjusted secup (Boremap) \approx L (Borehole length) for the PFL anomaly AND that no open fracture was <0.6 m from L OR that the nearest open fracture is positioned closer than 0.6 m but very well matches another anomaly. When interpreting these broken/sealed fractures, usually only the ones located ± 0.1 m from the anomaly has been mapped. However, in rare occasions, when there are no other opportunities, fractures located at a longer distance have been chosen. These fractures are considered to be very uncertain and may be excluded from the analysis. “Confidence” is set to zero (0) in the database for these cases.
- Occasionally, several **open fractures** are within ± 0.1 – 0.2 m of L for the PFL-anomaly and it is judged that one or all of them may be flowing features. If “FRACT_INTERPRET” is used in the database, the “Certain, Probable, Possible” can be used examine if one may be more likely to be the flowing feature. In a few cases, the mapped open fractures are so close (< 1 cm) that possibly one could consider them as one fracture. In some cases where open fractures have been identified within ± 0.1 – 0.2 m of L, there may be more open fractures at a distance ± 0.2 – 0.5 m that are not included in the database as possible flowing features.
- In a few cases several PFL anomalies may be connected to a single geological feature, generally a crush zone but sometimes also an open fracture.
- Some open, possibly flowing, fractures have very high amplitudes, stretching over up to several meters of the borehole wall. These fractures can, because of their shape, have an influence on the flow conditions quite a long distance from the level indicated by the fractures “secup”-value. When evaluating the data, these fractures have been given a lower “PFL-confidence” than suggested only by the distance between the fractures secup and the level of the PFL anomaly. If the fracture cuts the level of the PFL-anomaly, the PFL-confidence is set to one (1, which is the highest confidence), independent of how long the distance between the secup value and the level of the anomaly is. To be consequent, some fractures with high amplitudes that **almost** (± 0.2 m) cut the PFL-anomaly level have also been included in the analysis. The PFL-confidence has been set to 2 in these cases.

3.4 Example of data presentation

In Figure 3-1 an example is shown on how parts of the results are presented. Below some comments are made on how to interpret the figure.

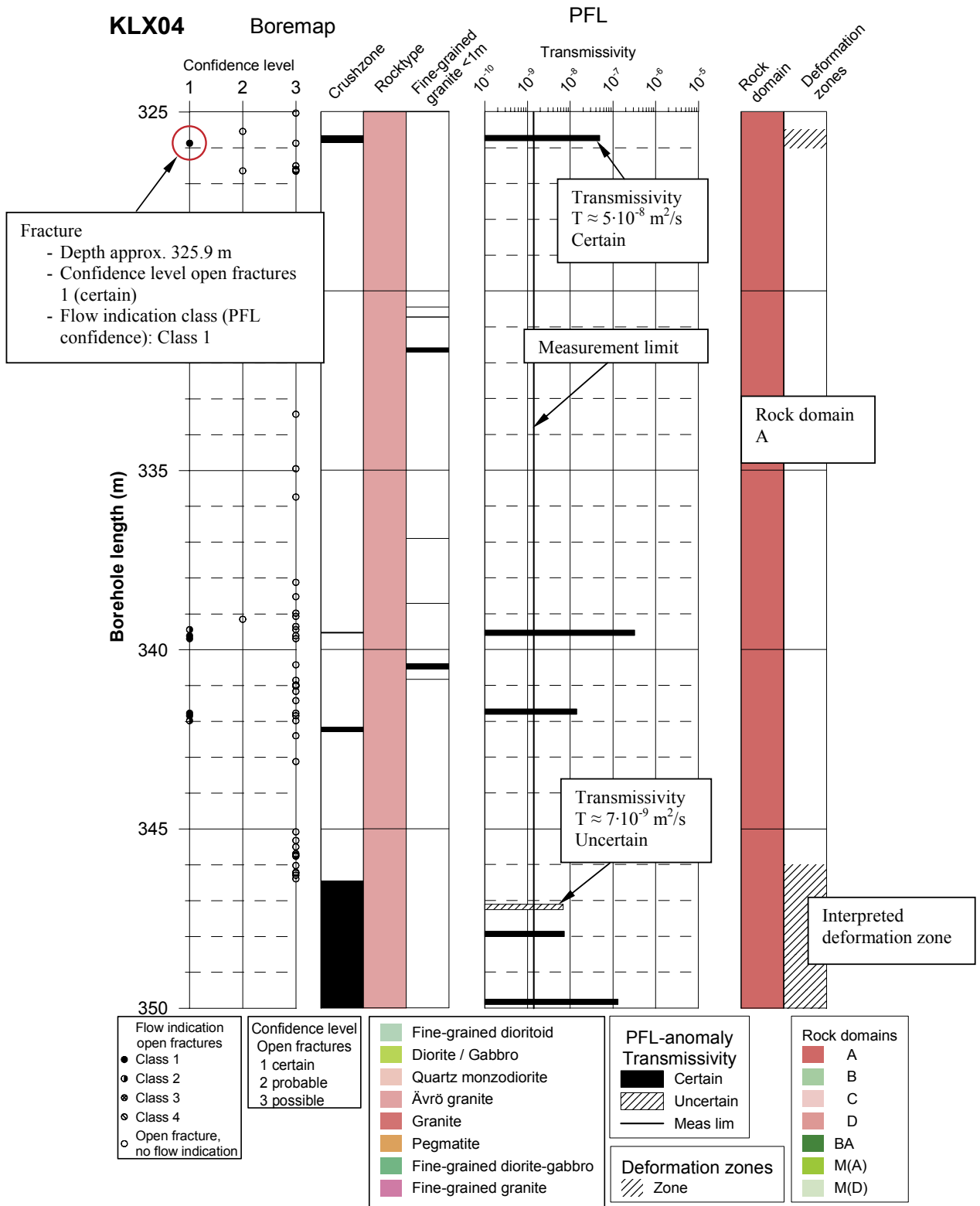


Figure 3-1. Example of a diagram including an overview of the interpretation of the flow anomalies and mapped open fractures.

3.4.1 Flow indication confidence levels for open fractures (PFL confidence)

The classification of “flow indication level of confidence”, or the PFL confidence, is defined as the distance between the anomaly and the interpreted fracture. That is, if the anomaly has a flow indication in class 1, the interpreted fracture is within 1 dm from the anomaly. In the same way, the anomaly has the flow indication class 2, if the interpreted fracture is within 2 dm from the anomaly. Four classes have been defined:

| | |
|---------|--------|
| Class 1 | 0–1 dm |
| Class 2 | 1–2 dm |
| Class 3 | 2–3 dm |
| Class 4 | 3–4 dm |

This classification is used in the figures in this report. In the database, only the numbers (1–4) are used to describe the PFL confidence.

Features with PFL confidence > 4 are rare and considered to be non-significant. Therefore, they are not plotted in the diagrams.

3.4.2 Confidence level open fractures

During the core mapping process each fracture is classified as Broken or Unbroken. Fracture aperture is classified as Certain, Probable and Possible:

| | |
|---------|----------|
| Level 1 | Certain |
| Level 2 | Probable |
| Level 3 | Possible |

In SICADA each fracture is classified as Sealed, Open or Partly Open based on this information. Partly Open fractures refers to all fractures that do not cut the core entirely but have (1) altered or weathered fracture planes or are (2) associated with a measurable aperture in the borehole wall using BIPS to indicate an edge of a fracture. The confidence level for open fractures describes the certainty with which the fracture is interpreted.

3.4.3 Database nomenclature

The interpretation of how the PFL anomalies are linked to mapped fractures or crush has been added to the original Boremap and PFL anomaly files provided by SKB. In Tables 3-1 to 3-4 the structure and explanations are shown.

Table 3-1. Database content. Structure of essential columns in the database – fractures.

| No | Column name in database | Content | Originally in boremap file | Interpretation of PFL anomalies |
|----|---------------------------------------|--|----------------------------|---------------------------------|
| 1 | FRACT_MAPPED | Broken/unbroken, as found in core. | X | |
| 2 | FRACT_INTERPRET | Sealed/open/partly open, judgement by the geologist. | X | |
| 3 | FRACT_INTERPRET No | 1 = Sealed/2 = open/3 = partly open. For Petrocore data: 1 = Unbroken (assumed be sealed), 4 = Broken, can probably be assumed to be open. | | (added sorting No) |
| 4 | APERTURE(mm) | Estimation of aperture from BIPS image. | X | |
| 5 | VISIBLE_IN_BIPS(code) | 1 = Visible in BIPS/0 = Not visible in BIPS. | X | |
| 6 | CONFIDENCE | Certain/probable/possible, judgement by the geologist of the interpretation of FRACT_INTERPRET. | X | |
| 7 | CONFIDENCE No | 1 = Certain/2 = Probable/3 = Possible, based on CONFIDENCE for the fracture. | | (added sorting No) |
| 8 | PFL anom (1) | 1 = Indicator that a PFL anomaly is judged to (possibly) be connected to the feature. | | X |
| 9 | PFL-anom. No | PFL No in the PFL-anomaly file that is used together with the IDCODE for the borehole to identify PFL-anomaly properties. | | X |
| 10 | PFL-anom. Confidence | A number showing the distance in dm between the geological feature and the PFL anomaly. If = 0 then it is a sealed fracture that is broken or unbroken that is linked to the PFL anomaly and the interpretation is considered uncertain. | | X |
| 11 | PFL-Deviation fr. L (+ downwards, dm) | A number showing the distance in dm between the geological feature and the PFL anomaly. If positive it indicates that the geological feature is below the PFL anomaly. | | X |
| 12 | PFL- CONFIDENCE | Certain/uncertain, judgement by the performer and reporter of the PFL measurements how certain the interpreted PFL anomaly was. | | X |
| 14 | PFL- CONFIDENCE No | 1 = Certain/2 = Uncertain, based on PFL-CONFIDENCE. | | X |
| 15 | ADJUSTEDSECUP(m) | The mid point of a feature trace that generally has a sinusoidal shape on the BIPS image. | X | |
| 16 | STRIKE(degrees) | Strike of the fracture. | X | |
| 17 | DIP(degrees) | Dip of the fracture. | X | |

Table 3-2. Database content. Structure of essential columns in the database crush.

| No | Column name in database | Content | Originally in boremap file | Interpretation of PFL anomalies |
|----|---------------------------------------|---|----------------------------|---------------------------------|
| 1 | VARCODE | Crush Zone. | X | |
| 8 | PFL anom (1) | | | X |
| 9 | PFL-anom. No | | | X |
| 10 | PFL-anom. Confidence | | | X |
| 11 | PFL-Deviation fr. L (+ downwards, dm) | | | X |
| 12 | PFL- CONFIDENCE | | | X |
| 14 | PFL- CONFIDENCE No | | | (added sorting No) |
| 15 | ADJUSTEDSECUP(m) | The mid point of the upper part of the crush zone trace that generally have a sinusoidal shape on the BIPS image. | X | |
| 16 | ADJUSTEDSECLow(m) | The mid point of the lower part of the crush zone trace that generally has a sinusoidal shape on the BIPS image. | X | |
| 17 | STRIKE(degrees) | Strike of first fracture set. | X | |
| 18 | DIP(degrees) | Dip of first fracture set. | X | |

Table 3-3. Database content. Structure of essential columns in the database PFL anomalies.

| No | Column name in database | Content | Originally in PFL-anomaly file | Interpretation of PFL anomalies |
|----|---------------------------------|---|--------------------------------|---------------------------------|
| 1 | Q-flow rate (m ³ /s) | Flow rate coupled to one flow anomaly estimated from the measurement coupled to estimated head difference between borehole and undisturbed head in the rock (= Head diff(m)). | X | |
| 2 | Head diff(m) | Estimated head difference between borehole and undisturbed head in the rock (= Head diff(m)). | X | |
| 3 | PFL-anom. No | PFL anomaly No, used together with borehole ID for unique identification. | | x |
| 4 | LA | Position if flow anomaly along the borehole (same starting coordinate as for "secup, seclow in fracture and crush files). | X | |
| 5 | TRANSMISSIVITY_TDA | Estimated transmissivity of flow anomaly. | X | |
| 6 | L_MEASL_TDA | Estimated lower measurement limit for the transmissivity of the flow anomalies. | X | |
| 7 | U_MEASL_TDA | Estimated upper measurement limit for the transmissivity of the flow anomalies. | | |
| 8 | PFL- CONFIDENCE | Estimation of how certain the existence of the flow anomaly is. | X | |
| 9 | PFL- CONFIDENCE No | Index based on PFL- CONFIDENCE. | | (added sorting No) |

Table 3-4. Database content. Structure of essential columns in the databases for fracture, crush and PFL anomalies. The Rock type, DZ etc that the object (fracture, crush or PFL anomaly) is found in.

| No | Column name in database | Content | Originally in Boremap file/ Geology model/ Single-hole interp | Interpretation of PFL anomalies |
|----|-------------------------|---|---|---------------------------------|
| 1 | Rock domain, RD | Rock domain according to model version F2.1. | Model inf. from geology | |
| 2 | DZ-RVS | Name of Deformation zone in RVS model according to model version Fx.x (No data supplied in present data file). | Model inf. from geology | |
| 3 | DZ. NAME | Name of Deformation in the geological single-hole interpretation according to model version F2.1. | Single-hole interp | |
| 4 | DZ-DUC | Indicator if the DZ-singlehole is mainly brittle, brittle with ductile component or mainly ductile. (No data supplied in present data file). | – | |
| 5 | Rock unit, RU | Name Rock Unit in the geological single-hole interpretation according to model version Fx.x. (No data supplied in present data file). | Single-hole interp | |
| 6 | Rock type. CODE | The SICADA code for the Rock type, NAME. | Boremap | |
| 7 | Rock type, NAME | The Rock type Name found in SICADA. | Boremap | |

4 KFM06A

The borehole was flow logged with PFL using 5 m test sections in borehole section interval 93.42 to 886.63 m. Flow logging for flow anomalies was made in the 5 m test sections with measurable flow rates.

The borehole includes 99 PFL-anomalies of which 70 are mapped as “certain”. Some anomalies may be caused by more than one fracture. To some anomalies, a cluster of identified open fractures (up to nine individual fractures) can be correlated, and it is therefore very hard to determine a certain fracture as conductive. Most of the anomalies have, however, only been correlated to one or a couple of open fractures.

In some cases, one fracture or crush zone may have an influence on two anomalies (no 17 and 18, no 21 and 22, no 28 and 29, no 34 and 35, no 47 and 48, no 51 and 52, no 98 and 99); this is noted specifically in Appendix 1, and in the data file. The reason for this is usually that the anomalies are close to one another.

For seven anomalies (no 44, 49, 71, 76, 86, 89 and 93) no corresponding open fractures have been found within 0.5 m. For most of these fractures, the nearest open fracture is located several meters away. Sealed/broken fractures have been set to match these anomalies. Most of these sealed fractures (11 out of 12) are mapped as “possible” or “probable”.

Two fractures correlated to flow anomalies (no 82 and 97) cannot be identified in the BIPS-image. This is noted in Appendix 1.

| | |
|--|------|
| Number of fractures/crush zones in a distance of 0–2 dm from anomaly | 204 |
| Number of fractures in a distance of 2–4 dm from anomaly | 4 |
| Number of fractures in a distance of 4–5 dm from anomaly | 0 |
| Number of fractures in a distance longer than 5 dm from anomaly | 0 |
| Number of PFL anomalies not correlated to open fractures | 7 |
| Number of sealed fractures (broken/unbroken) in a distance of 1 dm from PFL anomalies not correlated to open fractures | 10/0 |
| Number of sealed fractures (broken/unbroken) in a distance of > 1 dm from PFL anomalies not correlated to open fractures | 2/0 |

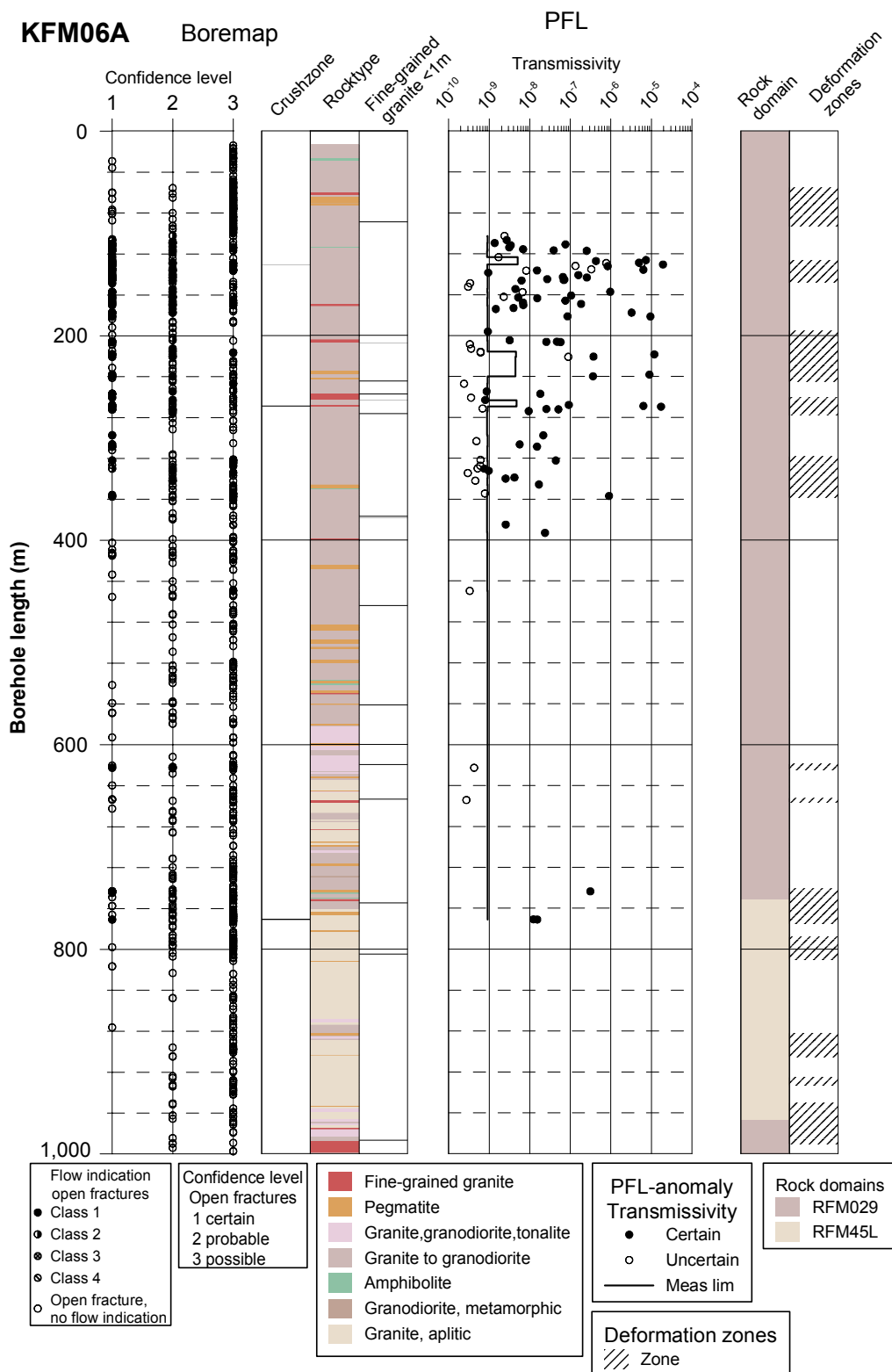


Figure 4-1. Correlation of hydraulic features, based on PFL-overlapping measurements, to mapped open/partially open fractures (all plotted as open fractures above) or crush zones in KFM06. Interpreted deformation zones and Rock Domains shown to the right. Fractures with PFL confidence (flow indication class above) > 4 are not plotted.

5 KFM07A

The borehole was flow logged with PFL using 5 m test sections in borehole section interval 91.96 to 807.72 m. Flow logging for flow anomalies was made in the 5 m test sections with measurable flow rates. During natural conditions, three flow anomalies have been mapped below 807.72 m. No transmissivity data are available for these anomalies (see also description below).

The borehole includes 26 PFL-anomalies of which 19 are mapped as “certain. Some anomalies may be caused by more than one fracture. To some anomalies, a cluster of identified open fractures can be correlated, and it is therefore very hard to determine a certain fracture as conductive. Most of the anomalies have, however, only been correlated to one or a couple of open fractures.

In some cases, one fracture may have influence on two anomalies (no 8 and 9, no 18 and 19); this is noted specifically in Appendix 2, and in the data file.

For one anomaly (no 25) no corresponding open fractures have been found within 0.5 m. The nearest open fractures have PFL-anomaly confidence 6 and 7 respectively. The confidence level of the fracture is uncertain.

The three “deepest” anomalies in KFM07A (secups 916.30, 917.20 and 970.00 m respectively) have no transmissivity measurement data connected to them. Two of them (916.30 and 917.20) are considered to be “uncertain”. These anomalies have been found /logged during natural flow conditions, but due to a narrowing at about 880 m in the borehole, no flow rate measurements were possible during pumping below 880 m, and consequently it was not possible to estimate the transmissivities. However, a earlier single-packer measurement (measuring the bottom of the borehole) shows that at least one of them is very conductive (probably the deepest of them as the other two are considered to be “uncertain”) In the figures the deepest flow anomaly have been assigned the transmissivity from the single-packer measurement of $T_M = 6E-7 \text{ m}^2/\text{s}$. To just show the position in the figures of the two “uncertain” flow anomalies these were given the transmissivities: $T = 1E-9 \text{ m}^2/\text{s}$.

The three anomalies mentioned above have been treated as all other anomalies in the borehole. Possible fractures have been correlated and are included in the database. A special notification is made for these anomalies in the appendix and in the plots.

| | |
|--|-----|
| Number of fractures/crush zones in a distance of 0–2 dm from anomaly | 47 |
| Number of fractures in a distance of 2–4 dm from anomaly | 2 |
| Number of fractures in a distance of 4–5 dm from anomaly | 0 |
| Number of fractures in a distance longer than 5 dm from anomaly | 2 |
| Number of PFL anomalies not correlated to open fractures | 0 |
| Number of sealed fractures (broken/unbroken) in a distance of 1 dm from PFL anomalies not correlated to open fractures | 0/0 |
| Number of sealed fractures (broken/unbroken) in a distance of > 1 dm from PFL anomalies not correlated to open fractures | 0/0 |

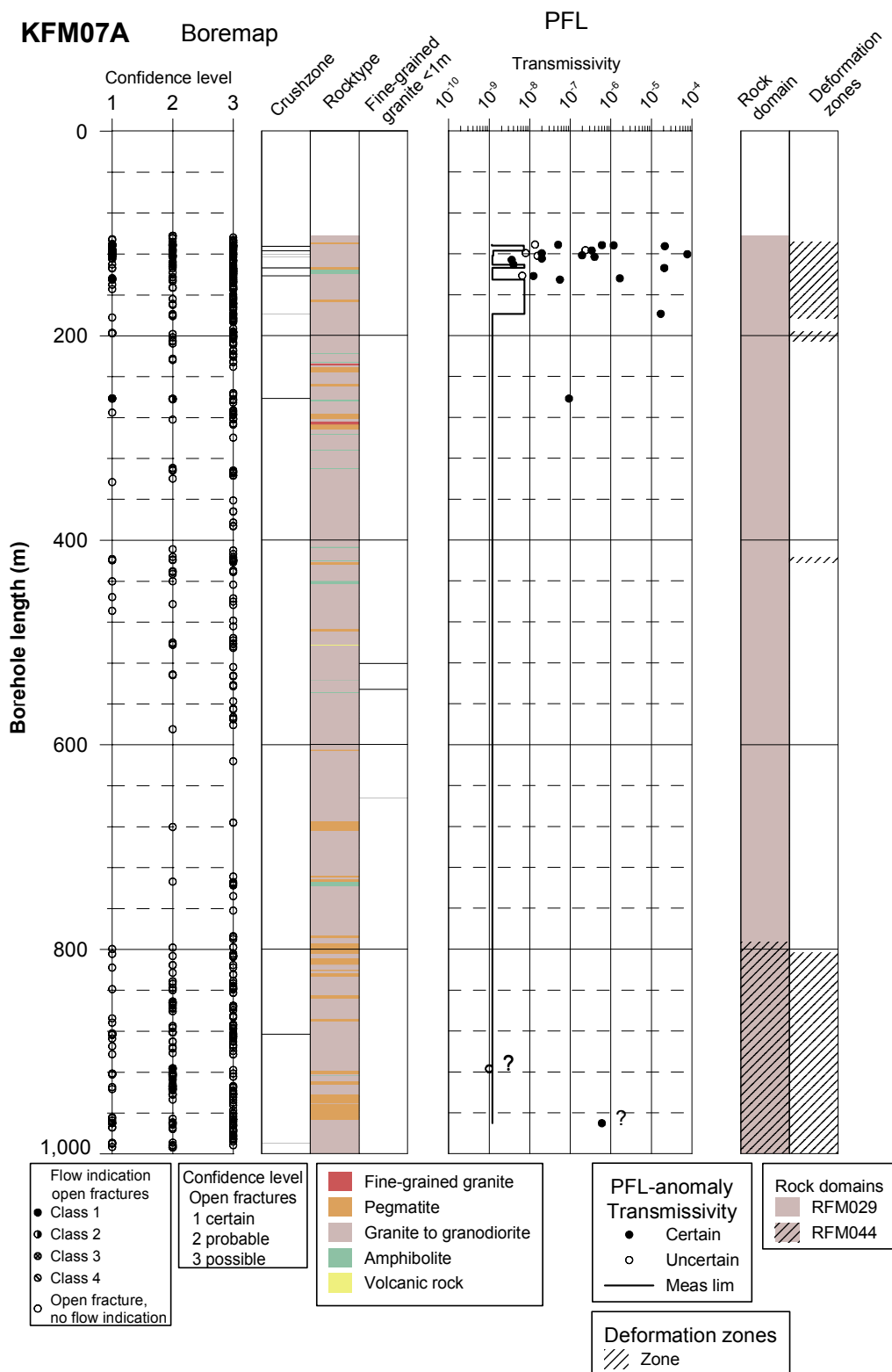


Figure 5-1. Correlation of hydraulic features, based on PFL-overlapping measurements, to mapped open/party open fractures (all plotted as open fractures above) or crush zones in KFM07. Interpreted deformation zones and Rock Domains shown to the right. Fractures with PFL confidence (flow indication class above) > 4 are not plotted.

6 References

Rouhianien P, Sokolnicki M, 2005a. Forsmark site investigation. Difference flow logging in borehole KFM06A. SKB P-05-15. Svensk Kärnbränslehantering AB.

Sokolnicki M, Rouhianien P, 2005b. Forsmark site investigation. Difference flow logging in borehole KFM07A. SKB P-05-63. Svensk Kärnbränslehantering AB.

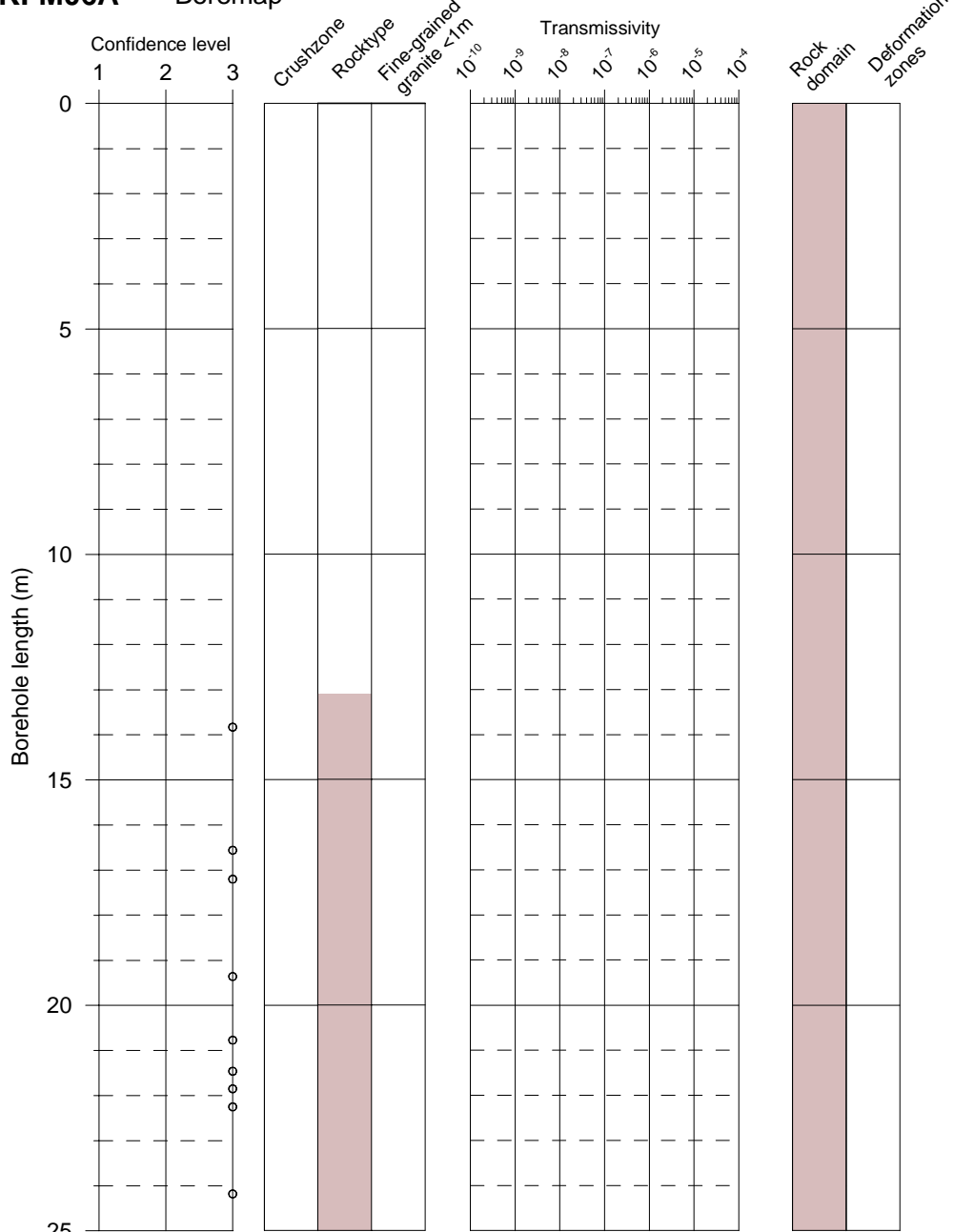
Forssman I, Zetterlund M, Rhén I, 2004. Correlation of Posiva Flow log anomalies to core mapped features in Forsmark (KFM01A to KFM05). SKB R-04-77. Svensk Kärnbränslehantering AB.

Appendix 1a – KFM06A

In this appendix plots showing Flow log anomalies to core mapped features in KFM06A for every 25 meters of the borehole are found. BIPS images of PFL anomalies are also found.

KFM06A Boremap

PFL



Flow indication
open fractures

- Class 1
- ◐ Class 2
- ◑ Class 3
- ◒ Class 4
- Open fracture,
no flow indication

Confidence level
Open fractures

- 1 certain
- 2 probable
- 3 possible

■ Fine-grained granite
■ Pegmatite
■ Granite, granodiorite, tonalite
■ Granite to granodiorite
■ Amphibolite
■ Granodiorite, metamorphic
■ Granite, aplitic

PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

Rock domains

- RFM029
- RFM45L

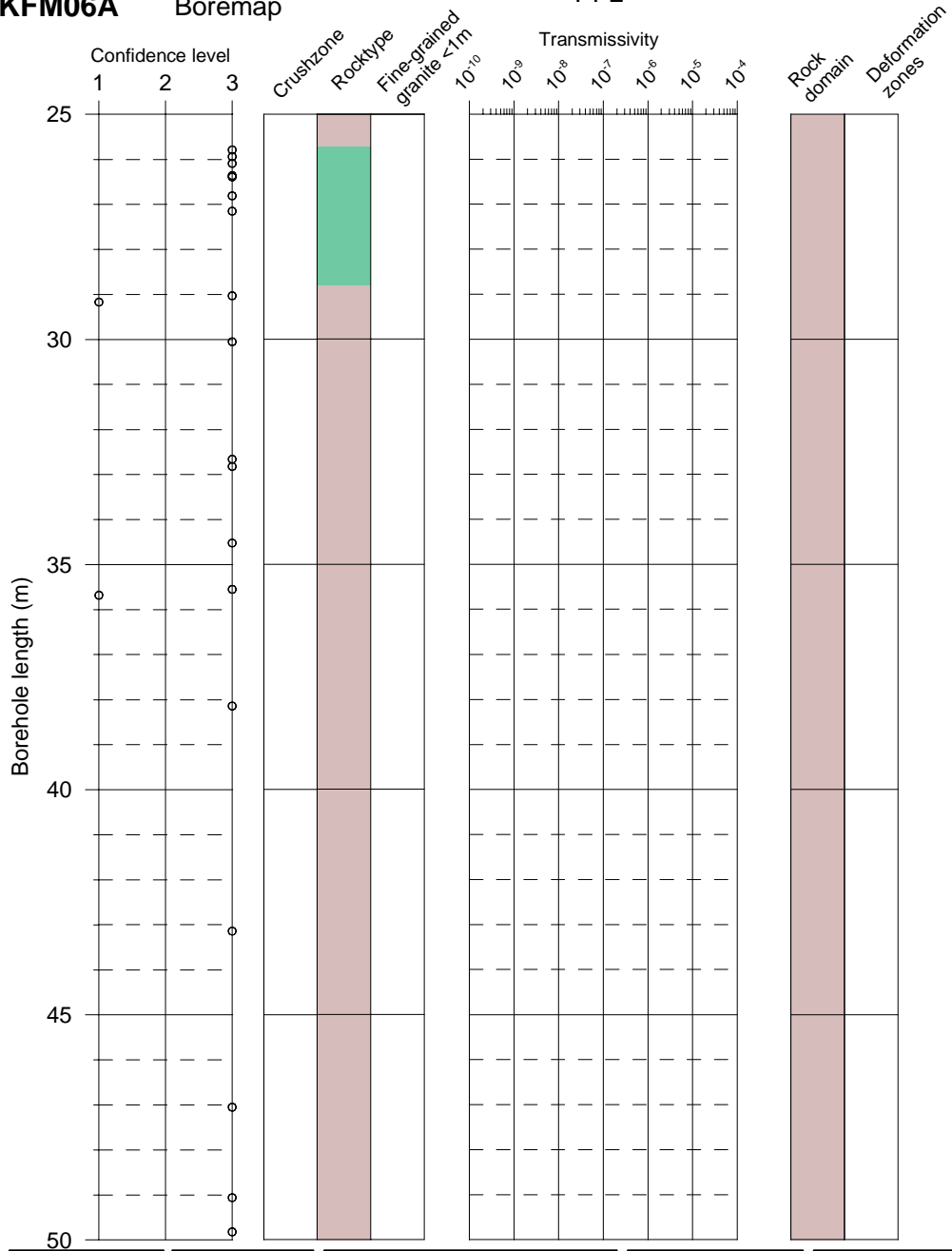
Deformation zones

- ▨ Zone

KFM06A

Boremap

PFL



Flow indication open fractures
 ● Class 1
 ● Class 2
 ● Class 3
 ● Class 4
 ○ Open fracture, no flow indication

Confidence level Open fractures
 1 certain
 2 probable
 3 possible

■ Fine-grained granite
 ■ Pegmatite
 ■ Granite, granodiorite, tonalite
 ■ Granite to granodiorite
 ■ Amphibolite
 ■ Granodiorite, metamorphic
 ■ Granite, aplitic

PFL-anomaly Transmissivity
 ■ Certain
 ▨ Uncertain
 — Meas lim

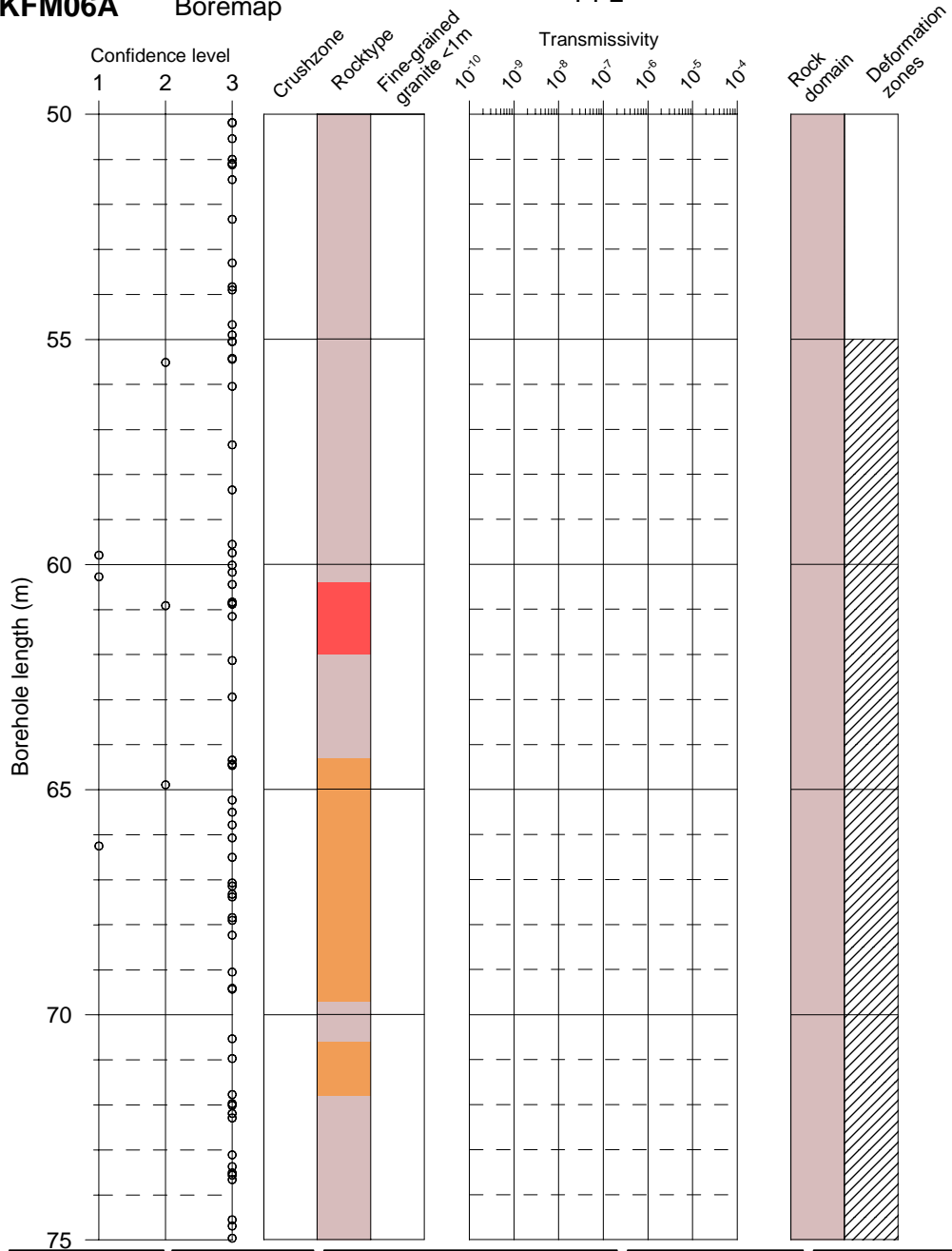
Rock domains
 ■ RFM029
 ■ RFM45L

Deformation zones
 ▨ Zone

KFM06A

Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
- Class 3
- Class 4
- Open fracture,
no flow indication

Confidence level
Open fractures

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- Granite, aplitic

PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

Rock domains

- RFM029
- RFM45L

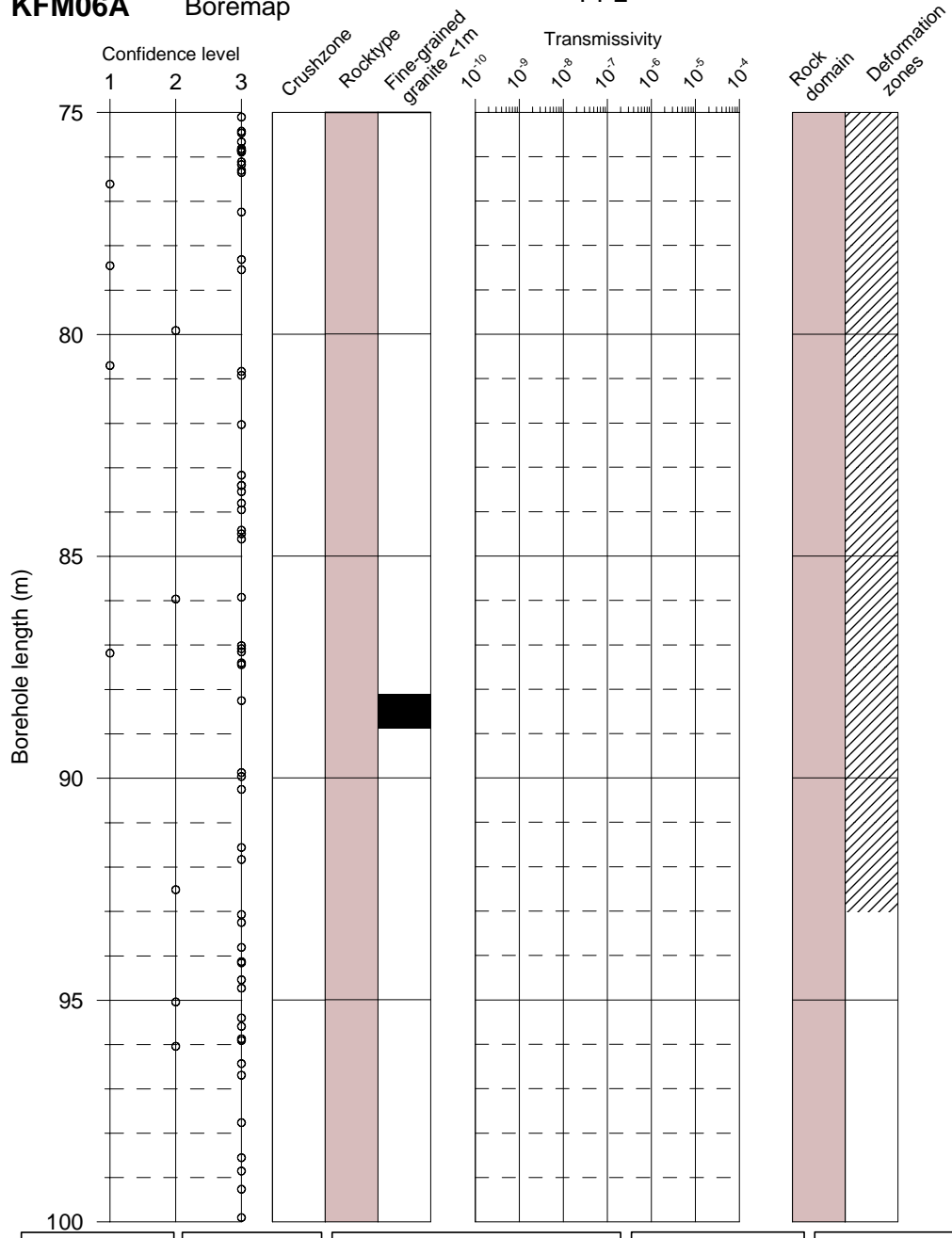
Deformation zones

- ▨ Zone

KFM06A

Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
- Class 3
- Class 4
- Open fracture, no flow indication

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■ Granite, aplitic

PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

Rock domains

- RFM029
- RFM45L

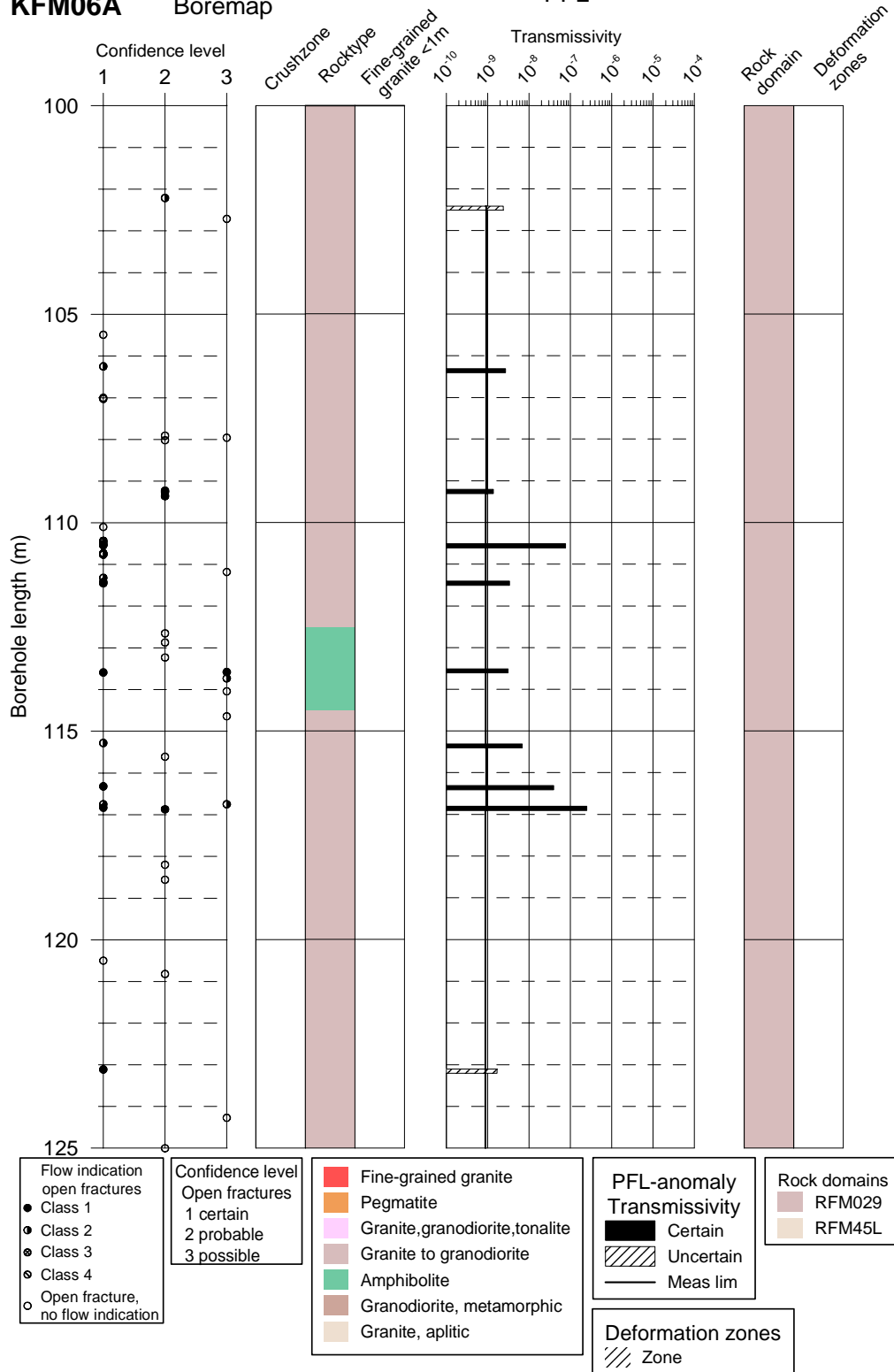
Deformation zones

- ▨ Zone

KFM06A

Boremap

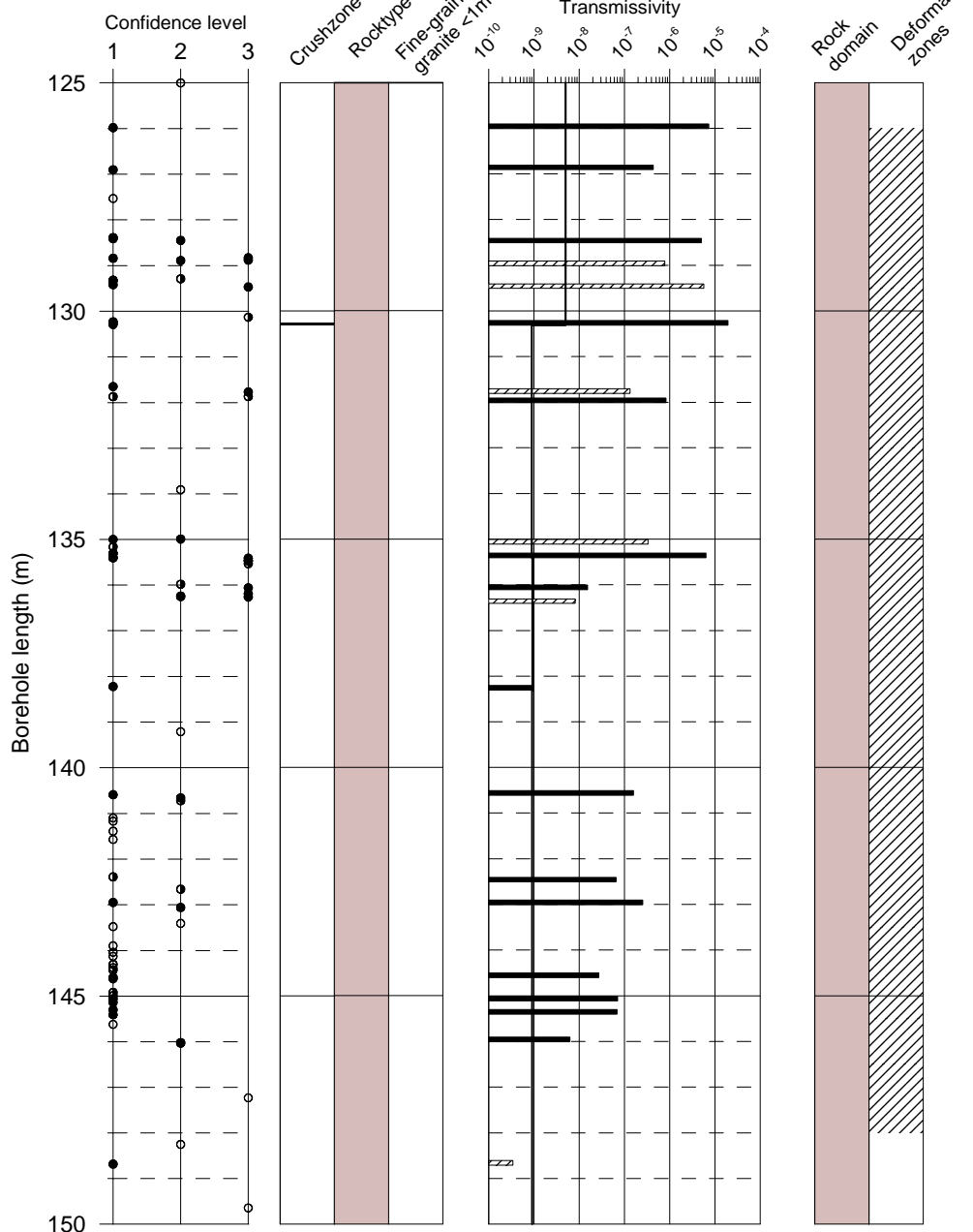
PFL



KFM06A

Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
- Class 3
- Class 4
- Open fracture,
no flow indication

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Open fractures

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■ Amphibolite
■ Granodiorite, metamorphic
■ Granite, aplitic

PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

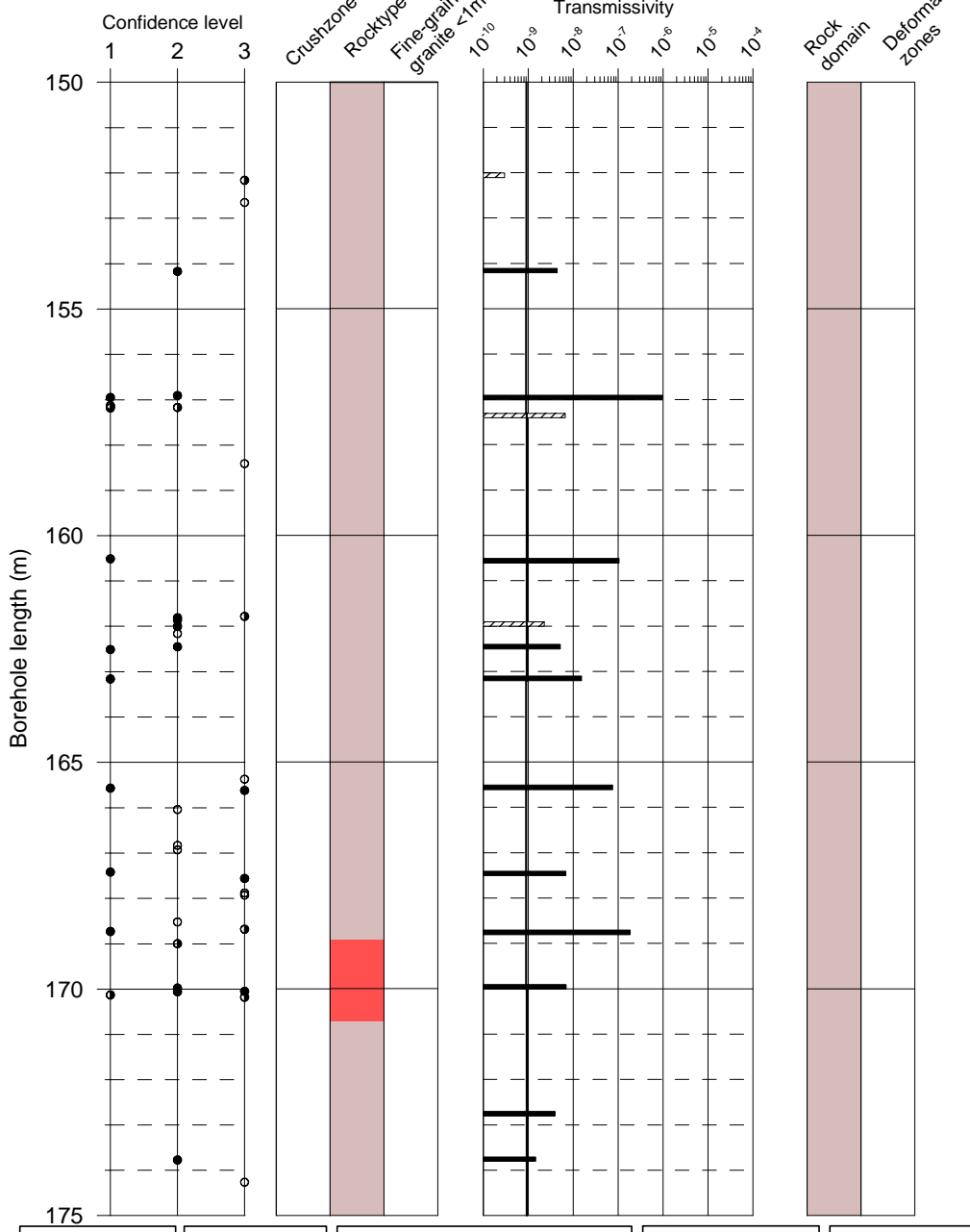
Rock domains

- RFM029
- RFM45L

Deformation zones

- ▨ Zone

KFM06A Boremap PFL



Flow indication
open fractures

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no flow indication

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- Granite, aplitic

PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

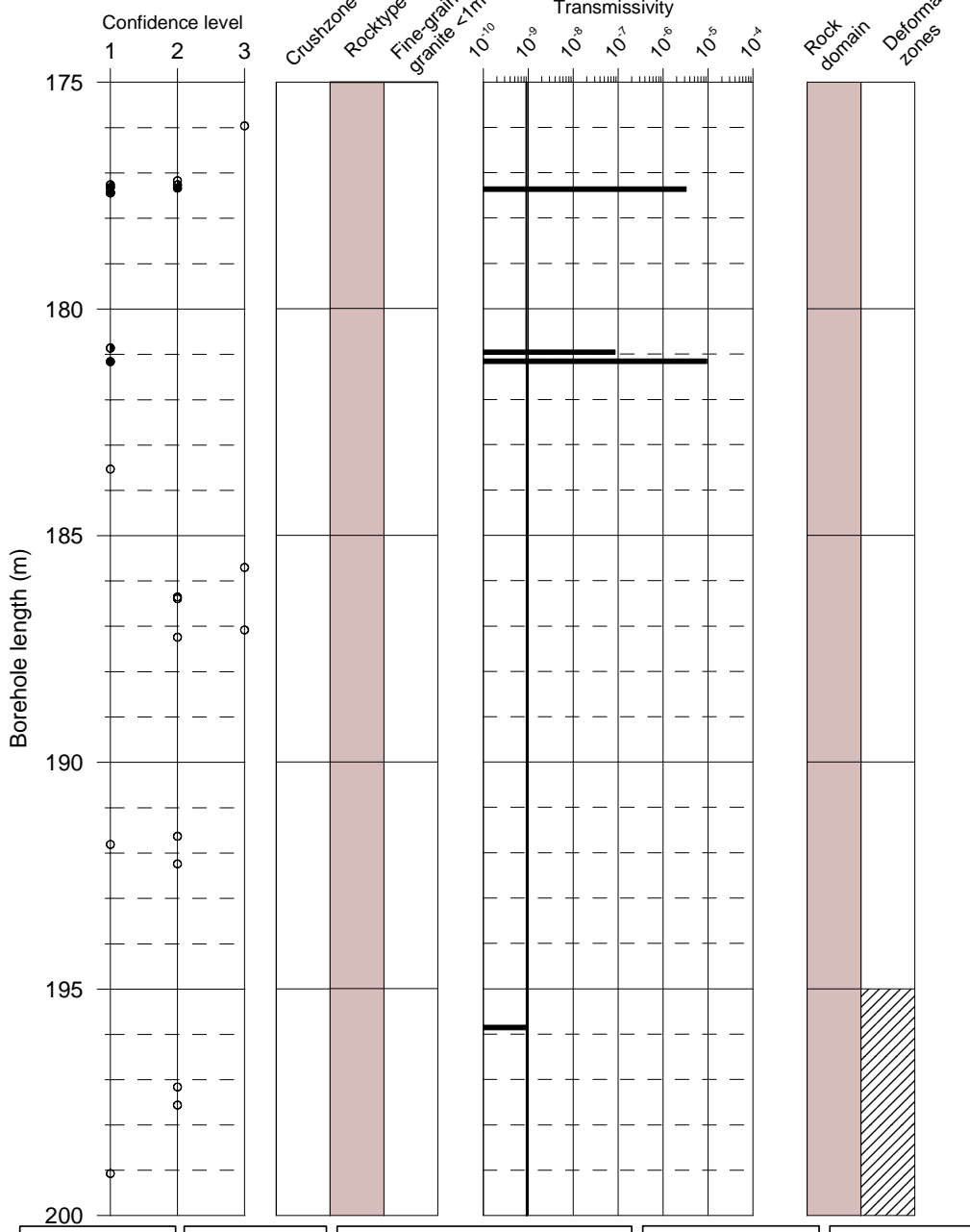
Rock domains

- RFM029
- RFM45L

Deformation zones

- ▨ Zone

KFM06A Boremap PFL

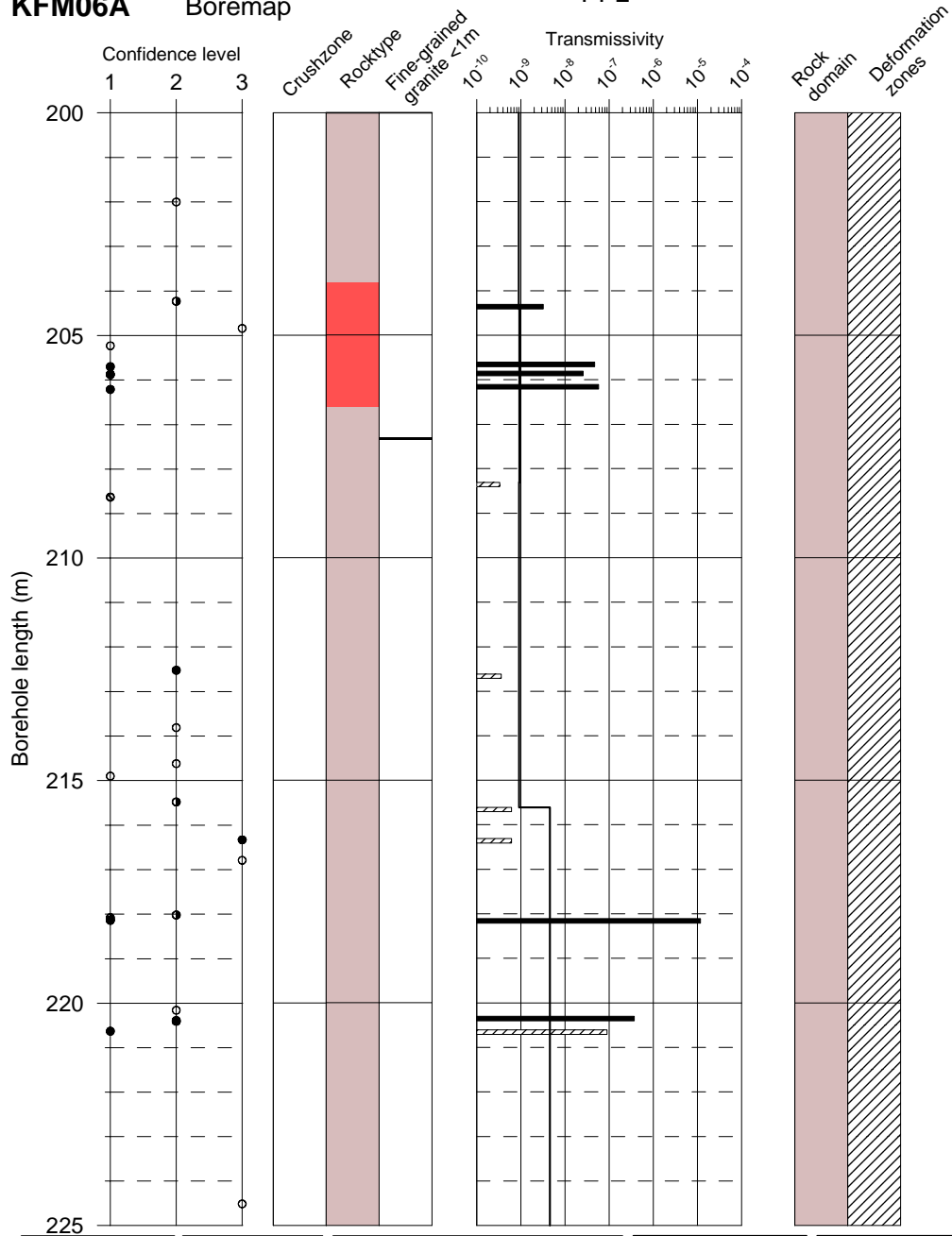


| | | | | |
|--|--|--|---|---|
| <p>Flow indication open fractures</p> <ul style="list-style-type: none"> ● Class 1 ● Class 2 ● Class 3 ● Class 4 ○ Open fracture, no flow indication | <p>Confidence level</p> <p>Open fractures</p> <ul style="list-style-type: none"> 1 certain 2 probable 3 possible | <p>Rock domains</p> <ul style="list-style-type: none"> Fine-grained granite Pegmatite Granite, granodiorite, tonalite Granite to granodiorite Amphibolite Granodiorite, metamorphic Granite, aplitic | <p>PFL-anomaly Transmissivity</p> <ul style="list-style-type: none"> Certain Uncertain Meas lim | <p>Rock domains</p> <ul style="list-style-type: none"> RFM029 RFM45L |
| | | <p>Deformation zones</p> <ul style="list-style-type: none"> Zone | | |

KFM06A

Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
- Class 3
- Class 4
- Open fracture,
no flow indication

Confidence level
Open fractures

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- 3 possible

■ Fine-grained granite
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■ Granite to granodiorite
■ Amphibolite
■ Granodiorite, metamorphic
■ Granite, aplitic

PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

Rock domains

- RFM029
- RFM45L

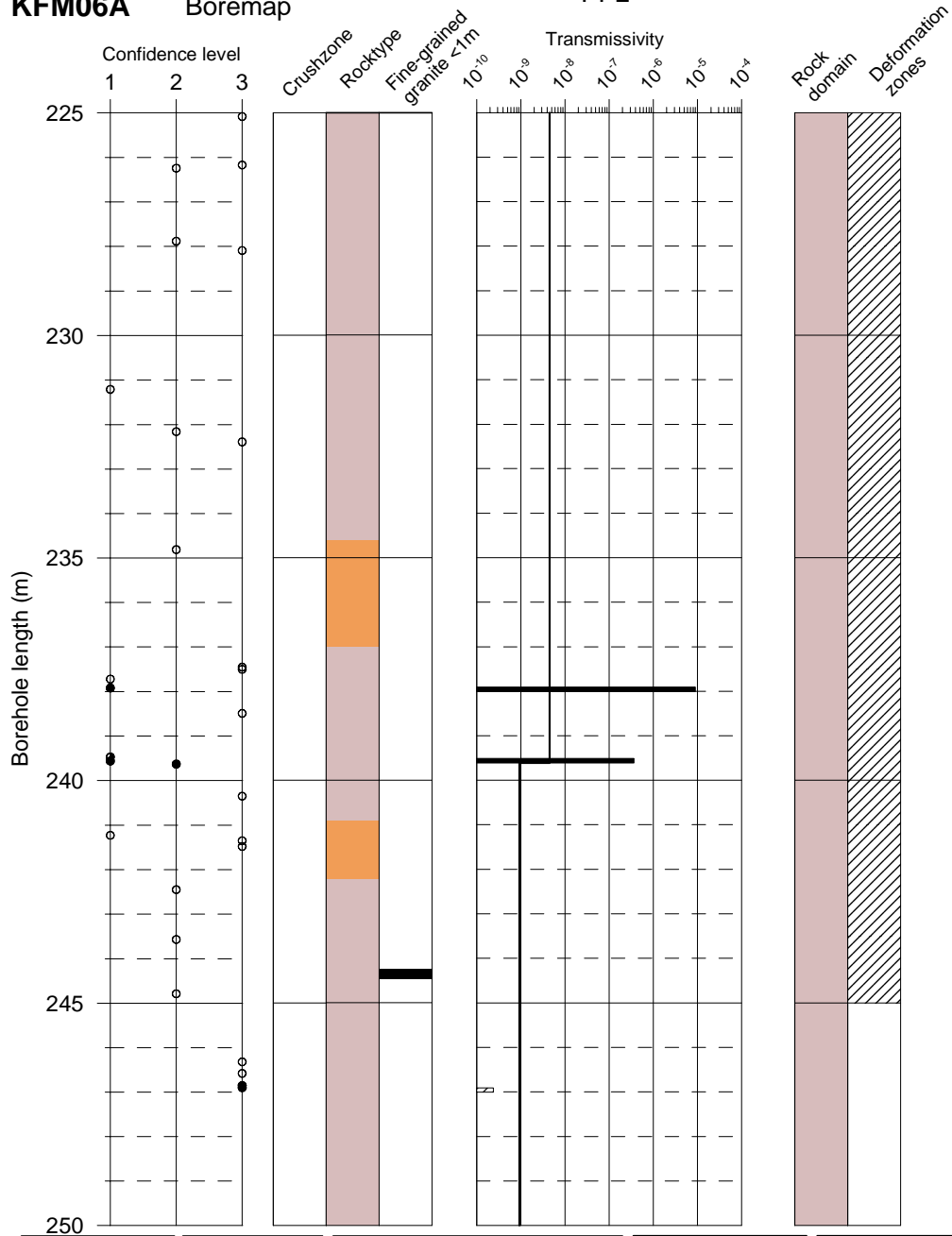
Deformation zones

- ▨ Zone

KFM06A

Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
- Class 3
- Class 4
- Open fracture,
no flow indication

Confidence level
Open fractures

- 1 certain
- 2 probable
- 3 possible

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■ Granite, aplitic

PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

Rock domains

- RFM029
- RFM45L

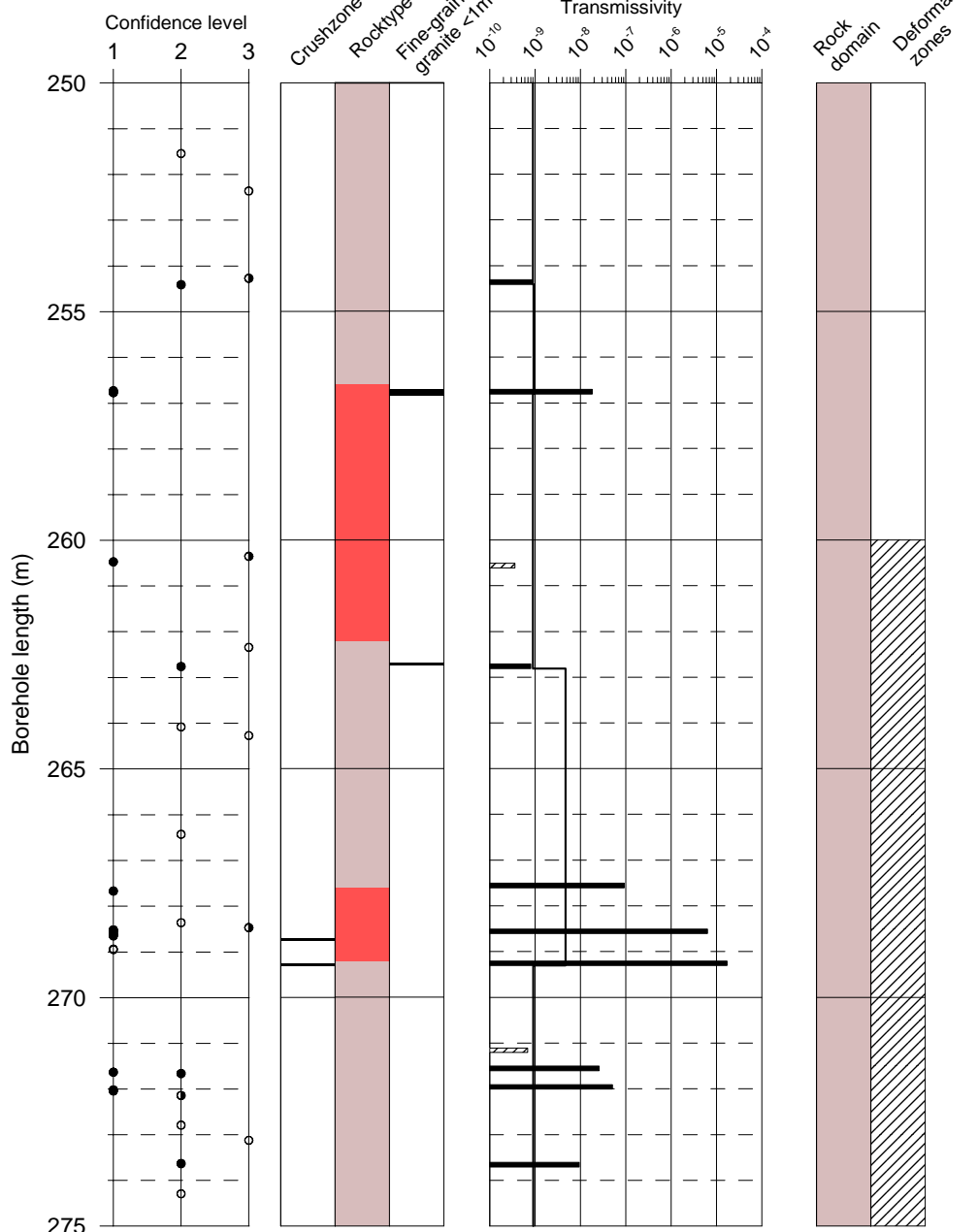
Deformation zones

- ▨ Zone

KFM06A

Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
- Class 3
- Class 4
- Open fracture,
no flow indication

Confidence level
Open fractures

- 1 certain
- 2 probable
- 3 possible

- Fine-grained granite
- Pegmatite
- Granite, granodiorite, tonalite
- Granite to granodiorite
- Amphibolite
- Granodiorite, metamorphic
- Granite, aplitic

PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

Rock domains

- RFM029
- RFM45L

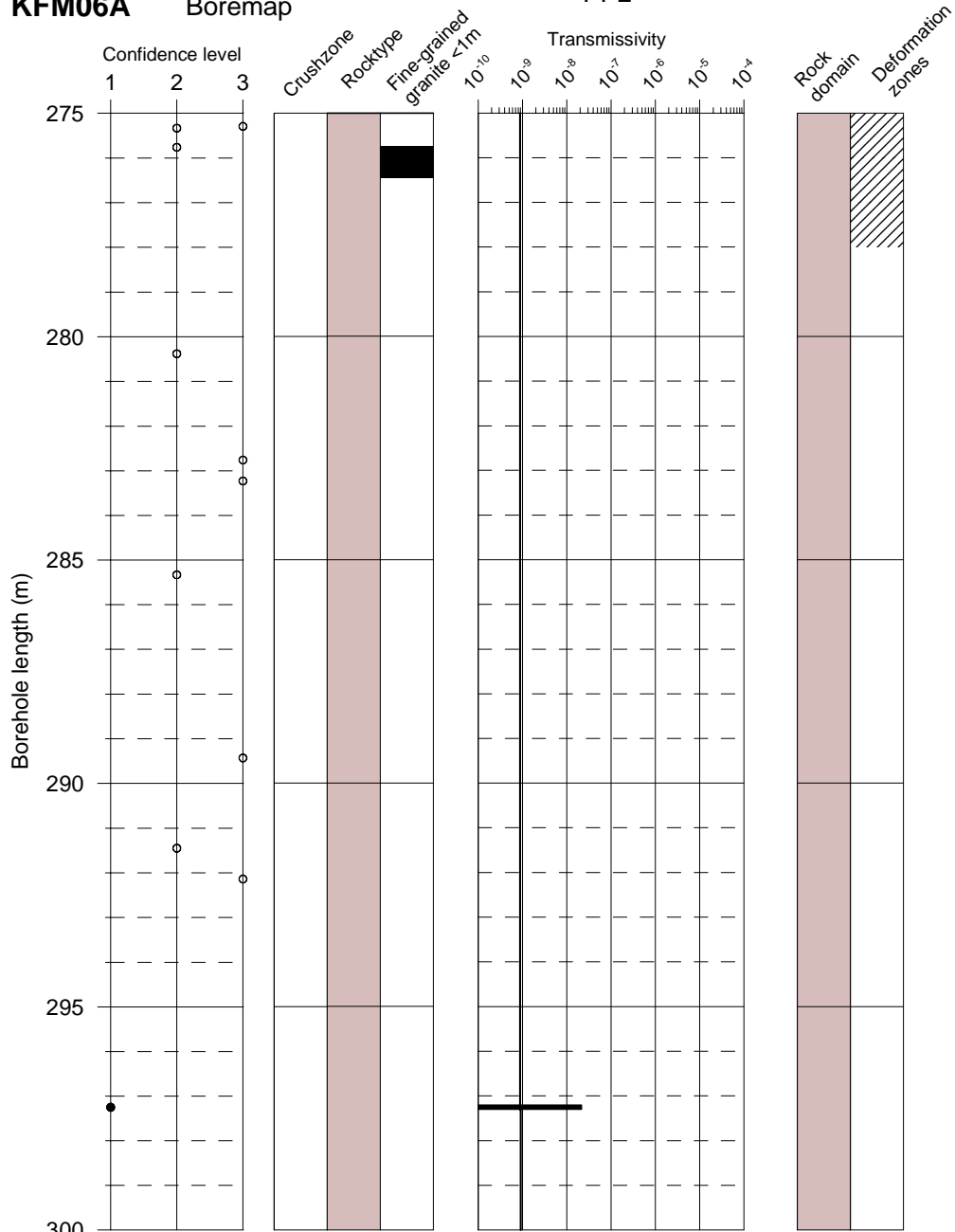
Deformation zones

- ▨ Zone

KFM06A

Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
- Class 3
- Class 4
- Open fracture,
no flow indication

Confidence level
Open fractures

- 1 certain
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- 3 possible

- Fine-grained granite
- Pegmatite
- Granite, granodiorite, tonalite
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- Granite, aplitic

PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

Rock domains

- RFM029
- RFM45L

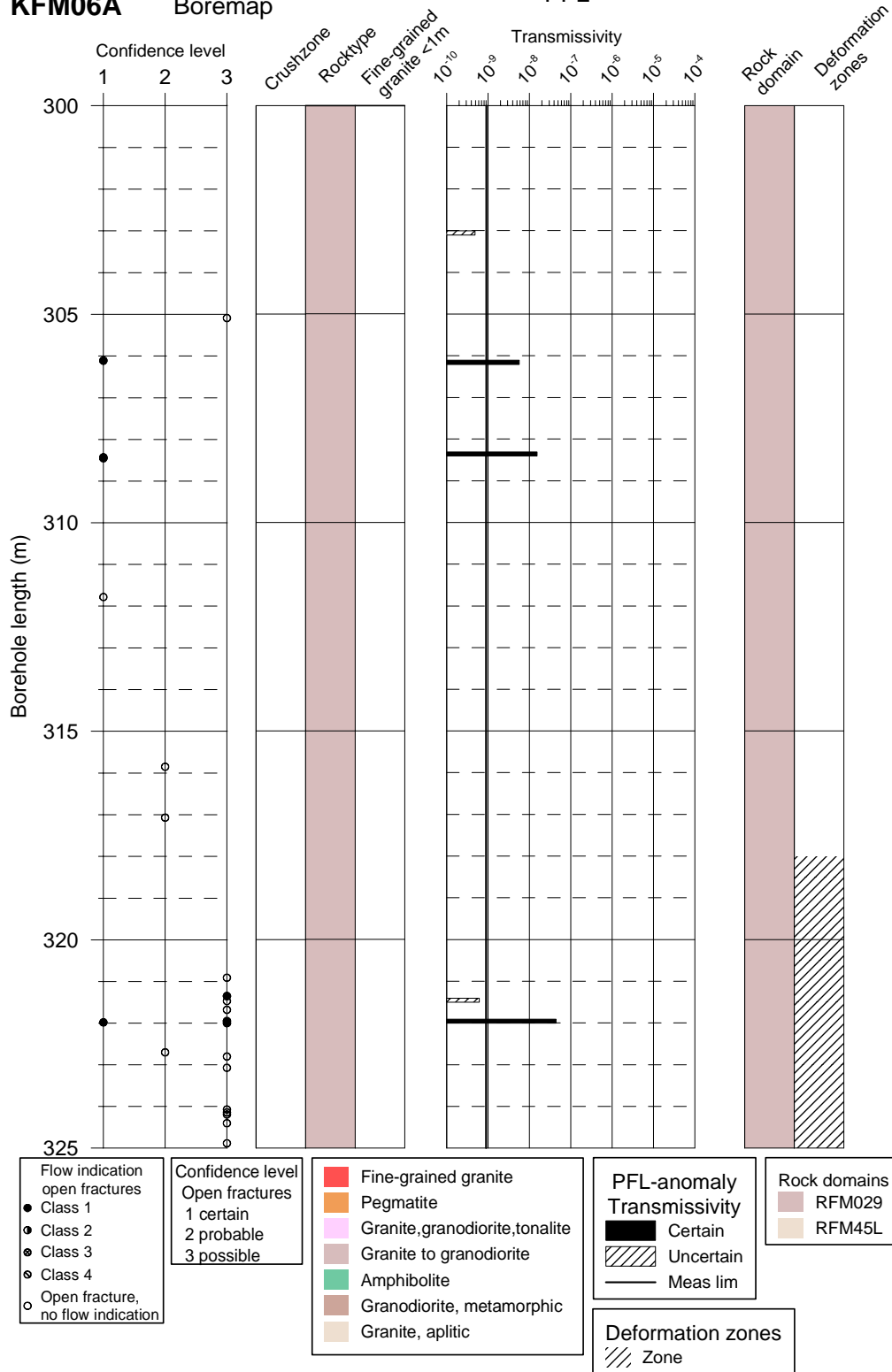
Deformation zones

- ▨ Zone

KFM06A

Boremap

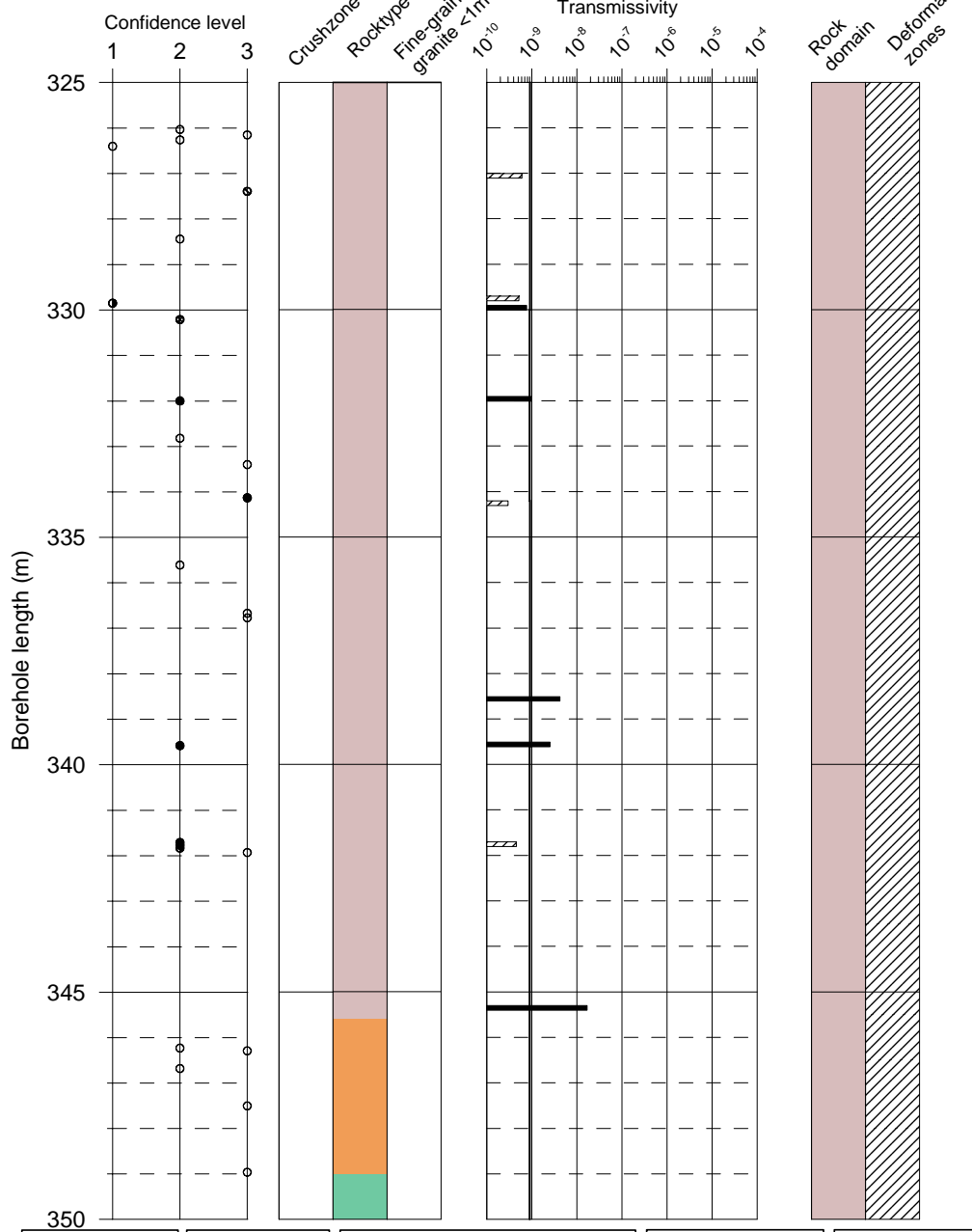
PFL



KFM06A

Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
- Class 3
- Class 4
- Open fracture,
no flow indication

Confidence level
Open fractures

- 1 certain
- 2 probable
- 3 possible

Rocktype

- Fine-grained granite
- Pegmatite
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- Granite, aplitic

PFL-anomaly
Transmissivity

- Certain
- Uncertain
- Meas lim

Rock domains

- RFM029
- RFM45L

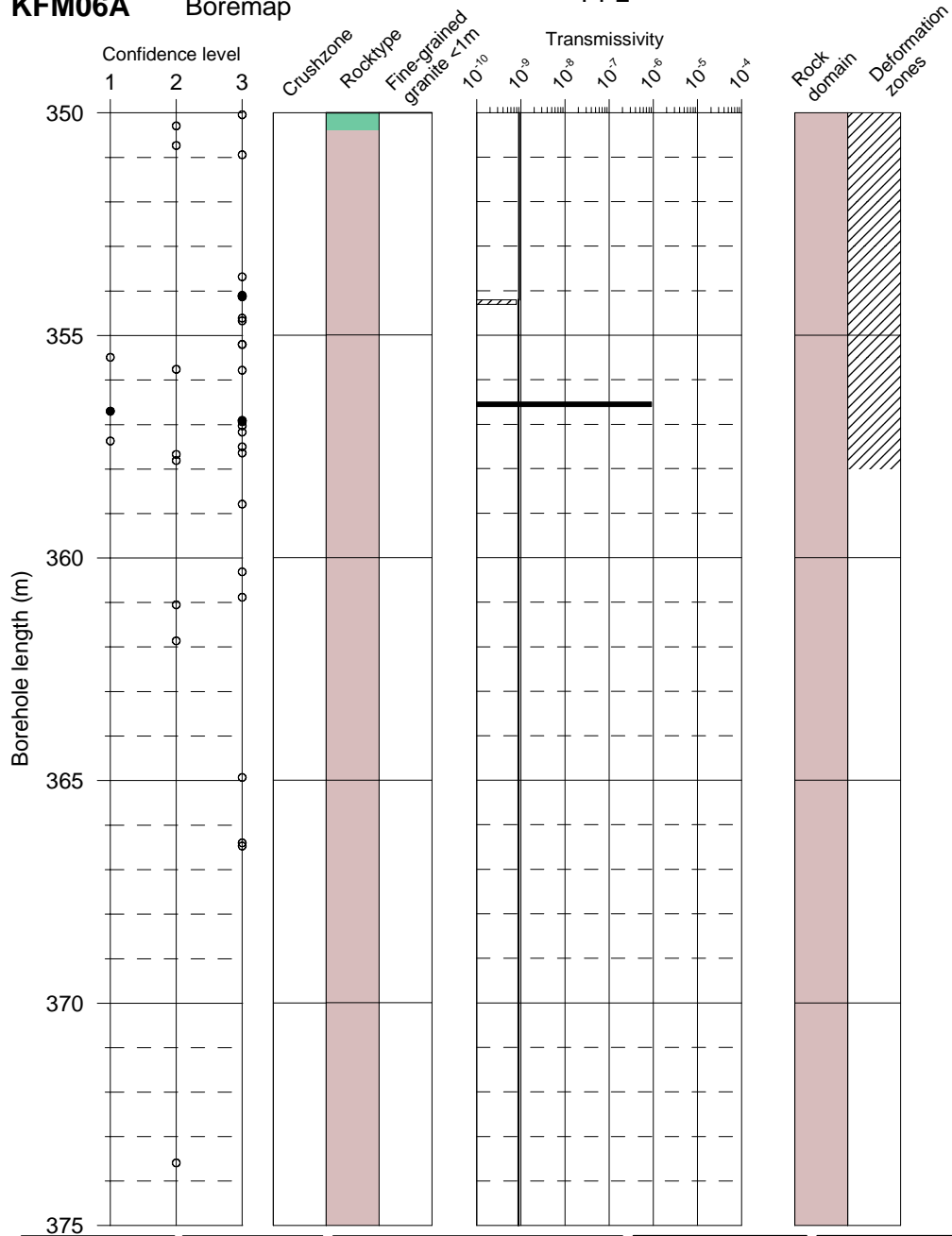
Deformation zones

- Zone

KFM06A

Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
- Class 3
- Class 4
- Open fracture,
no flow indication

Confidence level
Open fractures

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PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

Rock domains

- RFM029
- RFM45L

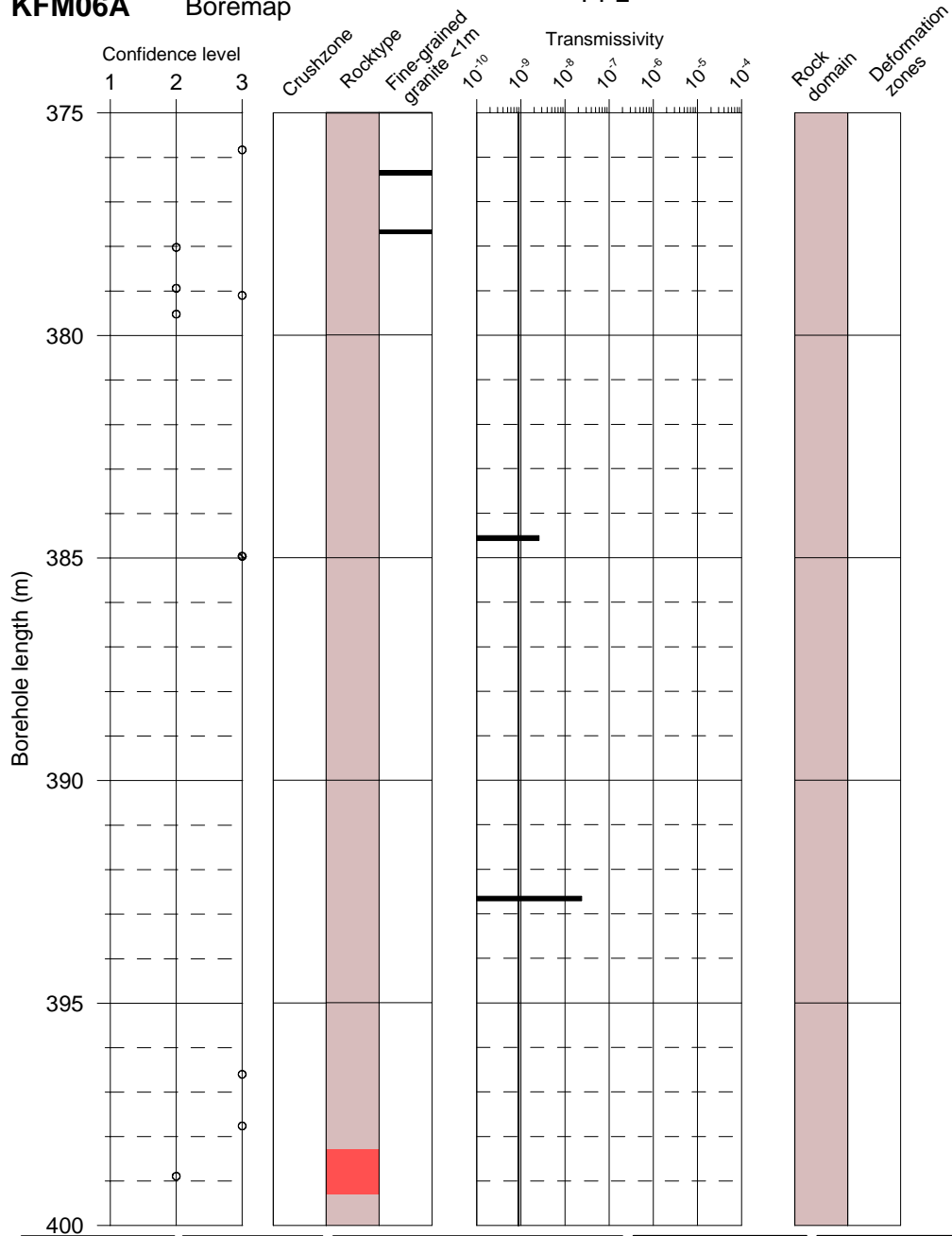
Deformation zones

- ▨ Zone

KFM06A

Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
- Class 3
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no flow indication

Confidence level
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PFL-anomaly
Transmissivity

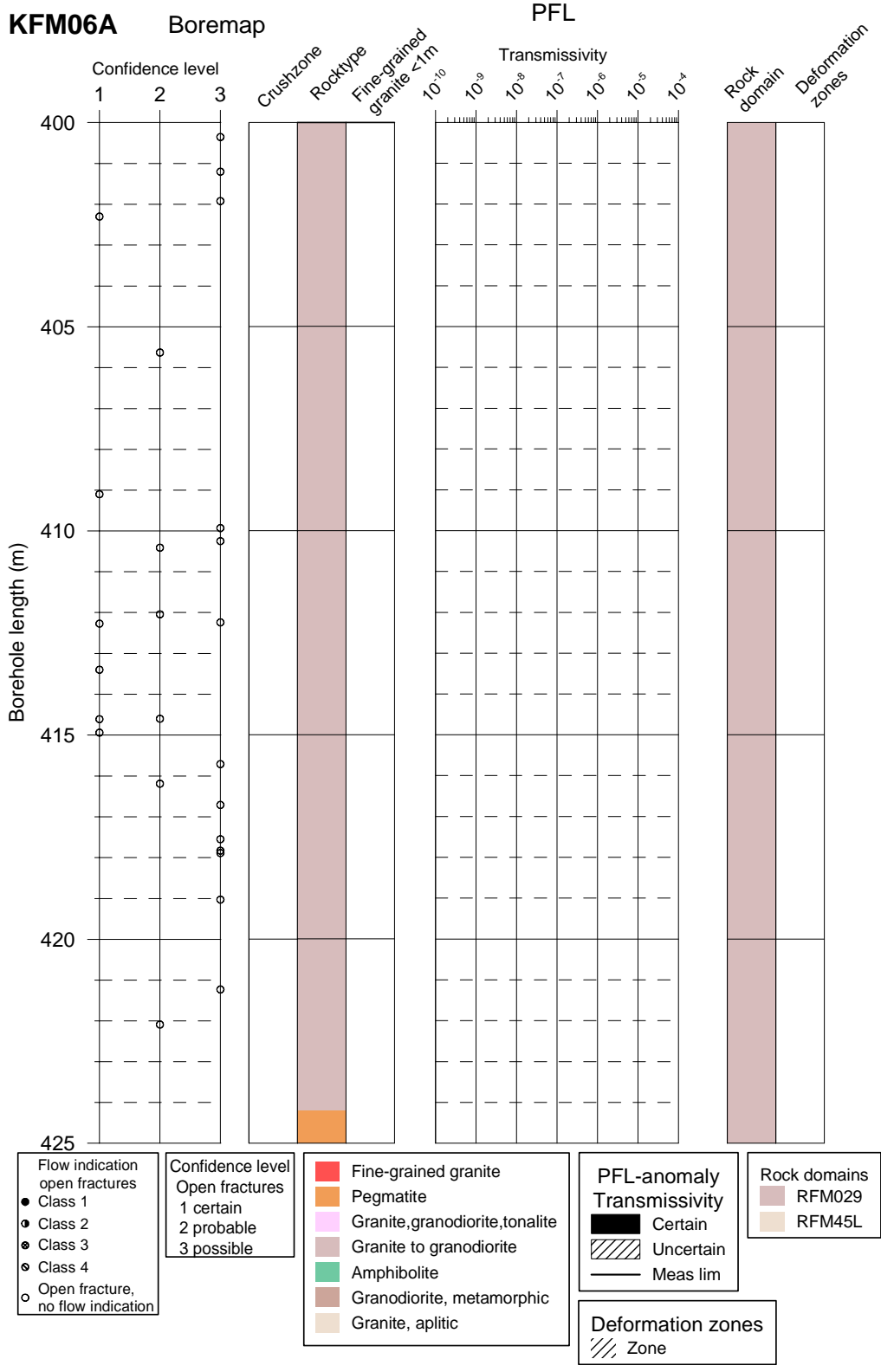
- Certain
- ▨ Uncertain
- Meas lim

Rock domains

- RFM029
- RFM45L

Deformation zones

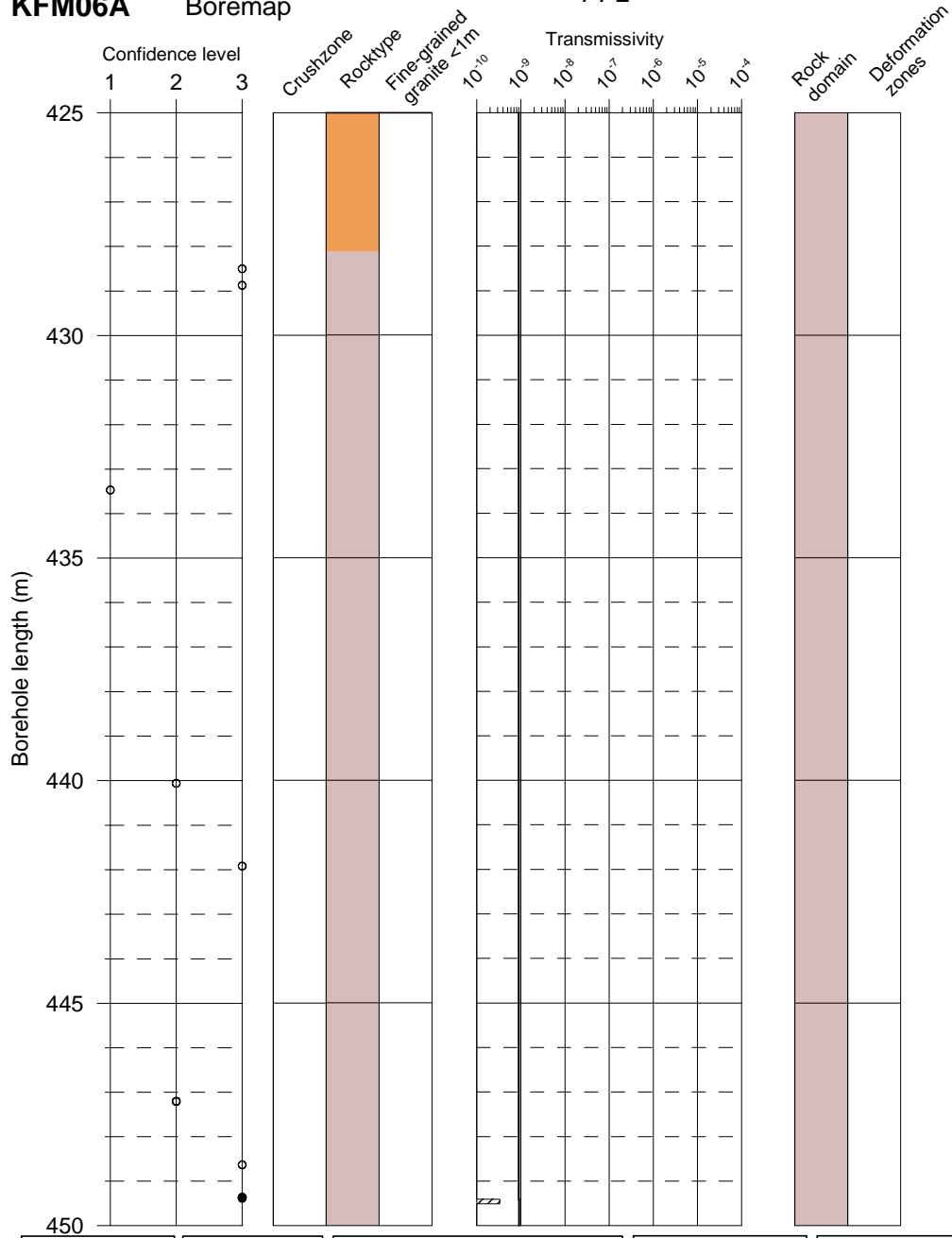
- ▨ Zone



KFM06A

Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
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Open fractures

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PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
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Rock domains

- RFM029
- RFM45L

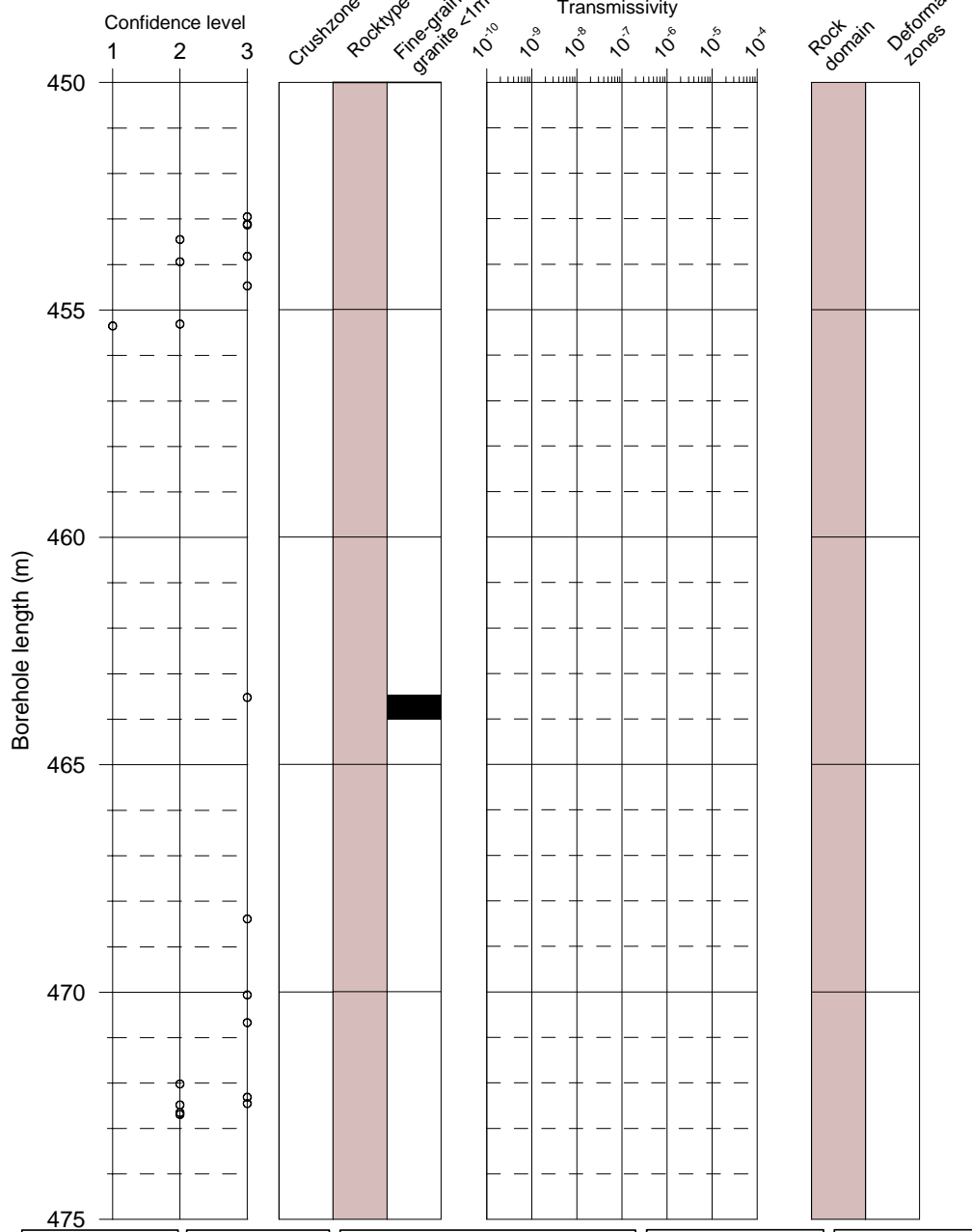
Deformation zones

- ▨ Zone

KFM06A

Boremap

PFL



Flow indication
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Open fractures

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PFL-anomaly
Transmissivity

- Certain
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Rock domains

- RFM029
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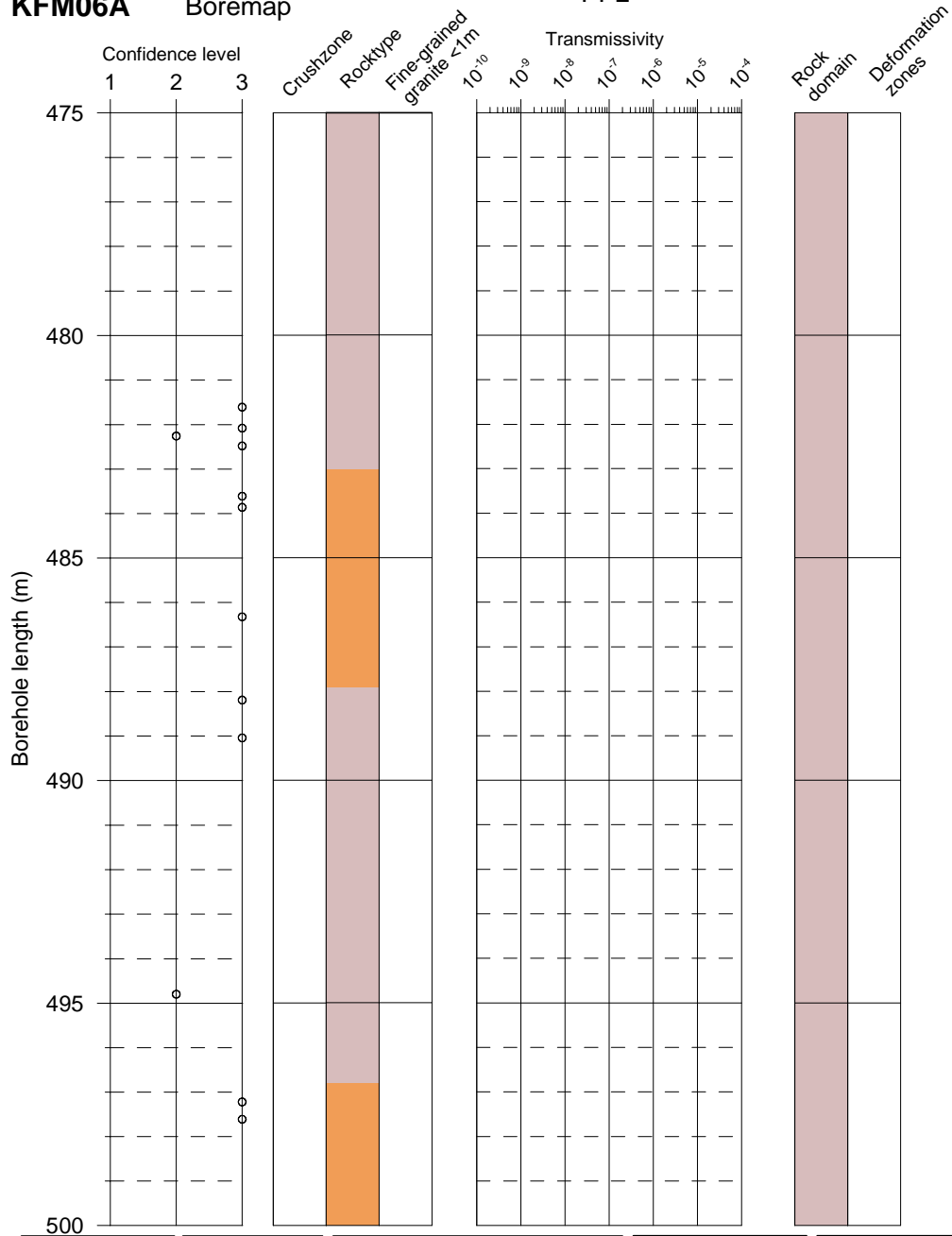
Deformation zones

- ▨ Zone

KFM06A

Boremap

PFL



Flow indication
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PFL-anomaly
Transmissivity

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Rock domains

- RFM029
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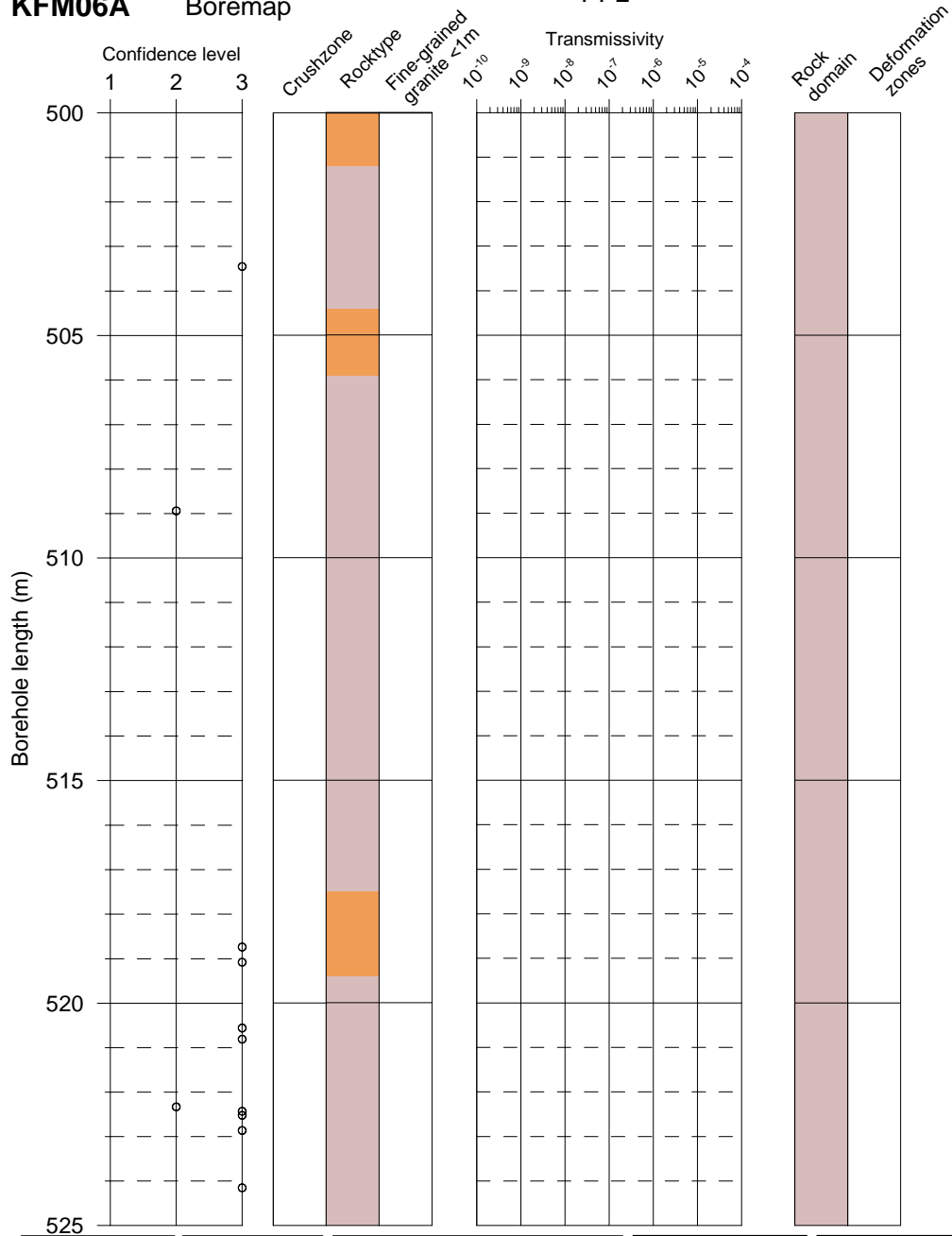
Deformation zones

- ▨ Zone

KFM06A

Boremap

PFL



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PFL-anomaly
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Rock domains

- RFM029
- RFM45L

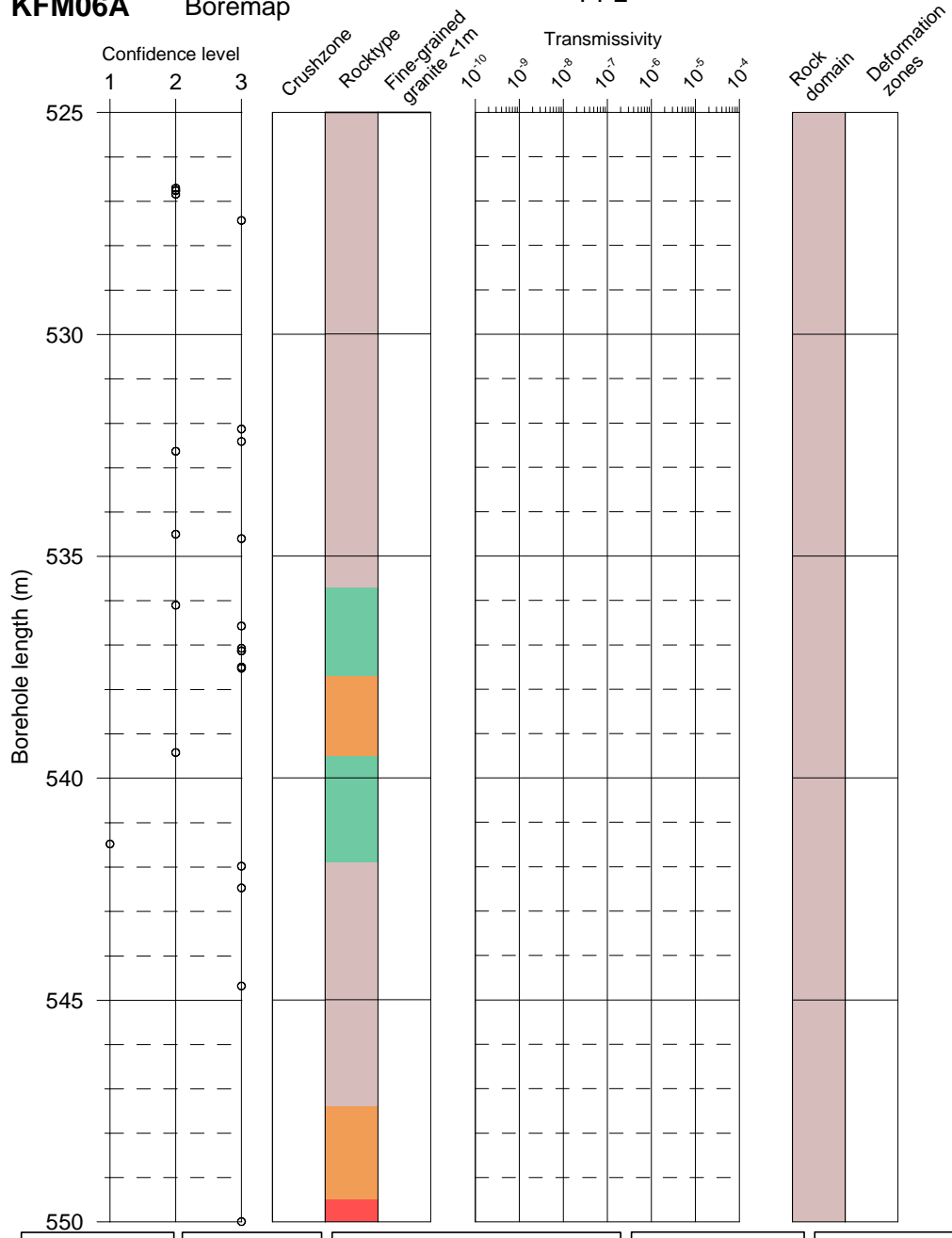
Deformation zones

- ▨ Zone

KFM06A

Boremap

PFL



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PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

Rock domains

- RFM029
- RFM45L

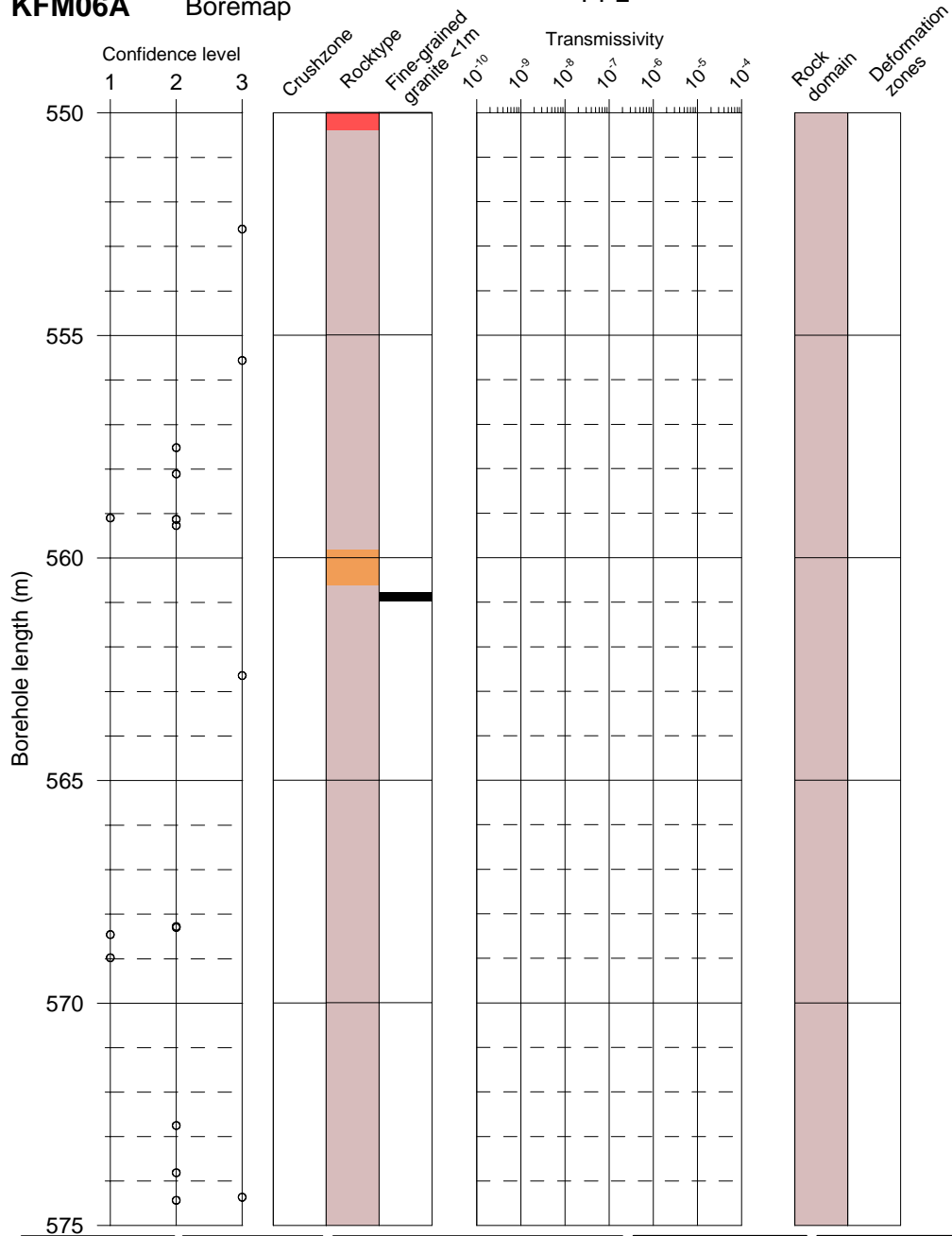
Deformation zones

- ▨ Zone

KFM06A

Boremap

PFL



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open fractures

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PFL-anomaly
Transmissivity

- Certain
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- Meas lim

Rock domains

- RFM029
- RFM45L

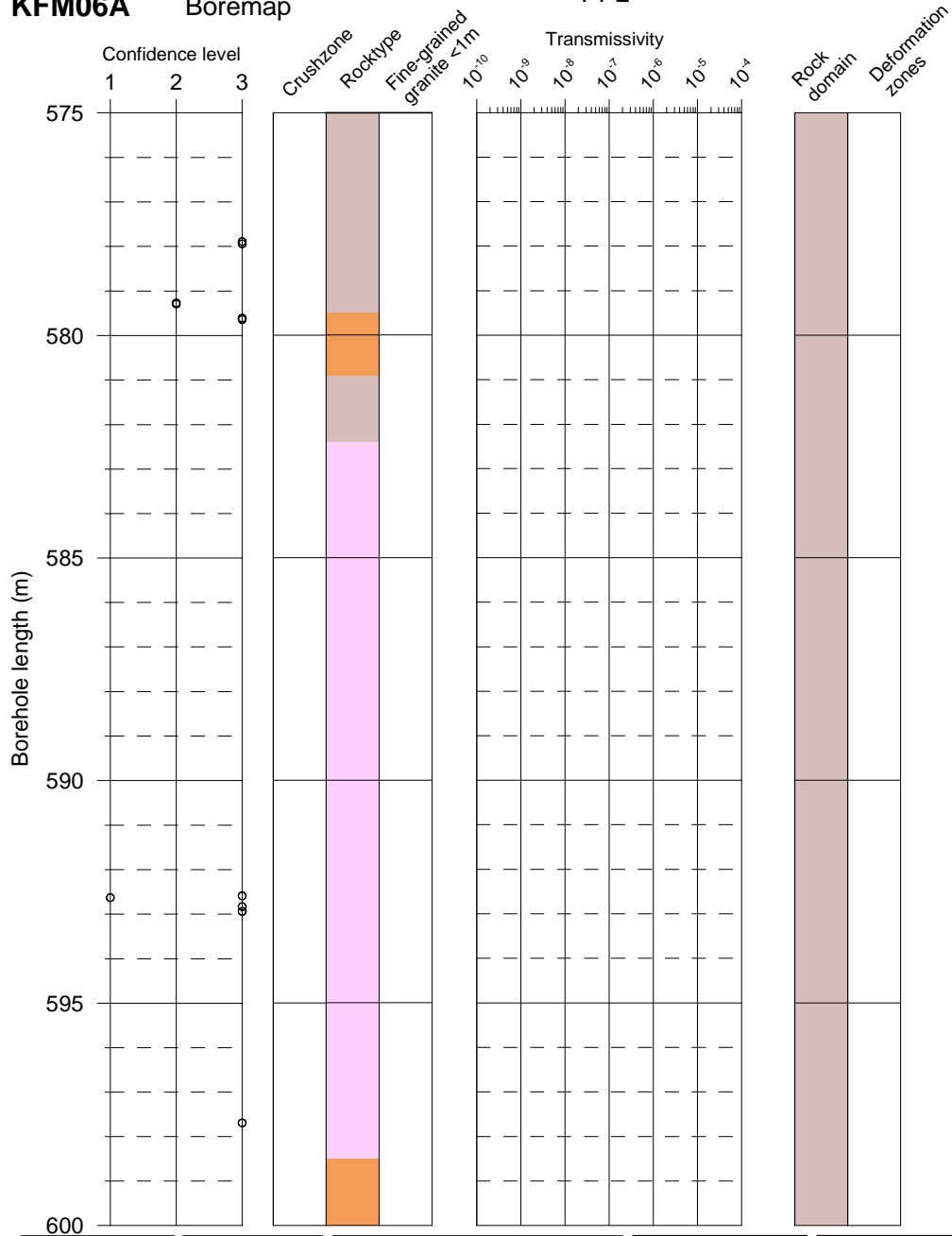
Deformation zones

- ▨ Zone

KFM06A

Boremap

PFL



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PFL-anomaly
Transmissivity

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- ▨ Uncertain
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Rock domains

- RFM029
- RFM45L

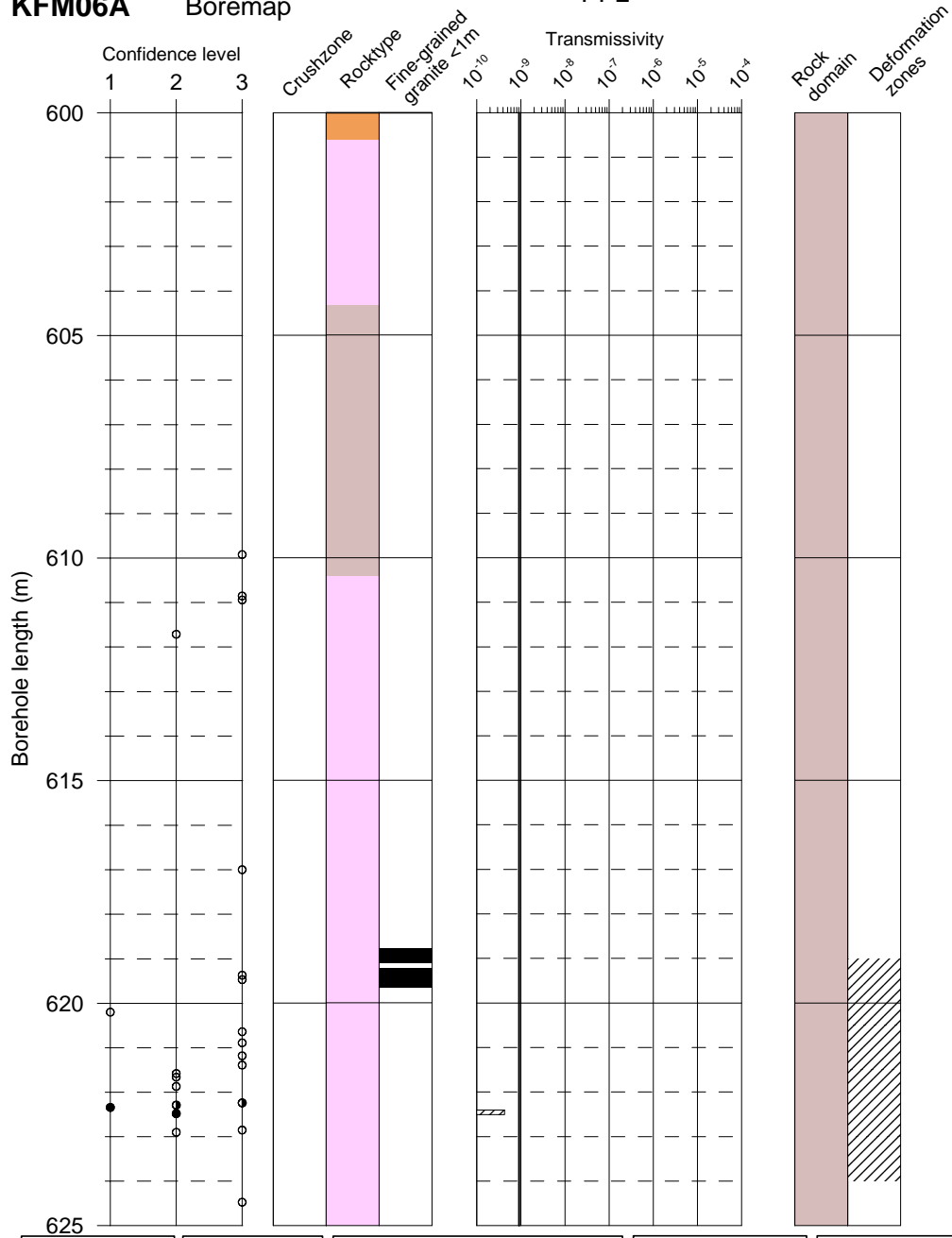
Deformation zones

- ▨ Zone

KFM06A

Boremap

PFL



Flow indication
open fractures

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PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

Rock domains

- RFM029
- RFM45L

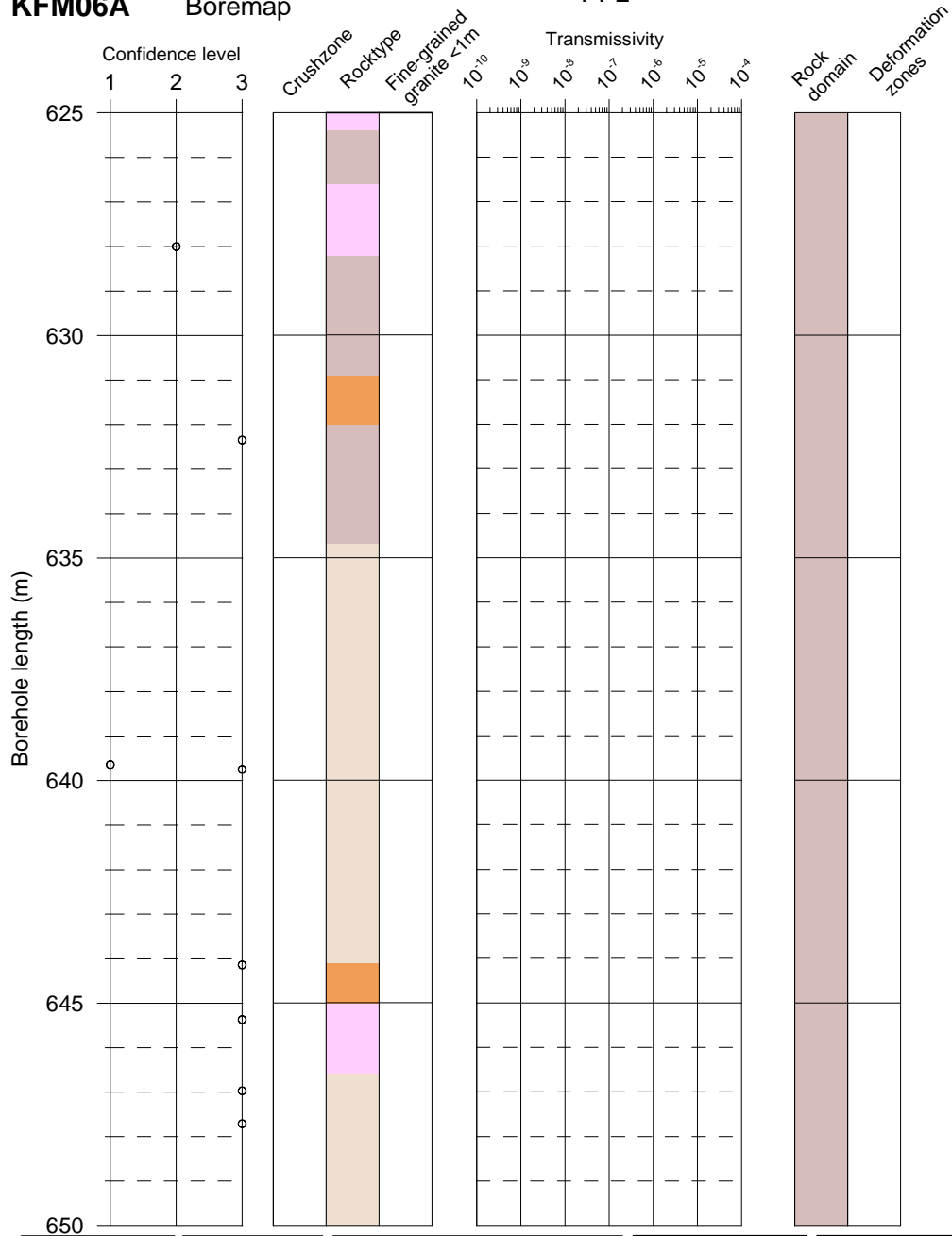
Deformation zones

- ▨ Zone

KFM06A

Boremap

PFL



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PFL-anomaly
Transmissivity

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- ▨ Uncertain
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Rock domains

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- RFM45L

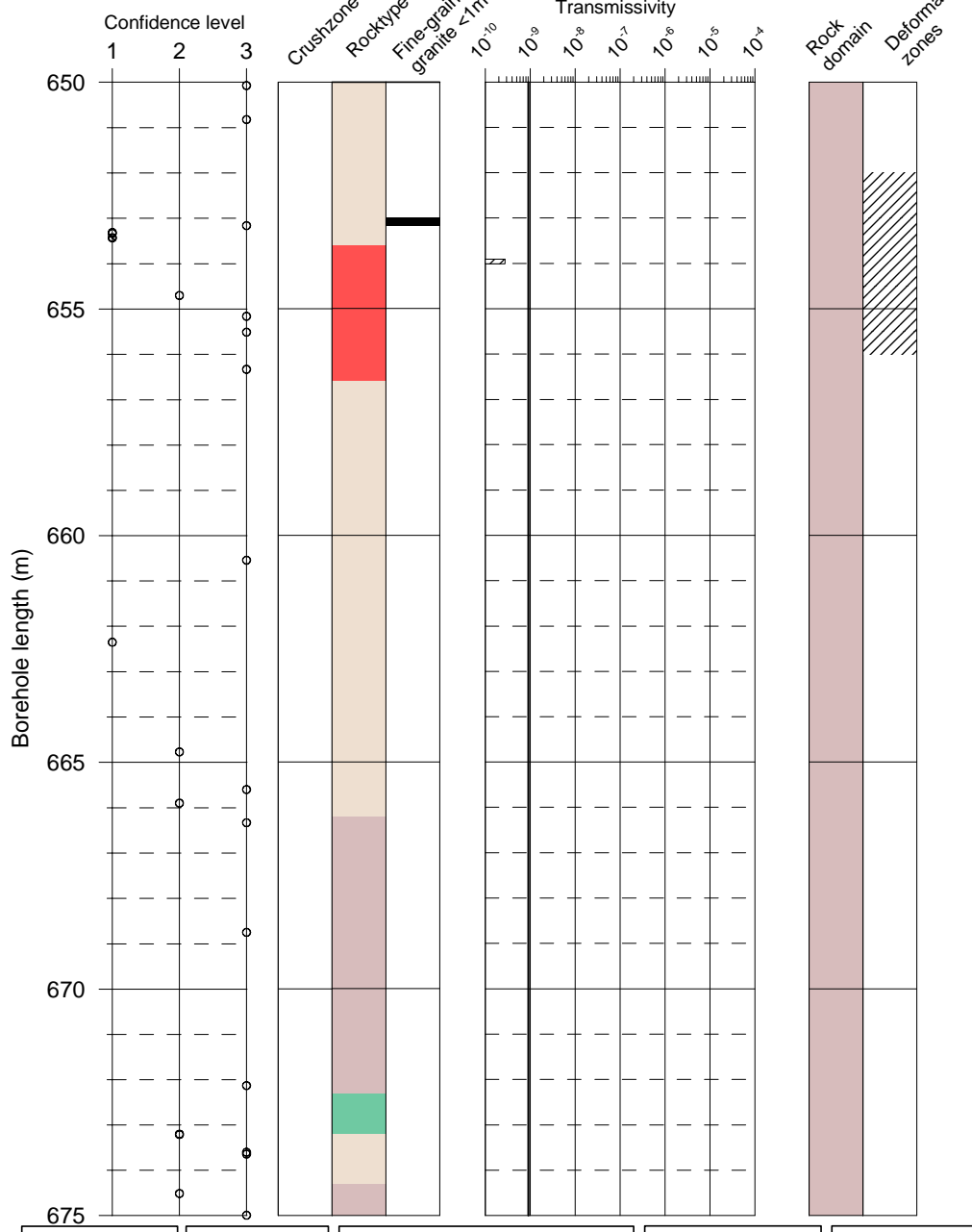
Deformation zones

- ▨ Zone

KFM06A

Boremap

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- Meas lim

Rock domains

- RFM029
- RFM45L

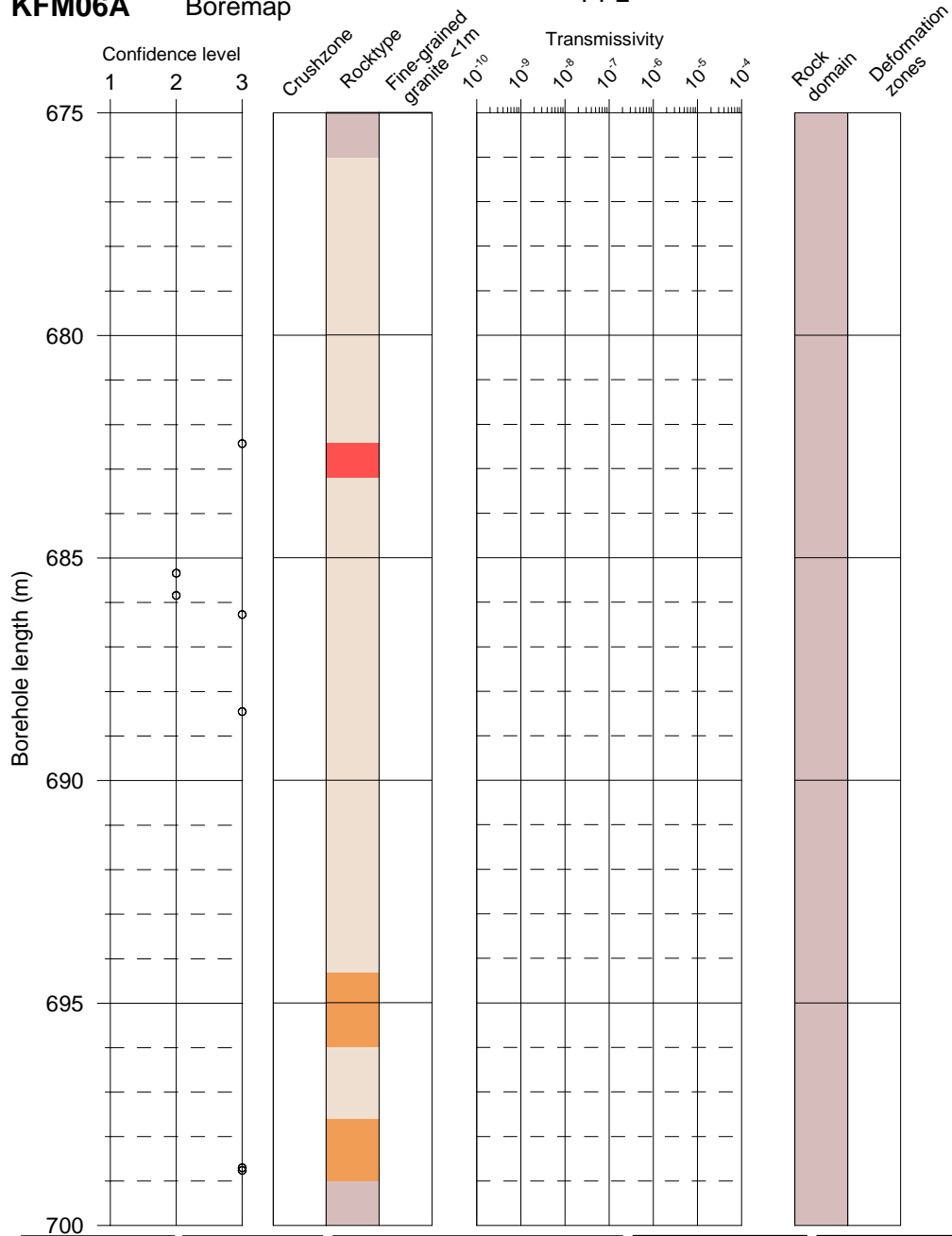
Deformation zones

- ▨ Zone

KFM06A

Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
- Class 3
- Class 4
- Open fracture,
no flow indication

Confidence level
Open fractures

- 1 certain
- 2 probable
- 3 possible

- Fine-grained granite
- Pegmatite
- Granite, granodiorite, tonalite
- Granite to granodiorite
- Amphibolite
- Granodiorite, metamorphic
- Granite, aplitic

PFL-anomaly
Transmissivity

- Certain
- Uncertain
- Meas lim

Rock domains

- RFM029
- RFM45L

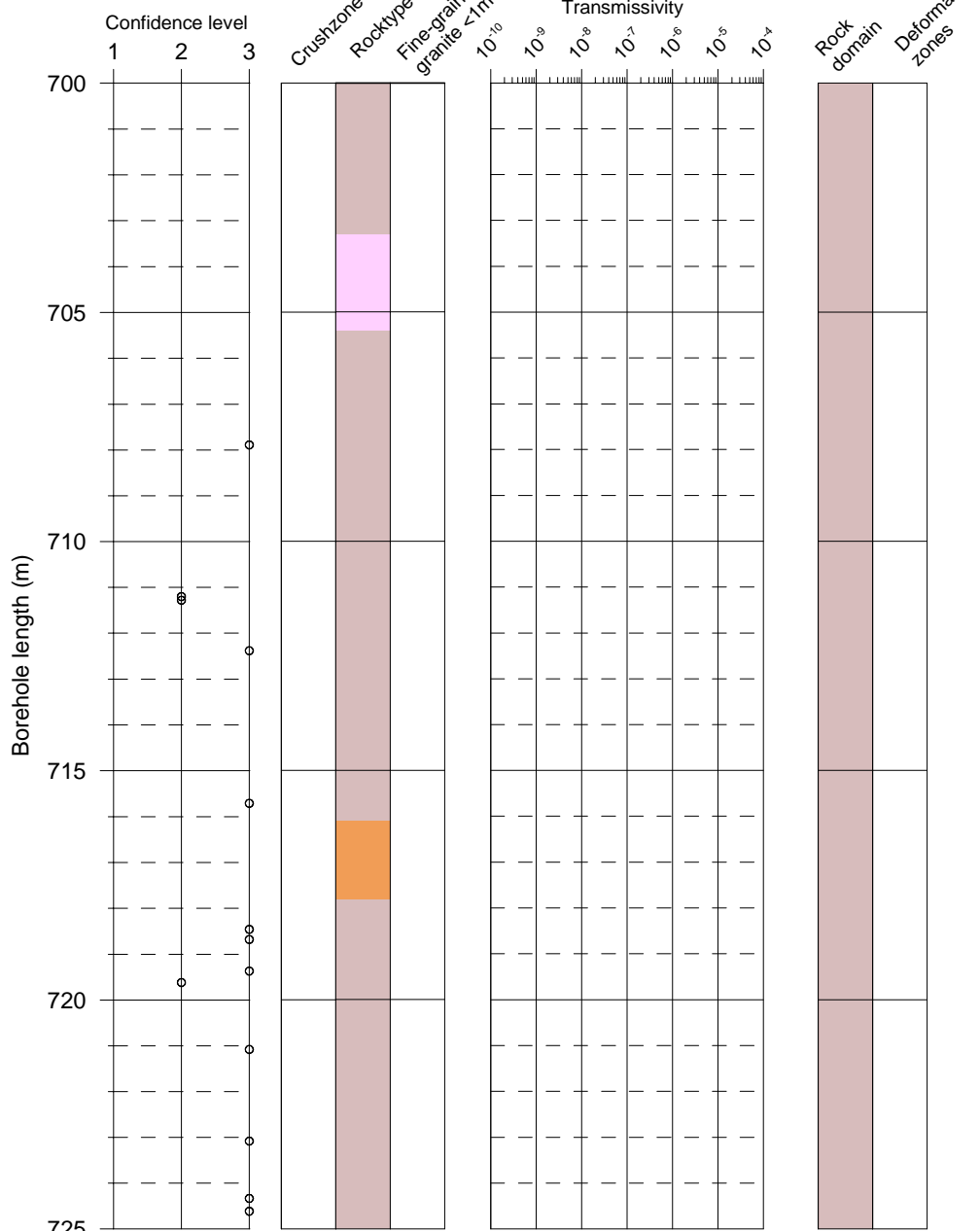
Deformation zones

- Zone

KFM06A

Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
- Class 3
- Class 4
- Open fracture, no flow indication

Confidence level
Open fractures

- 1 certain
- 2 probable
- 3 possible

■ Fine-grained granite
■ Pegmatite
■ Granite, granodiorite, tonalite
■ Granite to granodiorite
■ Amphibolite
■ Granodiorite, metamorphic
■ Granite, aplitic

PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

Rock domains

- RFM029
- RFM45L

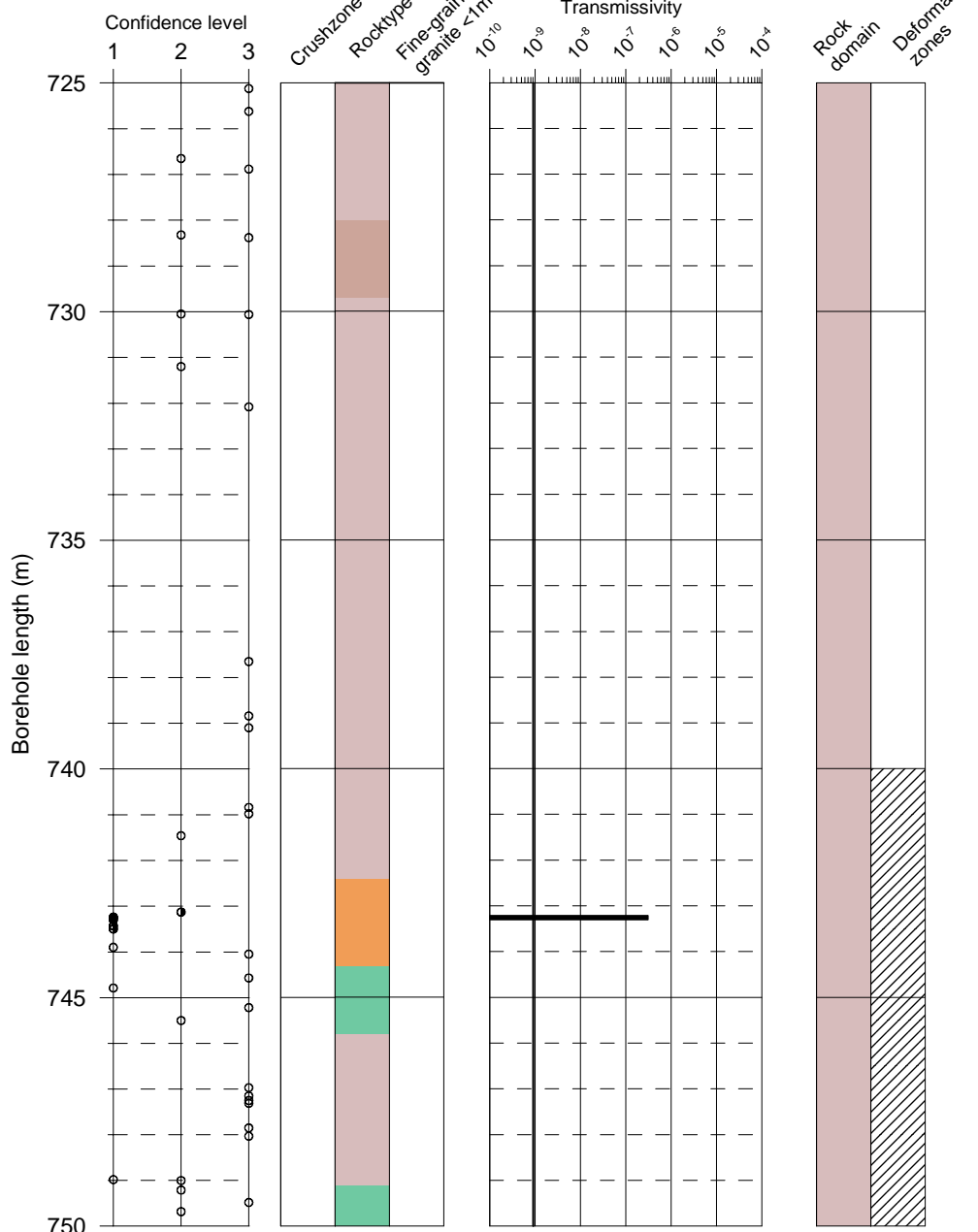
Deformation zones

- ▨ Zone

KFM06A

Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
- Class 3
- Class 4
- Open fracture,
no flow indication

Confidence level
Open fractures

- 1 certain
- 2 probable
- 3 possible

■ Fine-grained granite
■ Pegmatite
■ Granite, granodiorite, tonalite
■ Granite to granodiorite
■ Amphibolite
■ Granodiorite, metamorphic
■ Granite, aplitic

PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

Rock domains

- RFM029
- RFM45L

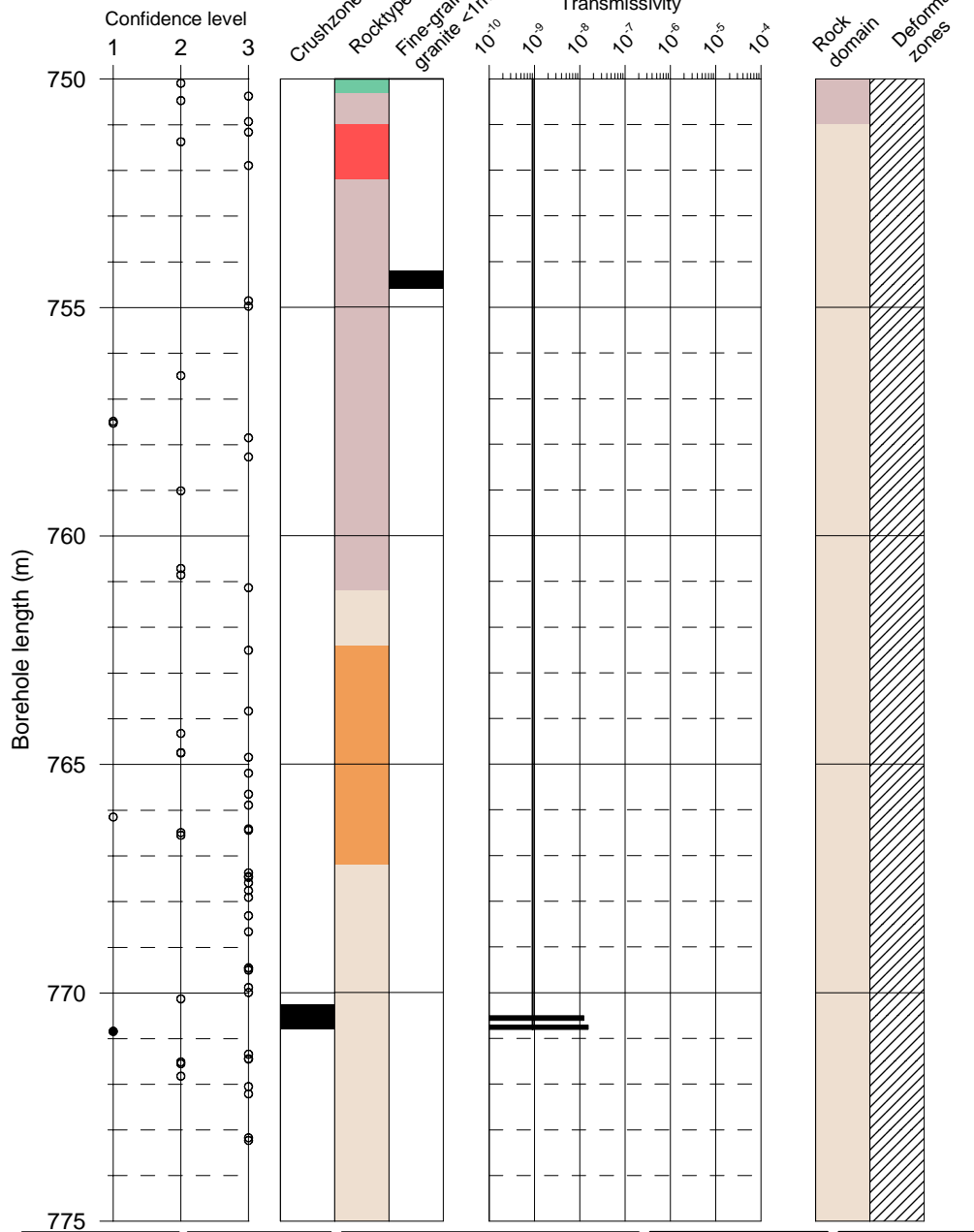
Deformation zones

- ▨ Zone

KFM06A

Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
- Class 3
- Class 4
- Open fracture,
no flow indication

Confidence level
Open fractures

- 1 certain
- 2 probable
- 3 possible

- Fine-grained granite
- Pegmatite
- Granite, granodiorite, tonalite
- Granite to granodiorite
- Amphibolite
- Granodiorite, metamorphic
- Granite, aplitic

PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

Rock domains

- RFM029
- RFM45L

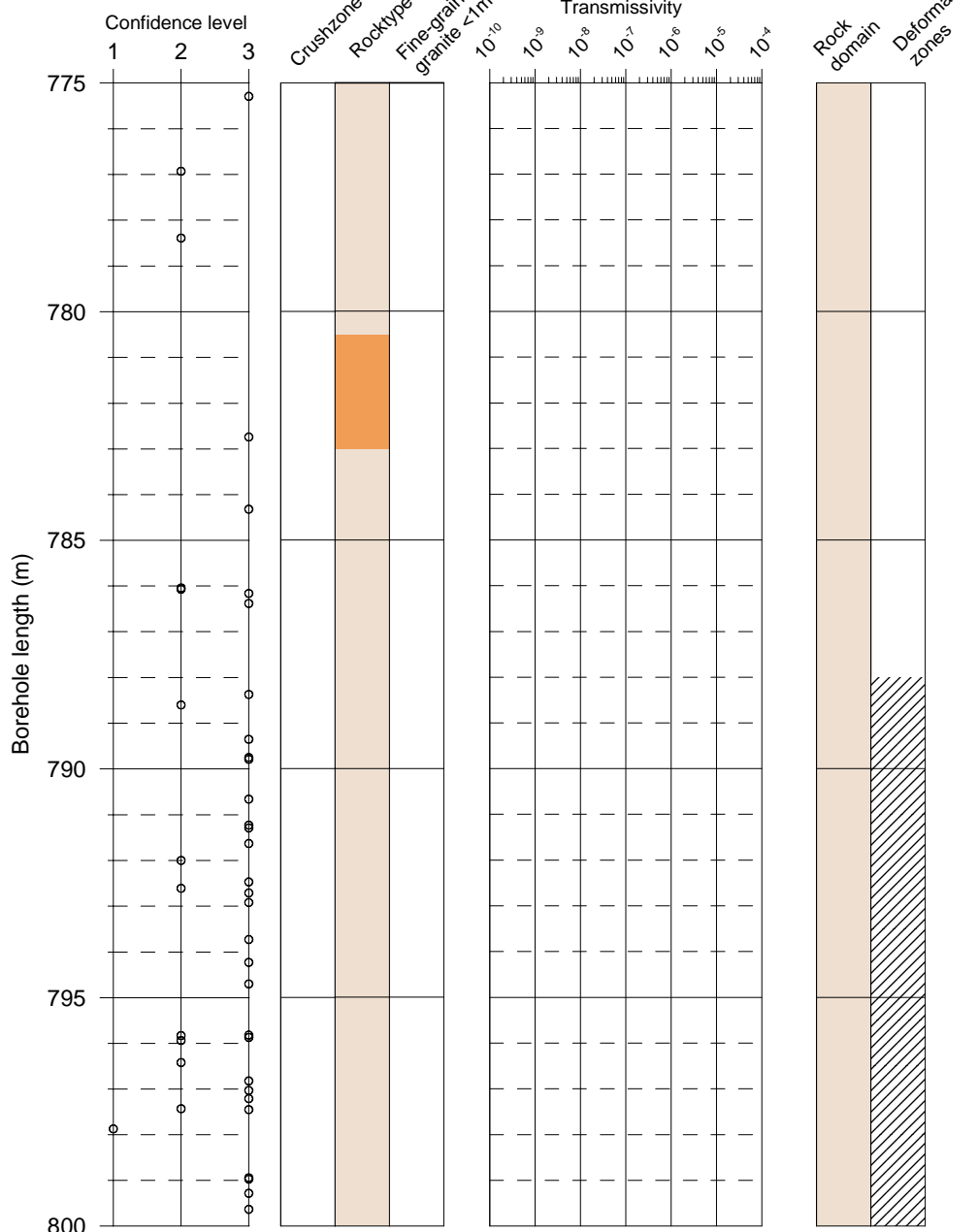
Deformation zones

- ▨ Zone

KFM06A

Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
- Class 3
- Class 4
- Open fracture,
no flow indication

Confidence level
Open fractures

- 1 certain
- 2 probable
- 3 possible

■ Fine-grained granite
■ Pegmatite
■ Granite, granodiorite, tonalite
■ Granite to granodiorite
■ Amphibolite
■ Granodiorite, metamorphic
■ Granite, aplitic

PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

Rock domains

- RFM029
- RFM45L

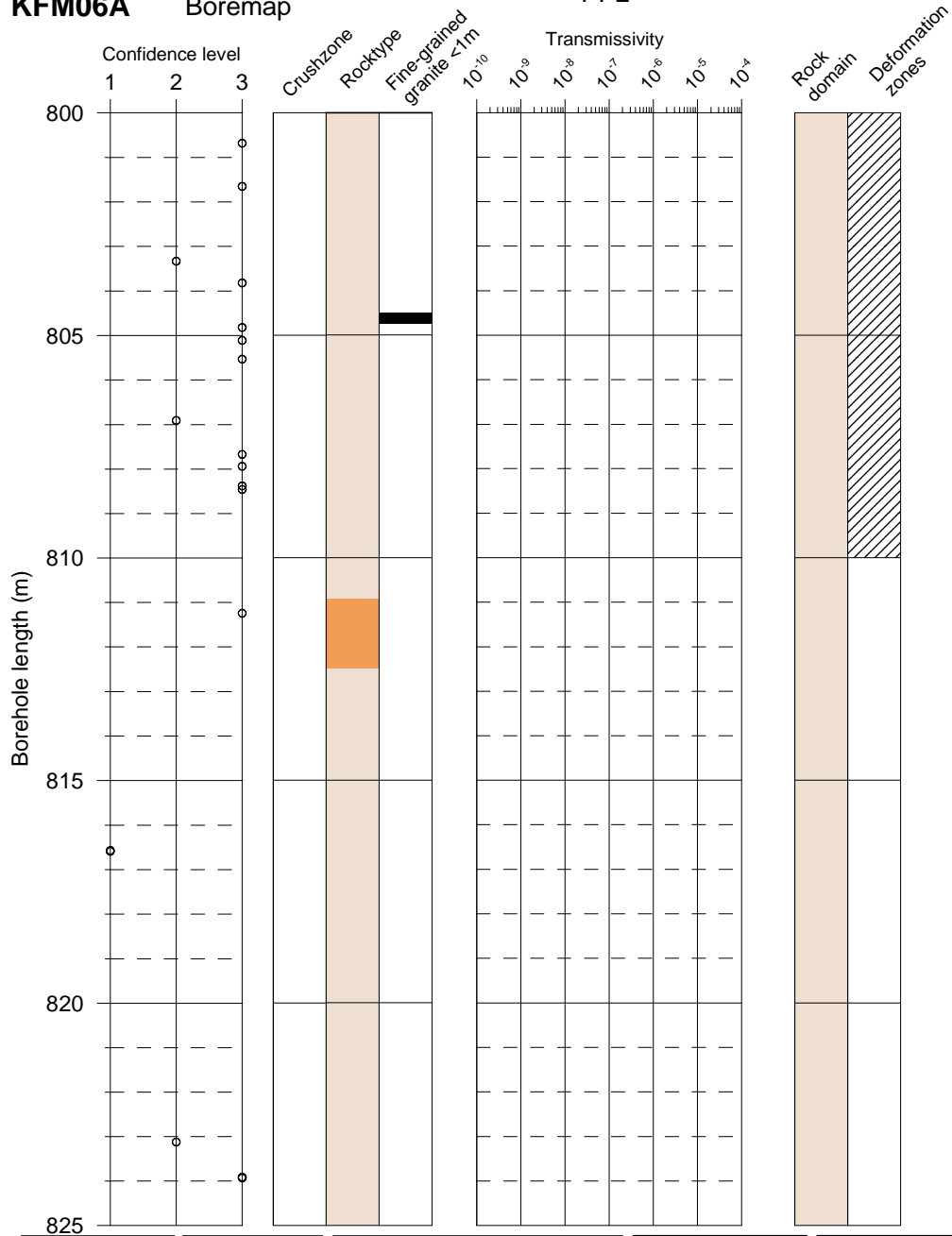
Deformation zones

- ▨ Zone

KFM06A

Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
- Class 3
- Class 4
- Open fracture,
no flow indication

Confidence level
Open fractures

- 1 certain
- 2 probable
- 3 possible

- Fine-grained granite
- Pegmatite
- Granite, granodiorite, tonalite
- Granite to granodiorite
- Amphibolite
- Granodiorite, metamorphic
- Granite, aplitic

PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

Rock domains

- RFM029
- RFM45L

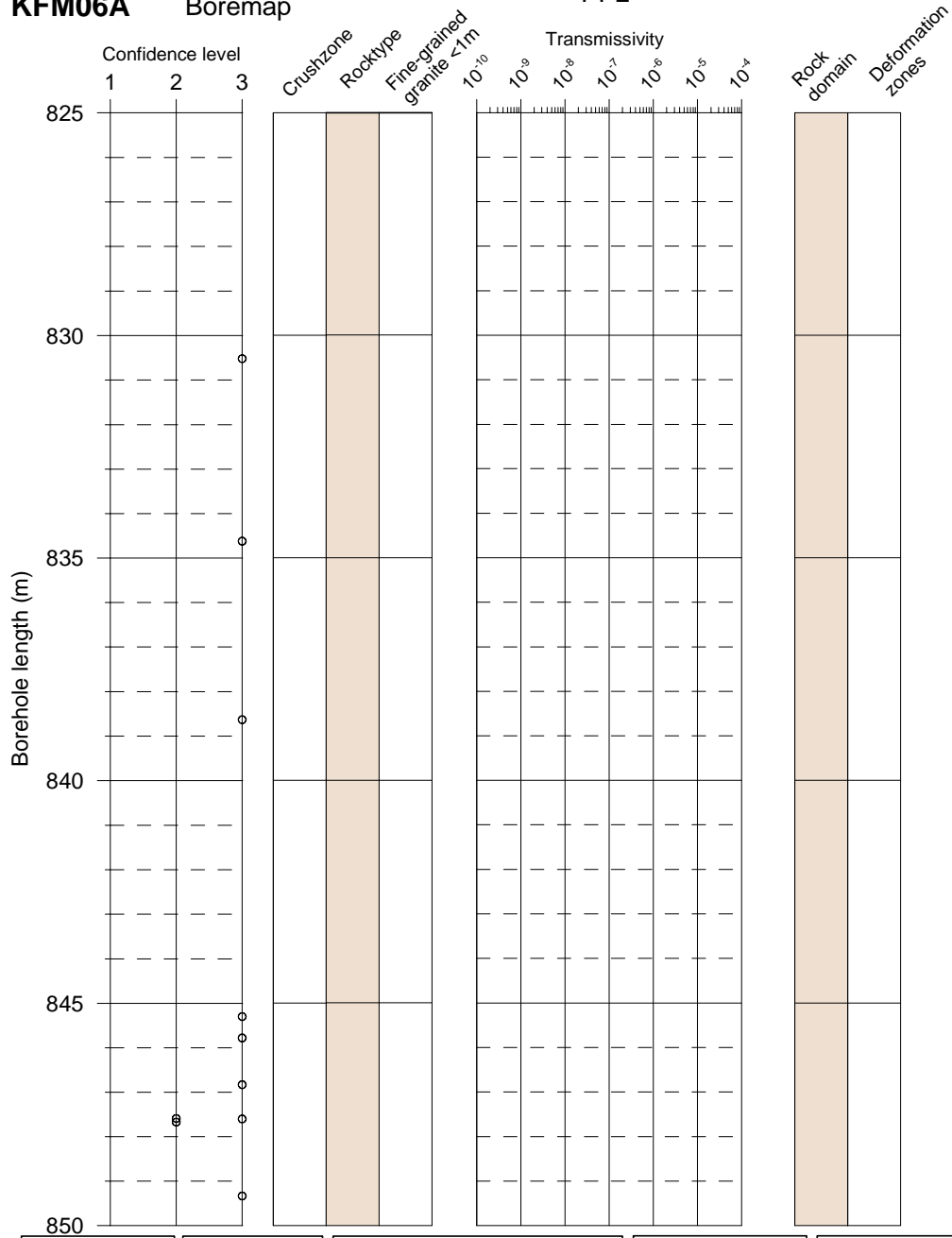
Deformation zones

- ▨ Zone

KFM06A

Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
- Class 3
- Class 4
- Open fracture,
no flow indication

Confidence level
Open fractures

- 1 certain
- 2 probable
- 3 possible

- Fine-grained granite
- Pegmatite
- Granite, granodiorite, tonalite
- Granite to granodiorite
- Amphibolite
- Granodiorite, metamorphic
- Granite, aplitic

PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

Rock domains

- RFM029
- RFM45L

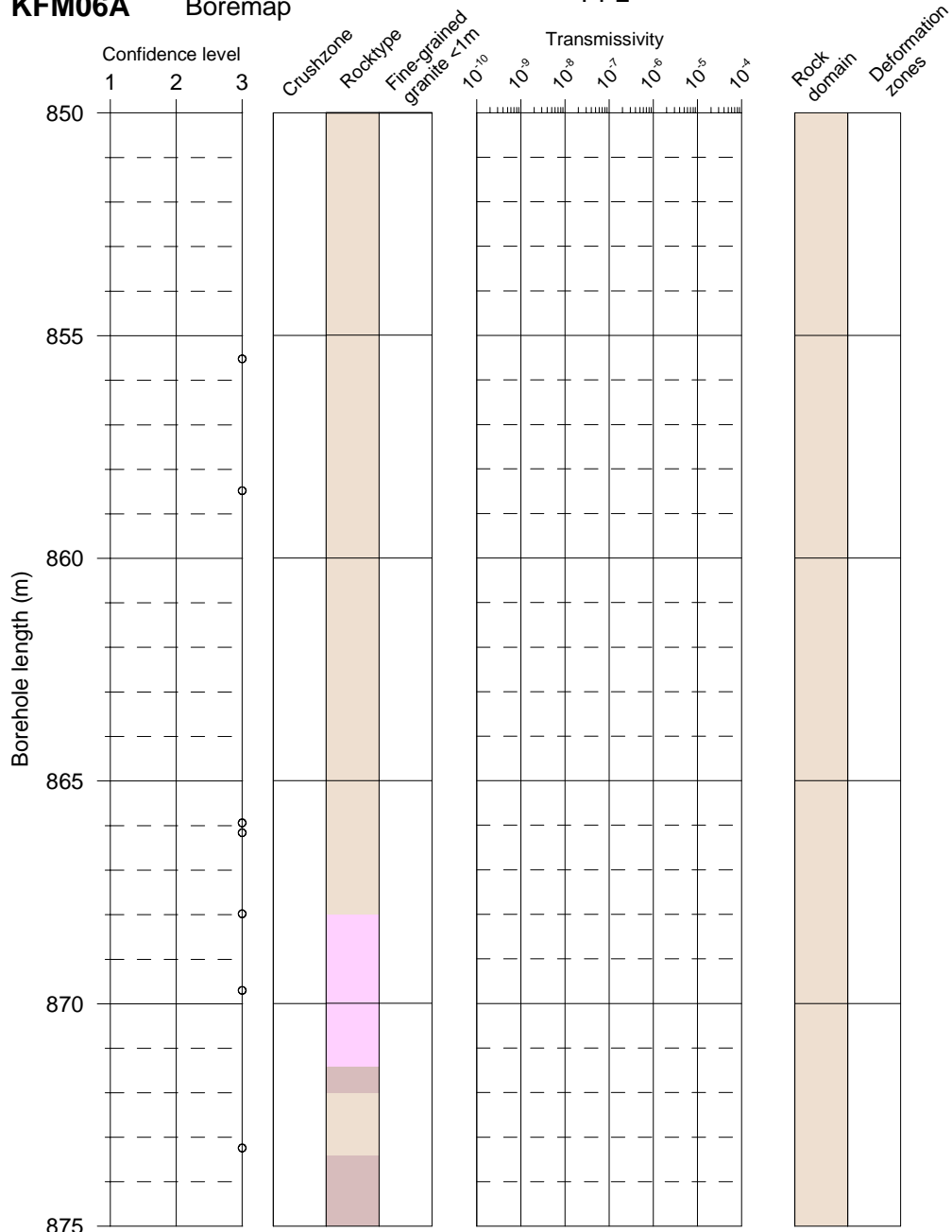
Deformation zones

- ▨ Zone

KFM06A

Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
- Class 3
- Class 4
- Open fracture,
no flow indication

Confidence level
Open fractures

- 1 certain
- 2 probable
- 3 possible

■ Fine-grained granite
■ Pegmatite
■ Granite, granodiorite, tonalite
■ Granite to granodiorite
■ Amphibolite
■ Granodiorite, metamorphic
■ Granite, aplitic

PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

Rock domains

- RFM029
- RFM45L

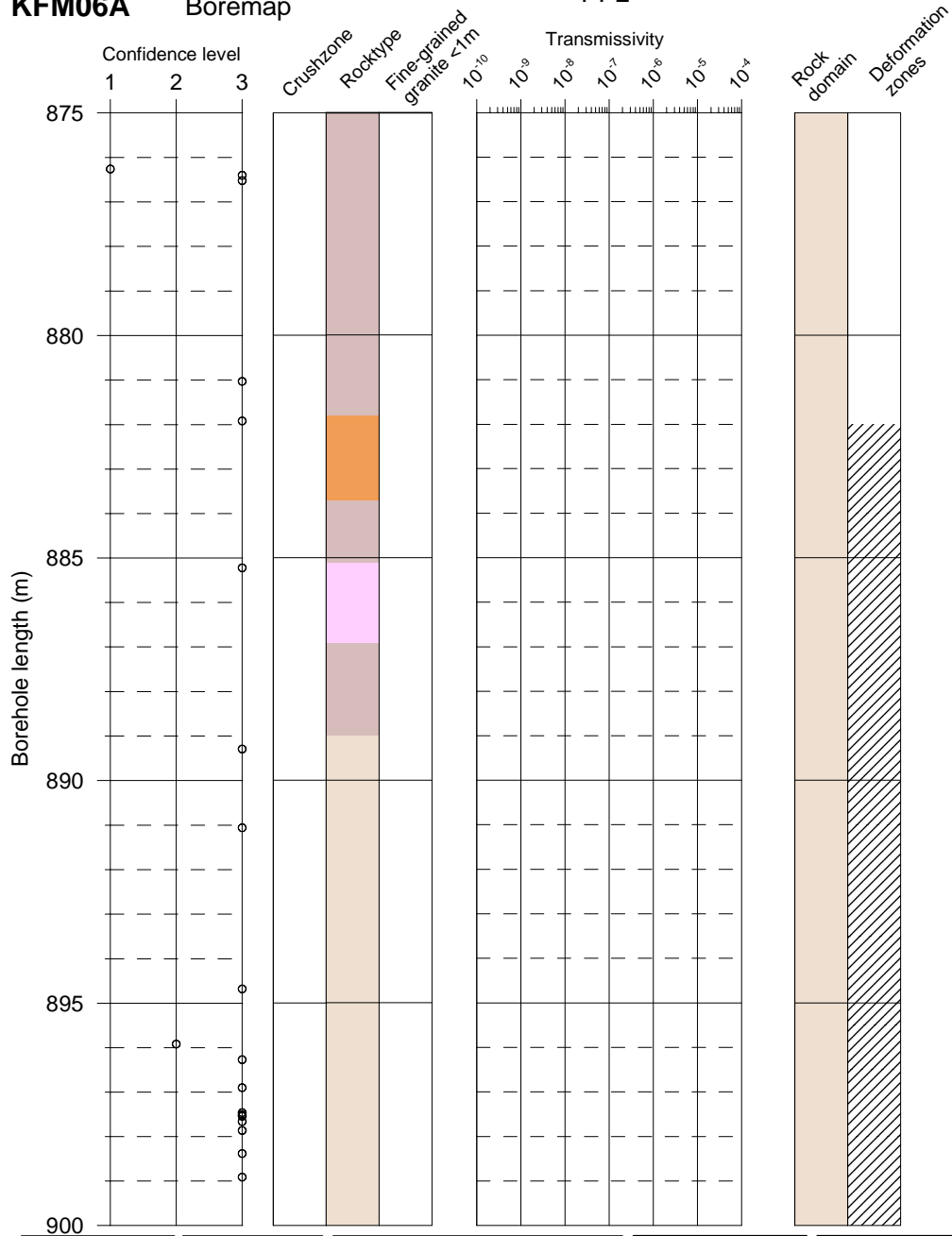
Deformation zones

- ▨ Zone

KFM06A

Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
- Class 3
- Class 4
- Open fracture, no flow indication

Confidence level
Open fractures

- 1 certain
- 2 probable
- 3 possible

Rocktype

- Fine-grained granite
- Pegmatite
- Granite, granodiorite, tonalite
- Granite to granodiorite
- Amphibolite
- Granodiorite, metamorphic
- Granite, aplitic

PFL-anomaly
Transmissivity

- Certain
- Uncertain
- Meas lim

Rock domains

- RFM029
- RFM45L

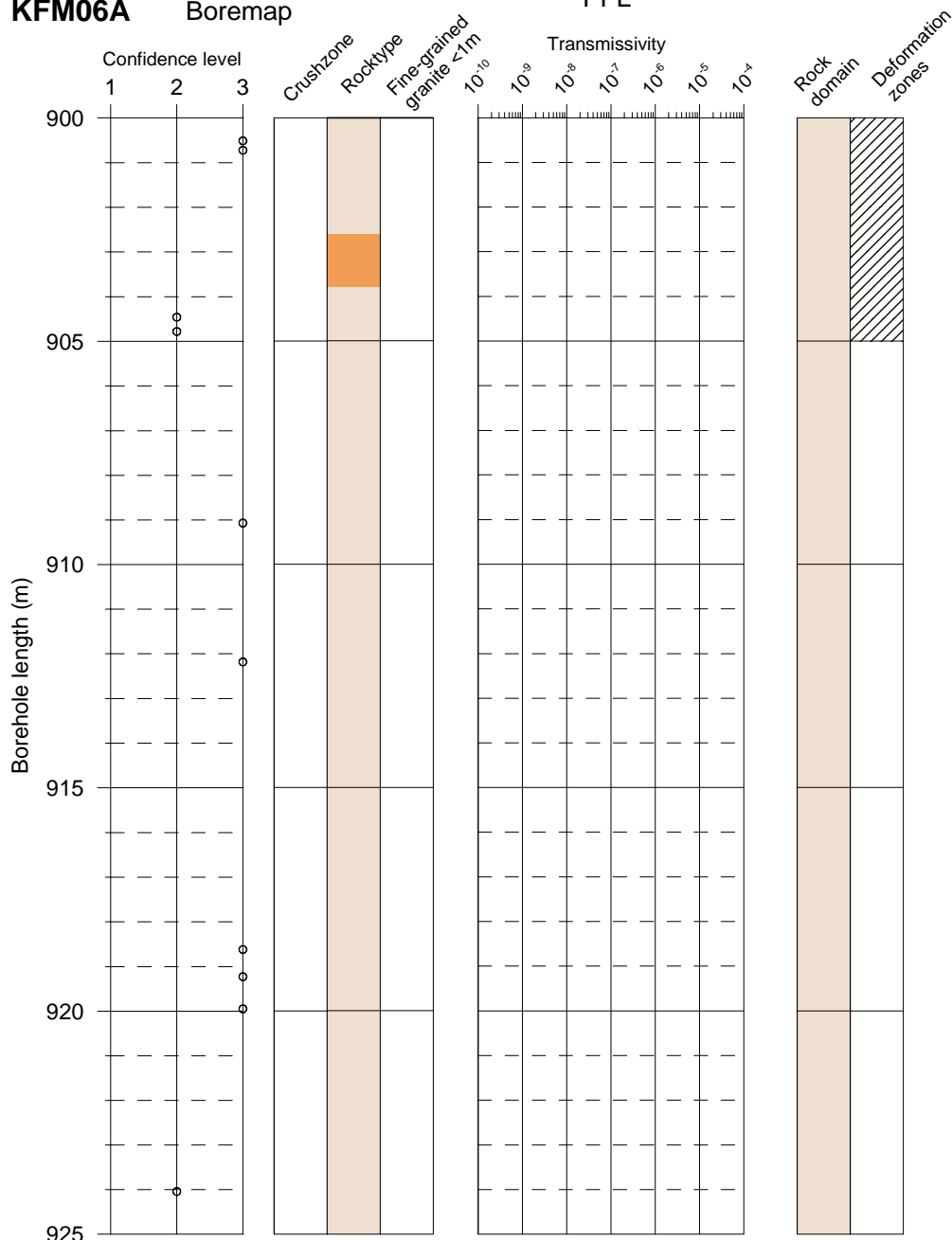
Deformation zones

- Zone

KFM06A

Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
- Class 3
- Class 4
- Open fracture,
no flow indication

Confidence level
Open fractures

- 1 certain
- 2 probable
- 3 possible

■ Fine-grained granite
■ Pegmatite
■ Granite, granodiorite, tonalite
■ Granite to granodiorite
■ Amphibolite
■ Granodiorite, metamorphic
■ Granite, aplitic

PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

Rock domains

- RFM029
- RFM45L

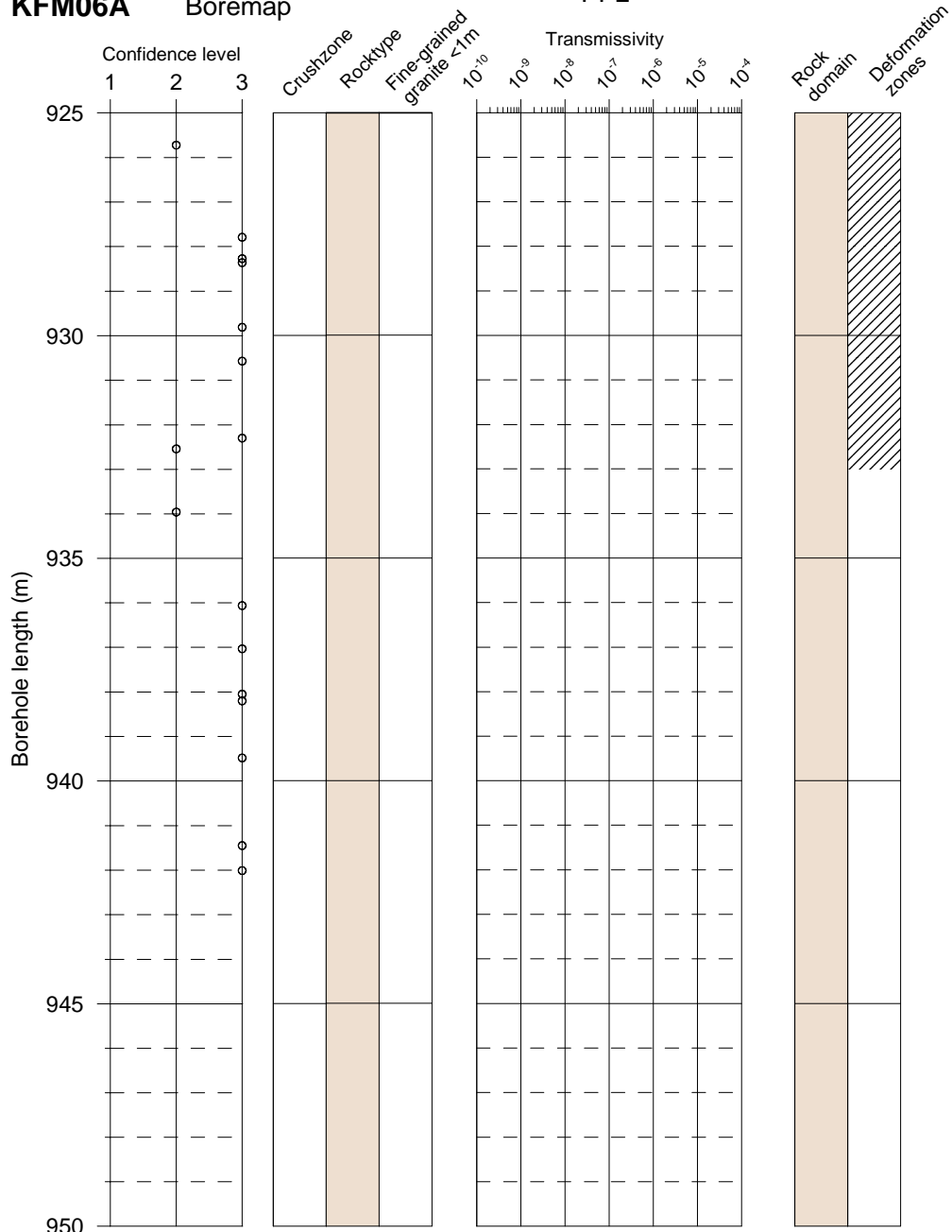
Deformation zones

- ▨ Zone

KFM06A

Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
- Class 3
- Class 4
- Open fracture,
no flow indication

Confidence level
Open fractures

- 1 certain
- 2 probable
- 3 possible

- Fine-grained granite
- Pegmatite
- Granite, granodiorite, tonalite
- Granite to granodiorite
- Amphibolite
- Granodiorite, metamorphic
- Granite, aplitic

PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

Rock domains

- RFM029
- RFM45L

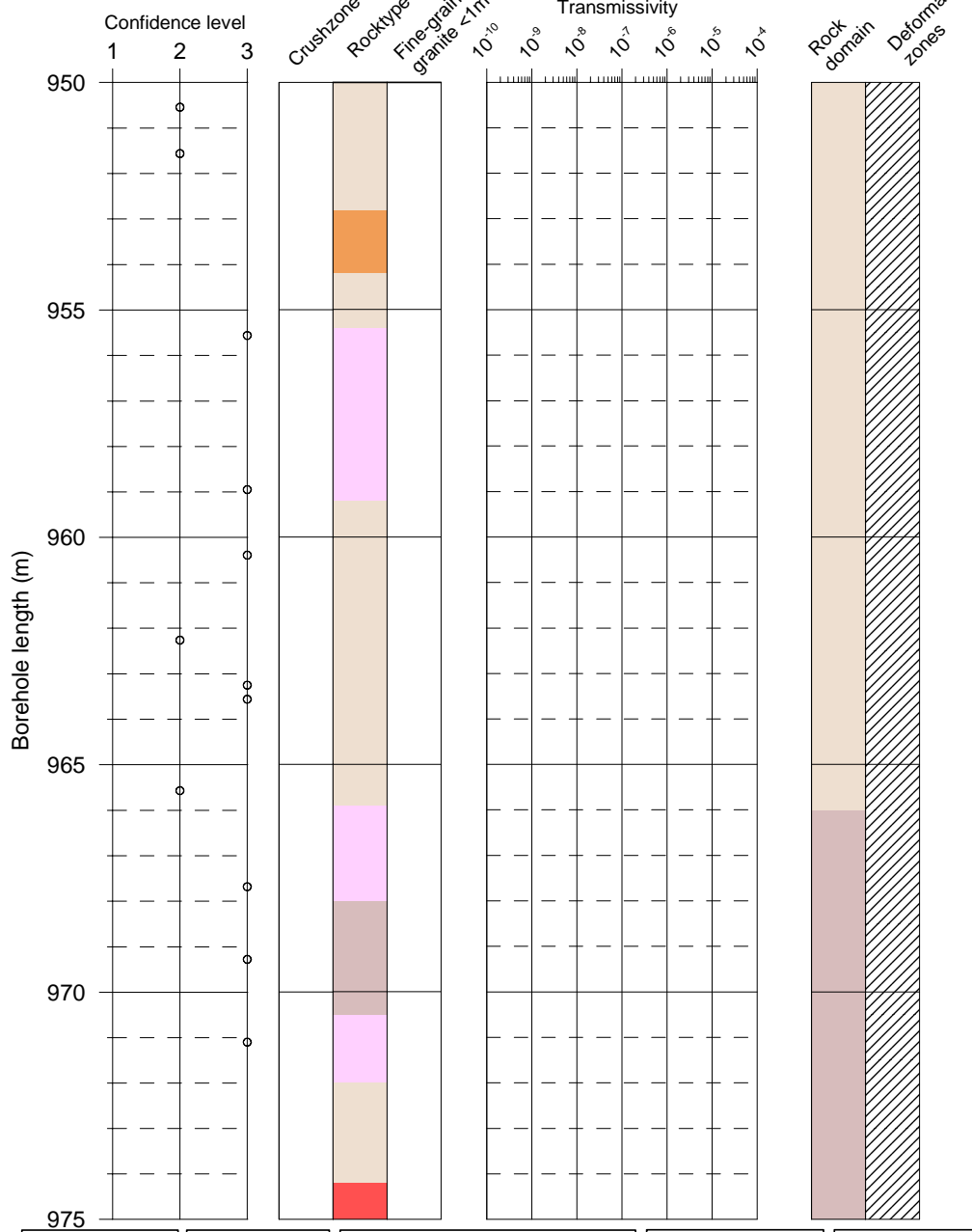
Deformation zones

- ▨ Zone

KFM06A

Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
- Class 3
- Class 4
- Open fracture,
no flow indication

Confidence level
Open fractures

- 1 certain
- 2 probable
- 3 possible

■ Fine-grained granite
■ Pegmatite
■ Granite, granodiorite, tonalite
■ Granite to granodiorite
■ Amphibolite
■ Granodiorite, metamorphic
■ Granite, aplitic

PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

Rock domains

- RFM029
- RFM45L

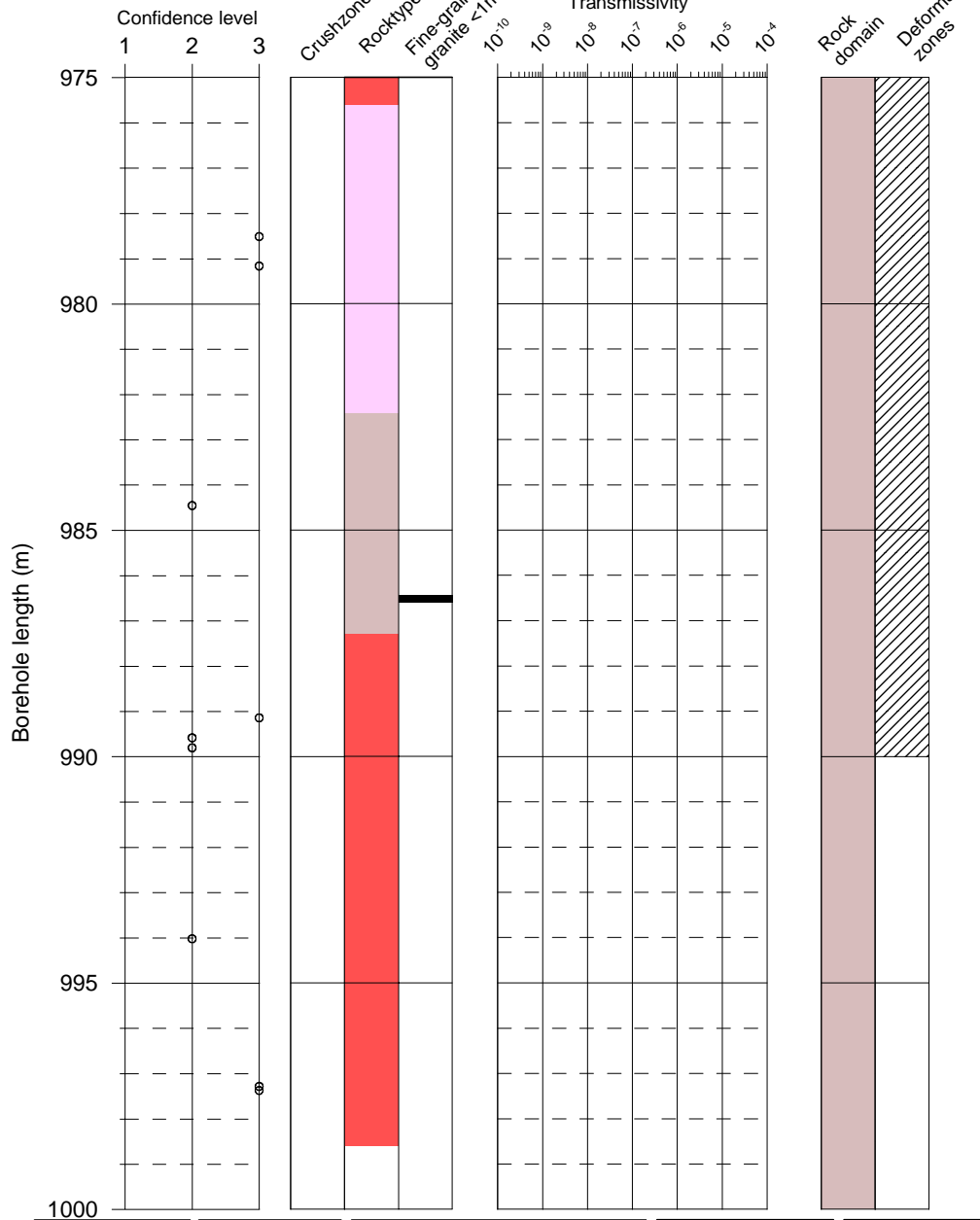
Deformation zones

- ▨ Zone

KFM06A

Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
- Class 3
- Class 4
- Open fracture, no flow indication

Confidence level
Open fractures

- 1 certain
- 2 probable
- 3 possible

- Fine-grained granite
- Pegmatite
- Granite, granodiorite, tonalite
- Granite to granodiorite
- Amphibolite
- Granodiorite, metamorphic
- Granite, aplitic

PFL-anomaly
Transmissivity

- Certain
- Uncertain
- Meas lim

Rock domains

- RFM029
- RFM45L

Deformation zones

- Zone

Table A1-1. KFM06A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|---|--|------------|
| 1 | Bh-length (m) = 102.40 T (m ² /s) = 2.38E-9 PFL confidence = Uncertain | Adjusted secup = 102.21 Frac. interpret / Varcode = open Frac. interp. confidence = Probable PFL-anom. confidence = 2 | |
| 2 | Bh-length (m) = 106.40 T (m ² /s) = 2.69E-9 PFL confidence = Certain | Adjusted secup = 106.25 Frac. interpret / Varcode = open Frac. interp. confidence = Certain PFL-anom. confidence = 2 | |

Table A1-2. KFM06A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|---|--|------------|
| 3a | Bh-length (m) = 109.30 T (m ² /s) = 1.37E-9 PFL confidence = Certain | Adjusted secup = 109.23 Frac. interpret / Varcode = open Frac. interp. confidence = Probable PFL-anom. confidence = 1 | |
| 3b | | Adjusted secup = 109.26 Frac. interpret / Varcode = open Frac. interp. confidence = Probable PFL-anom. confidence = 1 | |
| 3c | | Adjusted secup = 109.36 Frac. interpret / Varcode = open Frac. interp. confidence = Probable PFL-anom. confidence = 1 | |

Table A1-3. KFM06A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|---|--|------------|
| 4a | Bh-length (m) = 110.60 T (m ² /s) = 7.60E-8 PFL confidence = Certain | Adjusted secup = 110.43 Frac. interpret / Varcode = partly open Frac. interp. confidence = Certain PFL-anom. confidence = 2 | |
| 4b | | Adjusted secup = 110.46 Frac. interpret / Varcode = partly open Frac. interp. confidence = Certain PFL-anom. confidence = 2 | |
| 4c | | Adjusted secup = 110.51 Frac. interpret / Varcode = open Frac. interp. confidence = Certain PFL-anom. confidence = 1 | |
| 4d | | Adjusted secup = 110.53 Frac. interpret / Varcode = partly open Frac. interp. confidence = Certain PFL-anom. confidence = 1 | |
| 4e | | Adjusted secup = 110.54 Frac. interpret / Varcode = partly open Frac. interp. confidence = Certain PFL-anom. confidence = 1 | |

| | |
|----|---|
| 4f | Adjusted secup = 110.73 |
| | Frac. interpret / Varcod = partly open |
| | Frac. interp. confidence = Certain |
| | PFL-anom. confidence = 2 |
| 4g | Adjusted secup = 110.74 |
| | Frac. interpret / Varcod = partly open |
| | Frac. interp. confidence = Certain |
| | PFL-anom. confidence = 2 |
| 4h | Adjusted secup = 110.76 |
| | Frac. interpret / Varcod = partly open |
| | Frac. interp. confidence = Certain |
| | PFL-anom. confidence = 2 |
| 4i | Adjusted secup = 110.76 |
| | Frac. interpret / Varcod = open |
| | Frac. interp. confidence = Certain |
| | PFL-anom. confidence = 2 |

Table A1-4. KFM06A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|---|---|------------|
| 5a | <p>Bh-length (m) = 111.50</p> <p>T (m^2/s) = $3.40E-9$</p> <p>PFL confidence = Certain</p> | <p>Adjusted secup = 111.32</p> <p>Frac. interpret / Varcode = partly open</p> <p>Frac. interp. confidence = Certain</p> <p>PFL-anom. confidence = 2</p> | |
| 5b | | <p>Adjusted secup = 111.42</p> <p>Frac. interpret / Varcode = partly open</p> <p>Frac. interp. confidence = Certain</p> <p>PFL-anom. confidence = 1</p> | |
| 5c | | <p>Adjusted secup = 111.45</p> <p>Frac. interpret / Varcode = open</p> <p>Frac. interp. confidence = Certain</p> <p>PFL-anom. confidence = 1</p> | |

Table A1-5. KFM07A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|---|---|------------|
| 6a | Bh-length (m) = 113.60 T (m ² /s) = 3.13E-9 PFL confidence = Certain | Adjusted secup = 113.58 Frac. interpret / Varcode = partly open Frac. interp. confidence = Possible PFL-anom. confidence = 1 | |
| 6b | | Adjusted secup = 113.59 Frac. interpret / Varcode = open Frac. interp. confidence = Certain PFL-anom. confidence = 1 | |
| 6c | | Adjusted secup = 113.73 Frac. interpret / Varcode = partly open Frac. interp. confidence = Possible PFL-anom. confidence = 2 | |

Table A1-6. KFM06A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|---|--|------------|
| 7 | Bh-length (m) = 115.40 T (m ² /s) = 6.85E-9 PFL confidence = Certain | Adjusted secup = 115.28 Frac. interpret / Varcod = open Frac. interp. confidence = Certain PFL-anom. confidence = 2 | |
| 8 | Bh-length (m) = 116.40 T (m ² /s) = 3.90E-8 PFL confidence = Certain | Adjusted secup = 116.32 Frac. interpret / Varcod = open Frac. interp. confidence = Certain PFL-anom. confidence = 1 | |

Table A1-7. KFM06A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|---|---|------------|
| 9a | Bh-length (m) = 116.90 T (m ² /s) = 2.53E-7 PFL confidence = Certain | Adjusted secup = 116.75 Frac. interpret / Varcode = partly open Frac. interp. confidence = Possible PFL-anom. confidence = 2 | |
| 9b | | Adjusted secup = 116.75 Frac. interpret / Varcode = open Frac. interp. confidence = Certain PFL-anom. confidence = 2 | |
| 9c | | Adjusted secup = 116.83 Frac. interpret / Varcode = open Frac. interp. confidence = Certain PFL-anom. confidence = 1 | |
| 9d | | Adjusted secup = 116.87 Frac. interpret / Varcode = open Frac. interp. confidence = Probable PFL-anom. confidence = 1 | |

Table A1-8. KFM06A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|---|---|------------|
| 10 | <p>Bh-length (m) = 123.10</p> <p>T (m²/s) = 1.70E-9</p> <p>PFL confidence = Uncertain</p> | <p>Adjusted secup = 123.11</p> <p>Frac. interpret / Varcod = open</p> <p>Frac. interp. confidence = Certain</p> <p>PFL-anom. confidence = 1</p> | |
| 11 | <p>Bh-length (m) = 126.00</p> <p>T (m²/s) = 7.31E-6</p> <p>PFL confidence = Certain</p> | <p>Adjusted secup = 125.98</p> <p>Frac. interpret / Varcod = open</p> <p>Frac. interp. confidence = Certain</p> <p>PFL-anom. confidence = 1</p> | |

Table A1-9. KFM06A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|---|---|------------|
| 12 | <p>Bh-length (m) = 126.90</p> <p>$T (m^2/s) = 4.30E-7$</p> <p>PFL confidence = Certain</p> | <p>Adjusted secup = 126.90</p> <p>Frac. interpret / Varcod = open</p> <p>Frac. interp. confidence = Certain</p> <p>PFL-anom. confidence = 1</p> | |
| 13a | <p>Bh-length (m) = 128.50</p> <p>$T (m^2/s) = 4.94E-6$</p> <p>PFL confidence = Certain</p> | <p>Adjusted secup = 128.39</p> <p>Frac. interpret / Varcod = open</p> <p>Frac. interp. confidence = Certain</p> <p>PFL-anom. confidence = 2</p> | |
| 13b | | <p>Adjusted secup = 128.39</p> <p>Frac. interpret / Varcod = open</p> <p>Frac. interp. confidence = Certain</p> <p>PFL-anom. confidence = 2</p> | |
| 13c | | <p>Adjusted secup = 128.41</p> <p>Frac. interpret / Varcod = open</p> | |

13d

Frac. interp. confidence =
Certain

PFL-anom. confidence =
1

Adjusted secup =
128.45

Frac. interpret / Varcodes =
open

Frac. interp. confidence =
Probable

PFL-anom. confidence =
1

Table A1-10. KFM06A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|---|---|------------|
| 14a | Bh-length (m) = 128.90 T (m ² /s) = 7.69E-7 PFL confidence = Uncertain | Adjusted secup = 128.83 Frac. interpret / Varcode = partly open Frac. interp. confidence = Possible PFL-anom. confidence = 1 | |
| 14b | | Adjusted secup = 128.84 Frac. interpret / Varcode = open Frac. interp. confidence = Certain PFL-anom. confidence = 1 | |
| 14c | | Adjusted secup = 128.88 Frac. interpret / Varcode = partly open Frac. interp. confidence = Possible PFL-anom. confidence = 1 | |
| 14d | | Adjusted secup = 128.89 Frac. interpret / Varcode = open Frac. interp. confidence = Probable PFL-anom. confidence = 1 | |

Table A1-11. KFM06A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|---|--|------------|
| 15a | Bh-length (m) = 129.40 T (m ² /s) = 5.69E-6 PFL confidence = Uncertain | Adjusted secup = 129.29 Frac. interpret / Varcode = open Frac. interp. confidence = Probable PFL-anom. confidence = 2 | |
| 15b | | Adjusted secup = 129.32 Frac. interpret / Varcode = open Frac. interp. confidence = Certain PFL-anom. confidence = 1 | |
| 15c | | Adjusted secup = 129.33 Frac. interpret / Varcode = open Frac. interp. confidence = Certain PFL-anom. confidence = 1 | |
| 15d | | Adjusted secup = 129.33 Frac. interpret / Varcode = open Frac. interp. confidence = Certain PFL-anom. confidence = 1 | |
| 15e | | Adjusted secup = 129.42 Frac. interpret / Varcode = open Frac. interp. confidence = Certain PFL-anom. confidence = 1 | |

15f

Adjusted secup =
129.47

Frac. interpret / Varcod =
open

Frac. interp. confidence =
Possible

PFL-anom. confidence =
1

Table A1-12. KFM06A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|---|--|------------|
| 16a | Bh-length (m) = 130.30 T (m ² /s) = 1.93E-5 PFL confidence = Certain | Adjusted secup = 130.13 Frac. interpret / Varcod = open Frac. interp. confidence = Possible PFL-anom. confidence = 2 | |
| 16b | | Adjusted secup = 130.23 Frac. interpret / Varcod = open Frac. interp. confidence = Certain PFL-anom. confidence = 1 | |
| 16c | | Adjusted secup = 130.25 Frac. interpret / Varcod = partly open Frac. interp. confidence = Certain PFL-anom. confidence = 1 | |
| 16d | | Adjusted secup = 130.27 Adjusted seclow = 130.32 Frac. interpret / Varcod = crush zone Frac. interp. confidence = Certain PFL-anom. confidence = 1 | |
| 16e | | Adjusted secup = 130.29 Frac. interpret / Varcod = open Frac. interp. confidence = Certain PFL-anom. confidence = 1 | |

Table A1-13. KFM06A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|---|--|------------|
| 17a | Bh-length (m) = 131.70 T (m ² /s) = 1.34E-7 PFL confidence = Uncertain | Adjusted secup = 131.65 Frac. interpret / Varcod = open Frac. interp. confidence = Certain PFL-anom. confidence = 1 | |
| 17b | | Adjusted secup = 131.77 Frac. interpret / Varcod = open Frac. interp. confidence = Possible PFL-anom. confidence = 1 | |
| 17c | | Adjusted secup = 131.87 Frac. interpret / Varcod = open Frac. interp. confidence = Certain PFL-anom. confidence = 2 | |
| 17d | | Adjusted secup = 131.87 Frac. interpret / Varcod = partly open Frac. interp. confidence = Possible PFL-anom. confidence = 2 | |
| | | Same fracture as no 18a | |
| | | Same fracture as no 18b | |

Table A1-14. KFM06A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|---|---|------------|
| 18a | Bh-length (m) = 132.00 T (m ² /s) = 8.33E-7 PFL confidence = Certain | Adjusted secup = 131.87 Frac. interpret / Varcode = open Frac. interp. confidence = Certain PFL-anom. confidence = 2 Same fracture as no 17c | |
| 18b | | Adjusted secup = 131.87 Frac. interpret / Varcode = partly open Frac. interp. confidence = Possible PFL-anom. confidence = 2 Same fracture as no 17d | |

Table A1-15. KFM06A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|---|--|------------|
| 19a | Bh-length (m) = 135.00 T (m ² /s) = 3.30E-7 PFL confidence = Uncertain | Adjusted secup = 134.99 Frac. interpret / Varcode = open Frac. interp. confidence = Probable PFL-anom. confidence = 1 | |
| 19b | | Adjusted secup = 135.00 Frac. interpret / Varcode = open Frac. interp. confidence = Certain PFL-anom. confidence = 1 | |
| 19c | | Adjusted secup = 135.16 Frac. interpret / Varcode = open Frac. interp. confidence = Certain PFL-anom. confidence = 2 | |

Table A1-16. KFM06A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|---|---|------------|
| 20a | Bh-length (m) = 135.40 T (m ² /s) = 6.33E-6 PFL confidence = Certain | Adjusted secup = 135.30 Frac. interpret / Varcode = open Frac. interp. confidence = Certain PFL-anom. confidence = 1 | |
| 20b | | Adjusted secup = 135.31 Frac. interpret / Varcode = open Frac. interp. confidence = Certain PFL-anom. confidence = 1 | |
| 20c | | Adjusted secup = 135.40 Frac. interpret / Varcode = open Frac. interp. confidence = Certain PFL-anom. confidence = 1 | |
| 20d | | Adjusted secup = 135.40 Frac. interpret / Varcode = open Frac. interp. confidence = Certain PFL-anom. confidence = 1 | |
| 20e | | Adjusted secup = 135.41 Frac. interpret / Varcode = partly open Frac. interp. confidence = Possible PFL-anom. confidence = 1 | |

| | |
|-----|--|
| 20f | Adjusted secup = 135.46 Frac. interpret / Varcod = open Frac. interp. confidence = Possible PFL-anom. confidence = 1 |
| 20g | Adjusted secup = 135.47 Frac. interpret / Varcod = open Frac. interp. confidence = Possible PFL-anom. confidence = 1 |
| 20h | Adjusted secup = 135.53 Frac. interpret / Varcod = partly open Frac. interp. confidence = Possible PFL-anom. confidence = 2 |

Table A1-17. KFM06A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|---|---|------------|
| 21a | Bh-length (m) = 136.10 T (m ² /s) = 1.51E-8 PFL confidence = Certain | Adjusted secup = 135.98 Frac. interpret / Varcod = open Frac. interp. confidence = Probable PFL-anom. confidence = 2 | |
| 21b | | Adjusted secup = 136.06 Frac. interpret / Varcod = open Frac. interp. confidence = Possible PFL-anom. confidence = 1 | |
| 21c | | Adjusted secup = 136.19 Frac. interpret / Varcod = open Frac. interp. confidence = Possible PFL-anom. confidence = 1 | |
| | | Same fracture as no 22a | |
| 21d | | Adjusted secup = 136.24 Frac. interpret / Varcod = open Frac. interp. confidence = Probable PFL-anom. confidence = 2 | |
| | | Same fracture as no 22b | |
| 21e | | Adjusted secup = 136.25 Frac. interpret / Varcod = open Frac. interp. confidence = Probable | |

PFL-anom. confidence =
2

Same fracture as no 22c

21f

Adjusted secup =
136.26

Frac. interpret / Varcod =
partly open

Frac. interp. confidence =
Possible

PFL-anom. confidence =
2

Same fracture as no 22d

Table A1-18. KFM06A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|---|---|------------|
| 22a | Bh-length (m) = 136.30 T (m ² /s) = 8.20E-9 PFL confidence = Uncertain | Adjusted secup = 136.19 Frac. interpret / Varcode = open Frac. interp. confidence = Possible PFL-anom. confidence = 2 Same fracture as no 21c | |
| 22b | | Adjusted secup = 136.24 Frac. interpret / Varcode = open Frac. interp. confidence = Probable PFL-anom. confidence = 1 Same fracture as no 21d | |
| 22c | | Adjusted secup = 136.25 Frac. interpret / Varcode = open Frac. interp. confidence = Probable PFL-anom. confidence = 1 Same fracture as no 21e | |
| 22d | | Adjusted secup = 136.26 Frac. interpret / Varcode = partly open Frac. interp. confidence = Possible PFL-anom. confidence = 1 Same fracture as no 21f | |

Table A1-19. KFM06A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|--|--|---|
| 23 | Bh-length (m) = 138.30 T (m ² /s) = 9.48E-10 PFL confidence = Certain | Adjusted secup = 138.22 Frac. interpret / Varcod = open Frac. interp. confidence = Certain PFL-anom. confidence = 1 | <p>The BIPS image displays a vertical borehole profile. The left side features depth markers in red, ranging from 137.774 at the top to 138.660 at the bottom. The top of the image is labeled with 'D', 'L', 'U', 'R', and 'D'. A black arrow points to a depth level of approximately 138.22. On the right side, there is a scale bar labeled '0.2728 1mm'.</p> |

Table A1-20. KFM06A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|---|---|------------|
| 24a | Bh-length (m) = 140.60 T (m ² /s) = 1.58E-7 PFL confidence = Certain | Adjusted secup = 140.59 Frac. interpret / Varcod = open Frac. interp. confidence = Certain PFL-anom. confidence = 1 | |
| 24b | | Adjusted secup = 140.66 Frac. interpret / Varcod = open Frac. interp. confidence = Probable PFL-anom. confidence = 1 | |
| 24c | | Adjusted secup = 140.72 Frac. interpret / Varcod = open Frac. interp. confidence = Probable PFL-anom. confidence = 2 | |

Table A1-21. KFM06A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|---|--|------------|
| 25a | Bh-length (m) = 142.50 T (m ² /s) = 6.57E-8 PFL confidence = Certain | Adjusted secup = 142.39 Frac. interpret / Varcode = open Frac. interp. confidence = Certain PFL-anom. confidence = 2 | |
| 25b | | Adjusted secup = 142.66 Frac. interpret / Varcode = open Frac. interp. confidence = Probable PFL-anom. confidence = 2 | |
| 26a | Bh-length (m) = 143.00 T (m ² /s) = 2.55E-7 PFL confidence = Certain | Adjusted secup = 142.95 Frac. interpret / Varcode = open Frac. interp. confidence = Certain PFL-anom. confidence = 1 | |
| 26b | | Adjusted secup = 143.06 Frac. interpret / Varcode = open Frac. interp. confidence = Probable PFL-anom. confidence = 1 | |

Table A1-22. KFM06A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|---|--|------------|
| 27a | Bh-length (m) = 144.60 T (m ² /s) = 2.69E-8 PFL confidence = Certain | Adjusted secup = 144.43 Frac. interpret / Varcode = partly open Frac. interp. confidence = Certain PFL-anom. confidence = 2 | |
| 27b | | Adjusted secup = 144.59 Frac. interpret / Varcode = partly open Frac. interp. confidence = Certain PFL-anom. confidence = 1 | |
| 27c | | Adjusted secup = 144.62 Frac. interpret / Varcode = open Frac. interp. confidence = Certain PFL-anom. confidence = 1 | |

Table A1-23. KFM06A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|---|--|------------|
| 28a | Bh-length (m) = 145.10 T (m ² /s) = 7.16E-8 PFL confidence = Certain | Adjusted secup = 144.92 Frac. interpret / Varcode = partly open Frac. interp. confidence = Certain PFL-anom. confidence = 2 | |
| 28b | | Adjusted secup = 144.99 Frac. interpret / Varcode = partly open Frac. interp. confidence = Certain PFL-anom. confidence = 2 | |
| 28c | | Adjusted secup = 145.06 Frac. interpret / Varcode = open Frac. interp. confidence = Certain PFL-anom. confidence = 1 | |
| 28d | | Adjusted secup = 145.14 Frac. interpret / Varcode = open Frac. interp. confidence = Certain PFL-anom. confidence = 1 | |
| 28e | | Adjusted secup = 145.30 Frac. interpret / Varcode = open Frac. interp. confidence = Certain PFL-anom. confidence = 2 | |

Same fracture as no 29a

Table A1-24. KFM06A. Interpretation of PFL-measurements and BOREMAP data

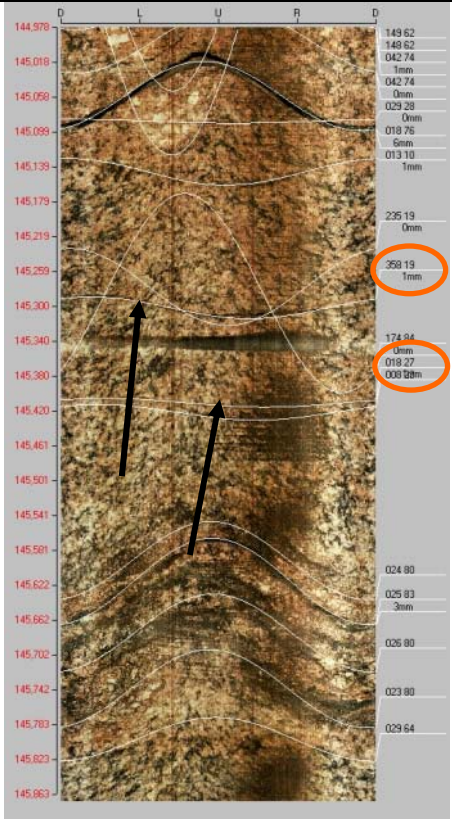
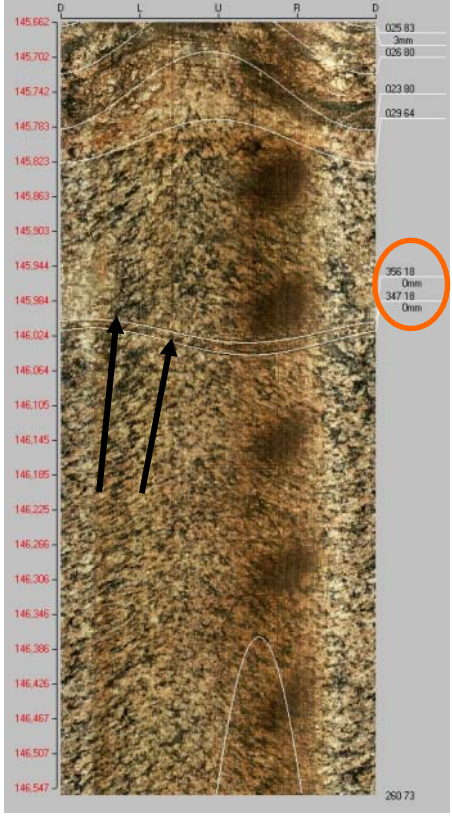
| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|---|--|--|
| 29a | Bh-length (m) = 145.40 T (m ² /s) = 6.87E-8 PFL confidence = Certain | Adjusted secup = 145.30 Frac. interpret / Varcod = open Frac. interp. confidence = Certain PFL-anom. confidence = 1 Same fracture as no 28e |  |
| 29b | | Adjusted secup = 145.41 Frac. interpret / Varcod = open Frac. interp. confidence = Certain PFL-anom. confidence = 1 | |
| 30a | Bh-length (m) = 146.00 T (m ² /s) = 6.27E-9 PFL confidence = Certain | Adjusted secup = 146.02 Frac. interpret / Varcod = partly open Frac. interp. confidence = Probable PFL-anom. confidence = 1 |  |
| 30b | | Adjusted secup = 146.03 Frac. interpret / Varcod = partly open Frac. interp. confidence = Probable PFL-anom. confidence = 1 | |

Table A1-25. KFM06A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|--|--|------------|
| 31 | <p>Bh-length (m) = 148.60</p> <p>$T (m^2/s) = 3.38E-10$</p> <p>PFL confidence = Uncertain</p> | <p>Adjusted secup = 148.68</p> <p>Frac. interpret / Varcod = open</p> <p>Frac. interp. confidence = Certain</p> <p>PFL-anom. confidence = 1</p> | |
| 32 | <p>Bh-length (m) = 152.00</p> <p>$T (m^2/s) = 3.02E-10$</p> <p>PFL confidence = Uncertain</p> | <p>Adjusted secup = 152.16</p> <p>Frac. interpret / Varcod = open</p> <p>Frac. interp. confidence = Possible</p> <p>PFL-anom. confidence = 2</p> | |

Table A1-26. KFM06A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|---|--|------------|
| 33 | <p>Bh-length (m) = 154.20</p> <p>$T (m^2/s) = 4.44E-9$</p> <p>PFL confidence = Certain</p> | <p>Adjusted secup = 154.17</p> <p>Frac. interpret / Varcod = open</p> <p>Frac. interp. confidence = Probable</p> <p>PFL-anom. confidence = 1</p> | |
| 34a | <p>Bh-length (m) = 157.00</p> <p>$T (m^2/s) = 9.66E-7$</p> <p>PFL confidence = Certain</p> | <p>Adjusted secup = 156.91</p> <p>Frac. interpret / Varcod = open</p> <p>Frac. interp. confidence = Probable</p> <p>PFL-anom. confidence = 1</p> | |
| 34b | | <p>Adjusted secup = 156.95</p> <p>Frac. interpret / Varcod = open</p> <p>Frac. interp. confidence = Certain</p> <p>PFL-anom. confidence = 1</p> | |
| 34c | | <p>Adjusted secup = 157.13</p> <p>Frac. interpret / Varcod = partly open</p> | |

| | |
|-----|--|
| | <p>Frac. interp. confidence = Certain</p> <p>PFL-anom. confidence = 2</p> <p>Same fracture as no 35a</p> |
| 34d | <p>Adjusted secup = 157.14</p> <p>Frac. interpret / Varcod = partly open</p> <p>Frac. interp. confidence = Certain</p> <p>PFL-anom. confidence = 2</p> <p>Same fracture as no 35b</p> |
| 34e | <p>Adjusted secup = 157.17</p> <p>Frac. interpret / Varcod = open</p> <p>Frac. interp. confidence = Probable</p> <p>PFL-anom. confidence = 2</p> <p>Same fracture as no 35c</p> |
| 34f | <p>Adjusted secup = 157.18</p> <p>Frac. interpret / Varcod = open</p> <p>Frac. interp. confidence = Certain</p> <p>PFL-anom. confidence = 2</p> <p>Same fracture as no 35d</p> |

Table A1-27. KFM06A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|---|---|------------|
| 35a | Bh-length (m) = 157.30 T (m ² /s) = 6.65E-9 PFL confidence = Uncertain | Adjusted secup = 157.13 Frac. interpret / Varcod = partly open Frac. interp. confidence = Certain PFL-anom. confidence = 2 Same fracture as no 34c | |
| 35b | | Adjusted secup = 157.14 Frac. interpret / Varcod = partly open Frac. interp. confidence = Certain PFL-anom. confidence = 2 Same fracture as no 34d | |
| 35c | | Adjusted secup = 157.17 Frac. interpret / Varcod = open Frac. interp. confidence = Probable PFL-anom. confidence = 2 Same fracture as no 34e | |
| 35d | | Adjusted secup = 157.18 Frac. interpret / Varcod = open Frac. interp. confidence = Certain PFL-anom. confidence = 2 Same fracture as no 34f | |

Table A1-28. KFM06A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|---|--|------------|
| 36 | <p>Bh-length (m) = 160.60</p> <p>T (m^2/s) = $1.05E-7$</p> <p>PFL confidence = Certain</p> | <p>Adjusted secup = 160.51</p> <p>Frac. interpret / Varcod = open</p> <p>Frac. interp. confidence = Certain</p> <p>PFL-anom. confidence = 1</p> | |
| 37a | <p>Bh-length (m) = 161.90</p> <p>T (m^2/s) = $2.28E-9$</p> <p>PFL confidence = Uncertain</p> | <p>Adjusted secup = 161.78</p> <p>Frac. interpret / Varcod = open</p> <p>Frac. interp. confidence = Possible</p> <p>PFL-anom. confidence = 2</p> | |
| 37b | | <p>Adjusted secup = 161.81</p> <p>Frac. interpret / Varcod = open</p> <p>Frac. interp. confidence = Probable</p> <p>PFL-anom. confidence = 1</p> | |
| 37c | | <p>Adjusted secup = 161.86</p> <p>Frac. interpret / Varcod = open</p> | |

37d

Frac. interp. confidence =
Probable

PFL-anom. confidence =
1

Adjusted secup =
162.00

Frac. interpret / Varcod =
open

Frac. interp. confidence =
Probable

PFL-anom. confidence =
1

Table A1-29. KFM06A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|---|---|------------|
| 38a | Bh-length (m) = 162.50 T (m ² /s) = 5.19E-9 PFL confidence = Certain | Adjusted secup = 162.45 Frac. interpret / Varcod = open Frac. interp. confidence = Probable PFL-anom. confidence = 1 | |
| 38b | | Adjusted secup = 162.51 Frac. interpret / Varcod = open Frac. interp. confidence = Certain PFL-anom. confidence = 1 | |
| 39 | Bh-length (m) = 163.20 T (m ² /s) = 1.53E-8 PFL confidence = Certain | Adjusted secup = 163.16 Frac. interpret / Varcod = open Frac. interp. confidence = Certain PFL-anom. confidence = 1 | |

Table A1-30. KFM06A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|---|---|------------|
| 40a | <p>Bh-length (m) = 165.60</p> <p>$T (m^2/s) = 7.57E-8$</p> <p>PFL confidence = Certain</p> | <p>Adjusted secup = 165.57</p> <p>Frac. interpret / Varcod = open</p> <p>Frac. interp. confidence = Certain</p> <p>PFL-anom. confidence = 1</p> | |
| 40b | | <p>Adjusted secup = 165.62</p> <p>Frac. interpret / Varcod = open</p> <p>Frac. interp. confidence = Possible</p> <p>PFL-anom. confidence = 1</p> | |
| 41a | <p>Bh-length (m) = 167.50</p> <p>$T (m^2/s) = 6.84E-9$</p> <p>PFL confidence = Certain</p> | <p>Adjusted secup = 167.42</p> <p>Frac. interpret / Varcod = open</p> <p>Frac. interp. confidence = Certain</p> <p>PFL-anom. confidence = 1</p> | |
| 41b | | <p>Adjusted secup = 167.56</p> <p>Frac. interpret / Varcod = partly open</p> <p>Frac. interp. confidence = Possible</p> <p>PFL-anom. confidence = 1</p> | |

Table A1-31. KFM06A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|---|--|------------|
| 42a | Bh-length (m) = 168.80 T (m ² /s) = 1.85E-7 PFL confidence = Certain | Adjusted secup = 168.68 Frac. interpret / Varcode = open Frac. interp. confidence = Possible PFL-anom. confidence = 2 | |
| 42b | | Adjusted secup = 168.73 Frac. interpret / Varcode = open Frac. interp. confidence = Certain PFL-anom. confidence = 1 | |
| 42c | | Adjusted secup = 169.00 Frac. interpret / Varcode = open Frac. interp. confidence = Probable PFL-anom. confidence = 2 | |

Table A1-32. KFM06A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|---|---|------------|
| 43a | Bh-length (m) = 170.00 T (m ² /s) = 6.92E-9 PFL confidence = Certain | Adjusted secup = 169.98 Frac. interpret / Varcode = open Frac. interp. confidence = Probable PFL-anom. confidence = 1 | |
| 43b | | Adjusted secup = 170.05 Frac. interpret / Varcode = partly open Frac. interp. confidence = Possible PFL-anom. confidence = 1 | |
| 43c | | Adjusted secup = 170.06 Frac. interpret / Varcode = open Frac. interp. confidence = Probable PFL-anom. confidence = 1 | |
| 43d | | Adjusted secup = 170.13 Frac. interpret / Varcode = open Frac. interp. confidence = Certain PFL-anom. confidence = 2 | |
| 43e | | Adjusted secup = 170.18 Frac. interpret / Varcode = partly open Frac. interp. confidence = Possible PFL-anom. confidence = 2 | |

Table A1-33. KFM06A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|---|---|------------|
| 44a | Bh-length (m) = 172.80 T (m ² /s) = 3.98E-9 PFL confidence = Certain | Adjusted secup = 172.72 Frac. interpret / Varcod = sealed / broken Frac. interp. confidence = Probable PFL-anom. confidence = 0 | |
| 44b | Adjusted secup = 173.03 Frac. interpret / Varcod = sealed / broken Frac. interp. confidence = Probable PFL-anom. confidence = 0 Nearest open fracture secup 173.77 m, correlated to anomaly no 45 | | |
| 45 | Bh-length (m) = 173.80 T (m ² /s) = 1.46E-9 PFL confidence = Certain | Adjusted secup = 173.77 Frac. interpret / Varcod = open Frac. interp. confidence = Probable PFL-anom. confidence = 1 | |

Table A1-34. KFM06A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|---|--|------------|
| 46a | Bh-length (m) = 177.40 T (m ² /s) = 3.25E-6 PFL confidence = Certain | Adjusted secup = 177.26 Frac. interpret / Varcode = open Frac. interp. confidence = Certain PFL-anom. confidence = 2 | |
| 46b | | Adjusted secup = 177.26 Frac. interpret / Varcode = open Frac. interp. confidence = Probable PFL-anom. confidence = 2 | |
| 46c | | Adjusted secup = 177.32 Frac. interpret / Varcode = open Frac. interp. confidence = Certain PFL-anom. confidence = 1 | |
| 46d | | Adjusted secup = 177.33 Frac. interpret / Varcode = open Frac. interp. confidence = Probable PFL-anom. confidence = 1 | |
| 46e | | Adjusted secup = 177.43 Frac. interpret / Varcode = open Frac. interp. confidence = Certain PFL-anom. confidence = 1 | |

46f

Adjusted secup =
177.44

Frac. interpret / Varcod =
open

Frac. interp. confidence =
Certain

PFL-anom. confidence =
1

Table A1-35. KFM06A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|---|--|------------|
| 47a | Bh-length (m) = 181.00 T (m ² /s) = 8.54E-8 PFL confidence = Certain | Adjusted secup = 108.86 Frac. interpret / Varcod = open Frac. interp. confidence = Certain PFL-anom. confidence = 2 | |
| 47b | | Adjusted secup = 181.16 Frac. interpret / Varcod = open Frac. interp. confidence = Certain PFL-anom. confidence = 2 Same fracture as no 48 | |
| 48 | Bh-length (m) = 181.20 T (m ² /s) = 9.43E-6 PFL confidence = Certain | Adjusted secup = 181.16 Frac. interpret / Varcod = open Frac. interp. confidence = Certain PFL-anom. confidence = 2 Same fracture as no 47b | |

Table A1-36. KFM06A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|--|--|------------|
| 49a | <p>Bh-length (m) = 195.90</p> <p>$T (m^2/s) = 9.27E-10$</p> <p>PFL confidence = Certain</p> | <p>Adjusted secup = 195.85</p> <p>Frac. interpret / Varcod = sealed / broken</p> <p>Frac. interp. confidence = Possible</p> <p>PFL-anom. confidence = 0</p> | |
| 49b | | <p>Adjusted secup = 195.97</p> <p>Frac. interpret / Varcod = sealed / broken</p> <p>Frac. interp. confidence = Certain</p> <p>PFL-anom. confidence = 0</p> <p>Nearest open fracture secup 192.24 m</p> | |
| 50 | <p>Bh-length (m) = 204.40</p> <p>$T (m^2/s) = 3.20E-9$</p> <p>PFL confidence = Certain</p> | <p>Adjusted secup = 204.23</p> <p>Frac. interpret / Varcod = open</p> <p>Frac. interp. confidence = Probable</p> <p>PFL-anom. confidence = 2</p> | |

Table A1-37. KFM06A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|---|---|------------|
| 51a | Bh-length (m) = 205.70 T (m ² /s) = 4.68E-8 PFL confidence = Certain | Adjusted secup = 205.70 Frac. interpret / Varcode = open Frac. interp. confidence = Certain PFL-anom. confidence = 1 | |
| 51b | | Adjusted secup = 205.87 Frac. interpret / Varcode = open Frac. interp. confidence = Certain PFL-anom. confidence = 2 Same fracture as no 52a | |
| 51c | | Adjusted secup = 205.88 Frac. interpret / Varcode = open Frac. interp. confidence = Certain PFL-anom. confidence = 2 Same fracture as no 52b | |

Table A1-38. KFM06A. Interpretation of PFL-measurements and BOREMAP data

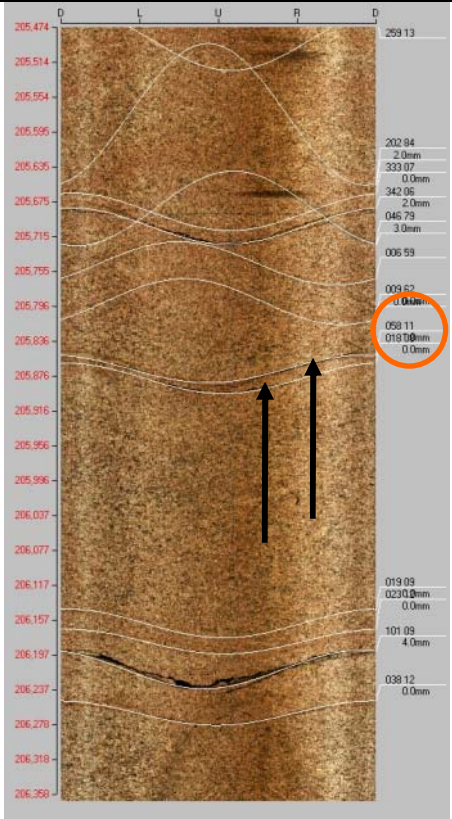
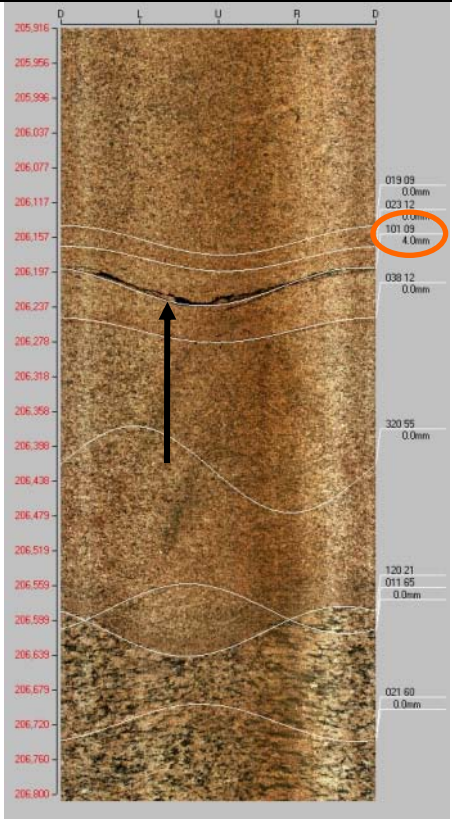
| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|---|--|--|
| 52a | Bh-length (m) = 205.70 T (m ² /s) = 4.68E-8 PFL confidence = Certain | Adjusted secup = 205.87 Frac. interpret / Varcod = open Frac. interp. confidence = Certain PFL-anom. confidence = 1 Same fracture as no 51b |  |
| 52b | | Adjusted secup = 205.88 Frac. interpret / Varcod = open Frac. interp. confidence = Certain PFL-anom. confidence = 1 Same fracture as no 51b | |
| 53 | Bh-length (m) = 206.20 T (m ² /s) = 5.76E-8 PFL confidence = Certain | Adjusted secup = 206.21 Frac. interpret / Varcod = open Frac. interp. confidence = Certain PFL-anom. confidence = 1 |  |

Table A1-39. KFM06A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|--|--|------------|
| 54 | <p>Bh-length (m) = 208.30</p> <p>$T (m^2/s) = 3.35E-10$</p> <p>PFL confidence = Uncertain</p> | <p>Adjusted secup = 208.63</p> <p>Frac. interpret / Varcod = open</p> <p>Frac. interp. confidence = Certain</p> <p>PFL-anom. confidence = 4</p> | |
| 55 | <p>Bh-length (m) = 212.60</p> <p>$T (m^2/s) = 3.58E-10$</p> <p>PFL confidence = Uncertain</p> | <p>Adjusted secup = 212.52</p> <p>Frac. interpret / Varcod = open</p> <p>Frac. interp. confidence = Probable</p> <p>PFL-anom. confidence = 1</p> | |

Table A1-40. KFM06A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|--|--|------------|
| 56 | <p>Bh-length (m) = 215.60</p> <p>T (m²/s) = 6.13E-10</p> <p>PFL confidence = Uncertain</p> | <p>Adjusted secup = 215.48</p> <p>Frac. interpret / Varcod = open</p> <p>Frac. interp. confidence = Probable</p> <p>PFL-anom. confidence = 2</p> | |
| 57 | <p>Bh-length (m) = 216.30</p> <p>T (m²/s) = 6.13E-10</p> <p>PFL confidence = Uncertain</p> | <p>Adjusted secup = 216.33</p> <p>Frac. interpret / Varcod = open</p> <p>Frac. interp. confidence = Possible</p> <p>PFL-anom. confidence = 1</p> | |

Table A1-41. KFM06A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|---|--|------------|
| 58a | Bh-length (m) = 218.20 T (m ² /s) = 1.18E-5 PFL confidence = Certain | Adjusted secup = 218.02 Frac. interpret / Varcode = open Frac. interp. confidence = Probable PFL-anom. confidence = 2 | |
| 58b | | Adjusted secup = 218.08 Frac. interpret / Varcode = open Frac. interp. confidence = Certain PFL-anom. confidence = 2 | |
| 58c | | Adjusted secup = 218.13 Frac. interpret / Varcode = open Frac. interp. confidence = Certain PFL-anom. confidence = 1 | |
| 58d | | Adjusted secup = 218.14 Frac. interpret / Varcode = open Frac. interp. confidence = Certain PFL-anom. confidence = 1 | |

Table A1-42. KFM06A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|---|--|------------|
| 59a | Bh-length (m) = 220.40 T (m ² /s) = 3.72E-7 PFL confidence = Certain | Adjusted secup = 220.39 Frac. interpret / Varcode = open Frac. interp. confidence = Probable PFL-anom. confidence = 1 | |
| 59b | | Adjusted secup = 220.41 Frac. interpret / Varcode = open Frac. interp. confidence = Probable PFL-anom. confidence = 1 | |
| 60 | Bh-length (m) = 220.60 T (m ² /s) = 8.93E-8 PFL confidence = Uncertain | Adjusted secup = 220.63 Frac. interpret / Varcode = open Frac. interp. confidence = Certain PFL-anom. confidence = 1 | |

Table A1-43. KFM06A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|---|---|--|
| 61 | Bh-length (m) = 238.00 T (m ² /s) = 8.94E-6 PFL confidence = Certain | Adjusted secup = 238.00 Frac. interpret / Varcode = open Frac. interp. confidence = Certain PFL-anom. confidence = 1 | <p>The BIPS image displays a vertical cross-section of a borehole. The left side features depth markers in red, ranging from 237.575 at the top to 238.459 at the bottom. The right side features depth markers in black, ranging from 209.97 at the top to 053.69 at the bottom. A black arrow points to a dark, irregular feature within the borehole at approximately 237.976 m depth. A red circle highlights a data point on the right side of the image at approximately 237.816 m depth, with a value of 1.31 04. Other data points on the right include 0.43 02, 0.00mm, 2.00mm, 2.29 96, 0.00mm, 2.06 81, 0.00mm, 0.14 34, 0.14 35, 0.22 79, 0.00mm, 0.21 44, 0.30 43, 1.99 82, and 1.00mm.</p> |

Table A1-44. KFM06A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|---|--|------------|
| 62a | Bh-length (m) = 239.60 T (m ² /s) = 3.63E-7 PFL confidence = Certain | Adjusted secup = 239.47 Frac. interpret / Varcode = open Frac. interp. confidence = Certain PFL-anom. confidence = 2 | |
| 62b | | Adjusted secup = 239.56 Frac. interpret / Varcode = open Frac. interp. confidence = Certain PFL-anom. confidence = 1 | |
| 62c | | Adjusted secup = 239.63 Frac. interpret / Varcode = open Frac. interp. confidence = Probable PFL-anom. confidence = 1 | |

Table A1-45. KFM06A. Interpretation of PFL-measurements and BOREMAP data

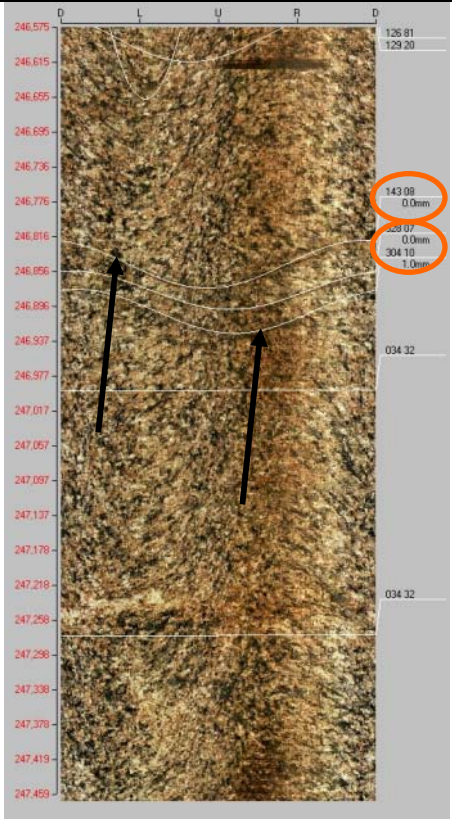
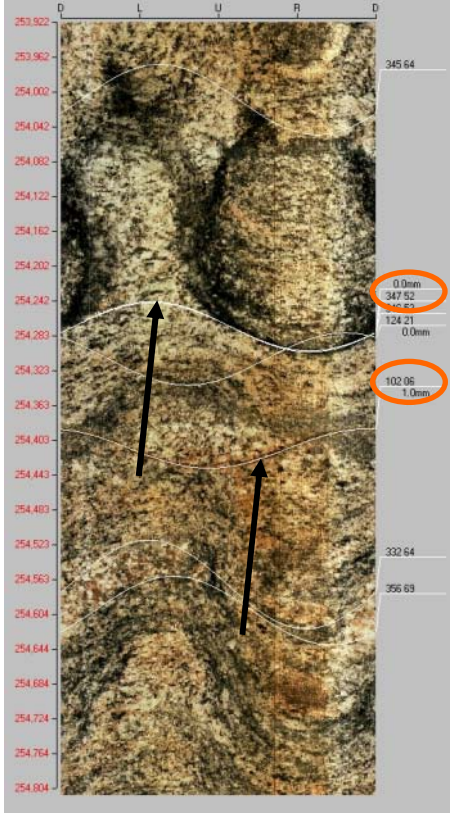
| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|--|---|--|
| 63a | Bh-length (m) = 246.90 T (m ² /s) = 2.40E-10 PFL confidence = Uncertain | Adjusted secup = 246.85 Frac. interpret / Varcod = open Frac. interp. confidence = Possible PFL-anom. confidence = 1 |  |
| 63b | | Adjusted secup = 246.90 Frac. interpret / Varcod = open Frac. interp. confidence = Possible PFL-anom. confidence = 1 | |
| 64a | Bh-length (m) = 254.40 T (m ² /s) = 8.64E-10 PFL confidence = Certain | Adjusted secup = 254.27 Frac. interpret / Varcod = open Frac. interp. confidence = Possible PFL-anom. confidence = 2 |  |
| 64b | | Adjusted secup = 254.41 Frac. interpret / Varcod = open Frac. interp. confidence = Probable PFL-anom. confidence = 1 | |

Table A1-46. KFM06A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|---|---|------------|
| 65a | Bh-length (m) = 256.80 T (m ² /s) = 1.82E-8 PFL confidence = Certain | Adjusted secup = 256.73 Frac. interpret / Varcode = open Frac. interp. confidence = Certain PFL-anom. confidence = 1 | |
| 65b | | Adjusted secup = 256.75 Frac. interpret / Varcode = open Frac. interp. confidence = Certain PFL-anom. confidence = 1 | |
| 65c | | Adjusted secup = 256.77 Frac. interpret / Varcode = open Frac. interp. confidence = Certain PFL-anom. confidence = 1 | |

Table A1-47. KFM06A. Interpretation of PFL-measurements and BOREMAP data

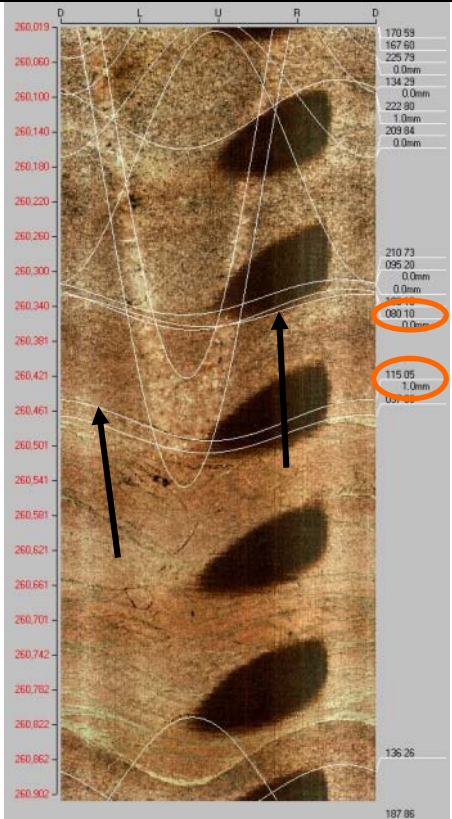
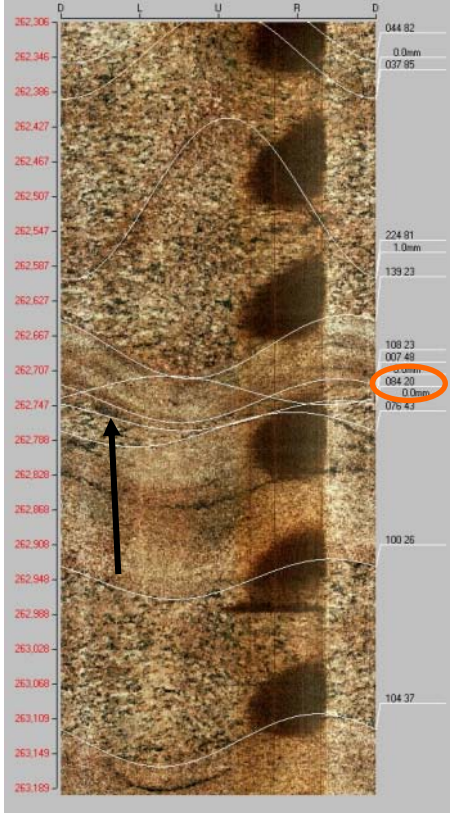
| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|--|--|--|
| 66a | Bh-length (m) = 260.50 T (m ² /s) = 3.57E-10 PFL confidence = Uncertain | Adjusted secup = 260.35 Frac. interpret / Varcode = open Frac. interp. confidence = Possible PFL-anom. confidence = 2 |  |
| 66b | | Adjusted secup = 260.47 Frac. interpret / Varcode = open Frac. interp. confidence = Certain PFL-anom. confidence = 1 | |
| 67 | Bh-length (m) = 262.80 T (m ² /s) = 8.01E-10 PFL confidence = Certain | Adjusted secup = 262.76 Frac. interpret / Varcode = open Frac. interp. confidence = Probable PFL-anom. confidence = 1 |  |

Table A1-48. KFM06A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|--|--|---|
| 68 | Bh-length (m) = 267.60 T (m ² /s) = 9.17E-8 PFL confidence = Certain | Adjusted secup = 267.67 Frac. interpret / Varcod = open Frac. interp. confidence = Certain PFL-anom. confidence = 1 | <p>The BIPS image displays a vertical cross-section of a borehole. The left side features depth markers in red, ranging from 267.241 to 268.123. The right side features depth markers in grey, ranging from 212.82 to 209.79. A black arrow points to a depth level of approximately 267.67. On the right side, a value '141.08' is circled in orange, with '196.00mm' and '0.0mm' listed below it. The image shows a textured, brownish surface with several dark, circular features.</p> |

Table A1-49. KFM06A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|---|--|------------|
| 69a | Bh-length (m) = 268.60 T (m ² /s) = 6.33E-6 PFL confidence = Certain | Adjusted secup = 268.47 Frac. interpret / Varcode = open Frac. interp. confidence = Possible PFL-anom. confidence = 2 | |
| 69b | | Adjusted secup = 268.52 Frac. interpret / Varcode = open Frac. interp. confidence = Certain PFL-anom. confidence = 1 | |
| 69c | | Adjusted secup = 268.53 Frac. interpret / Varcode = open Frac. interp. confidence = Certain PFL-anom. confidence = 1 | |
| 69d | | Adjusted secup = 268.55 Frac. interpret / Varcode = open Frac. interp. confidence = Certain PFL-anom. confidence = 1 | |
| 69e | | Adjusted secup = 268.60 Frac. interpret / Varcode = open Frac. interp. confidence = Certain PFL-anom. confidence = 1 | |

| | |
|-----|---|
| 69f | Adjusted secup = 268.63 Frac. interpret / Varcod = open Frac. interp. confidence = Certain PFL-anom. confidence = 1 |
| 69g | Adjusted secup = 268.65 Frac. interpret / Varcod = open Frac. interp. confidence = Certain PFL-anom. confidence = 1 |
| 69h | Adjusted secup = 268.69 Adjusted seclow = 268.73 Frac. interpret / Varcod = crush zone Frac. interp. confidence = Certain PFL-anom. confidence = 1 |

Table A1-50. KFM06A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|--|--|--|
| 70 | <p>Bh-length (m) = 269.30</p> <p>$T (m^2/s) = 1.72E-5$</p> <p>PFL confidence = Certain</p> | <p>Adjusted secup = 269.24</p> <p>Adjusted seclow = 269.26</p> <p>Frac. interpret / Varcod = crush zone</p> <p>Frac. interp. confidence = Certain</p> <p>PFL-anom. confidence = 1</p> | <p>The BIPS image for anomaly 70 shows a vertical cross-section of a borehole. The image is labeled with 'D', 'L', 'U', 'R', 'D' at the top. The vertical axis on the left shows depth in meters from 269.845 to 269.728. The vertical axis on the right shows depth in meters from 146.11 to 206.75. The image displays various fracture patterns, with a black arrow pointing to a specific feature at approximately 269.247m depth.</p> |
| 71a | <p>Bh-length (m) = 271.10</p> <p>$T (m^2/s) = 6.85E-10$</p> <p>PFL confidence = Uncertain</p> | <p>Adjusted secup = 270.94</p> <p>Frac. interpret / Varcod = sealed / broken</p> <p>Frac. interp. confidence = Probable</p> <p>PFL-anom. confidence = 0</p> | <p>The BIPS image for anomaly 71a shows a vertical cross-section of a borehole. The image is labeled with 'D', 'L', 'U', 'R', 'D' at the top. The vertical axis on the left shows depth in meters from 270.611 to 271.493. The vertical axis on the right shows depth in meters from 082.45 to 192.83. The image displays various fracture patterns, with a black arrow pointing to a specific feature at approximately 270.94m depth. Two values on the right axis are circled in red: 350.11 and 217.84.</p> |
| 71b | | <p>Adjusted secup = 271.23</p> <p>Frac. interpret / Varcod = sealed / broken</p> <p>Frac. interp. confidence = Probable</p> <p>PFL-anom. confidence = 0</p> <p>Nearest open fracture secup 271.63m, correlated to anomaly no 72</p> | <p>The BIPS image for anomaly 71b shows a vertical cross-section of a borehole. The image is labeled with 'D', 'L', 'U', 'R', 'D' at the top. The vertical axis on the left shows depth in meters from 270.611 to 271.493. The vertical axis on the right shows depth in meters from 082.45 to 192.83. The image displays various fracture patterns, with a black arrow pointing to a specific feature at approximately 271.23m depth. Two values on the right axis are circled in red: 350.11 and 217.84.</p> |

Table A1-51. KFM06A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|---|---|------------|
| 72a | Bh-length (m) = 271.60 T (m ² /s) = 2.57E-8 PFL confidence = Certain | Adjusted secup = 271.63 Frac. interpret / Varcod = open Frac. interp. confidence = Certain PFL-anom. confidence = 1 | |
| 72b | | Adjusted secup = 271.66 Frac. interpret / Varcod = open Frac. interp. confidence = Probable PFL-anom. confidence = 1 | |

Table A1-52. KFM06A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|---|---|------------|
| 73a | Bh-length (m) = 272.00 T (m ² /s) = 5.09E-8 PFL confidence = Certain | Adjusted secup = 272.02 Frac. interpret / Varcod = open Frac. interp. confidence = Certain PFL-anom. confidence = 1 | |
| 73b | | Adjusted secup = 272.04 Frac. interpret / Varcod = open Frac. interp. confidence = Certain PFL-anom. confidence = 1 | |
| 73c | | Adjusted secup = 272.14 Frac. interpret / Varcod = open Frac. interp. confidence = Probable PFL-anom. confidence = 2 | |

Table A1-53. KFM06A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|---|--|------------|
| 74 | Bh-length (m) = 273.70 T (m ² /s) = 9.40E-9 PFL confidence = Certain | Adjusted secup = 273.63 Frac. interpret / Varcod = partly open Frac. interp. confidence = Probable PFL-anom. confidence = 1 | |
| 75 | Bh-length (m) = 297.30 T (m ² /s) = 2.16E-8 PFL confidence = Certain | Adjusted secup = 297.25 Frac. interpret / Varcod = open Frac. interp. confidence = Certain PFL-anom. confidence = 1 | |

Table A1-54. KFM06A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|---|---|------------|
| 76 | <p>Bh-length (m) = 303.00</p> <p>T (m²/s) = 4.85E-10</p> <p>PFL confidence = Uncertain</p> | <p>Adjusted secup = 302.95</p> <p>Frac. interpret / Varcod = sealed / broken</p> <p>Frac. interp. confidence = Probable</p> <p>PFL-anom. confidence = 0</p> <p>Nearest open fracture secup 305.09 m</p> | |
| 77 | <p>Bh-length (m) = 306.20</p> <p>T (m²/s) = 5.65E-9</p> <p>PFL confidence = Certain</p> | <p>Adjusted secup = 306.11</p> <p>Frac. interpret / Varcod = open</p> <p>Frac. interp. confidence = Certain</p> <p>PFL-anom. confidence = 1</p> | |

Table A1-55. KFM06A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|--|--|------------|
| 78a | Bh-length (m) = 308.40 T (m ² /s) = 1.51E-8 PFL confidence = Certain | Adjusted secup = 308.43 Frac. interpret / Varcode = open Frac. interp. confidence = Certain PFL-anom. confidence = 1 | |
| 78b | | Adjusted secup = 308.45 Frac. interpret / Varcode = open Frac. interp. confidence = Certain PFL-anom. confidence = 1 | |
| 79 | Bh-length (m) = 321.40 T (m ² /s) = 6.11E-10 PFL confidence = Uncertain | Adjusted secup = 321.35 Frac. interpret / Varcode = open Frac. interp. confidence = Possible PFL-anom. confidence = 1 | |

Table A1-56. KFM06A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|---|--|------------|
| 80a | Bh-length (m) = 322.00 T (m ² /s) = 4.40E-8 PFL confidence = Certain | Adjusted secup = 321.95 Frac. interpret / Varcod = partly open Frac. interp. confidence = Possible PFL-anom. confidence = 1 | |
| 80b | | Adjusted secup = 321.98 Frac. interpret / Varcod = open Frac. interp. confidence = Certain PFL-anom. confidence = 1 | |
| 80c | | Adjusted secup = 322.00 Frac. interpret / Varcod = open Frac. interp. confidence = Possible PFL-anom. confidence = 1 | |

Table A1-57. KFM06A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|---|---|------------|
| 81 | <p>Bh-length (m) = 327.00</p> <p>T (m²/s) = 6.01E-10</p> <p>PFL confidence = Uncertain</p> | <p>Adjusted secup = 327.39</p> <p>Frac. interpret / Varcod = open</p> <p>Frac. interp. confidence = Possible</p> <p>PFL-anom. confidence = 4</p> | |
| 82 | <p>Bh-length (m) = 329.70</p> <p>T (m²/s) = 5.18E-10</p> <p>PFL confidence = Uncertain</p> | <p>Adjusted secup = 329.85</p> <p>Frac. interpret / Varcod = partly open</p> <p>Frac. interp. confidence = Certain</p> <p>PFL-anom. confidence = 2</p> <p>Fracture not visible in BIPS</p> | |

Table A1-58. KFM06A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|--|--|------------|
| 83 | <p>Bh-length (m) = 330.00</p> <p>$T (m^2/s) = 7.62E-10$</p> <p>PFL confidence = Certain</p> | <p>Adjusted secup = 330.21</p> <p>Frac. interpret / Varcod = open</p> <p>Frac. interp. confidence = Probable</p> <p>PFL-anom. confidence = 2</p> | |
| 84 | <p>Bh-length (m) = 332.00</p> <p>$T (m^2/s) = 9.75E-10$</p> <p>PFL confidence = Certain</p> | <p>Adjusted secup = 332.00</p> <p>Frac. interpret / Varcod = open</p> <p>Frac. interp. confidence = Probable</p> <p>PFL-anom. confidence = 1</p> | |

Table A1-59. KFM06A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|--|---|------------|
| 85 | <p>Bh-length (m) = 334.20</p> <p>T (m²/s) = 2.97E-10</p> <p>PFL confidence = Uncertain</p> | <p>Adjusted secup = 334.13</p> <p>Frac. interpret / Varcode = open</p> <p>Frac. interp. confidence = Possible</p> <p>PFL-anom. confidence = 1</p> | |
| 86 | <p>Bh-length (m) = 338.60</p> <p>T (m²/s) = 4.21E-9</p> <p>PFL confidence = Certain</p> | <p>Adjusted secup = 338.58</p> <p>Frac. interpret / Varcode = sealed / broken</p> <p>Frac. interp. confidence = Probable</p> <p>PFL-anom. confidence = 0</p> <p>Nearest open fracture secup 339.58 m, correlated to anomaly no 87</p> | |

Table A1-60. KFM06A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|---|--|------------|
| 87 | Bh-length (m) = 339.60 T (m ² /s) = 2.54E-9 PFL confidence = Certain | Adjusted secup = 339.58 Frac. interpret / Varcode = open Frac. interp. confidence = Probable PFL-anom. confidence = 1 | |

Table A1-61. KFM06A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|--|---|------------|
| 88a | Bh-length (m) = 341.70 T (m ² /s) = 4.56E-10 PFL confidence = Uncertain | Adjusted secup = 341.71 Frac. interpret / Varcod = open Frac. interp. confidence = Probable PFL-anom. confidence = 1 | |
| 88b | | Adjusted secup = 341.77 Frac. interpret / Varcod = open Frac. interp. confidence = Probable PFL-anom. confidence = 1 | |
| 88c | | Adjusted secup = 341.83 Frac. interpret / Varcod = open Frac. interp. confidence = Probable PFL-anom. confidence = 2 | |

Table A1-62. KFM06A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|---|--|------------|
| 89a | Bh-length (m) = 345.40 T (m ² /s) = 1.69E-8 PFL confidence = Certain | Adjusted secup = 345.39 Frac. interpret / Varcode = sealed / broken Frac. interp. confidence = Probable PFL-anom. confidence = 0 | |
| 89b | Adjusted secup = 345.40 Frac. interpret / Varcode = sealed / broken Frac. interp. confidence = Probable PFL-anom. confidence = 0 | | |
| 89c | Adjusted secup = 345.49 Frac. interpret / Varcode = sealed / broken Frac. interp. confidence = Probable PFL-anom. confidence = 0 Nearest open fracture secup 346.23 m | | |

Table A1-63. KFM06A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|--|--|------------|
| 90a | <p>Bh-length (m) = 354.20</p> <p>$T (m^2/s) = 7.85E-10$</p> <p>PFL confidence = Uncertain</p> | <p>Adjusted secup = 354.10</p> <p>Frac. interpret / Varcod = open</p> <p>Frac. interp. confidence = Possible</p> <p>PFL-anom. confidence = 1</p> | |
| 90b | | <p>Adjusted secup = 354.13</p> <p>Frac. interpret / Varcod = open</p> <p>Frac. interp. confidence = Possible</p> <p>PFL-anom. confidence = 1</p> | |
| 91a | <p>Bh-length (m) = 356.60</p> <p>$T (m^2/s) = 9.06E-7$</p> <p>PFL confidence = Certain</p> | <p>Adjusted secup = 356.70</p> <p>Frac. interpret / Varcod = partly open</p> <p>Frac. interp. confidence = Certain</p> <p>PFL-anom. confidence = 1</p> | |
| 91b | | <p>Adjusted secup = 356.91</p> <p>Frac. interpret / Varcod = open</p> <p>Frac. interp. confidence = Possible</p> <p>PFL-anom. confidence = 1</p> | |

Table A1-64. KFM06A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|---|--|------------|
| 92 | <p>Bh-length (m) = 384.60</p> <p>$T (m^2/s) = 2.56E-9$</p> <p>PFL confidence = Certain</p> | <p>Adjusted secup = 384.96</p> <p>Frac. interpret / Varcode = open</p> <p>Frac. interp. confidence = Possible</p> <p>PFL-anom. confidence = 4</p> | |
| 93 | <p>Bh-length (m) = 392.70</p> <p>$T (m^2/s) = 2.38E-8$</p> <p>PFL confidence = Certain</p> | <p>Adjusted secup = 392.65</p> <p>Frac. interpret / Varcode = sealed / broken</p> <p>Frac. interp. confidence = Probable</p> <p>PFL-anom. confidence = 0</p> <p>Nearest open fracture secup 396.60 m</p> | |

Table A1-65. KFM06A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|--|---|------------|
| 94a | Bh-length (m) = 449.40 T (m ² /s) = 3.31E-10 PFL confidence = Uncertain | Adjusted secup = 449.36 Frac. interpret / Varcod = open Frac. interp. confidence = Possible PFL-anom. confidence = 1 | |
| 94b | | Adjusted secup = 449.38 Frac. interpret / Varcod = open Frac. interp. confidence = Possible PFL-anom. confidence = 1 | |

Table A1-66. KFM06A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|--|--|------------|
| 95a | Bh-length (m) = 622.40 T (m ² /s) = 4.26E-10 PFL confidence = Uncertain | Adjusted secup = 622.24 Frac. interpret / Varcode = open Frac. interp. confidence = Possible PFL-anom. confidence = 2 | |
| 95b | | Adjusted secup = 622.29 Frac. interpret / Varcode = open Frac. interp. confidence = Probable PFL-anom. confidence = 2 | |
| 95c | | Adjusted secup = 622.34 Frac. interpret / Varcode = open Frac. interp. confidence = Certain PFL-anom. confidence = 1 | |
| 95d | | Adjusted secup = 622.48 Frac. interpret / Varcode = open Frac. interp. confidence = Probable PFL-anom. confidence = 1 | |

Table A1-67. KFM06A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|--|--|------------|
| 96 | <p>Bh-length (m) = 653.90</p> <p>$T (m^2/s) = 2.74E-10$</p> <p>PFL confidence = Uncertain</p> | <p>Adjusted secup = 653.46</p> <p>Frac. interpret / Varcod = open</p> <p>Frac. interp. confidence = Certain</p> <p>PFL-anom. confidence = 4</p> | |
| 97a | <p>Bh-length (m) = 743.30</p> <p>$T (m^2/s) = 3.12E-7$</p> <p>PFL confidence = Certain</p> | <p>Adjusted secup = 743.13</p> <p>Frac. interpret / Varcod = open</p> <p>Frac. interp. confidence = Probable</p> <p>PFL-anom. confidence = 2</p> | |
| 97b | | <p>Adjusted secup = 743.24</p> <p>Frac. interpret / Varcod = partly open</p> <p>Frac. interp. confidence = Certain</p> <p>PFL-anom. confidence = 1</p> | |
| 97c | | <p>Adjusted secup = 743.25</p> <p>Frac. interpret / Varcod = open</p> | |

| | |
|-----|---|
| | Frac. interp. confidence = Certain |
| | PFL-anom. confidence = 1 |
| 97d | Adjusted secup = 743.30 |
| | Frac. interpret / Varcod = partly open |
| | Frac. interp. confidence = Certain |
| | PFL-anom. confidence = 1 |
| | Not visible in BIPS |
| 97e | Adjusted secup = 743.43 |
| | Frac. interpret / Varcod = open |
| | Frac. interp. confidence = Certain |
| | PFL-anom. confidence = 2 |
| 97f | Adjusted secup = 743.50 |
| | Frac. interpret / Varcod = open |
| | Frac. interp. confidence = Certain |
| | PFL-anom. confidence = 2 |

Table A1-68. KFM06A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|--|---|------------|
| 98 | <p>Bh-length (m) = 770.60</p> <p>T (m²/s) = 3.12E-7</p> <p>PFL confidence = Certain</p> | <p>Adjusted secup = 770.24</p> <p>Adjusted seclow = 770.80</p> <p>Frac. interpret / Varcod = crush zone</p> <p>Frac. interp. confidence = Certain</p> <p>PFL-anom. confidence = 1</p> <p>Same crush zone as no 99a</p> | |
| 99a | <p>Bh-length (m) = 770.80</p> <p>T (m²/s) = 1.53E-8</p> <p>PFL confidence = Certain</p> | <p>Adjusted secup = 770.24</p> <p>Adjusted seclow = 770.80</p> <p>Frac. interpret / Varcod = crush zone</p> <p>Frac. interp. confidence = Certain</p> <p>PFL-anom. confidence = 1</p> <p>Same crush zone as no 98</p> | |
| 99b | | <p>Adjusted secup = 770.84</p> <p>Frac. interpret / Varcod = open</p> <p>Frac. interp. confidence = Certain</p> <p>PFL-anom. confidence = 1</p> | |

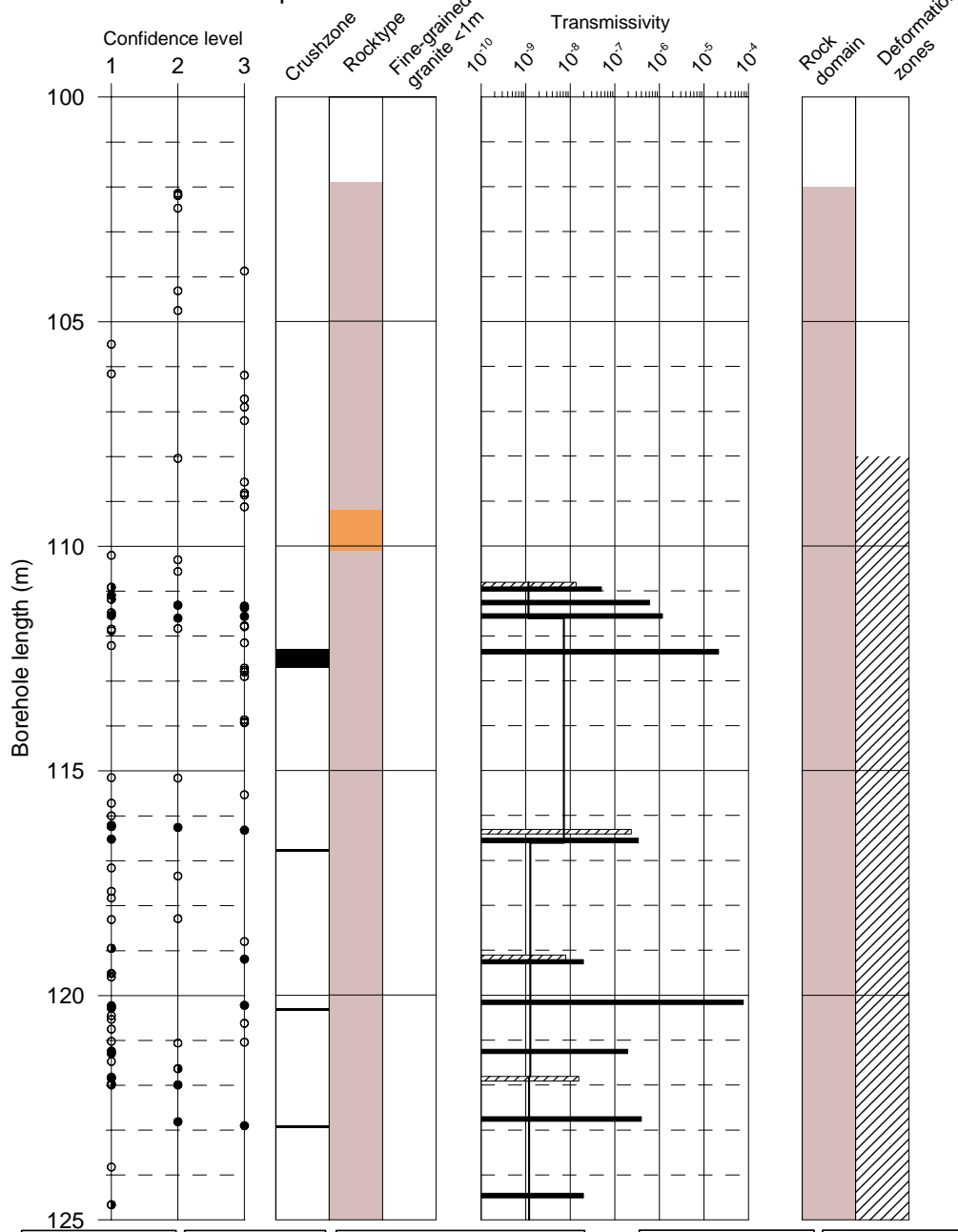
Appendix 2a – KFM07A

In this appendix plots showing Flow log anomalies to core mapped features in KFM07A for every 25 meters of the borehole are found. BIPS images of PFL anomalies are also found.

KFM07A

Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
- Class 3
- Class 4
- Open fracture, no flow indication

Confidence level
Open fractures

- 1 certain
- 2 probable
- 3 possible

■ Fine-grained granite
■ Pegmatite
■ Granite to granodiorite
■ Amphibolite
■ Volcanic rock

PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

Rock domains

- RFM029
- ▨ RFM044

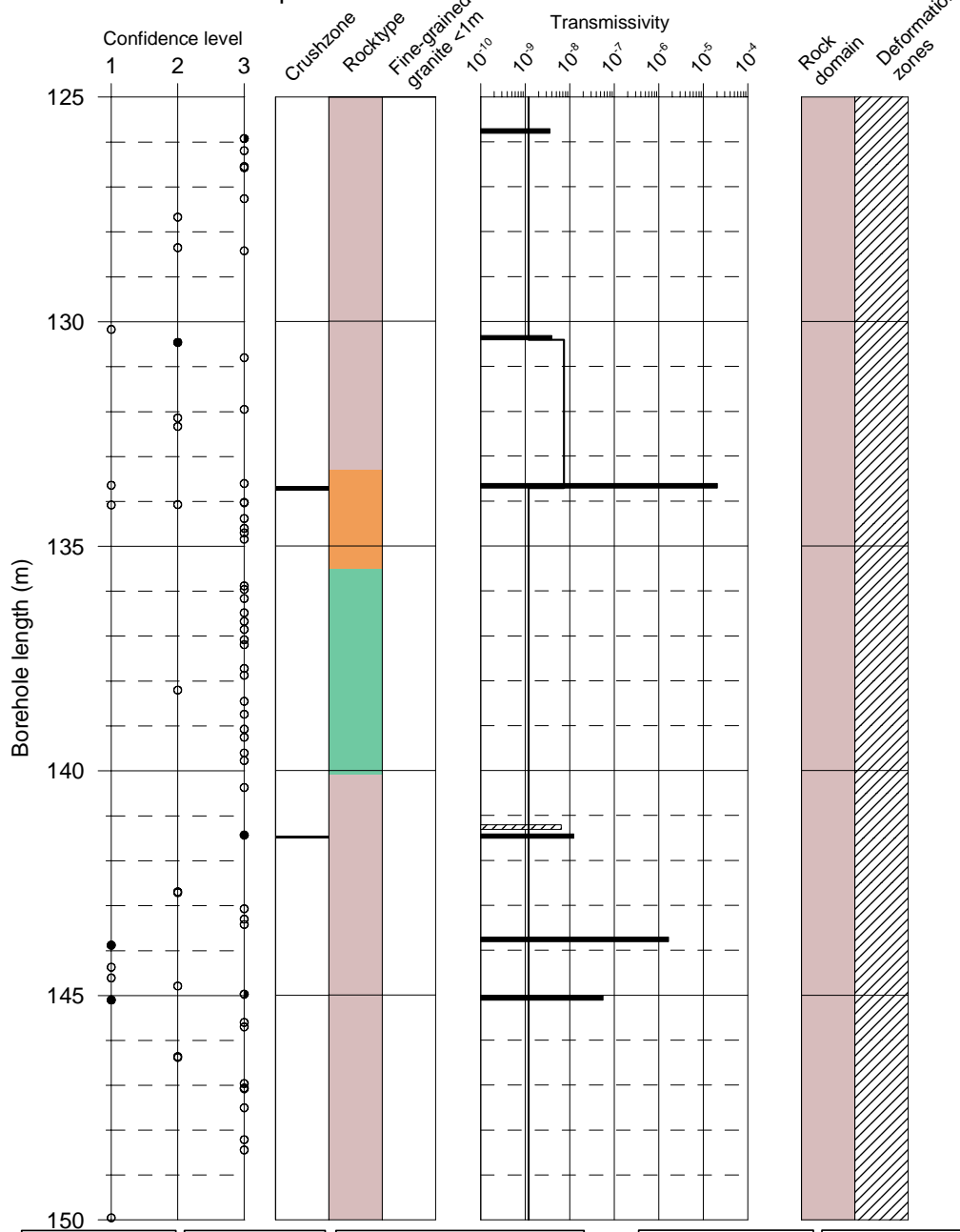
Deformation zones

- ▨ Zone

KFM07A

Boremap

PFL



Flow indication
open fractures

- Class 1
- ◐ Class 2
- ◑ Class 3
- ◒ Class 4
- Open fracture,
no flow indication

Confidence level
Open fractures

- 1 certain
- 2 probable
- 3 possible

■ Fine-grained granite
■ Pegmatite
■ Granite to granodiorite
■ Amphibolite
■ Volcanic rock

PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

Rock domains

- RFM029
- ▨ RFM044

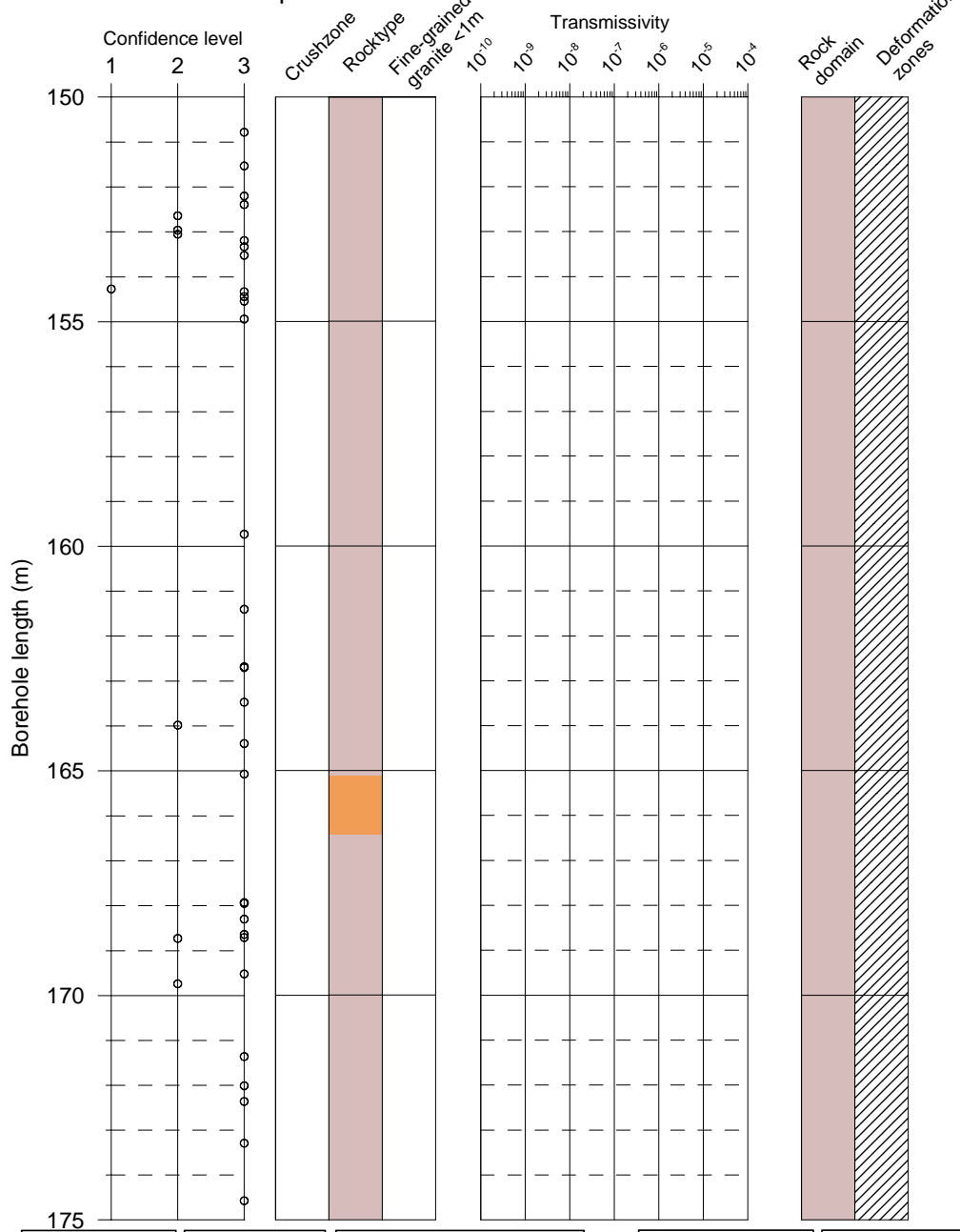
Deformation zones

- ▨ Zone

KFM07A

Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
- Class 3
- Class 4
- Open fracture, no flow indication

Confidence level
Open fractures

- 1 certain
- 2 probable
- 3 possible

■ Fine-grained granite
■ Pegmatite
■ Granite to granodiorite
■ Amphibolite
■ Volcanic rock

PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

Rock domains

- RFM029
- ▨ RFM044

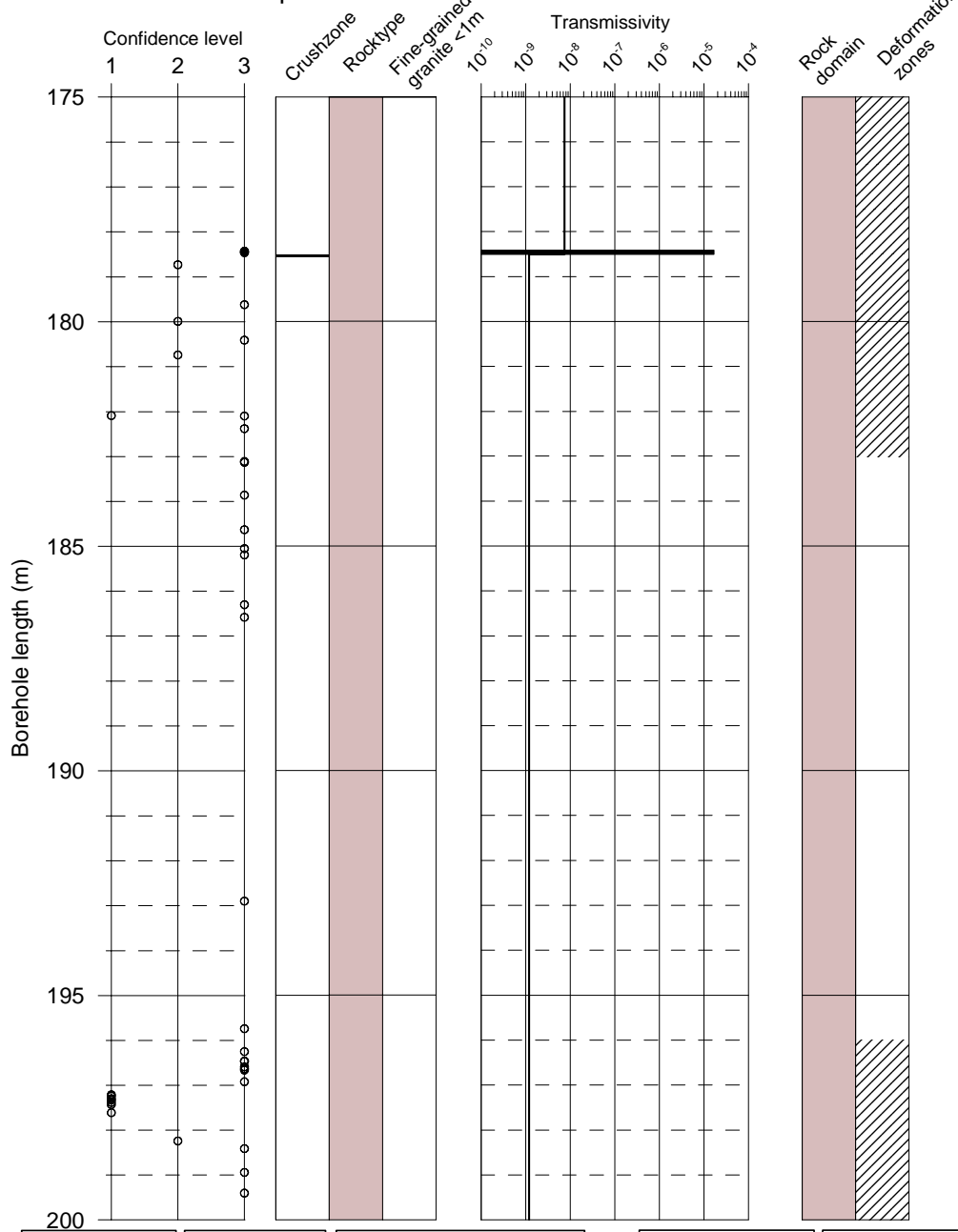
Deformation zones

- ▨ Zone

KFM07A

Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
- Class 3
- Class 4
- Open fracture, no flow indication

Confidence level
Open fractures

- 1 certain
- 2 probable
- 3 possible

Rocktype

- Fine-grained granite
- Pegmatite
- Granite to granodiorite
- Amphibolite
- Volcanic rock

PFL-anomaly
Transmissivity

- Certain
- Uncertain
- Meas lim

Rock domains

- RFM029
- RFM044

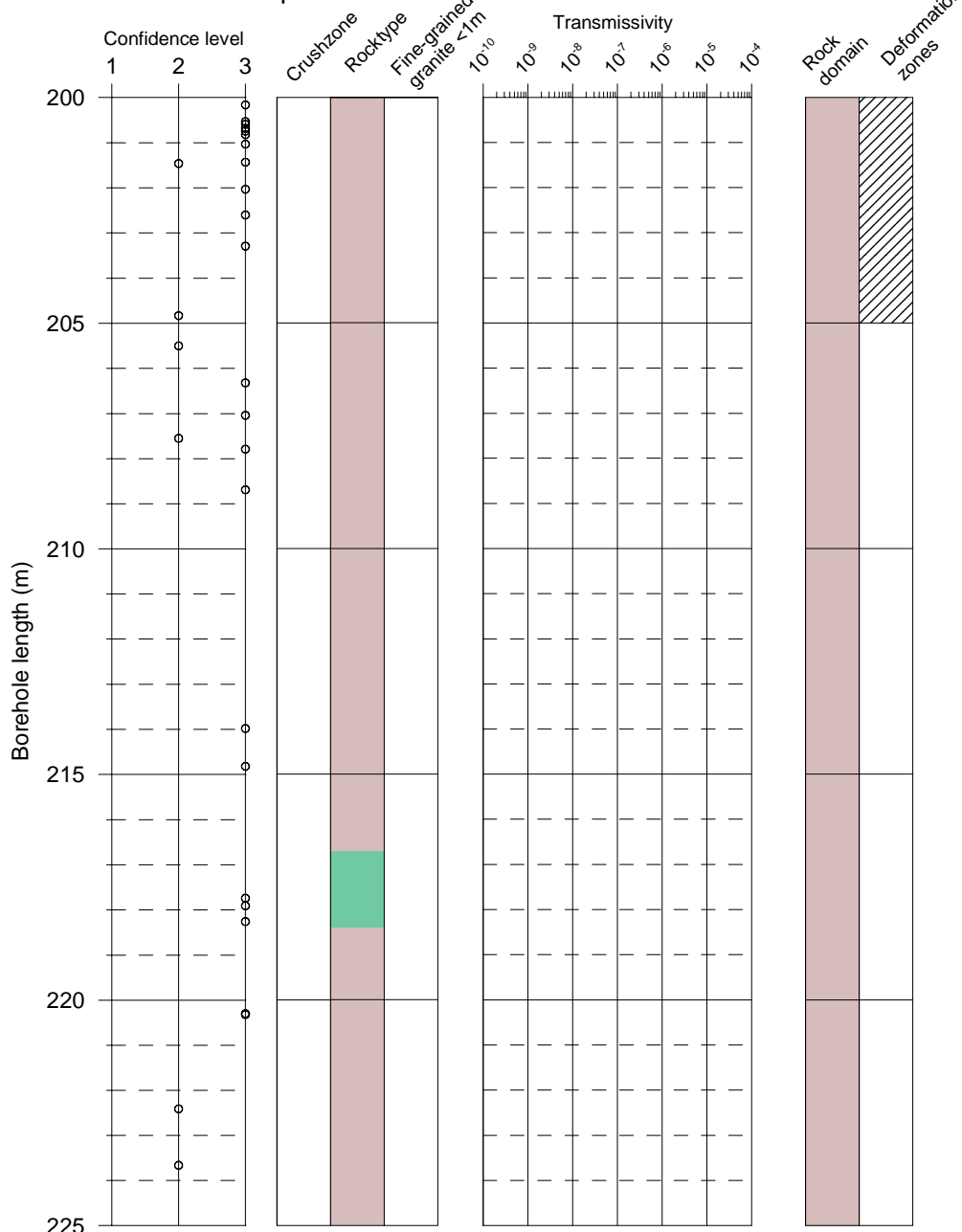
Deformation zones

- Zone

KFM07A

Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
- Class 3
- Class 4
- Open fracture,
no flow indication

Confidence level
Open fractures

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- 3 possible

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■ Pegmatite
■ Granite to granodiorite
■ Amphibolite
■ Volcanic rock

PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

Rock domains

- RFM029
- ▨ RFM044

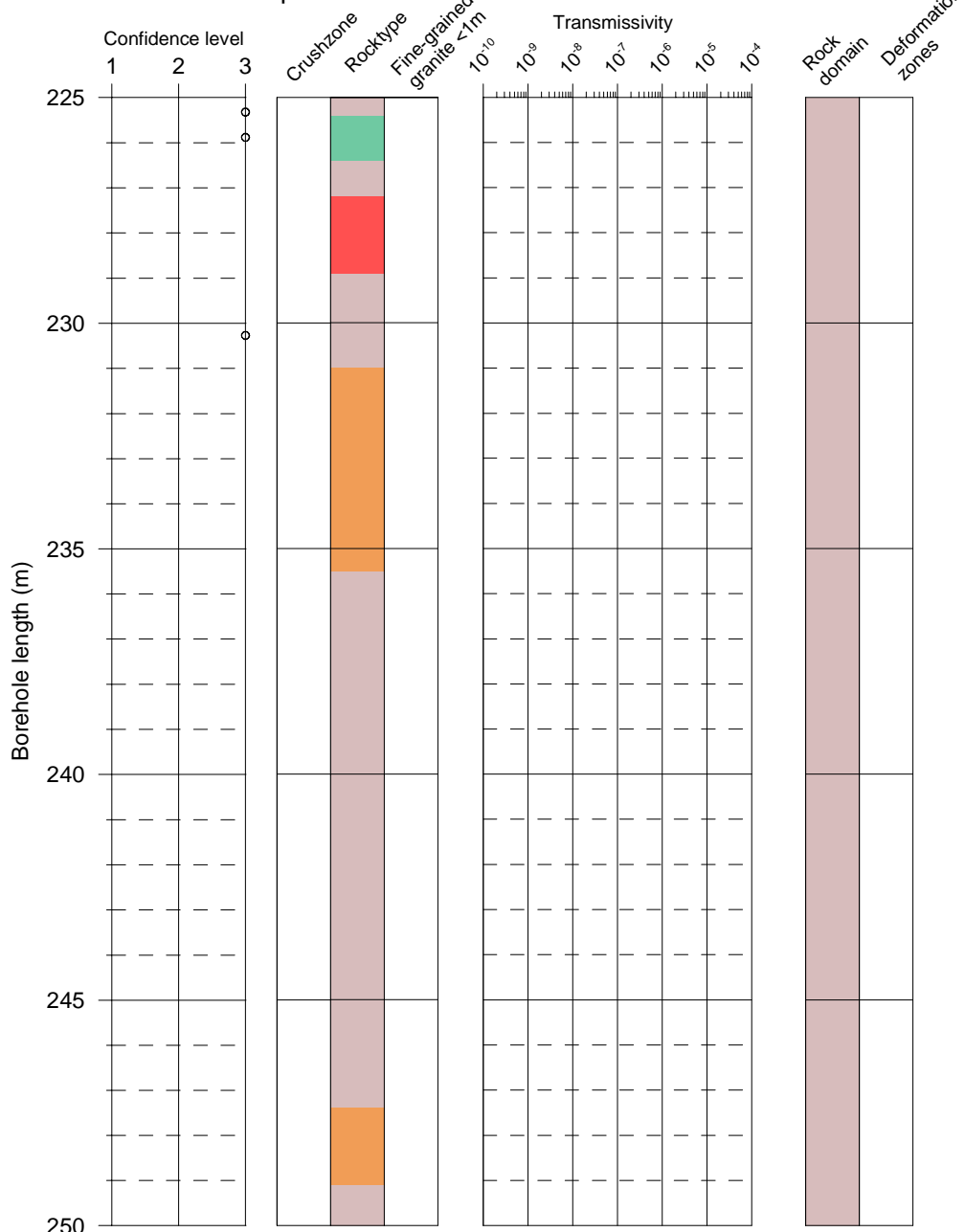
Deformation zones

- ▨ Zone

KFM07A

Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
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Open fractures

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- Volcanic rock

PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

Rock domains

- RFM029
- ▨ RFM044

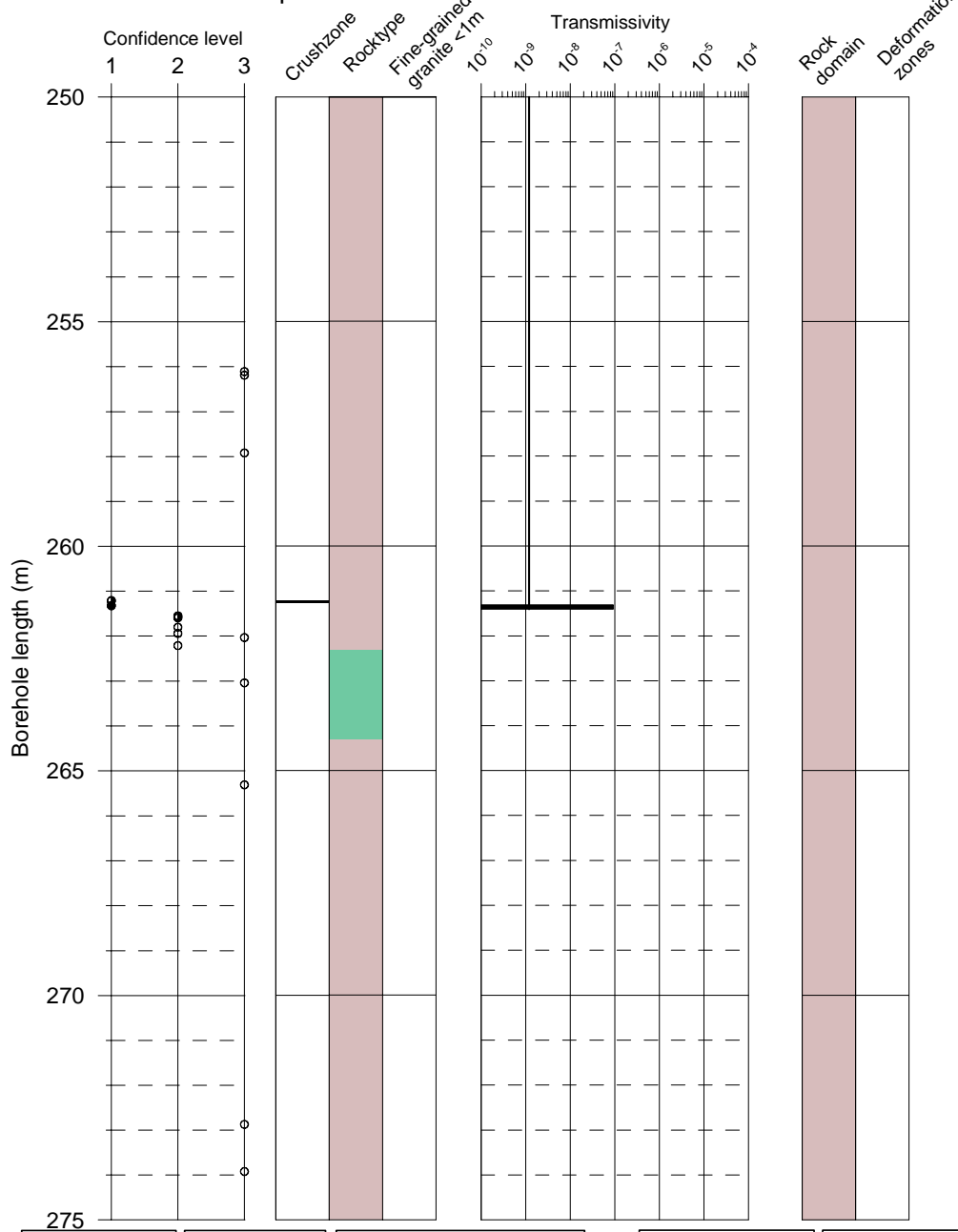
Deformation zones

- ▨ Zone

KFM07A

Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
- Class 3
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- Open fracture,
no flow indication

Confidence level
Open fractures

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■ Volcanic rock

PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

Rock domains

- RFM029
- ▨ RFM044

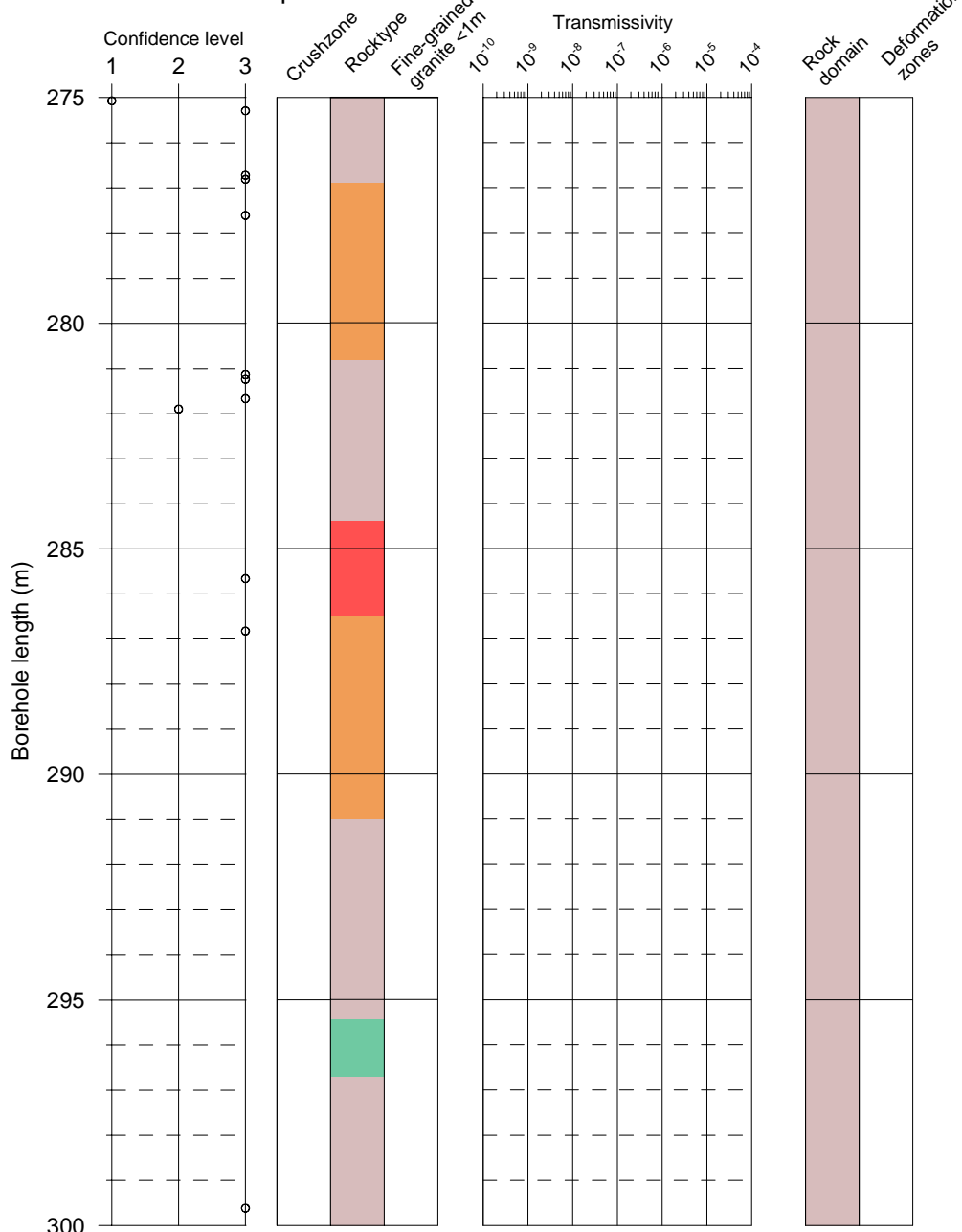
Deformation zones

- ▨ Zone

KFM07A

Boremap

PFL



Flow indication
open fractures

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- Class 2
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PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

Rock domains

- RFM029
- ▨ RFM044

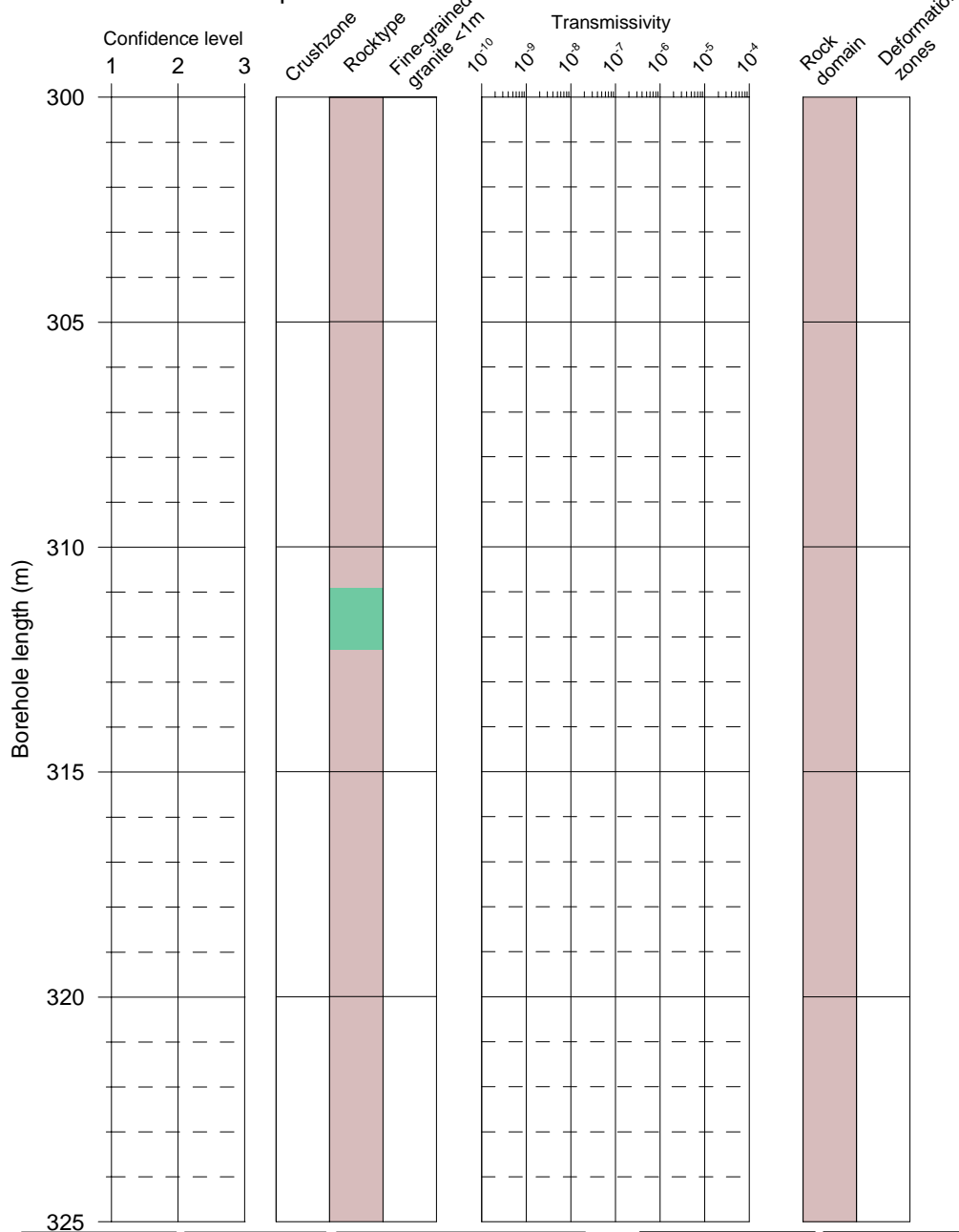
Deformation zones

- ▨ Zone

KFM07A

Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
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no flow indication

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■ Volcanic rock

PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

Rock domains

- RFM029
- ▨ RFM044

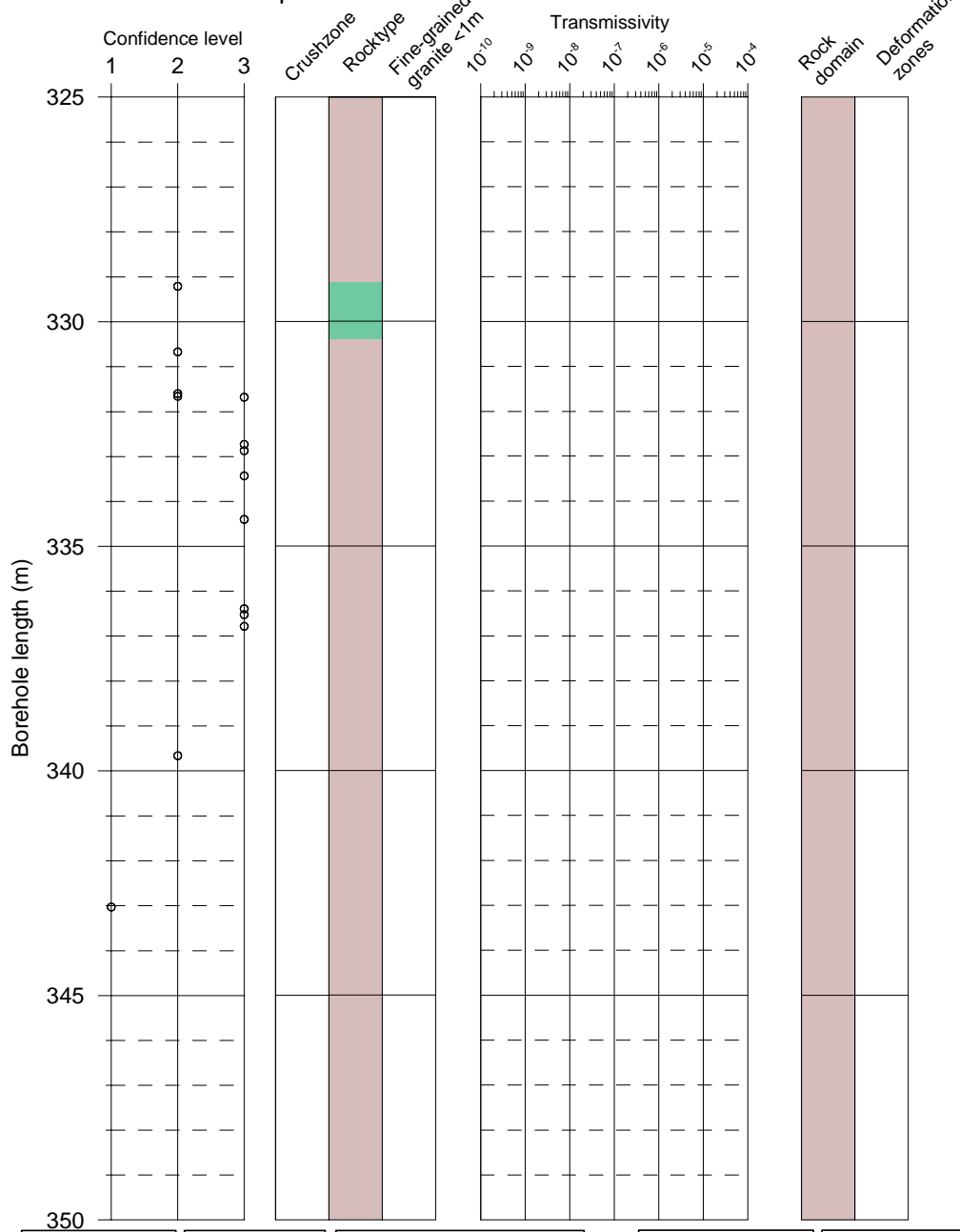
Deformation zones

- ▨ Zone

KFM07A

Boremap

PFL



Flow indication
open fractures

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- Class 2
- Class 3
- Class 4
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■ Volcanic rock

PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

Rock domains

- RFM029
- ▨ RFM044

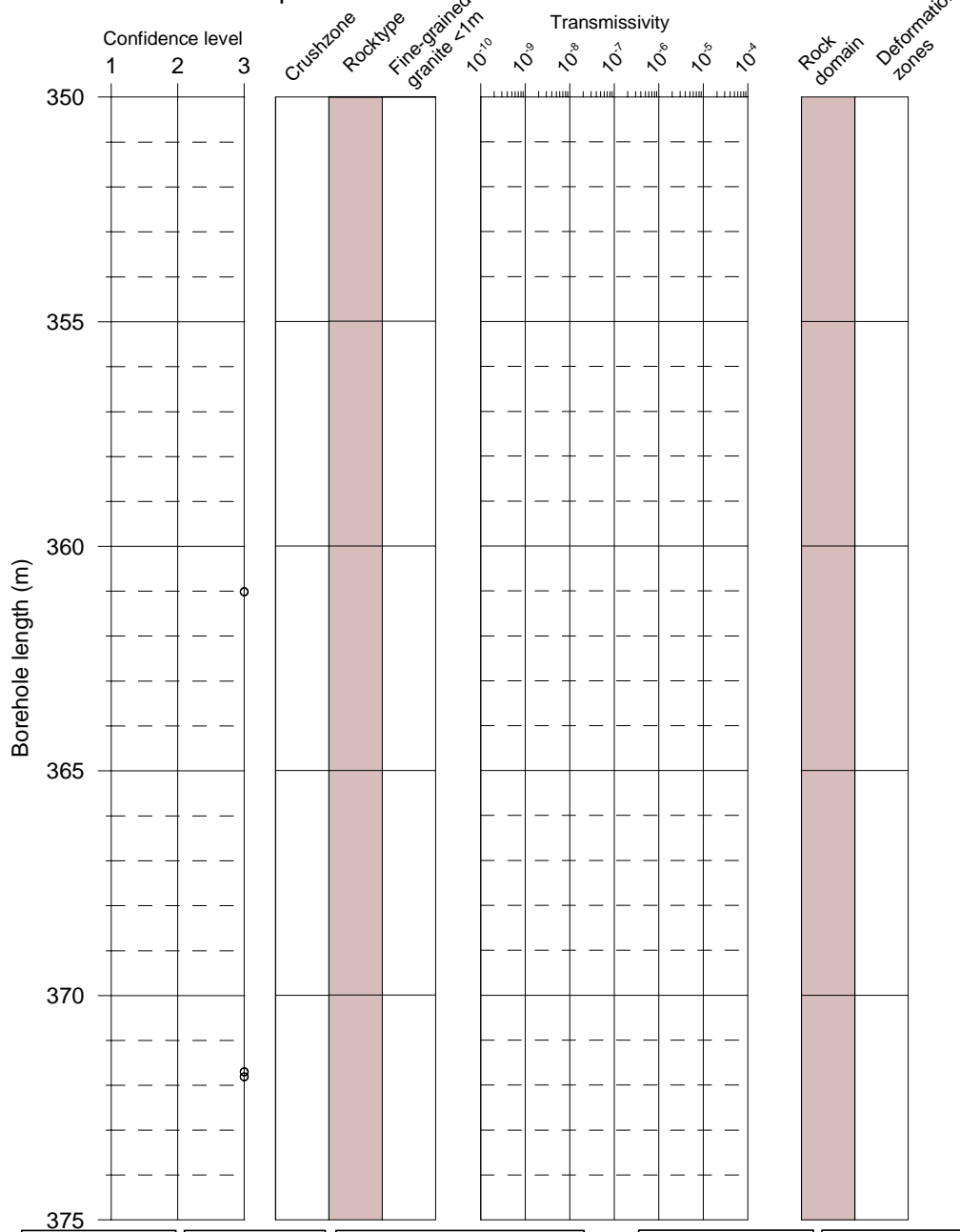
Deformation zones

- ▨ Zone

KFM07A

Boremap

PFL



Flow indication
open fractures

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- Class 2
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- Open fracture,
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■ Volcanic rock

PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

Rock domains

- RFM029
- ▨ RFM044

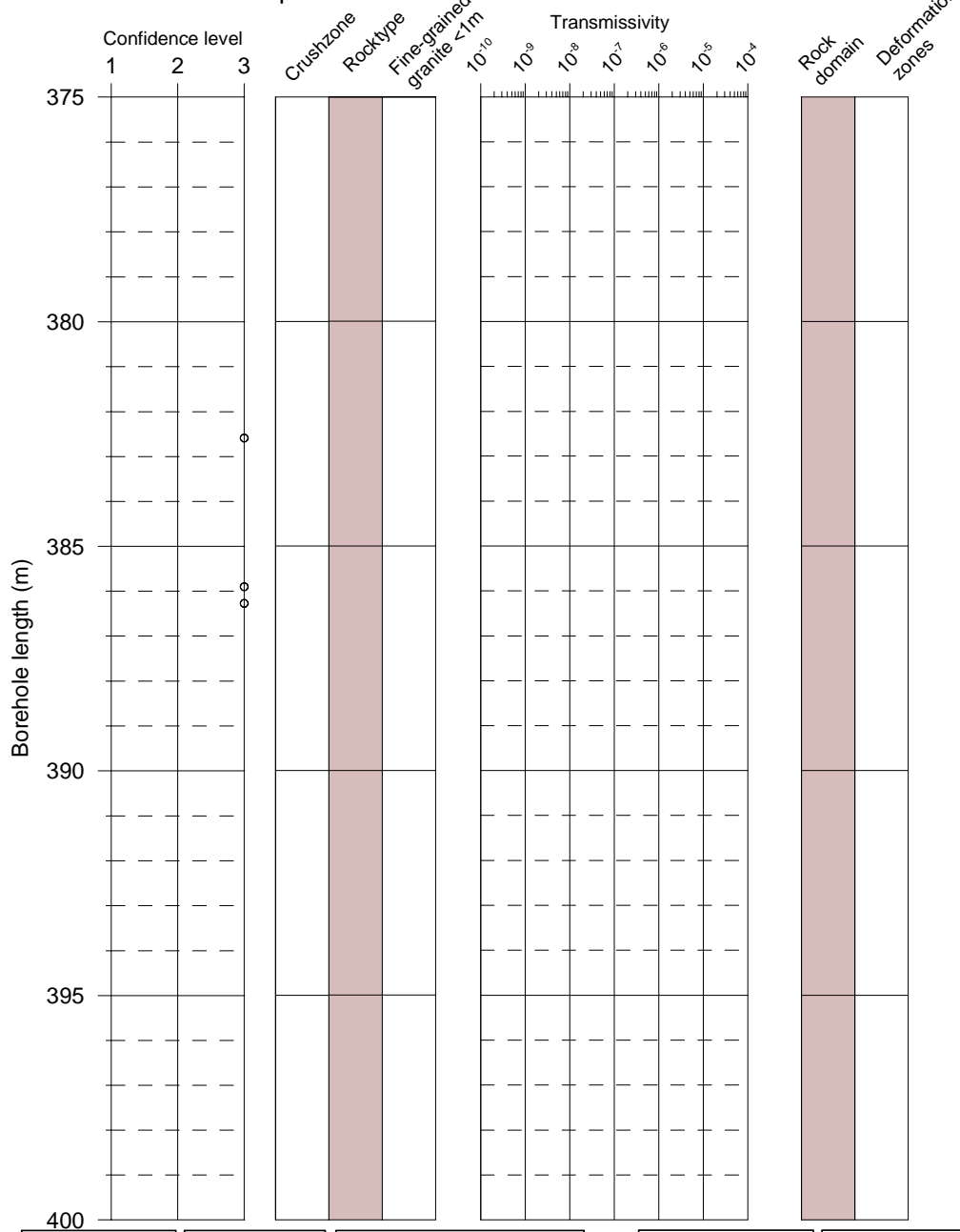
Deformation zones

- ▨ Zone

KFM07A

Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
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- Open fracture, no flow indication

Confidence level
Open fractures

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- Volcanic rock

PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

Rock domains

- RFM029
- ▨ RFM044

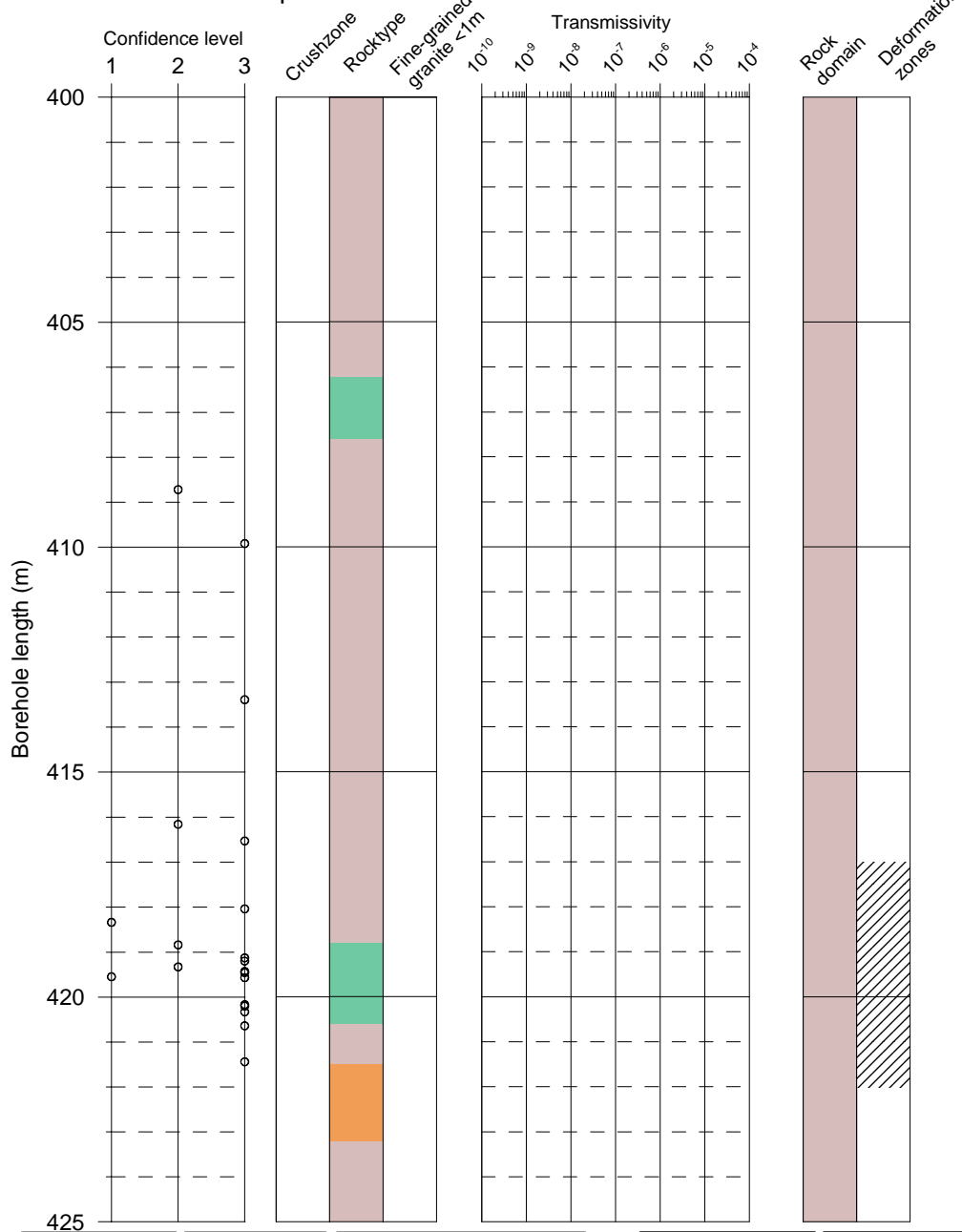
Deformation zones

- ▨ Zone

KFM07A

Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
- Class 3
- Class 4
- Open fracture, no flow indication

Confidence level
Open fractures

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■ Pegmatite
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■ Amphibolite
■ Volcanic rock

PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

Rock domains

- RFM029
- ▨ RFM044

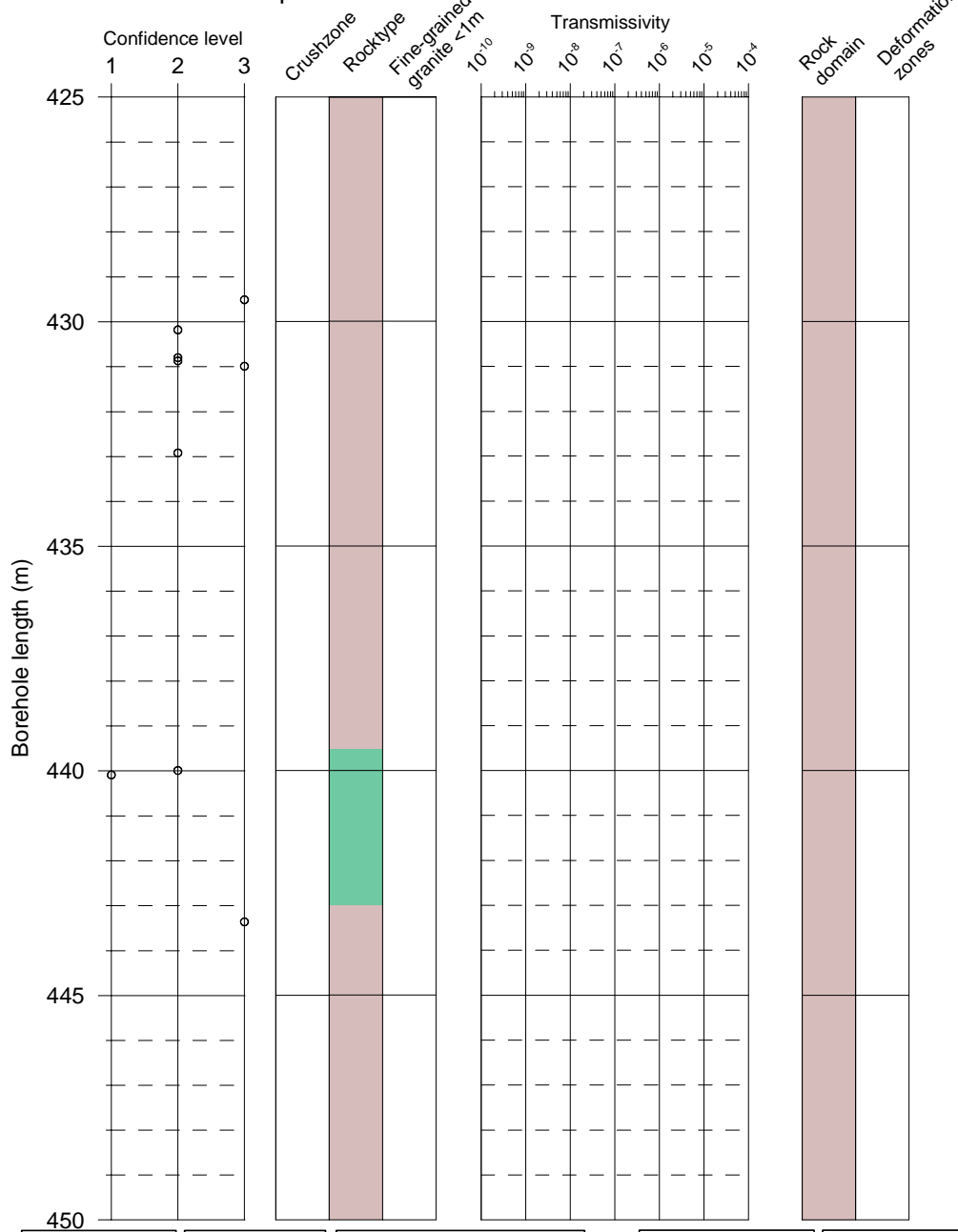
Deformation zones

- ▨ Zone

KFM07A

Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
- Class 3
- Class 4
- Open fracture, no flow indication

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Open fractures

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■ Volcanic rock

PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

Rock domains

- RFM029
- ▨ RFM044

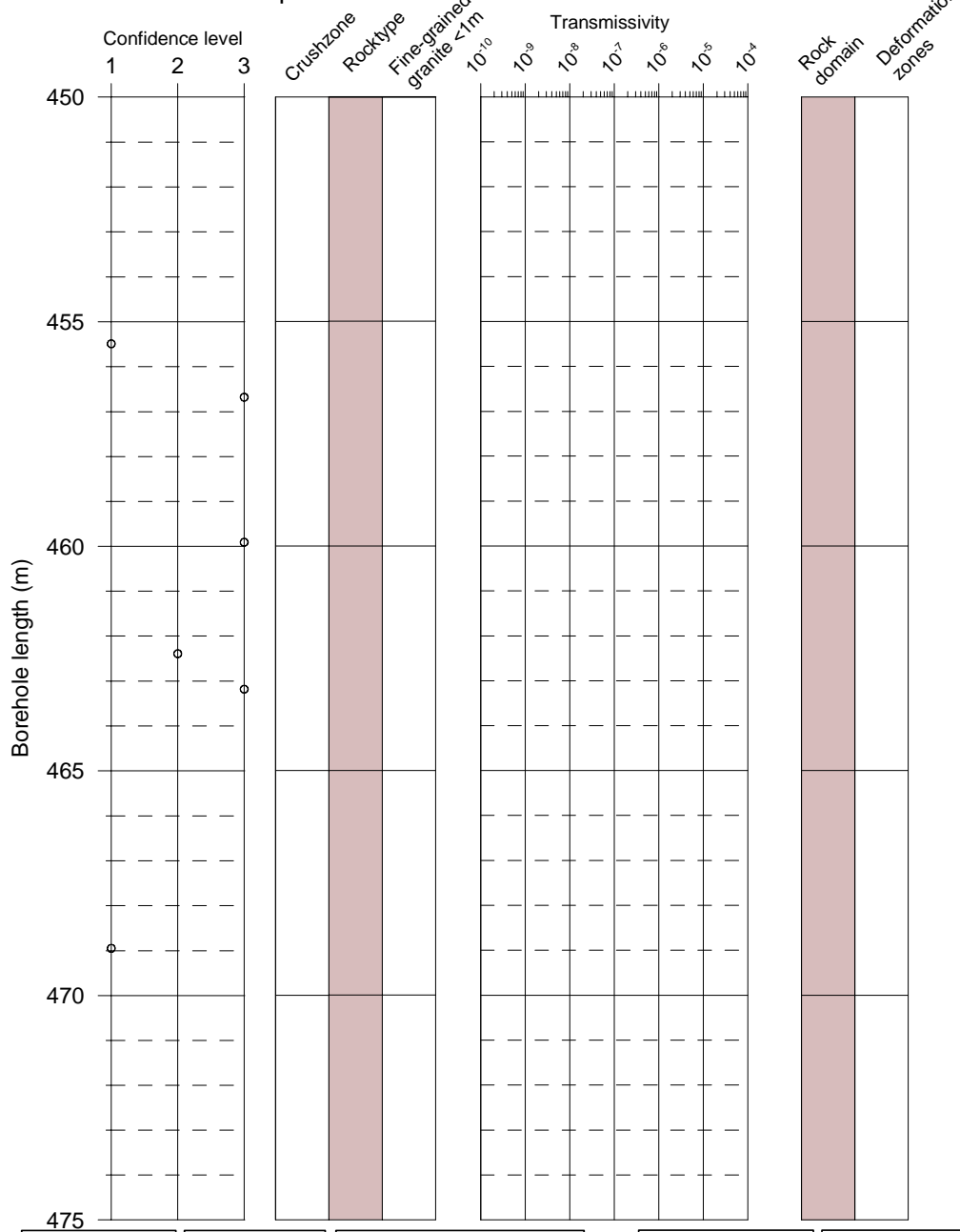
Deformation zones

- ▨ Zone

KFM07A

Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
- Class 3
- Class 4
- Open fracture, no flow indication

Confidence level
Open fractures

- 1 certain
- 2 probable
- 3 possible

- Fine-grained granite
- Pegmatite
- Granite to granodiorite
- Amphibolite
- Volcanic rock

PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

Rock domains

- RFM029
- ▨ RFM044

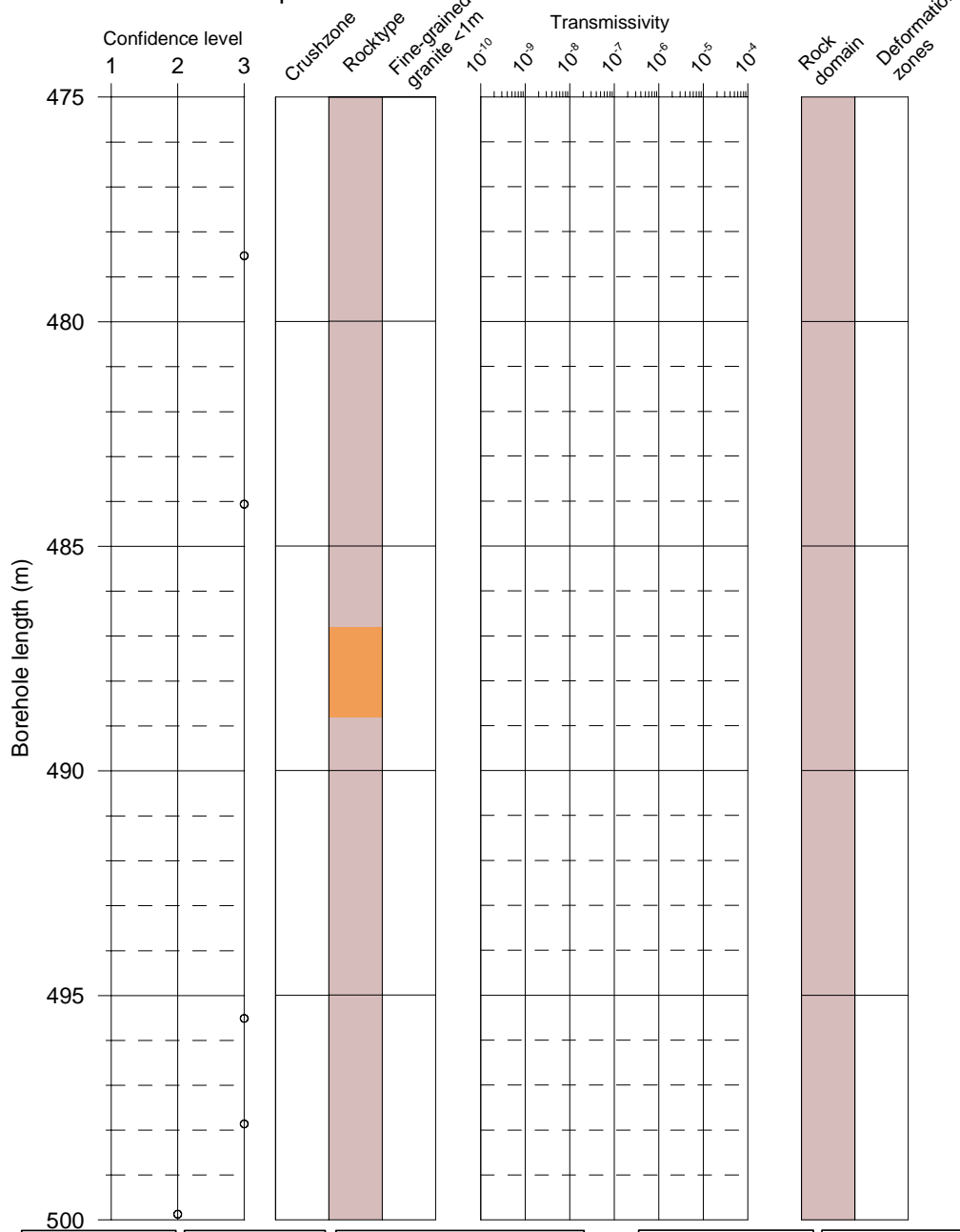
Deformation zones

- ▨ Zone

KFM07A

Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
- Class 3
- Class 4
- Open fracture, no flow indication

Confidence level
Open fractures

- 1 certain
- 2 probable
- 3 possible

■ Fine-grained granite
■ Pegmatite
■ Granite to granodiorite
■ Amphibolite
■ Volcanic rock

PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

Rock domains

- RFM029
- ▨ RFM044

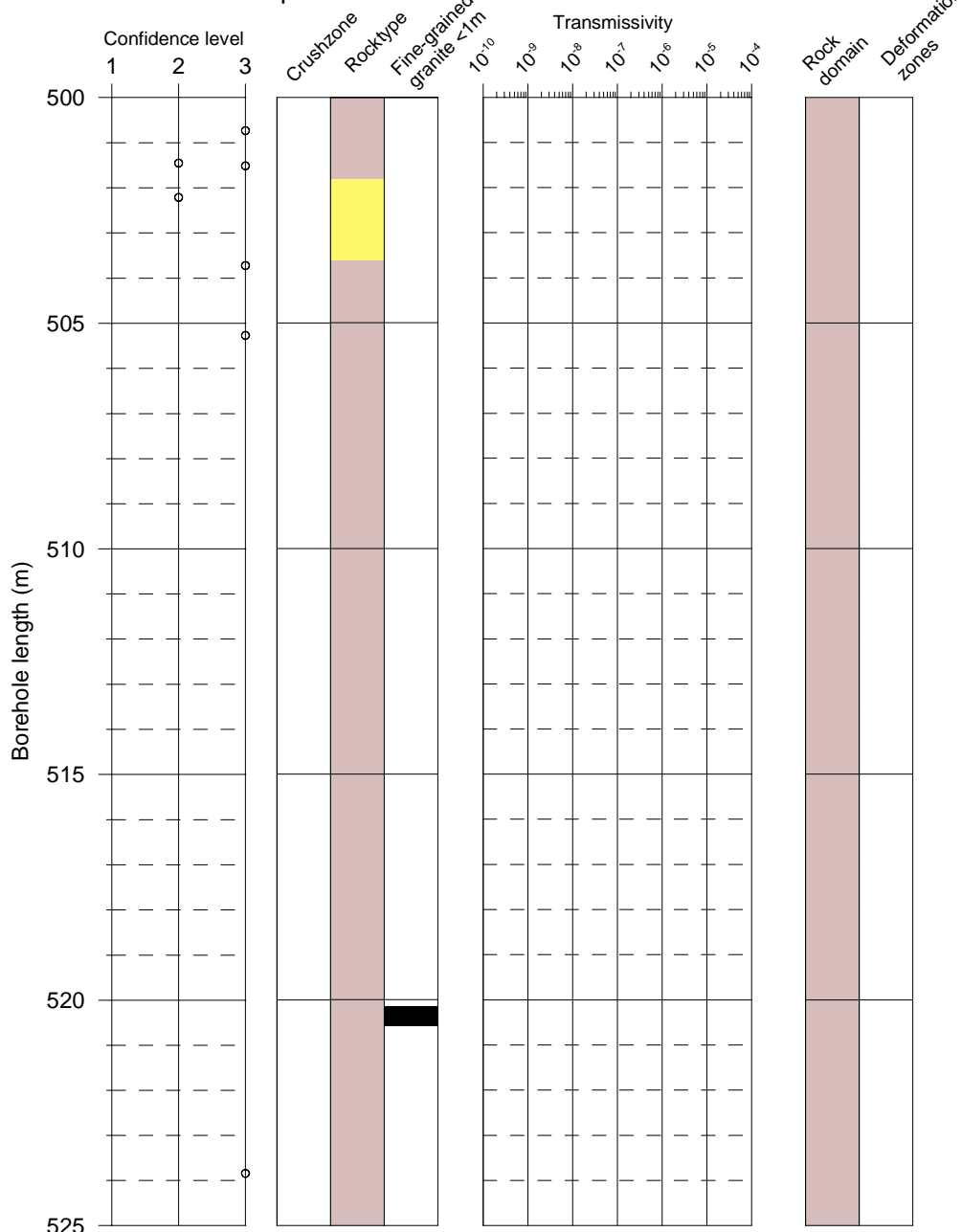
Deformation zones

- ▨ Zone

KFM07A

Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
- Class 3
- Class 4
- Open fracture, no flow indication

Confidence level
Open fractures

- 1 certain
- 2 probable
- 3 possible

■ Fine-grained granite
■ Pegmatite
■ Granite to granodiorite
■ Amphibolite
■ Volcanic rock

PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

Rock domains

- RFM029
- ▨ RFM044

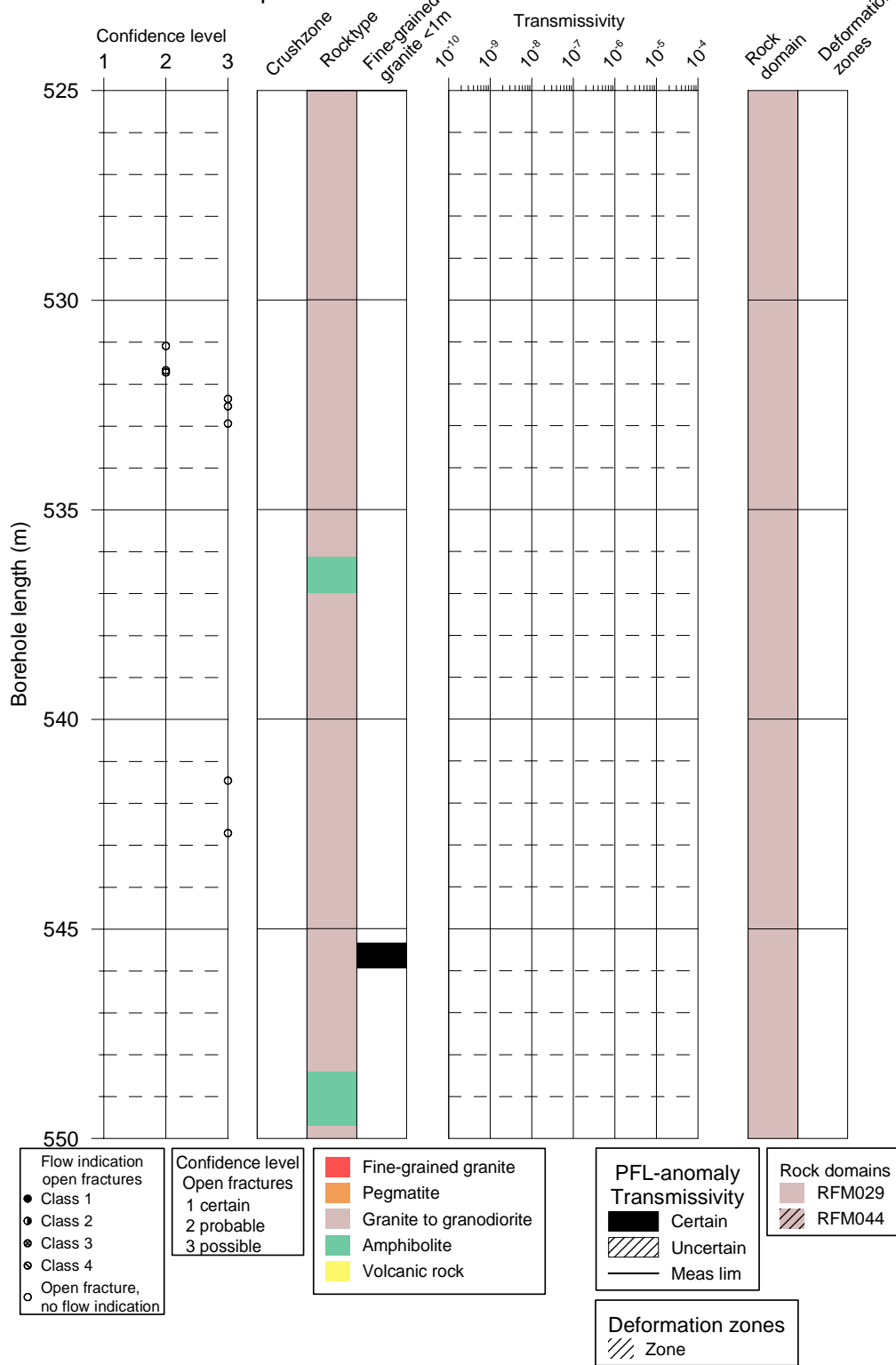
Deformation zones

- ▨ Zone

KFM07A

Boremap

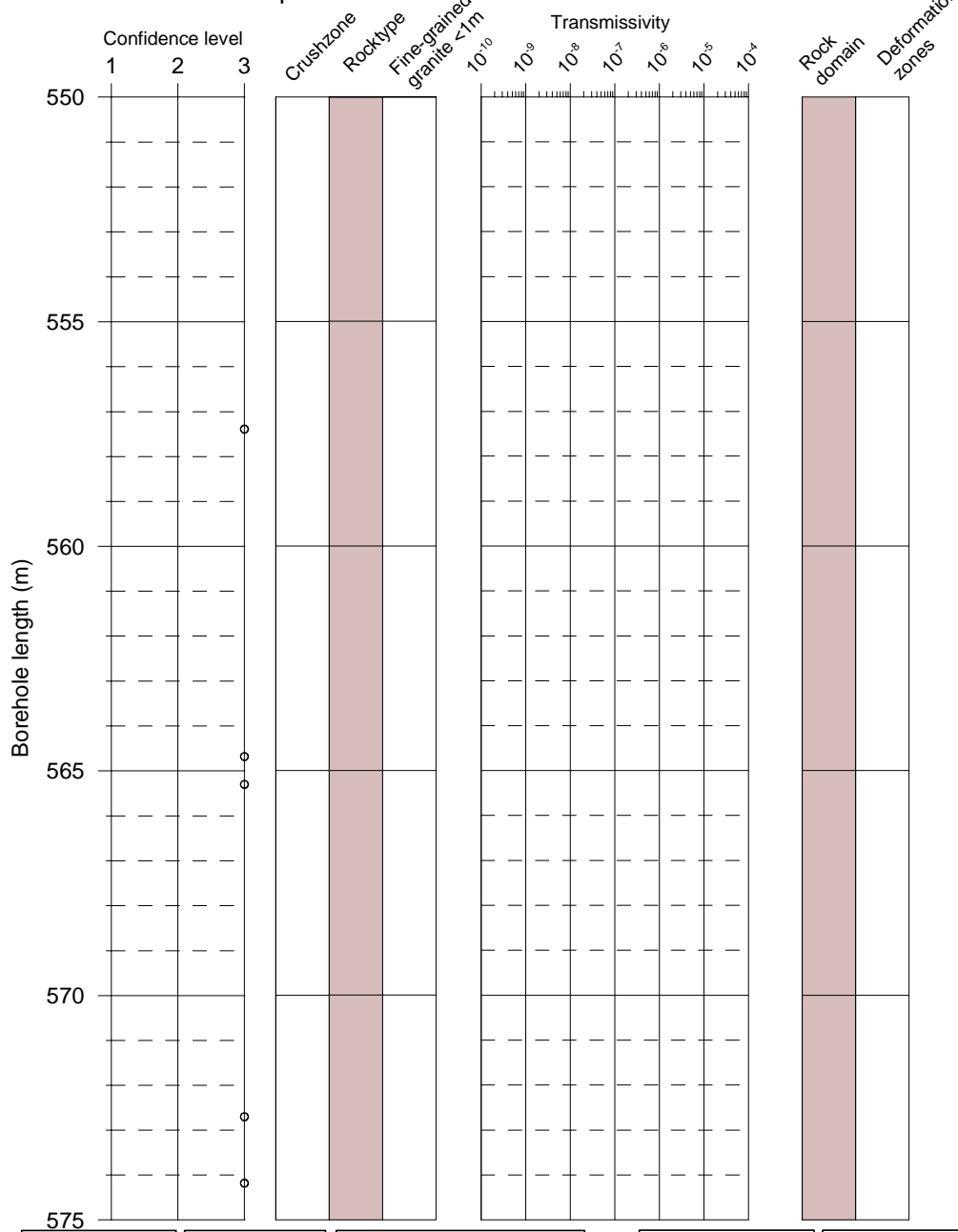
PFL



KFM07A

Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
- Class 3
- Class 4
- Open fracture,
no flow indication

Confidence level
Open fractures

- 1 certain
- 2 probable
- 3 possible

■ Fine-grained granite
■ Pegmatite
■ Granite to granodiorite
■ Amphibolite
■ Volcanic rock

PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

Rock domains

- RFM029
- ▨ RFM044

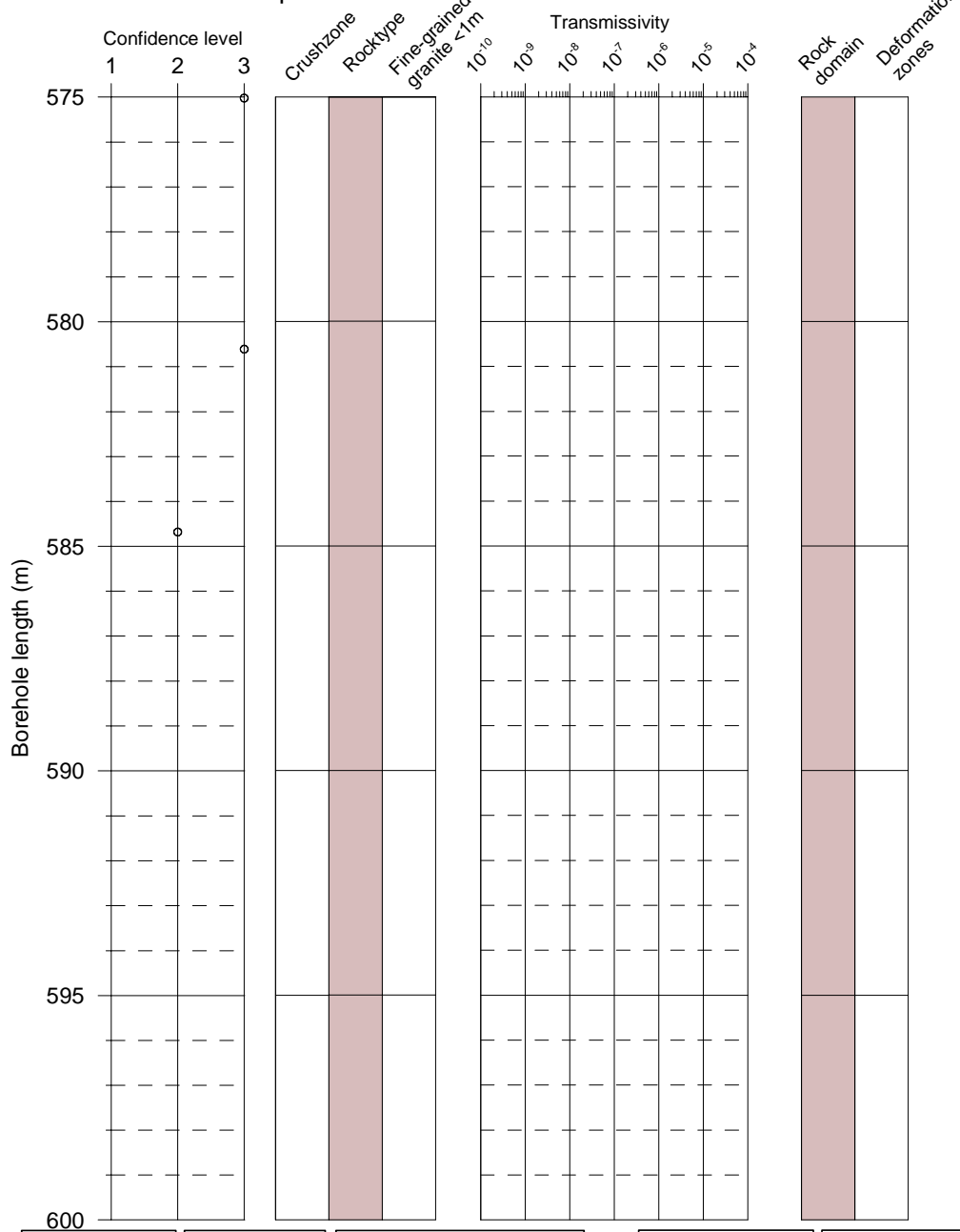
Deformation zones

- ▨ Zone

KFM07A

Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
- Class 3
- Class 4
- Open fracture,
no flow indication

Confidence level
Open fractures

- 1 certain
- 2 probable
- 3 possible

- Fine-grained granite
- Pegmatite
- Granite to granodiorite
- Amphibolite
- Volcanic rock

PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

Rock domains

- RFM029
- ▨ RFM044

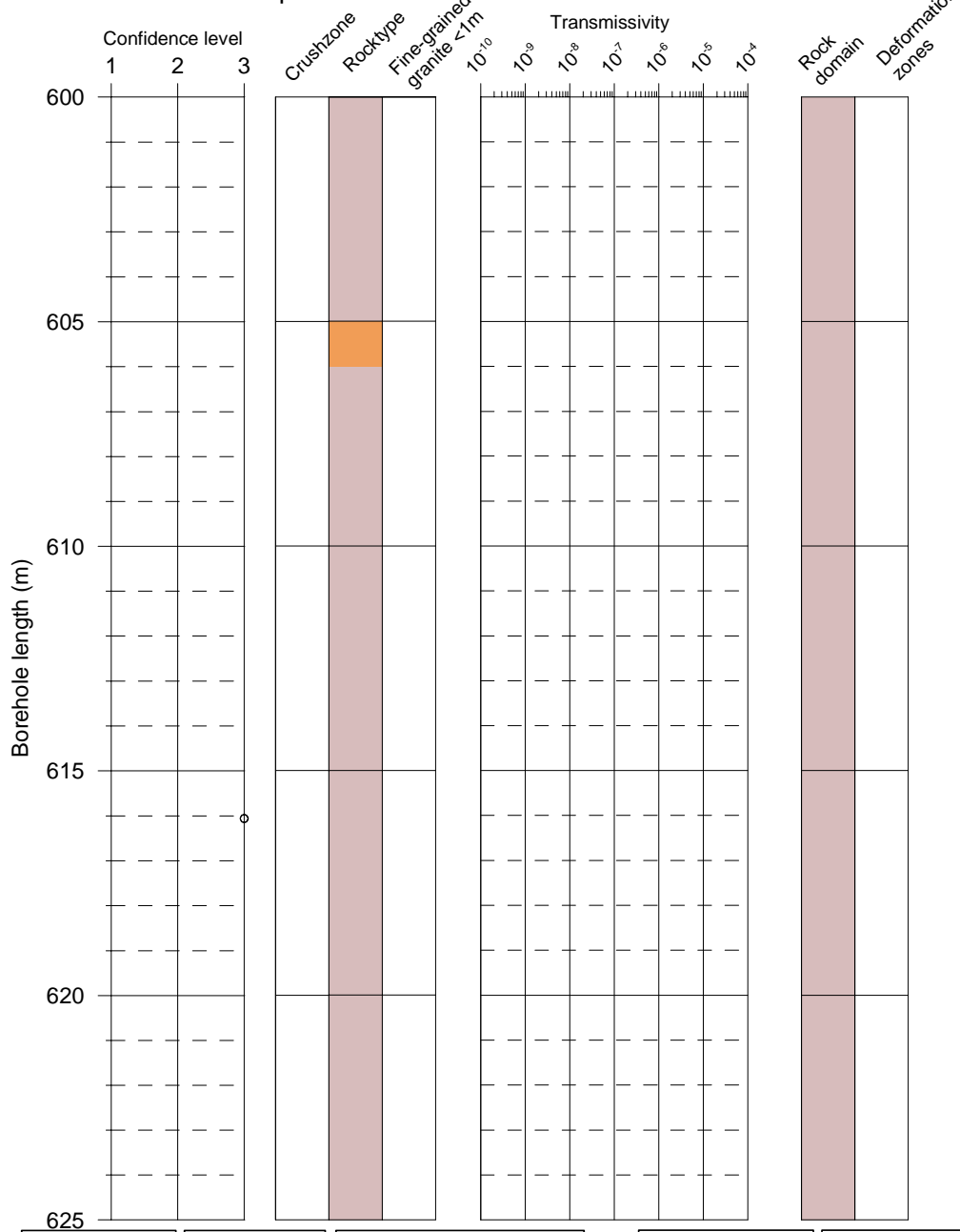
Deformation zones

- ▨ Zone

KFM07A

Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
- Class 3
- Class 4
- Open fracture, no flow indication

Confidence level
Open fractures

- 1 certain
- 2 probable
- 3 possible

■ Fine-grained granite
■ Pegmatite
■ Granite to granodiorite
■ Amphibolite
■ Volcanic rock

PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

Rock domains

- RFM029
- ▨ RFM044

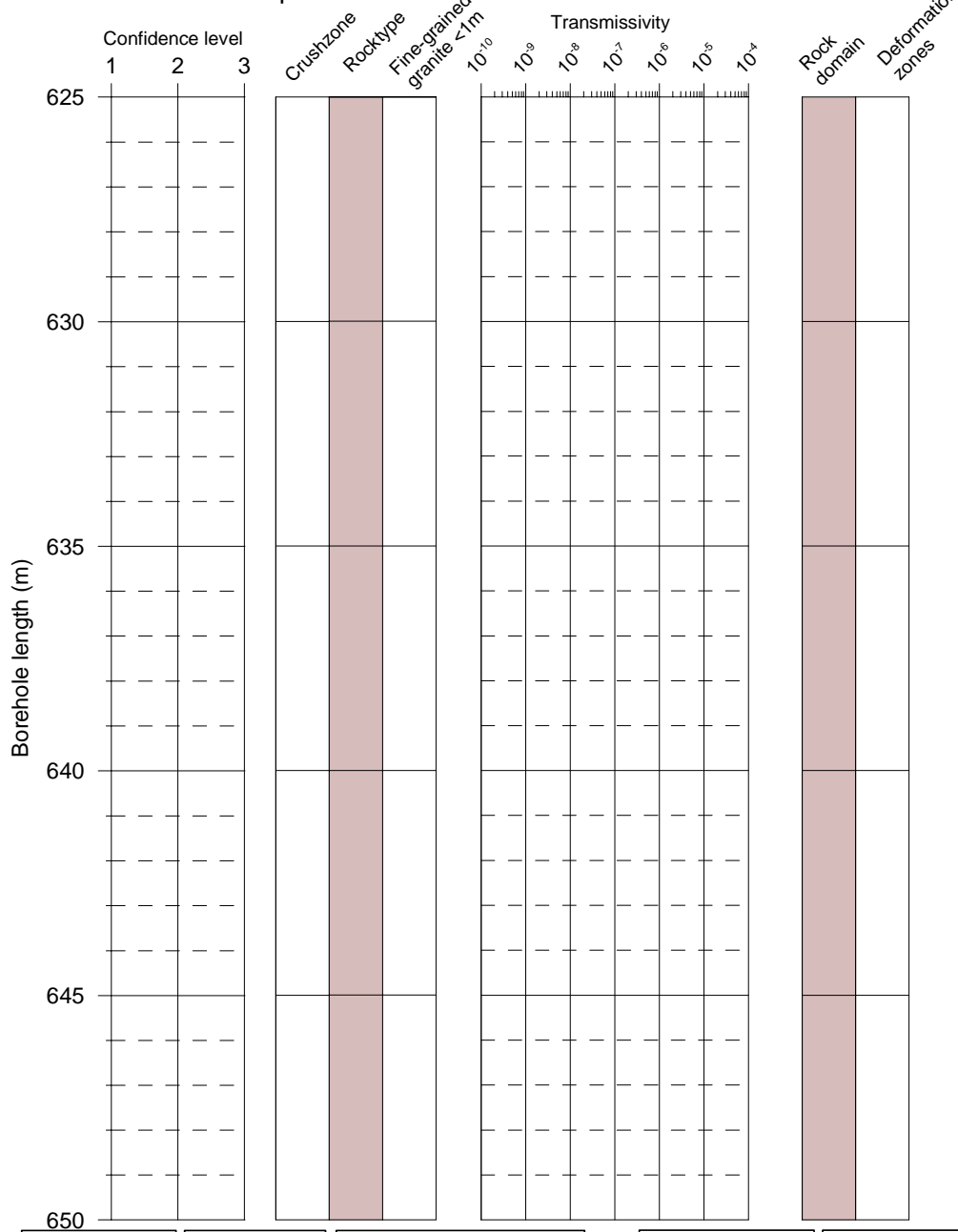
Deformation zones

- ▨ Zone

KFM07A

Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
- Class 3
- Class 4
- Open fracture, no flow indication

Confidence level
Open fractures

- 1 certain
- 2 probable
- 3 possible

- Fine-grained granite
- Pegmatite
- Granite to granodiorite
- Amphibolite
- Volcanic rock

PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

Rock domains

- RFM029
- ▨ RFM044

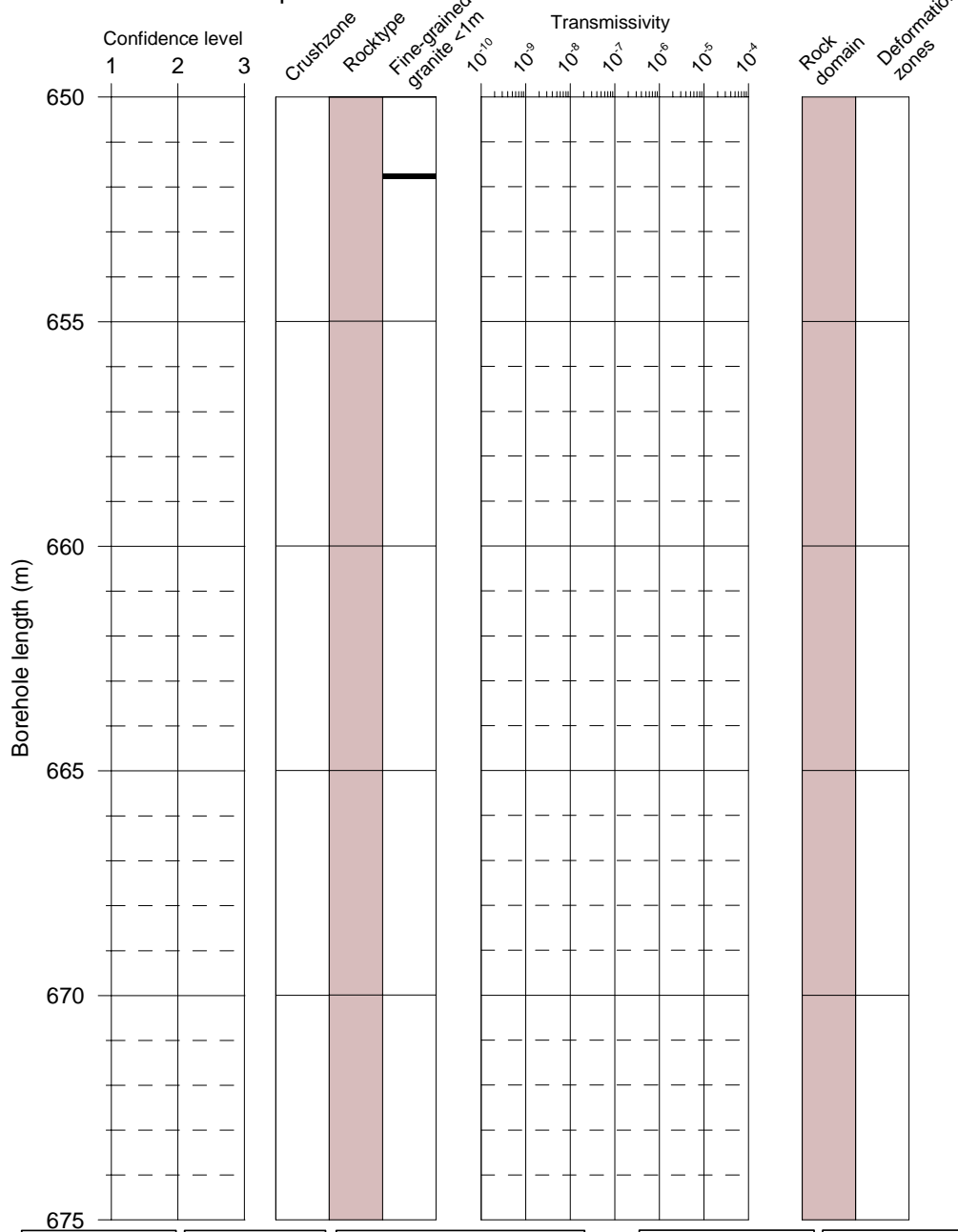
Deformation zones

- ▨ Zone

KFM07A

Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
- Class 3
- Class 4
- Open fracture,
no flow indication

Confidence level
Open fractures

- 1 certain
- 2 probable
- 3 possible

■ Fine-grained granite
■ Pegmatite
■ Granite to granodiorite
■ Amphibolite
■ Volcanic rock

PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

Rock domains

- RFM029
- ▨ RFM044

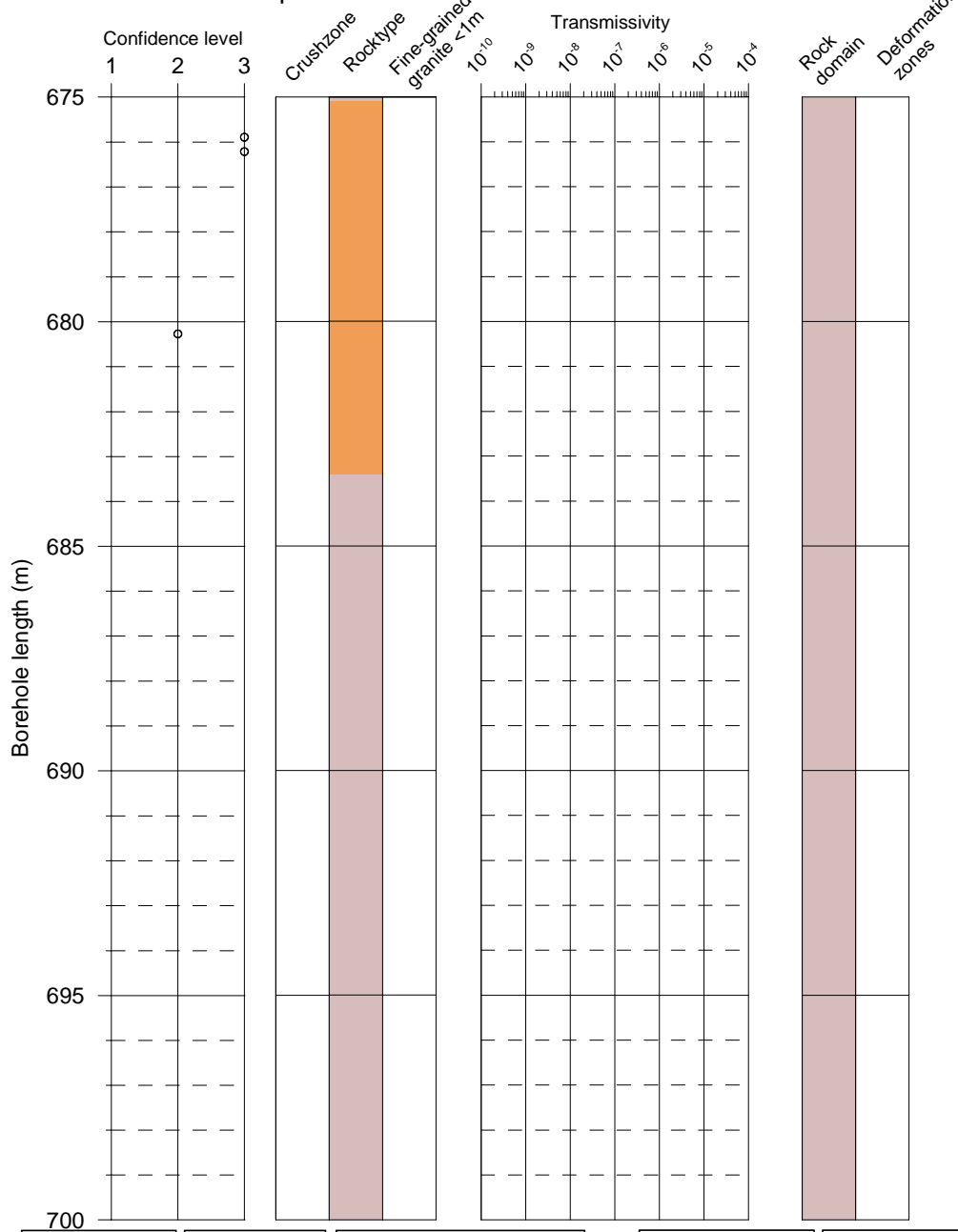
Deformation zones

- ▨ Zone

KFM07A

Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
- Class 3
- Class 4
- Open fracture, no flow indication

Confidence level
Open fractures

- 1 certain
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- 3 possible

■ Fine-grained granite
■ Pegmatite
■ Granite to granodiorite
■ Amphibolite
■ Volcanic rock

PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

Rock domains

- RFM029
- ▨ RFM044

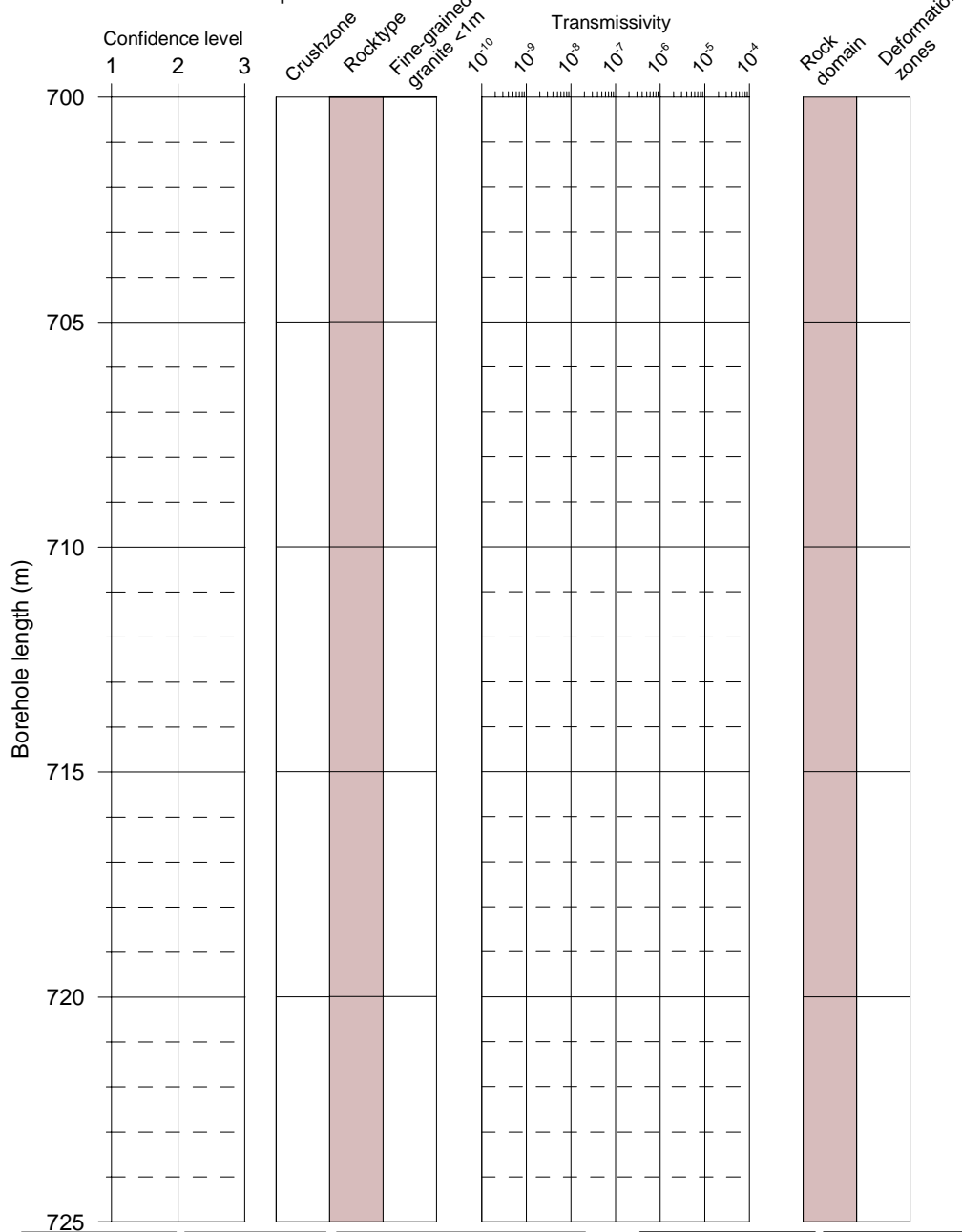
Deformation zones

- ▨ Zone

KFM07A

Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
- Class 3
- Class 4
- Open fracture, no flow indication

Confidence level
Open fractures

- 1 certain
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- Fine-grained granite
- Pegmatite
- Granite to granodiorite
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PFL-anomaly
Transmissivity

- Certain
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- Meas lim

Rock domains

- RFM029
- ▨ RFM044

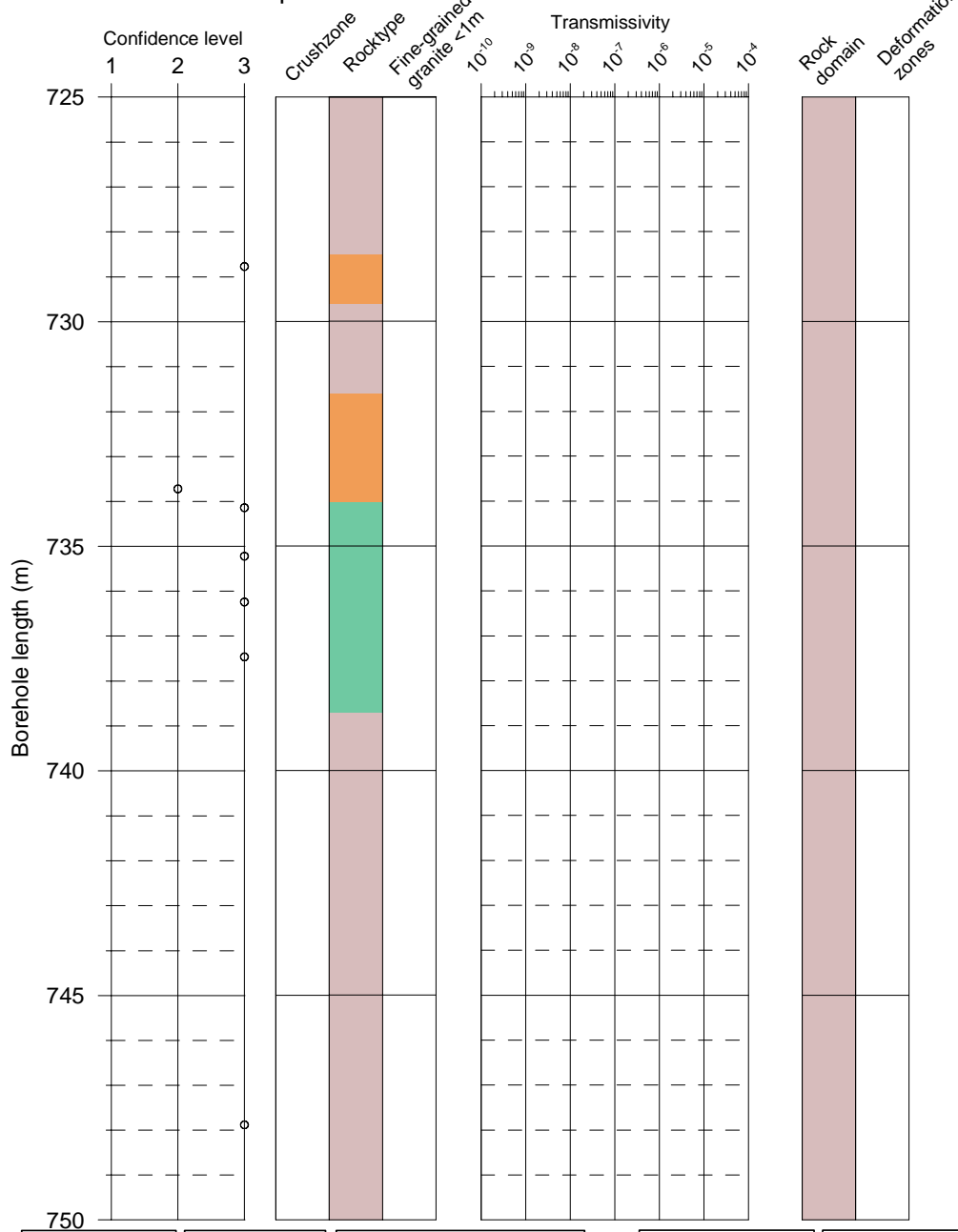
Deformation zones

- ▨ Zone

KFM07A

Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
- Class 3
- Class 4
- Open fracture, no flow indication

Confidence level
Open fractures

- 1 certain
- 2 probable
- 3 possible

■ Fine-grained granite
■ Pegmatite
■ Granite to granodiorite
■ Amphibolite
■ Volcanic rock

PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

Rock domains

- RFM029
- ▨ RFM044

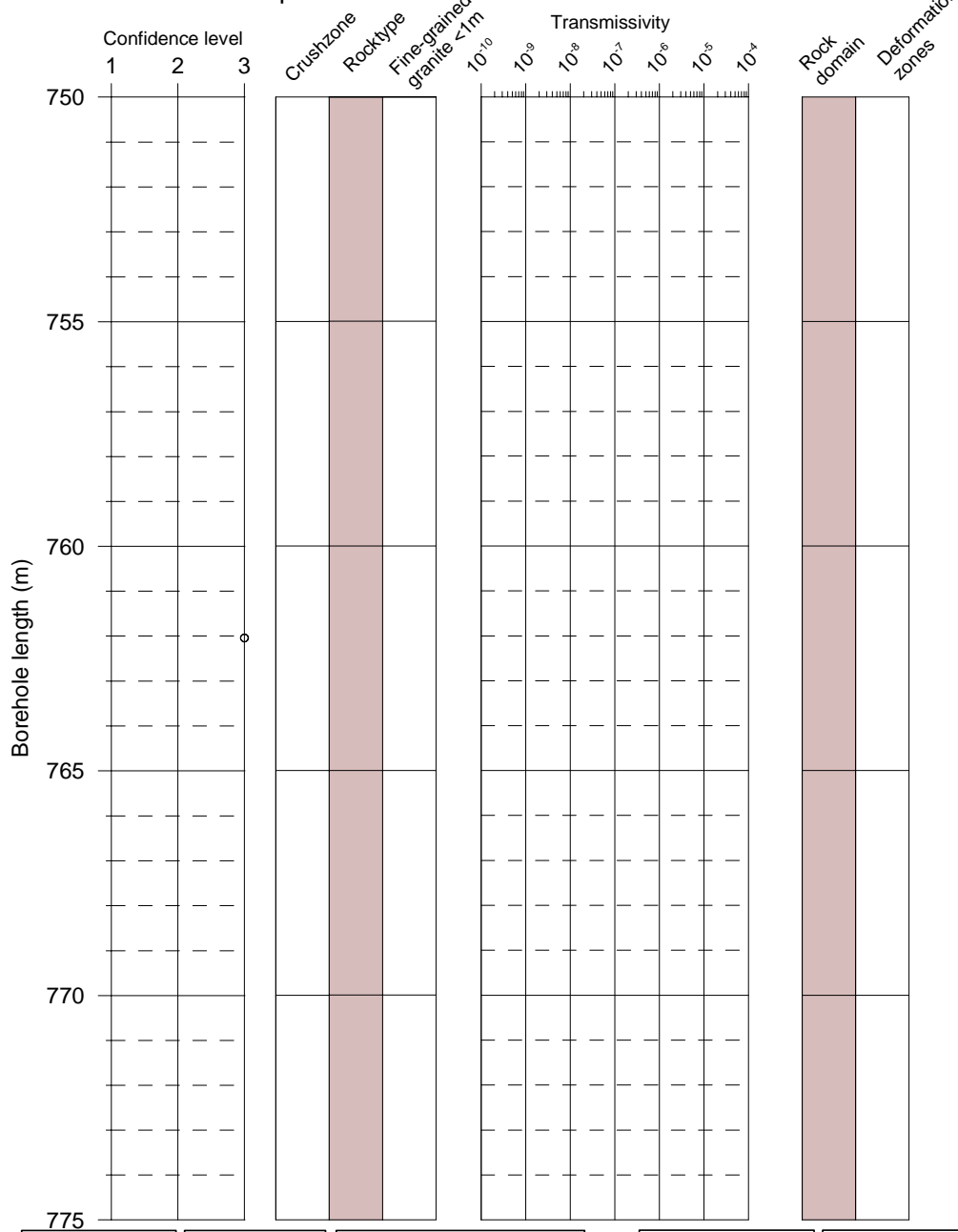
Deformation zones

- ▨ Zone

KFM07A

Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
- Class 3
- Class 4
- Open fracture, no flow indication

Confidence level
Open fractures

- 1 certain
- 2 probable
- 3 possible

■ Fine-grained granite
■ Pegmatite
■ Granite to granodiorite
■ Amphibolite
■ Volcanic rock

PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

Rock domains

- RFM029
- ▨ RFM044

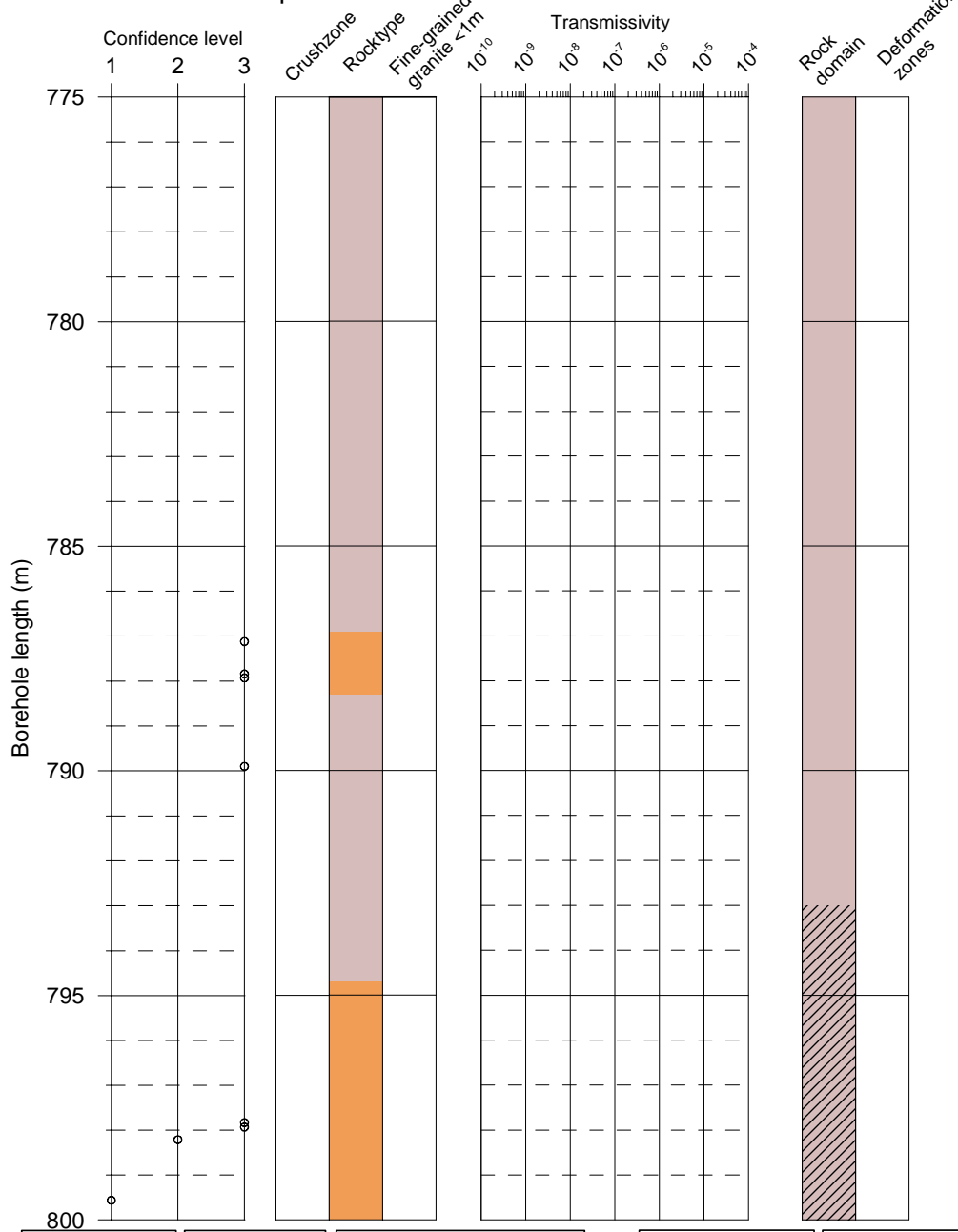
Deformation zones

- ▨ Zone

KFM07A

Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
- Class 3
- Class 4
- Open fracture,
no flow indication

Confidence level
Open fractures

- 1 certain
- 2 probable
- 3 possible

- Fine-grained granite
- Pegmatite
- Granite to granodiorite
- Amphibolite
- Volcanic rock

PFL-anomaly
Transmissivity

- Certain
- Uncertain
- Meas lim

Rock domains

- RFM029
- RFM044

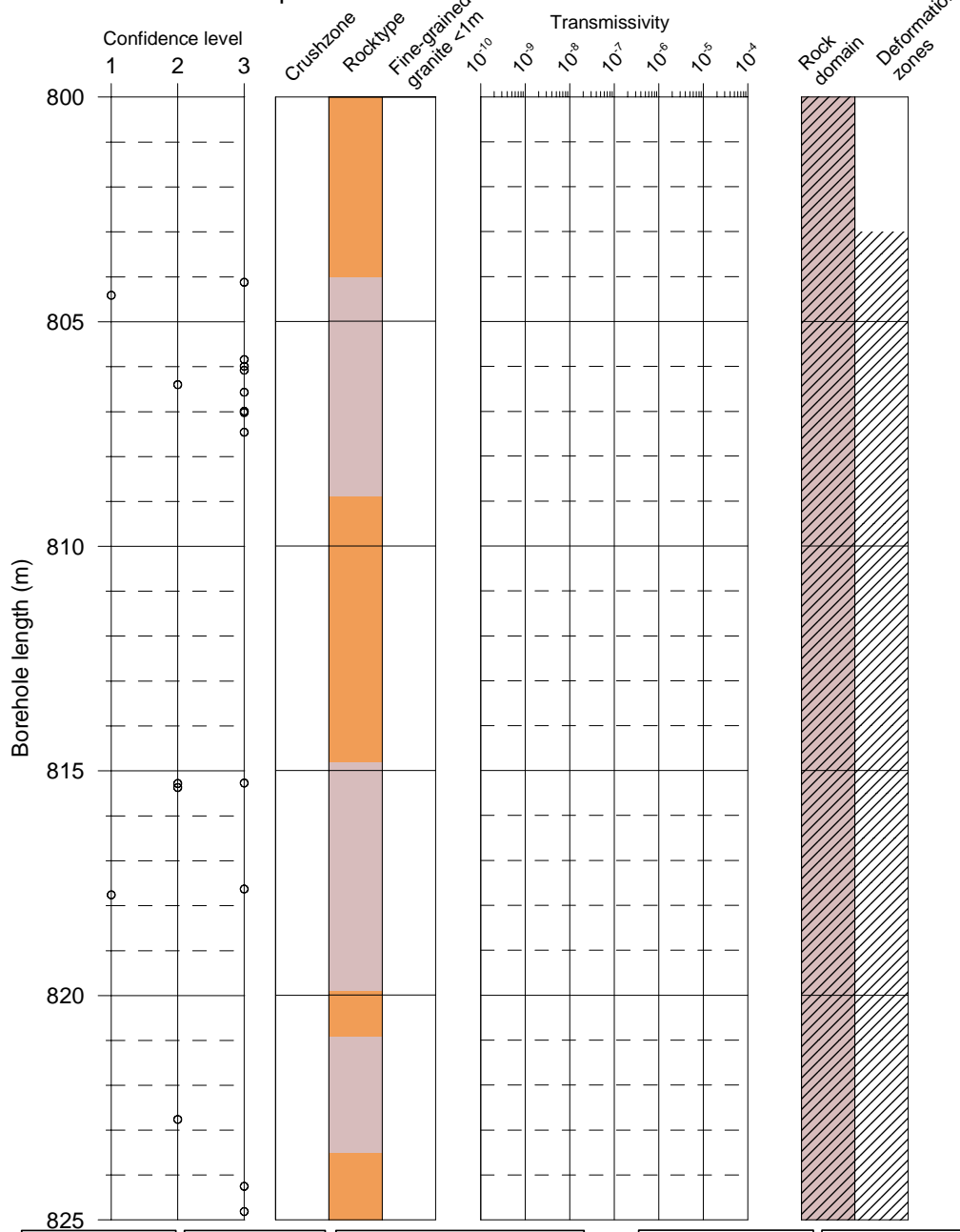
Deformation zones

- Zone

KFM07A

Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
- Class 3
- Class 4
- Open fracture,
no flow indication

Confidence level
Open fractures

- 1 certain
- 2 probable
- 3 possible

■ Fine-grained granite
■ Pegmatite
■ Granite to granodiorite
■ Amphibolite
■ Volcanic rock

PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

Rock domains

- RFM029
- ▨ RFM044

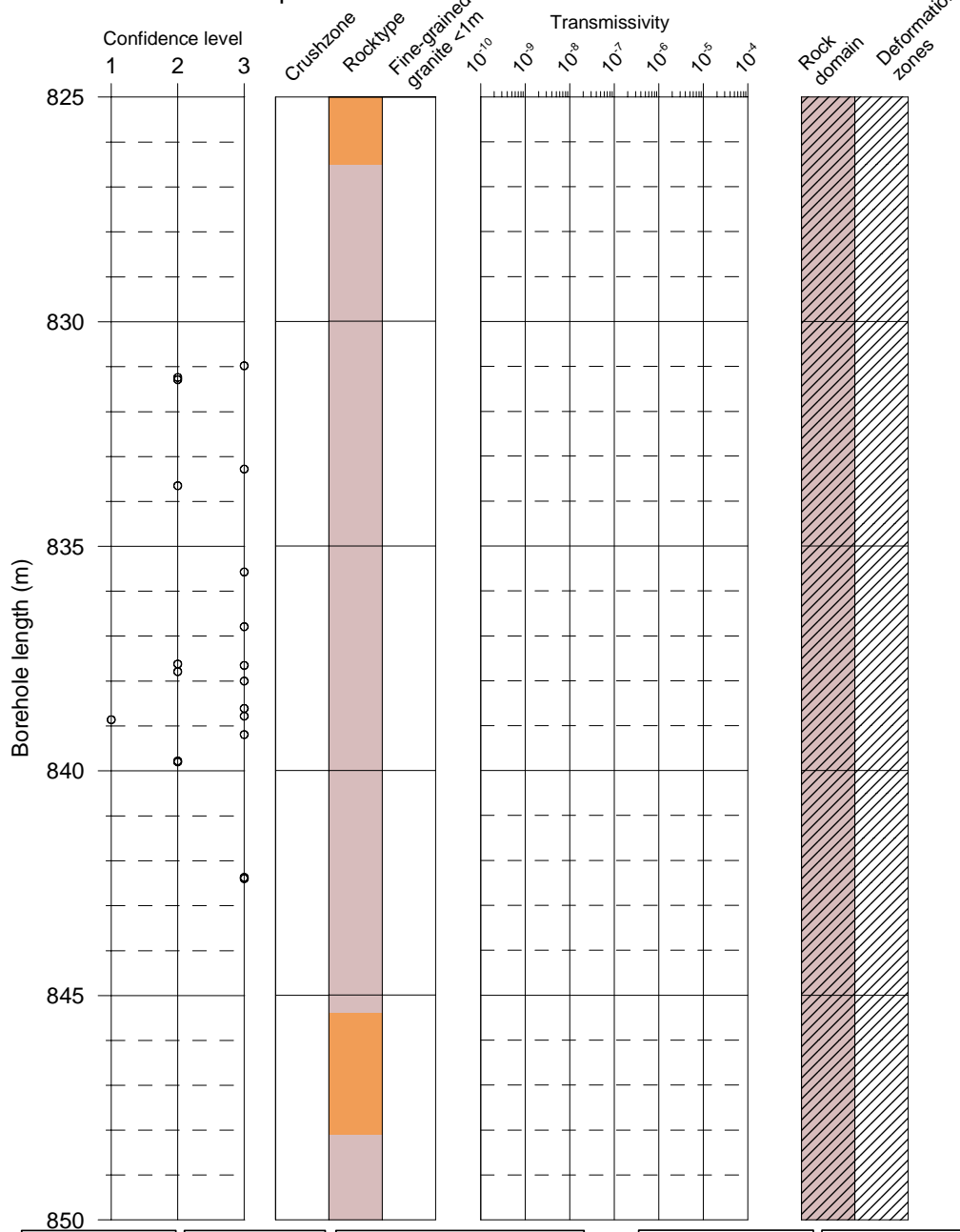
Deformation zones

- ▨ Zone

KFM07A

Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
- Class 3
- Class 4
- Open fracture,
no flow indication

Confidence level
Open fractures

- 1 certain
- 2 probable
- 3 possible

■ Fine-grained granite
■ Pegmatite
■ Granite to granodiorite
■ Amphibolite
■ Volcanic rock

PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

Rock domains

- RFM029
- ▨ RFM044

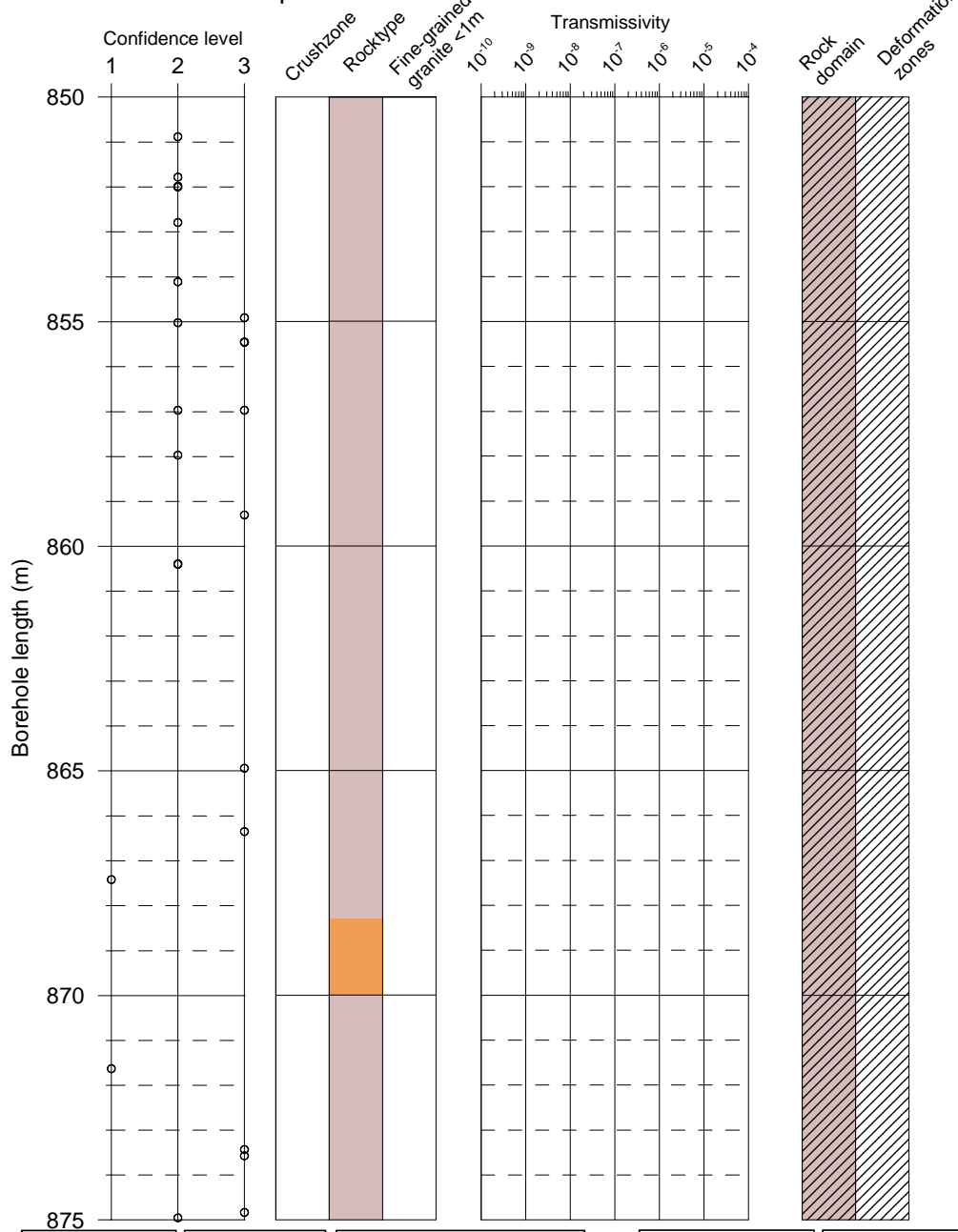
Deformation zones

- ▨ Zone

KFM07A

Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
- Class 3
- Class 4
- Open fracture, no flow indication

Confidence level
Open fractures

- 1 certain
- 2 probable
- 3 possible

■ Fine-grained granite
■ Pegmatite
■ Granite to granodiorite
■ Amphibolite
■ Volcanic rock

PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

Rock domains

- RFM029
- ▨ RFM044

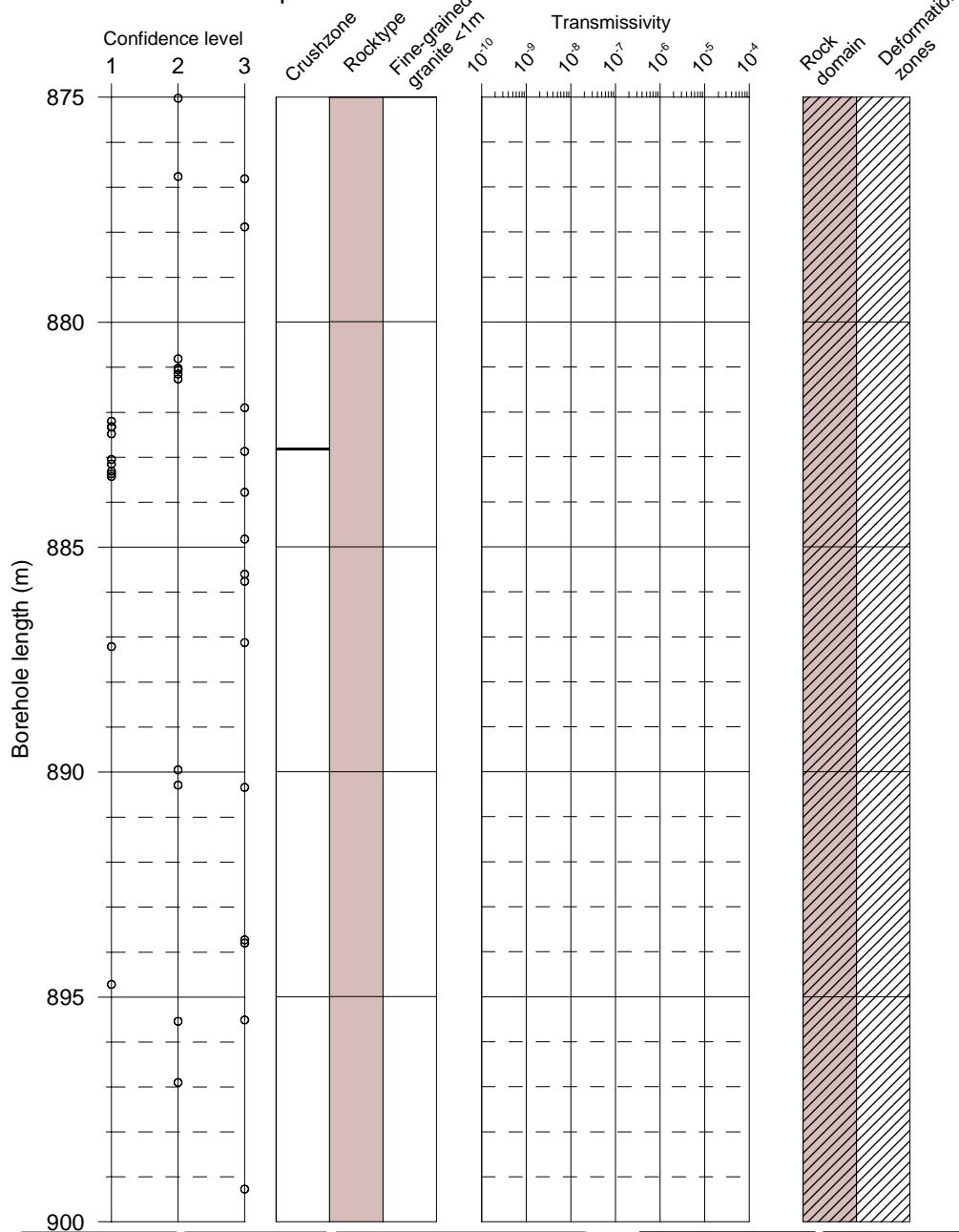
Deformation zones

- ▨ Zone

KFM07A

Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
- Class 3
- Class 4
- Open fracture,
no flow indication

Confidence level
Open fractures

- 1 certain
- 2 probable
- 3 possible

- Fine-grained granite
- Pegmatite
- Granite to granodiorite
- Amphibolite
- Volcanic rock

PFL-anomaly
Transmissivity

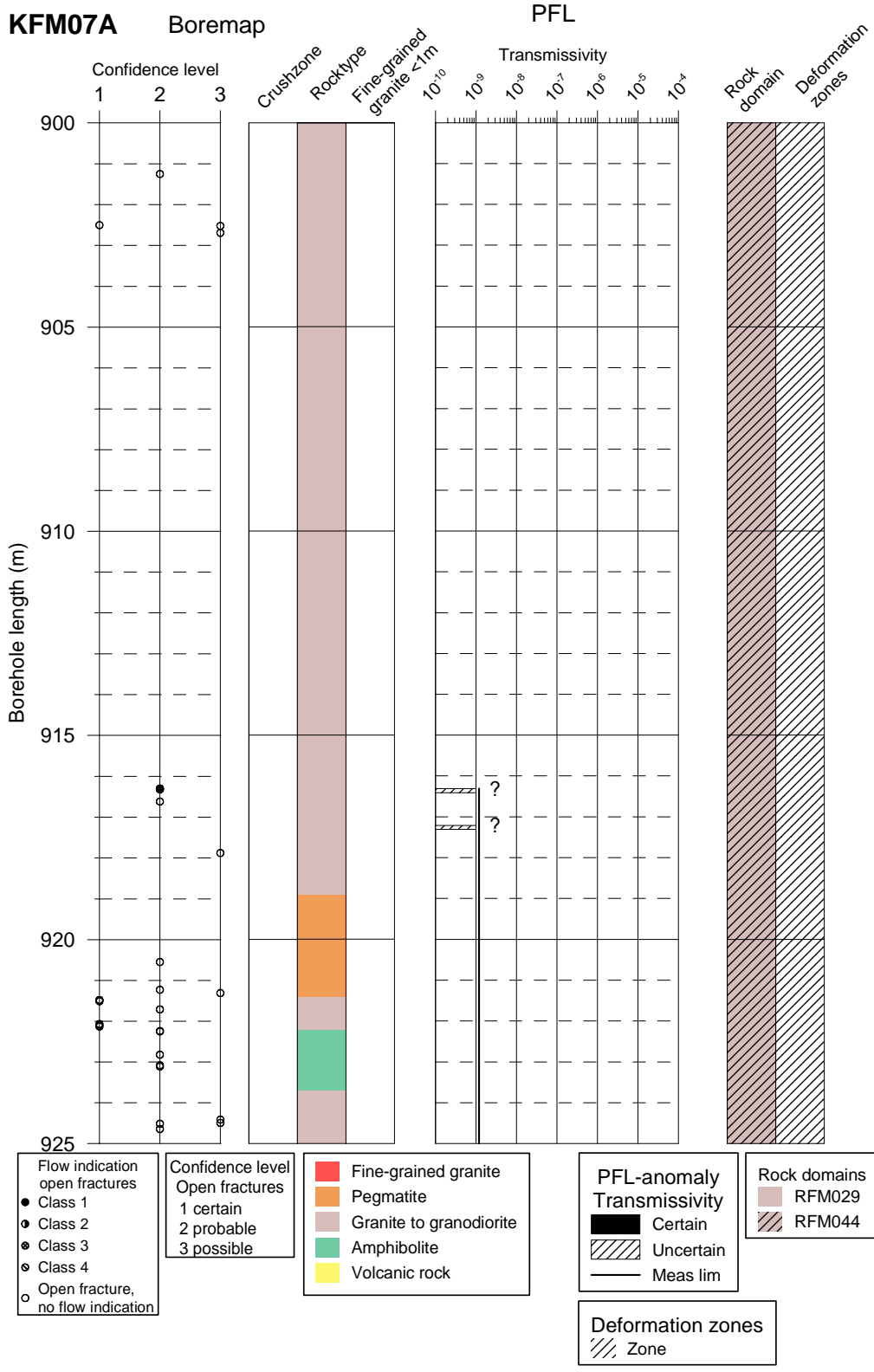
- Certain
- ▨ Uncertain
- Meas lim

Rock domains

- RFM029
- ▨ RFM044

Deformation zones

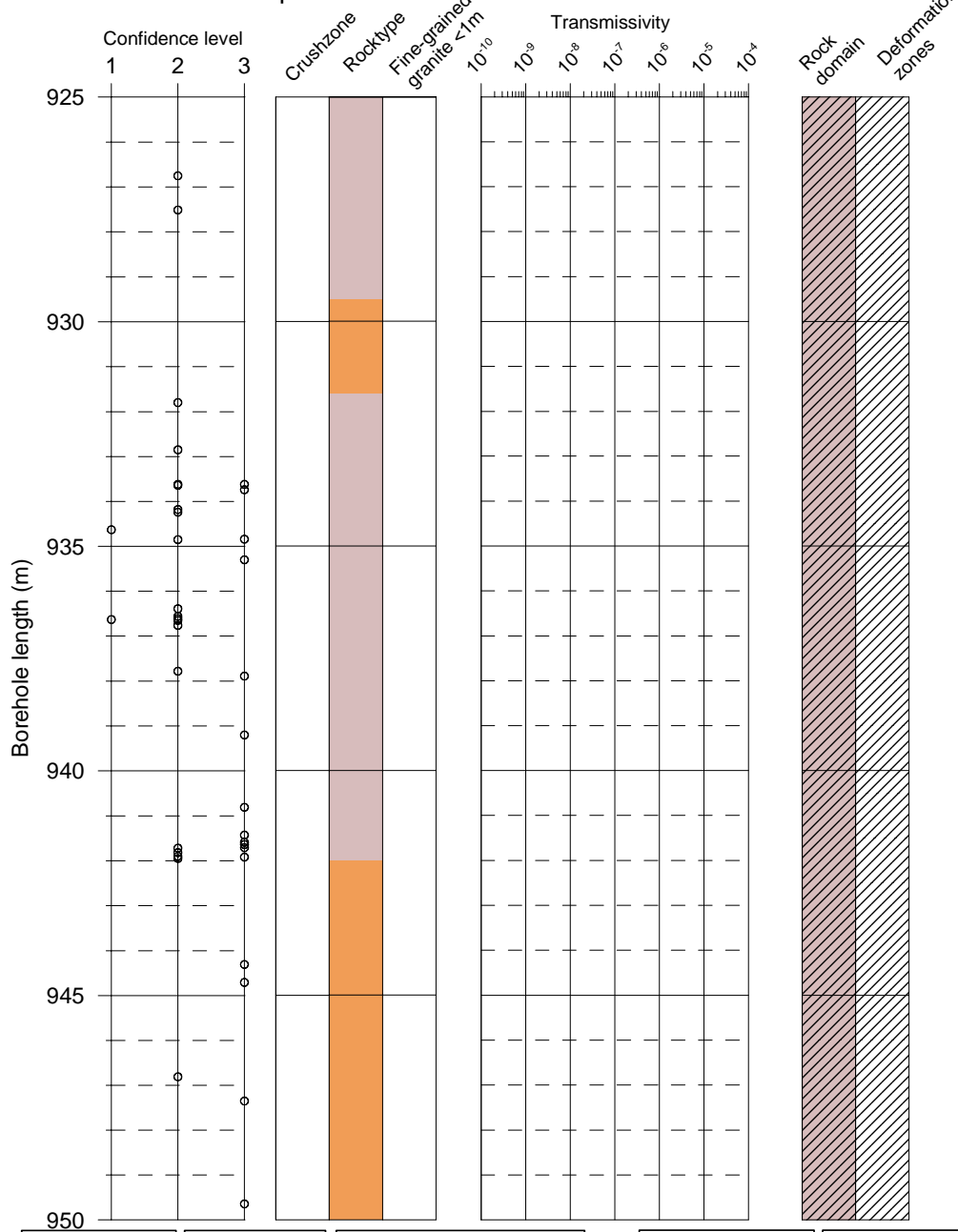
- ▨ Zone



KFM07A

Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
- Class 3
- Class 4
- Open fracture,
no flow indication

Confidence level
Open fractures

- 1 certain
- 2 probable
- 3 possible

■ Fine-grained granite
■ Pegmatite
■ Granite to granodiorite
■ Amphibolite
■ Volcanic rock

PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

Rock domains

- RFM029
- ▨ RFM044

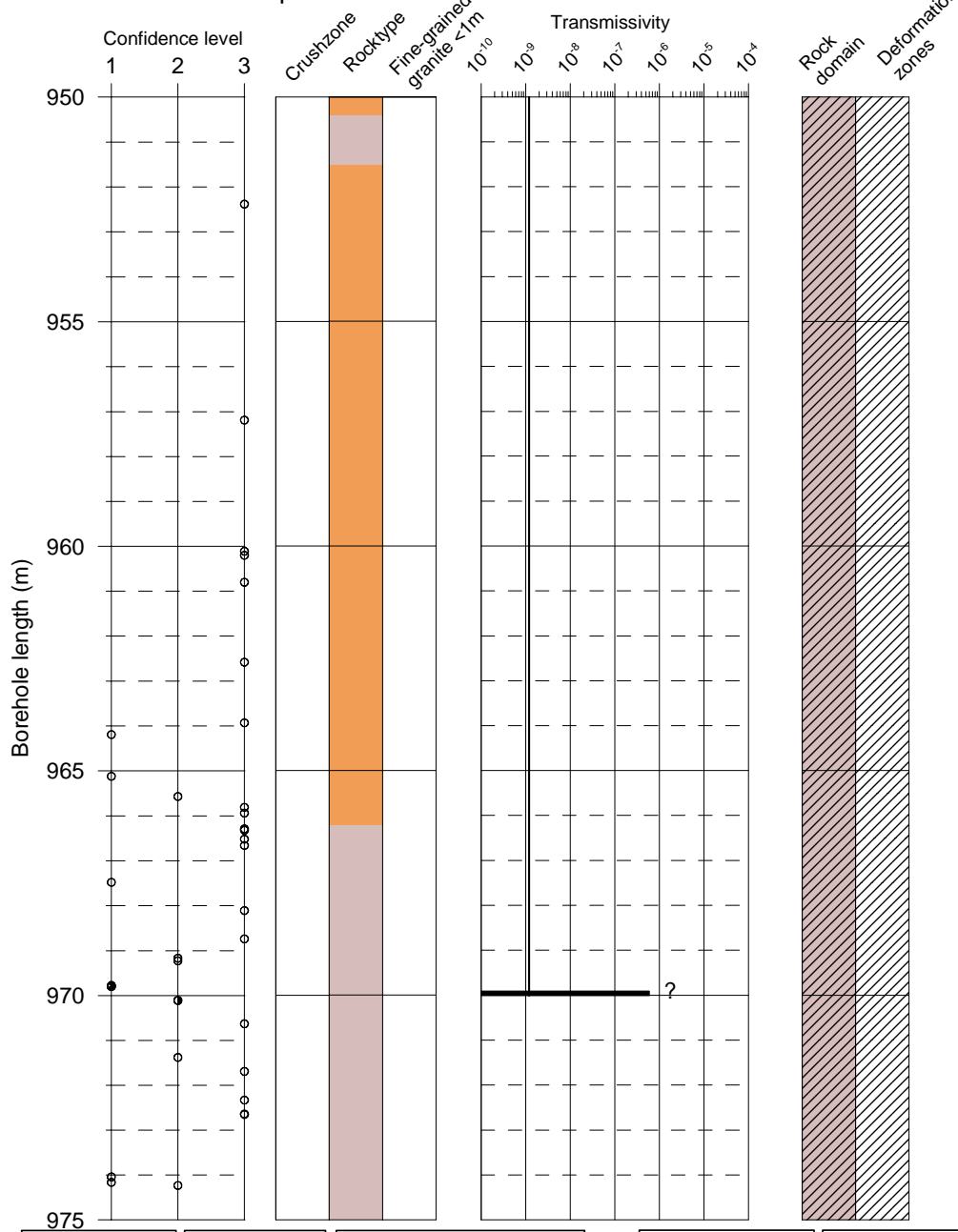
Deformation zones

- ▨ Zone

KFM07A

Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
- Class 3
- Class 4
- Open fracture, no flow indication

Confidence level
Open fractures

- 1 certain
- 2 probable
- 3 possible

■ Fine-grained granite
■ Pegmatite
■ Granite to granodiorite
■ Amphibolite
■ Volcanic rock

PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

Rock domains

- RFM029
- ▨ RFM044

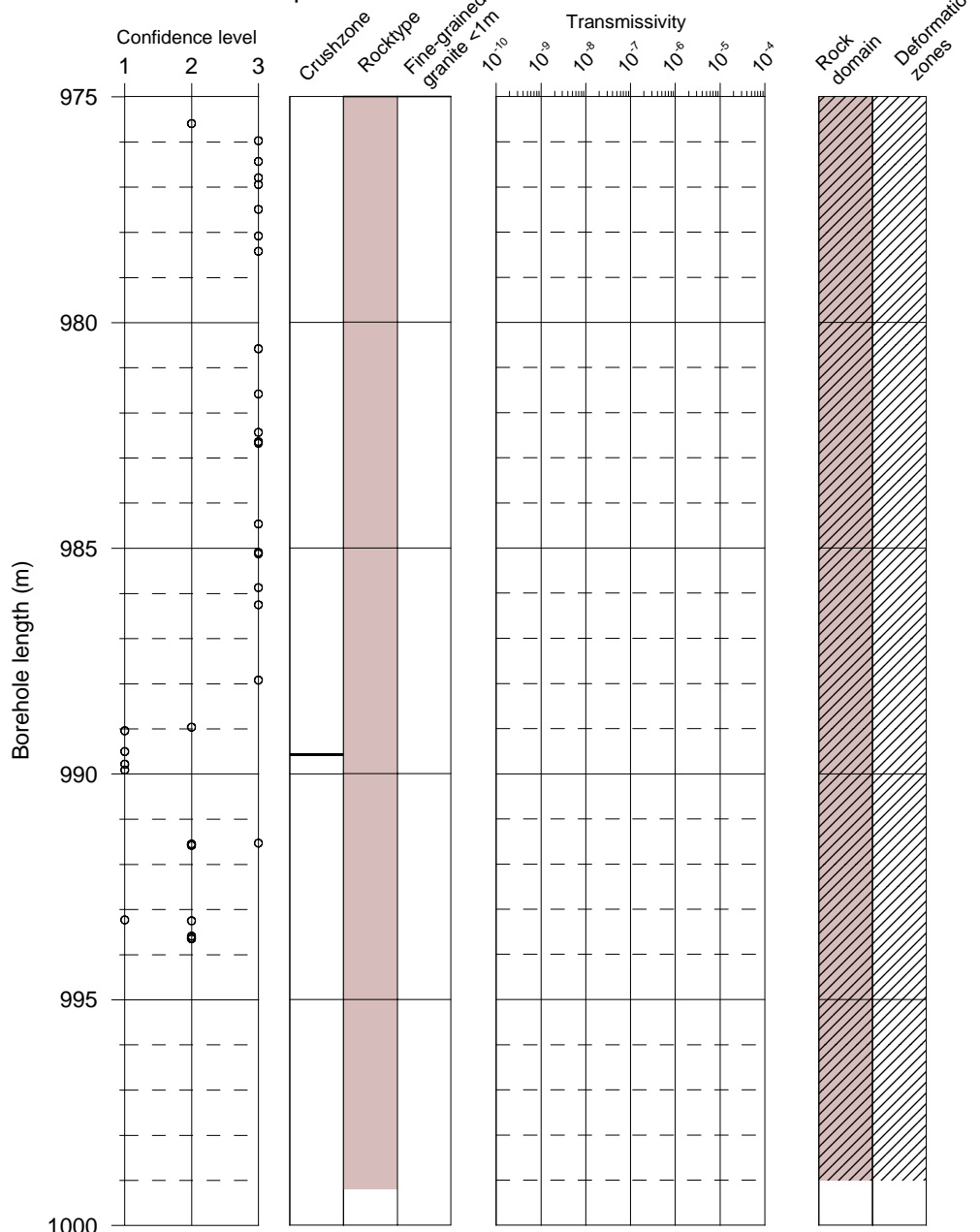
Deformation zones

- ▨ Zone

KFM07A

Boremap

PFL



Flow indication open fractures
 ● Class 1
 ● Class 2
 ● Class 3
 ● Class 4
 ○ Open fracture, no flow indication

Confidence level
 Open fractures
 1 certain
 2 probable
 3 possible

■ Fine-grained granite
 ■ Pegmatite
 ■ Granite to granodiorite
 ■ Amphibolite
 ■ Volcanic rock

PFL-anomaly
 Transmissivity
 ■ Certain
 ▨ Uncertain
 — Meas lim

Rock domains
 ■ RFM029
 ▨ RFM044

Deformation zones
 ▨ Zone

Table A2-1. KFM07A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|---|---|------------|
| 1 | <p>Bh-length (m) = 110.80</p> <p>$T (m^2/s) = 1.35E-8$</p> <p>PFL confidence = Uncertain</p> | <p>Adjusted secup = 110.91</p> <p>Frac. interpret / Varcod = open</p> <p>Frac. interp. confidence = Certain</p> <p>PFL-anom. confidence = 2</p> | |
| 2a | <p>Bh-length (m) = 111.00</p> <p>$T (m^2/s) = 5.02E-8$</p> <p>PFL confidence = Certain</p> | <p>Adjusted secup = 111.09</p> <p>Frac. interpret / Varcod = open</p> <p>Frac. interp. confidence = Certain</p> <p>PFL-anom. confidence = 1</p> | |
| 2b | | <p>Adjusted secup = 111.18</p> <p>Frac. interpret / Varcod = open</p> <p>Frac. interp. confidence = Certain</p> <p>PFL-anom. confidence = 2</p> | |

Table A2-2. KFM07A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|---|---|------------|
| 3a | Bh-length (m) = 110.30 T (m ² /s) = 6.03E-7 PFL confidence = Certain | Adjusted secup = 110.31 Frac. interpret / Varcode = open Frac. interp. confidence = Certain PFL-anom. confidence = 1 | |
| 3b | | Adjusted secup = 110.33 Frac. interpret / Varcode = partly open Frac. interp. confidence = Possible PFL-anom. confidence = 1 | |
| 3c | | Adjusted secup = 110.37 Frac. interpret / Varcode = partly open Frac. interp. confidence = Possible PFL-anom. confidence = 1 | |

Table A2-3. KFM07A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|---|---|------------|
| 4a | Bh-length (m) = 111.60 T (m ² /s) = 1.17E-6 PFL confidence = Certain | Adjusted secup = 111.48 Frac. interpret / Varcod = open Frac. interp. confidence = Certain PFL-anom. confidence = 2 | |
| 4b | | Adjusted secup = 111.54 Frac. interpret / Varcod = open Frac. interp. confidence = Certain PFL-anom. confidence = 1 | |
| 4c | | Adjusted secup = 111.56 Frac. interpret / Varcod = open Frac. interp. confidence = Possible PFL-anom. confidence = 1 | |
| 4d | | Adjusted secup = 111.60 Frac. interpret / Varcod = open Frac. interp. confidence = Probable PFL-anom. confidence = 1 | |

Table A2-4. KFM07A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|---|--|------------|
| 5 | Bh-length (m) = 112.40 T (m ² /s) = 2.40E-5 PFL confidence = Certain | Adjusted secup = 112.30 Adjusted seclow = 112.67 Frac. interpret / Varcod = crush zone Frac. interp. confidence = Certain PFL-anom. confidence = 1 | |

Table A2-5. KFM07A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|---|--|------------|
| 6a | <p>Bh-length (m) = 116.30</p> <p>$T (m^2/s) = 2.36E-7$</p> <p>PFL confidence = Uncertain</p> | <p>Adjusted secup = 116.21</p> <p>Frac. interpret / Varcod = open</p> <p>Frac. interp. confidence = Certain</p> <p>PFL-anom. confidence = 1</p> | |
| 6b | | <p>Adjusted secup = 116.24</p> <p>Frac. interpret / Varcod = open</p> <p>Frac. interp. confidence = Certain</p> <p>PFL-anom. confidence = 1</p> | |
| 6c | | <p>Adjusted secup = 116.24</p> <p>Frac. interpret / Varcod = open</p> <p>Frac. interp. confidence = Probable</p> <p>PFL-anom. confidence = 1</p> | |
| 6d | | <p>Adjusted secup = 116.32</p> <p>Frac. interpret / Varcod = open</p> <p>Frac. interp. confidence = Possible</p> <p>PFL-anom. confidence = 1</p> | |

Table A2-5. KFM07A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|---|---|------------|
| 7 | Bh-length (m) = 116.60 $T (m^2/s) = 3.37E-7$ PFL confidence = Certain | Adjusted secup = 116.52 Frac. interpret / Varcod = open Frac. interp. confidence = Possible PFL-anom. confidence = 1 | |
| 8a | Bh-length (m) = 119.10 $T (m^2/s) = 7.92E-9$ PFL confidence = Uncertain | Adjusted secup = 118.95 Frac. interpret / Varcod = open Frac. interp. confidence = Certain PFL-anom. confidence = 2 | |
| 8b | | Adjusted secup = 119.19 Frac. interpret / Varcod = open Frac. interp. confidence = Possible PFL-anom. confidence = 1 | |

Same fracture as no 9a

Table A2-5. KFM07A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|---|---|------------|
| 9 | <p>Bh-length (m) = 119.30</p> <p>$T (m^2/s) = 1.97E-8$</p> <p>PFL confidence = Certain</p> | <p>Adjusted secup = 119.19</p> <p>Frac. interpret / Varcode = open</p> <p>Frac. interp. confidence = Possible</p> <p>PFL-anom. confidence = 2</p> <p>Same fracture as no 8b</p> <p>Adjusted secup = 119.52</p> <p>Frac. interpret / Varcode = open</p> <p>Frac. interp. confidence = Certain</p> <p>PFL-anom. confidence = 3</p> | |
| 10a | <p>Bh-length (m) = 120.20</p> <p>$T (m^2/s) = 7.67E-5$</p> <p>PFL confidence = Certain</p> | <p>Adjusted secup = 120.22</p> <p>Frac. interpret / Varcode = partly open</p> <p>Frac. interp. confidence = Possible</p> <p>PFL-anom. confidence = 1</p> | |
| 10b | | <p>Adjusted secup = 120.23</p> <p>Frac. interpret / Varcode = open</p> <p>Frac. interp. confidence = Certain</p> <p>PFL-anom. confidence = 1</p> | |
| 10c | | <p>Adjusted secup = 120.28</p> <p>Frac. interpret / Varcode = open</p> <p>Frac. interp. confidence = Certain</p> <p>PFL-anom. confidence = 1</p> | |

Table A2-6. KFM07A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|---|--|------------|
| 11a | Bh-length (m) = 121.30 T (m ² /s) = 1.95E-7 PFL confidence = Certain | Adjusted secup = 121.24 Frac. interpret / Varcode = open Frac. interp. confidence = Certain PFL-anom. confidence = 1 | |
| 11b | | Adjusted secup = 121.29 Frac. interpret / Varcode = open Frac. interp. confidence = Certain PFL-anom. confidence = 1 | |
| 12a | Bh-length (m) = 121.80 T (m ² /s) = 1.56E-8 PFL confidence = Uncertain | Adjusted secup = 121.63 Frac. interpret / Varcode = open Frac. interp. confidence = Probable PFL-anom. confidence = 2 | |
| 12b | | Adjusted secup = 121.82 Frac. interpret / Varcode = open Frac. interp. confidence = Certain PFL-anom. confidence = 1 | |
| 12c | | Adjusted secup = 121.84 Frac. interpret / Varcode = open Frac. interp. confidence = Certain PFL-anom. confidence = 1 | |

12d

Adjusted secup =
121.97

Frac. interpret / Varcod =
open

Frac. interp. confidence =
Certain

PFL-anom. confidence =
2

12e

Adjusted secup =
121.99

Frac. interpret / Varcod =
open

Frac. interp. confidence =
Certain

PFL-anom. confidence =
2

12f

Adjusted secup =
121.99

Frac. interpret / Varcod =
open

Frac. interp. confidence =
Certain

PFL-anom. confidence =
1

Table A2-7. KFM07A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|---|--|------------|
| 13a | Bh-length (m) = 122.80 T (m ² /s) = 3.96E-7 PFL confidence = Certain | Adjusted secup = 122.81 Frac. interpret / Varcode = open Frac. interp. confidence = Probable PFL-anom. confidence = 1 | |
| 13b | Adjusted secup = 122.90 Frac. interpret / Varcode = partly open Frac. interp. confidence = Possible PFL-anom. confidence = 1 | | |
| 14 | Bh-length (m) = 124.50 T (m ² /s) = 1.98E-8 PFL confidence = Certain | Adjusted secup = 124.66 Frac. interpret / Varcode = open Frac. interp. confidence = Certain PFL-anom. confidence = 2 | |

Table A2-7. KFM07A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|---|---|------------|
| 15 | <p>Bh-length (m) = 125.80</p> <p>T (m^2/s) = $3.57E-9$</p> <p>PFL confidence = Certain</p> | <p>Adjusted secup = 125.92</p> <p>Frac. interpret / Varcode = open</p> <p>Frac. interp. confidence = Possible</p> <p>PFL-anom. confidence = 2</p> | |
| 16 | <p>Bh-length (m) = 130.40</p> <p>T (m^2/s) = $3.96E-9$</p> <p>PFL confidence = Certain</p> | <p>Adjusted secup = 130.46</p> <p>Frac. interpret / Varcode = open</p> <p>Frac. interp. confidence = Probable</p> <p>PFL-anom. confidence = 1</p> | |

Table A2-8. KFM07A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|---|---|------------|
| 17a | Bh-length (m) = 133.70 T (m ² /s) = 2.08E-5 PFL confidence = Certain | Adjusted secup = 133.60 Frac. interpret / Varcode = open Frac. interp. confidence = Possible PFL-anom. confidence = 1 | |
| 17b | | Adjusted secup = 133.64 Frac. interpret / Varcode = open Frac. interp. confidence = Certain PFL-anom. confidence = 1 | |
| 18 | Bh-length (m) = 141.20 T (m ² /s) = 6.51E-9 PFL confidence = Uncertain | Adjusted secup = 141.43 Frac. interpret / Varcode = open Frac. interp. confidence = Possible PFL-anom. confidence = 3 Same fracture as no 19 | |

Table A2-9. KFM07A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|---|--|------------|
| 19 | <p>Bh-length (m) = 141.50</p> <p>$T (m^2/s) = 1.23E-8$</p> <p>PFL confidence = Certain</p> | <p>Adjusted secup = 141.43</p> <p>Frac. interpret / Varcode = open</p> <p>Frac. interp. confidence = Possible</p> <p>PFL-anom. confidence = 1</p> <p>Same fracture as no 18</p> | |
| 20 | <p>Bh-length (m) = 143.80</p> <p>$T (m^2/s) = 1.66E-6$</p> <p>PFL confidence = Certain</p> | <p>Adjusted secup = 143.88</p> <p>Frac. interpret / Varcode = open</p> <p>Frac. interp. confidence = Certain</p> <p>PFL-anom. confidence = 1</p> | |

Table A2-10. KFM07A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|---|--|------------|
| 21a | Bh-length (m) = 145.10 T (m ² /s) = 5.54E-8 PFL confidence = Certain | Adjusted secup = 144.97 Frac. interpret / Varcode = open Frac. interp. confidence = Possible PFL-anom. confidence = 2 | |
| 21b | | Adjusted secup = 145.10 Frac. interpret / Varcode = open Frac. interp. confidence = Certain PFL-anom. confidence = 1 | |

Table A2-11. KFM07A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|---|---|------------|
| 22a | Bh-length (m) = 178.50 T (m ² /s) = 1.70E-5 PFL confidence = Certain | Adjusted secup = 178.43 Frac. interpret / Varcode = open Frac. interp. confidence = Possible PFL-anom. confidence = 1 | |
| 22b | | Adjusted secup = 178.46 Frac. interpret / Varcode = open Frac. interp. confidence = Possible PFL-anom. confidence = 1 | |
| 22c | | Adjusted secup = 178.50 Adjusted seclow = 178.53 Frac. interpret / Varcode = crush zone Frac. interp. confidence = Certain PFL-anom. confidence = 1 | |

Table A2-12. KFM07A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|---|--|------------|
| 23a | Bh-length (m) = 261.40 T (m ² /s) = 9.27E-8 PFL confidence = Certain | Adjusted secup = 261.21 Frac. interpret / Varcode = open Frac. interp. confidence = Certain PFL-anom. confidence = 2 | |
| 23b | | Adjusted secup = 261.32 Frac. interpret / Varcode = open Frac. interp. confidence = Certain PFL-anom. confidence = 1 | |
| 23c | | Adjusted secup = 261.55 Frac. interpret / Varcode = open Frac. interp. confidence = Probable PFL-anom. confidence = 2 | |
| 23d | | Adjusted secup = 261.59 Frac. interpret / Varcode = open Frac. interp. confidence = Probable PFL-anom. confidence = 2 | |

Table A2-13. KFM07A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|---|--|------------|
| 24a | Bh-length (m) = 916.30 T (m ² /s) = ? PFL confidence = Uncertain | Adjusted secup = 916.30 Frac. interpret / Varcode = open Frac. interp. confidence = Probable PFL-anom. confidence = 1 | |
| 24b | | Adjusted secup = 916.32 Frac. interpret / Varcode = open Frac. interp. confidence = Probable PFL-anom. confidence = 1 | |

Table A2-14. KFM07A. Interpretation of PFL-measurements and BOREMAP data

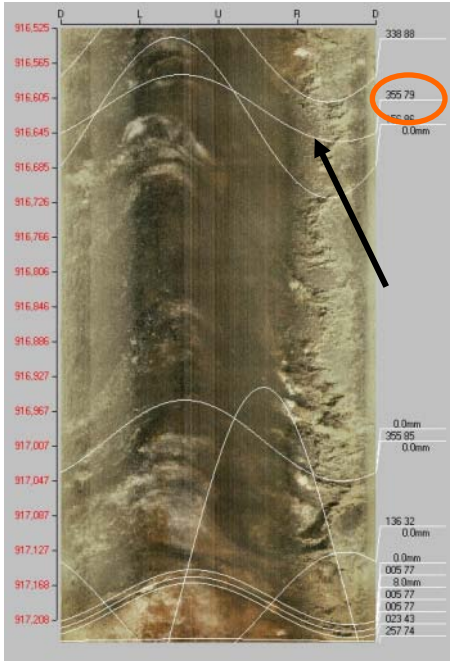
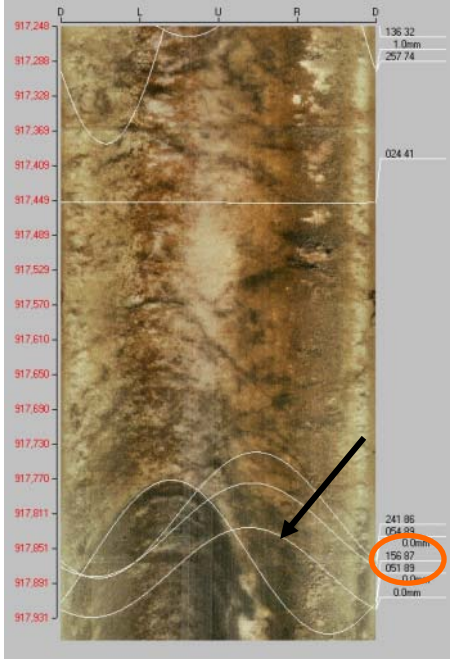
| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|---|---|--|
| 25a | Bh-length (m) = 917.20 T (m ² /s) = ? PFL confidence = Uncertain | Adjusted secup = 916.62 Frac. interpret / Varcode = open Frac. interp. confidence = Probable PFL-anom. confidence = 6 |  |
| 25b | | Adjusted secup = 917.88 Frac. interpret / Varcode = partly open Frac. interp. confidence = Possible PFL-anom. confidence = 7 |  |

Table A2-15. KFM07A. Interpretation of PFL-measurements and BOREMAP data

| PFL-anom. no | PFL-anom. data | Boremap data | BIPS image |
|--------------|---|--|------------|
| 26a | Bh-length (m) = 970.00 T (m ² /s) = ? PFL confidence = Certain | Adjusted secup = 969.78 Frac. interpret / Varcode = open Frac. interp. confidence = Certain PFL-anom. confidence = 3 | |
| 26b | | Adjusted secup = 969.80 Frac. interpret / Varcode = open Frac. interp. confidence = Certain PFL-anom. confidence = 2 | |
| 26c | | Adjusted secup = 970.11 Frac. interpret / Varcode = open Frac. interp. confidence = Probable PFL-anom. confidence = 2 | |

Correlation of Posiva Flow Log anomalies to core mapped features in Forsmark (KFM01A to KFM05A) – Update of figures previously reported in R-04-77

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Key words: hydrogeology, hydraulic tests, difference flow measurements, fractures, crush

Abstract

Difference flow logging with the Posiva Flow Log and core mapping with the Boremap system were conducted in the core-drilled KFM01A to KFM05A boreholes in Forsmark during 2003 and 2004. The data were analysed for correlations between flow anomalies and individual fractures or crush zones. The results were reported in /Forssman et al. 2004/. The work presented here is an update of the black and white figures presented in /Forssman et al. 2004/.

Sammanfattning

Differensflödesmätningar med Posiva flödeslogg samt kartering med Boremap-systemet utfördes i kärnborrhålen KFM01A till KFM05A i Forsmark under 2003 och 2004. Dessa data har analyserats med avseende på korrelationer mellan enskilda flödesanomalier och enskilda sprickor samt krosszoner. Resultaten presenterades i /Forssman et al. 2004/. Föreliggande rapport innehåller en uppdatering av de svart-vita figurer som redovisades i /Forssman et al. 2004/

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1 Introduction

Difference flow logging with the Posiva Flow Log and core mapping with the Boremap system were conducted in the core-drilled KFM01A to KFM05A boreholes in Forsmark during 2003 and 2004. The location of the boreholes within the Forsmark area is shown in Figure 1-1.

The results from the Posiva Flow Log/Difference Flow (PFL) method were reported in Rouhianien and Pöllänen /2003, 2004a, 2004b/. Pöllänen and Sokolnicki /2004/ Rouhianien et al./2004/ and Pöllänen et al. /2004/. Data from the PFL, Boremapping and BIPS images were received from the SICADA database.

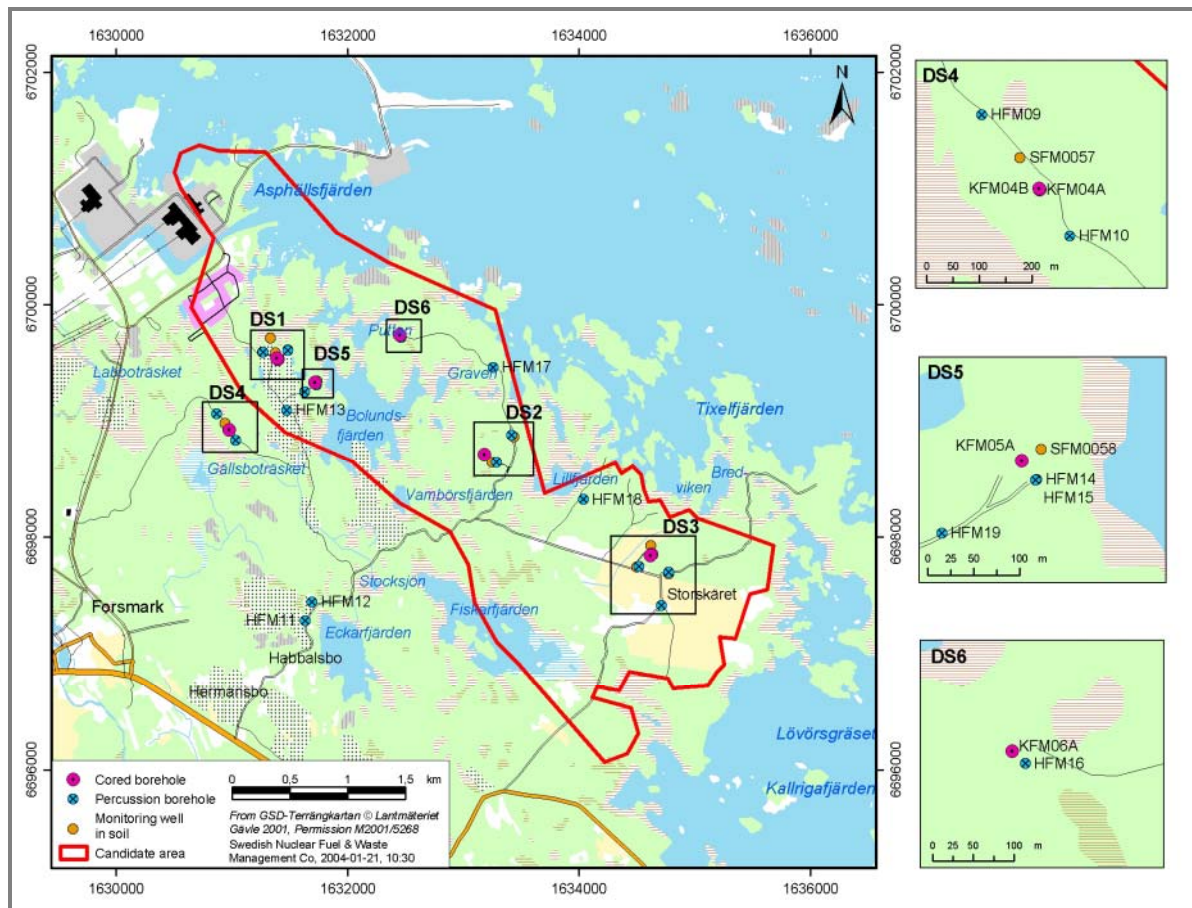


Figure 1-1. Location of drill sites DS1-6 at Forsmark. For drill sites DS4-6 detailed maps of all boreholes within the sites are shown. KFM01A is located at DS-1, KFM02A is located at DS-2 and KFM03A is located at DS-3.

2 Objective and scope

The difference flow logging and core mapping with the Boremap system in the core drilled boreholes KFM01A to KFM05A at Forsmark were conducted during 2003 and 2004. These data have been used to identify individual geological mapped features as fractures or crush zones that correspond to flow anomalies identified with the Posiva Flow Log/Difference Flow (PFL) method.

The results were reported in /Forssman et.al. 2004/ and this only presents an update of the appendices to the same standard as was presented for KFM06 and KFM07.

The results presented in this report have also been delivered as a database to SKB (indicated as “database” in the text below).

3 Example of data presentation

In Figure 3-1 an example is shown on how parts of the results are presented. Below some comments are made on how to interpret the figure.

3.1 Flow indication confidence levels for open fractures (PFL confidence)

The classification of “flow indication level of confidence”, or the PFL confidence, is defined as the distance between the anomaly and the interpreted fracture. That is, if the anomaly has a flow indication in class 1, the interpreted fracture is within 1 dm from the anomaly. In the same way, the anomaly has the flow indication class 2, if the interpreted fracture is within 2 dm from the anomaly. Four classes have been defined:

| | |
|---------|----------|
| Class 1 | 0 – 1 dm |
| Class 2 | 1 – 2 dm |
| Class 3 | 2 – 3 dm |
| Class 4 | 3 – 4 dm |

This classification is used in the figures in this report. In the database, only the numbers (1-4) are used to describe the PFL confidence.

Features with PFL confidence > 4 are rare and considered to be non-significant. Therefore, they are not plotted in the diagrams.

3.2 Confidence level open fractures

During the core mapping process each fracture is classified as Broken or Unbroken. Fracture aperture is classified as Certain, Probable and Possible:

| | |
|---------|----------|
| Level 1 | Certain |
| Level 2 | Probable |
| Level 3 | Possible |

In SICADA each fracture is classified as Sealed, Open or Partly Open based on this information. Partly Open fractures refers to all fractures that do not cut the core entirely but have (1) altered or weathered fracture planes or are (2) associated with a measurable aperture in the borehole wall using BIPS to indicate an edge of a fracture. The confidence level for open fractures describes the certainty with which the fracture is interpreted.

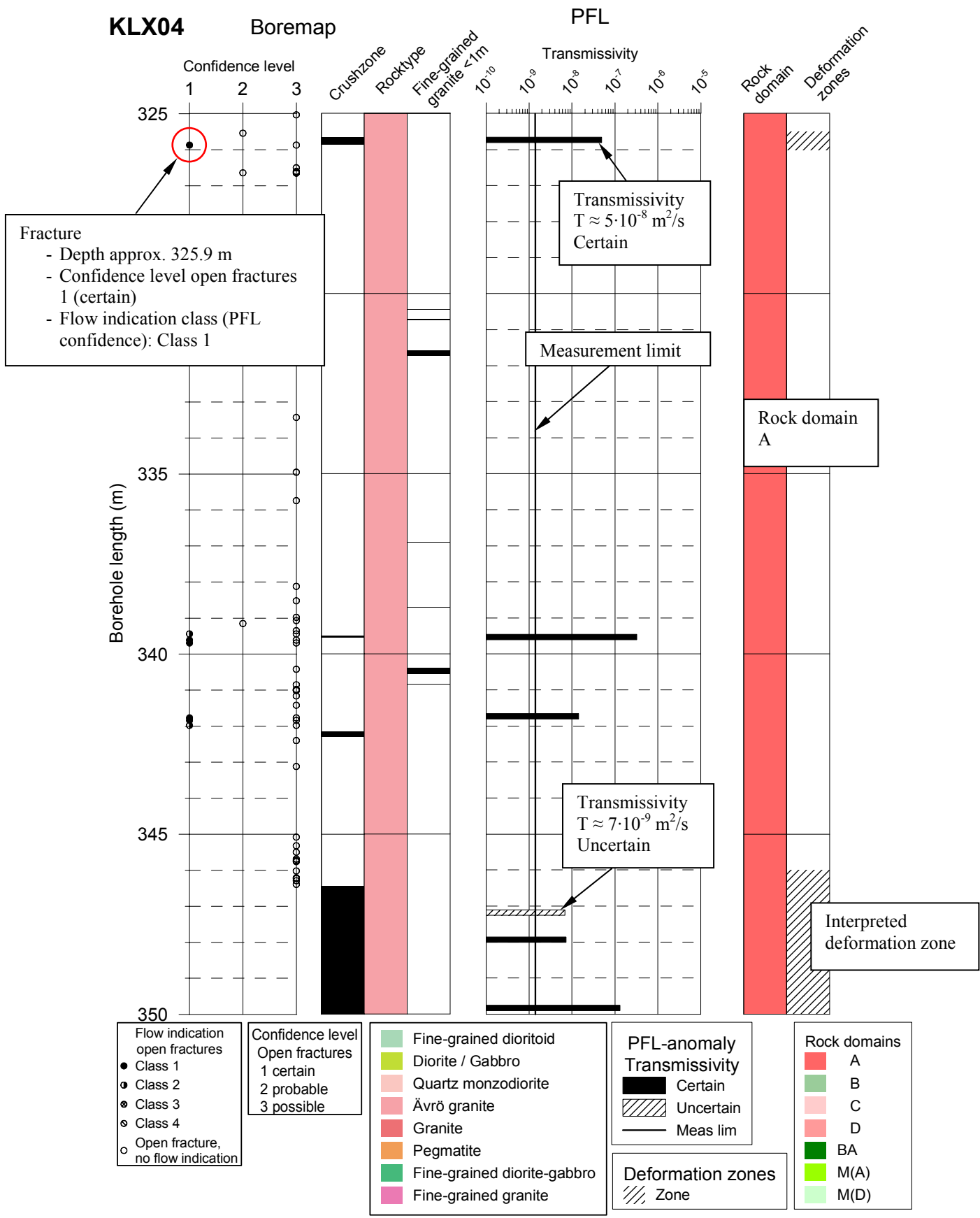


Figure 3-1 Example of a diagram including an overview of the interpretation of the flow anomalies and mapped open fractures.

4 References

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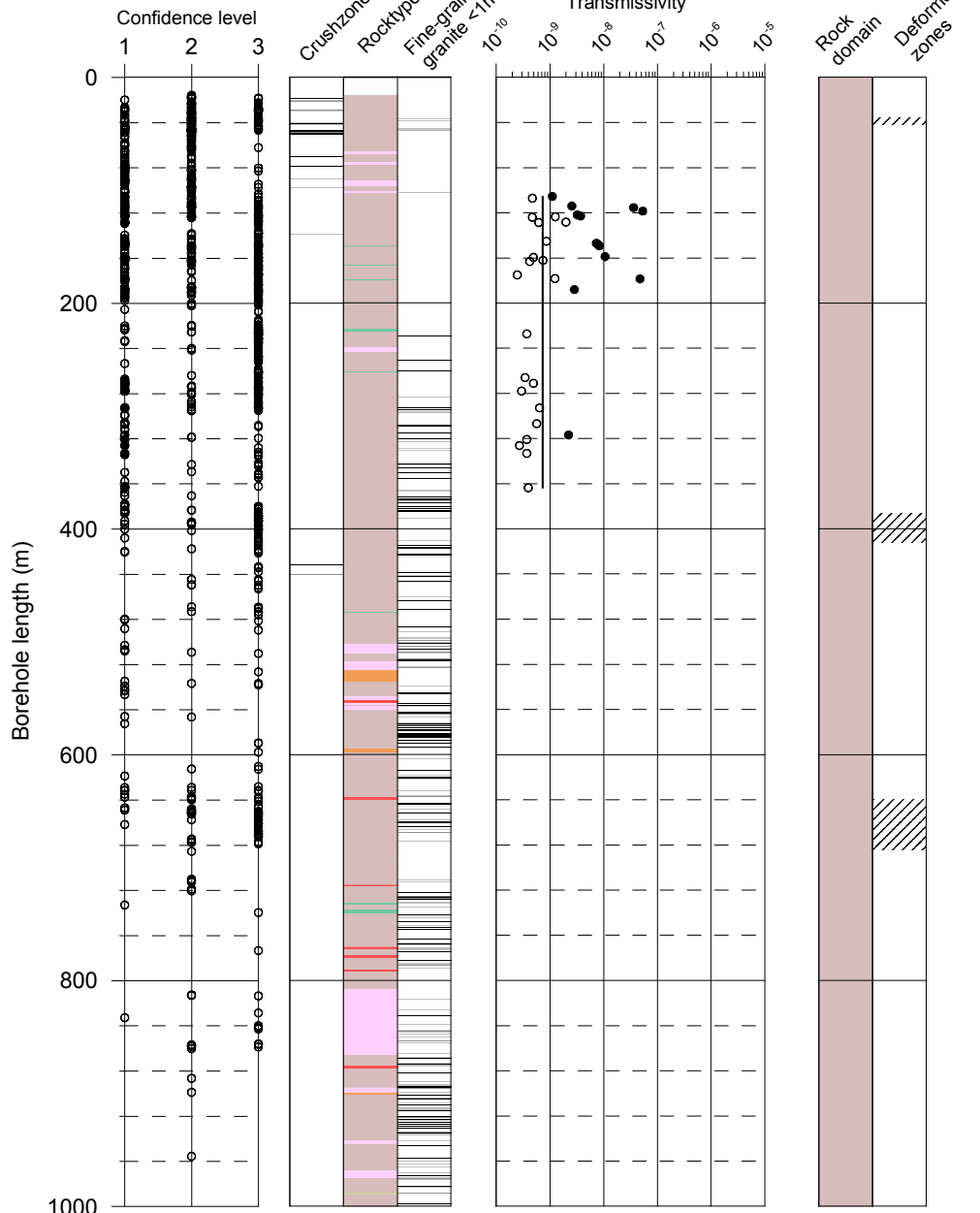
Appendix 3:1 – KFM01A

In this appendix plots showing Flow log anomalies to core mapped features in KFM01A for entire borehole and for every 25 meters of the borehole are found. BIPS images of PFL anomalies are also found.

KFM01A

Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
- Class 3
- Class 4
- Open fracture,
no flow indication

Confidence level
Open fractures

- 1 certain
- 2 probable
- 3 possible

- Fine-grained granite
- Pegmatite
- Granite, granodiorite, tonalite
- Granite to granodiorite
- Amphibolite
- Calc-silicate rock

PFL-anomaly
Transmissivity

- Certain
- Uncertain
- Meas lim

Rock domains

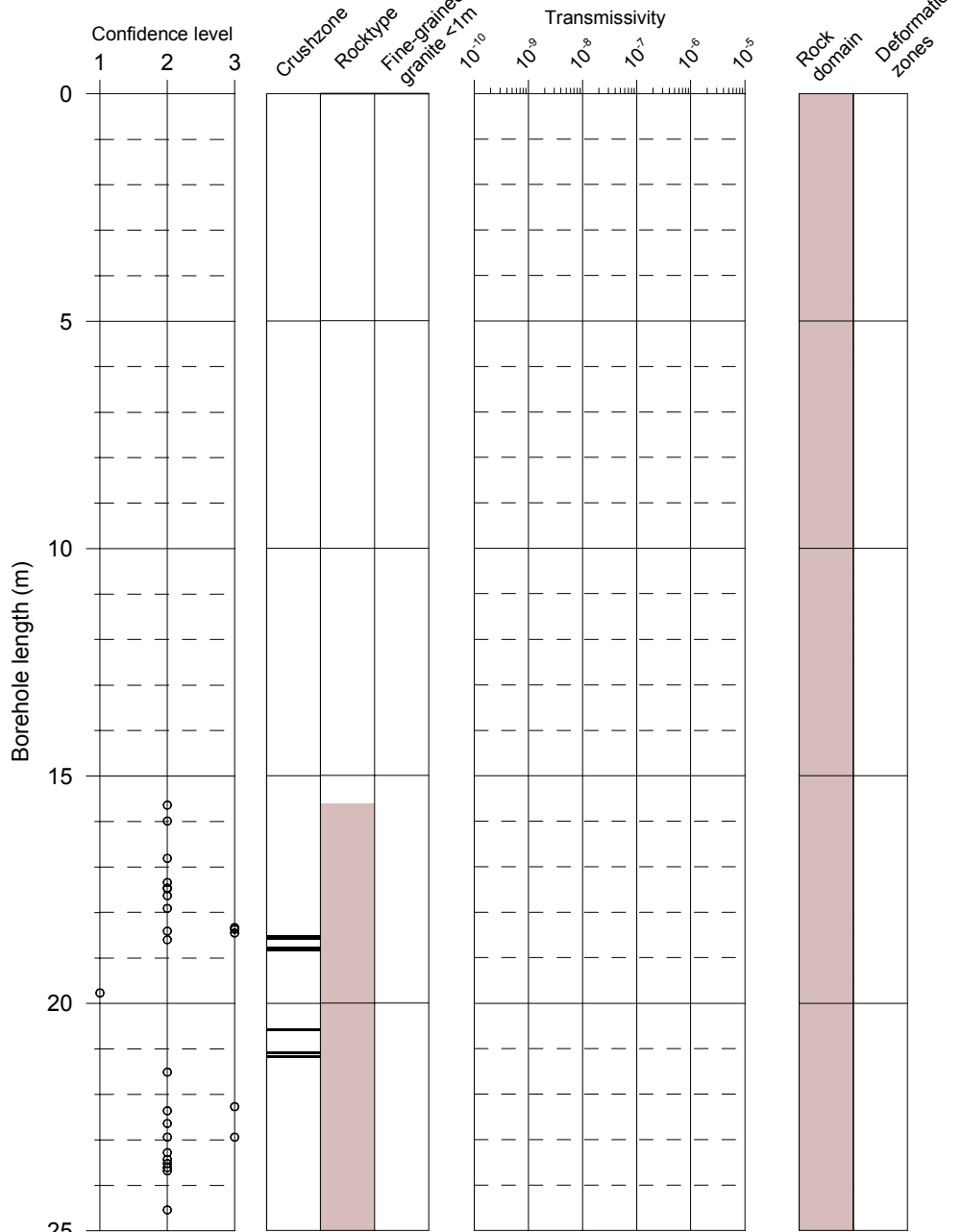
- RFM029

Deformation zones

- /// Zone

KFM01A Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
- Class 3
- Class 4
- Open fracture, no flow indication

Confidence level
Open fractures

- 1 certain
- 2 probable
- 3 possible

■ Fine-grained granite
■ Pegmatite
■ Granite, granodiorite, tonalite
■ Granite to granodiorite
■ Amphibolite
■ Calc-silicate rock

PFL-anomaly
Transmissivity

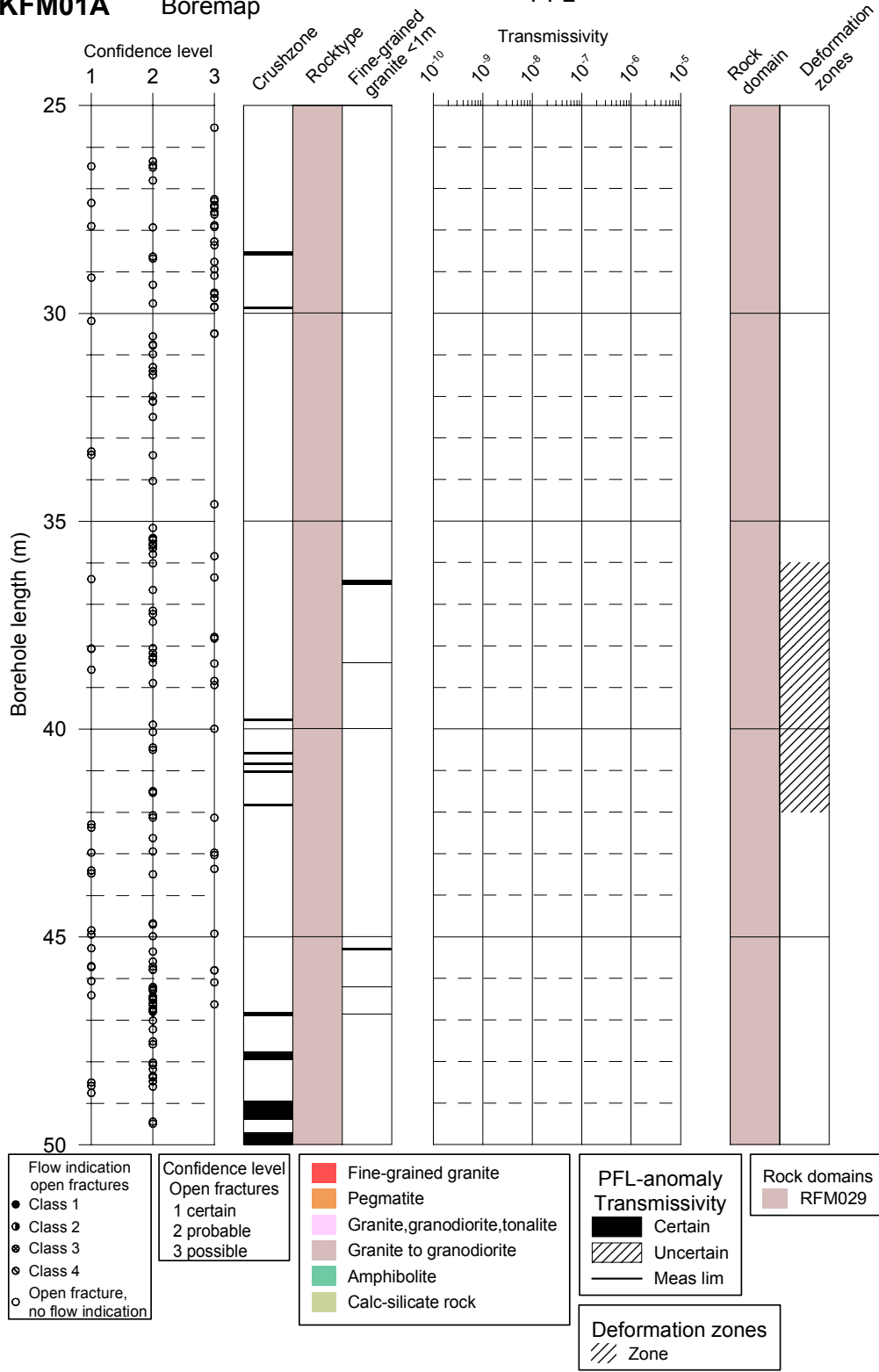
- Certain
- ▨ Uncertain
- Meas lim

Rock domains
RFM029

Deformation zones
▨ Zone

KFM01A Boremap

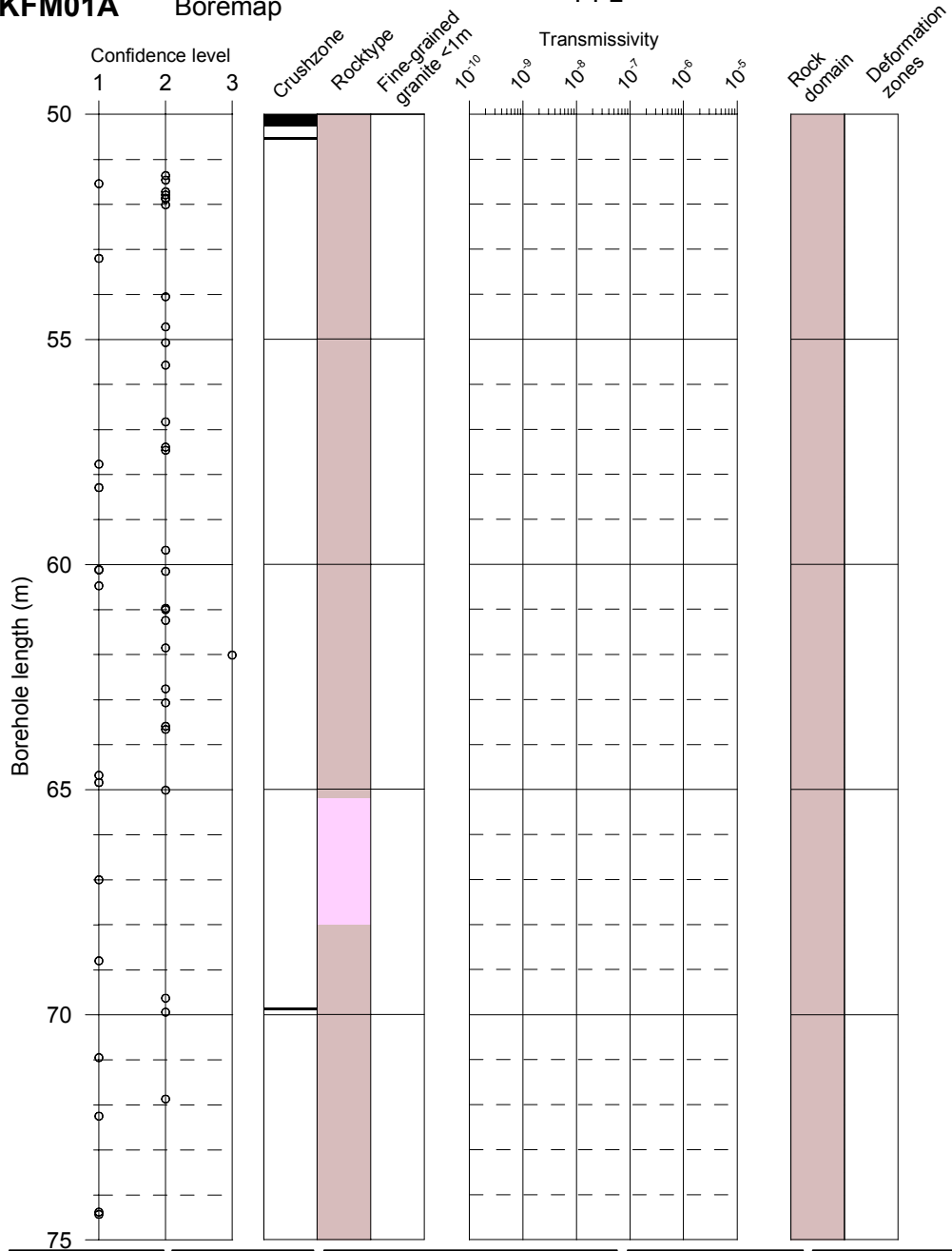
PFL



KFM01A

Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
- Class 3
- Class 4
- Open fracture,
no flow indication

Confidence level
Open fractures

- 1 certain
- 2 probable
- 3 possible

- Fine-grained granite
- Pegmatite
- Granite, granodiorite, tonalite
- Granite to granodiorite
- Amphibolite
- Calc-silicate rock

PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

Rock domains

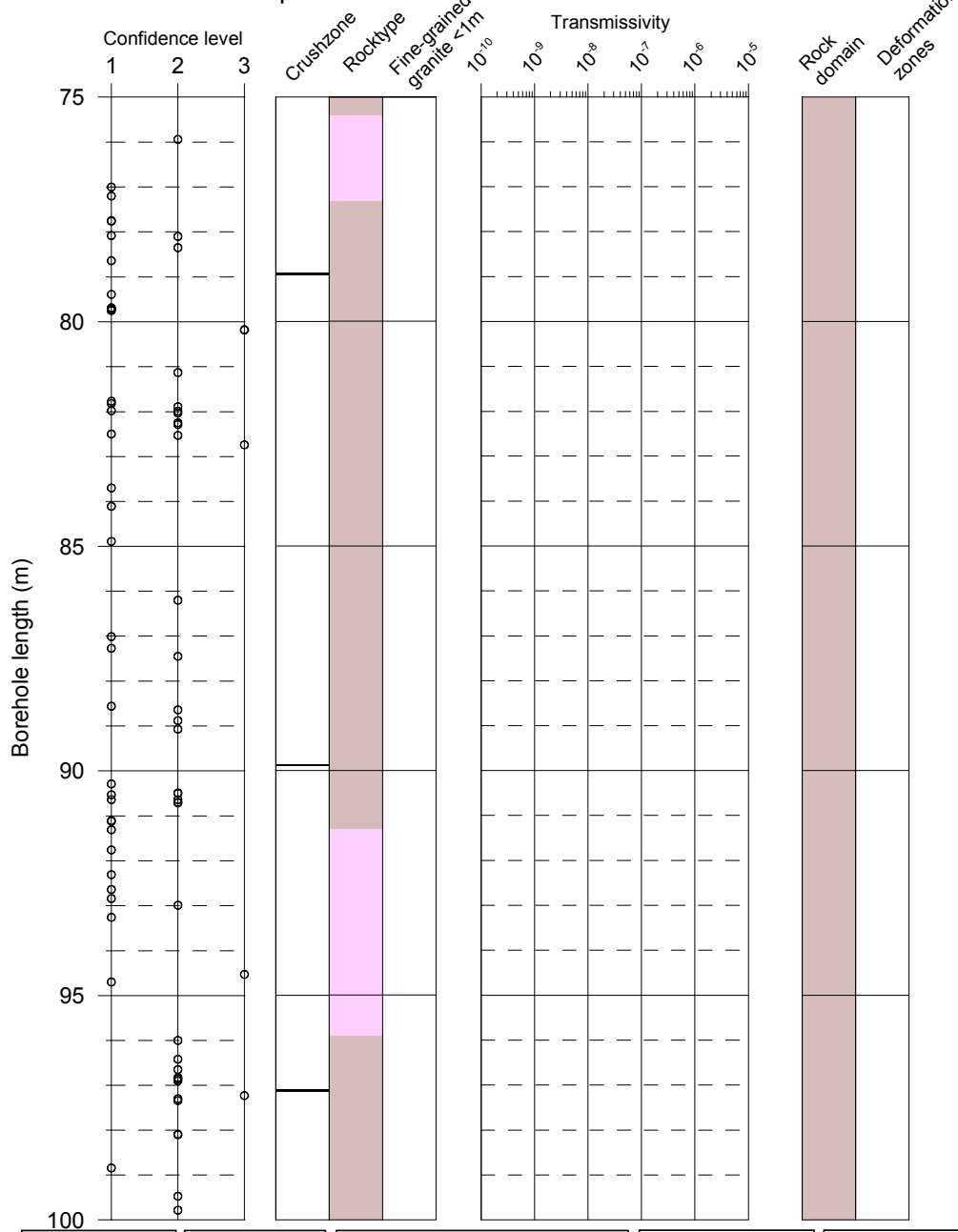
- RFM029

Deformation zones

- ▨ Zone

KFM01A Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
- Class 3
- Class 4
- Open fracture, no flow indication

Confidence level
Open fractures

- 1 certain
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■ Fine-grained granite
■ Pegmatite
■ Granite, granodiorite, tonalite
■ Granite to granodiorite
■ Amphibolite
■ Calc-silicate rock

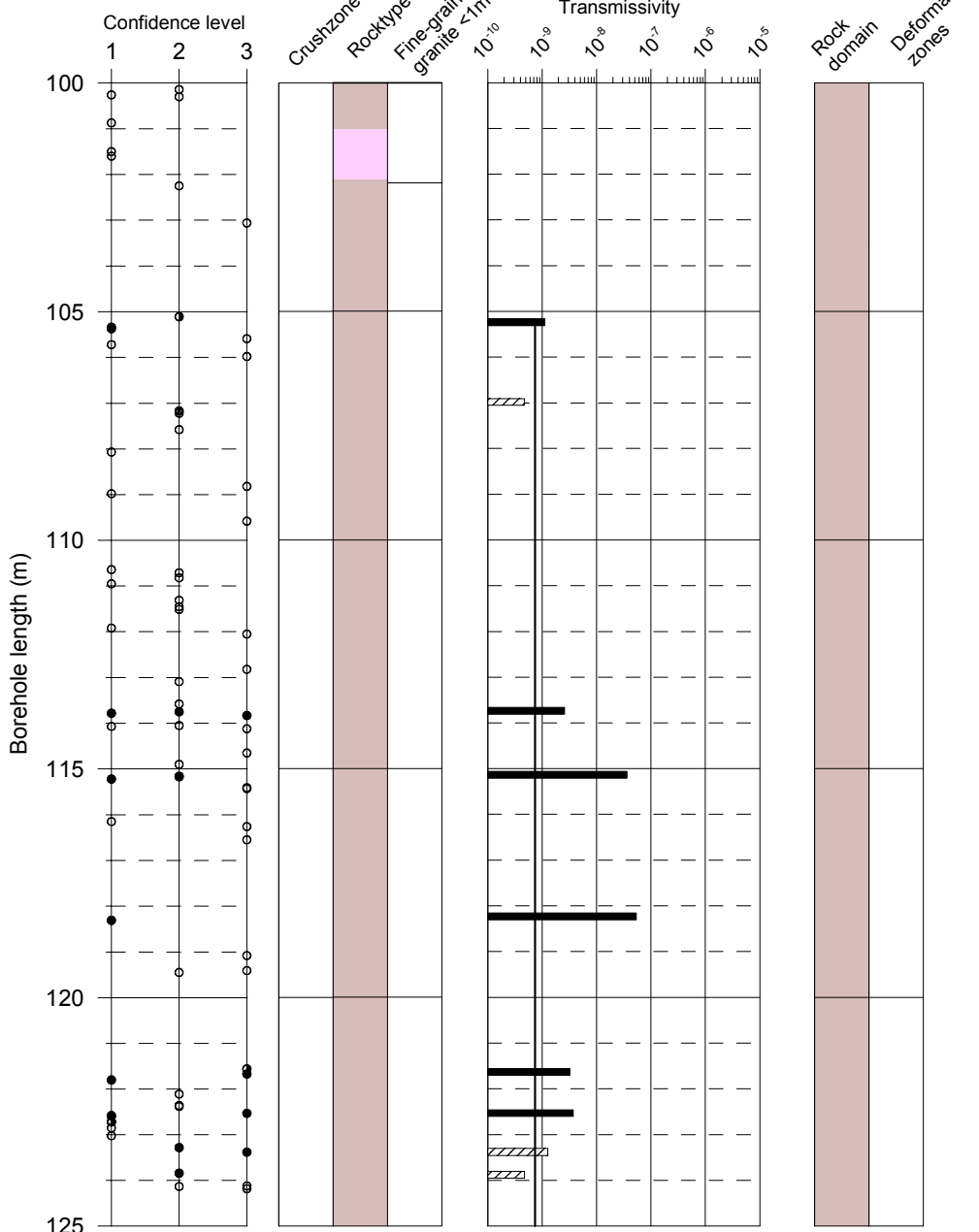
PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

Rock domains
RFM029

Deformation zones
▨ Zone

KFM01A Boremap PFL



Flow indication
open fractures

- Class 1
- Class 2
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- Class 4
- Open fracture,
no flow indication

Confidence level
Open fractures

- 1 certain
- 2 probable
- 3 possible

Rocktype

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- Pegmatite
- Granite, granodiorite, tonalite
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- Calc-silicate rock

PFL-anomaly
Transmissivity

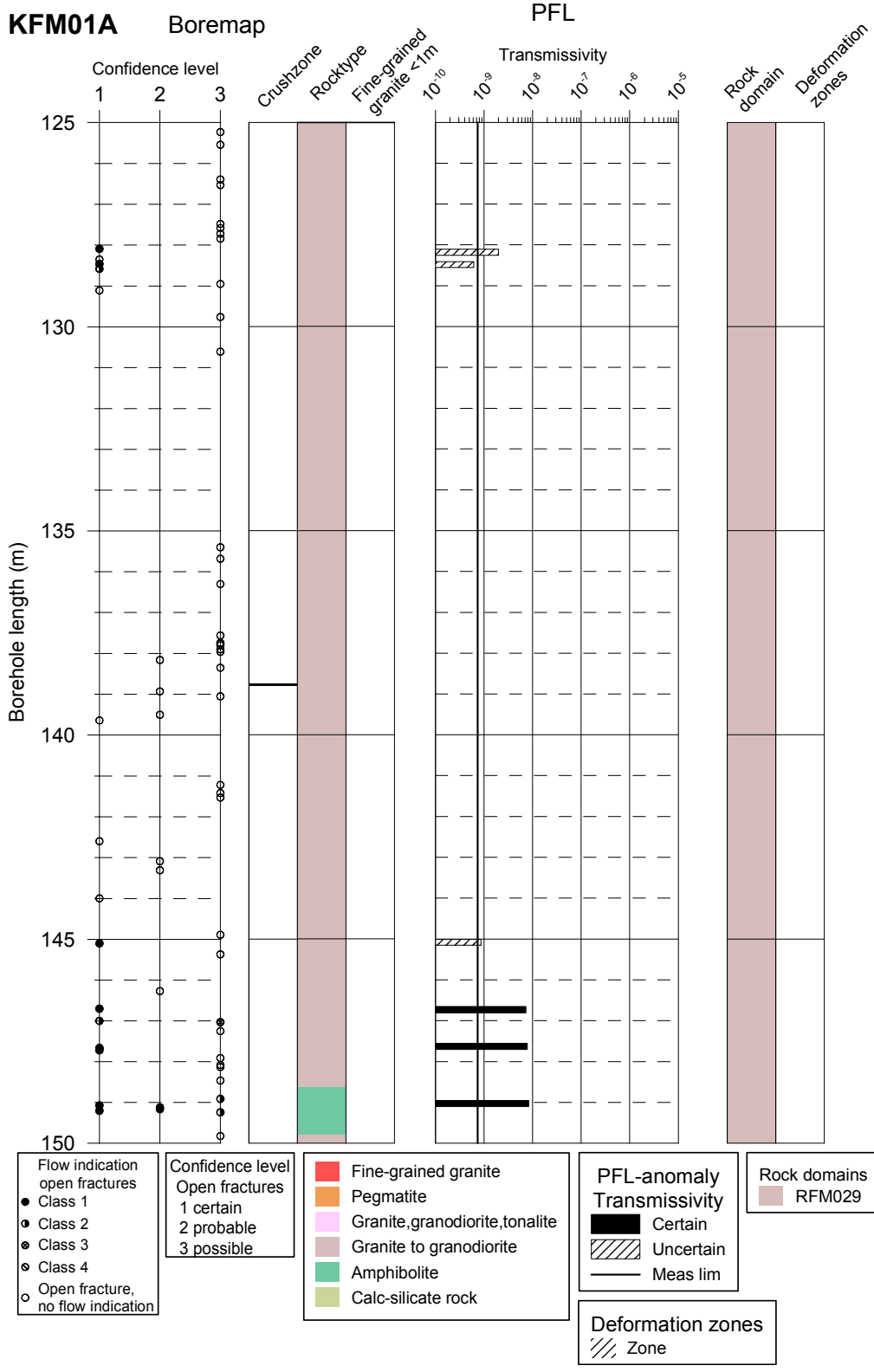
- Certain
- ▨ Uncertain
- Meas lim

Rock domains

- RFM029

Deformation zones

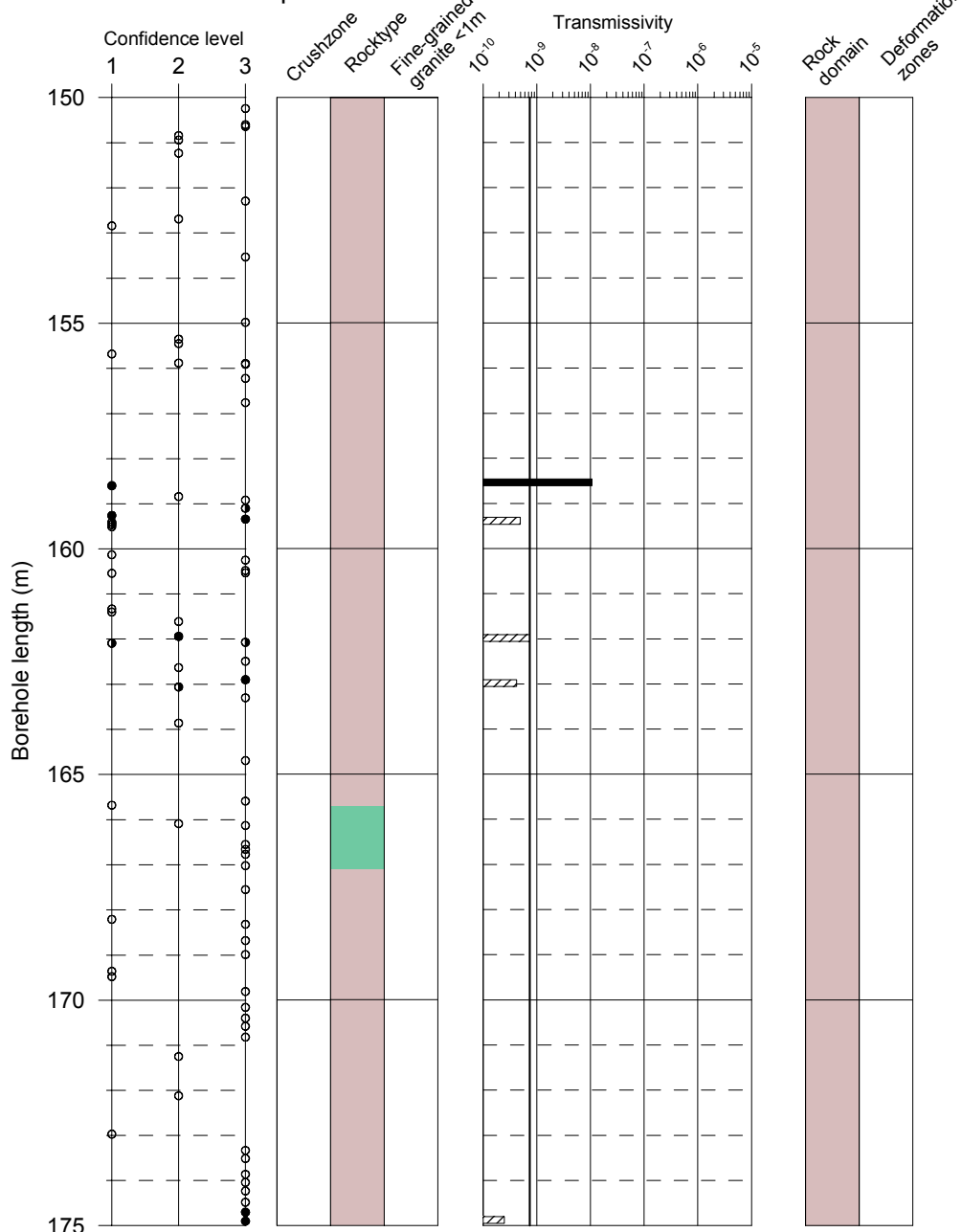
- ▨ Zone



KFM01A

Boremap

PFL

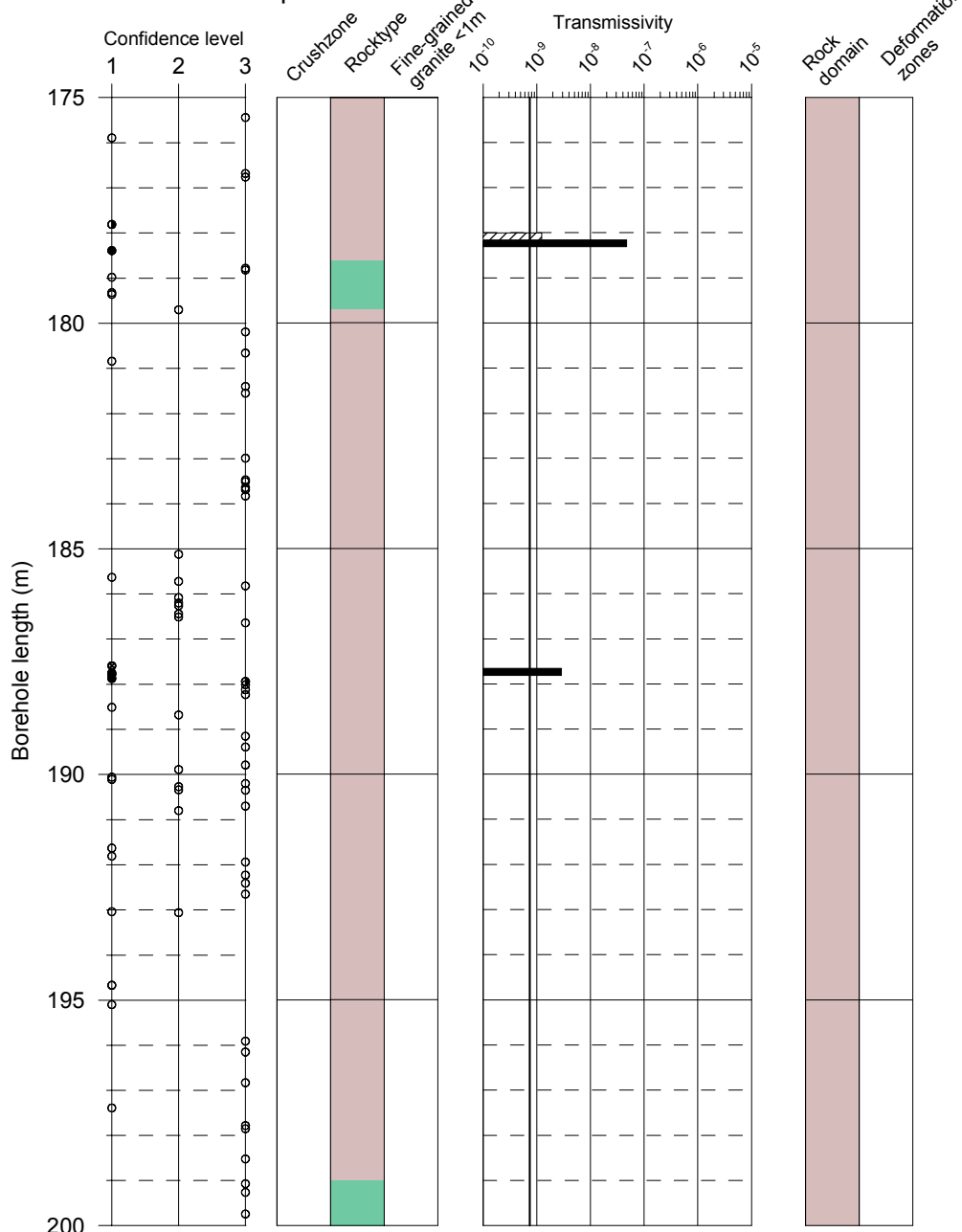


| | | | | |
|--|--|--|---|---------------------------------|
| Flow indication open fractures ● Class 1 ○ Class 2 ● Class 3 ○ Class 4 ○ Open fracture, no flow indication | Confidence level Open fractures 1 certain 2 probable 3 possible | ■ Fine-grained granite ■ Pegmatite ■ Granite, granodiorite, tonalite ■ Granite to granodiorite ■ Amphibolite ■ Calc-silicate rock | PFL-anomaly Transmissivity ■ Certain ▨ Uncertain — Meas lim | Rock domains ■ RFM029 |
| Deformation zones ▨ Zone | | | | |

KFM01A

Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
- Class 3
- Class 4
- Open fracture,
no flow indication

Confidence level
Open fractures

- 1 certain
- 2 probable
- 3 possible

Rocktype

- Fine-grained granite
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- Granite, granodiorite, tonalite
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- Amphibolite
- Calc-silicate rock

PFL-anomaly
Transmissivity

- Certain
- Uncertain
- Meas lim

Rock domains

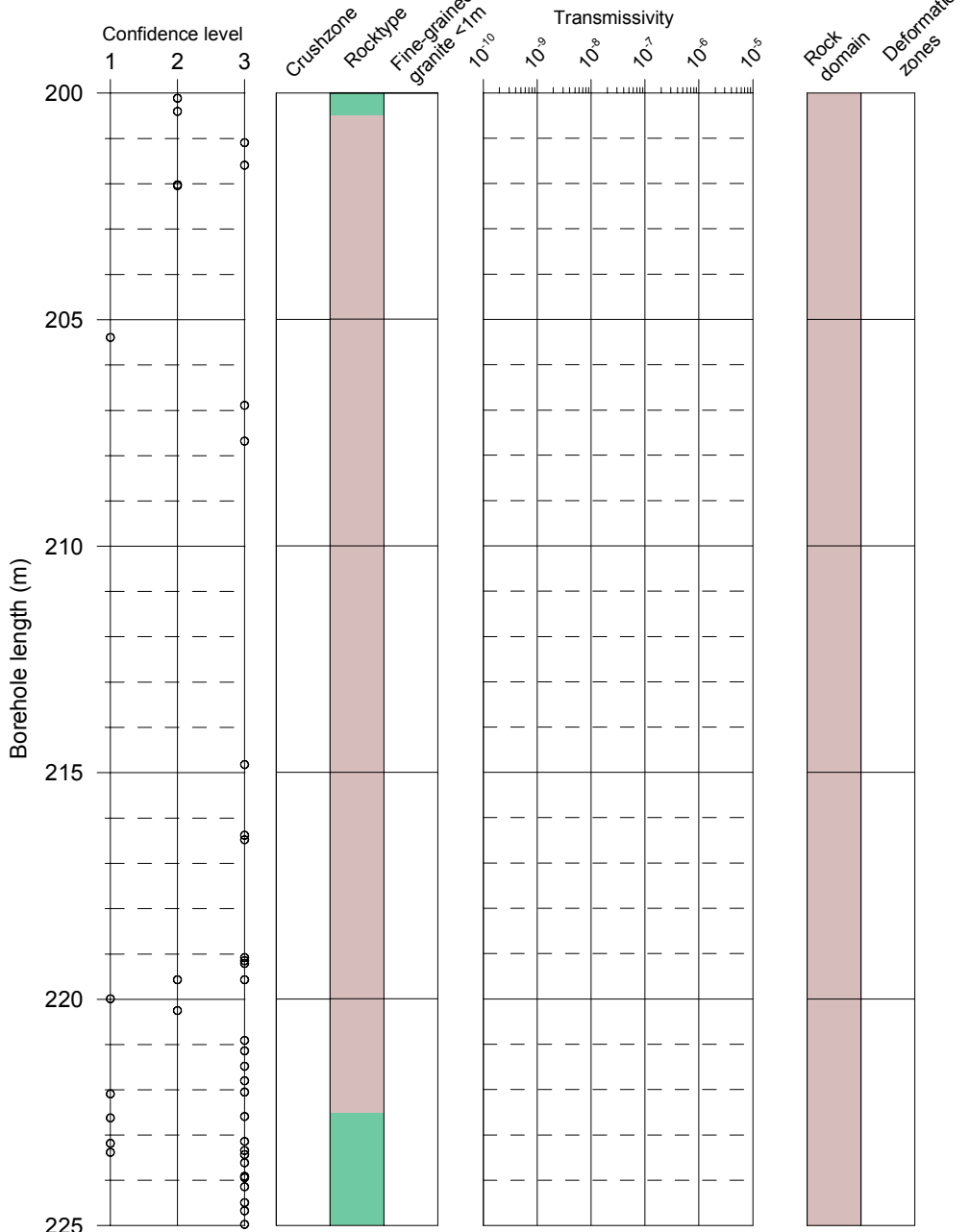
- RFM029

Deformation zones

- Zone

KFM01A Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
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- Open fracture,
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PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

Rock domains

- RFM029

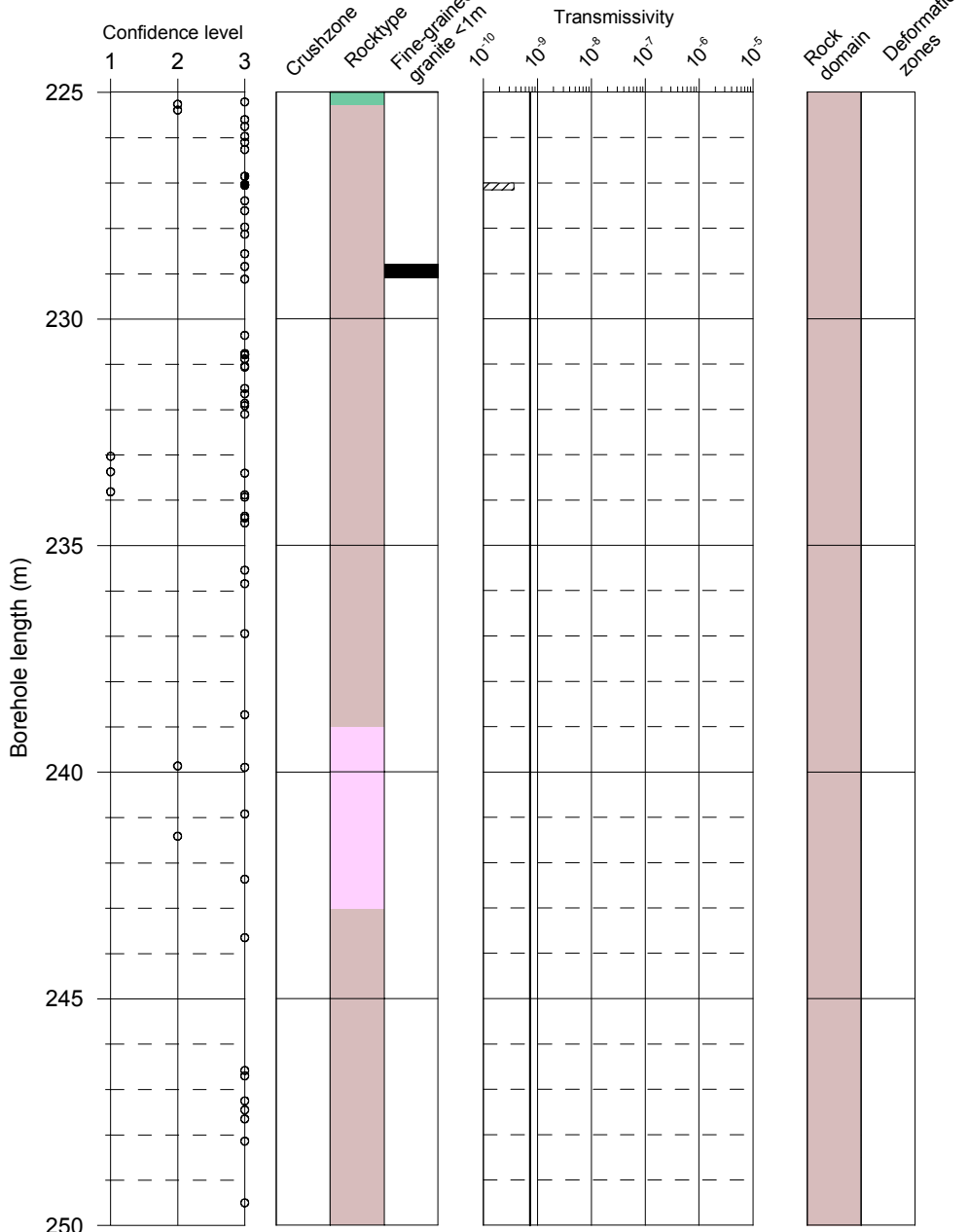
Deformation zones

- ▨ Zone

KFM01A

Boremap

PFL



Flow indication open fractures
 ● Class 1
 ● Class 2
 ● Class 3
 ● Class 4
 ○ Open fracture, no flow indication

Confidence level
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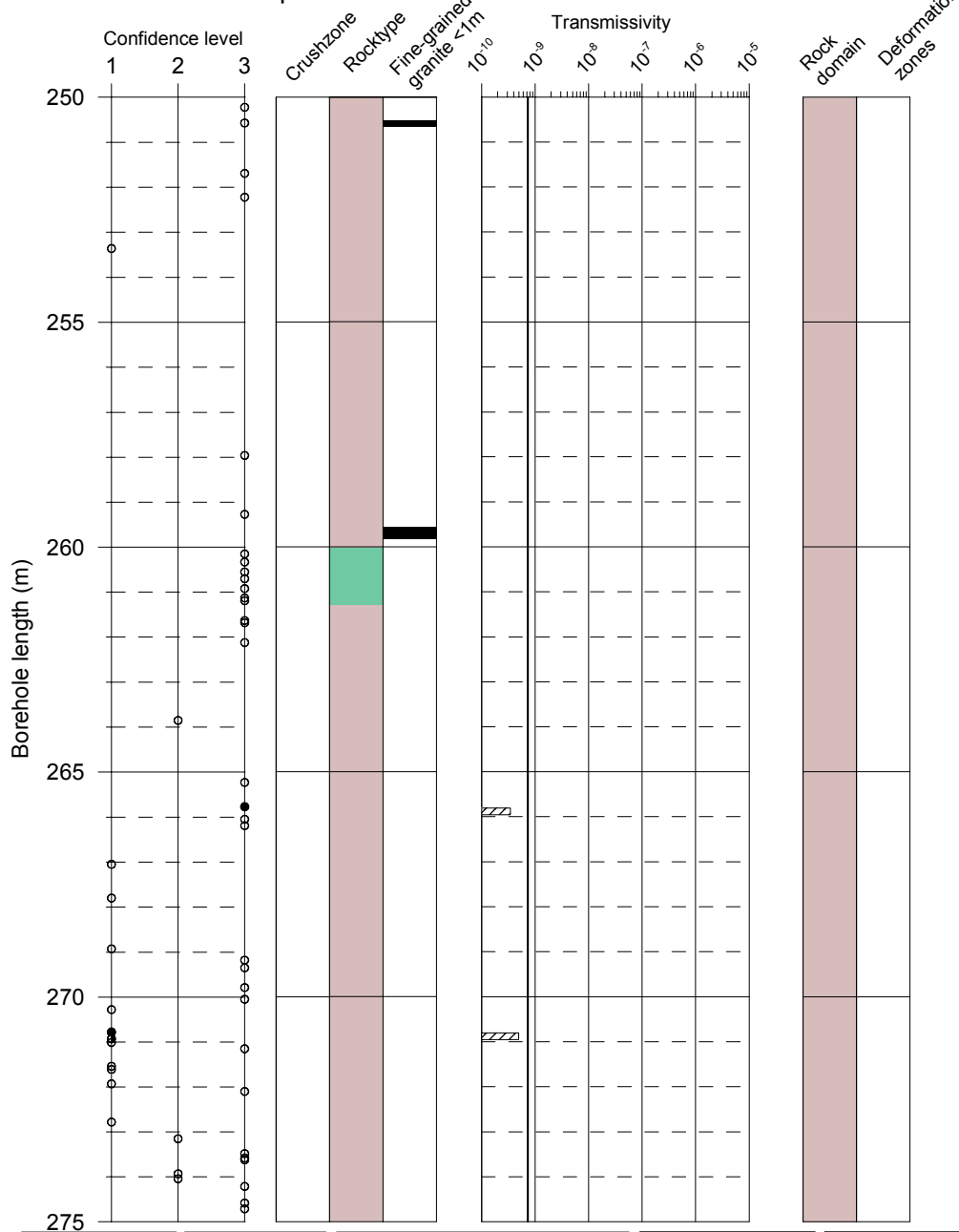
PFL-anomaly
 Transmissivity
 ■ Certain
 ▨ Uncertain
 — Meas lim

Rock domains
 ■ RFM029

Deformation zones
 ▨ Zone

KFM01A Boremap

PFL



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- Meas lim

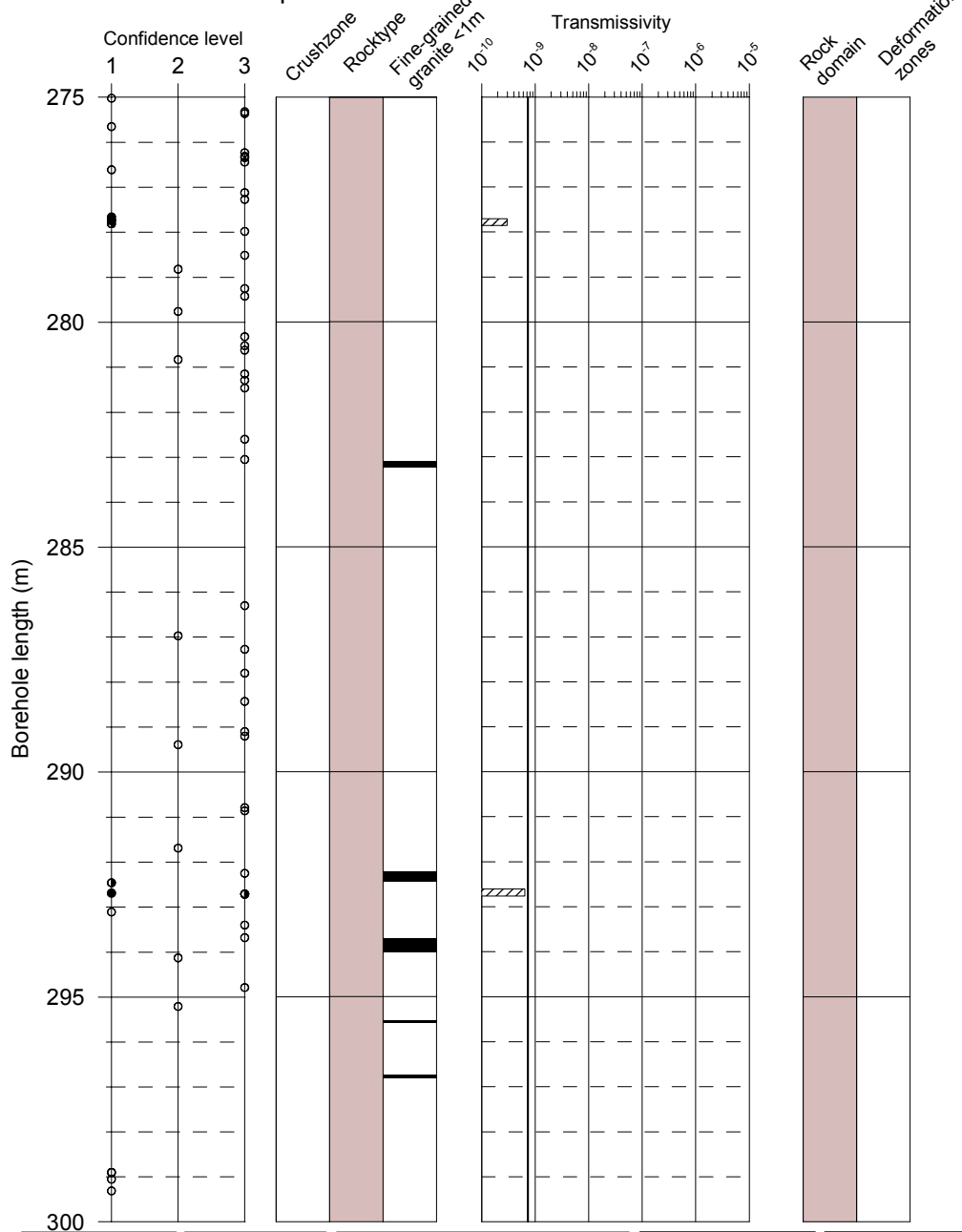
Rock domains
RFM029

Deformation zones
▨ Zone

KFM01A

Boremap

PFL



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PFL-anomaly
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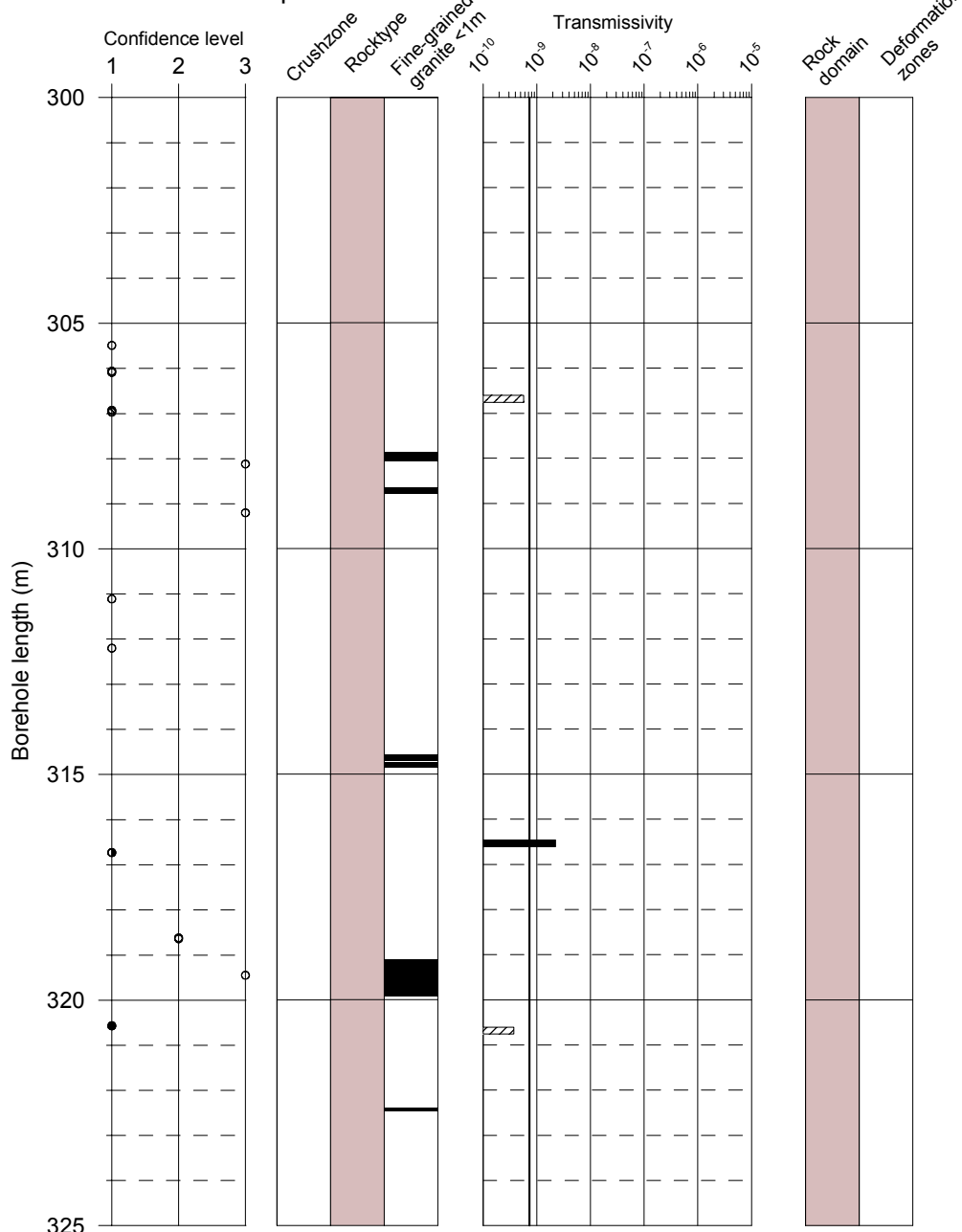
Rock domains
RFM029

Deformation zones
▨ Zone

KFM01A

Boremap

PFL



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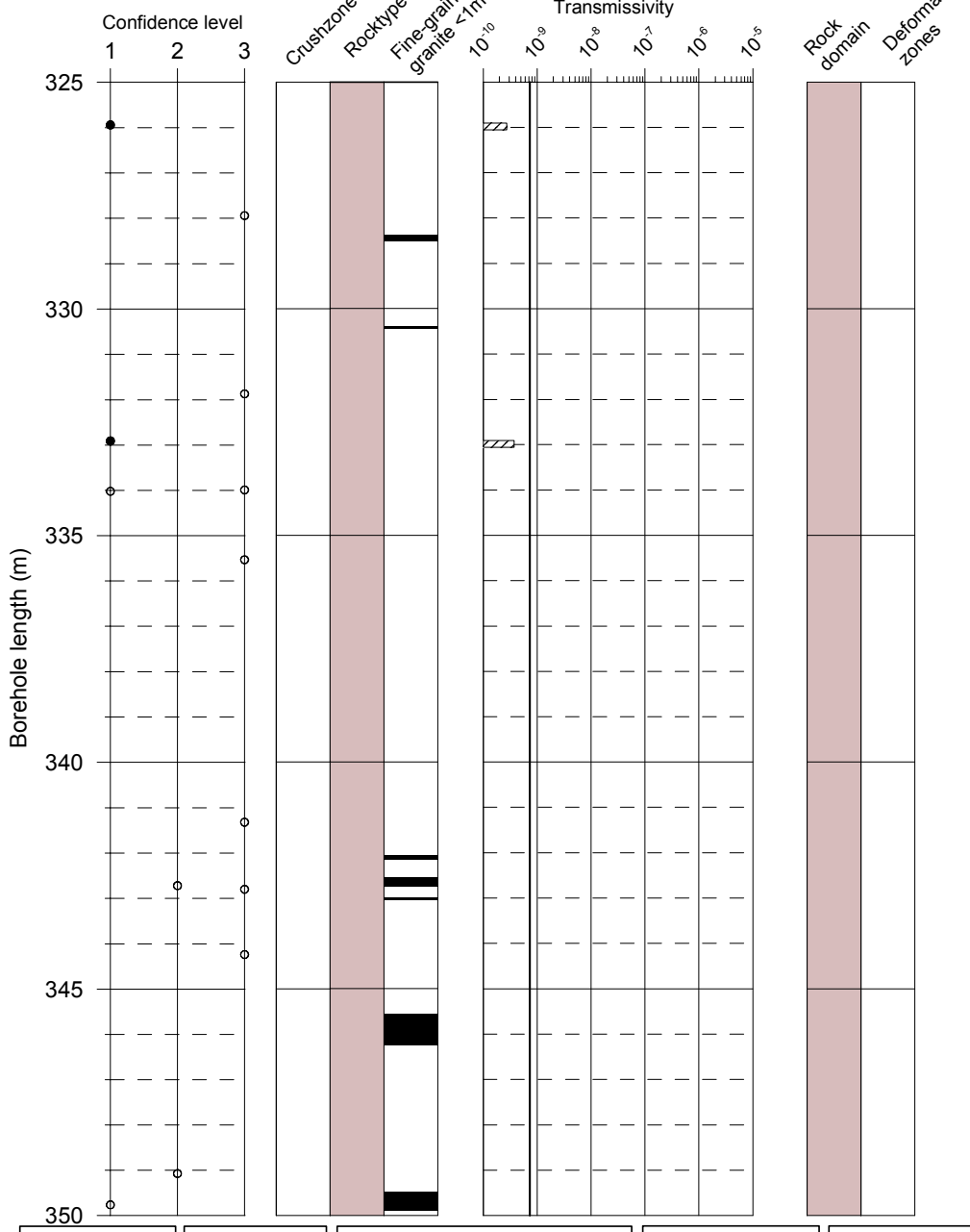
PFL-anomaly
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Rock domains
RFM029

Deformation zones
▨ Zone

KFM01A Boremap PFL



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Rock domains

- RFM029

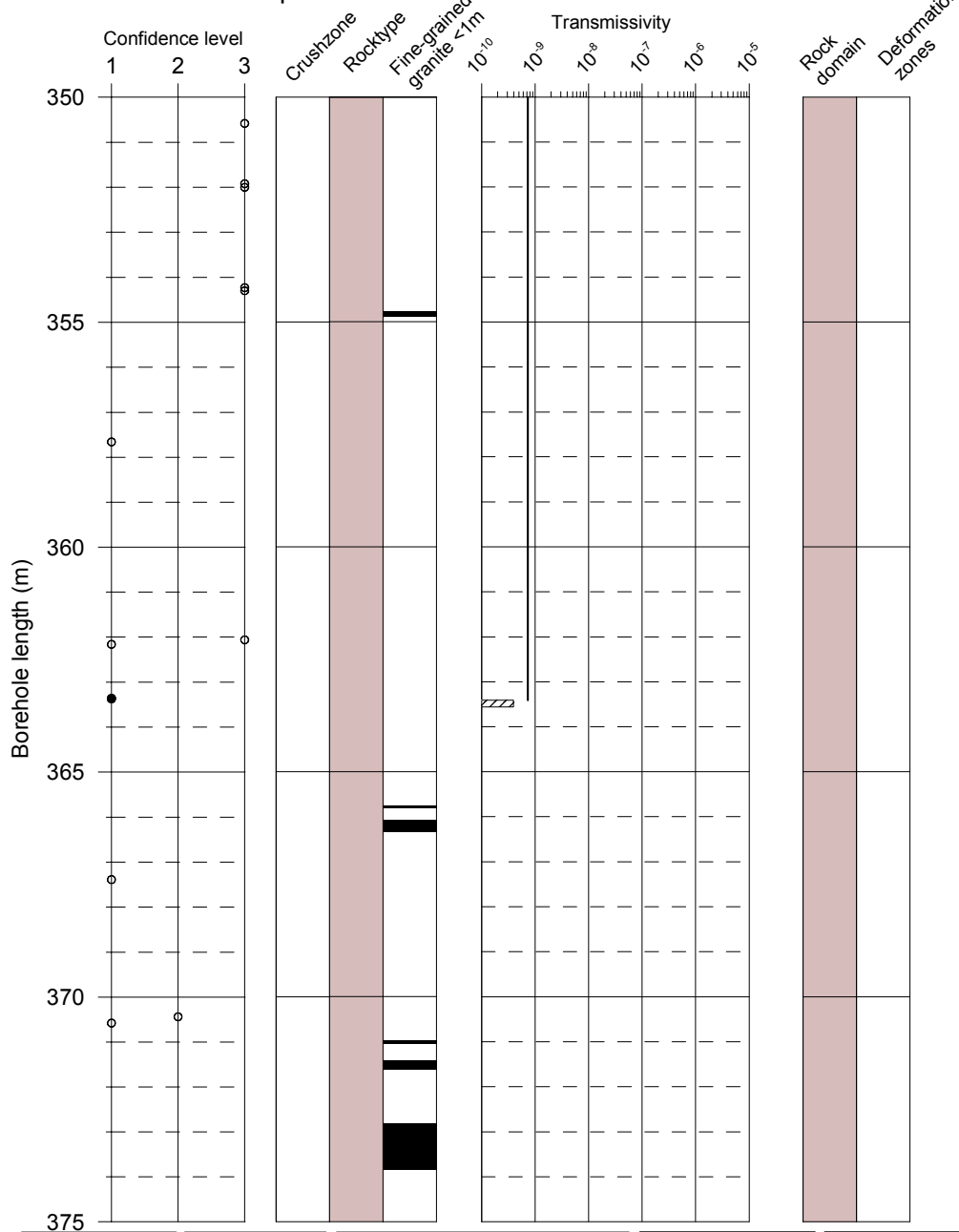
Deformation zones

- ▨ Zone

KFM01A

Boremap

PFL



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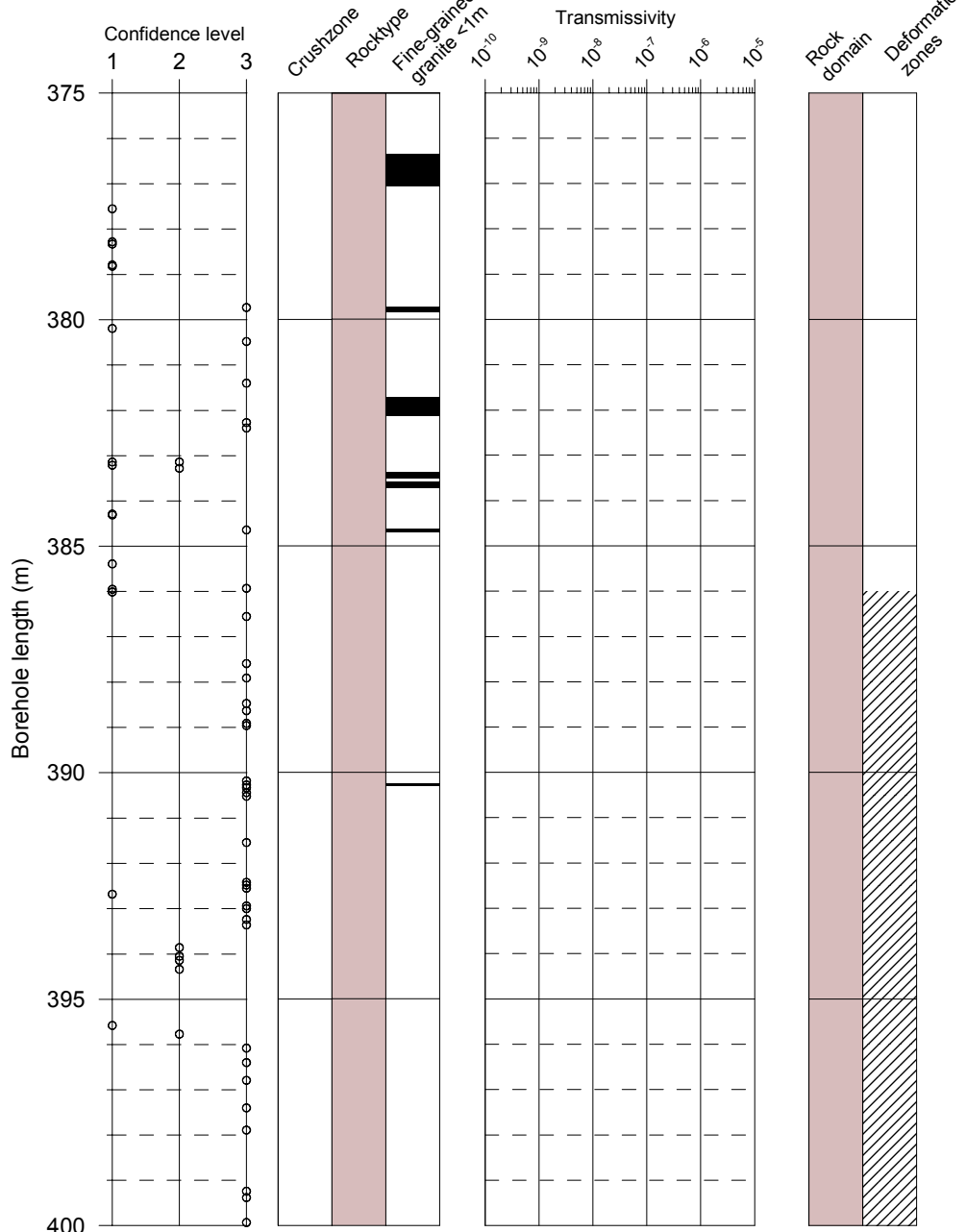
Rock domains
RFM029

Deformation zones
▨ Zone

KFM01A

Boremap

PFL



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Rock domains

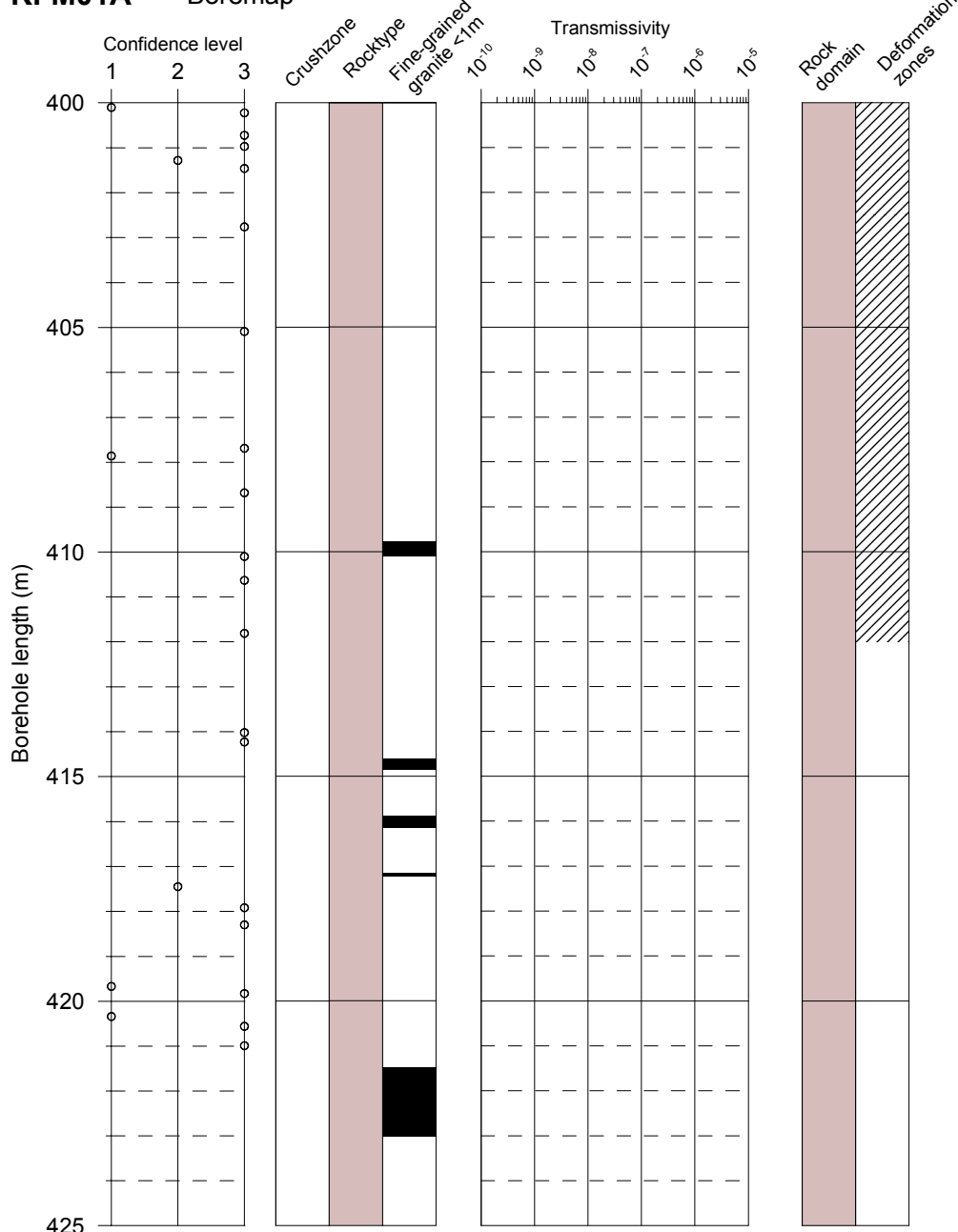
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Deformation zones

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KFM01A Boremap

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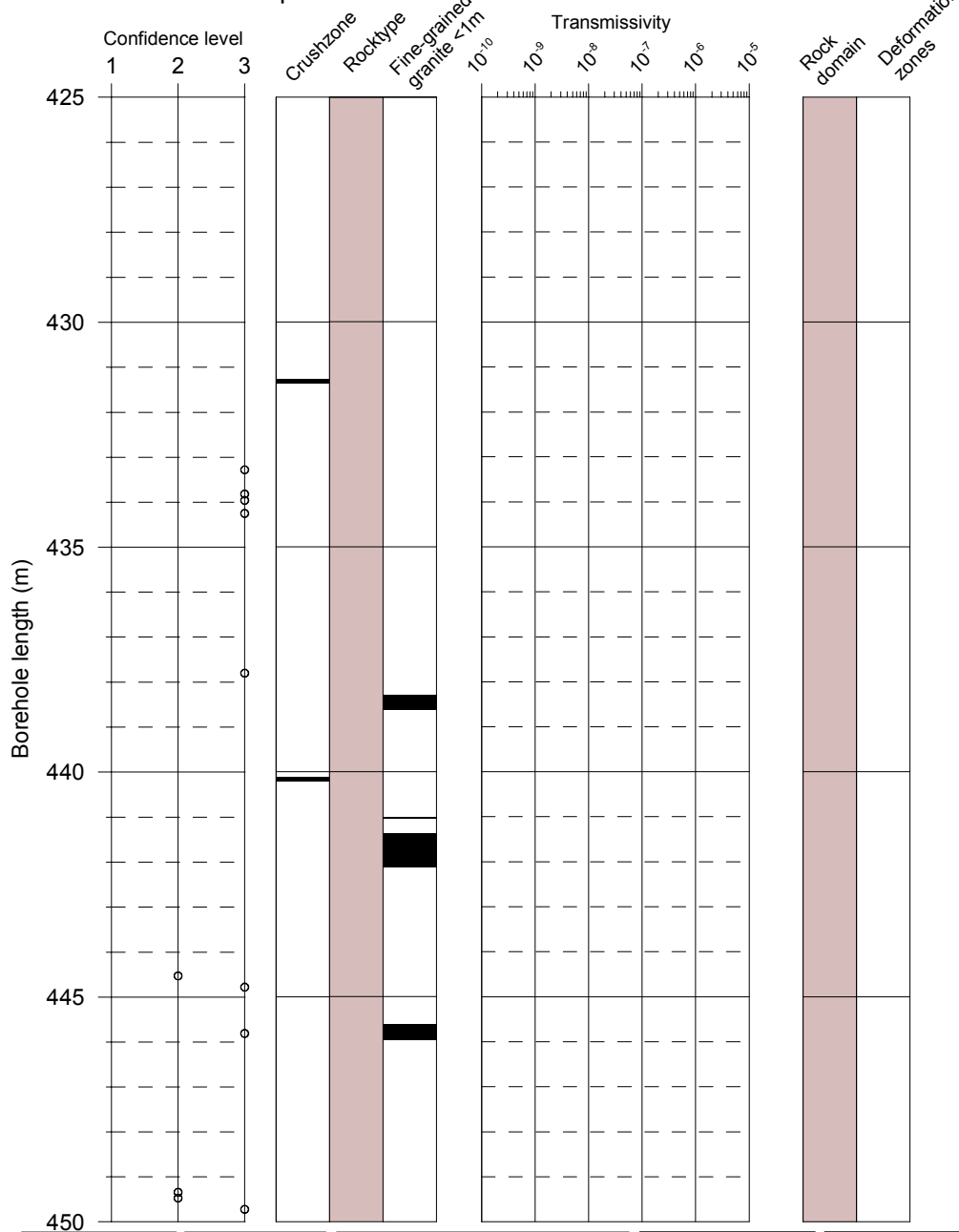
Rock domains
RFM029

Deformation zones
▨ Zone

KFM01A

Boremap

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Transmissivity

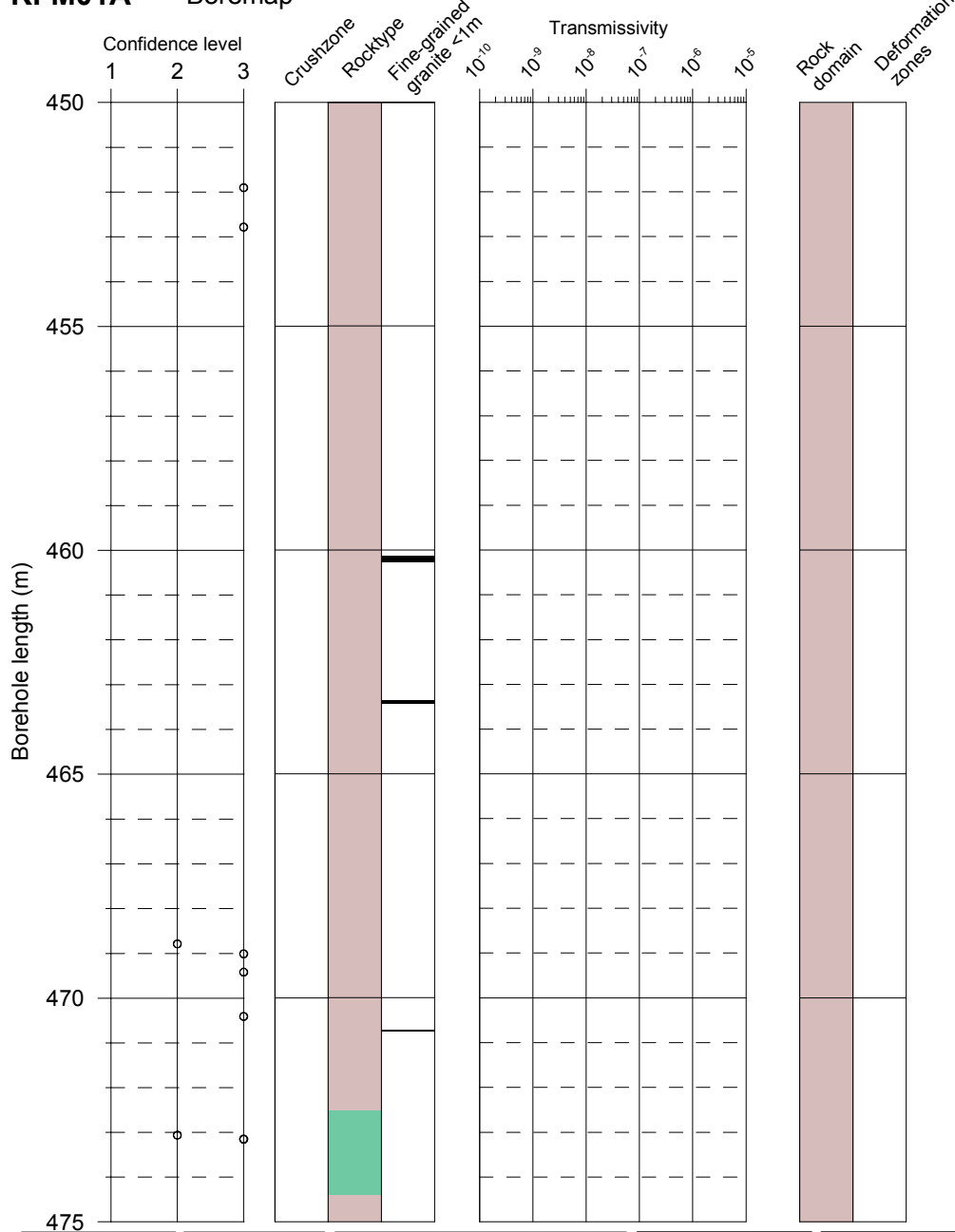
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Rock domains
RFM029

Deformation zones
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KFM01A Boremap

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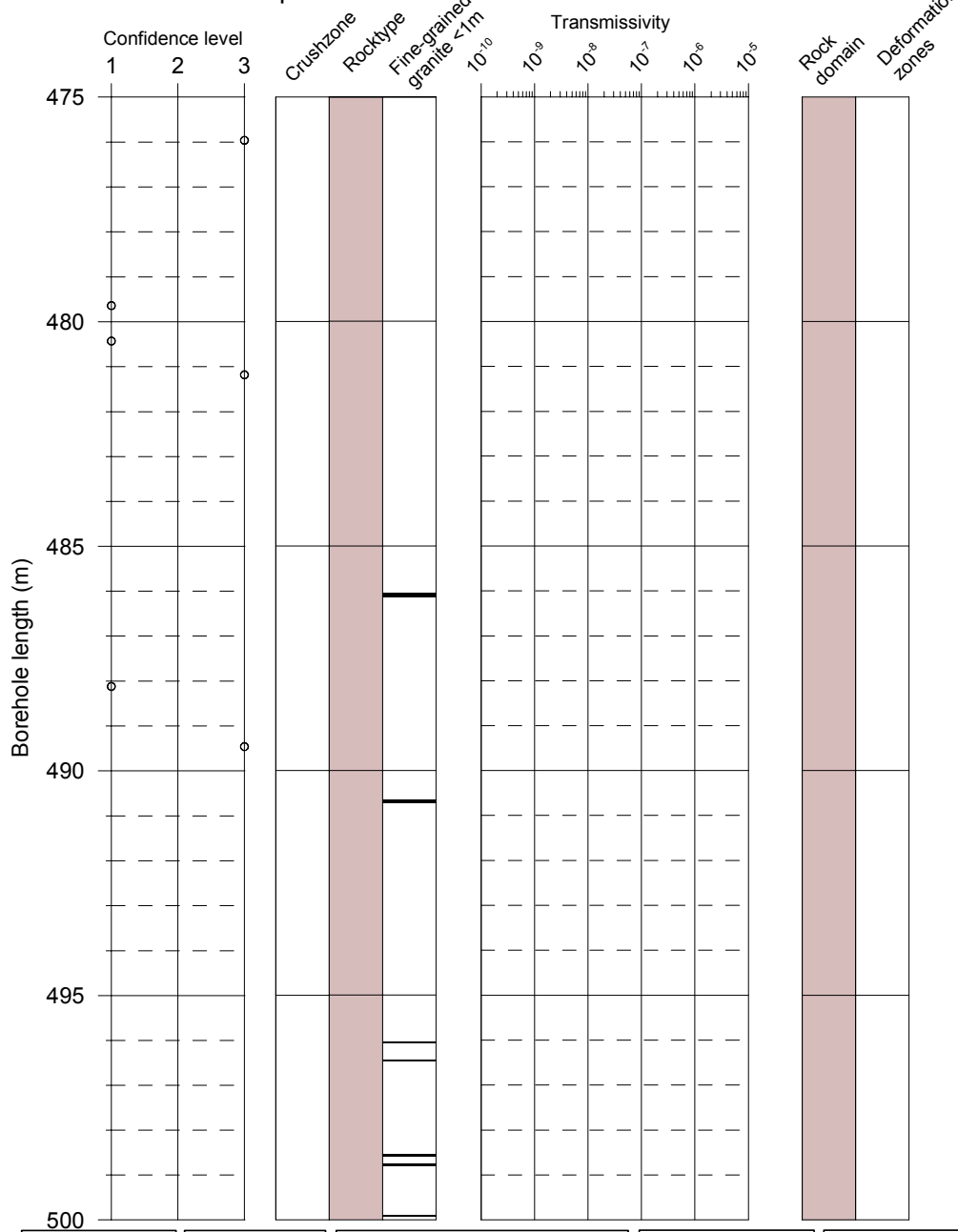
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Rock domains
RFM029

Deformation zones
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KFM01A Boremap

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Rock domains

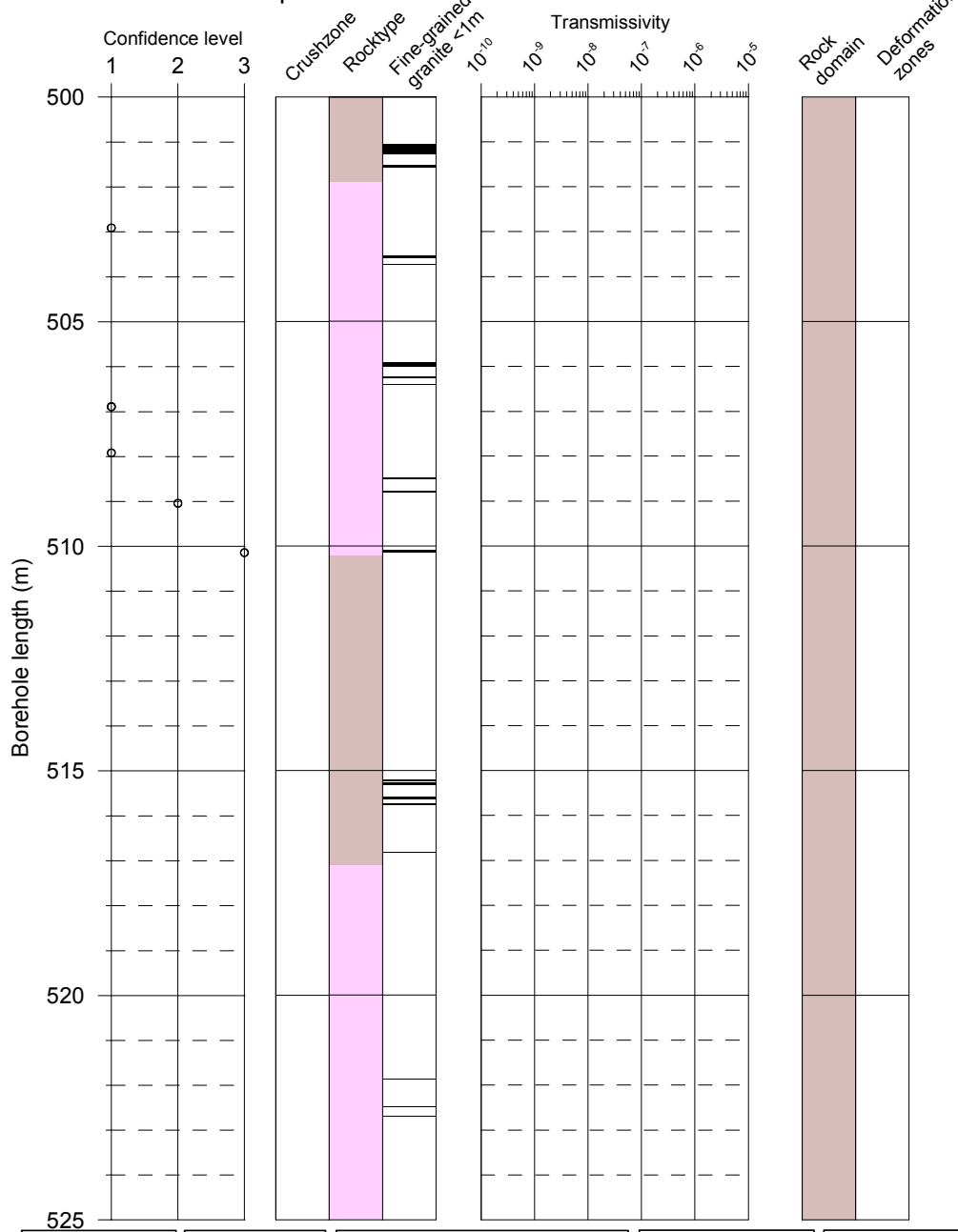
- RFM029

Deformation zones

- ▨ Zone

KFM01A Boremap

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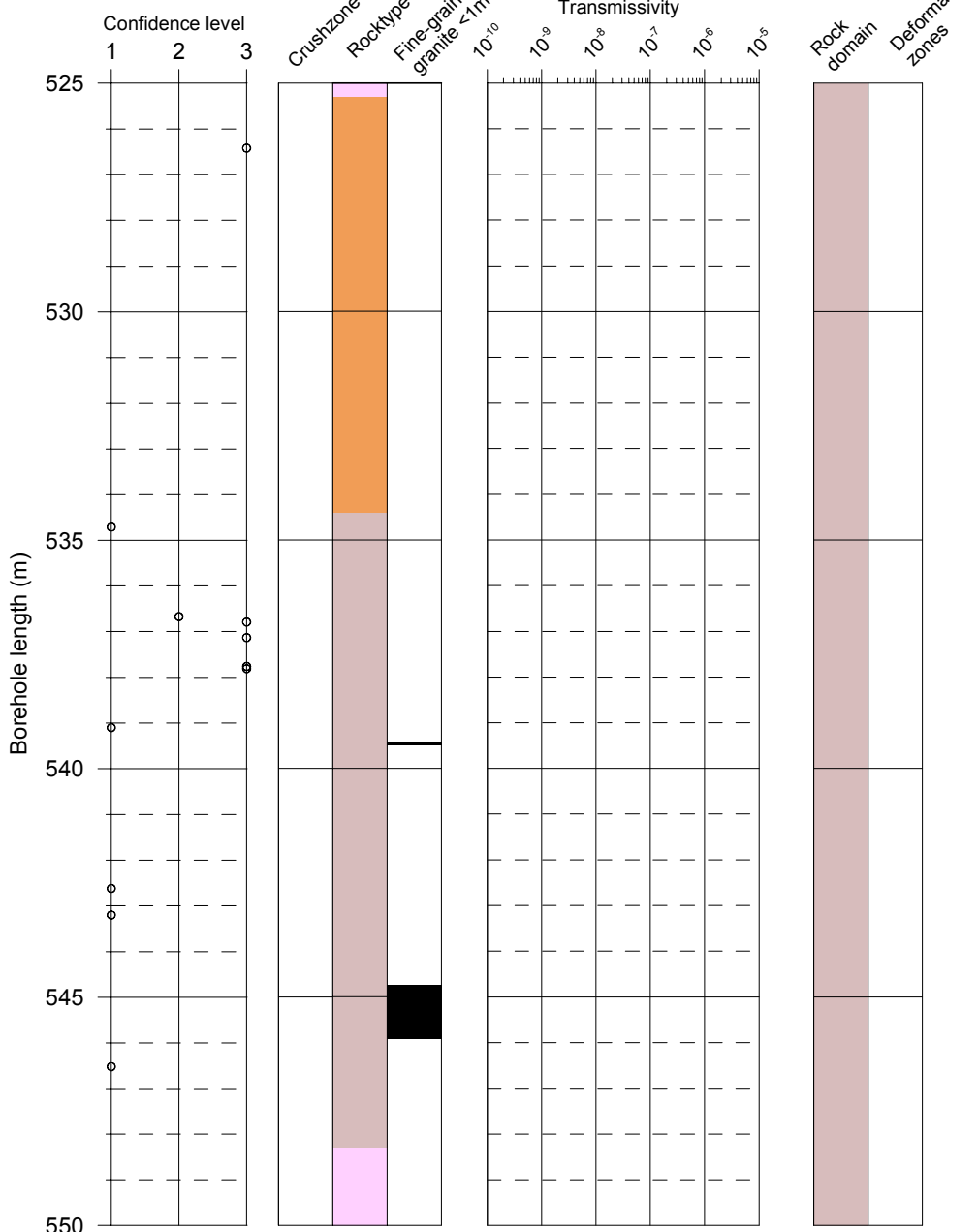
PFL-anomaly
Transmissivity

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Rock domains
RFM029

Deformation zones
▨ Zone

KFM01A Boremap PFL



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PFL-anomaly
Transmissivity

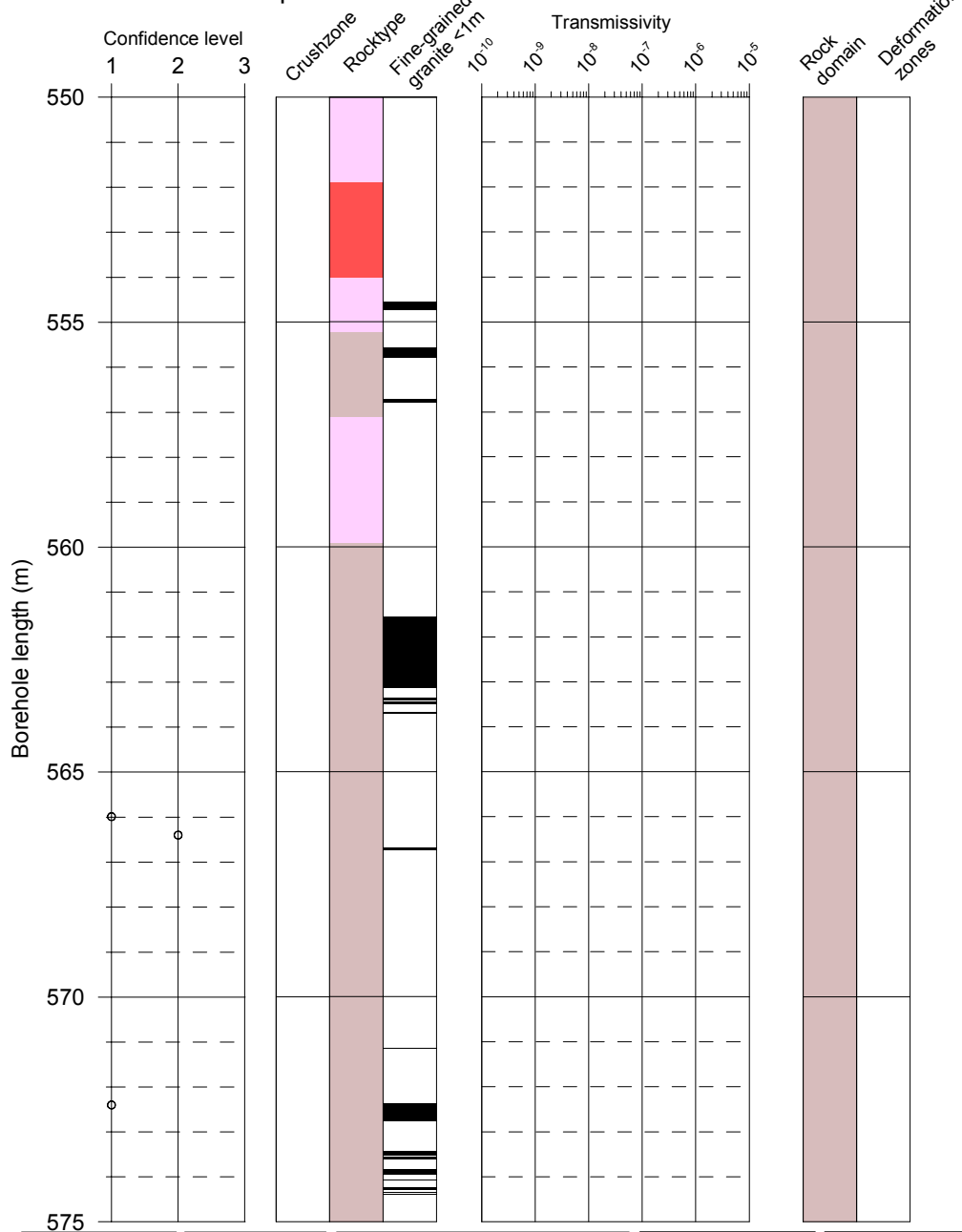
- Certain
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Rock domains
RFM029

Deformation zones
▨ Zone

KFM01A Boremap

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Transmissivity

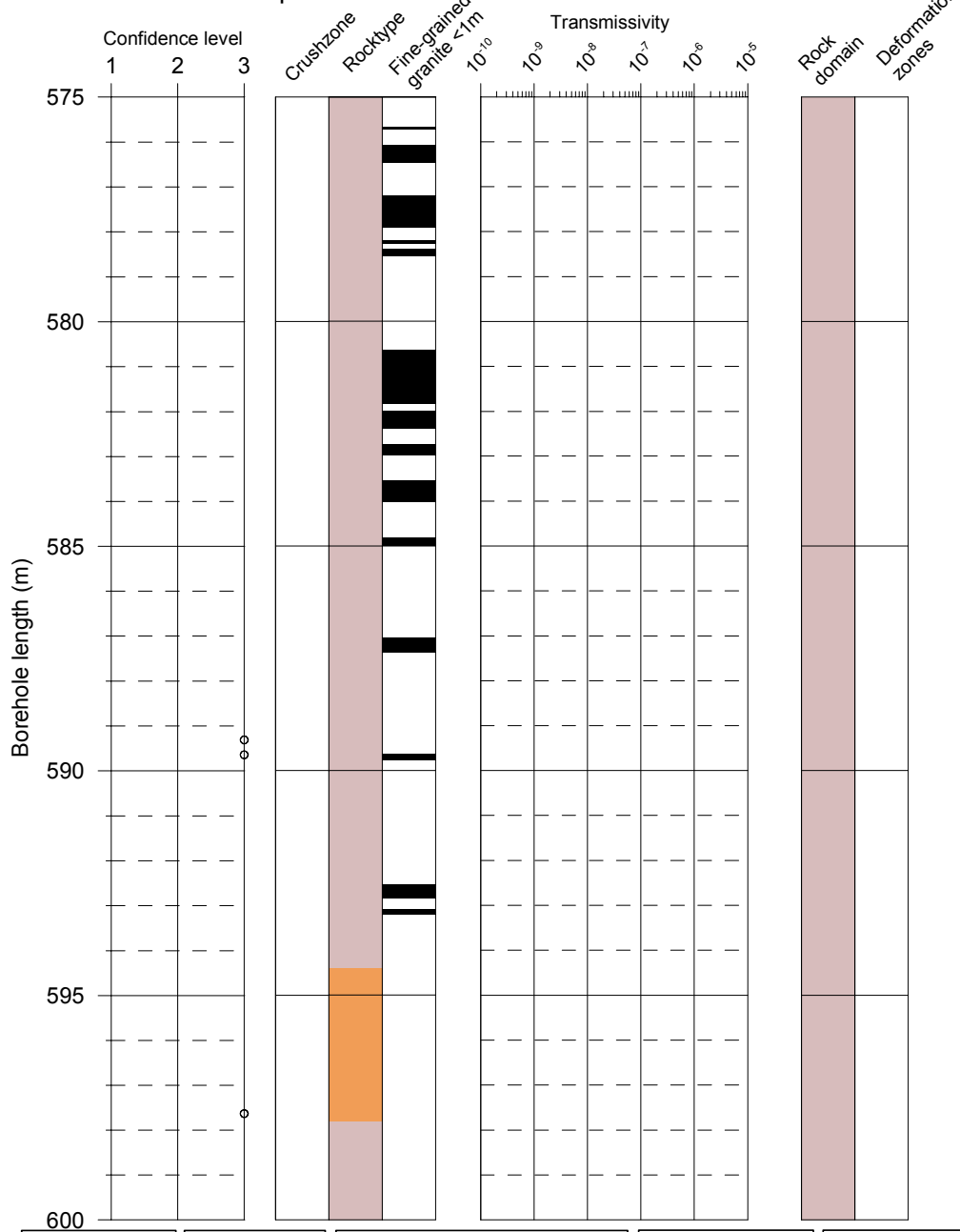
- Certain
- ▨ Uncertain
- Meas lim

Rock domains
RFM029

Deformation zones
▨ Zone

KFM01A Boremap

PFL



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PFL-anomaly
Transmissivity

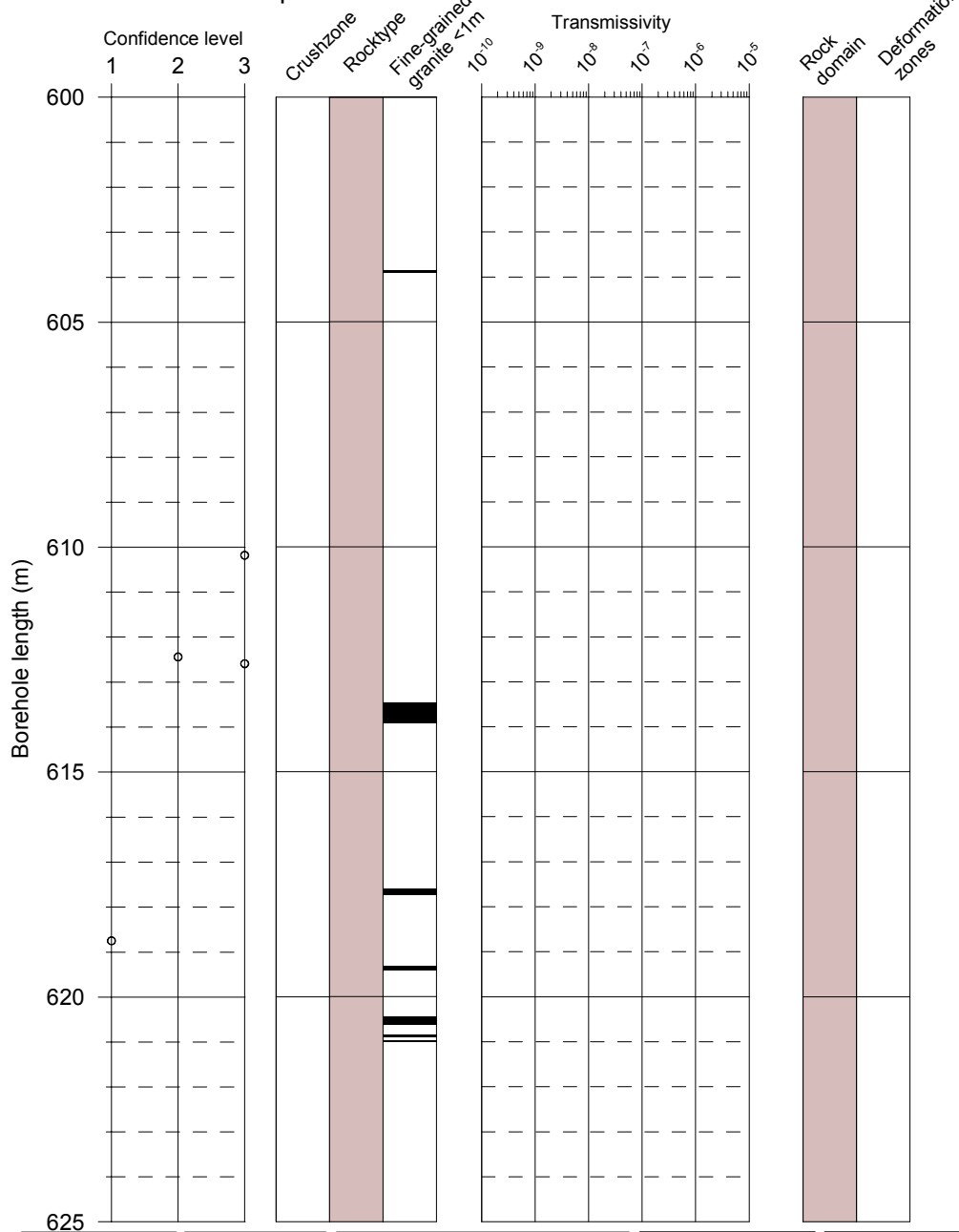
- Certain
- ▨ Uncertain
- Meas lim

Rock domains
RFM029

Deformation zones
▨ Zone

KFM01A Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
- Class 3
- Class 4
- Open fracture, no flow indication

Confidence level
Open fractures

- 1 certain
- 2 probable
- 3 possible

- Fine-grained granite
- Pegmatite
- Granite, granodiorite, tonalite
- Granite to granodiorite
- Amphibolite
- Calc-silicate rock

PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

Rock domains

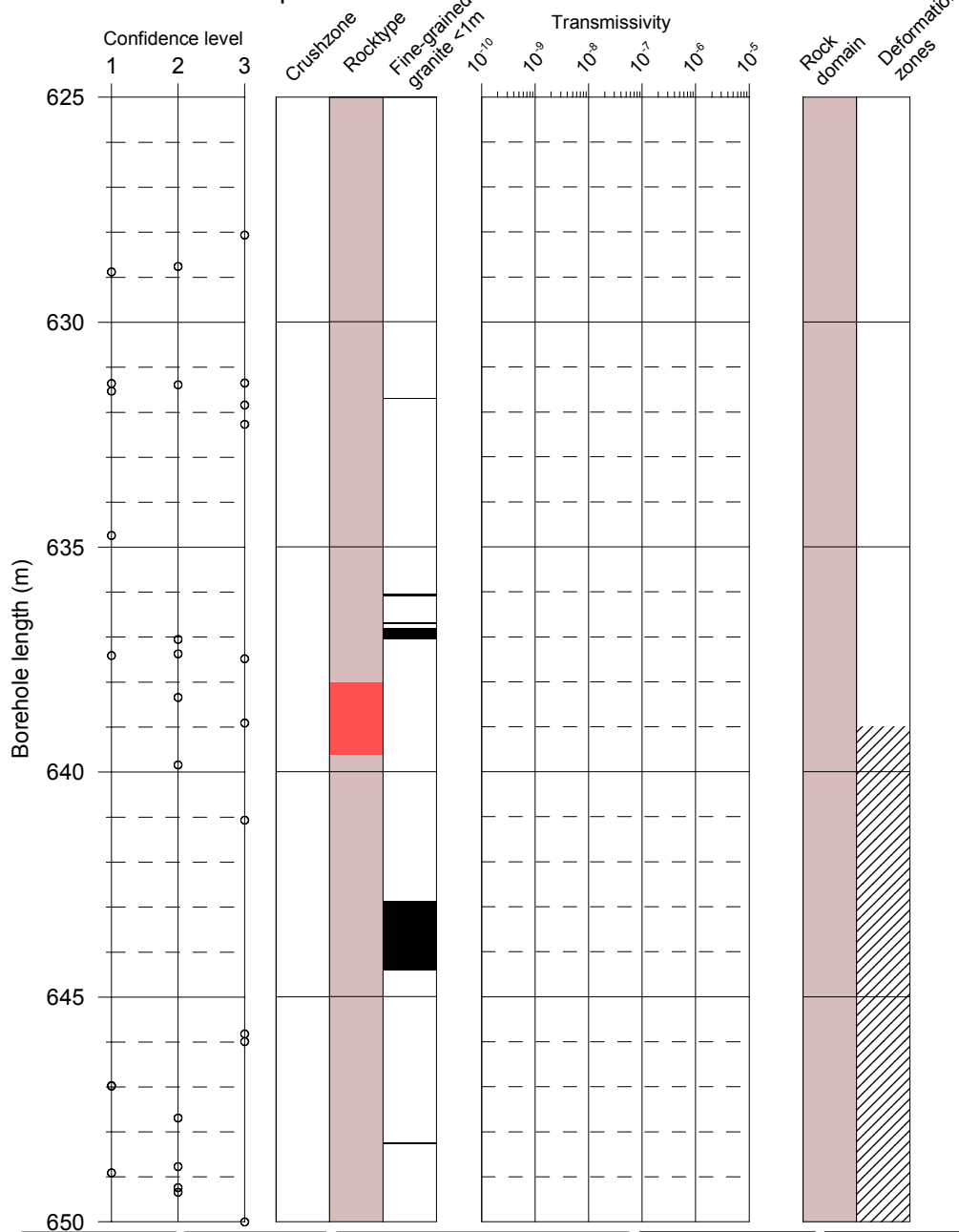
- RFM029

Deformation zones

- ▨ Zone

KFM01A Boremap

PFL



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Rock domains

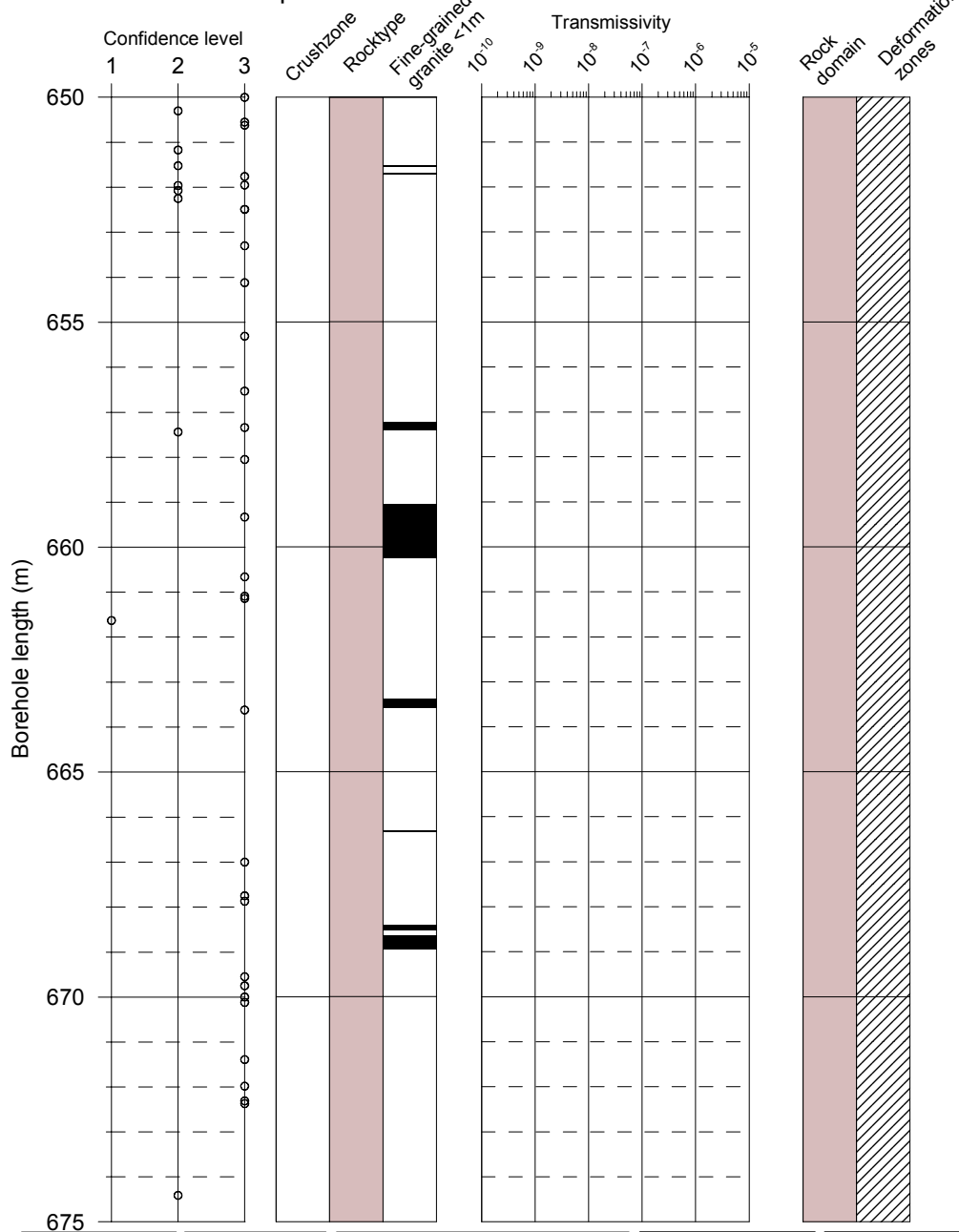
- RFM029

Deformation zones

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KFM01A Boremap

PFL



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Transmissivity

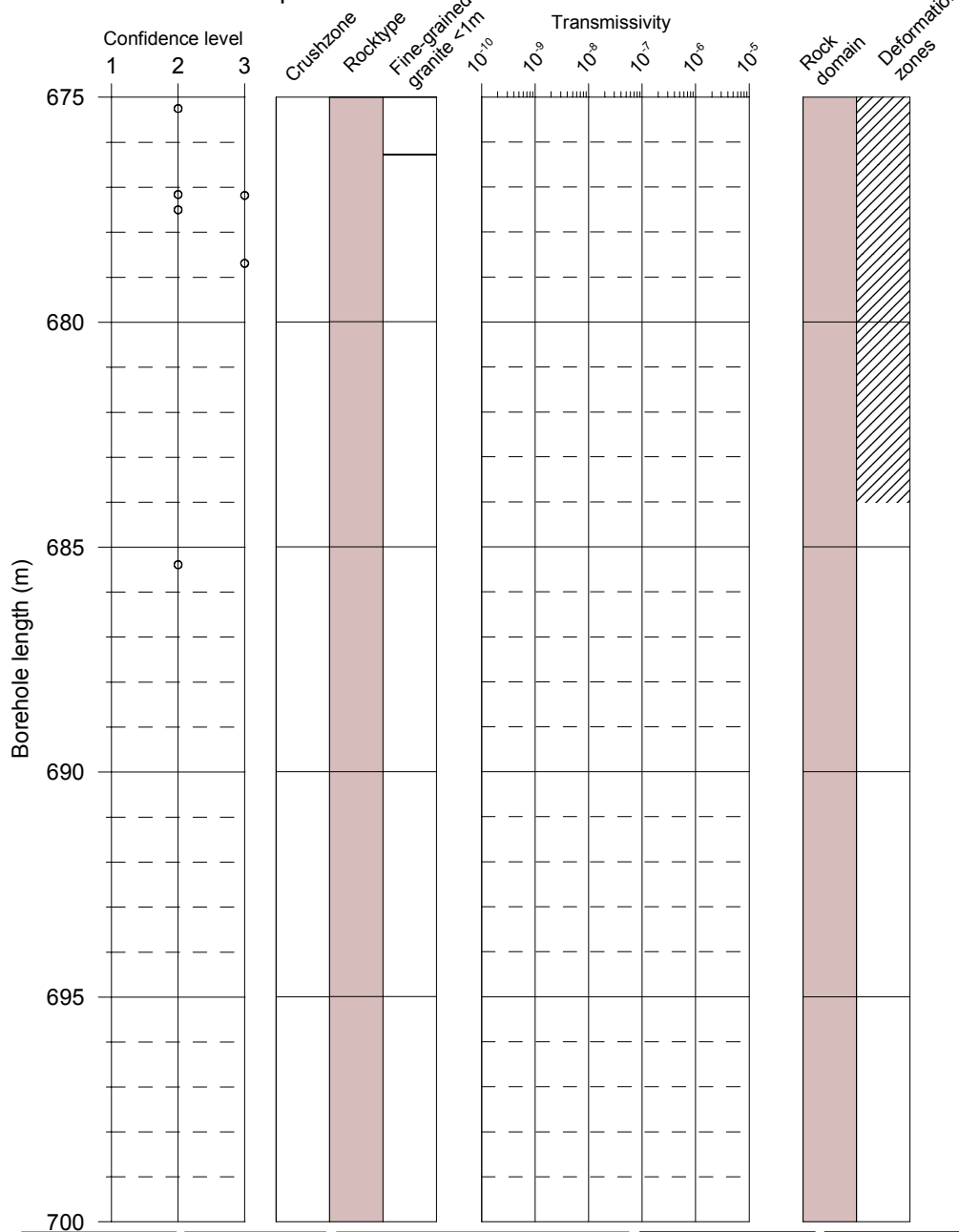
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Rock domains
RFM029

Deformation zones
▨ Zone

KFM01A Boremap

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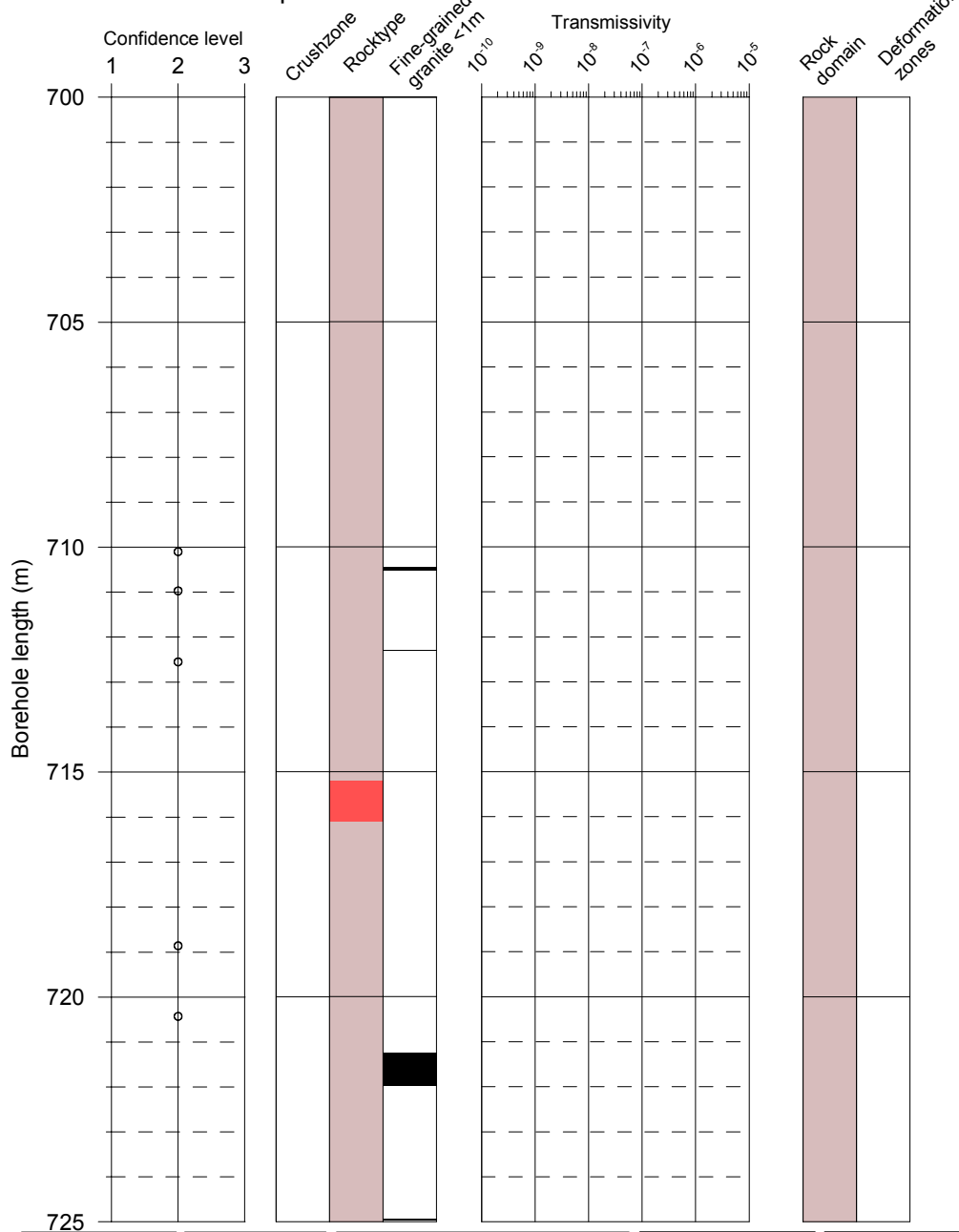
Rock domains
RFM029

Deformation zones
▨ Zone

KFM01A

Boremap

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Rock domains

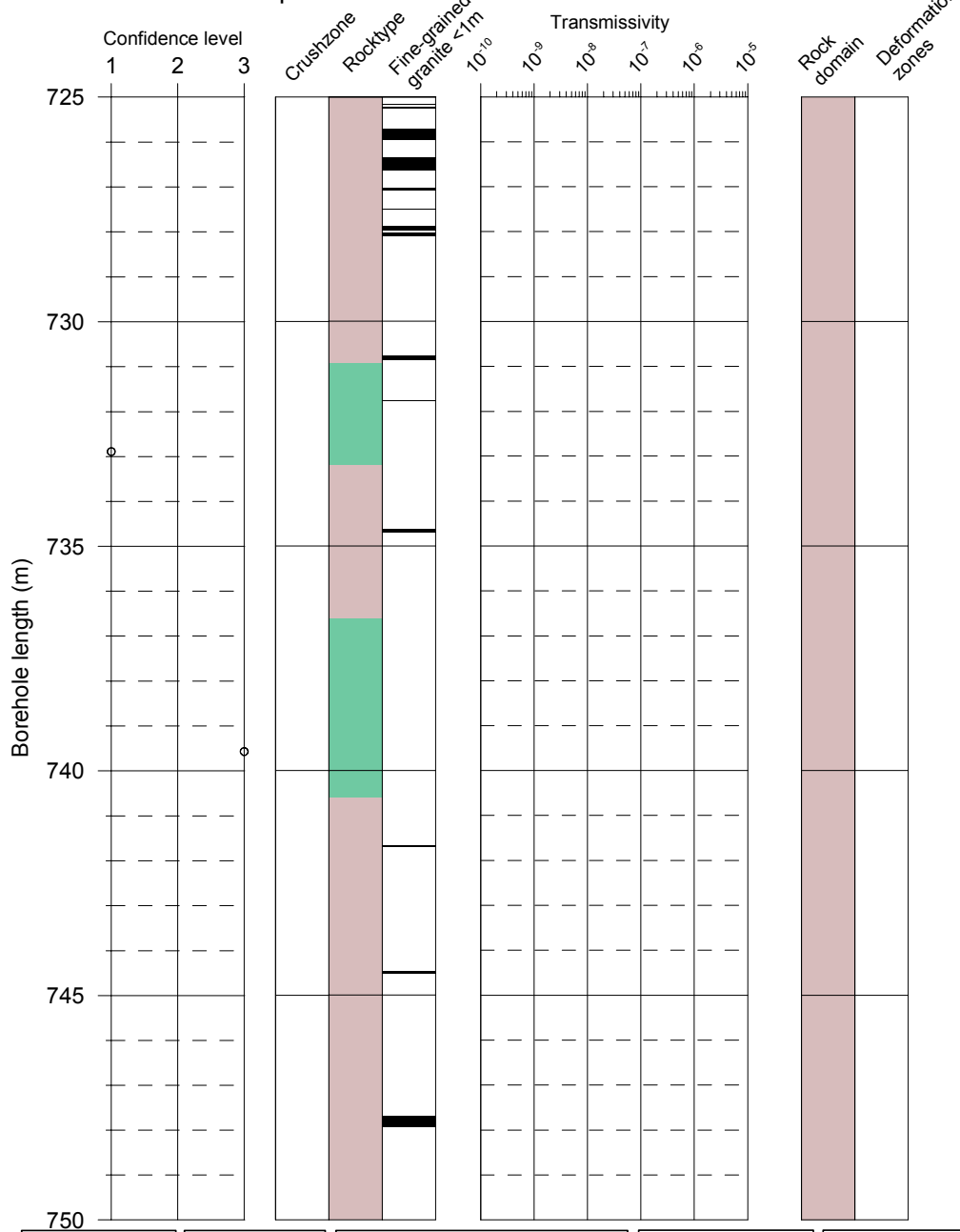
- RFM029

Deformation zones

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KFM01A Boremap

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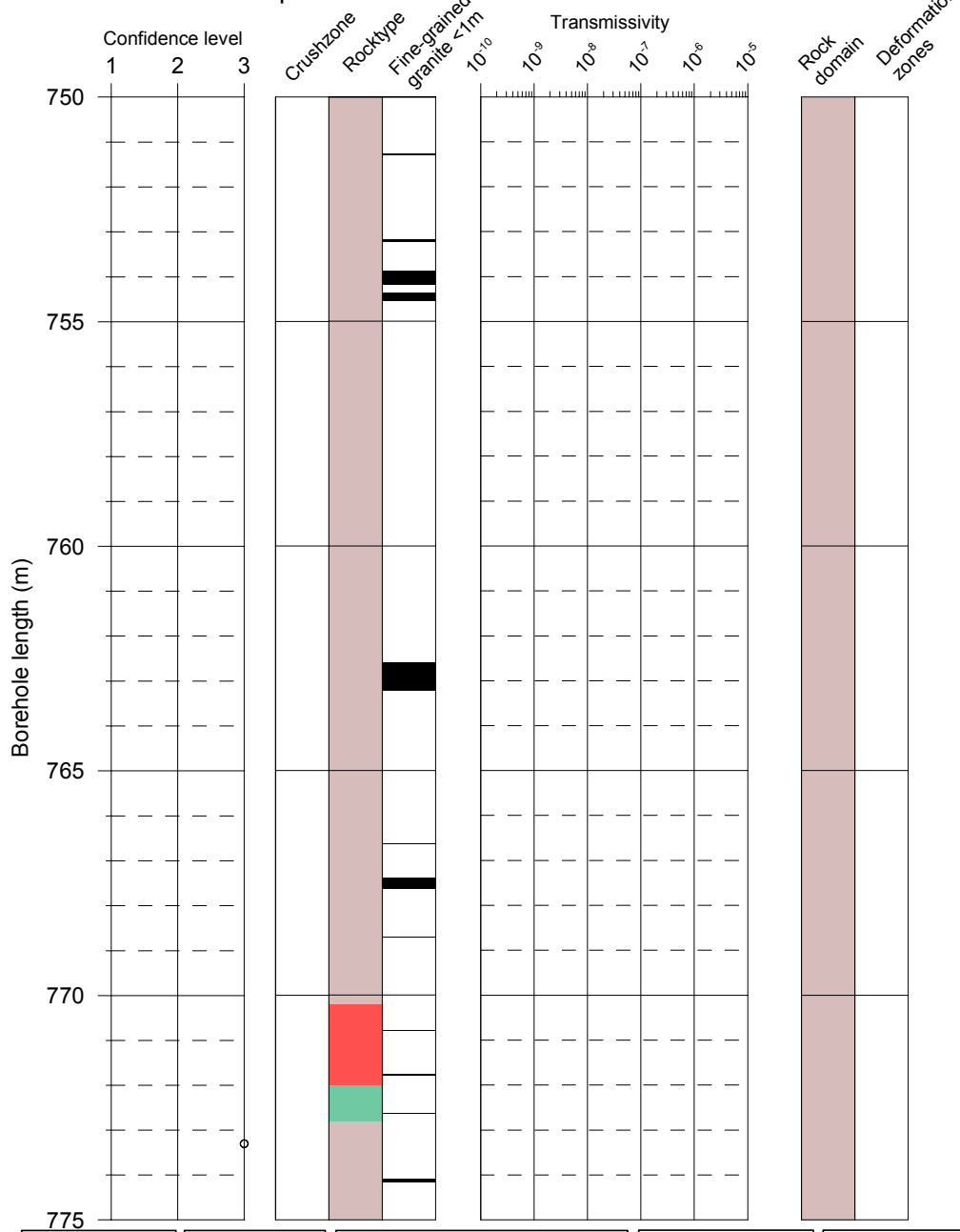
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Rock domains
RFM029

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KFM01A Boremap

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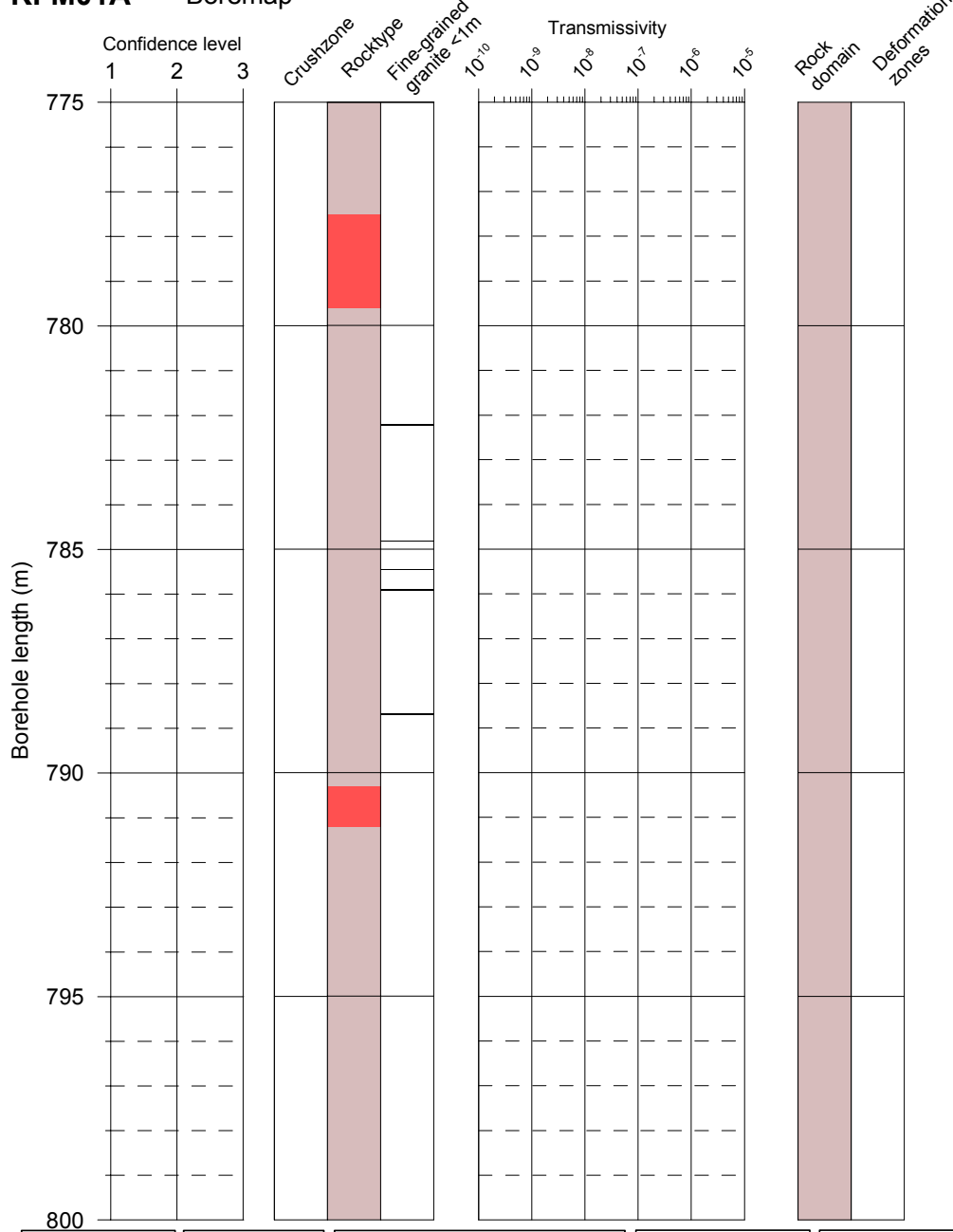
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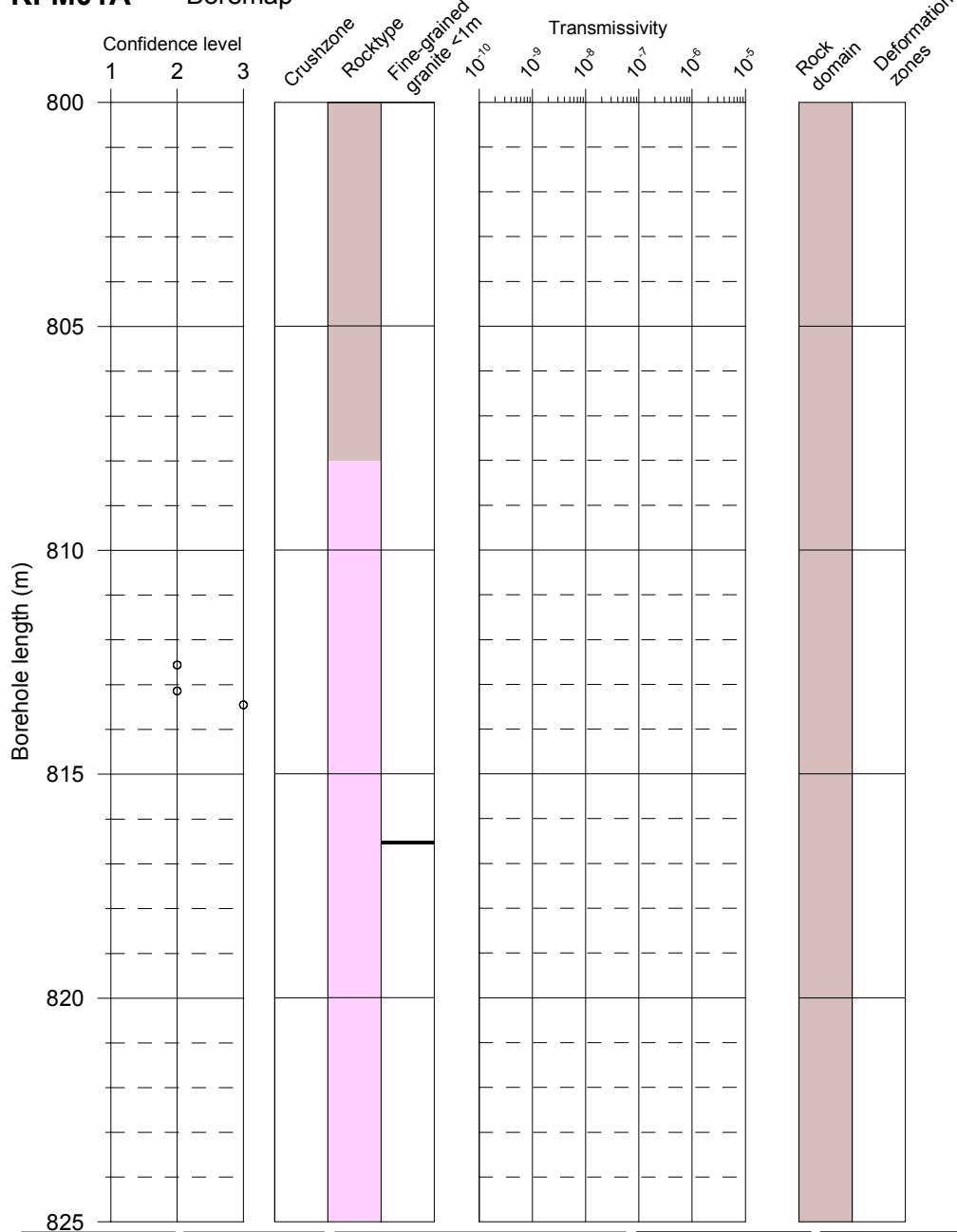
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Rock domains

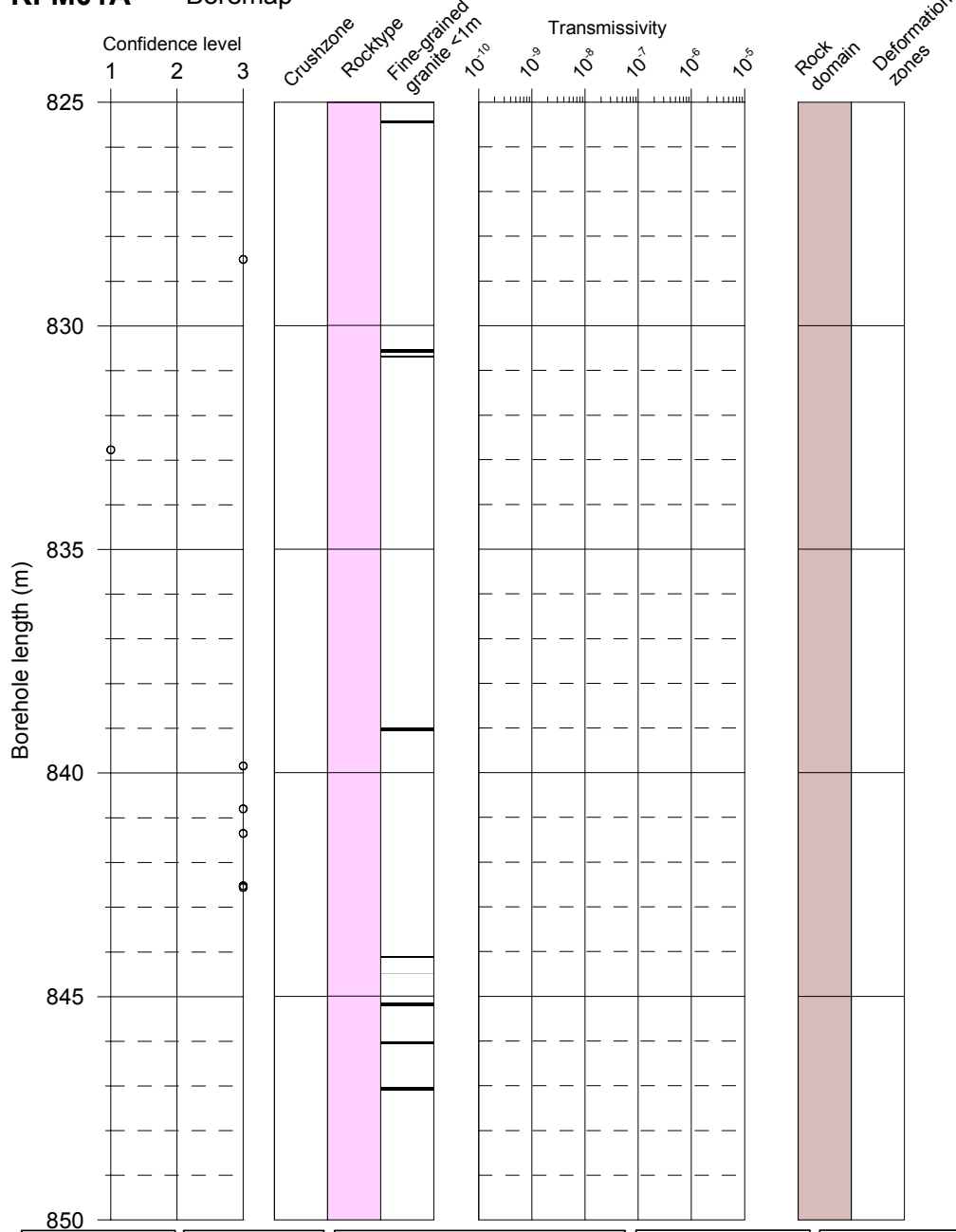
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Deformation zones

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KFM01A Boremap

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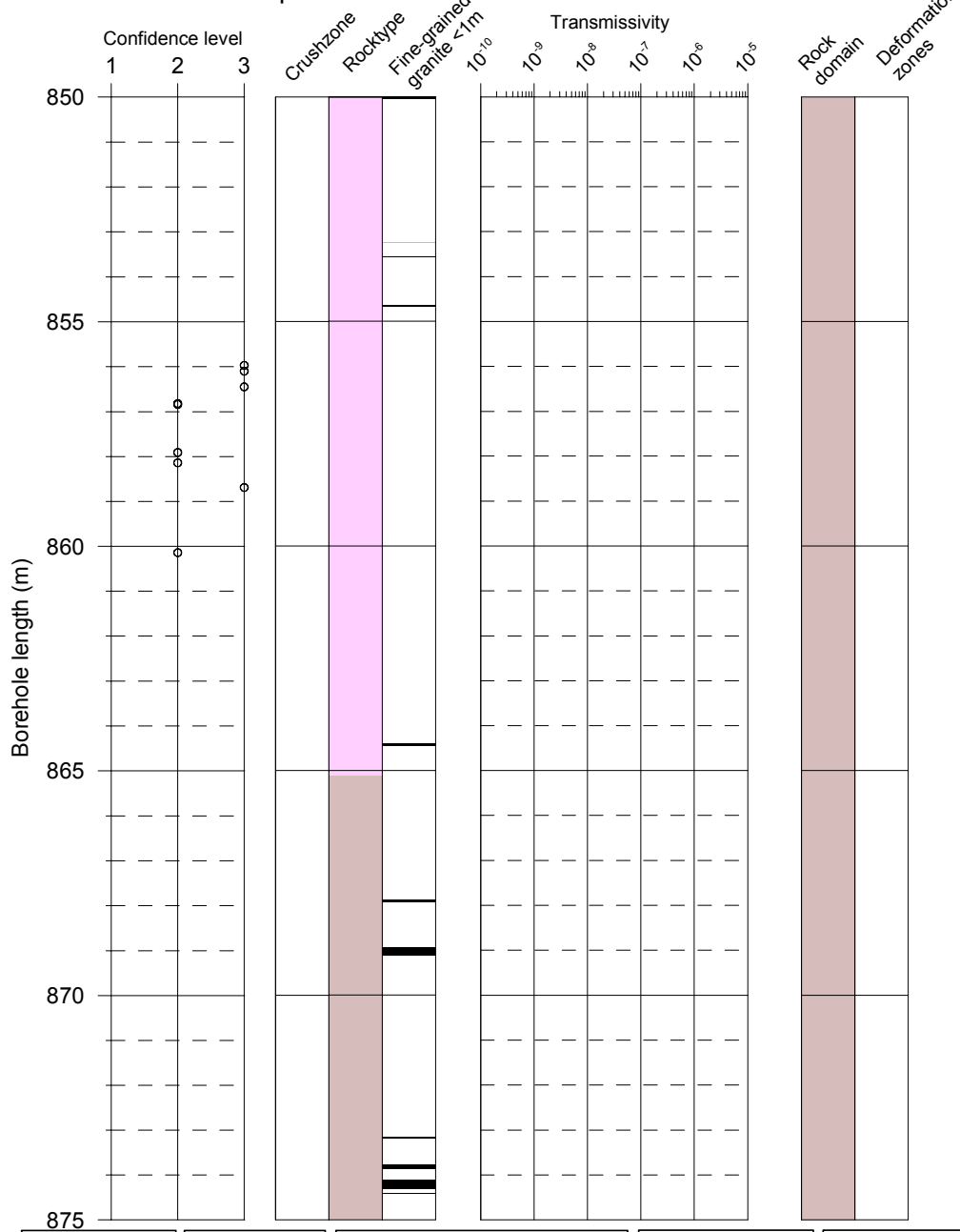
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Rock domains
RFM029

Deformation zones
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KFM01A Boremap

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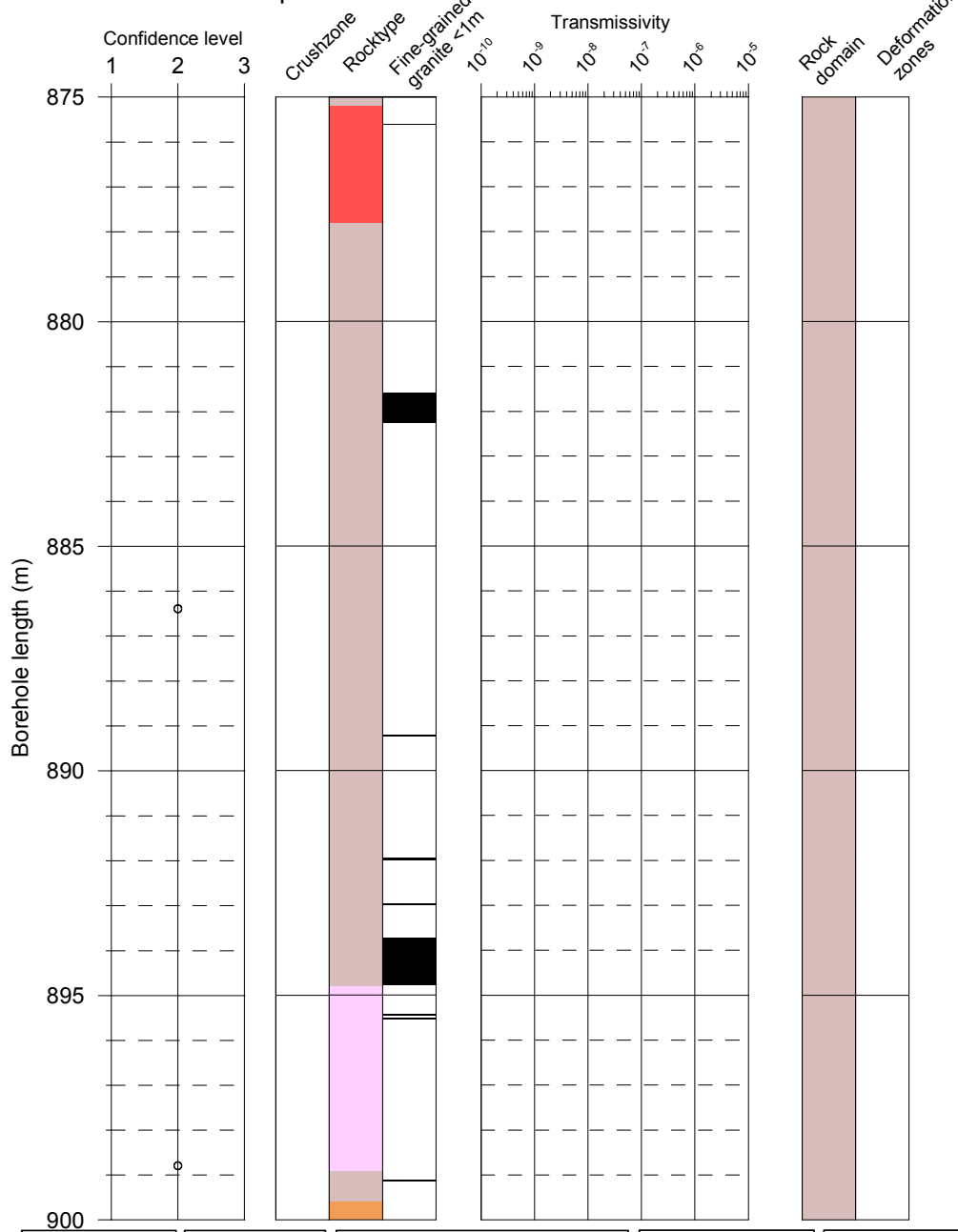
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Rock domains
RFM029

Deformation zones
▨ Zone

KFM01A Boremap

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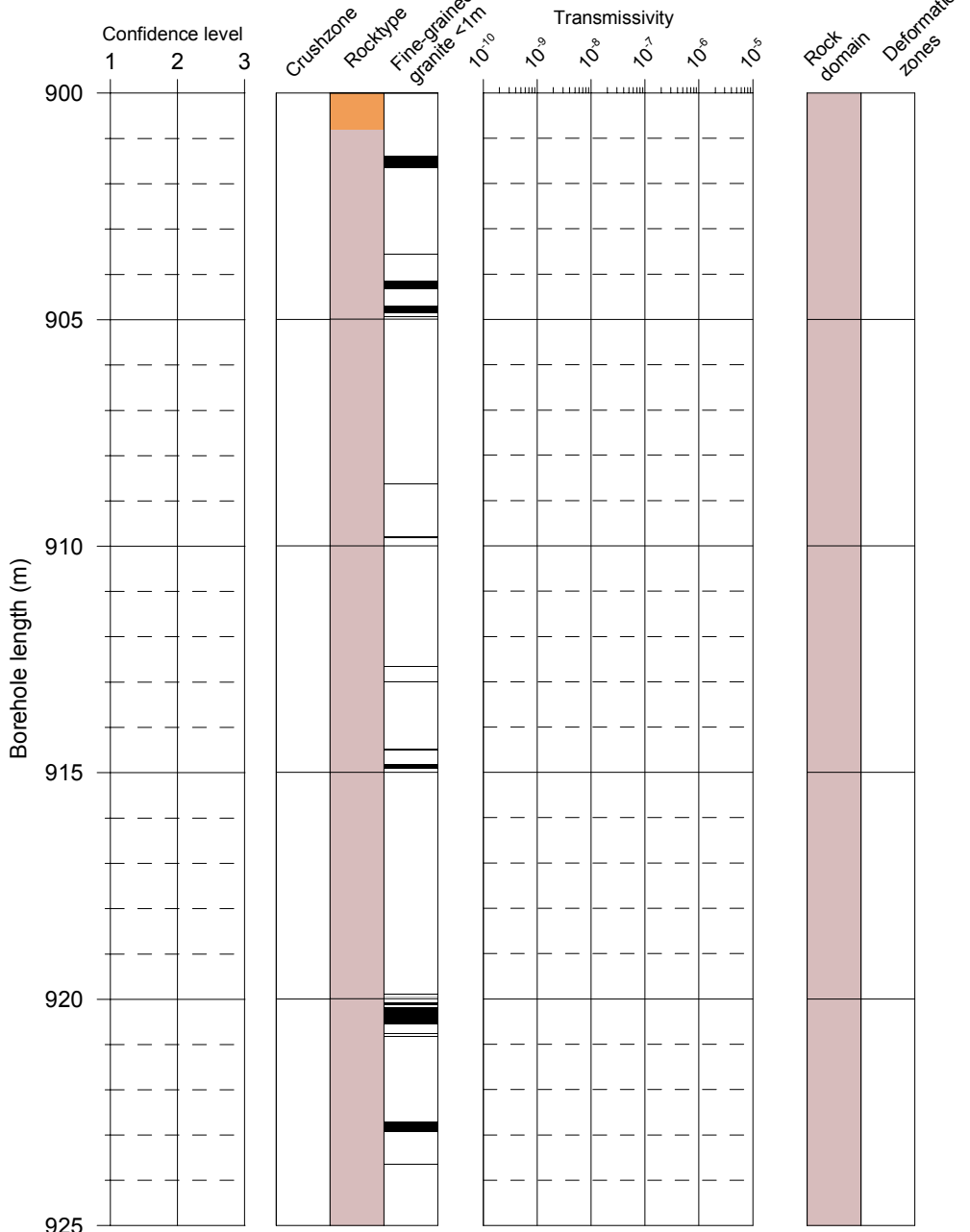
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Rock domains
RFM029

Deformation zones
▨ Zone

KFM01A Boremap

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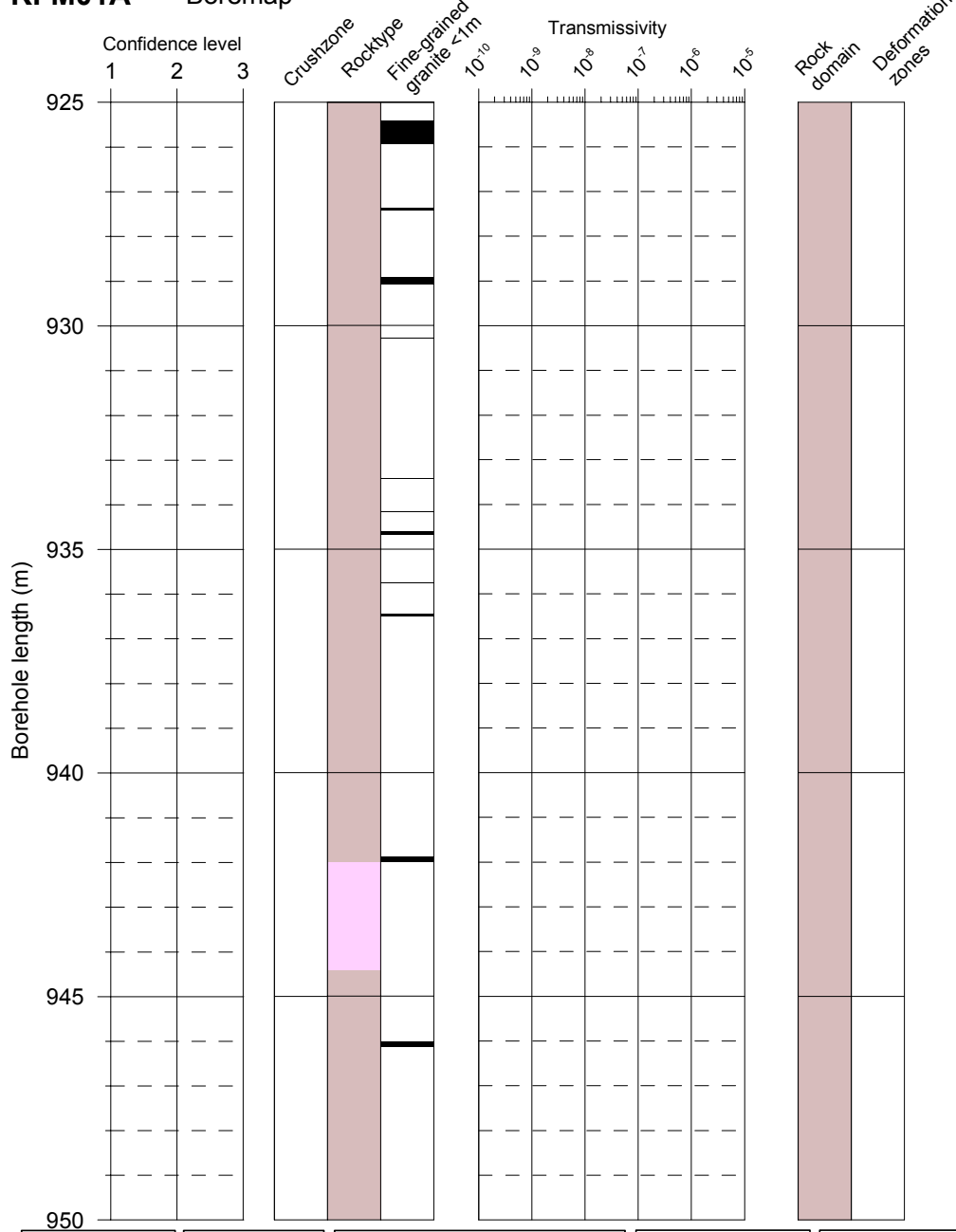
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Rock domains
 RFM029

Deformation zones
 Zone

KFM01A Boremap

PFL



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PFL-anomaly
Transmissivity

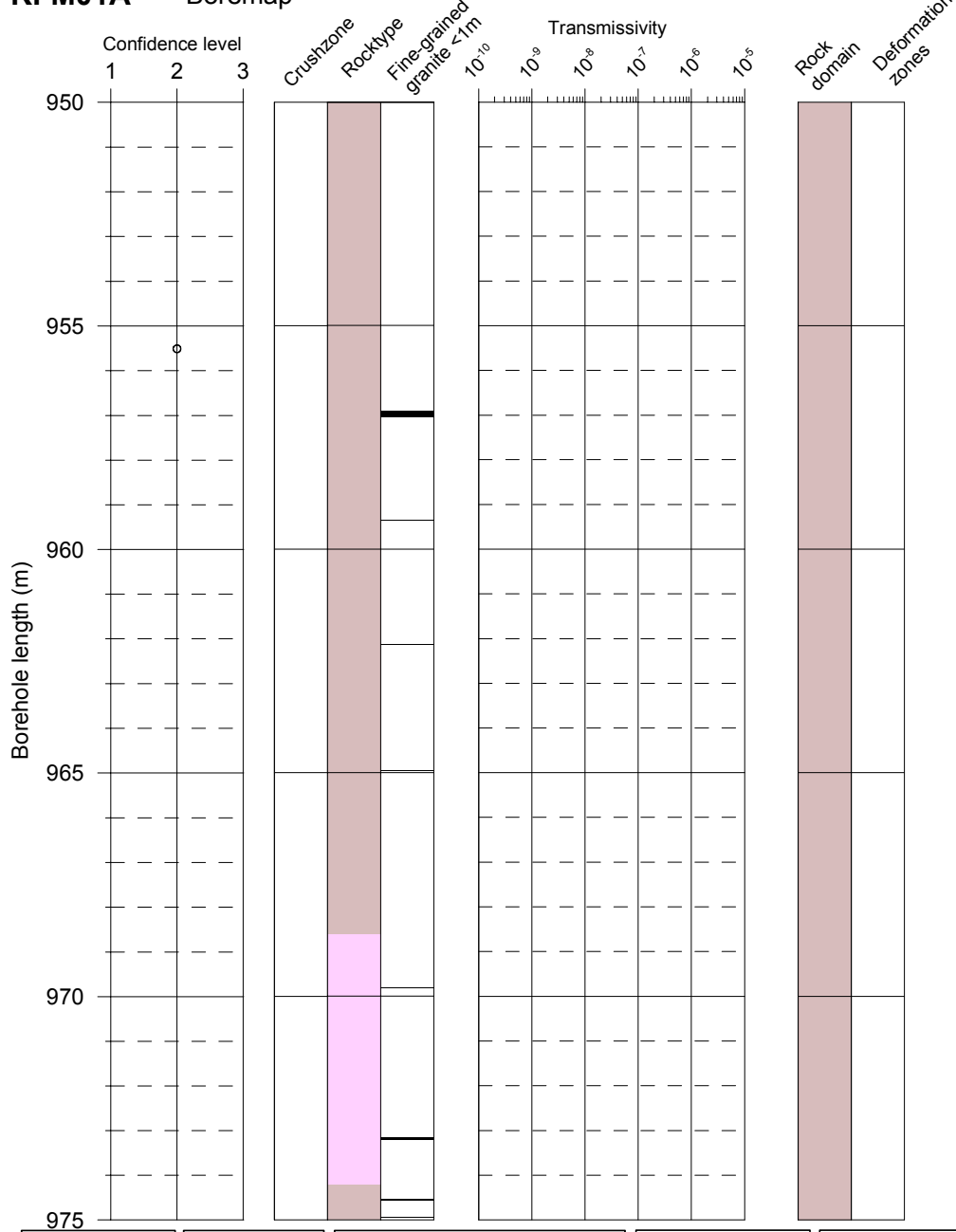
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Rock domains
RFM029

Deformation zones
▨ Zone

KFM01A Boremap

PFL



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Transmissivity

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Rock domains

- RFM029

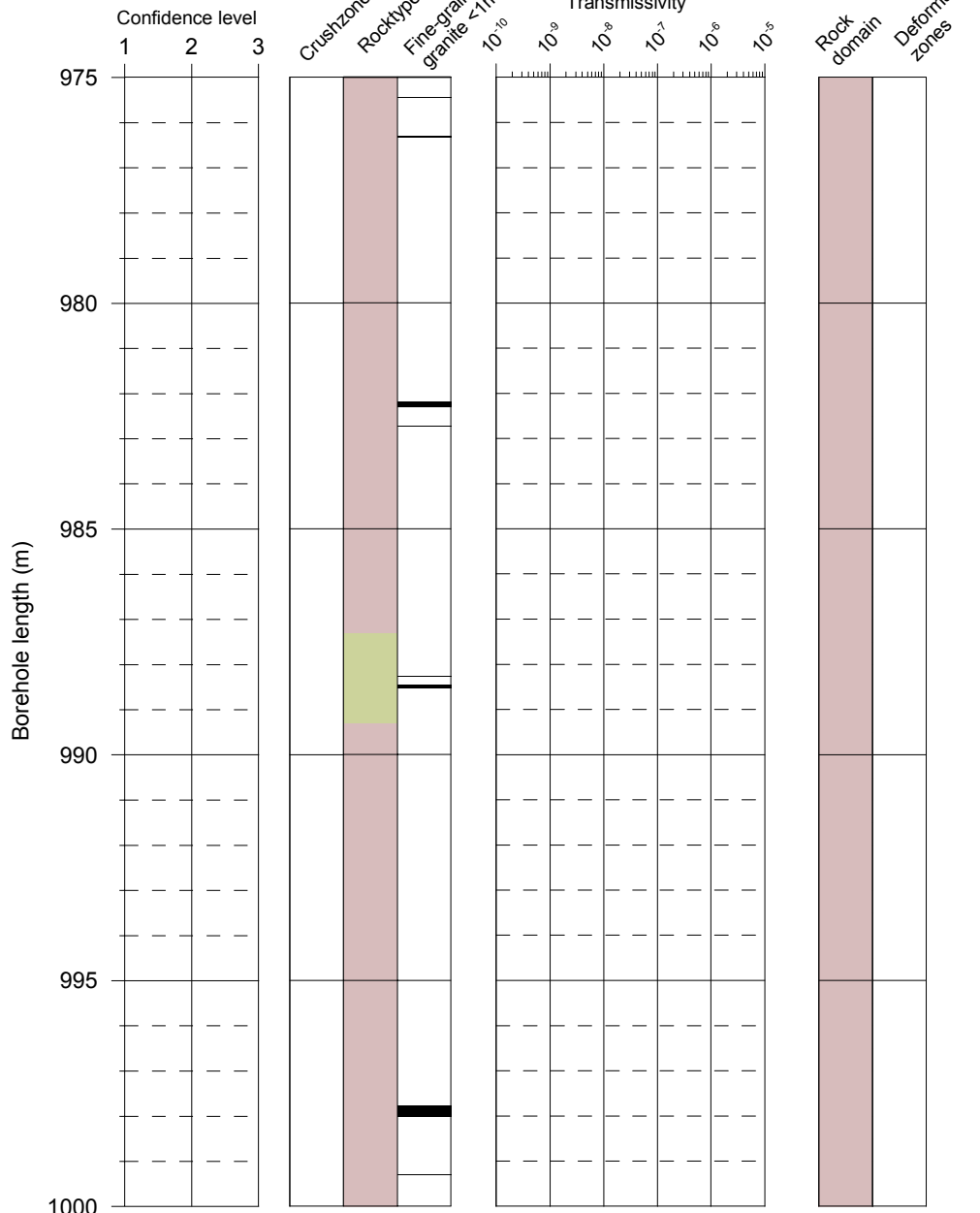
Deformation zones

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KFM01A

Boremap

PFL



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Rock domains

- RFM029

Deformation zones

- ▨ Zone

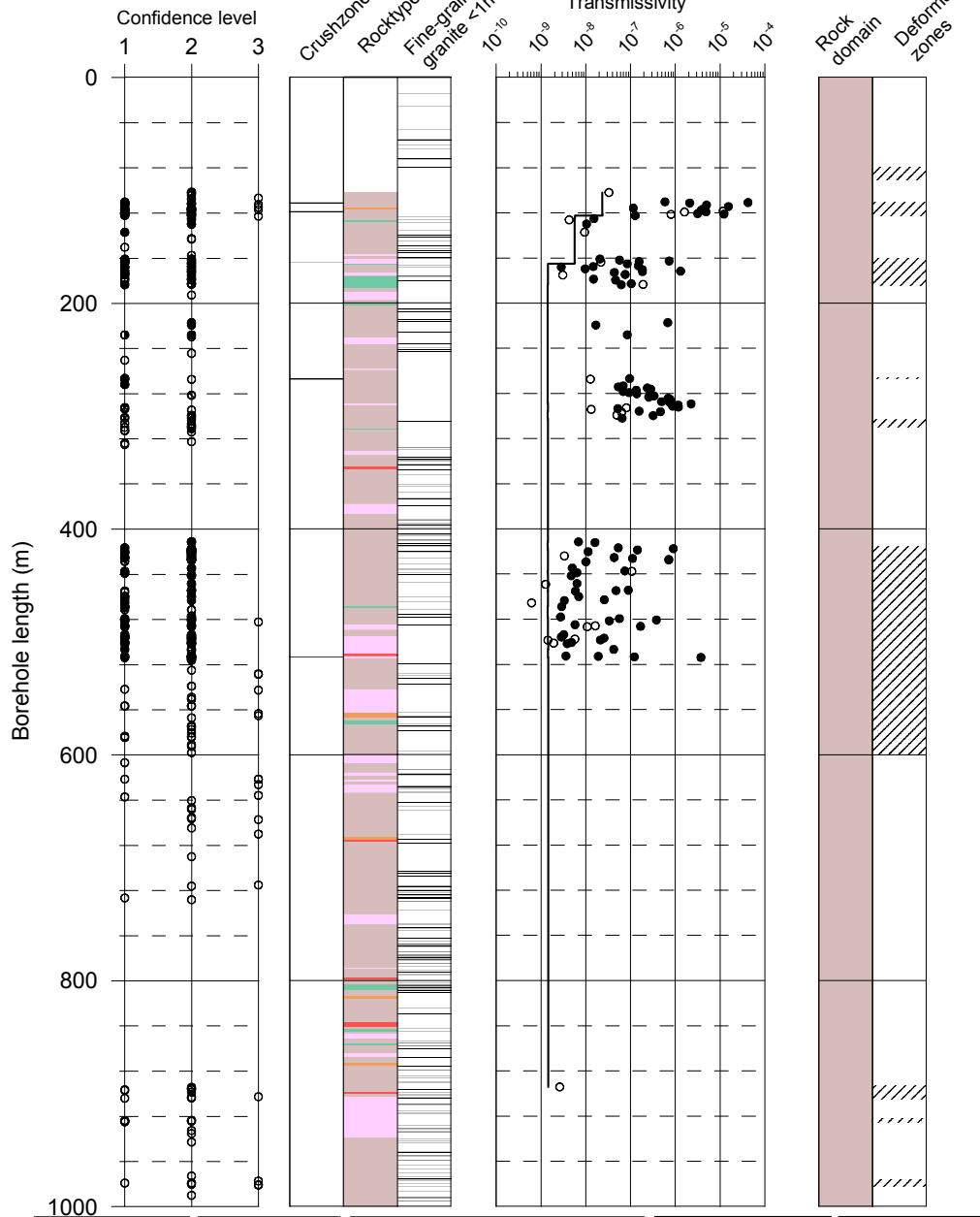
Appendix 3:2 – KFM02A

In this appendix plots showing Flow log anomalies to core mapped features in KFM02A for entire borehole and for every 25 meters of the borehole are found. BIPS images of PFL anomalies are also found.

KFM02A

Boremap

PFL



Flow indication
open fractures

- Class 1
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- Class 3
- Class 4
- Open fracture,
no flow indication

Confidence level
Open fractures

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PFL-anomaly
Transmissivity

- Certain
- Uncertain
- Meas lim

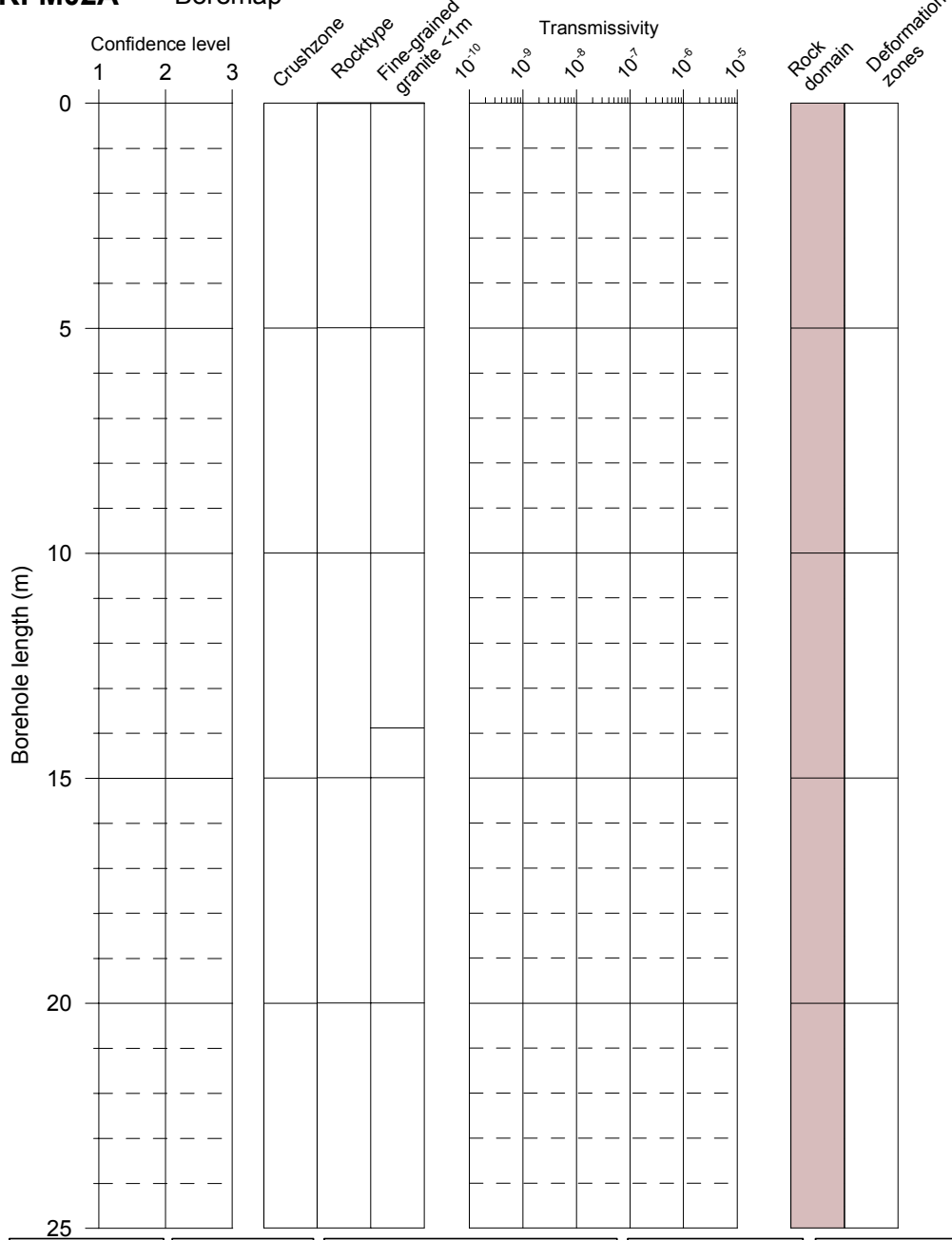
Rock domains
RFM029

Deformation zones
// Zone

KFM02A

Boremap

PFL



Flow indication
open fractures

- Class 1
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PFL-anomaly
Transmissivity

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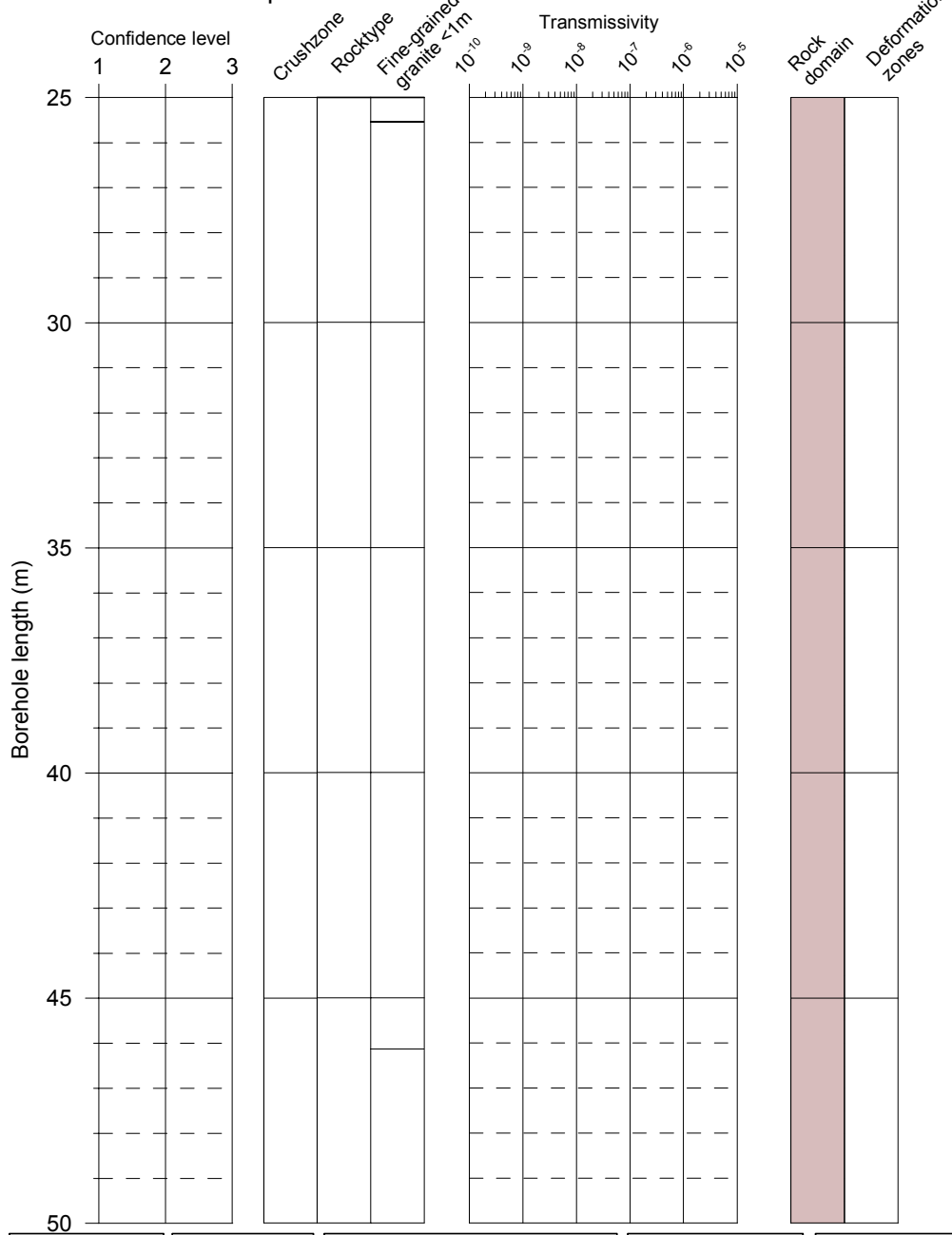
Rock domains
RFM029

Deformation zones
▨ Zone

KFM02A

Boremap

PFL



Flow indication
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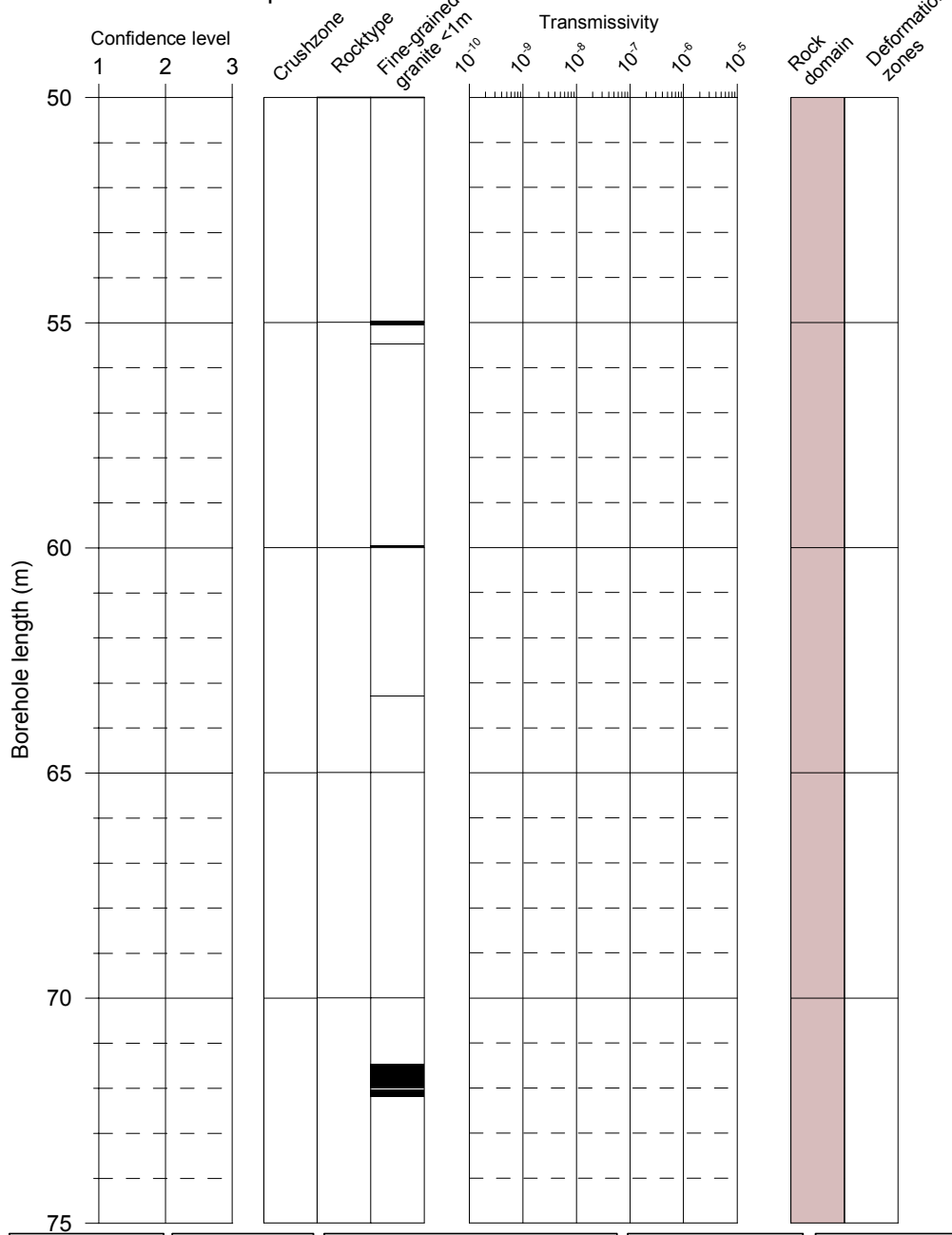
Rock domains
RFM029

Deformation zones
▨ Zone

KFM02A

Boremap

PFL



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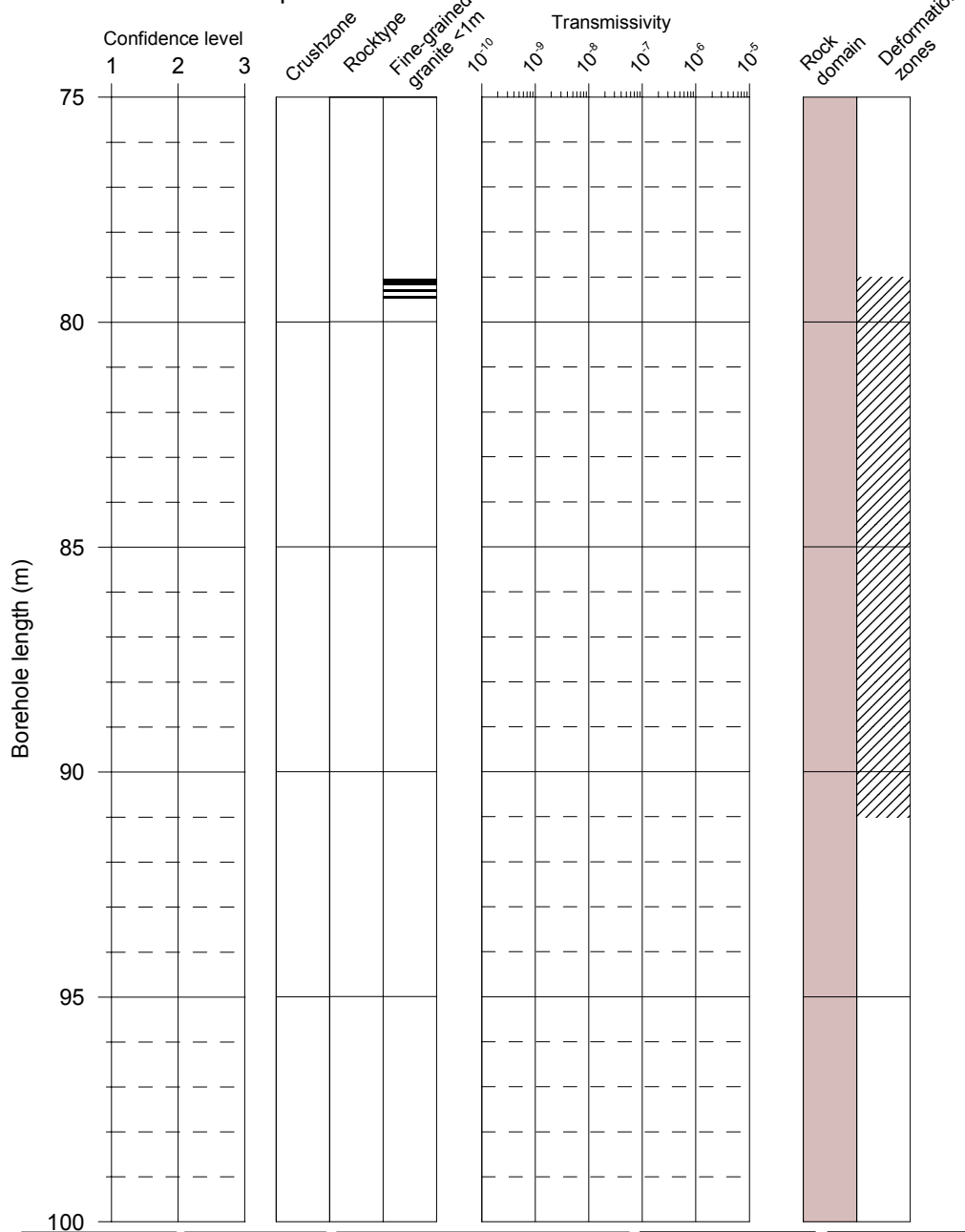
Rock domains
RFM029

Deformation zones
▨ Zone

KFM02A

Boremap

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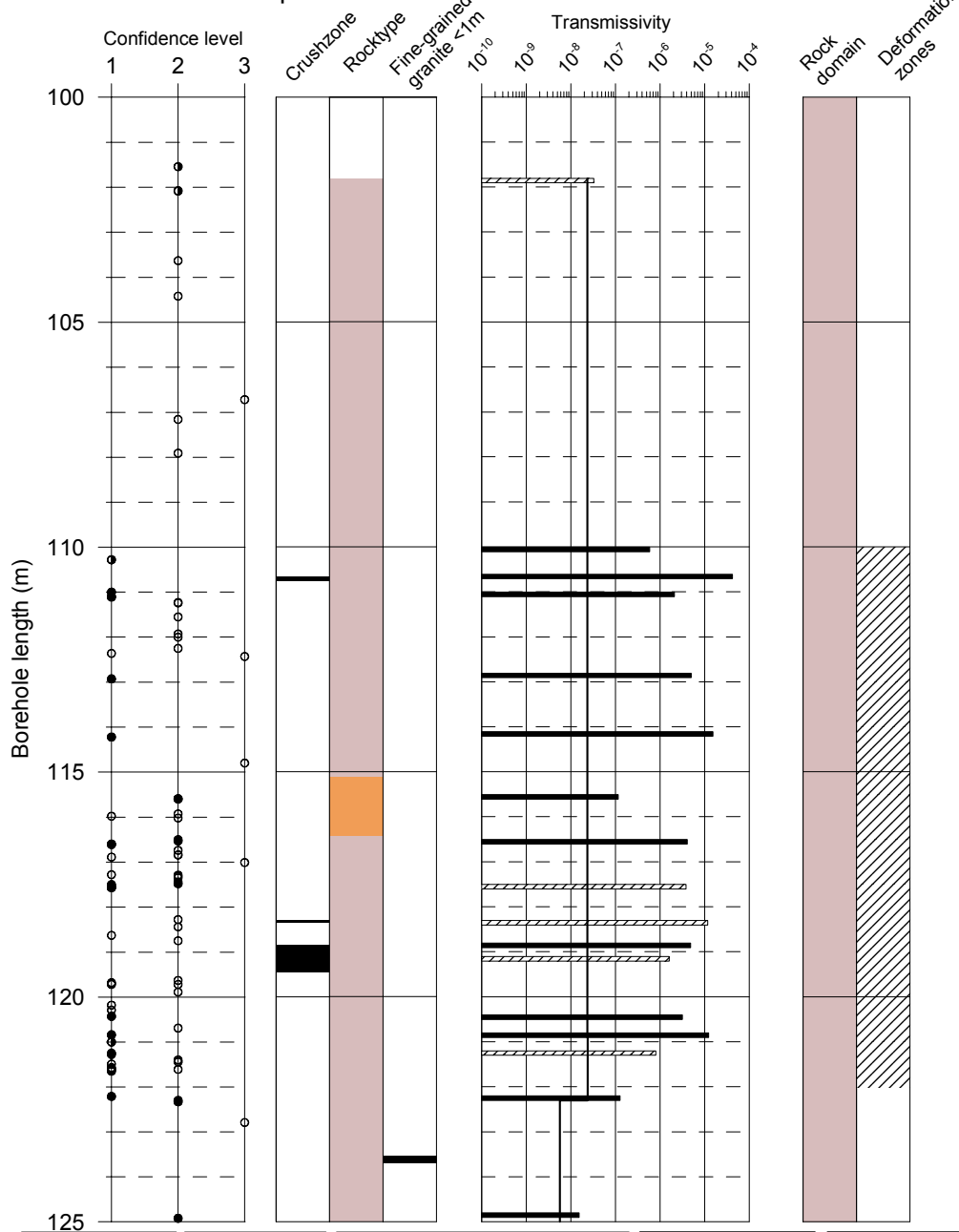
Rock domains
RFM029

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▨ Zone

KFM02A

Boremap

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Rock domains

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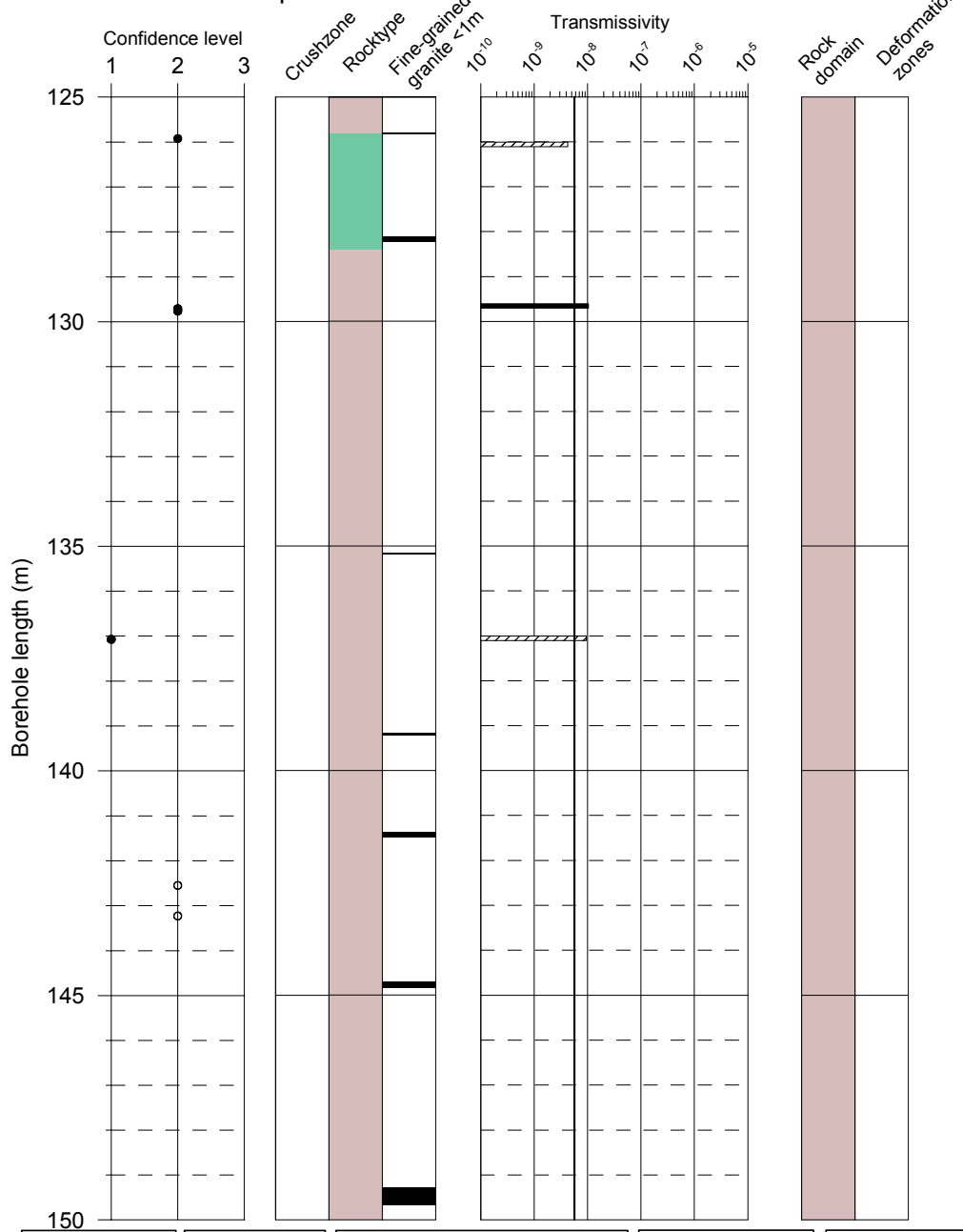
Deformation zones

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KFM02A

Boremap

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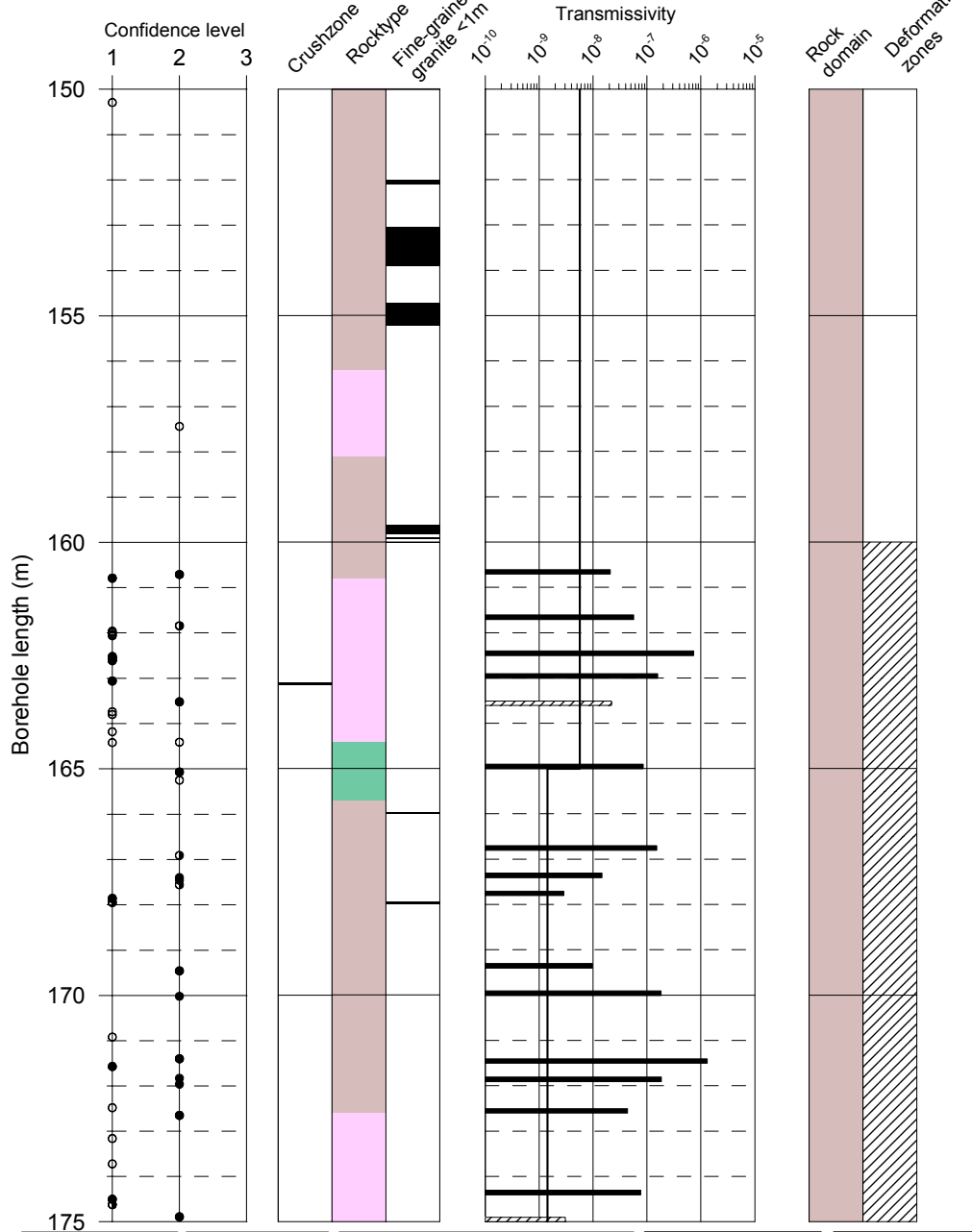
Deformation zones

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KFM02A

Boremap

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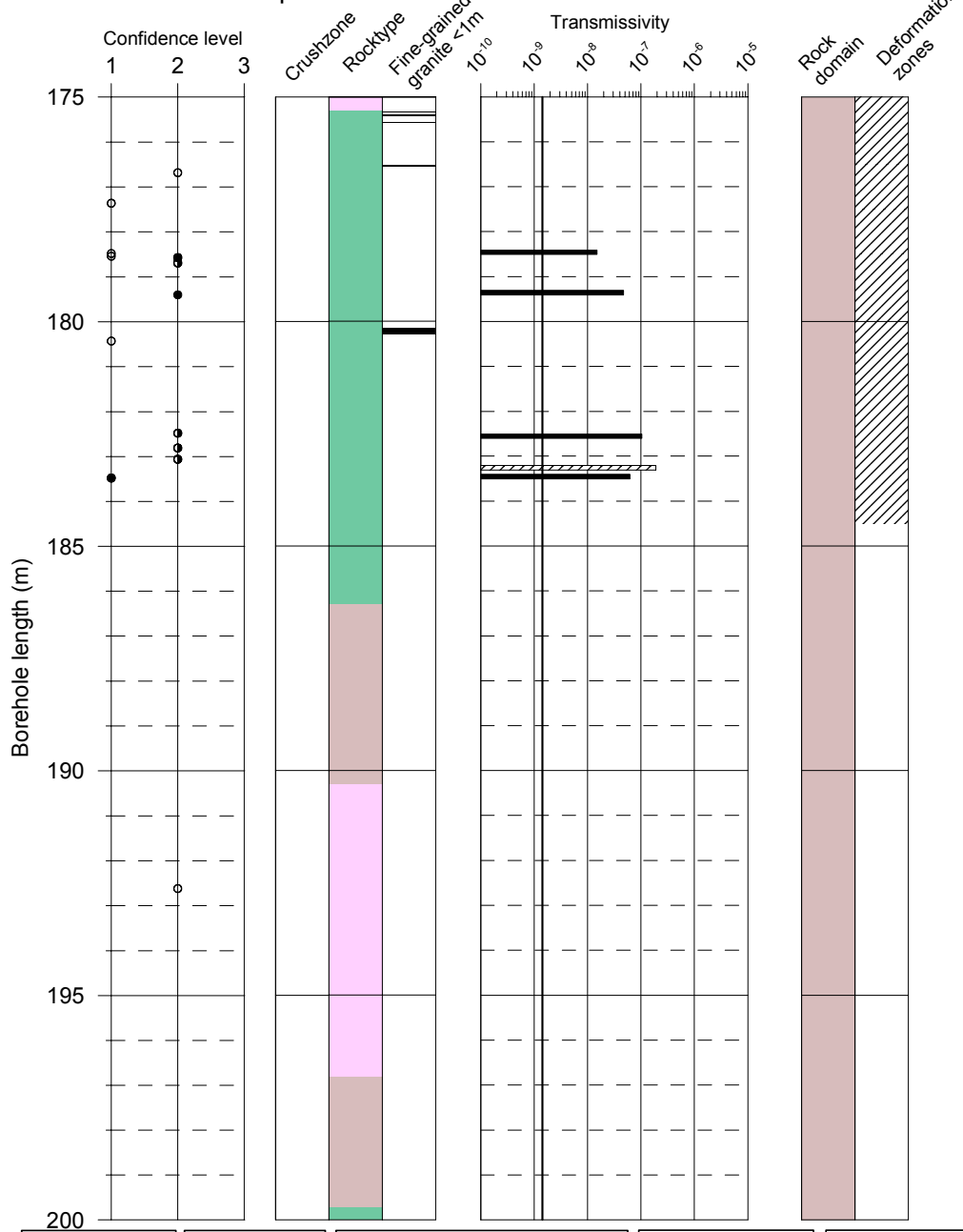
Deformation zones

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KFM02A

Boremap

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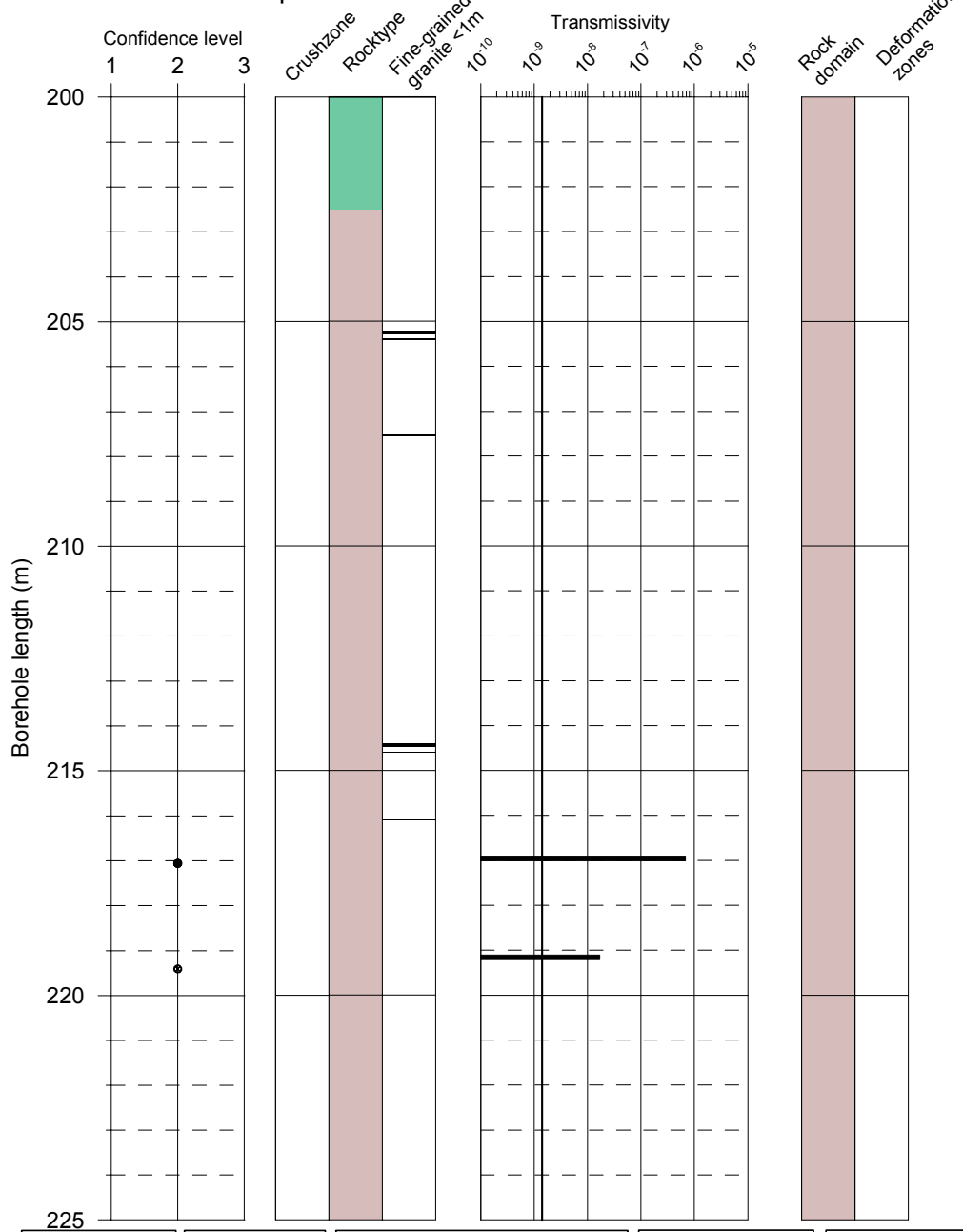
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KFM02A

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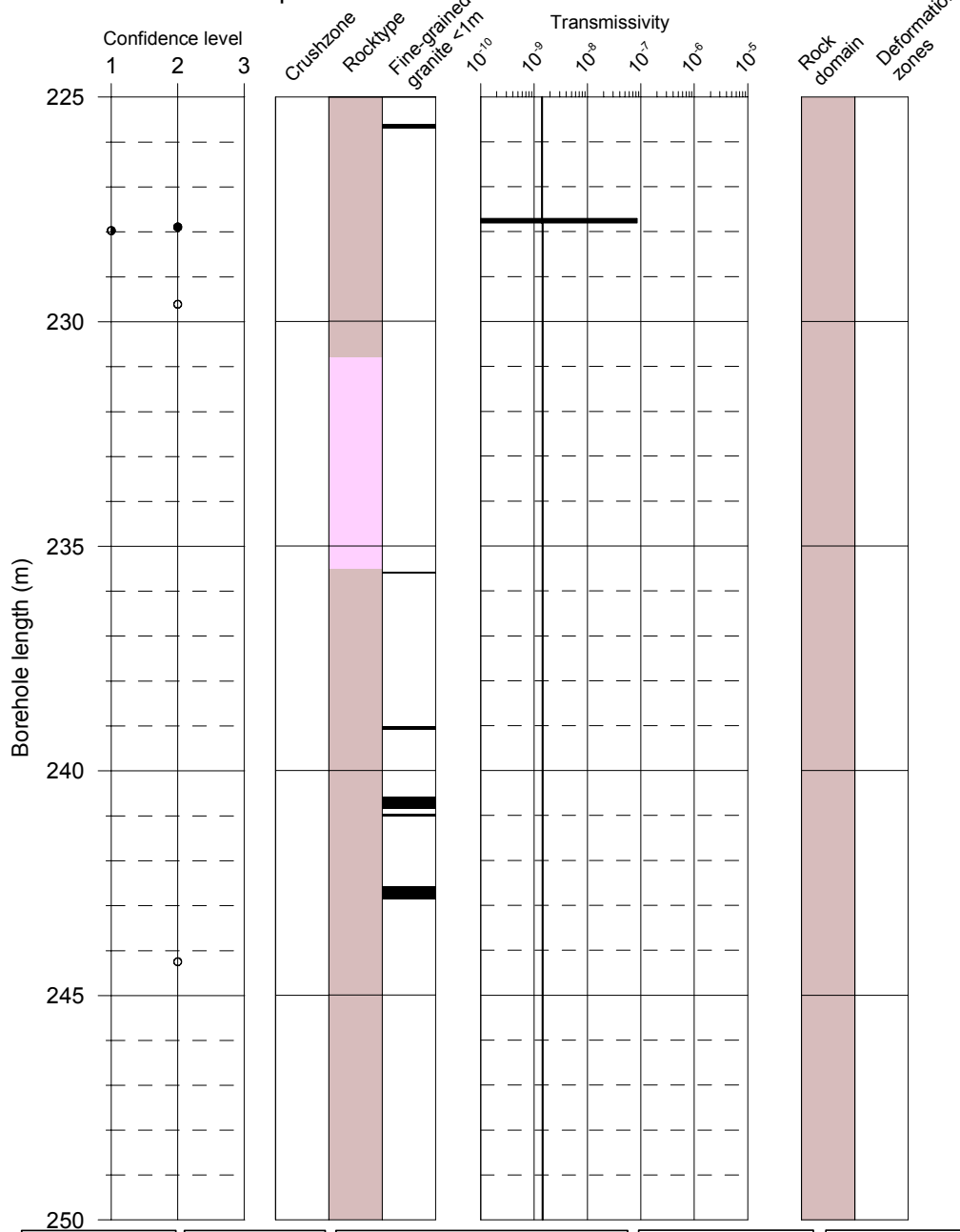
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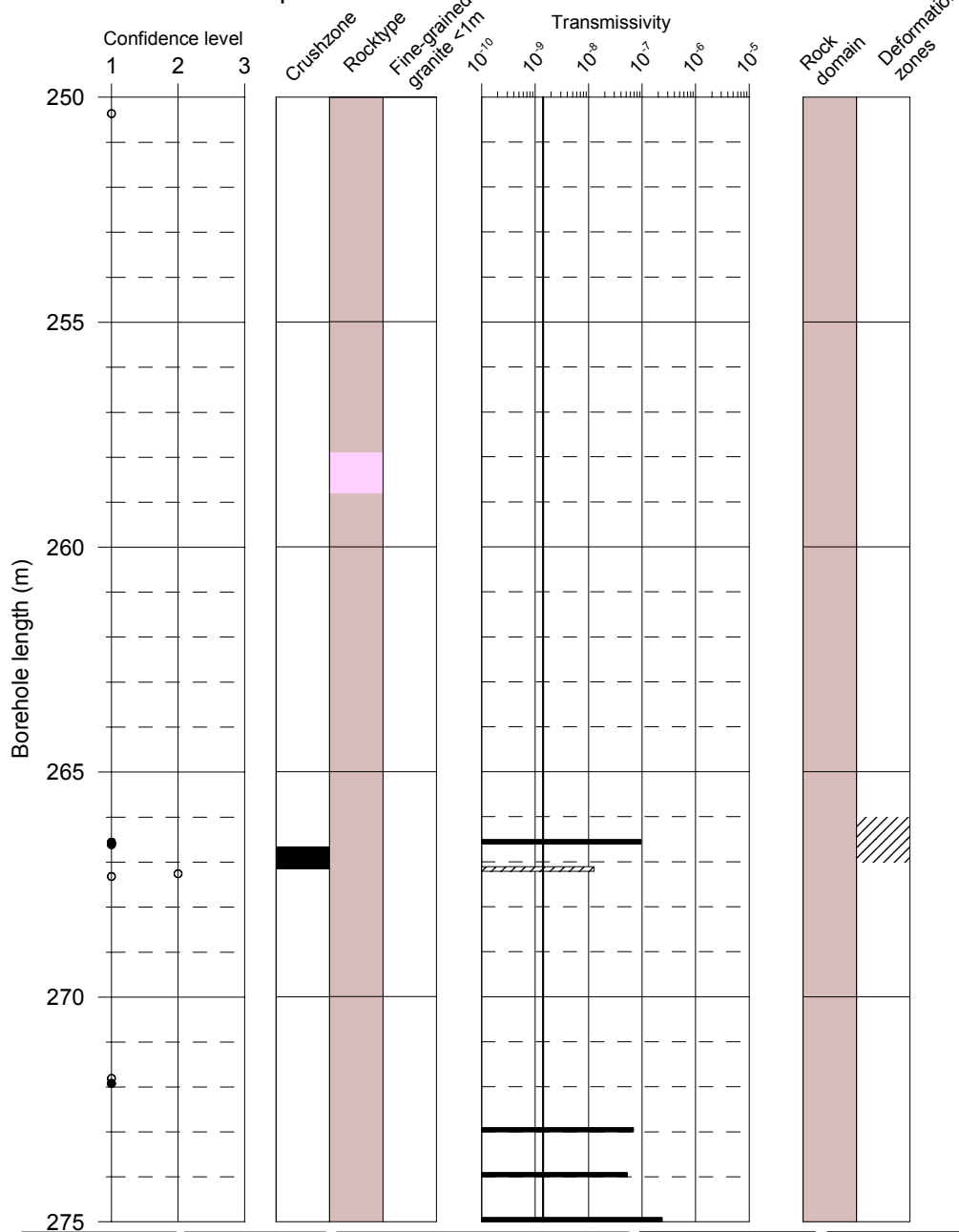
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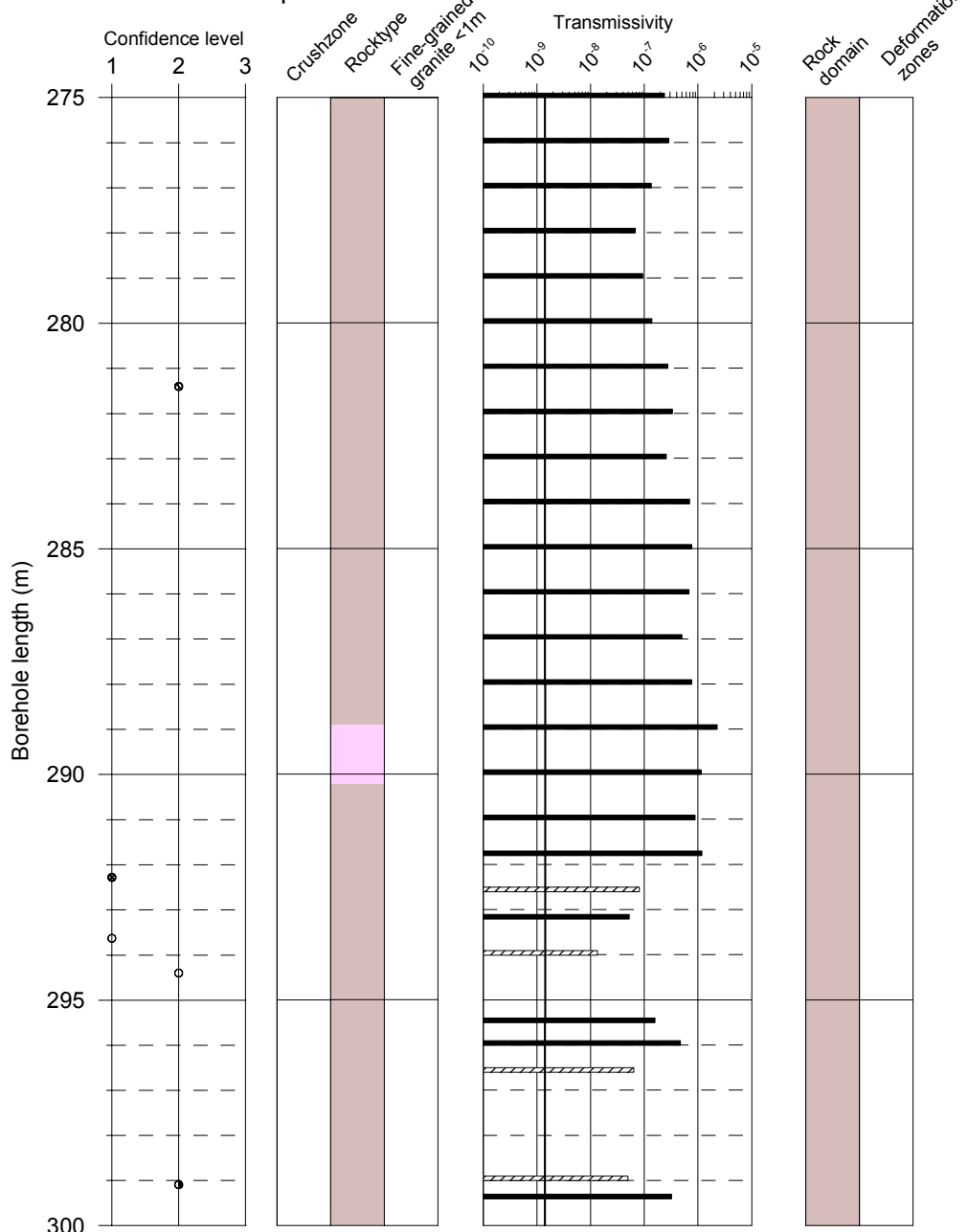
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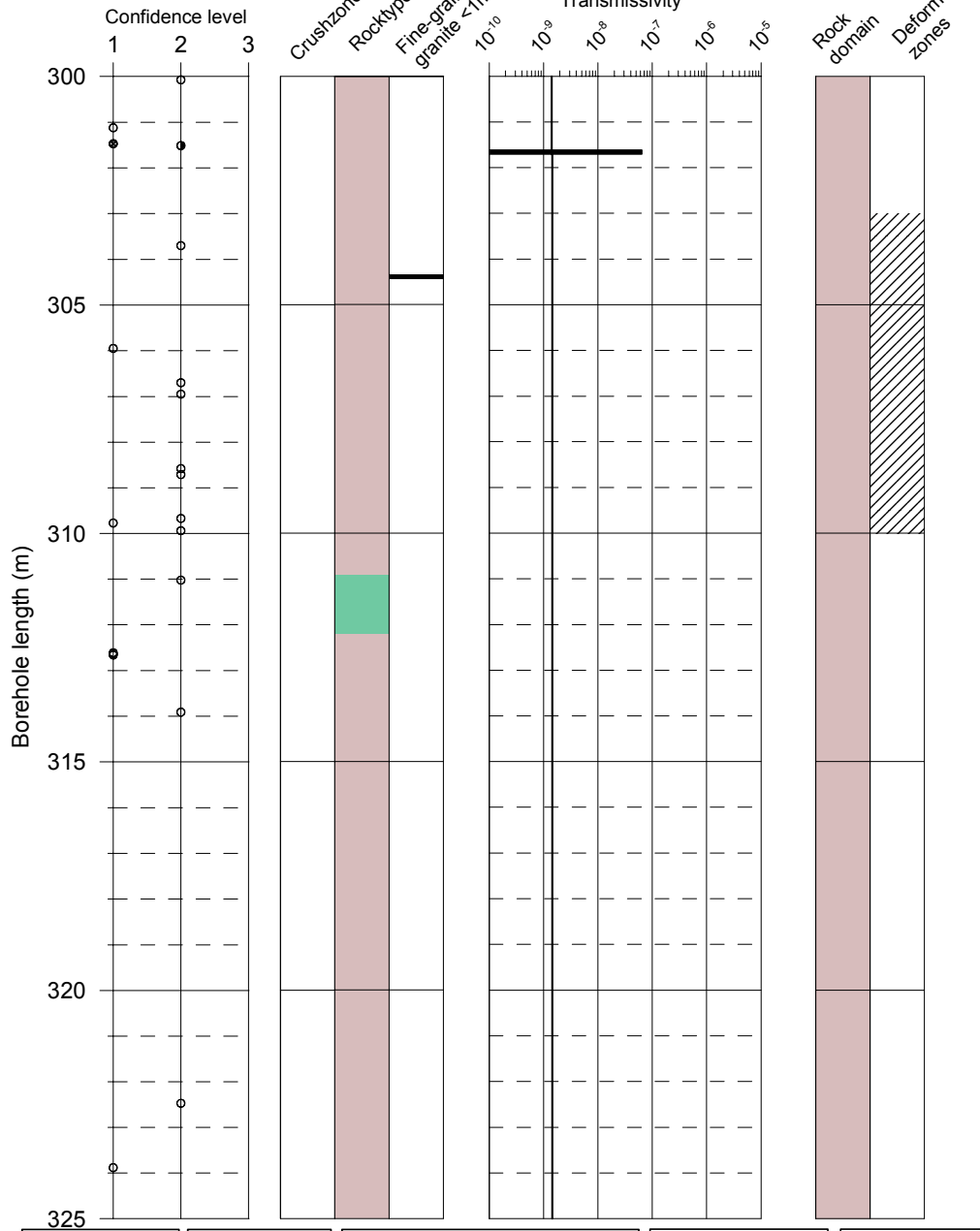
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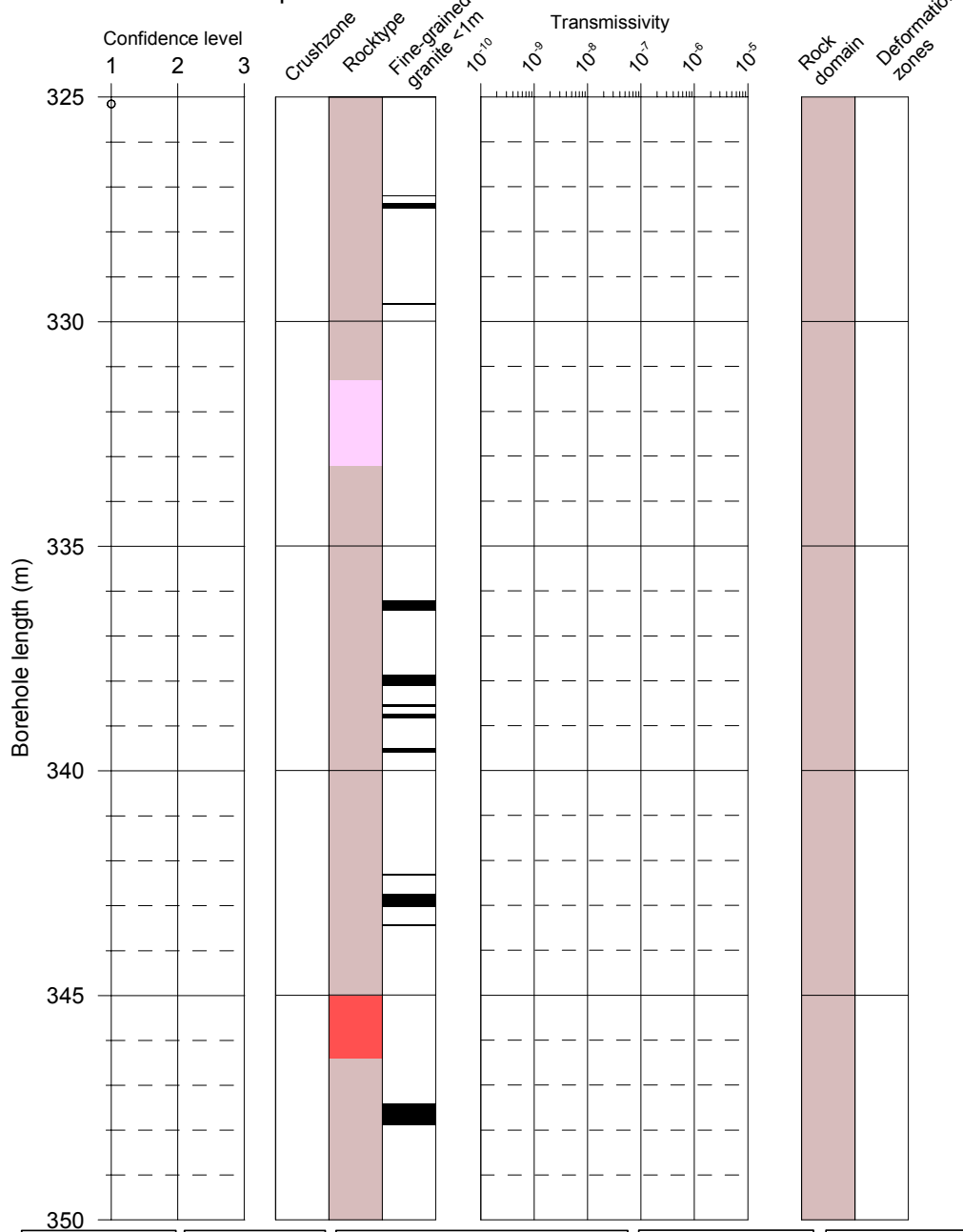
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Rock domains

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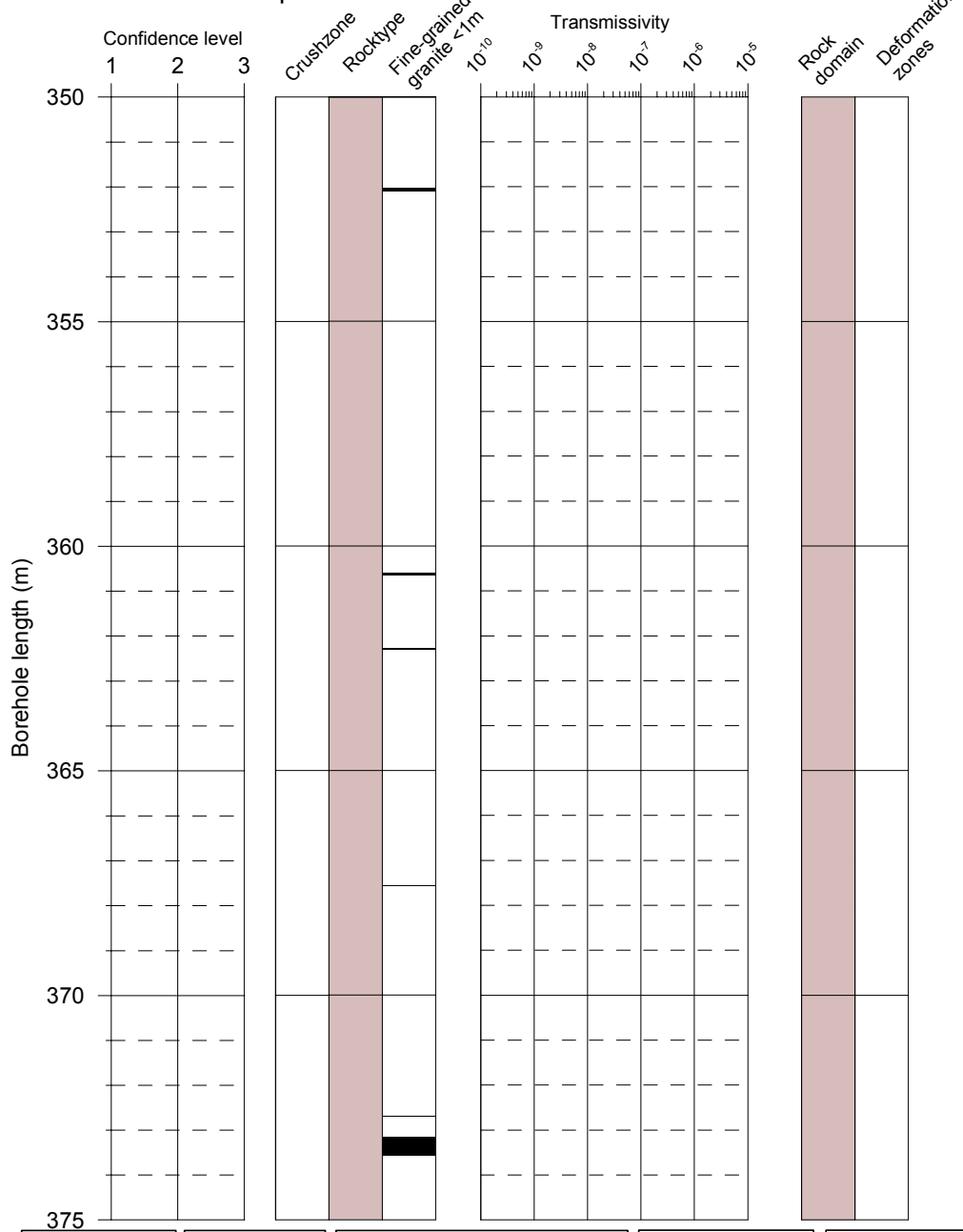
Deformation zones

- ▨ Zone

KFM02A

Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
- Class 3
- Class 4
- Open fracture, no flow indication

Confidence level
Open fractures

- 1 certain
- 2 probable
- 3 possible

■ Fine-grained granite
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■ Granite, granodiorite, tonalite
■ Granite to granodiorite
■ Amphibolite

PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

Rock domains

- RFM029

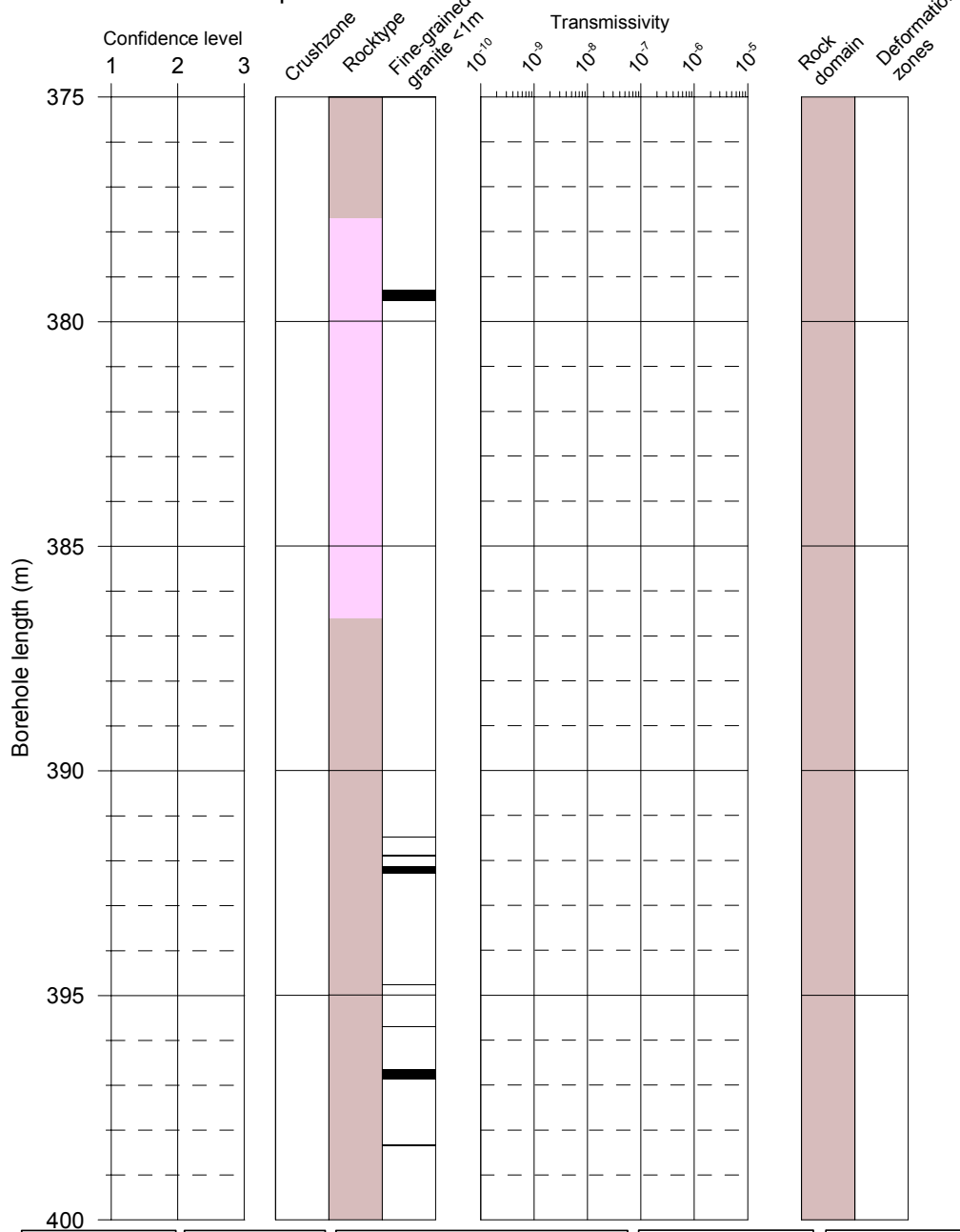
Deformation zones

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KFM02A

Boremap

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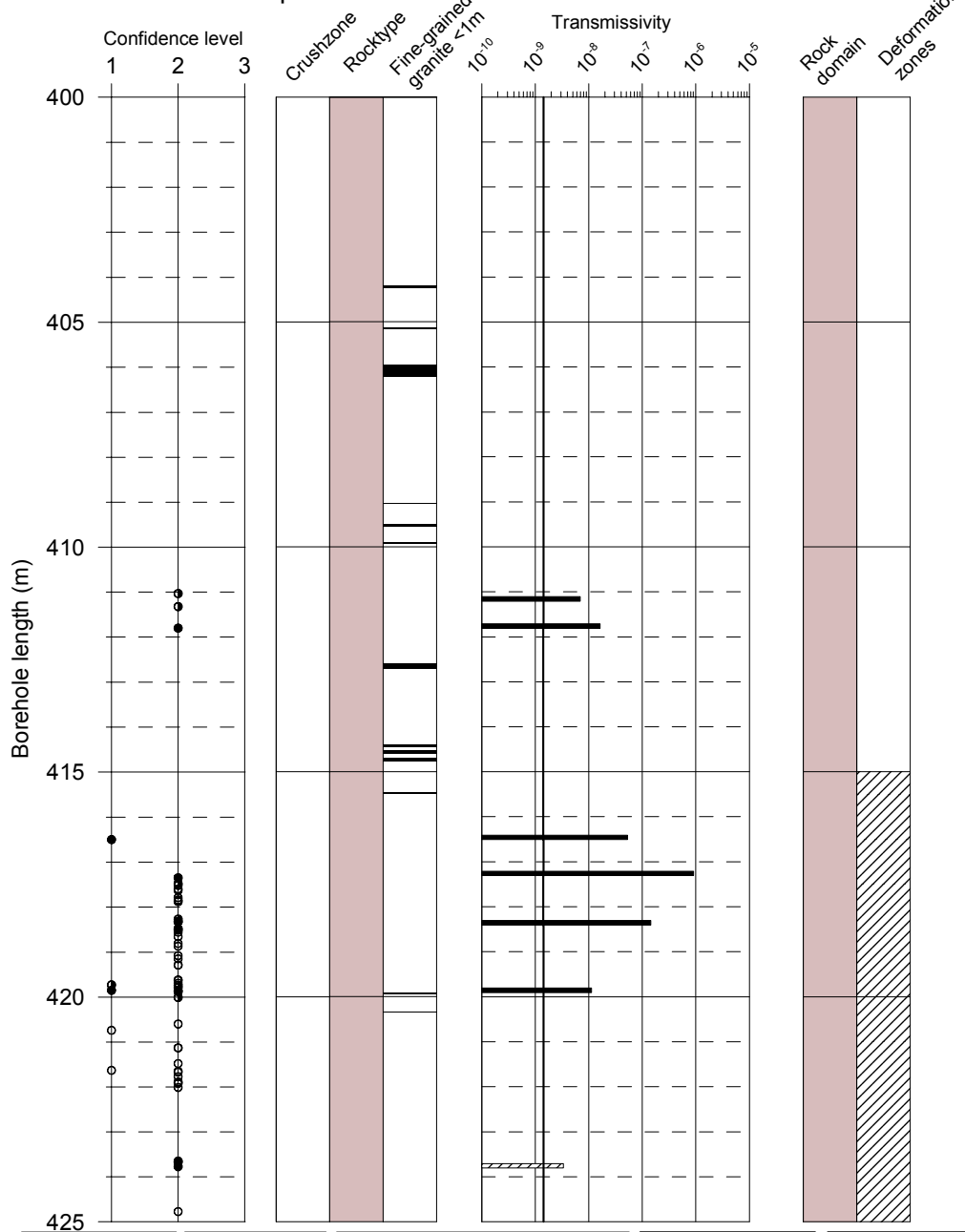
Rock domains
RFM029

Deformation zones
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KFM02A

Boremap

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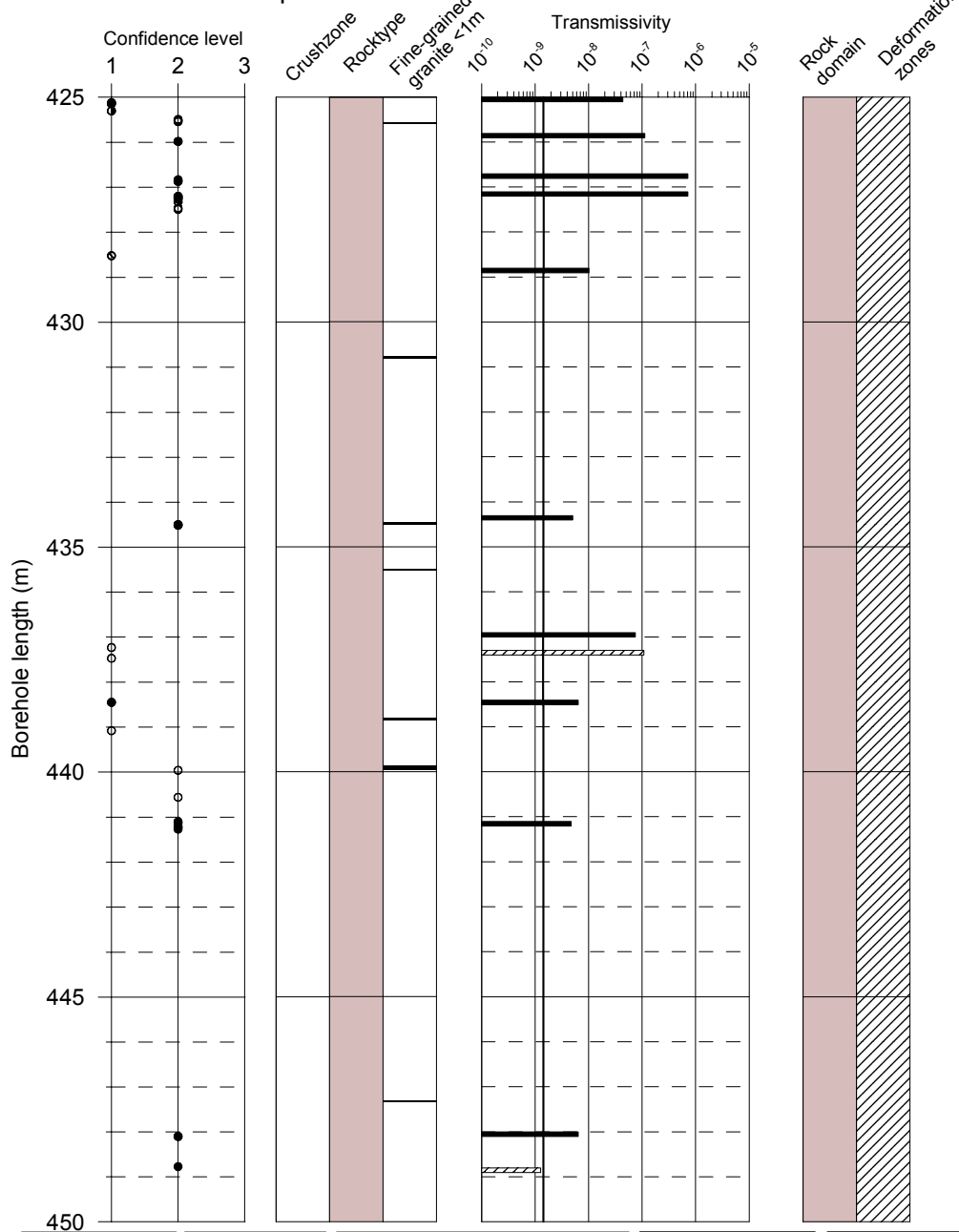
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Deformation zones

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KFM02A Boremap

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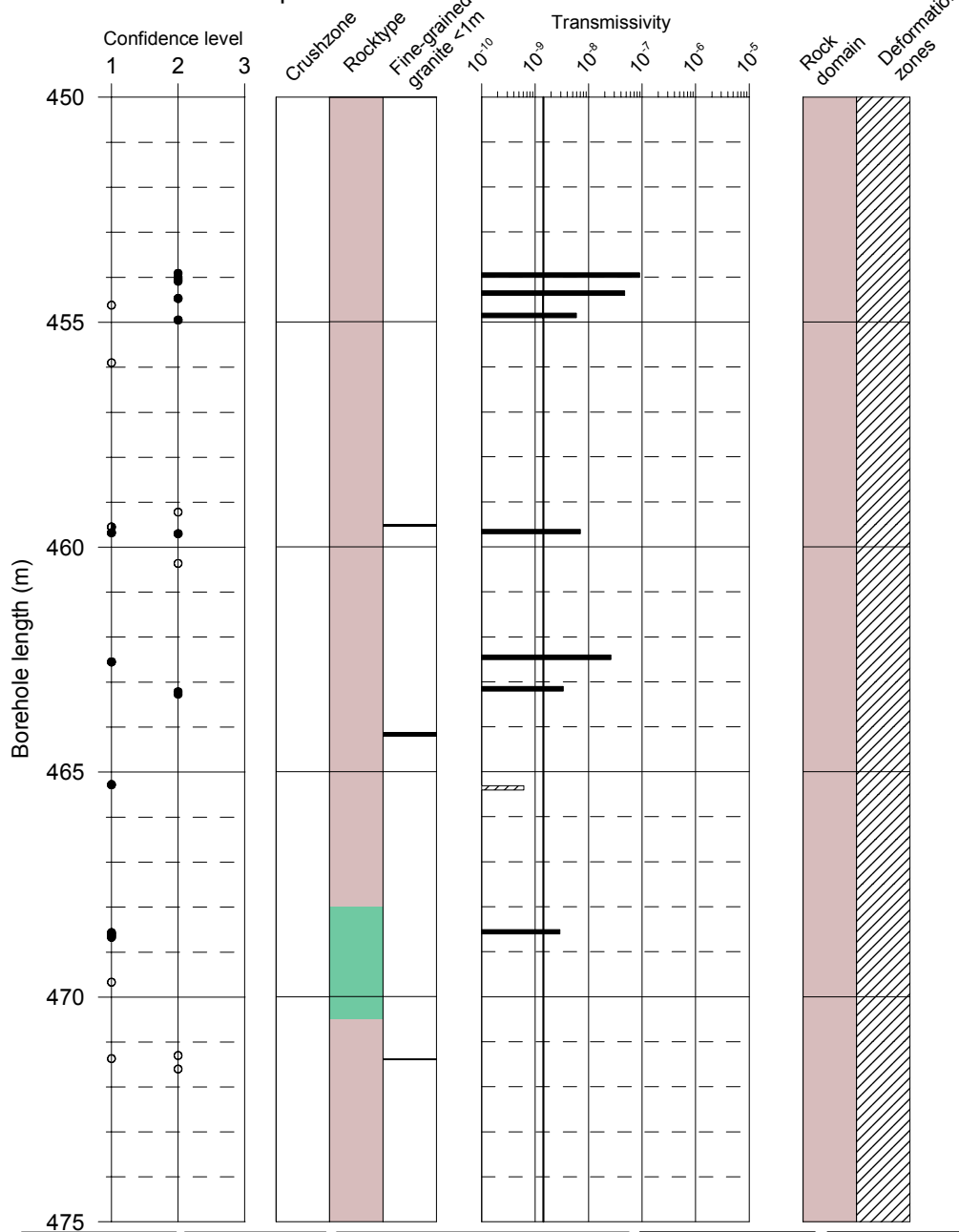
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KFM02A

Boremap

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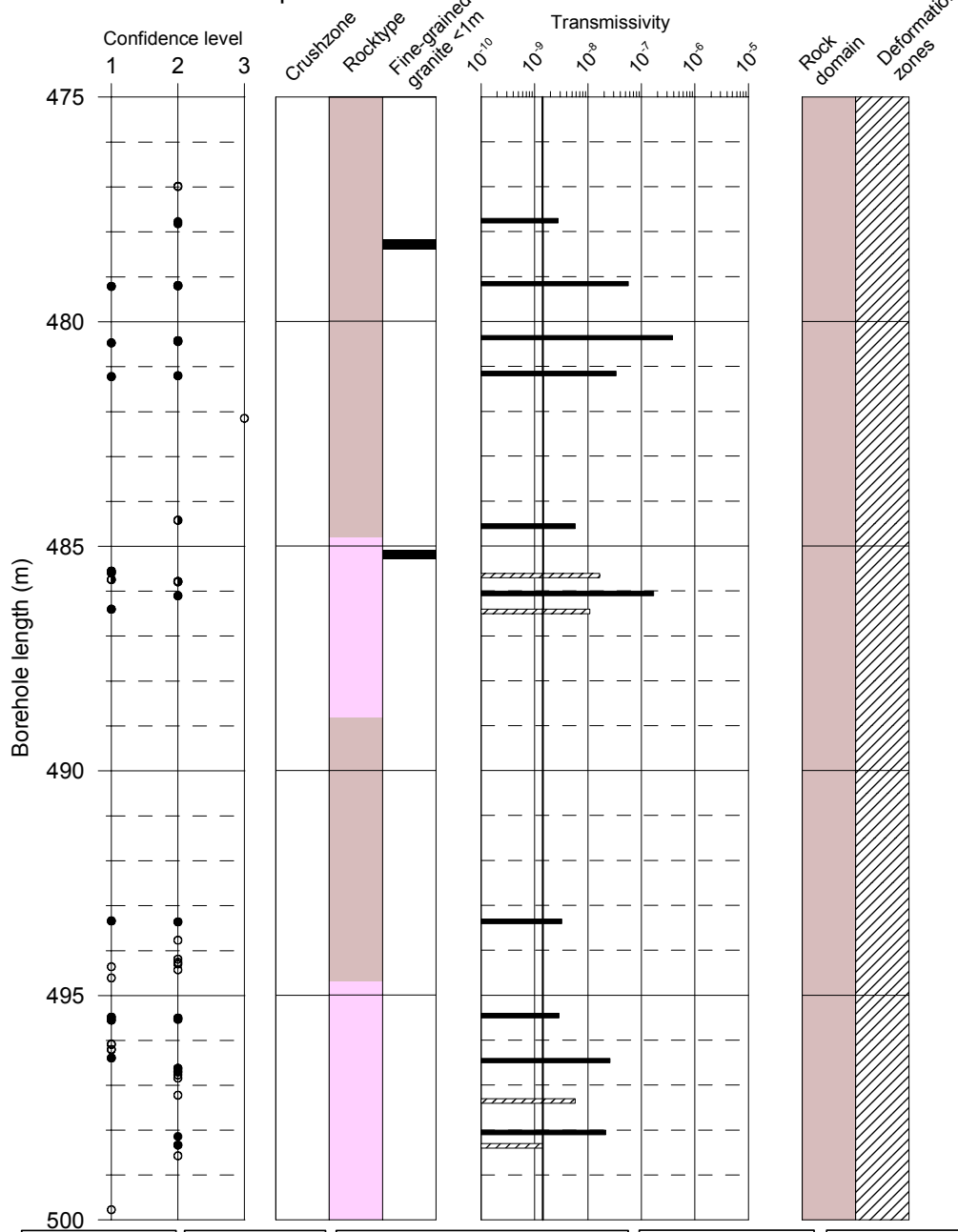
Rock domains
■ RFM029

Deformation zones
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KFM02A

Boremap

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Rock domains

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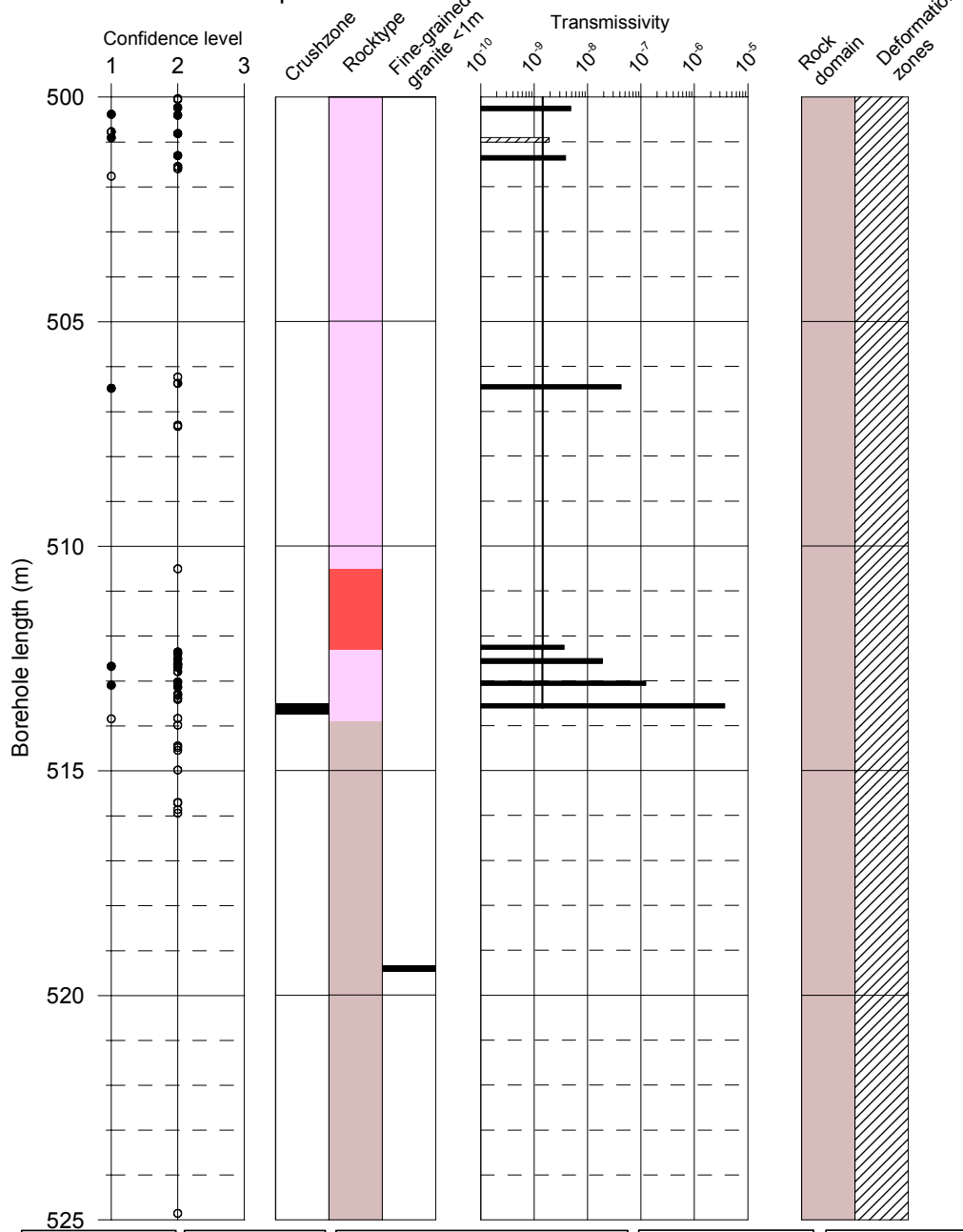
Deformation zones

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KFM02A

Boremap

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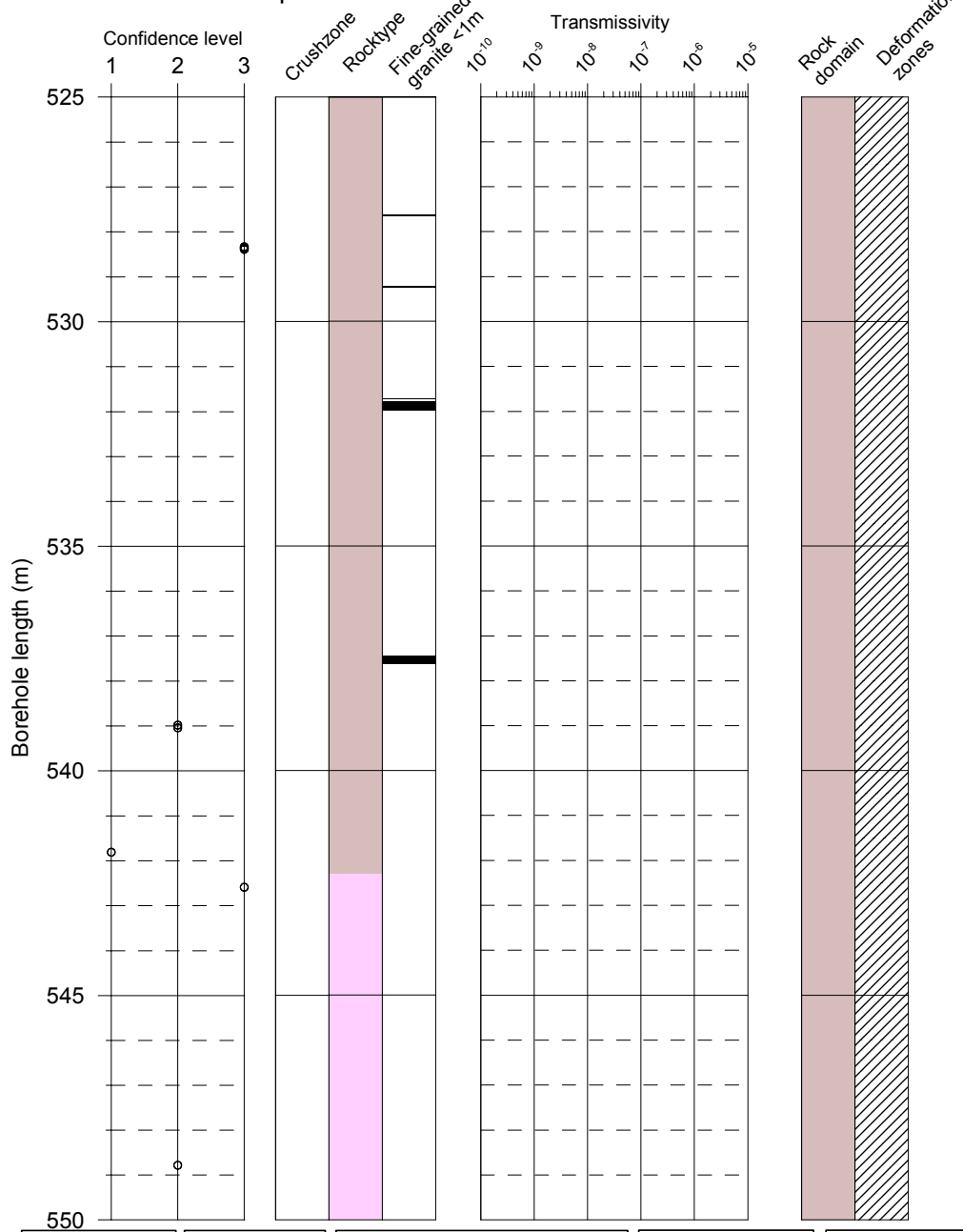
Deformation zones

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KFM02A

Boremap

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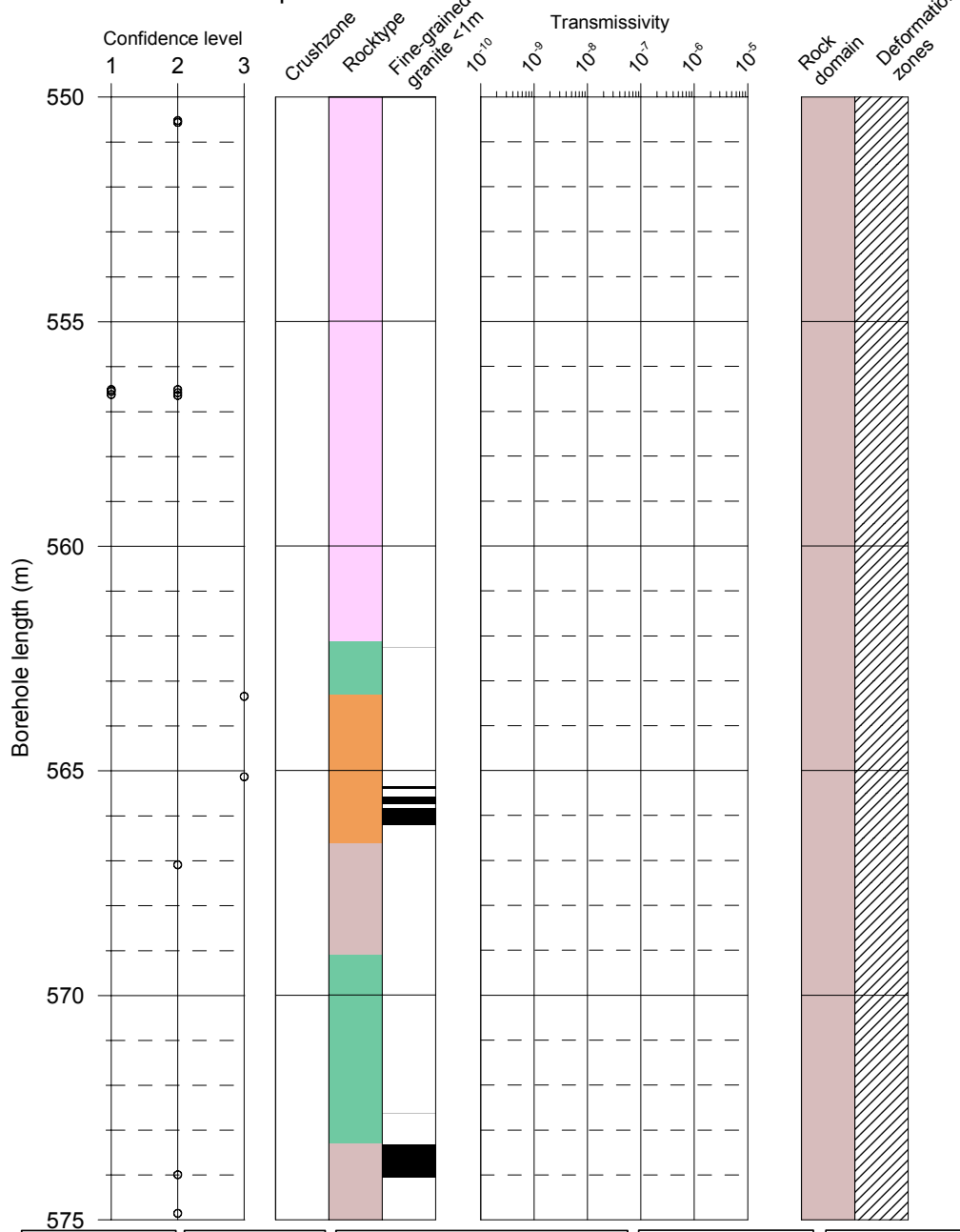
Rock domains
■ RFM029

Deformation zones
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KFM02A

Boremap

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Rock domains

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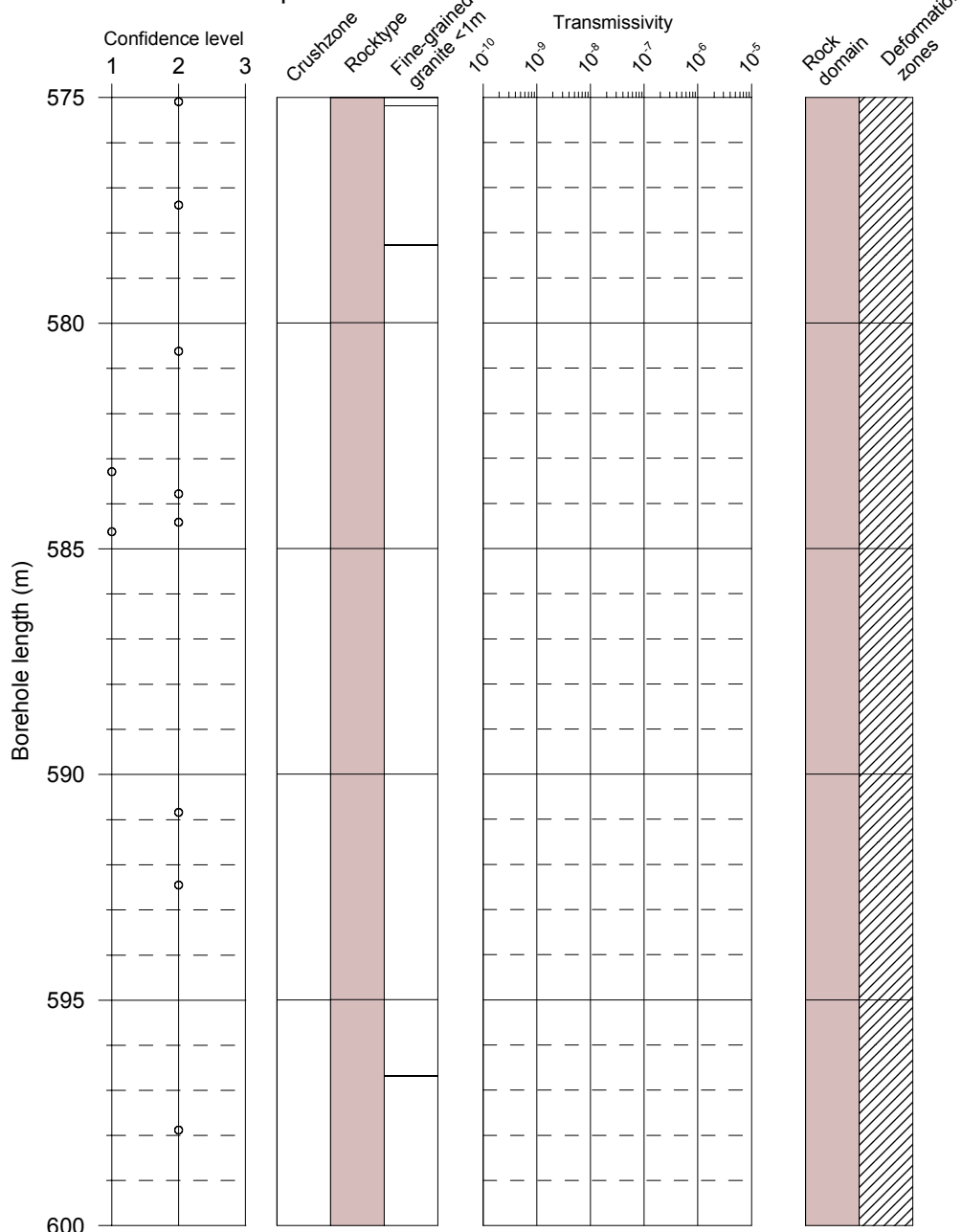
Deformation zones

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KFM02A

Boremap

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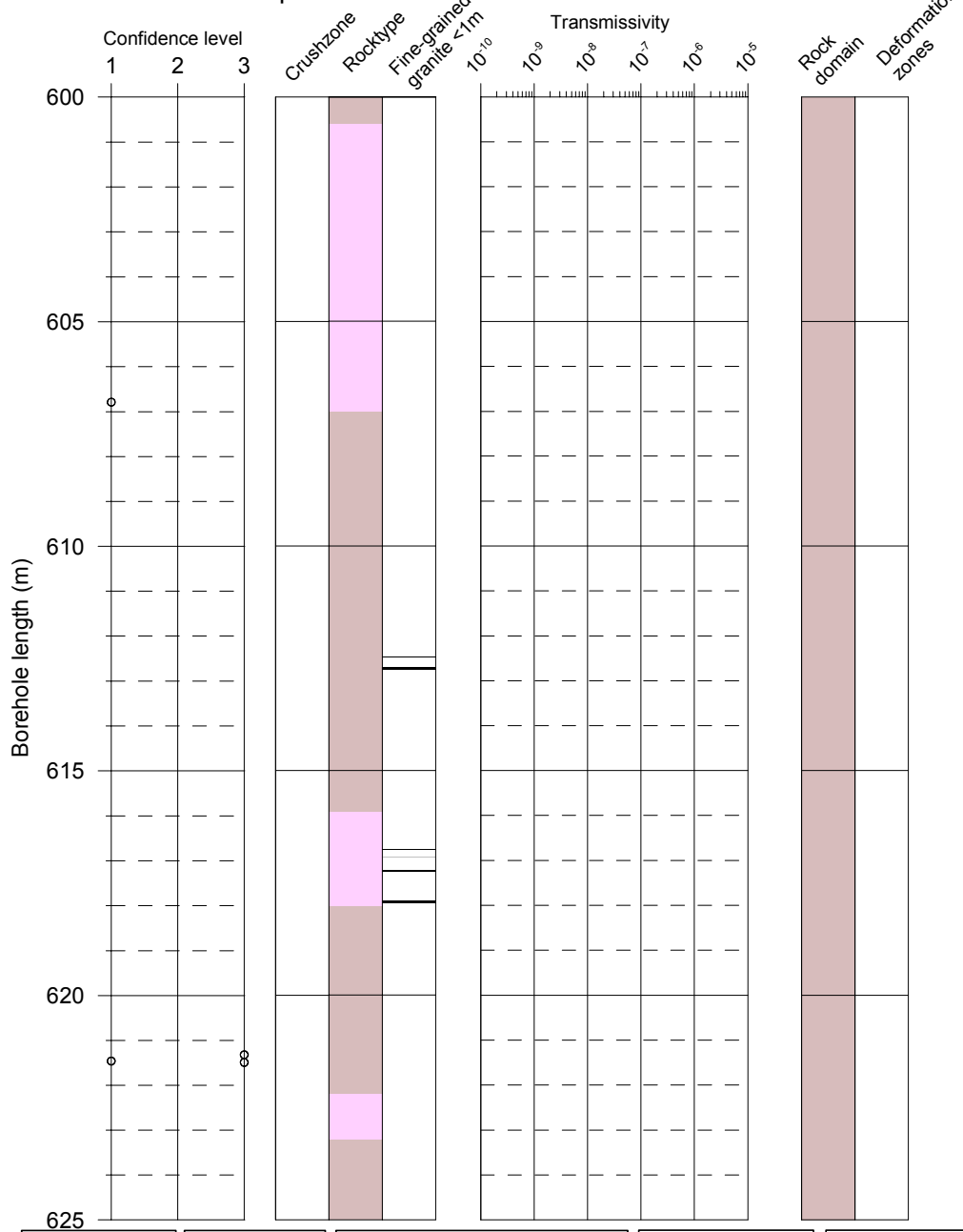
Rock domains
RFM029

Deformation zones
▨ Zone

KFM02A

Boremap

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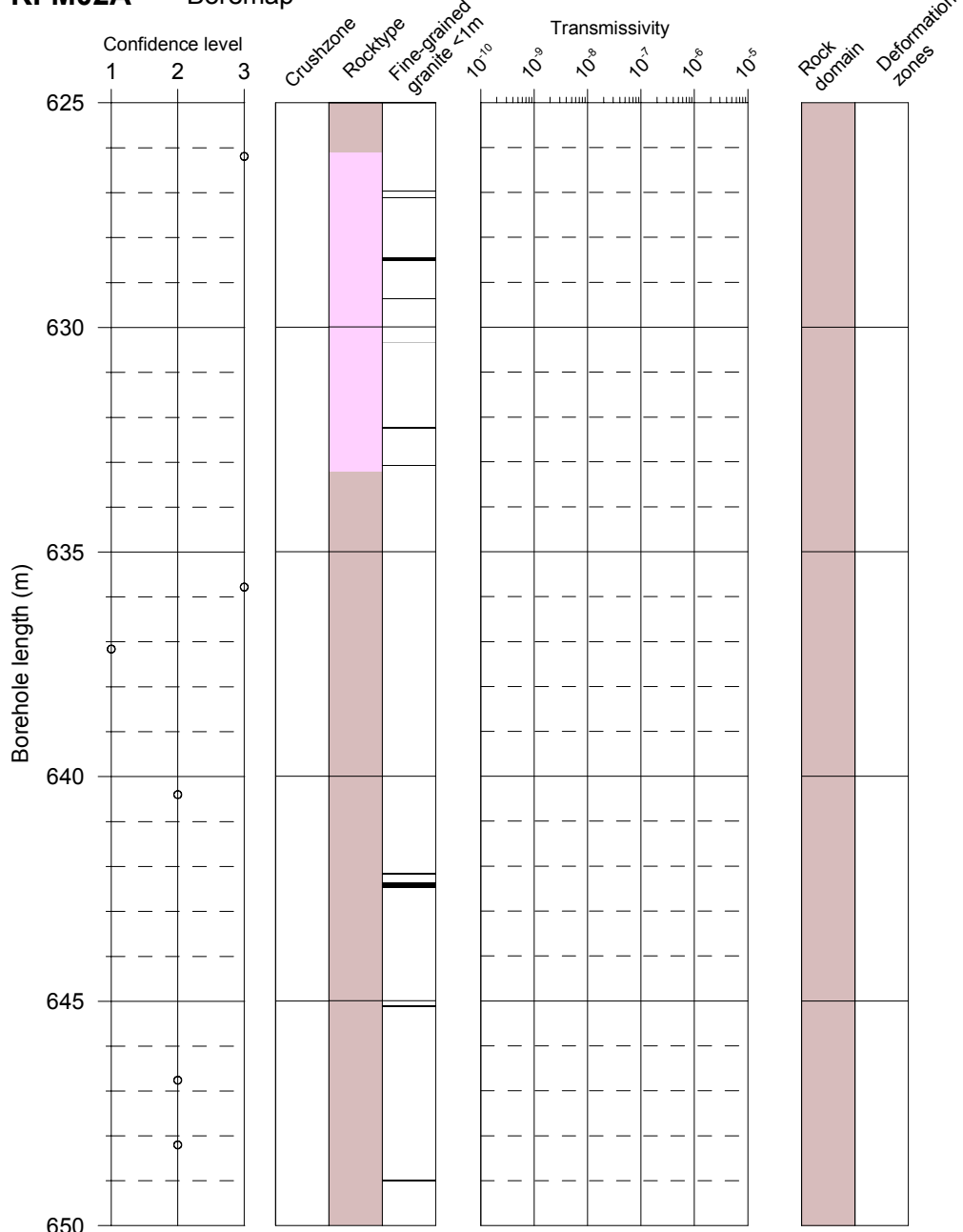
Rock domains
RFM029

Deformation zones
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KFM02A

Boremap

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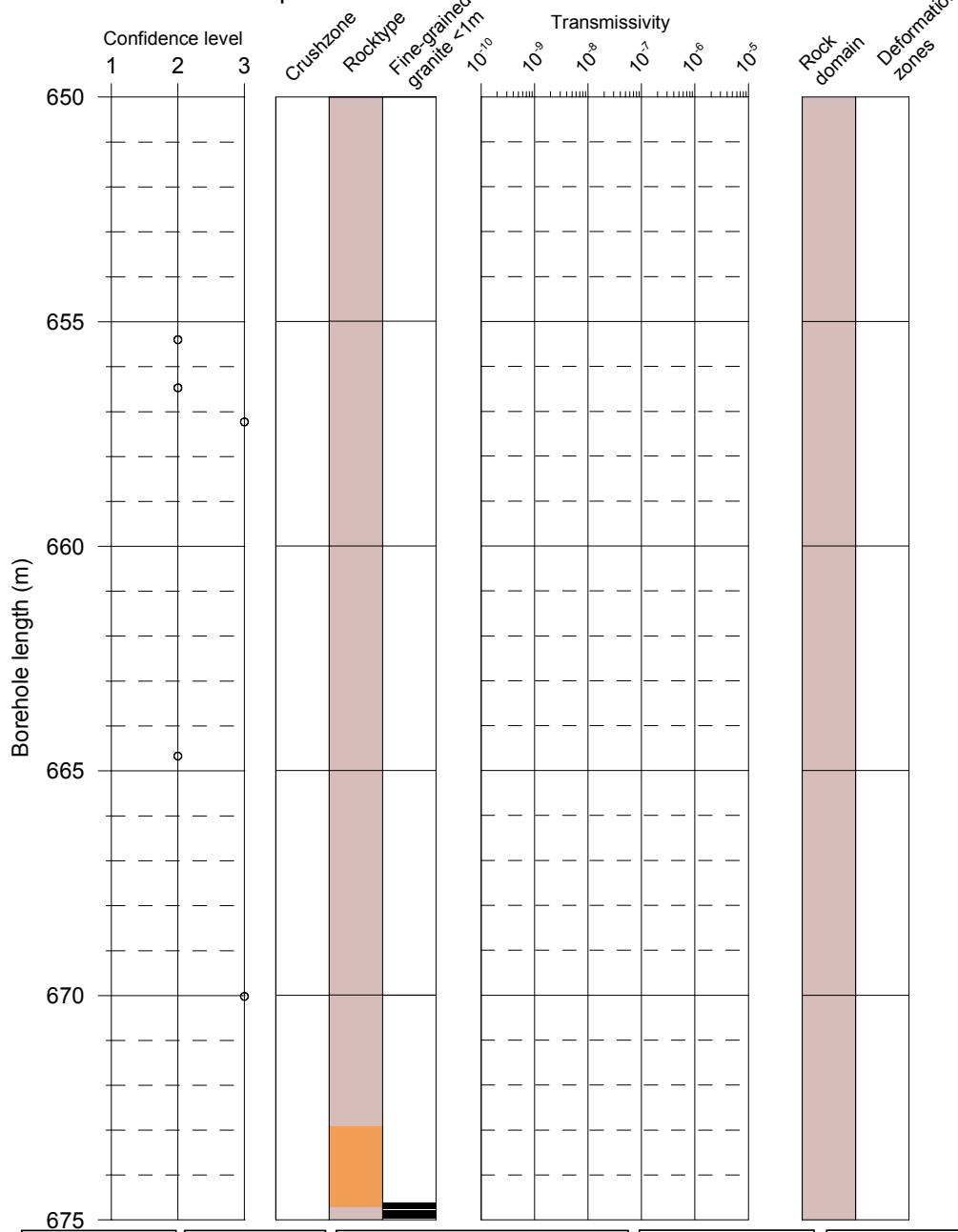
Deformation zones

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KFM02A

Boremap

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Rock domains

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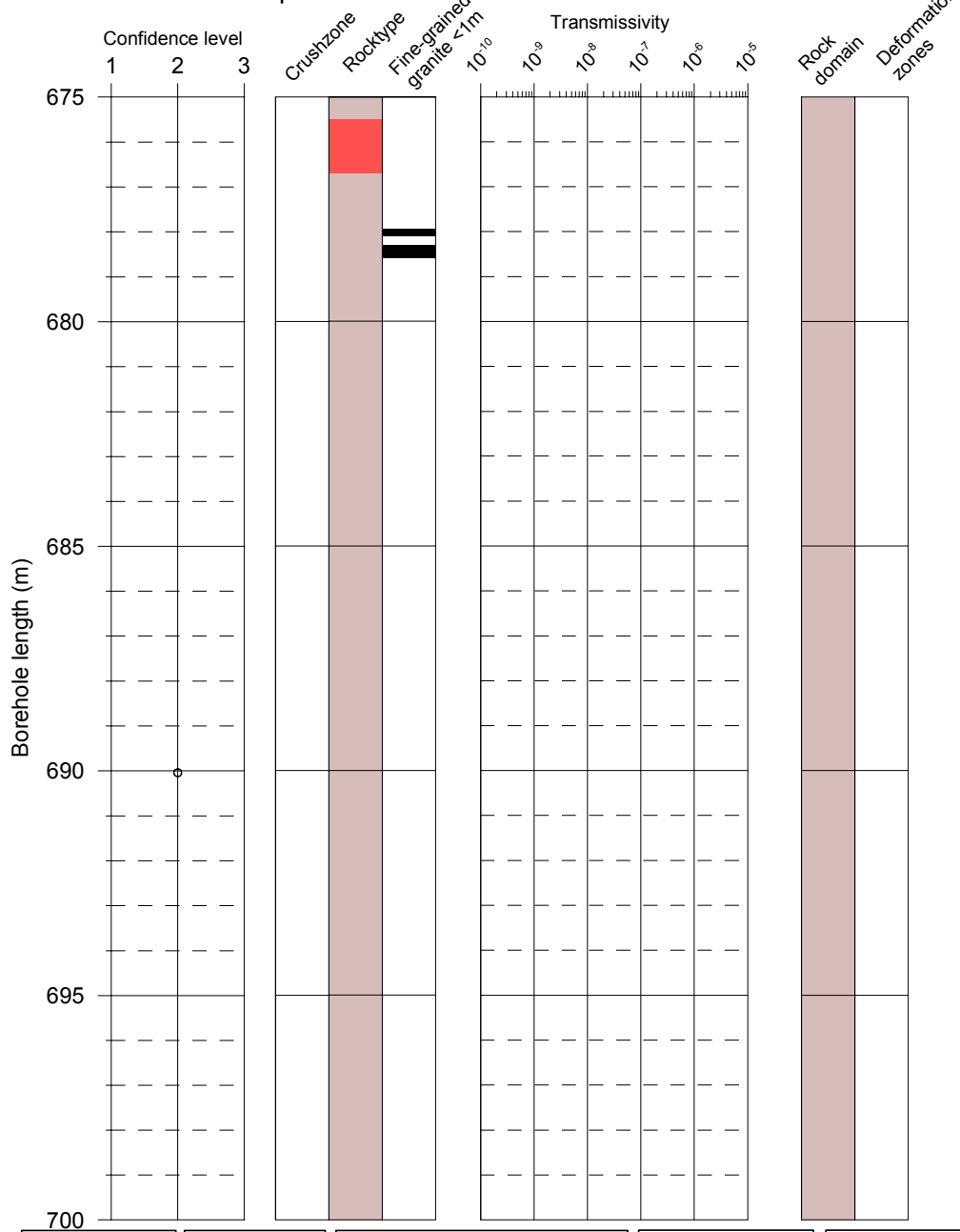
Deformation zones

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KFM02A

Boremap

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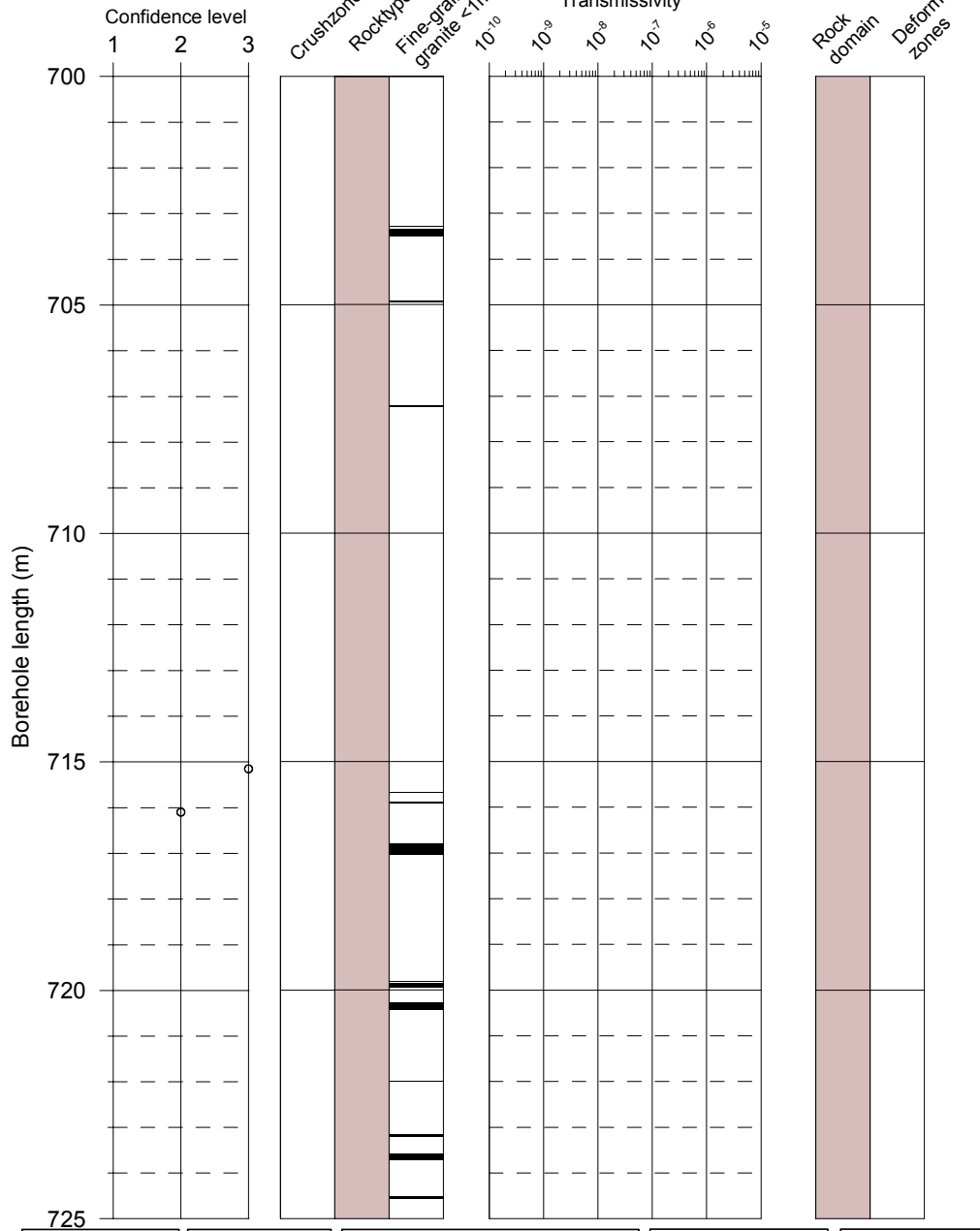
Rock domains
RFM029

Deformation zones
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KFM02A

Boremap

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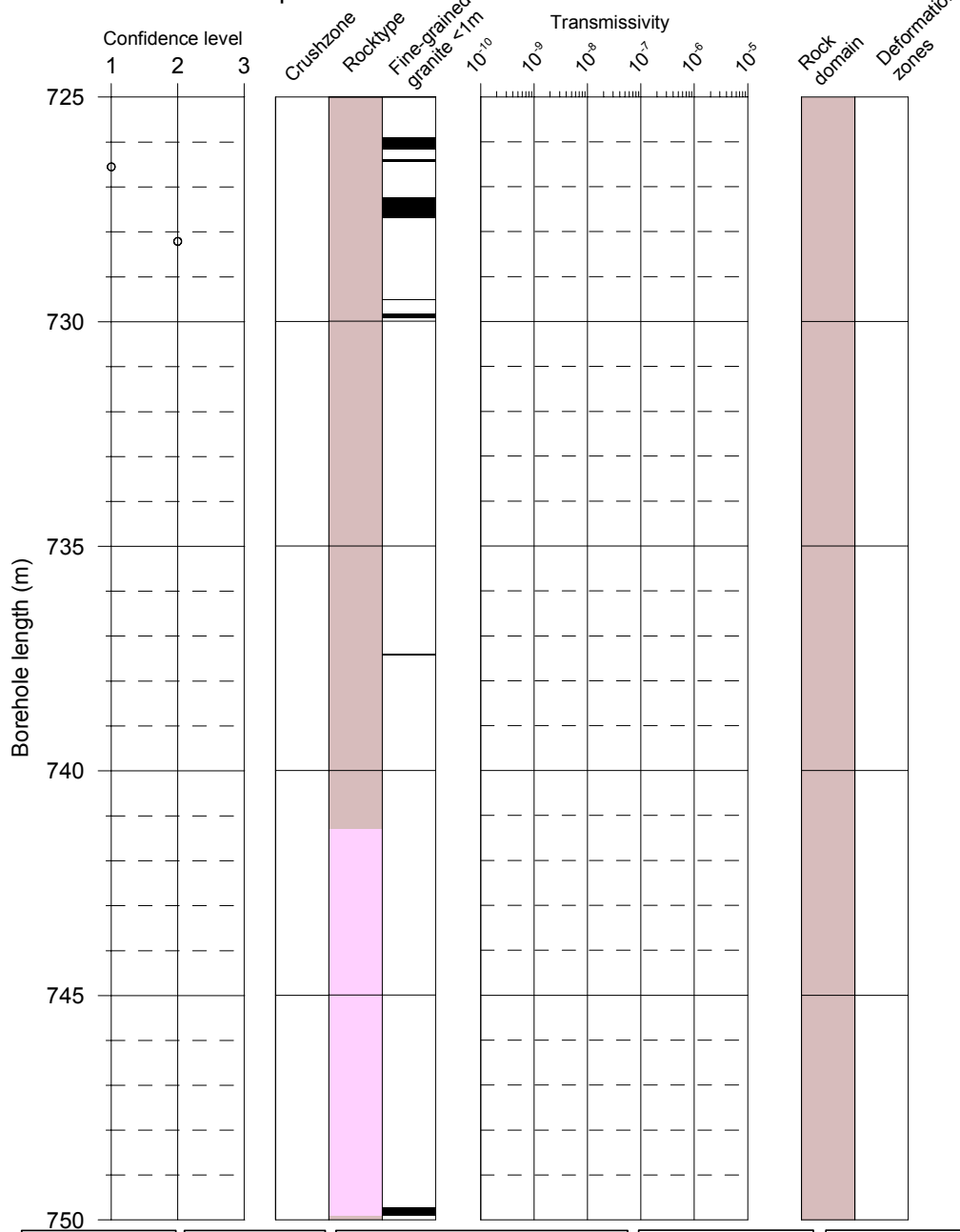
Rock domains
RFM029

Deformation zones
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KFM02A

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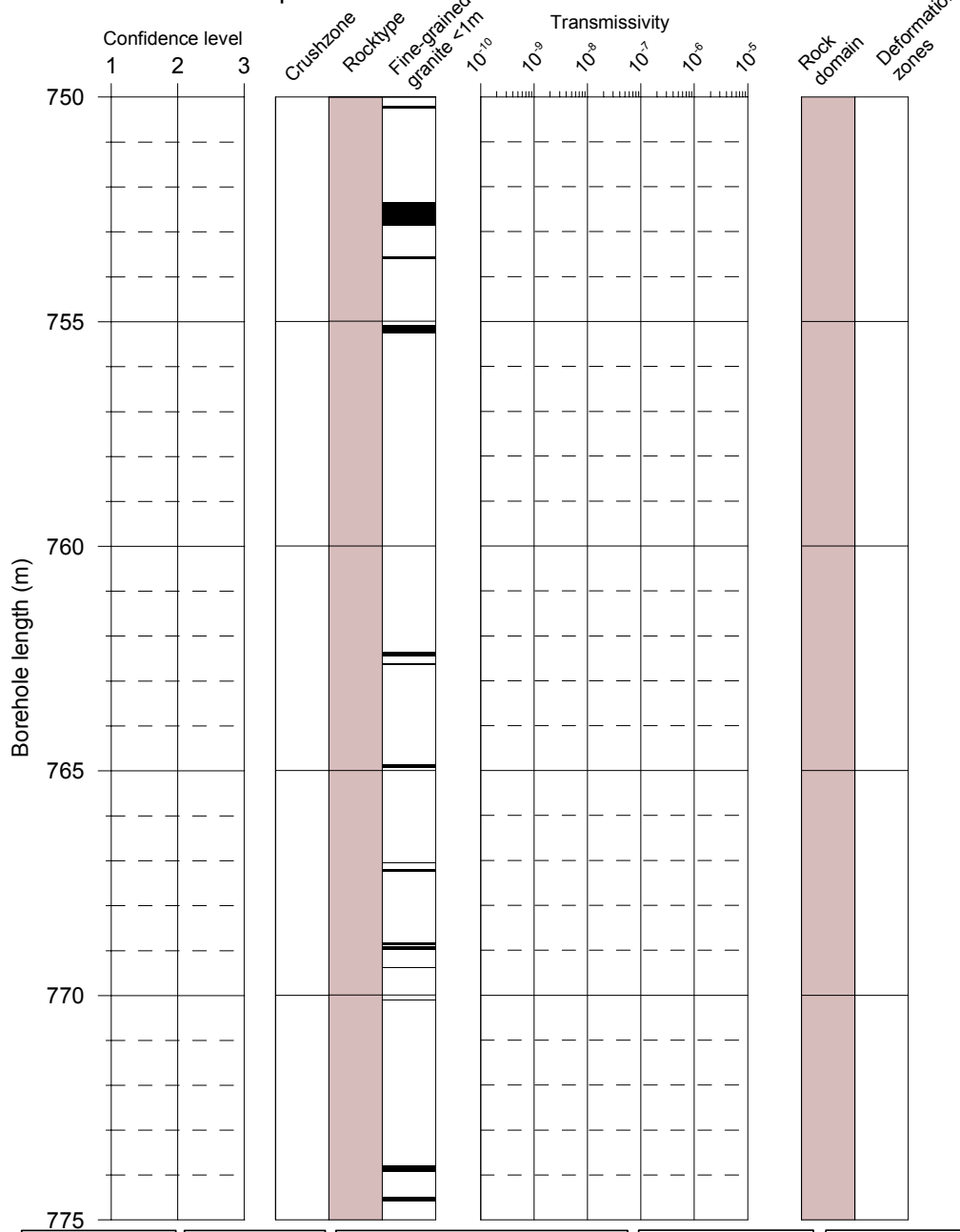
Deformation zones

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KFM02A

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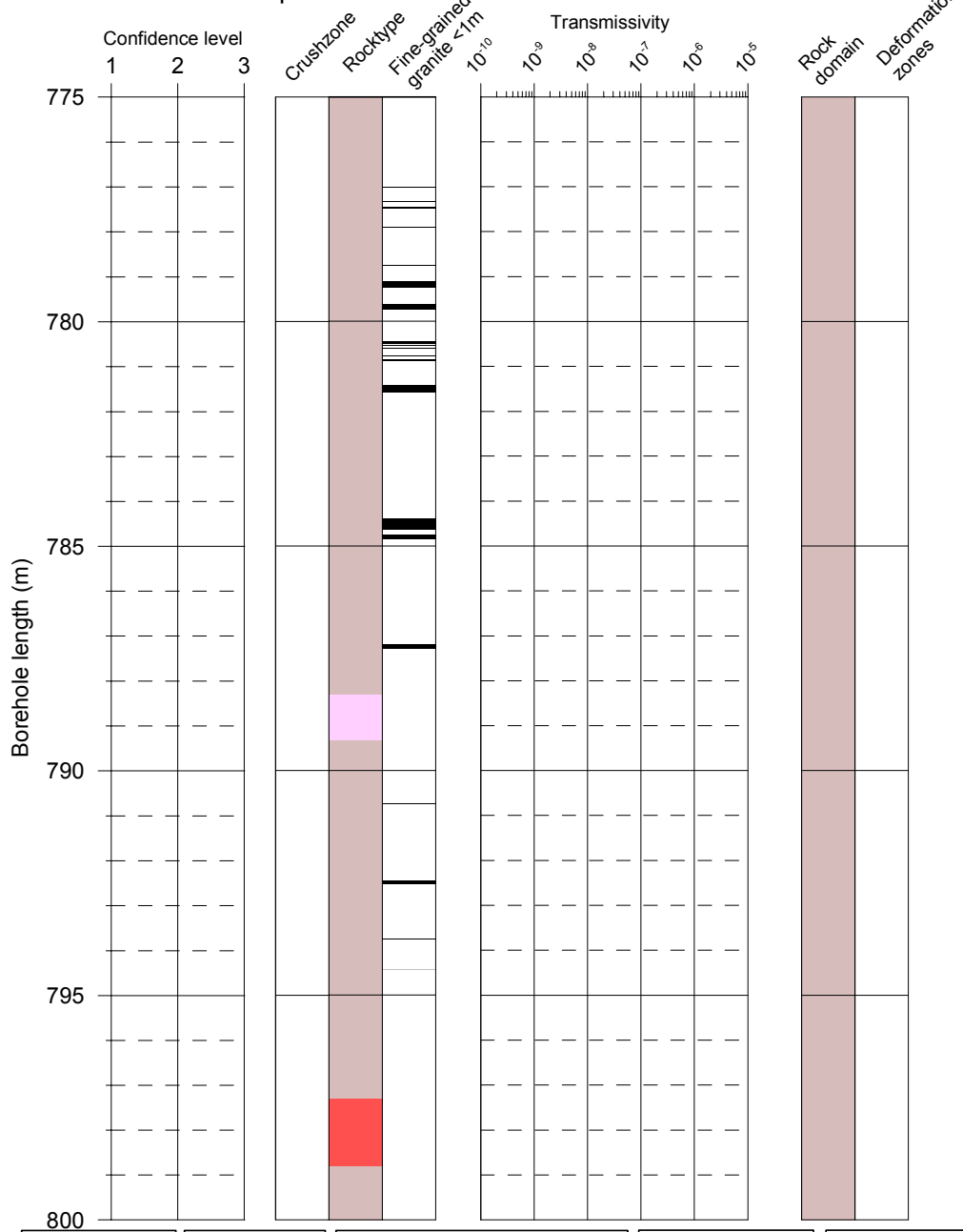
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KFM02A

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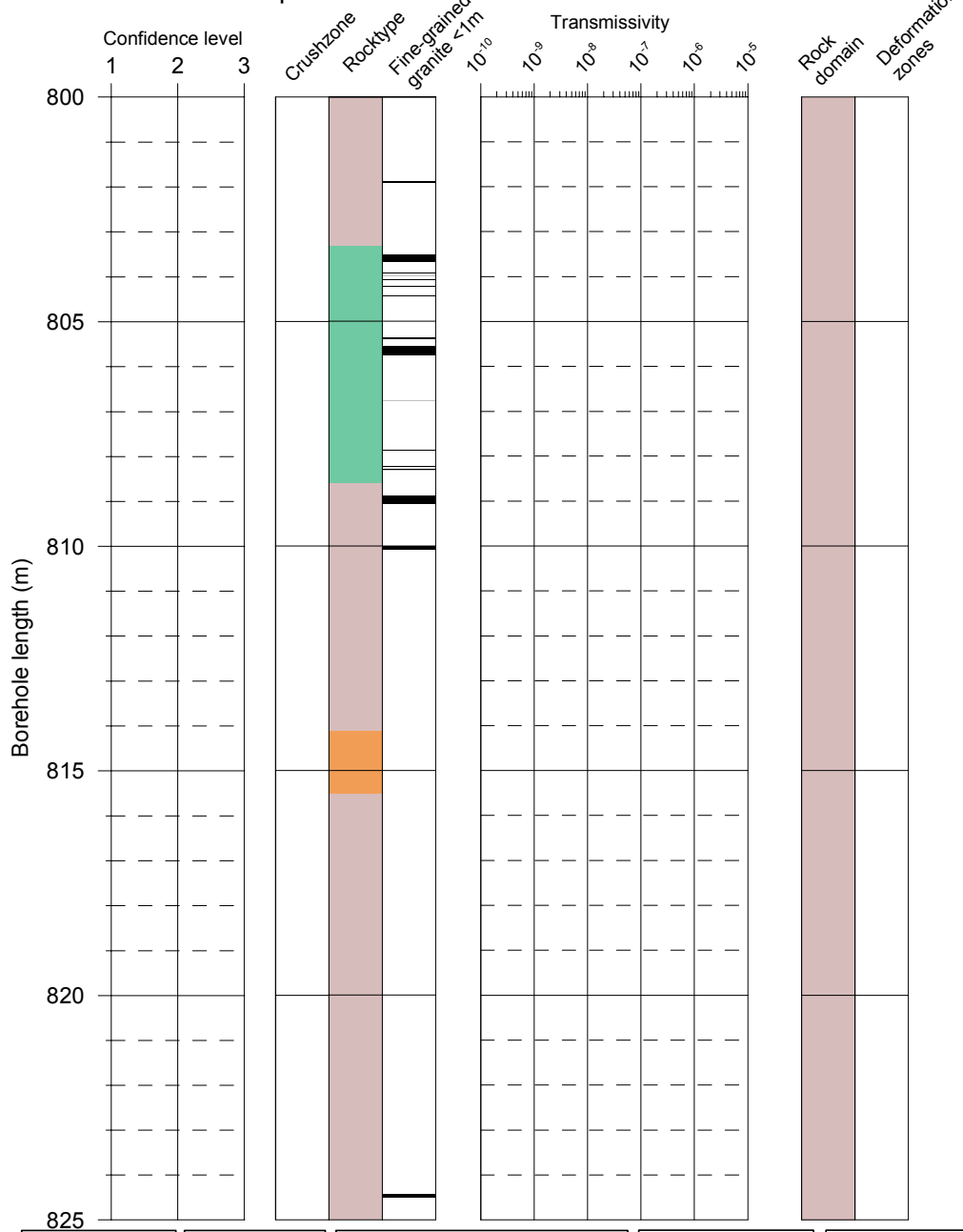
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KFM02A

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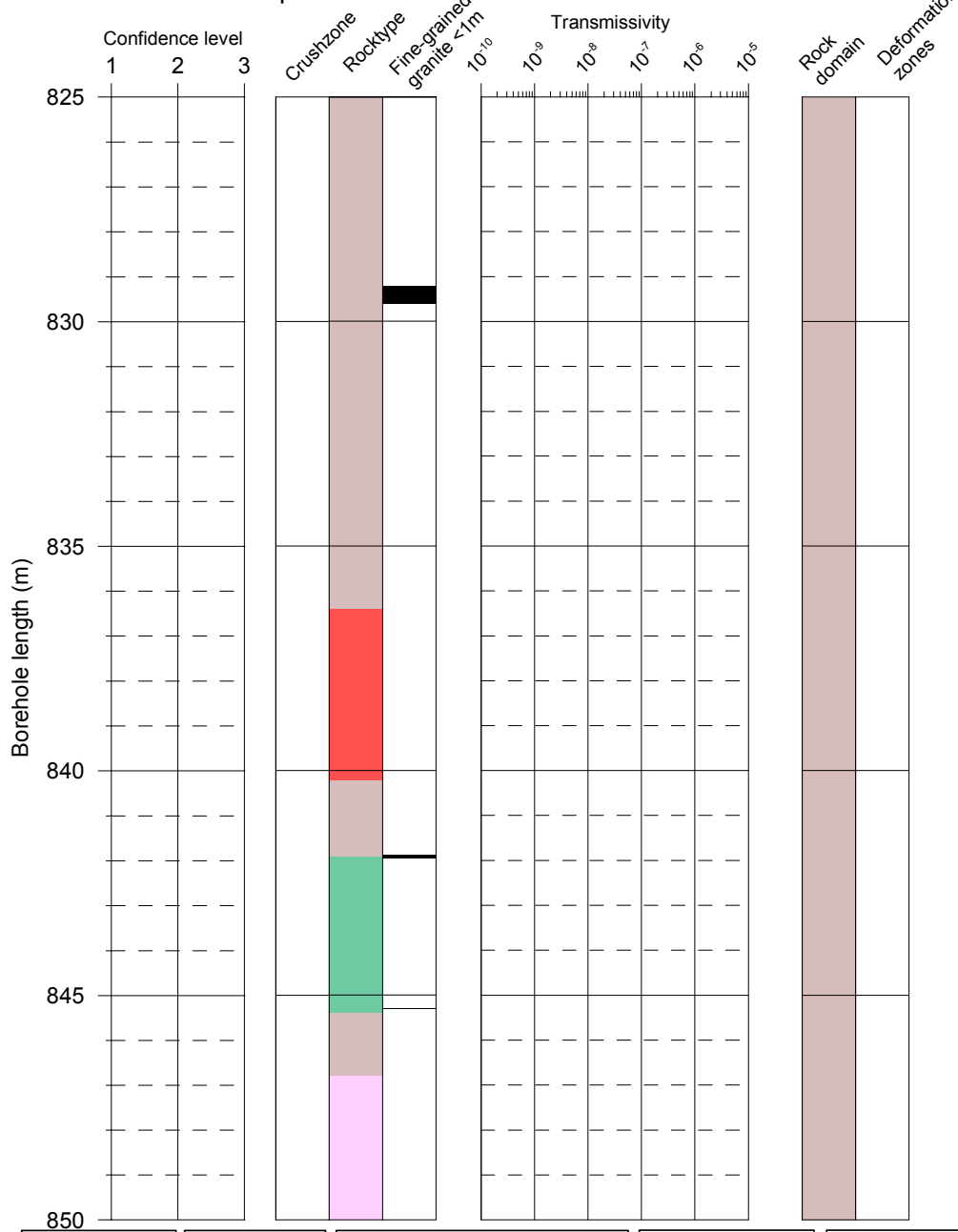
Rock domains
RFM029

Deformation zones
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KFM02A

Boremap

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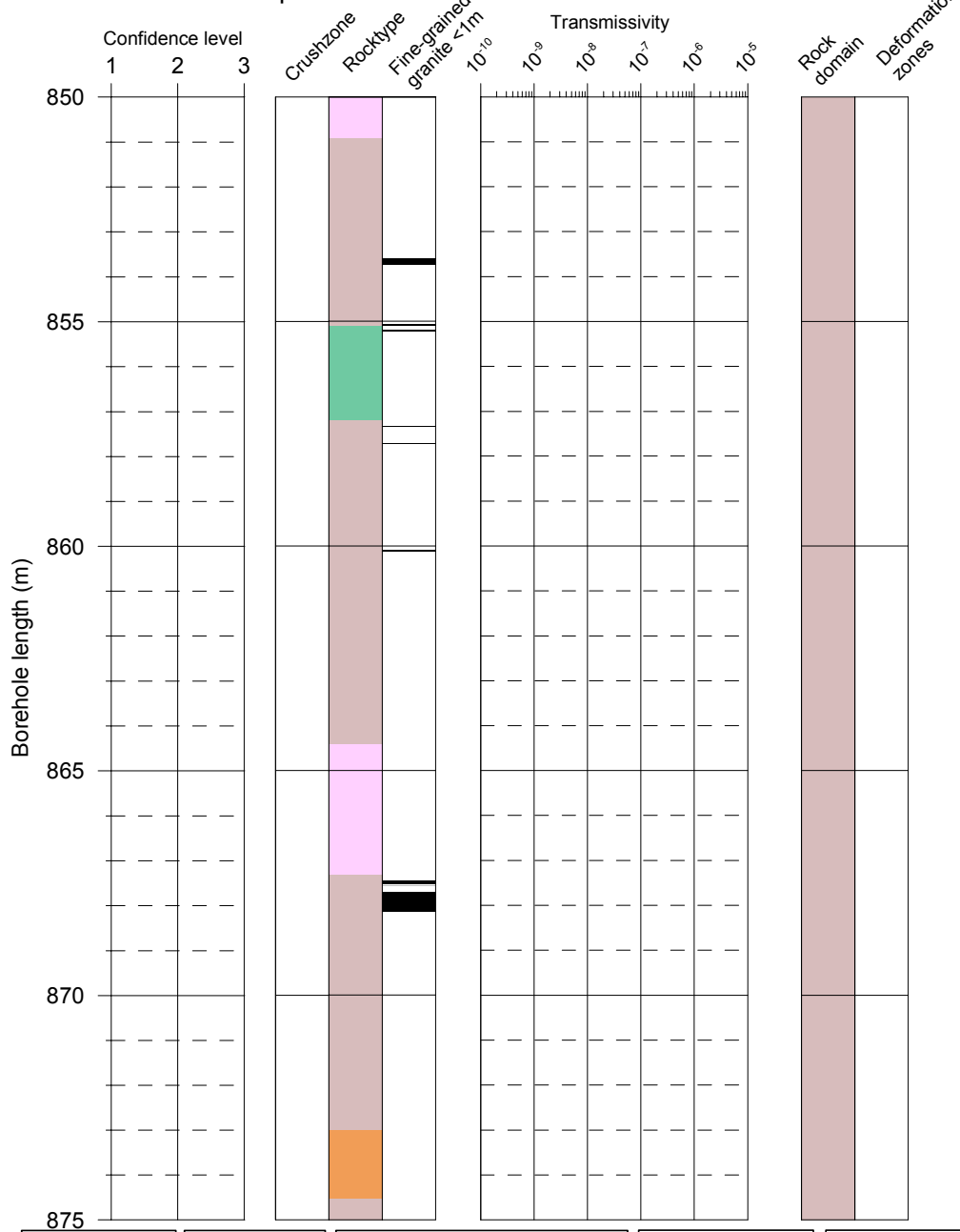
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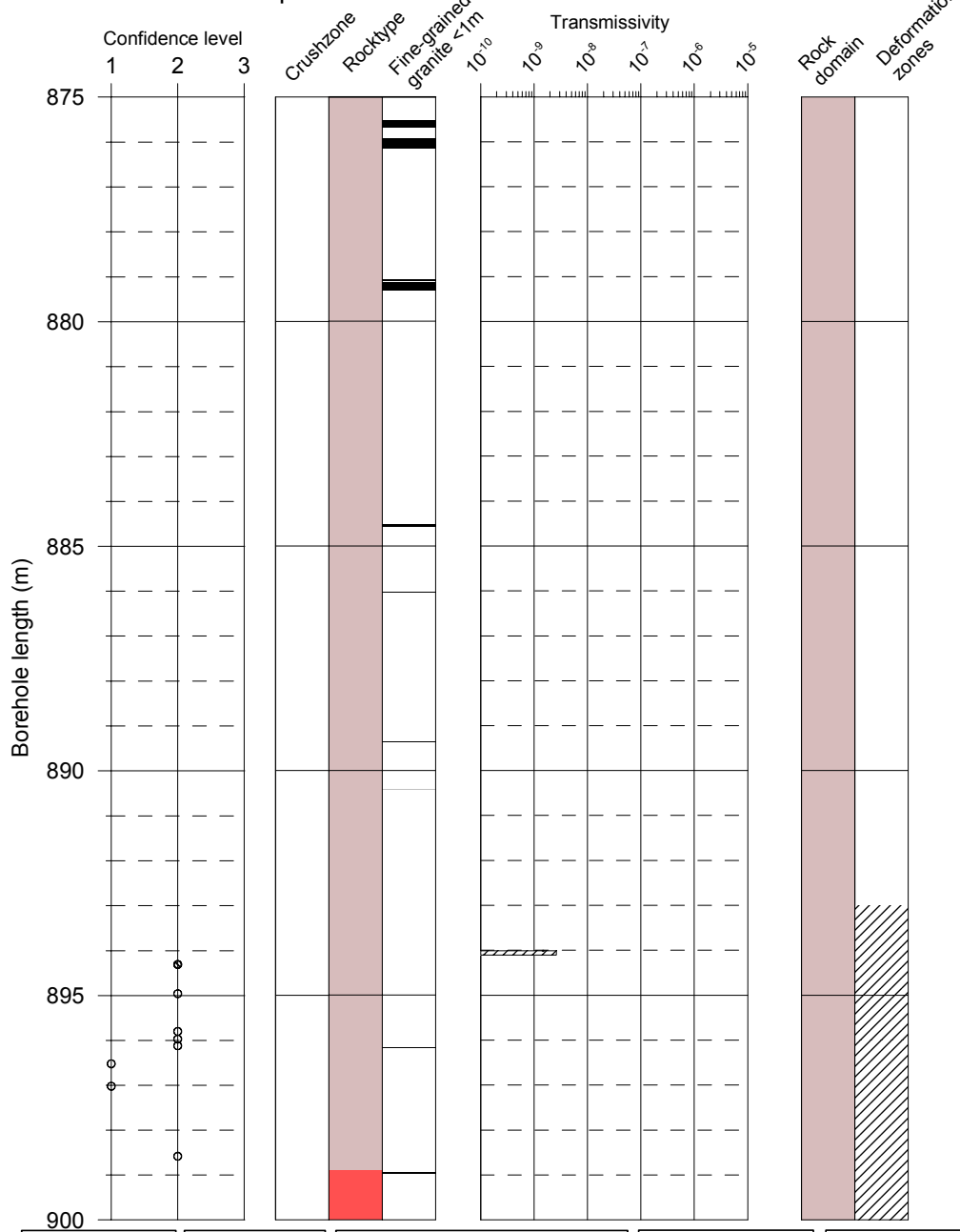
Rock domains
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Deformation zones
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KFM02A

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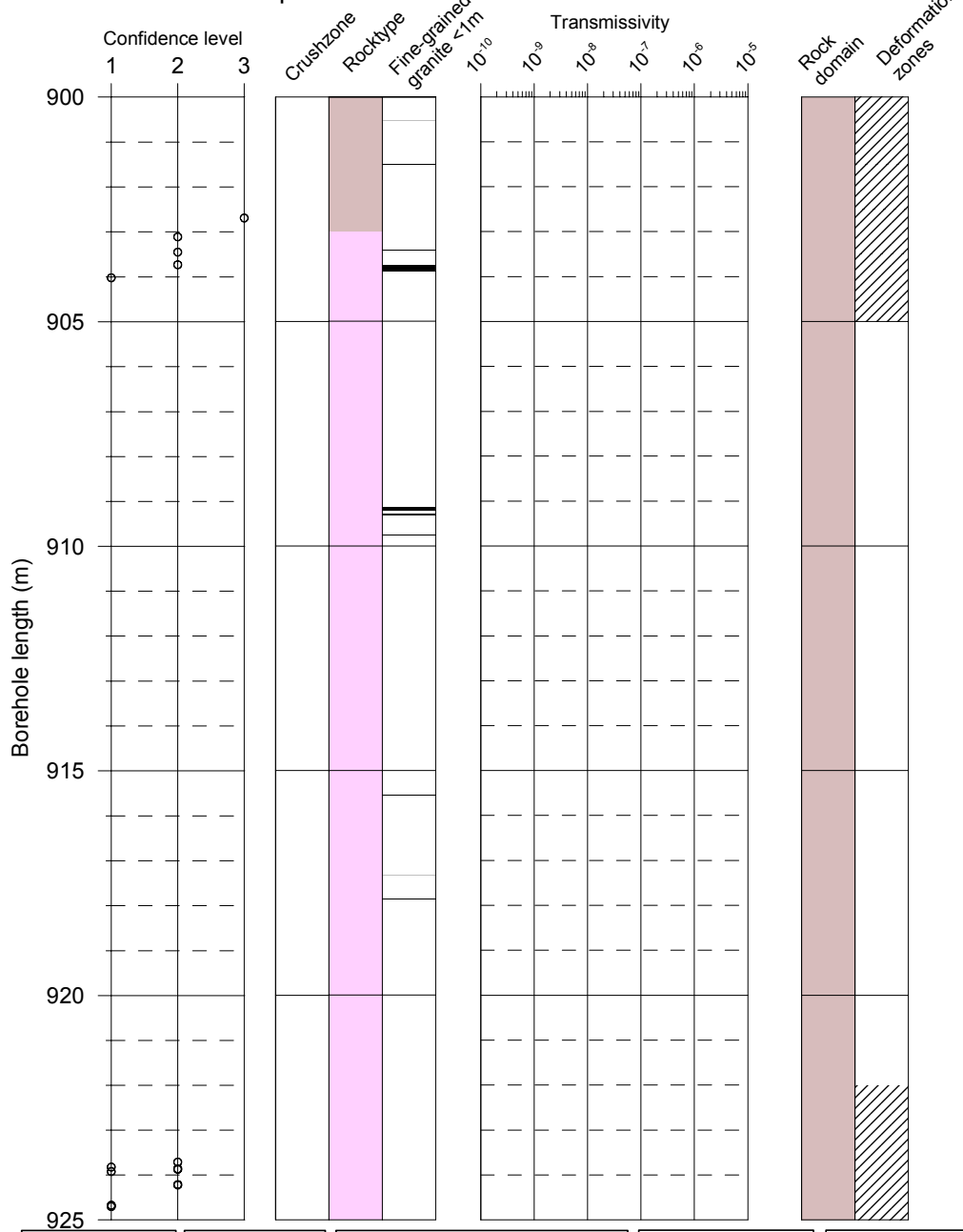
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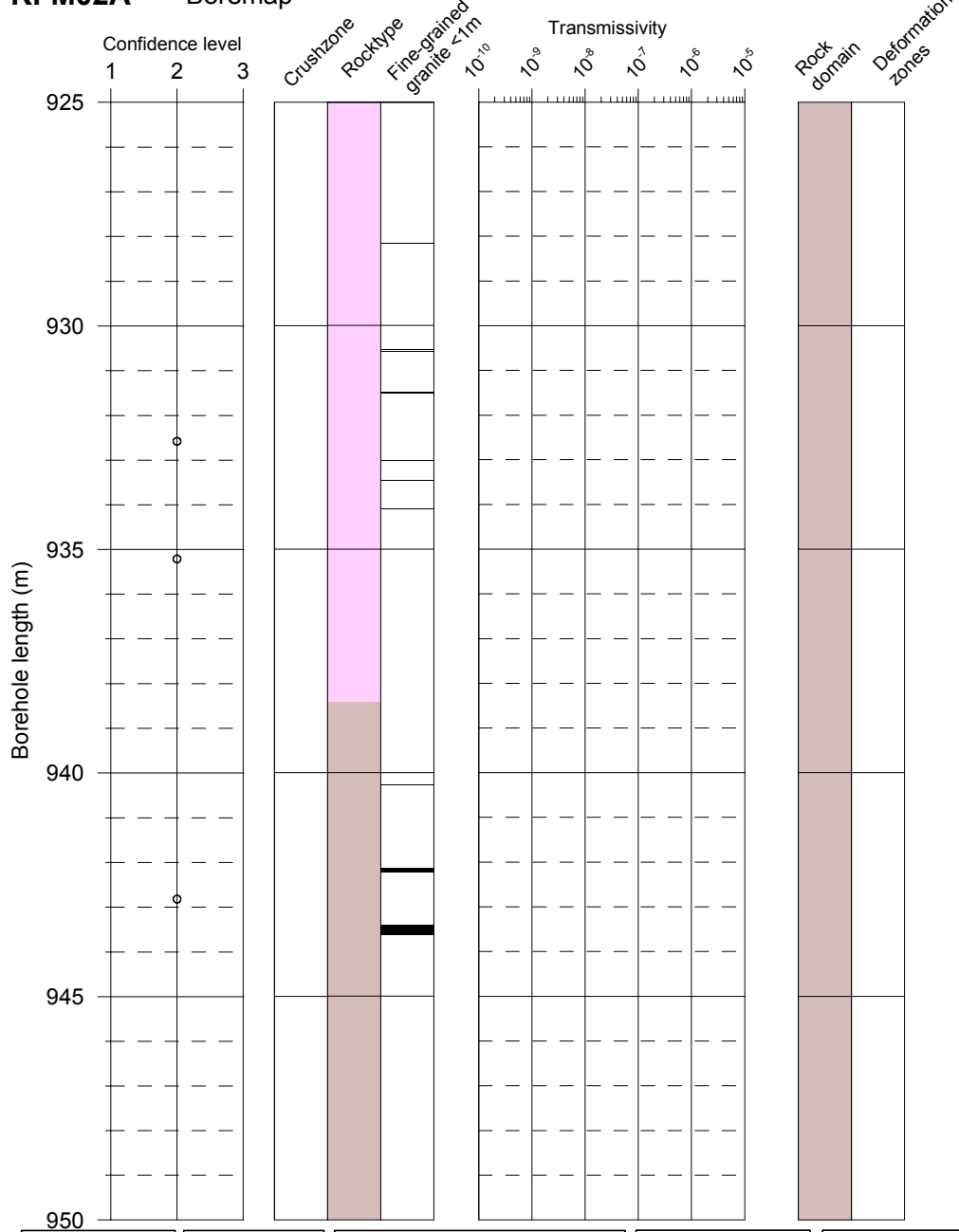
Rock domains
RFM029

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KFM02A

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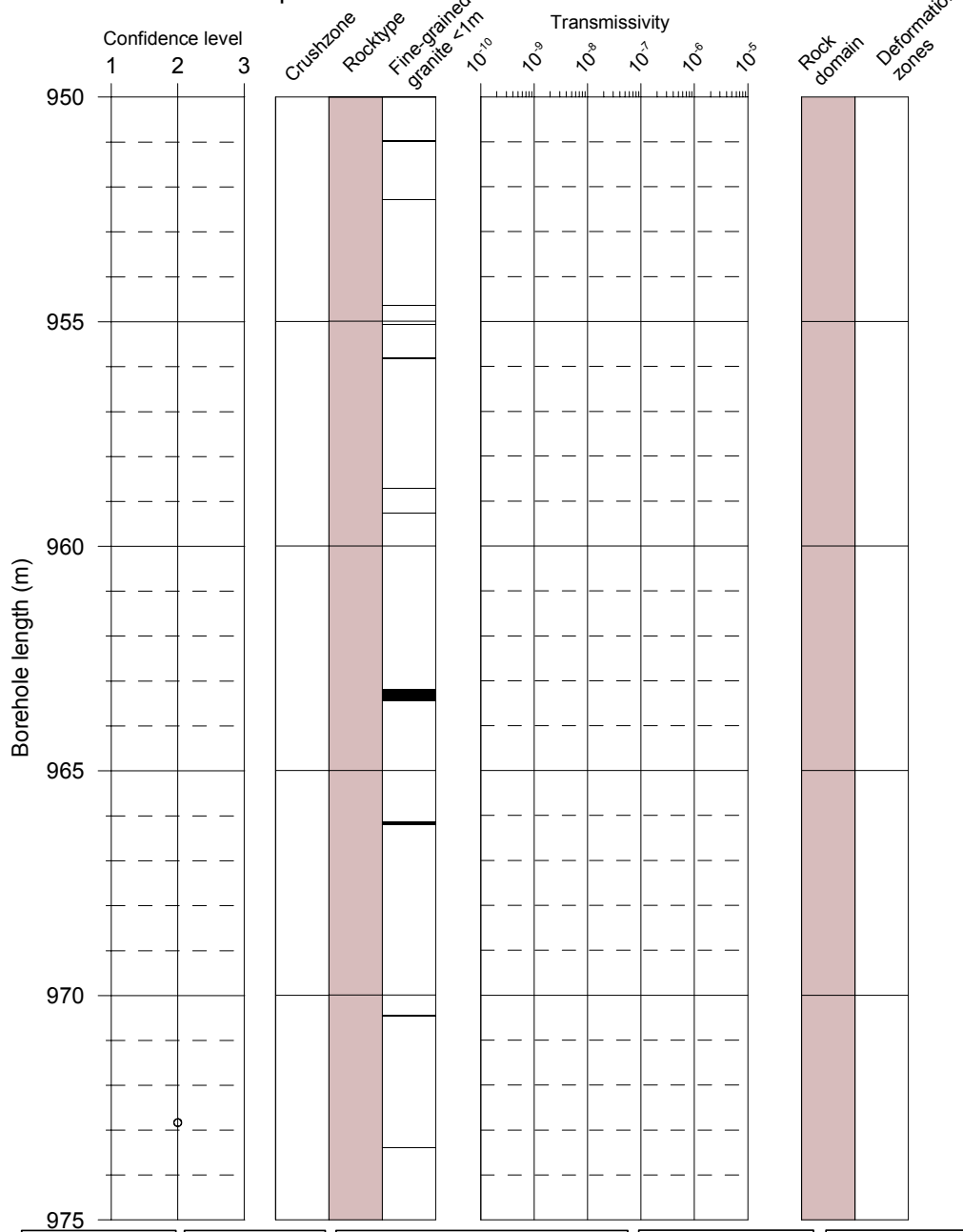
Rock domains
RFM029

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KFM02A

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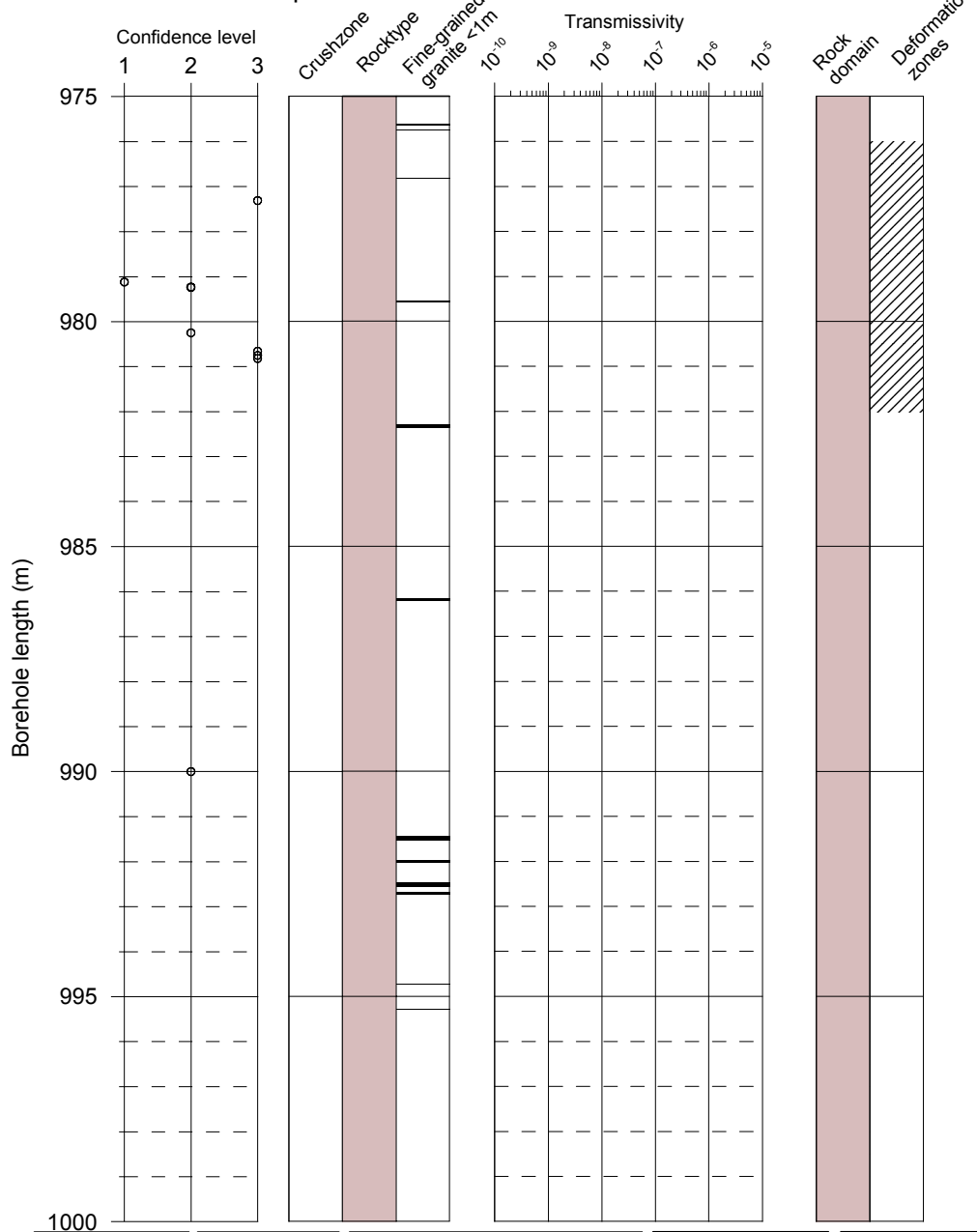
Rock domains
RFM029

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KFM02A

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Rock domains

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Deformation zones

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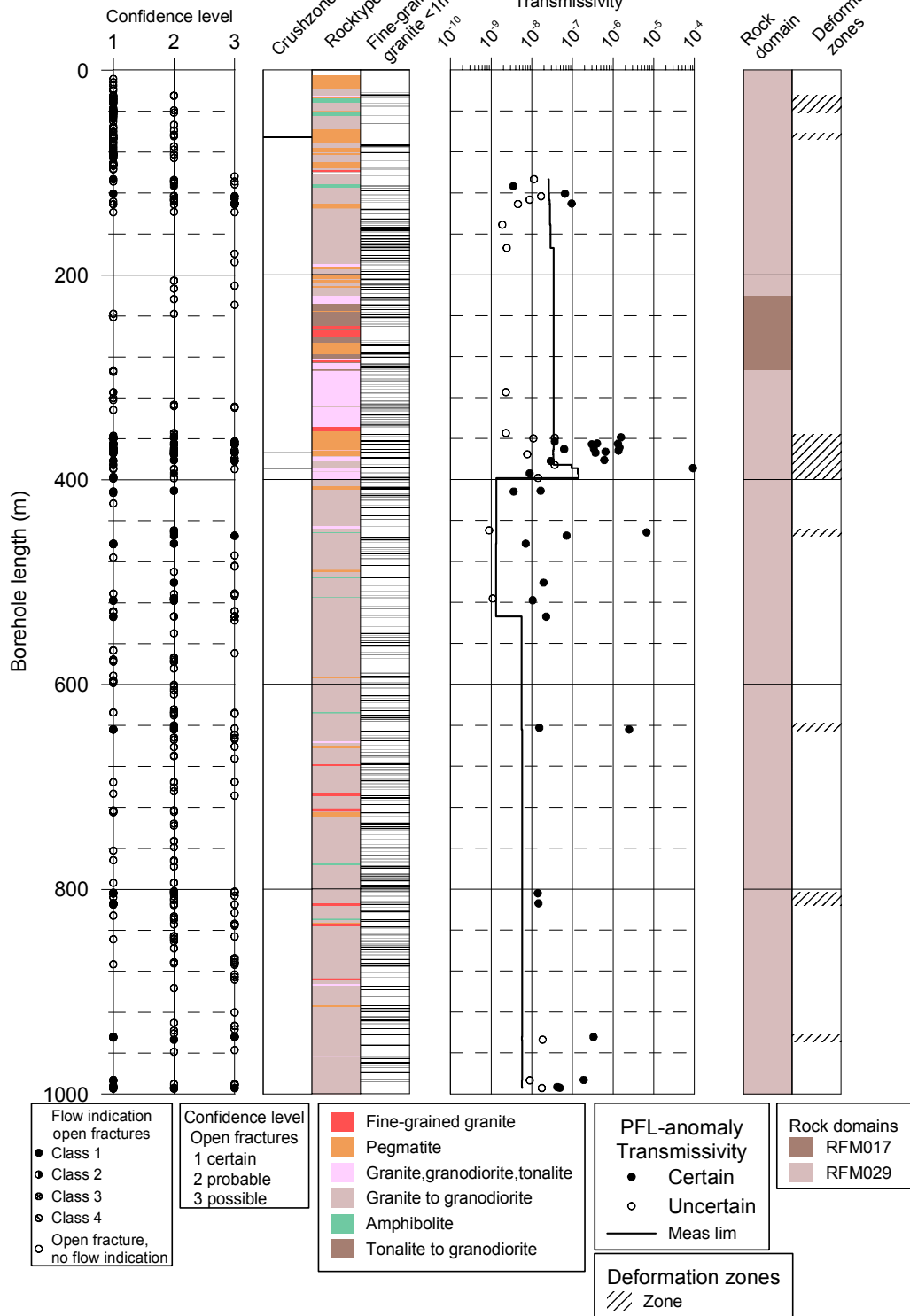
Appendix 3:3 – KFM03A

In this appendix plots showing Flow log anomalies to core mapped features in KFM03A for entire borehole and for every 25 meters of the borehole are found. BIPS images of PFL anomalies are also found.

KFM03A

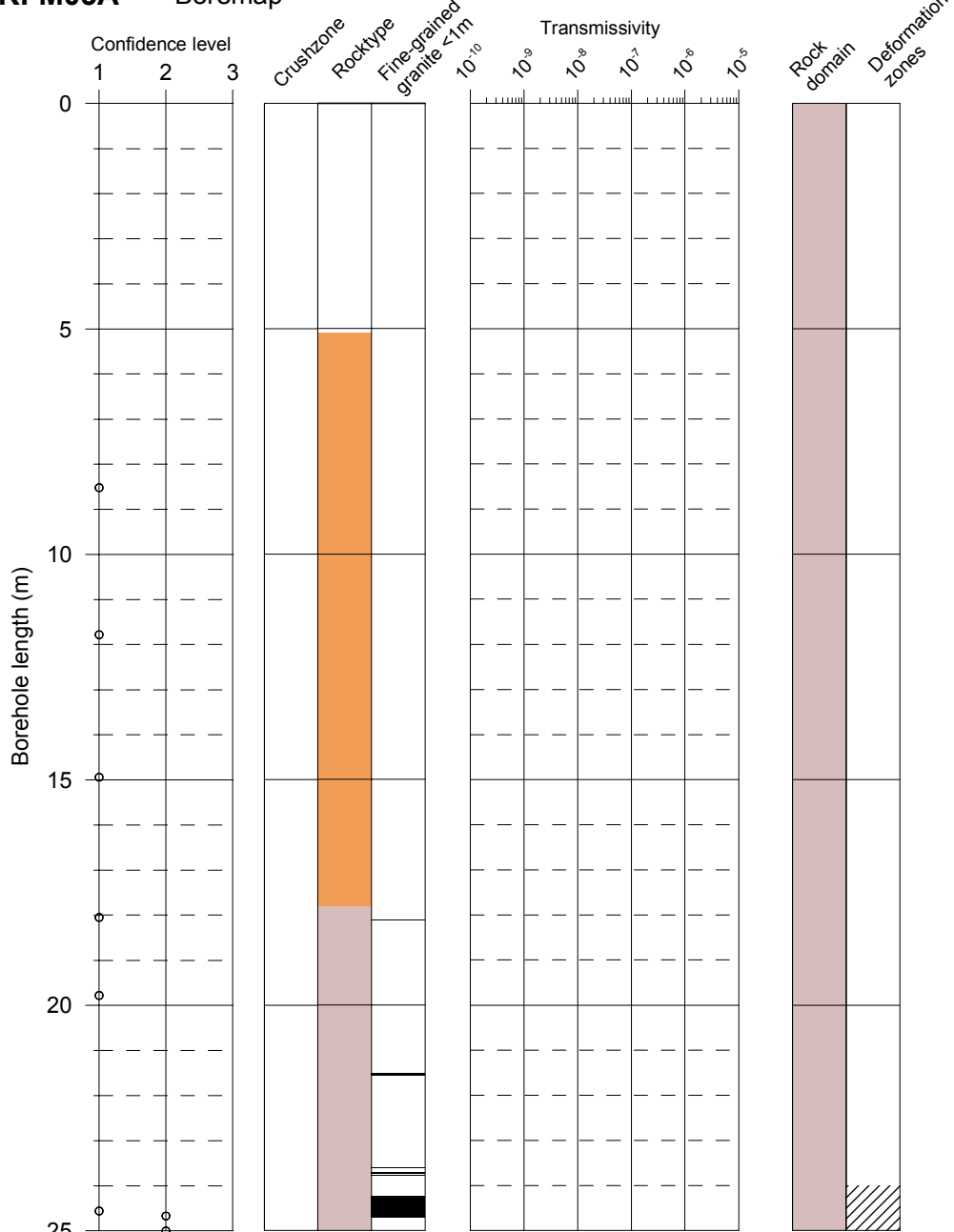
Boremap

PFL



KFM03A Boremap

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Rock domains

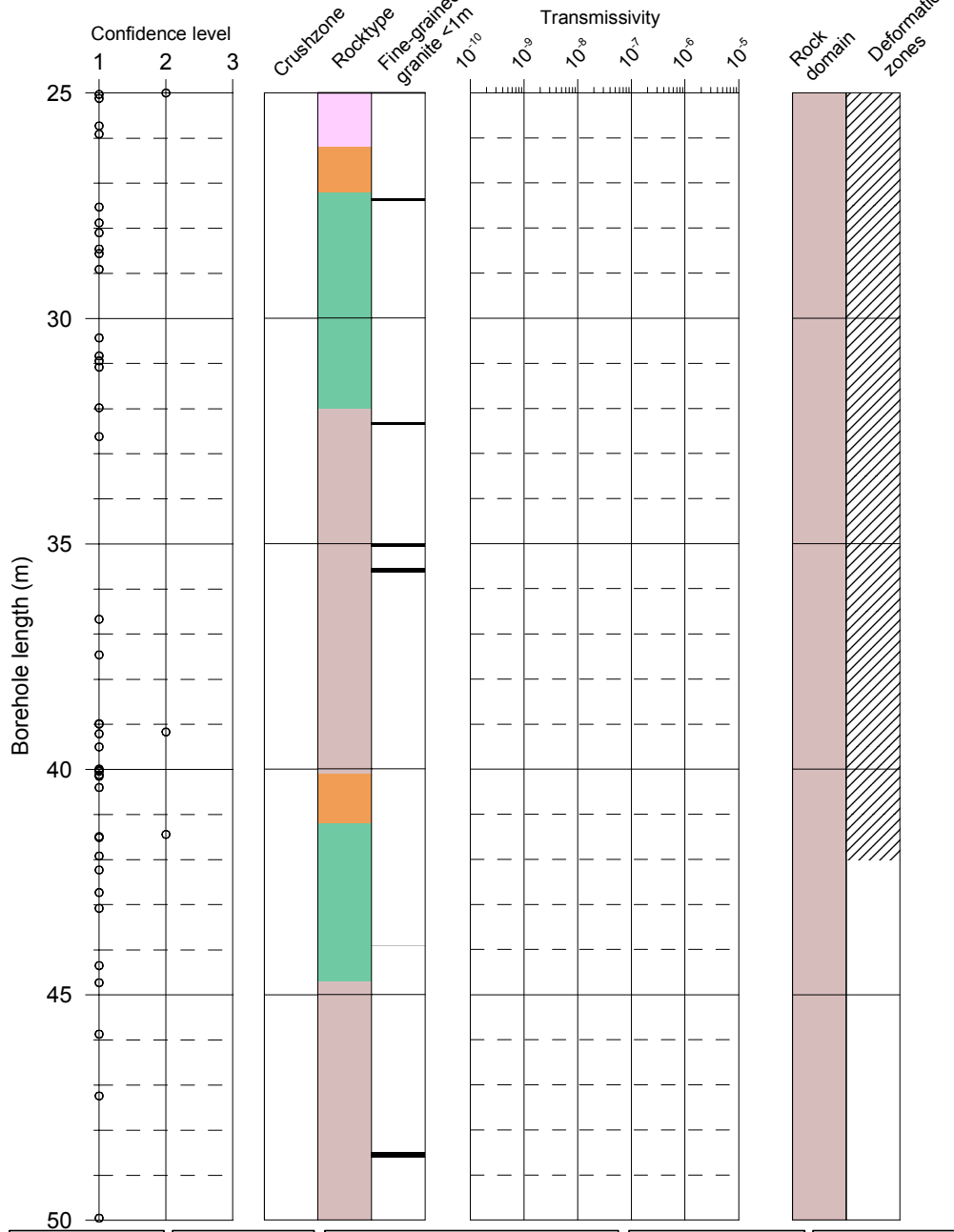
- RFM017
- RFM029

Deformation zones

- ▨ Zone

KFM03A Boremap

PFL



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Transmissivity

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Rock domains

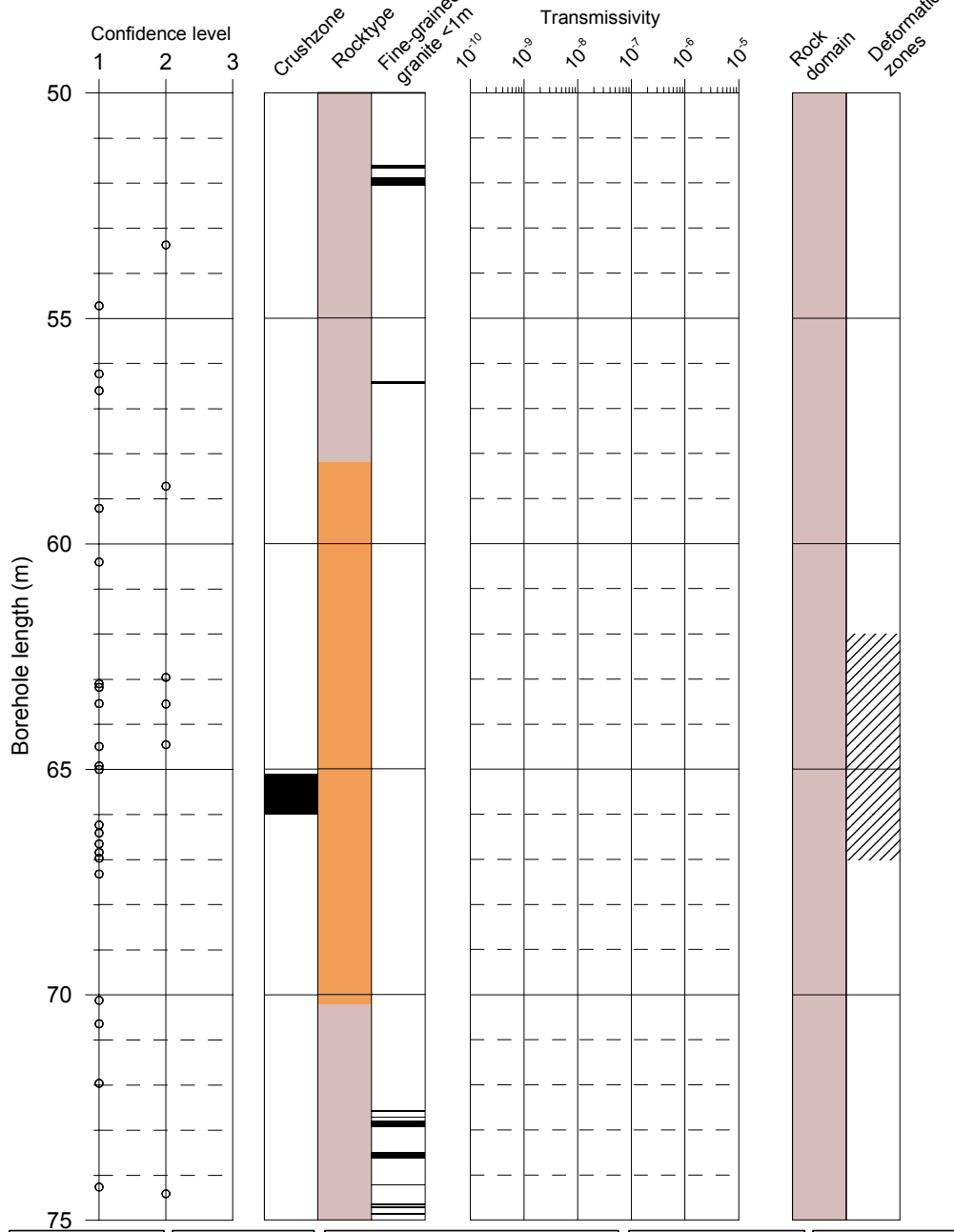
- RFM017
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Deformation zones

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KFM03A Boremap

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Transmissivity

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Rock domains

- RFM017
- RFM029

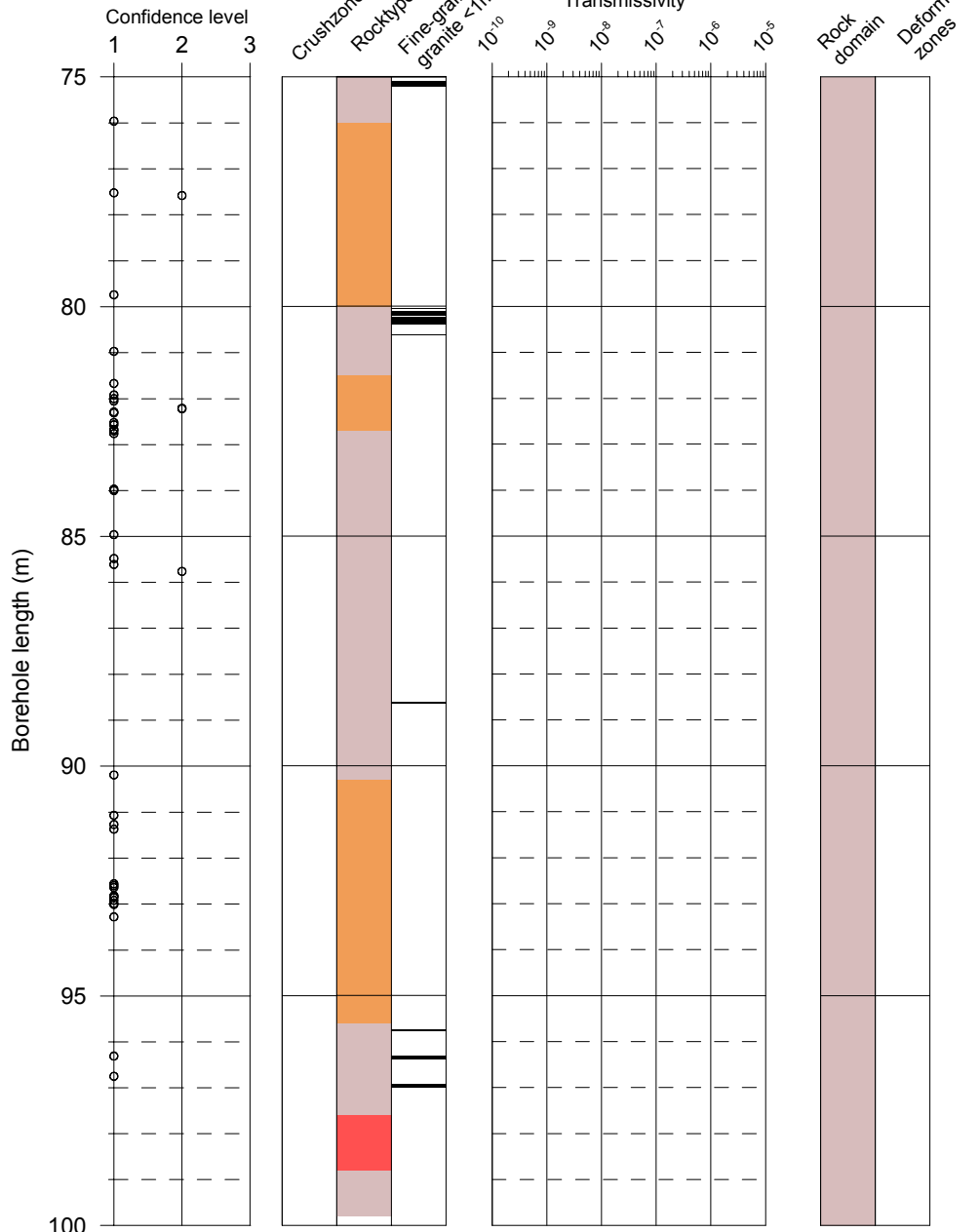
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KFM03A

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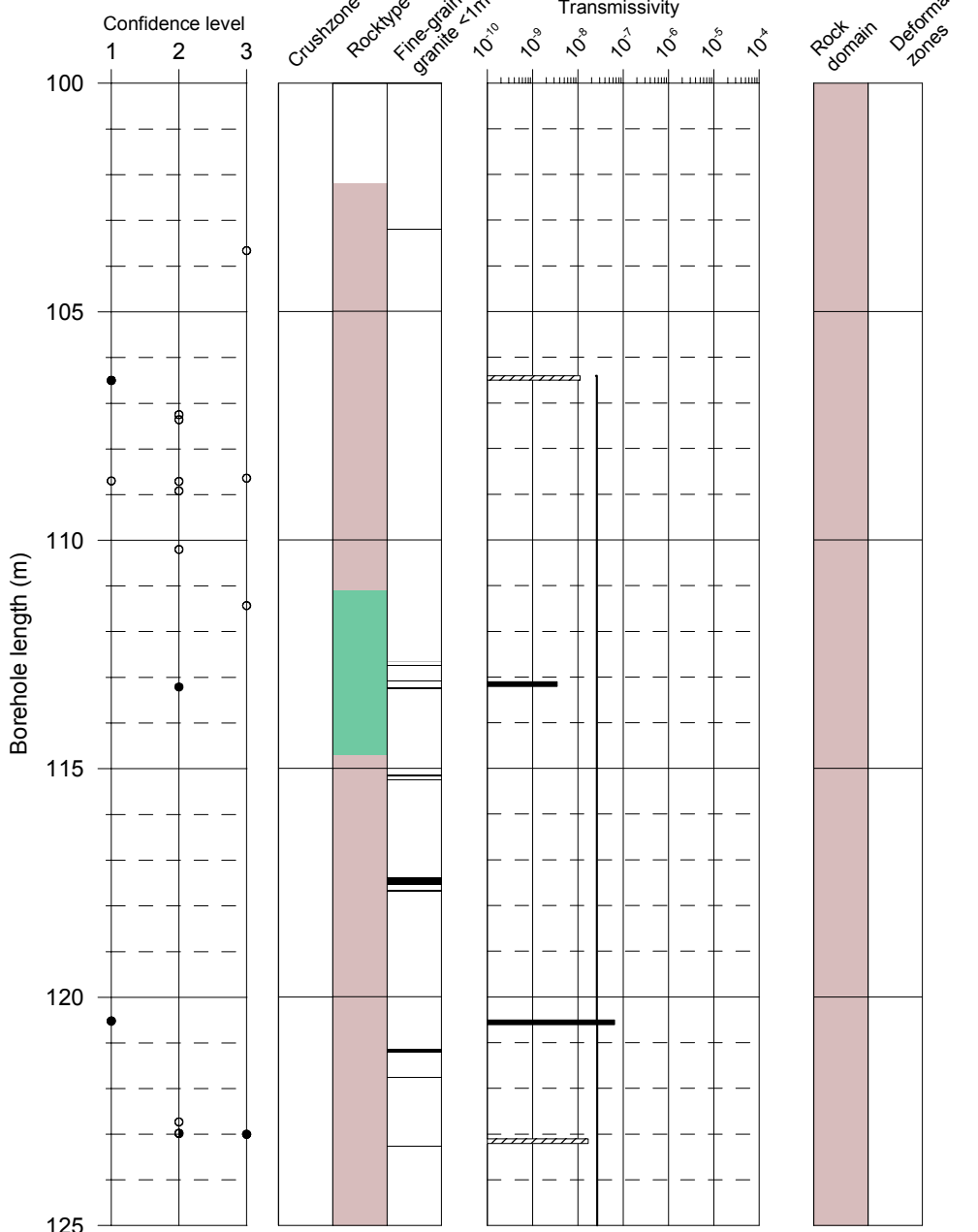
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KFM03A Boremap PFL



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- RFM017
- RFM029

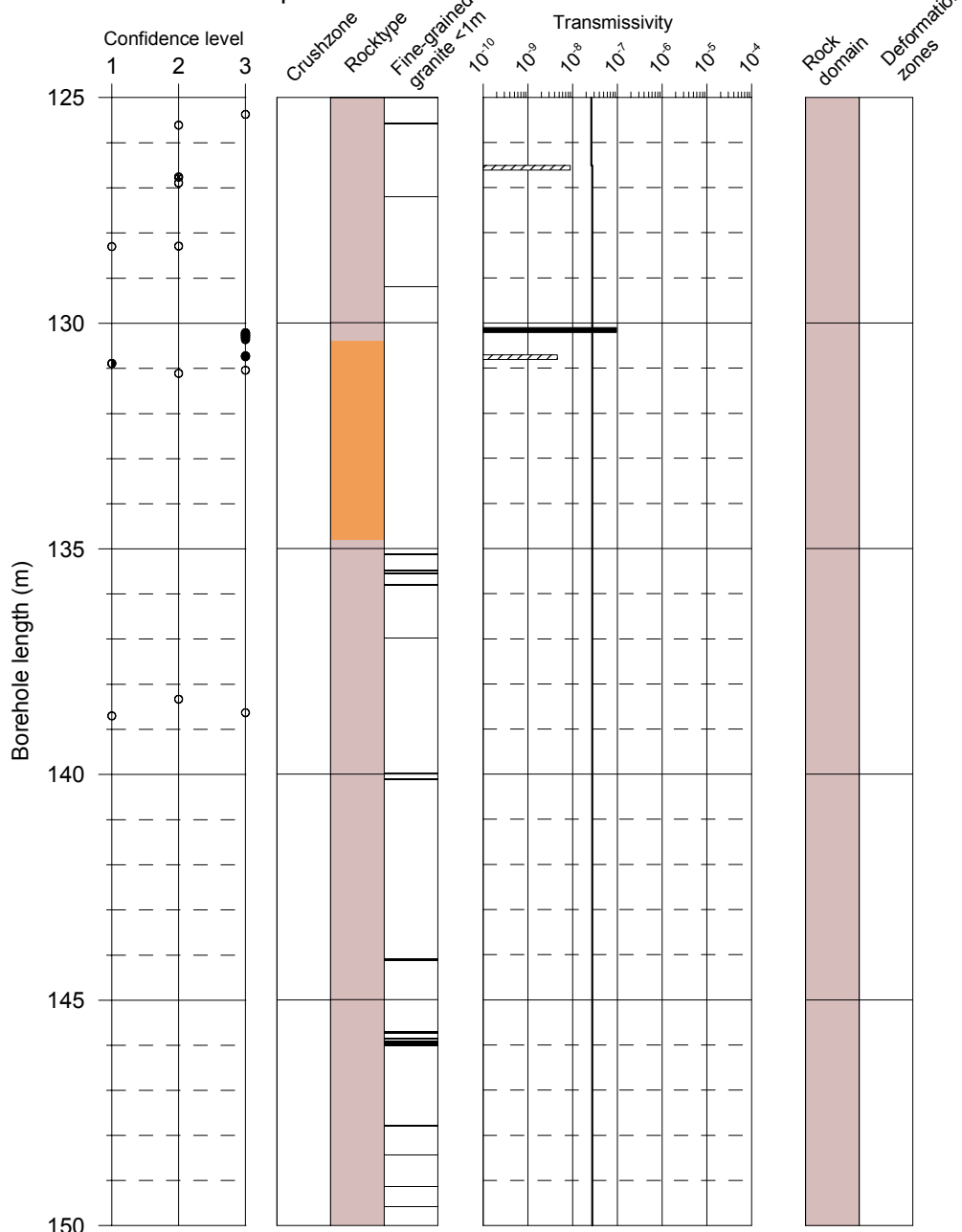
Deformation zones

- ▨ Zone

KFM03A

Boremap

PFL



Flow indication
open fractures

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- Open fracture,
no flow indication

Confidence level
Open fractures

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- 2 probable
- 3 possible

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PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

Rock domains

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- RFM029

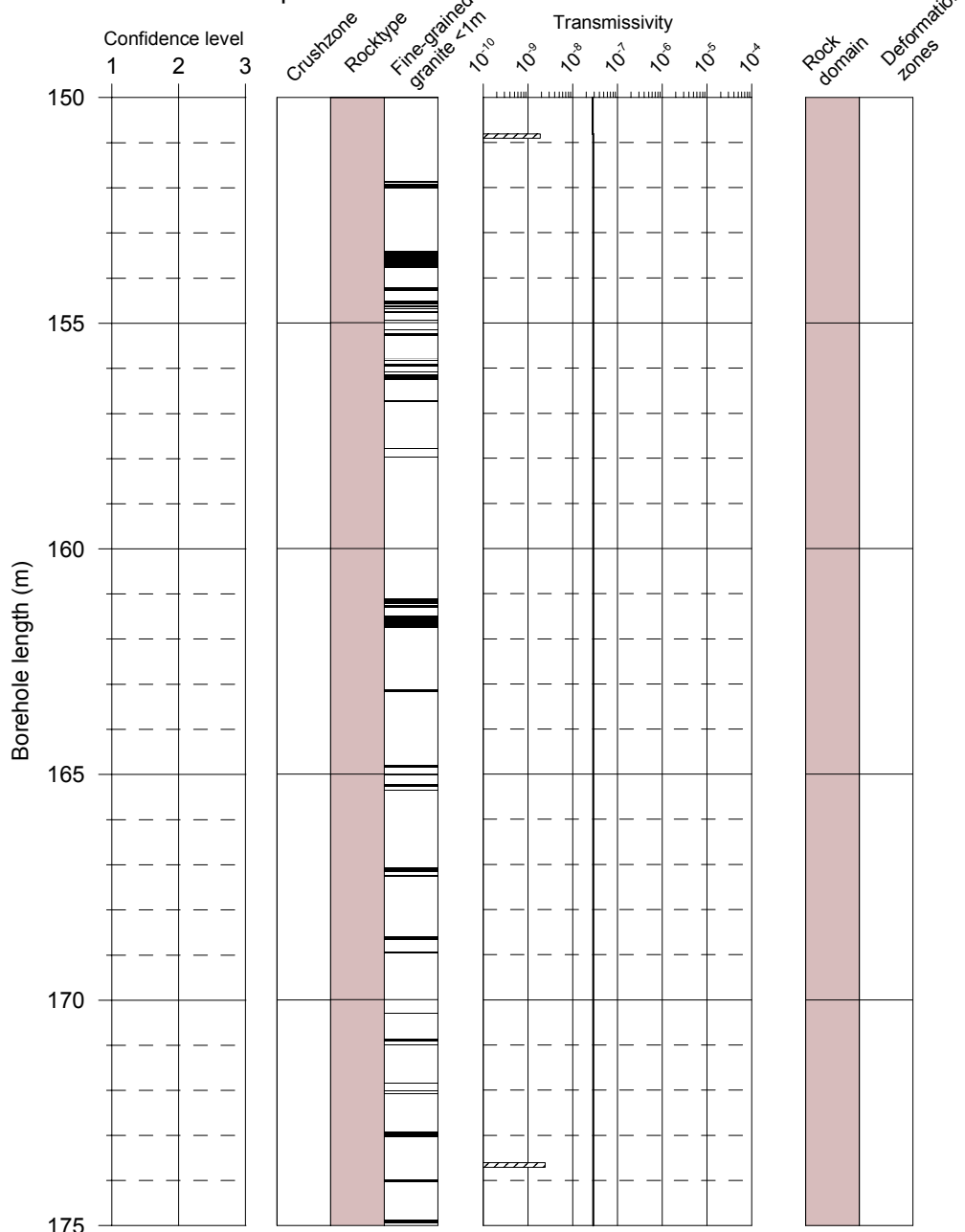
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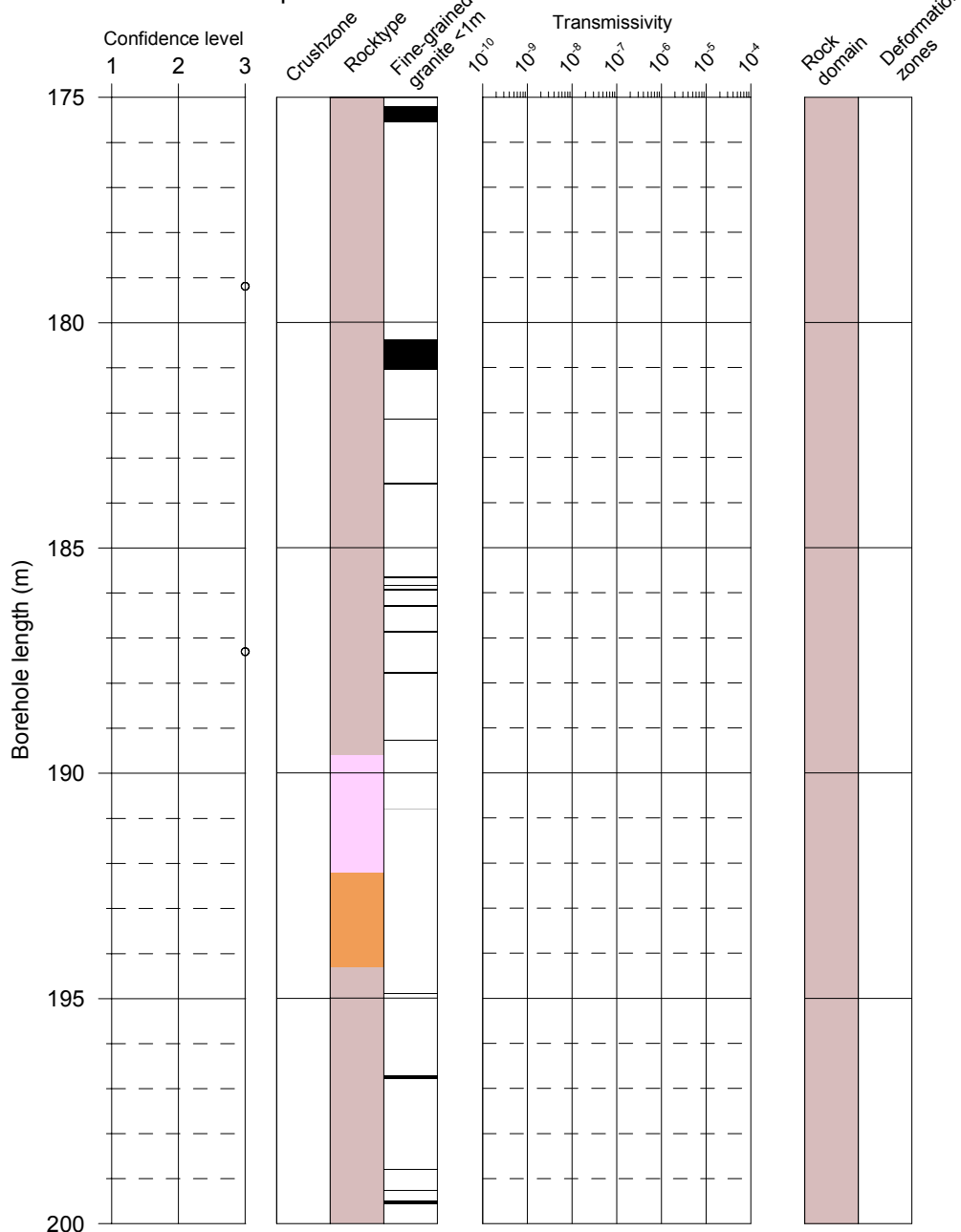
Deformation zones

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KFM03A

Boremap

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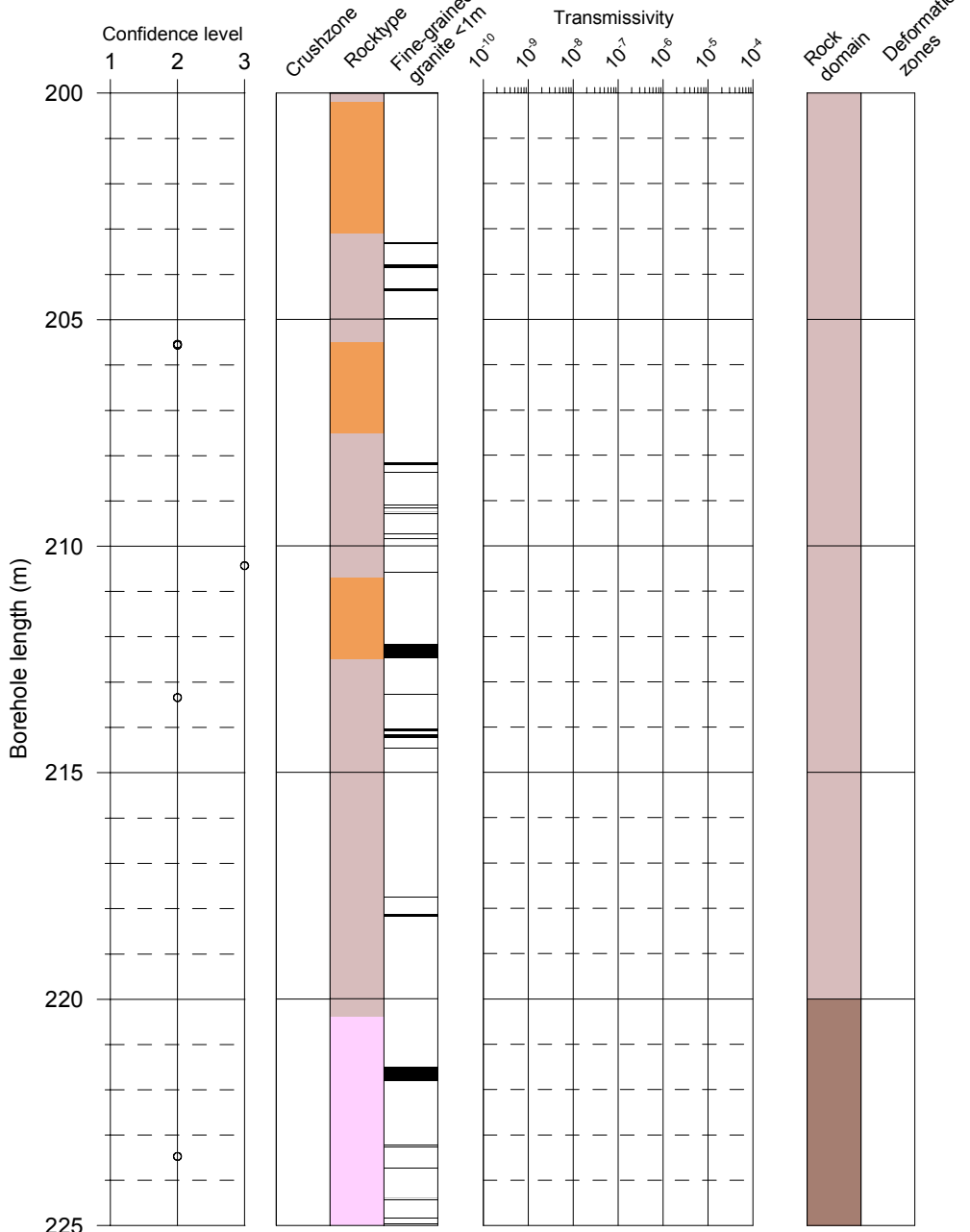
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Deformation zones

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KFM03A Boremap

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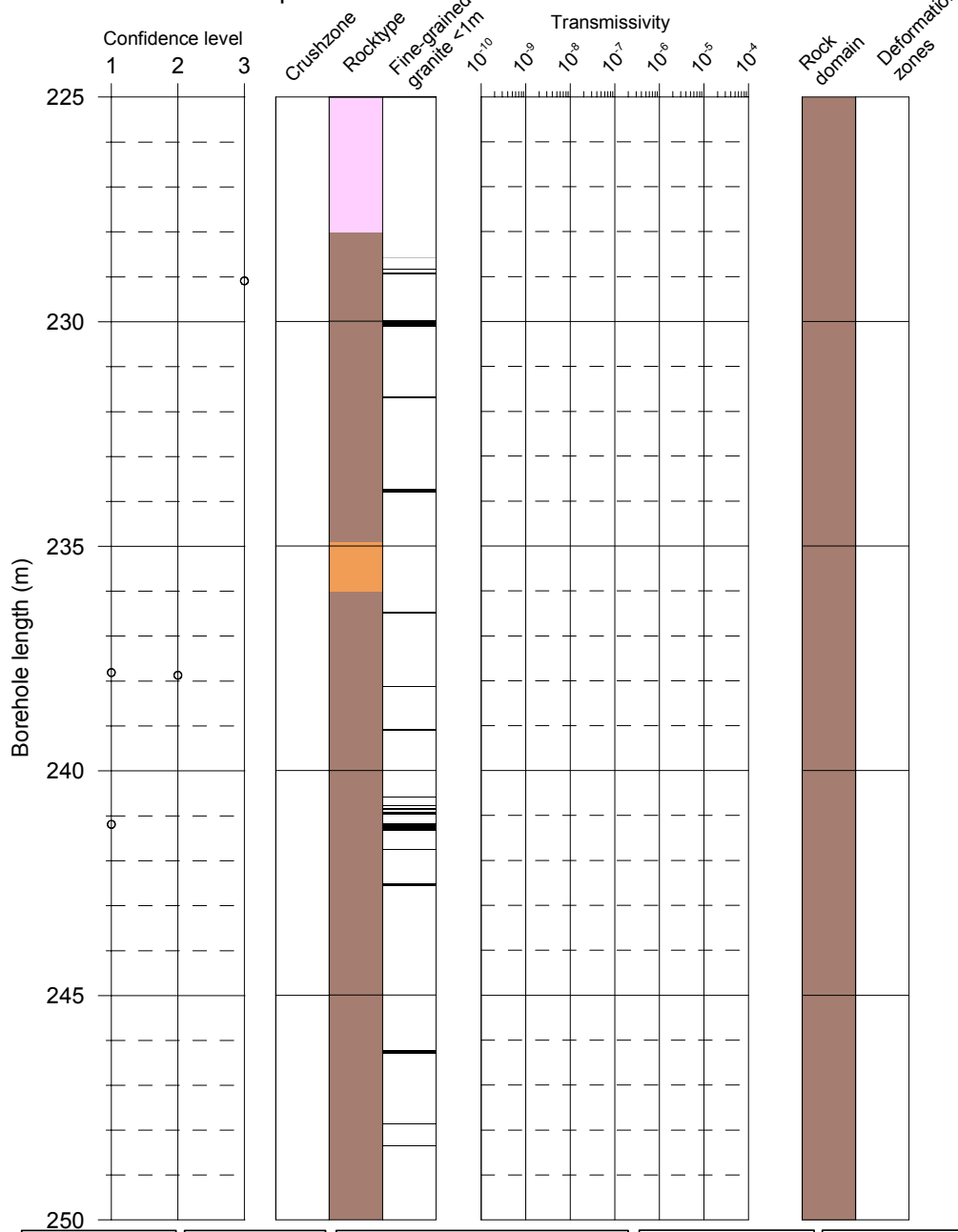
Rock domains
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Deformation zones
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KFM03A

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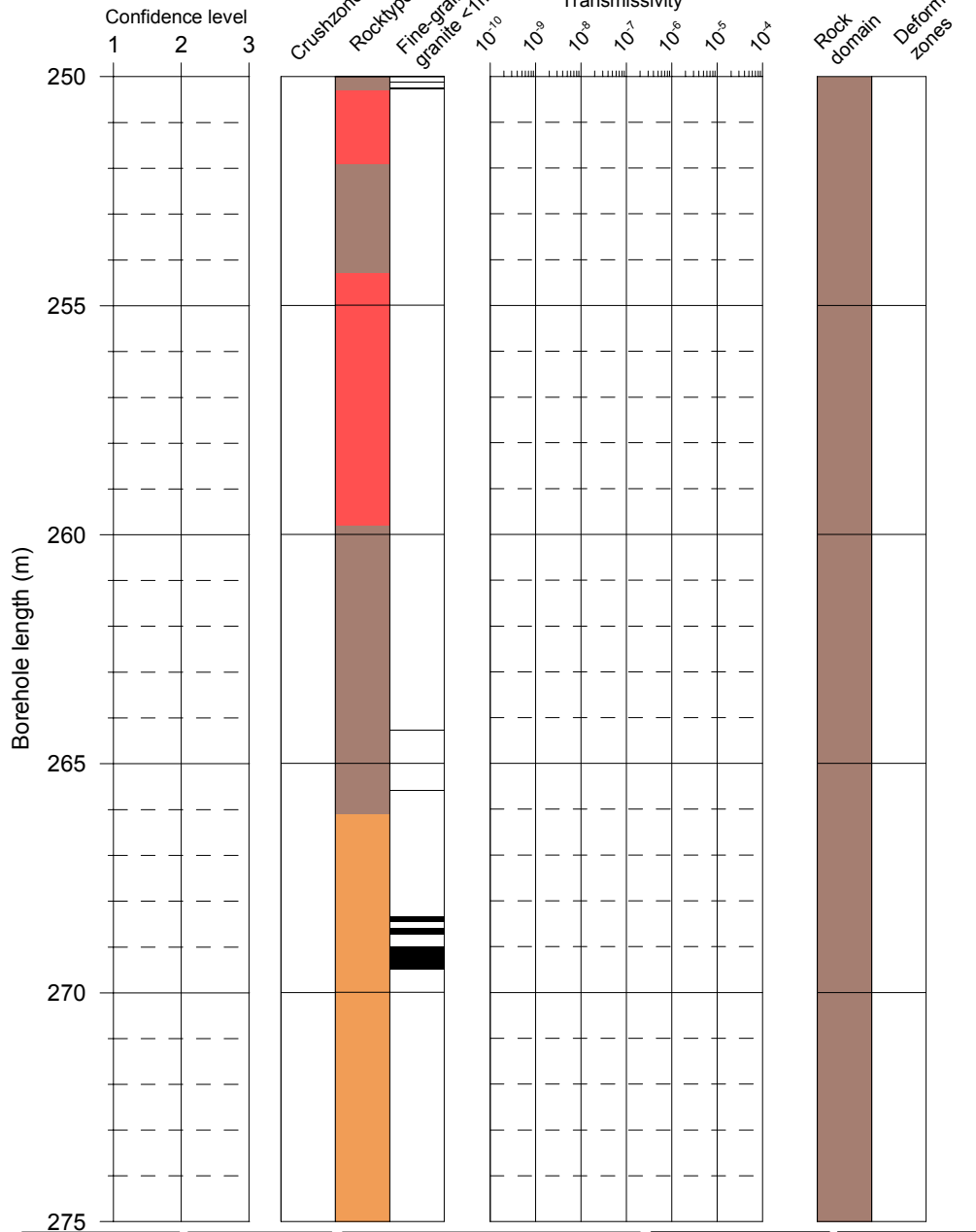
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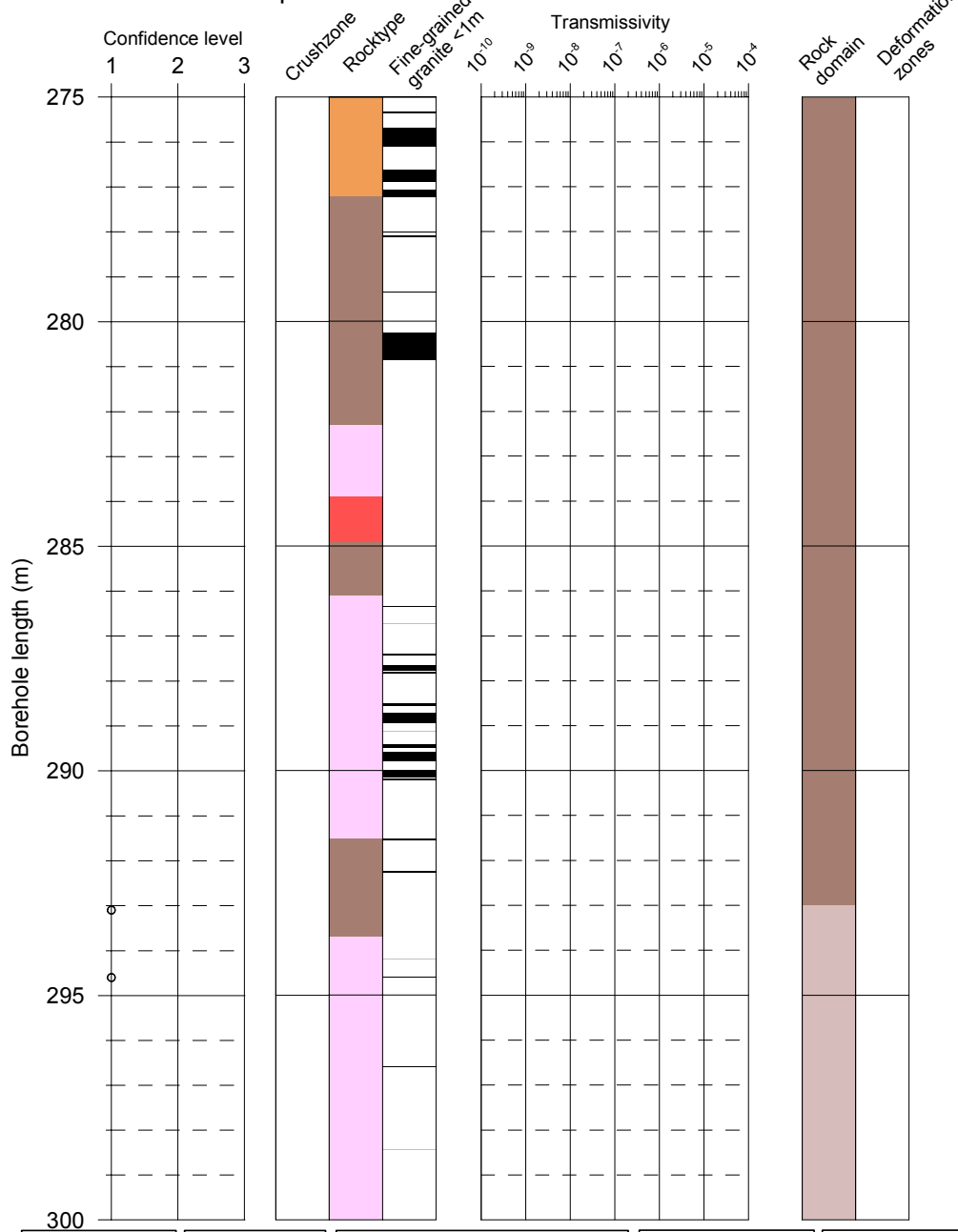
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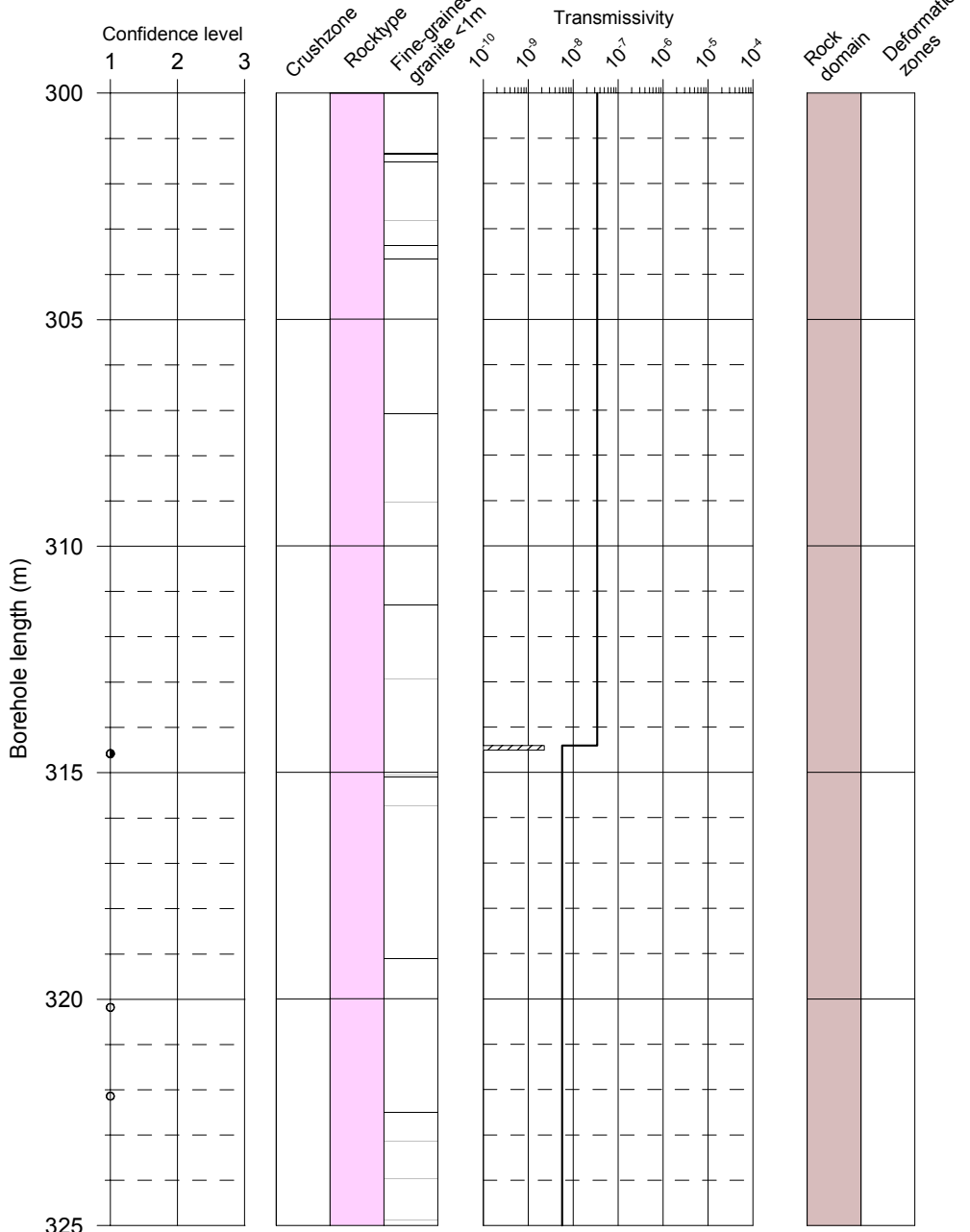
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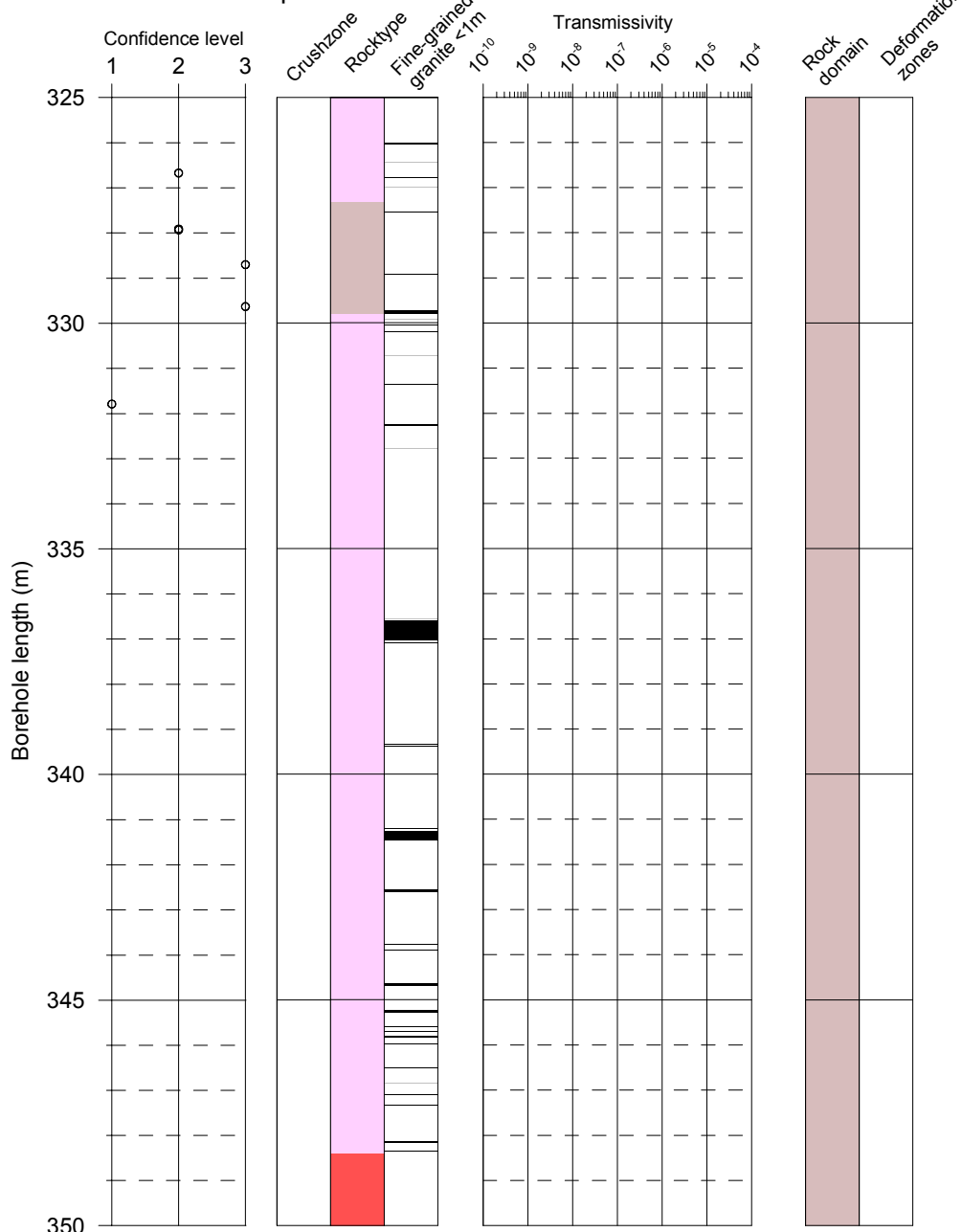
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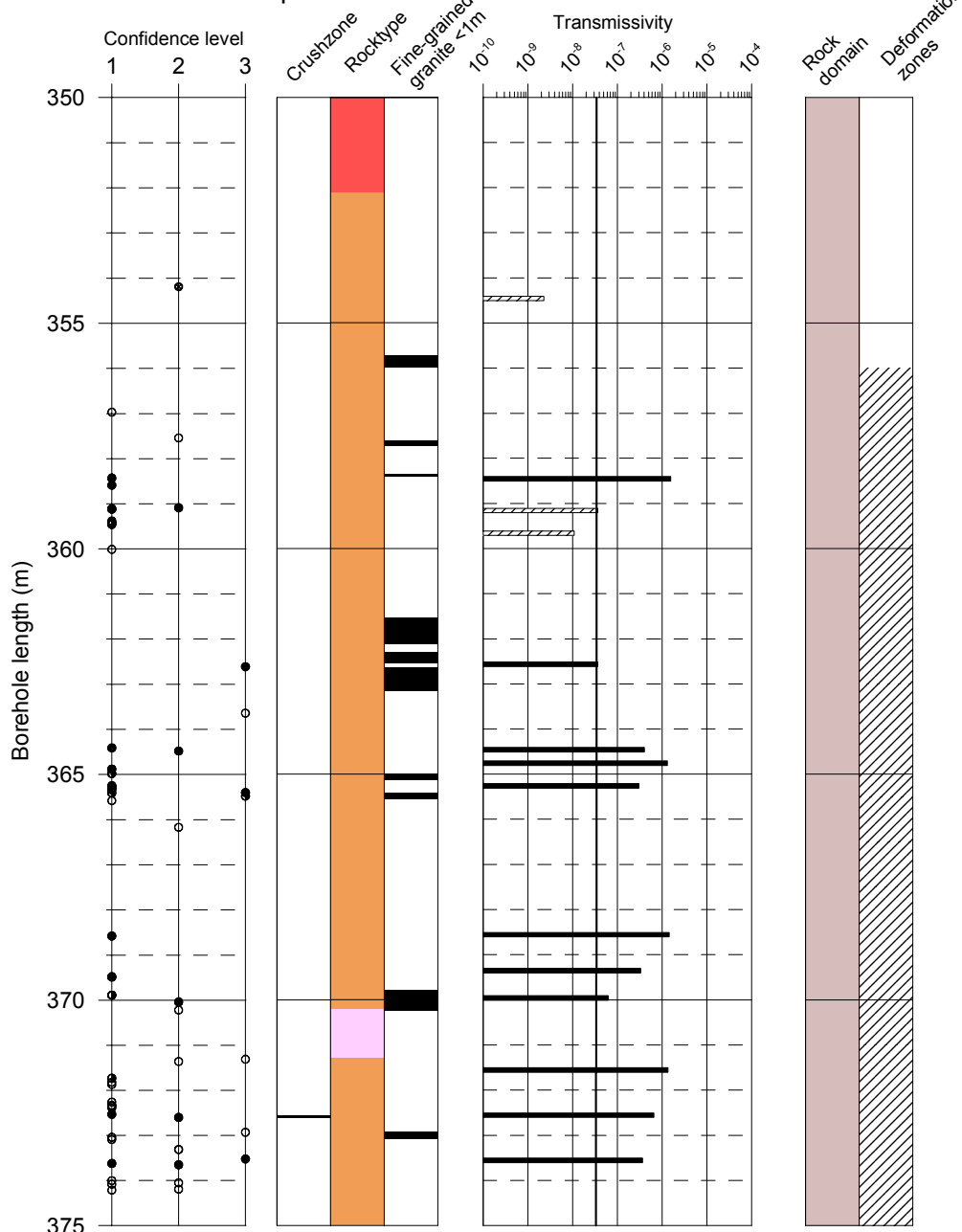
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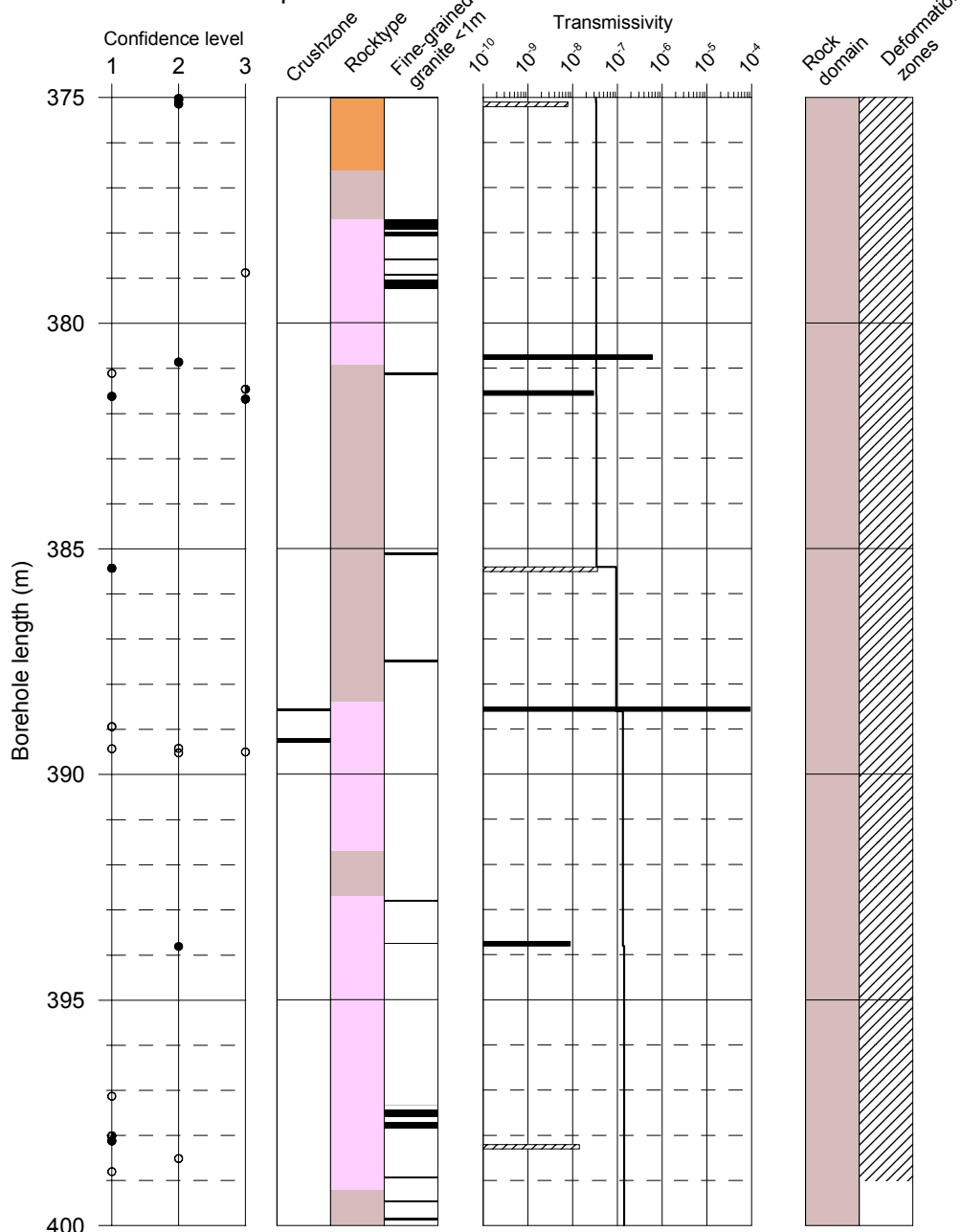
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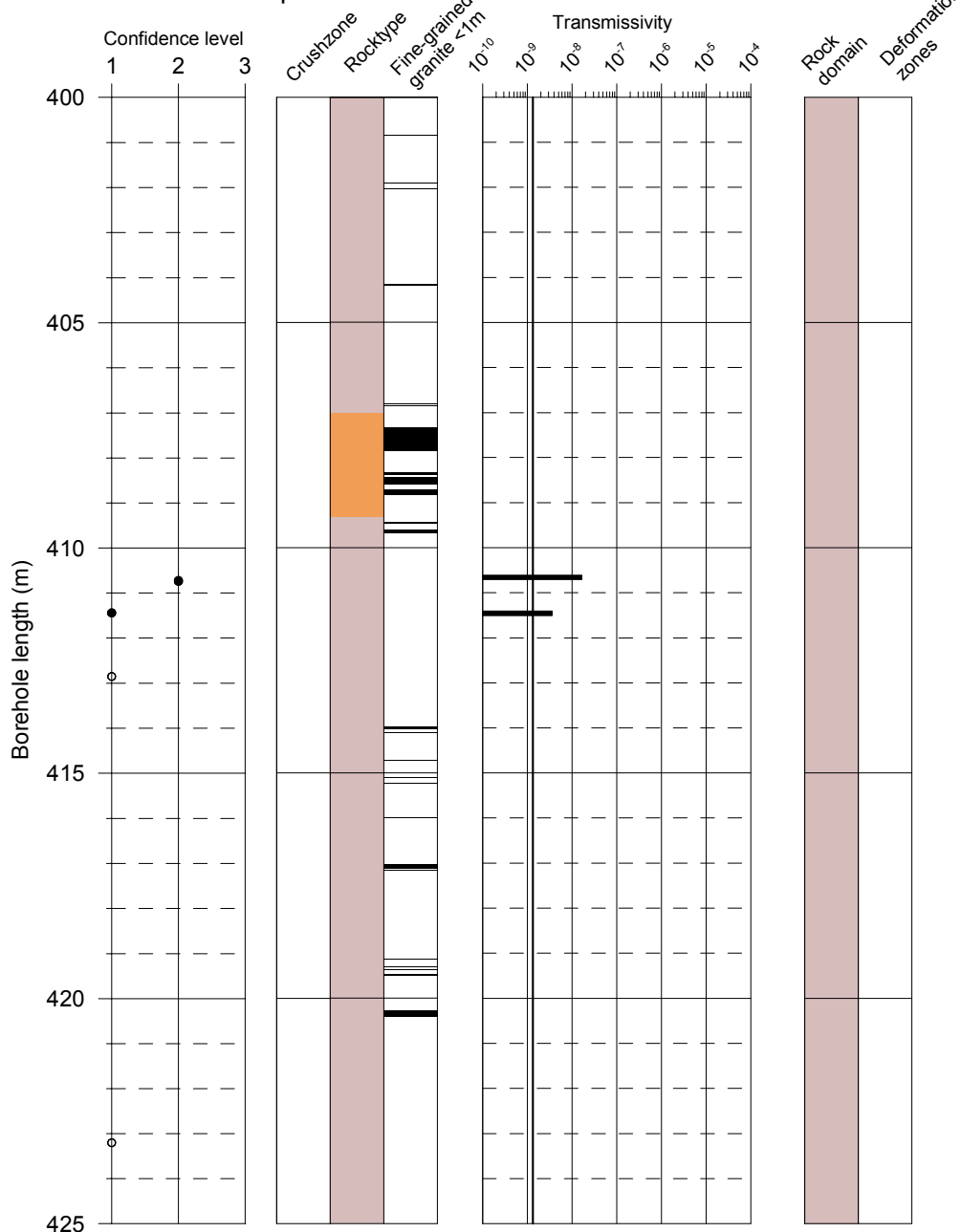
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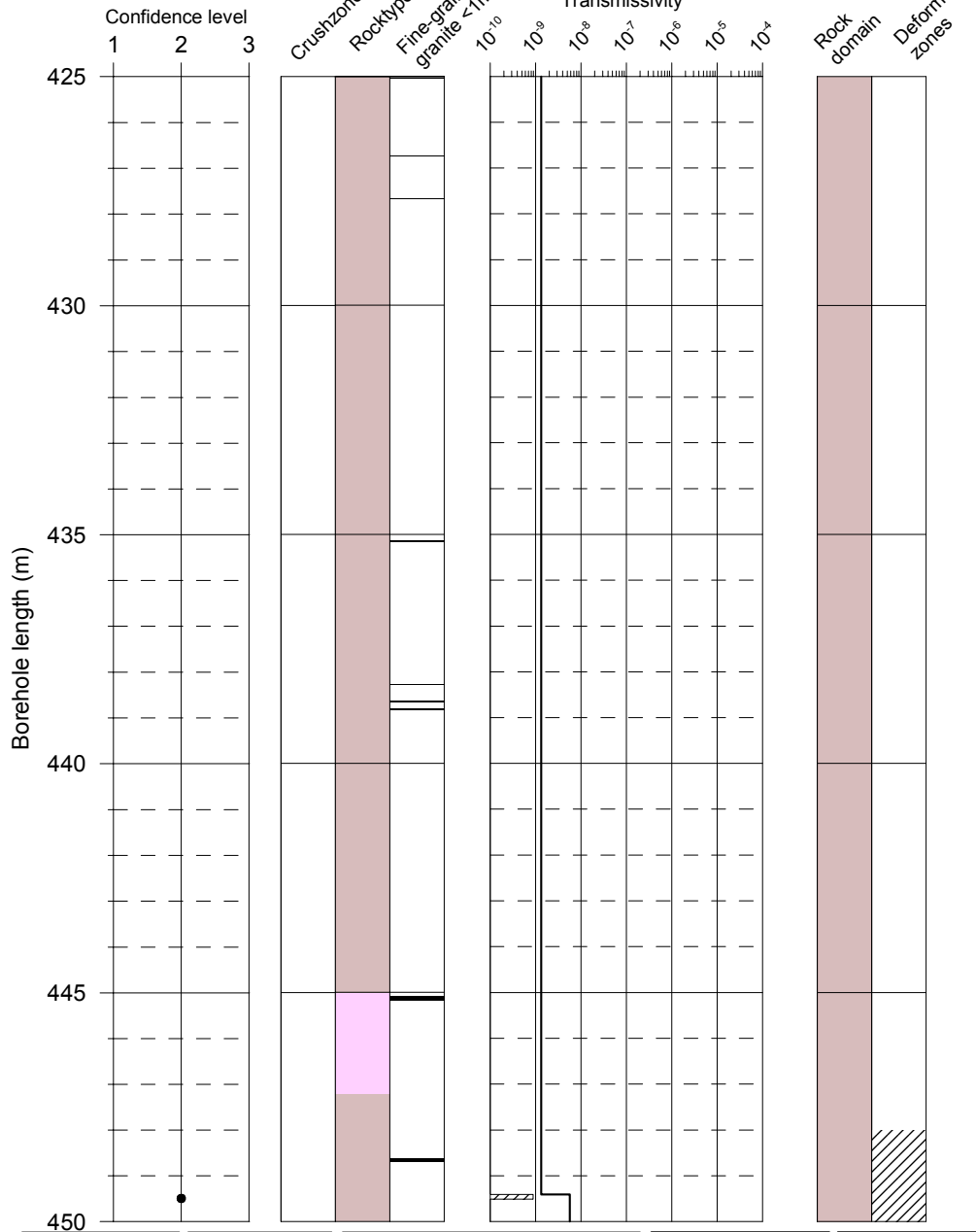
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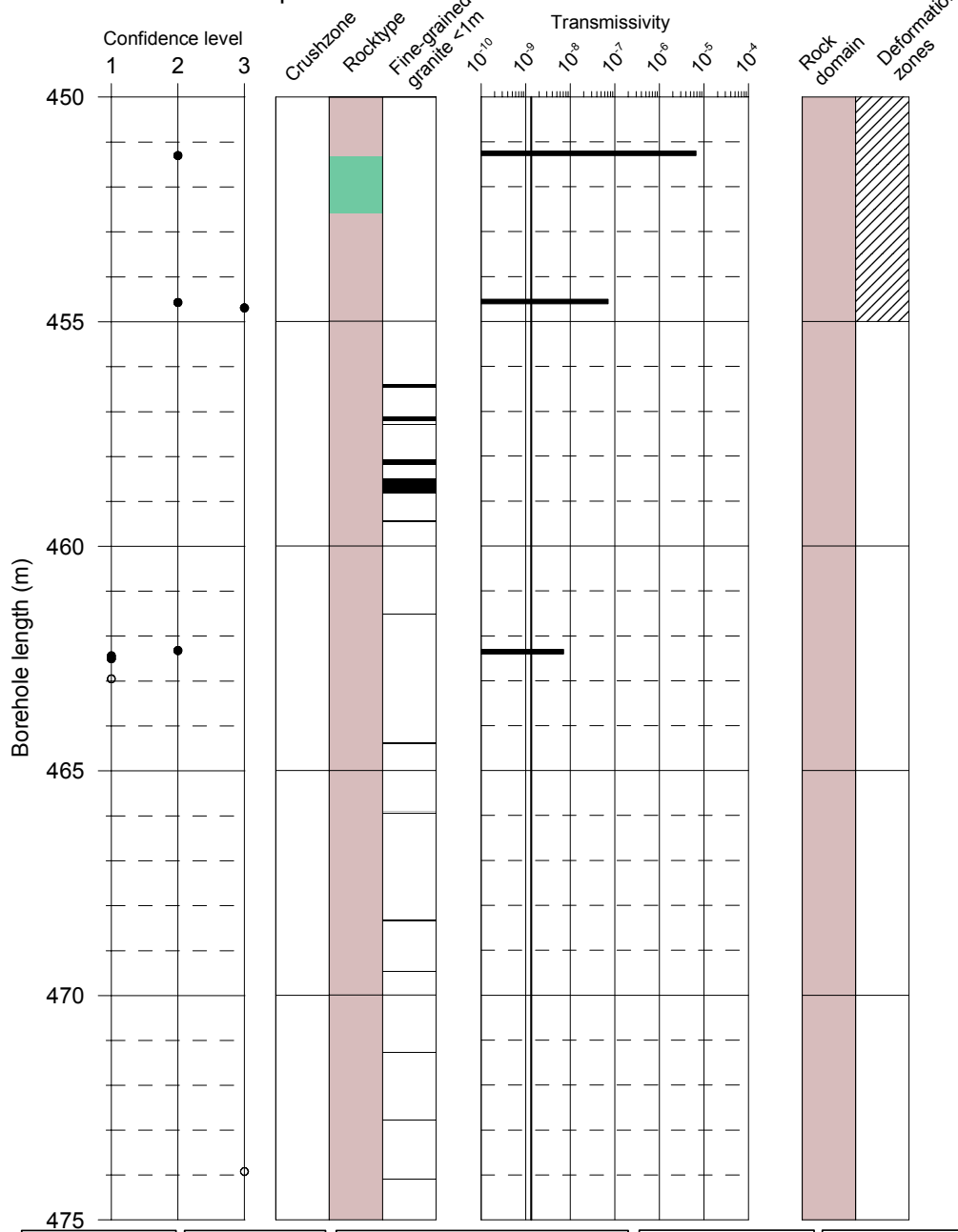
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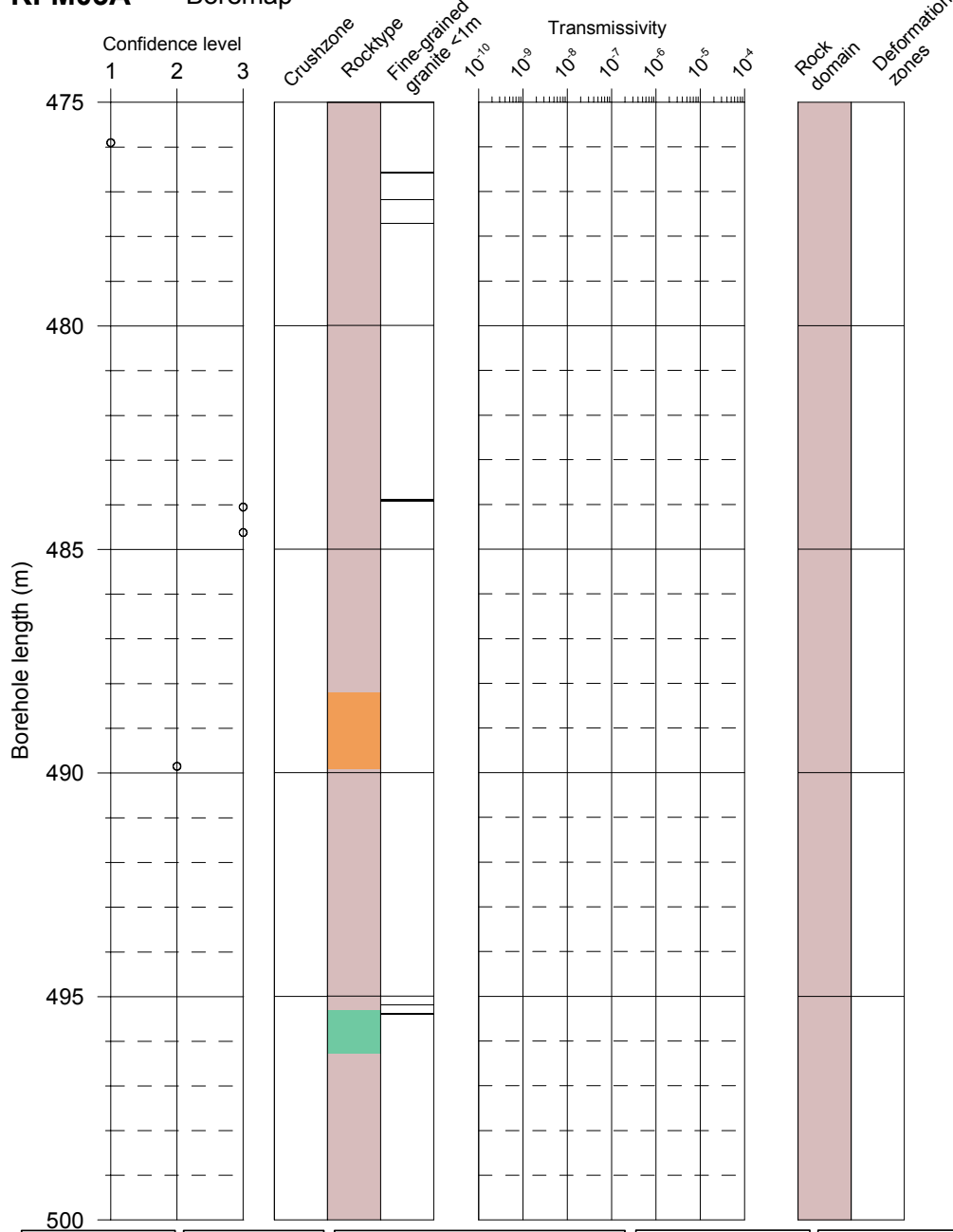
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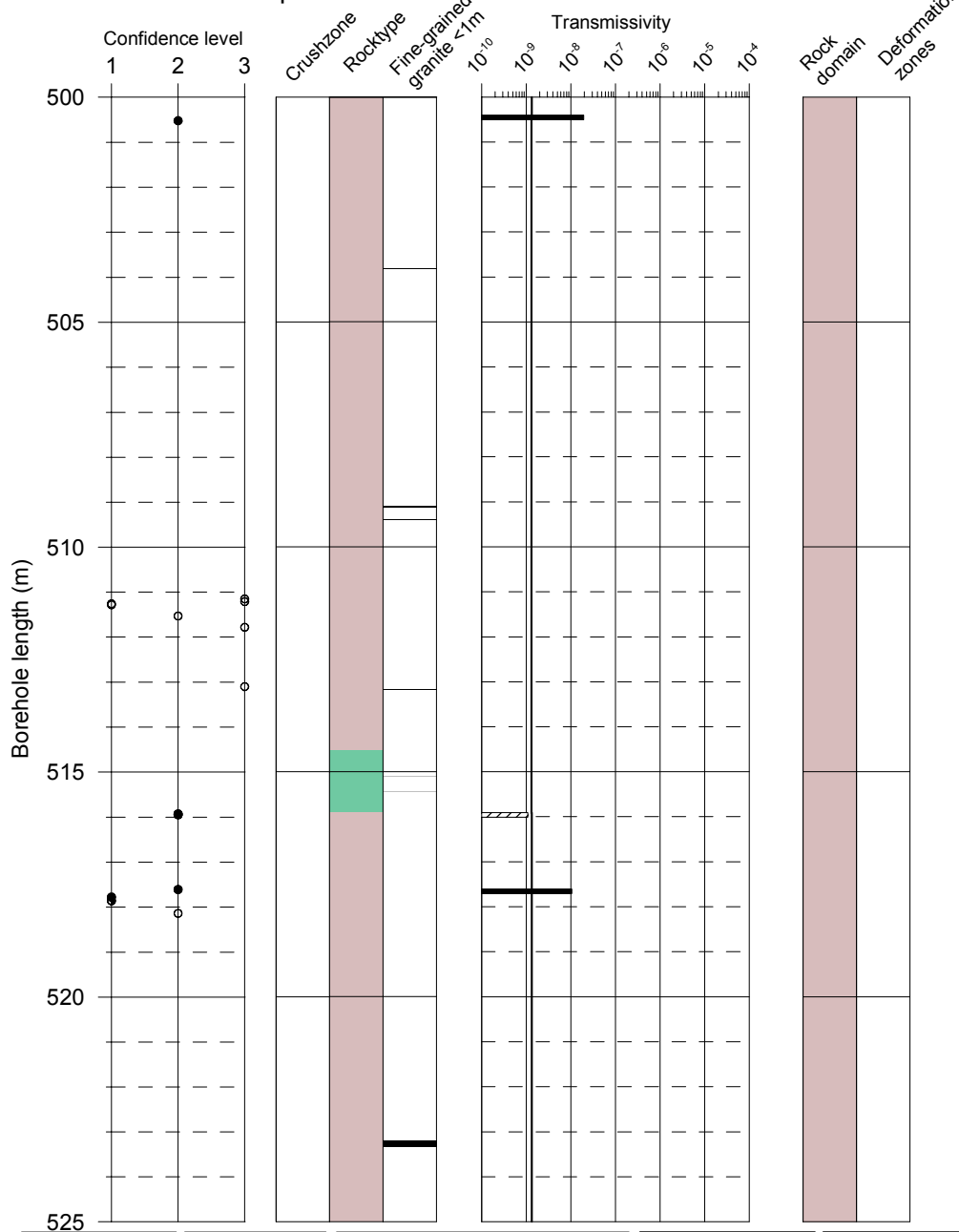
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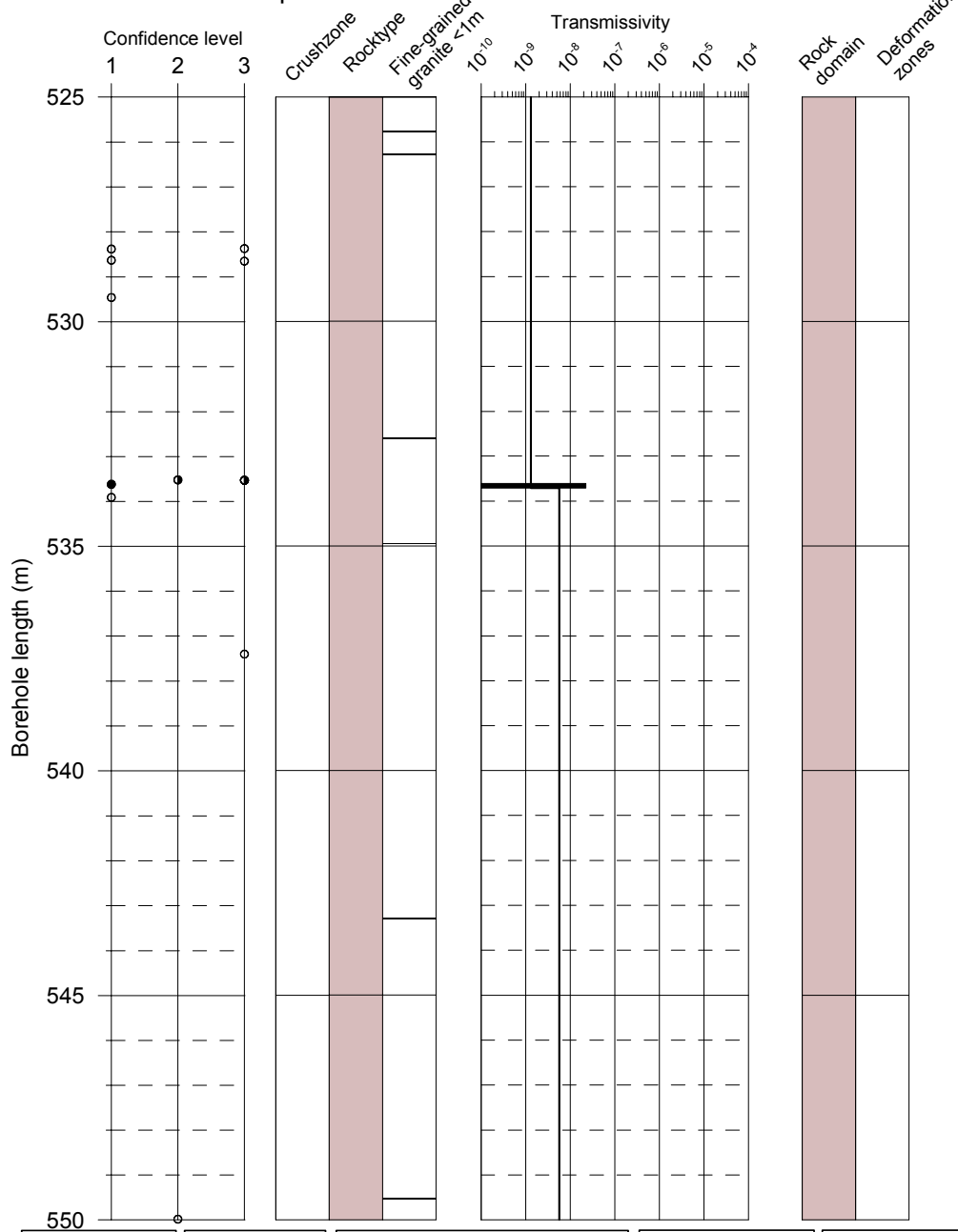
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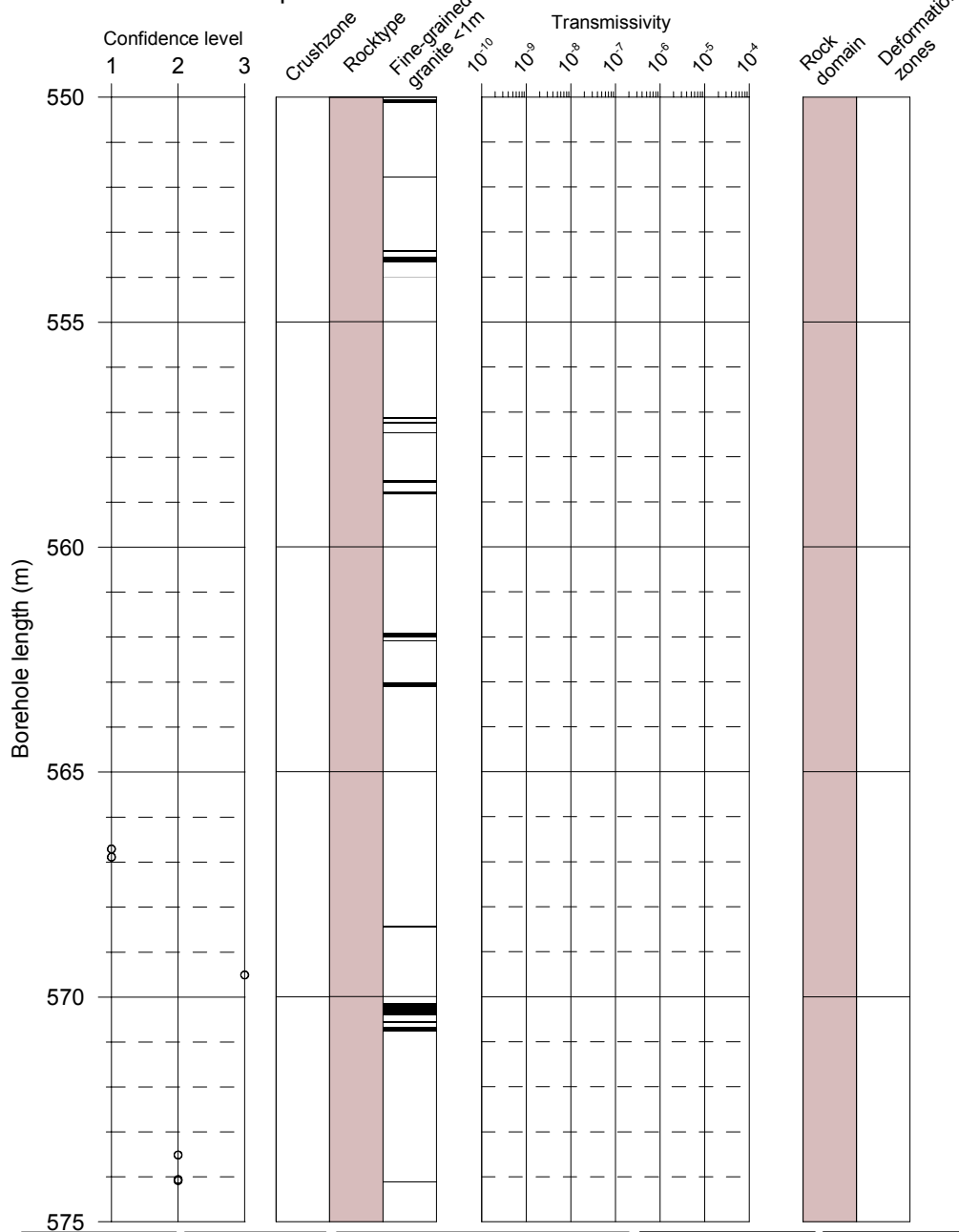
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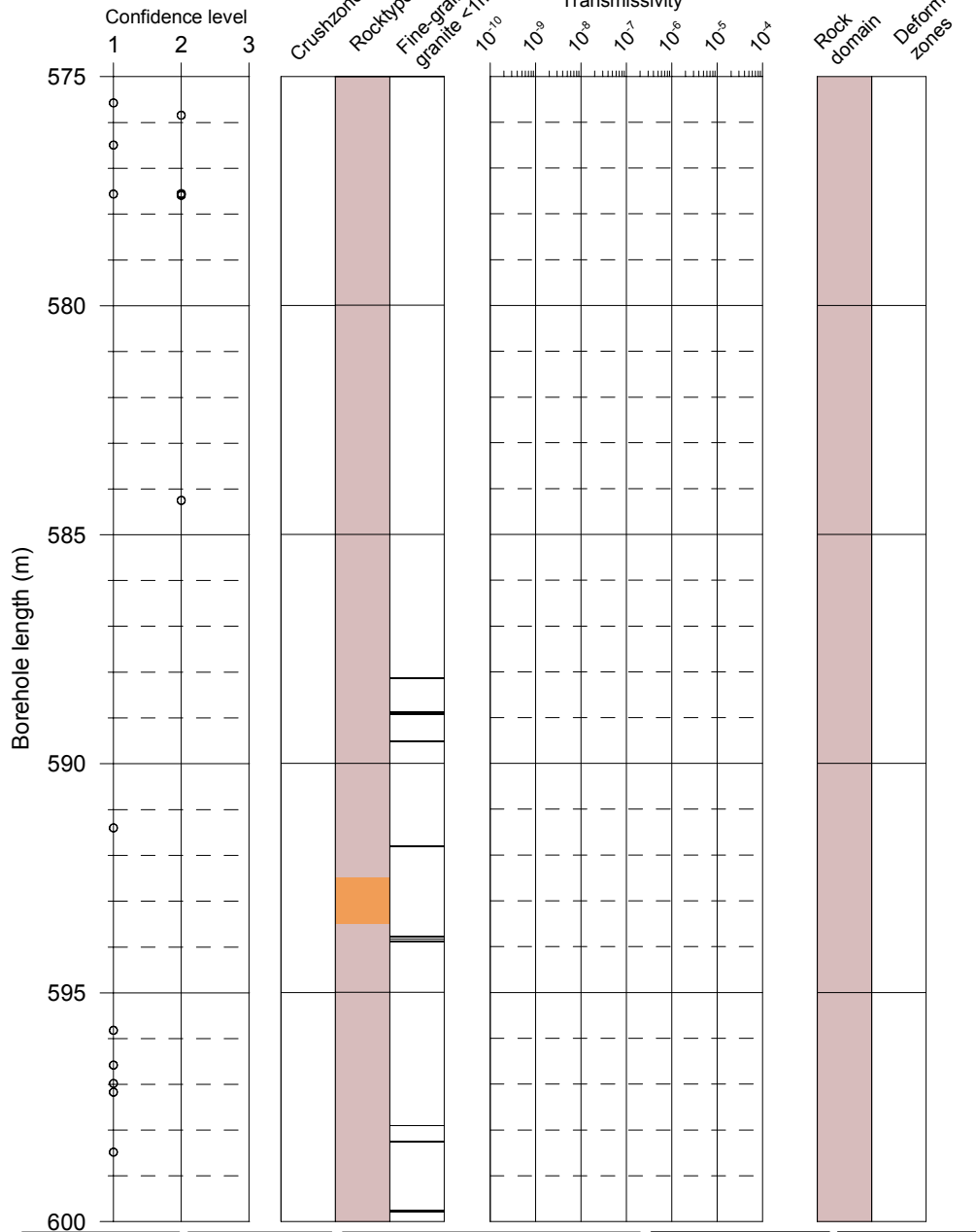
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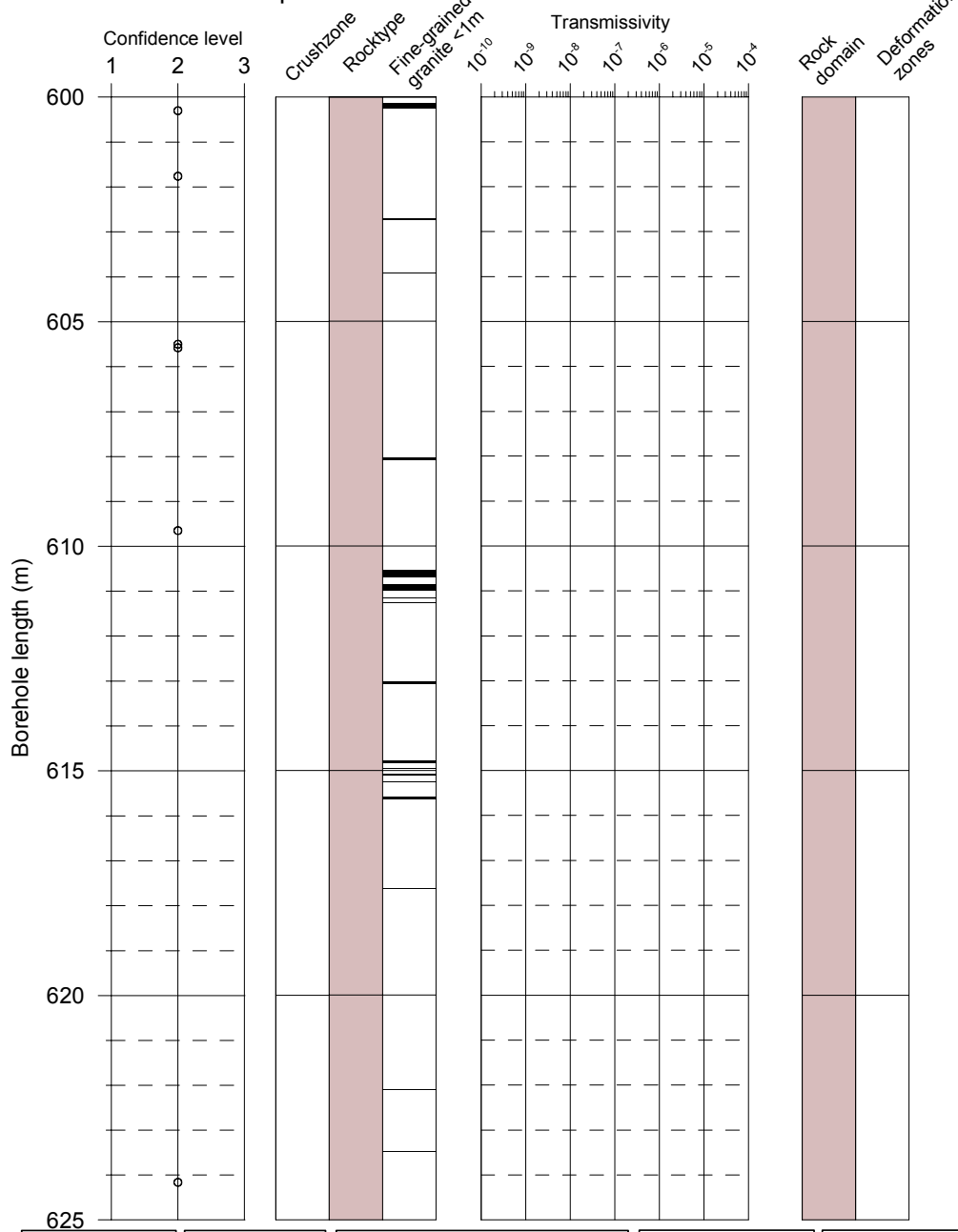
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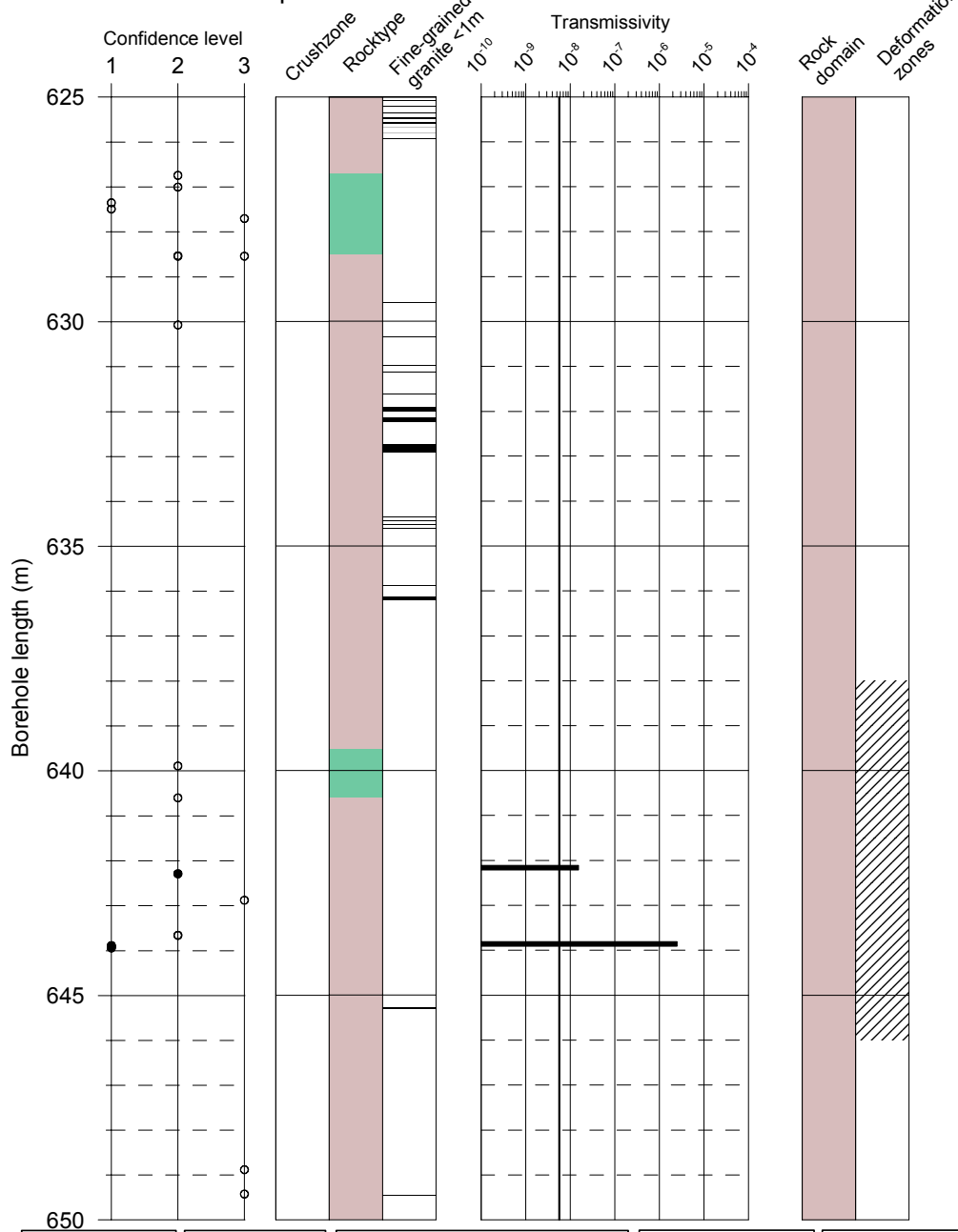
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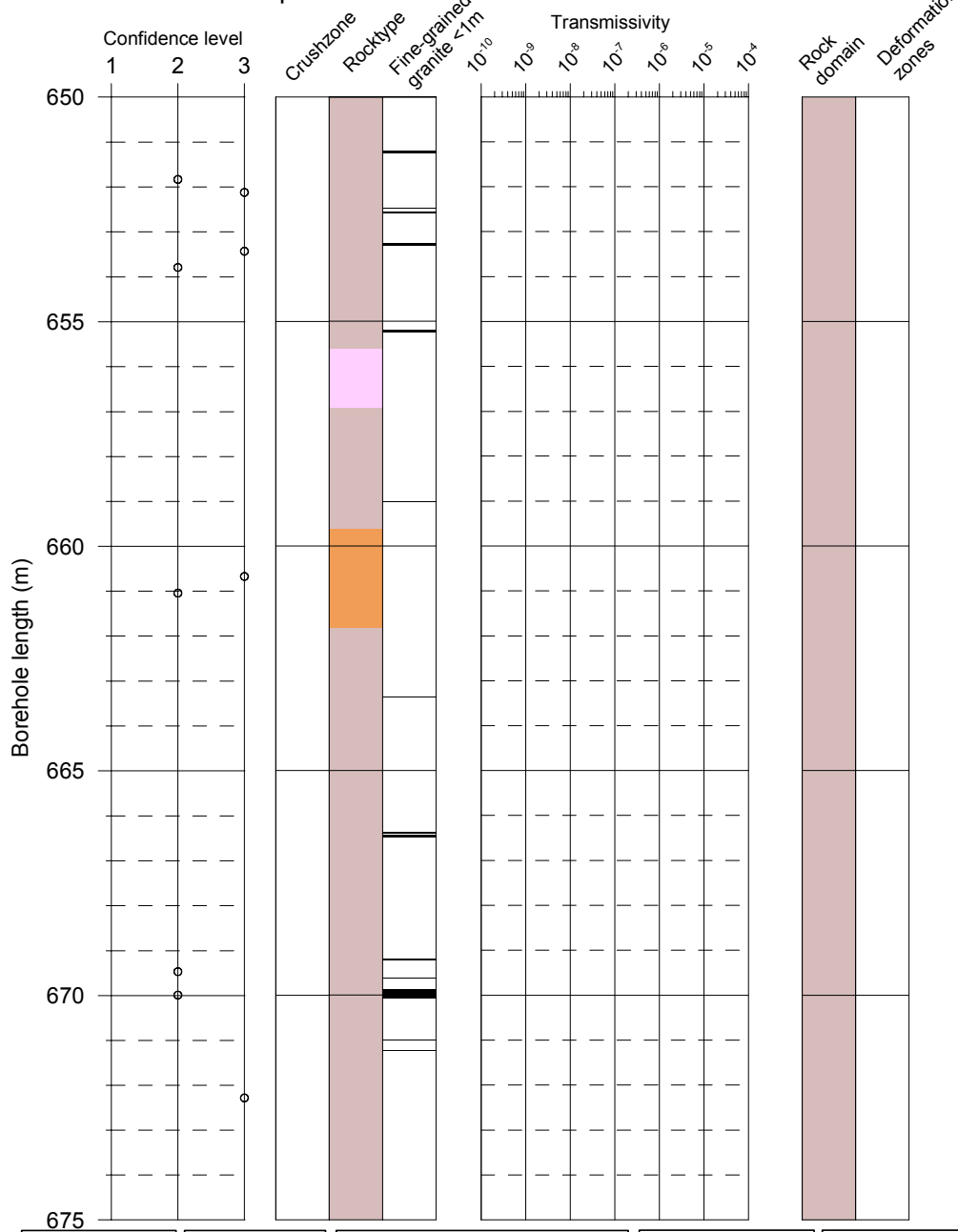
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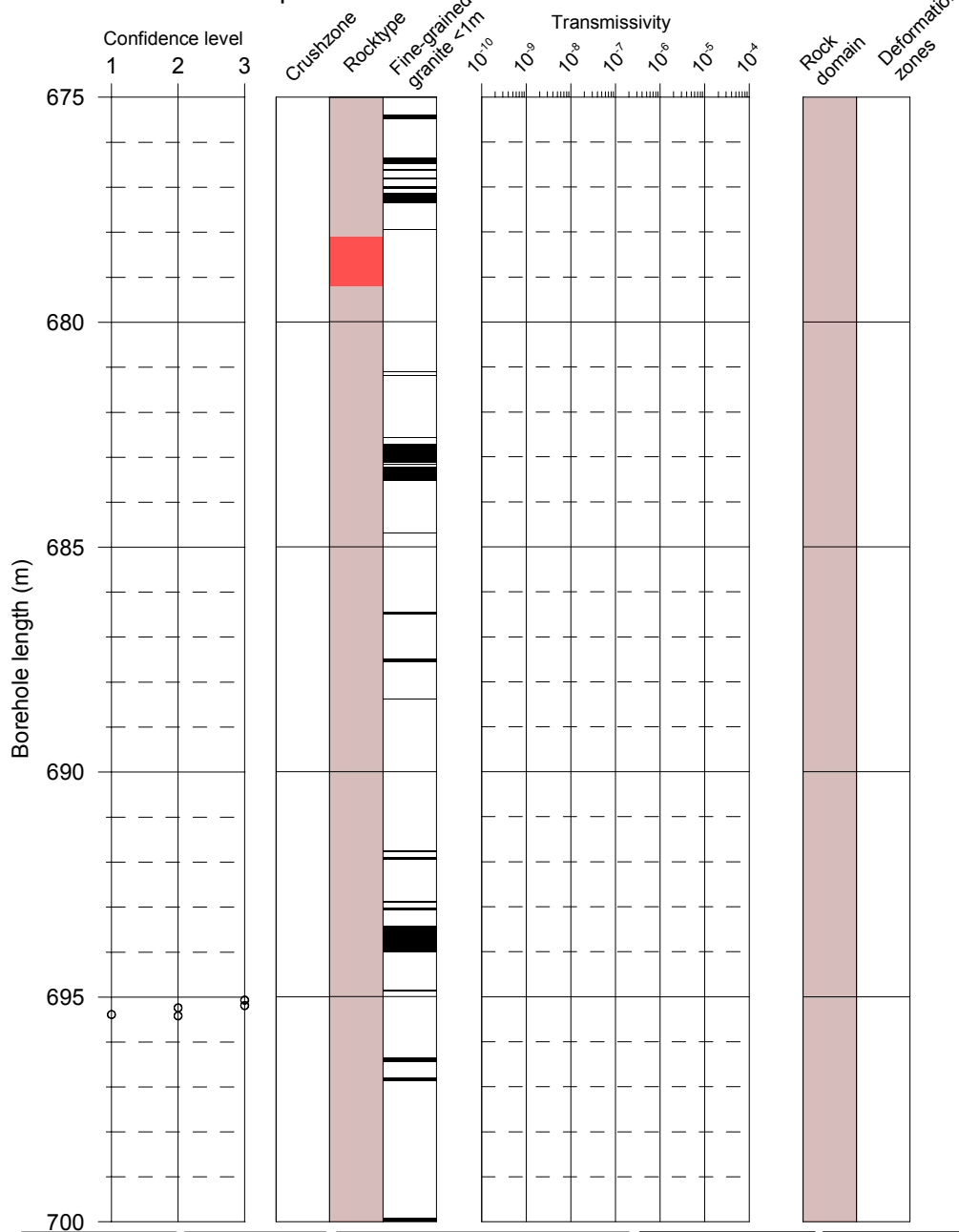
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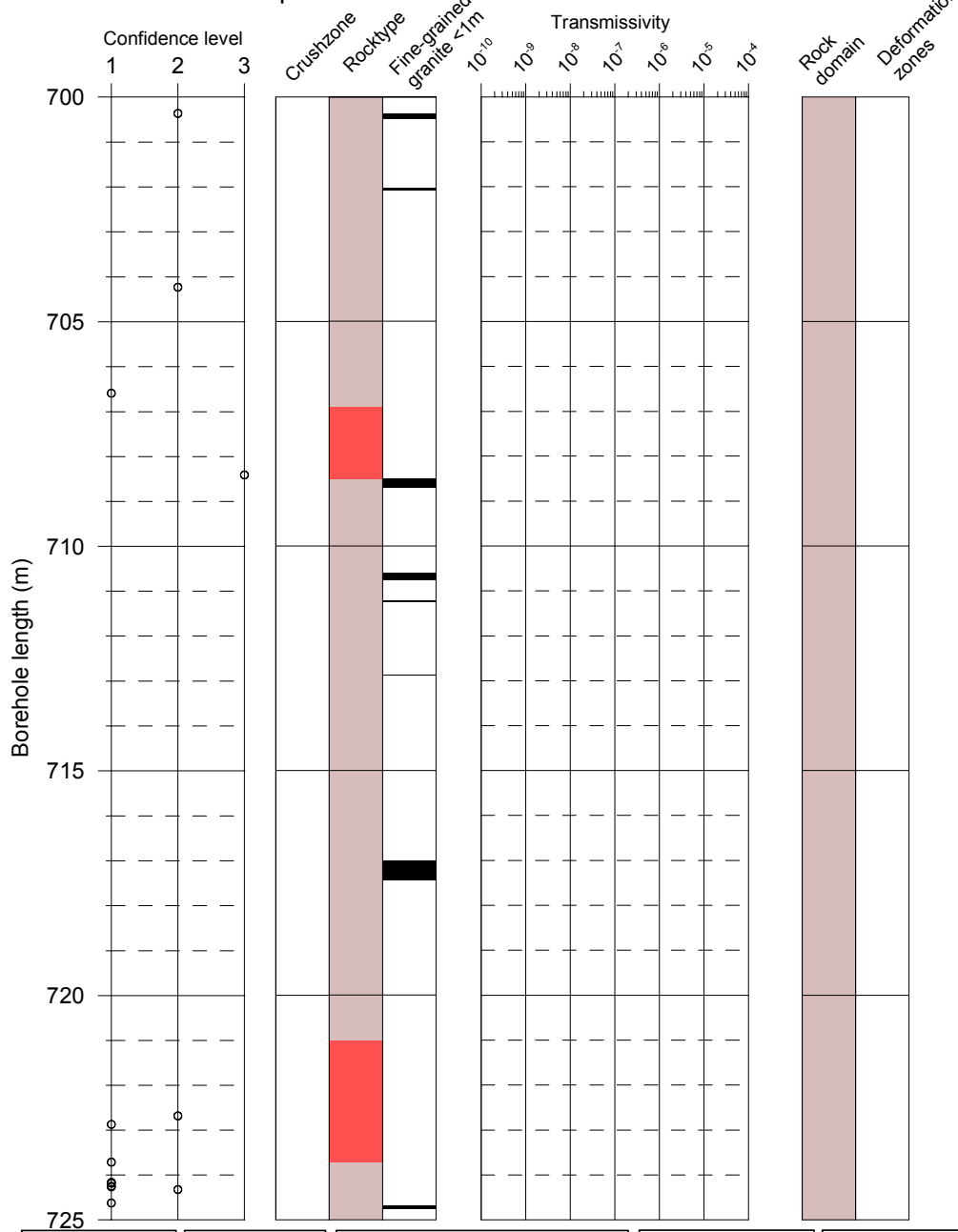
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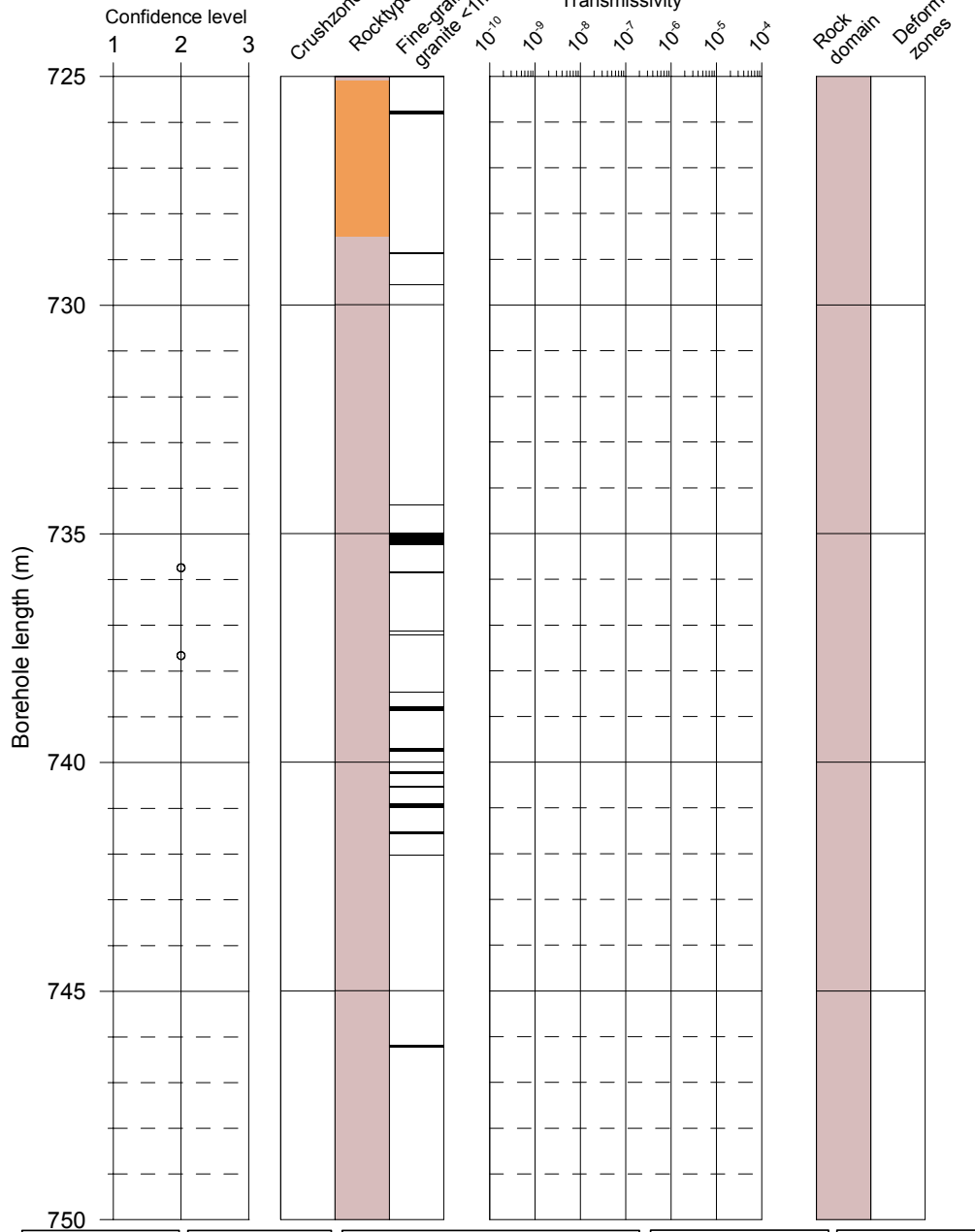
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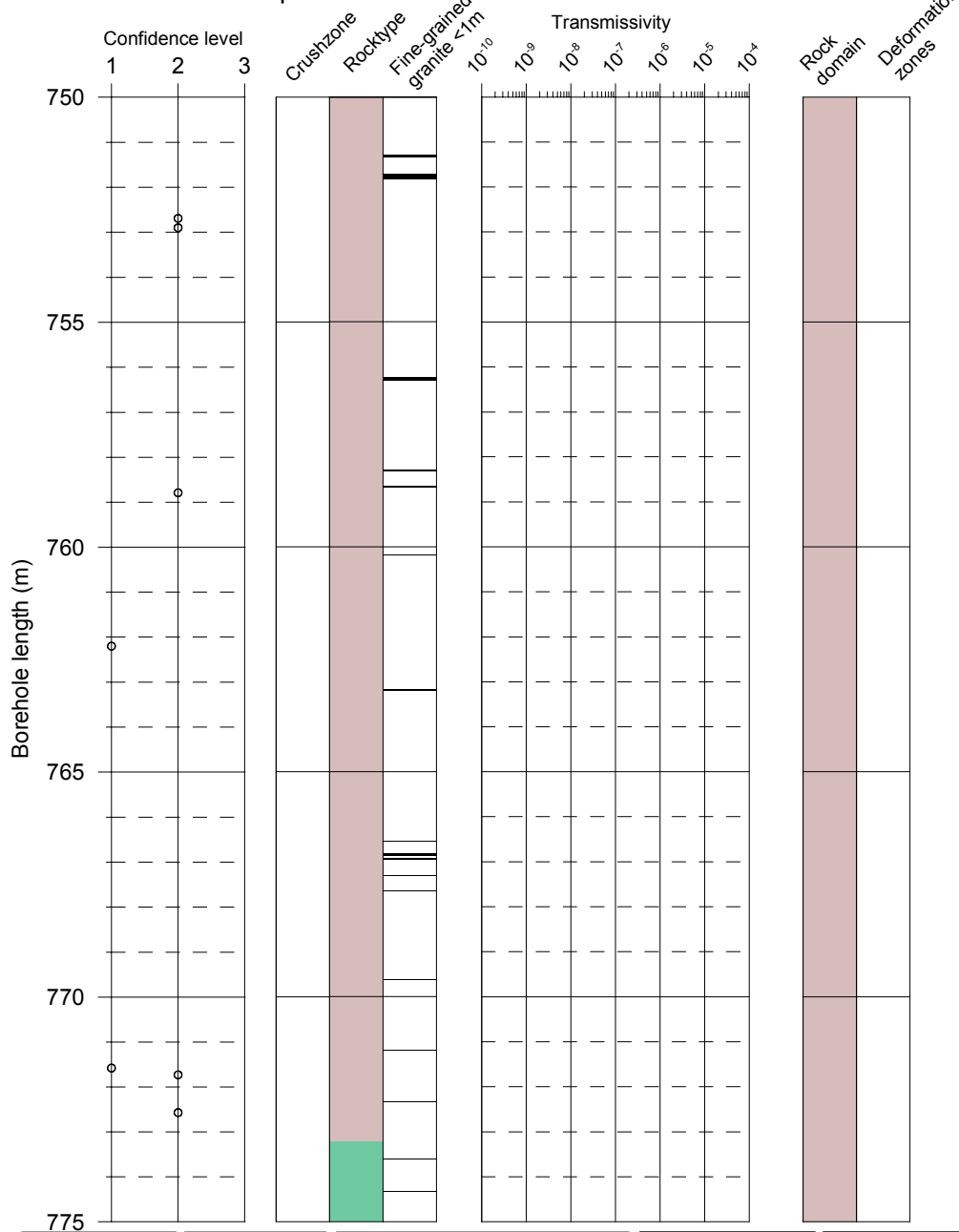
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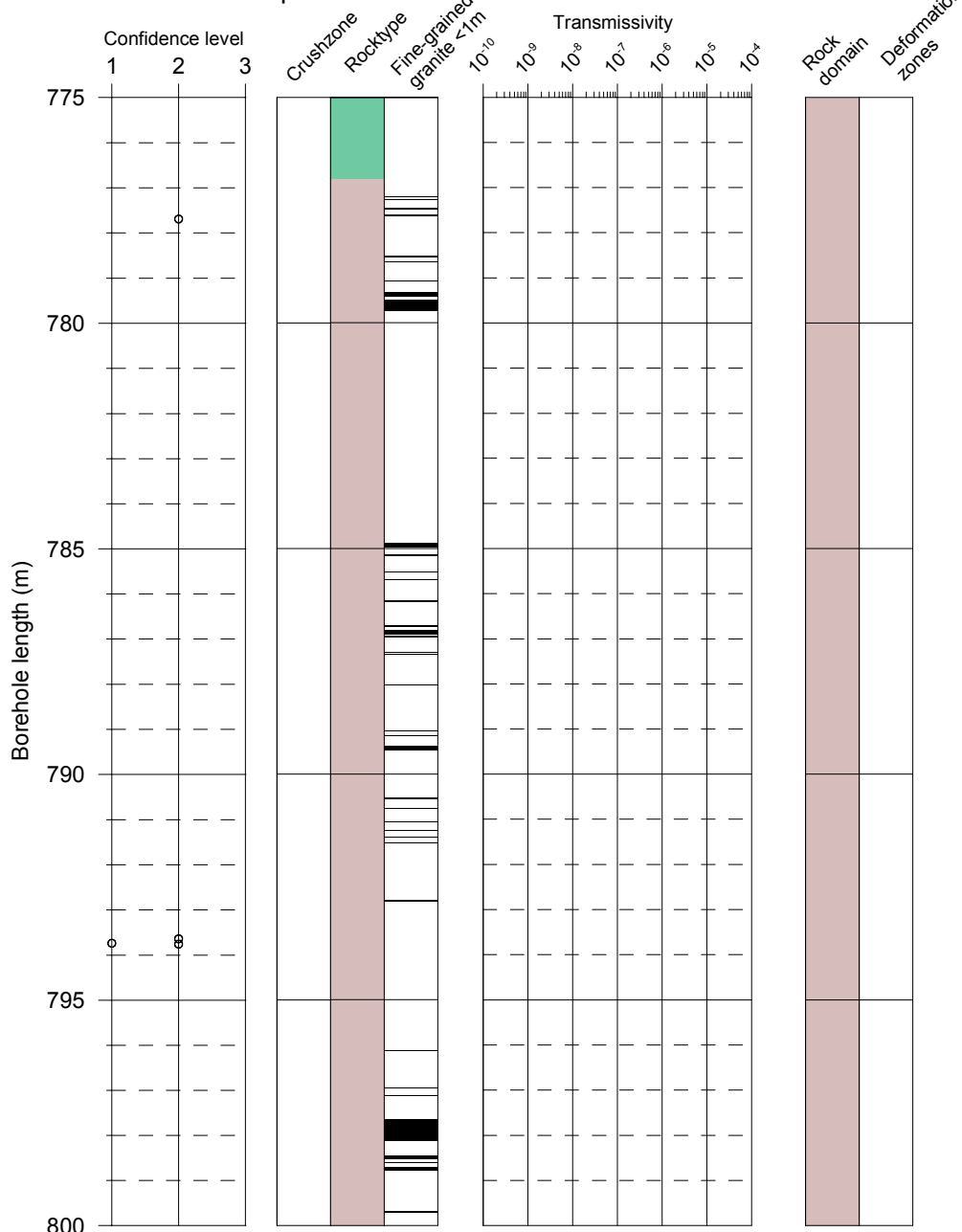
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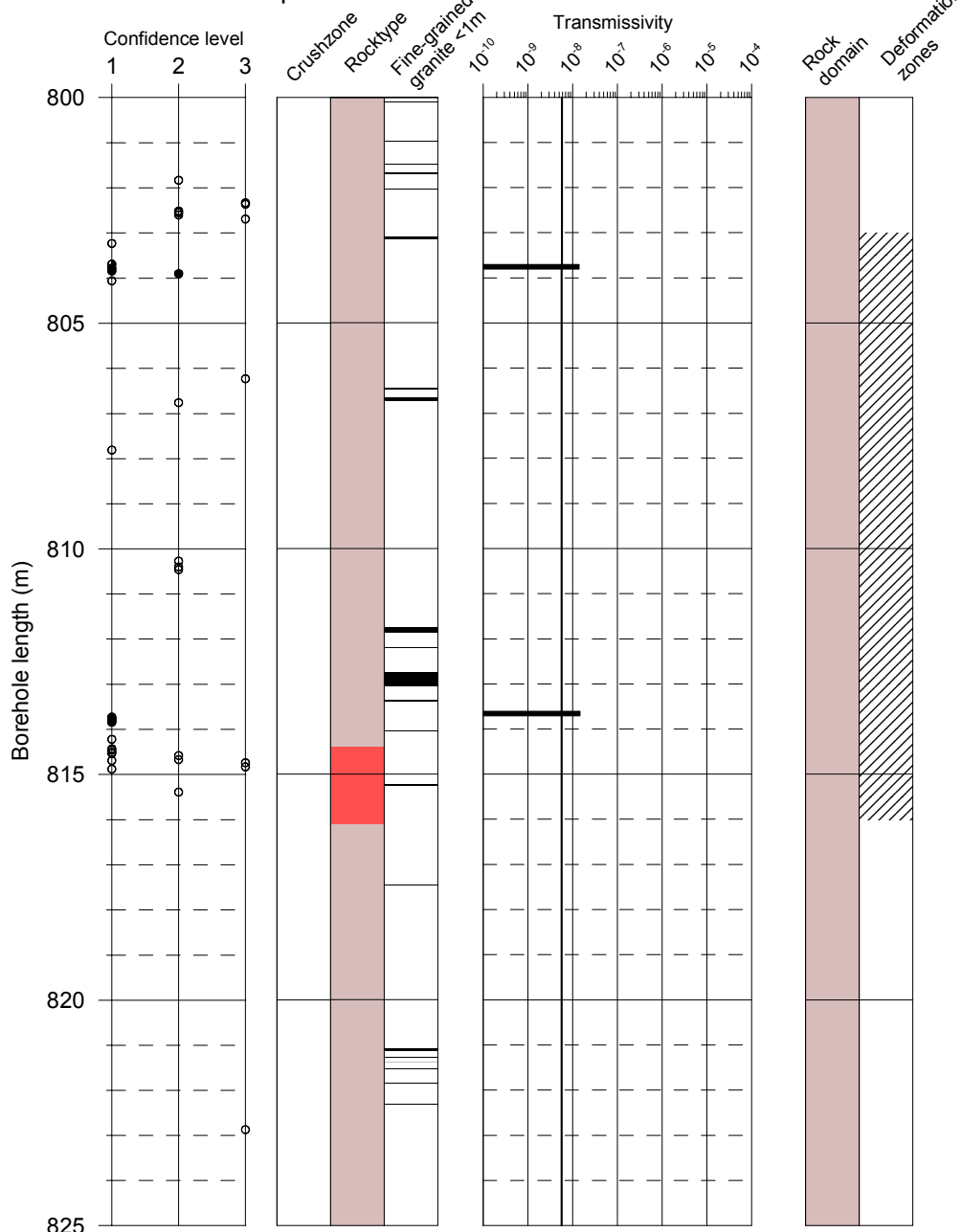
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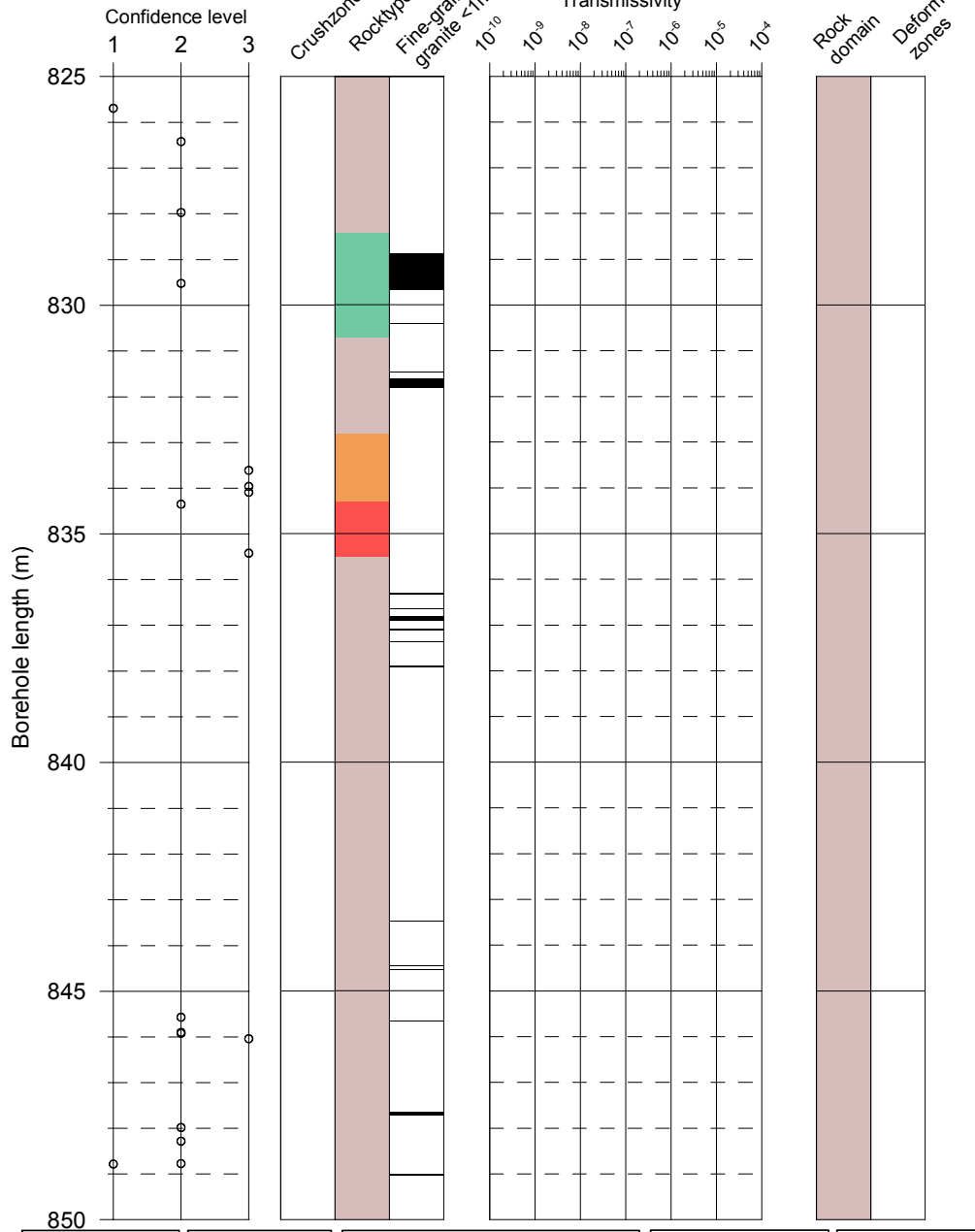
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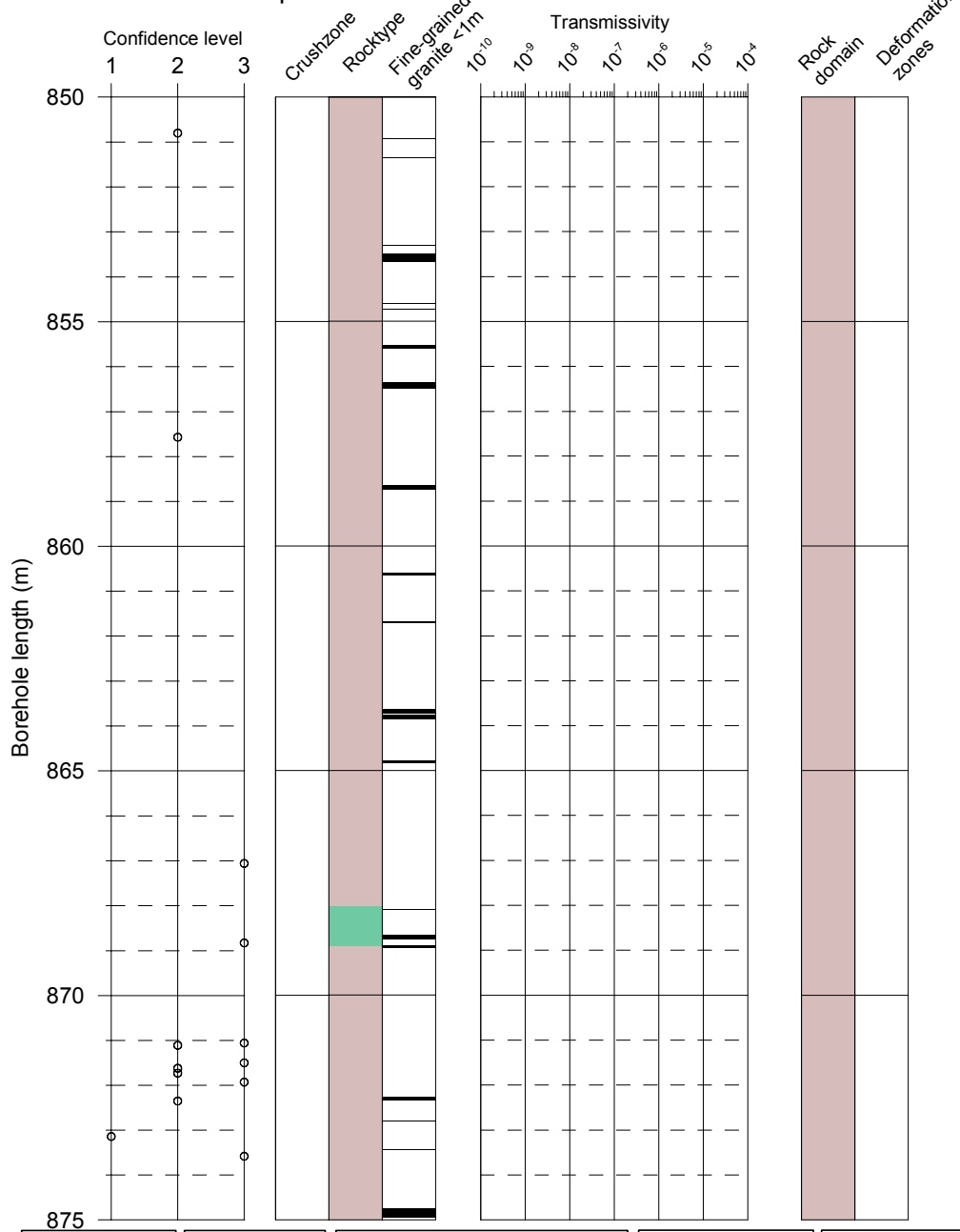
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■ Granite to granodiorite
■ Amphibolite
■ Tonalite to granodiorite

PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

Rock domains

- RFM017
- RFM029

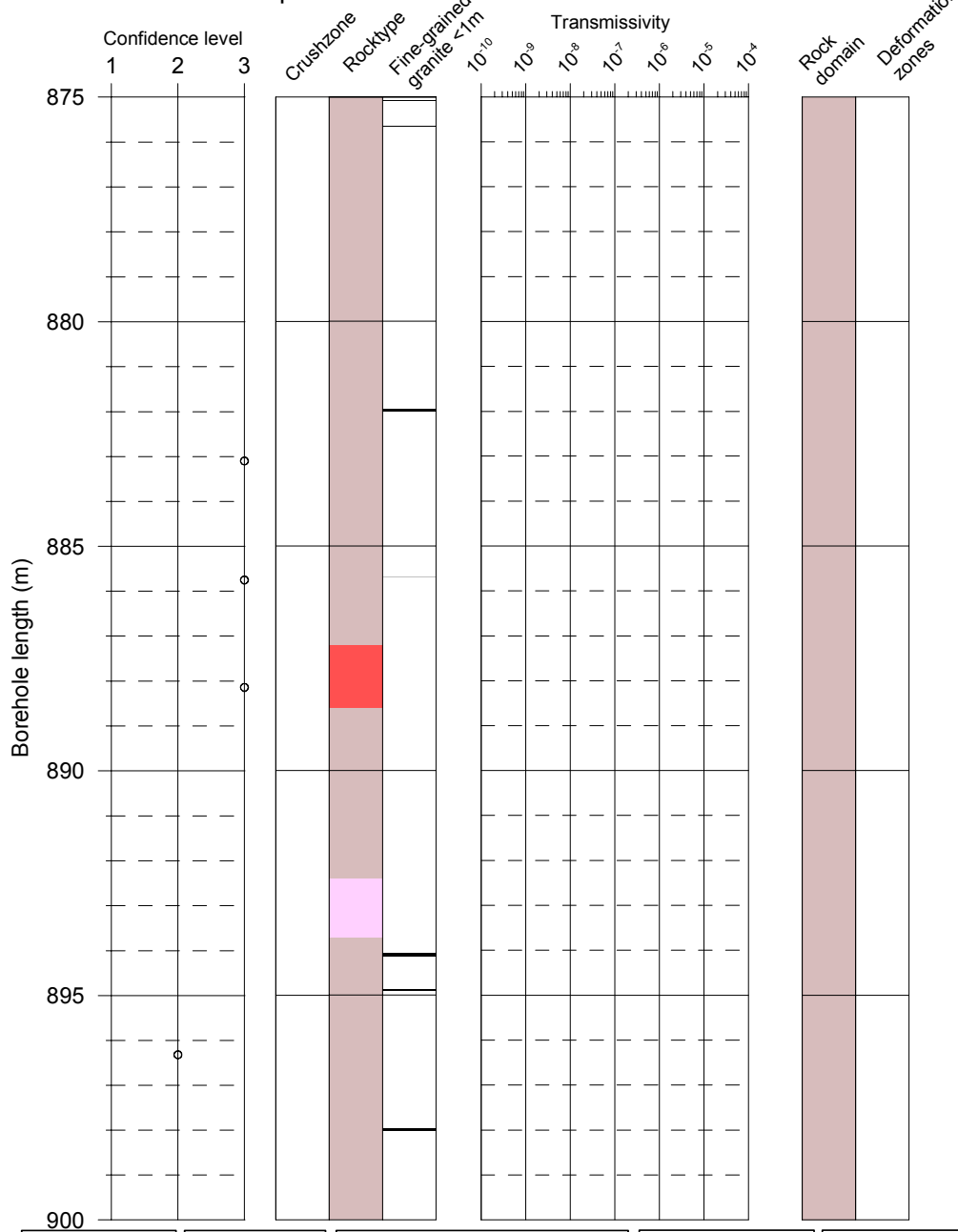
Deformation zones

- ▨ Zone

KFM03A

Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
- Class 3
- Class 4
- Open fracture, no flow indication

Confidence level
Open fractures

- 1 certain
- 2 probable
- 3 possible

- Fine-grained granite
- Pegmatite
- Granite, granodiorite, tonalite
- Granite to granodiorite
- Amphibolite
- Tonalite to granodiorite

PFL-anomaly
Transmissivity

- Certain
- Uncertain
- Meas lim

Rock domains

- RFM017
- RFM029

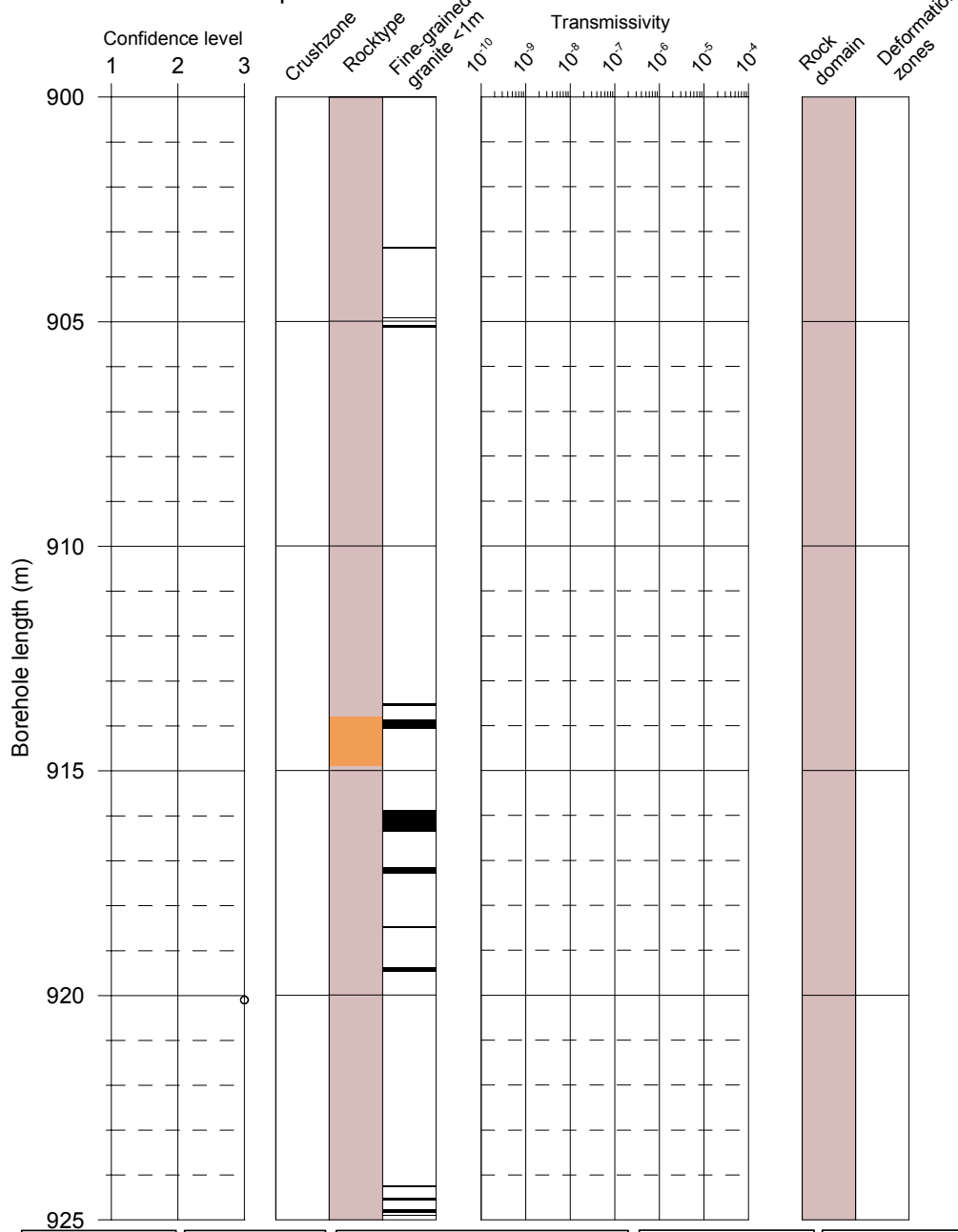
Deformation zones

- Zone

KFM03A

Boremap

PFL



Flow indication
open fractures

- Class 1
- ◐ Class 2
- ◑ Class 3
- ◒ Class 4
- Open fracture,
no flow indication

Confidence level
Open fractures

- 1 certain
- 2 probable
- 3 possible

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- Pegmatite
- Granite, granodiorite, tonalite
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- Amphibolite
- Tonalite to granodiorite

PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

Rock domains

- RFM017
- RFM029

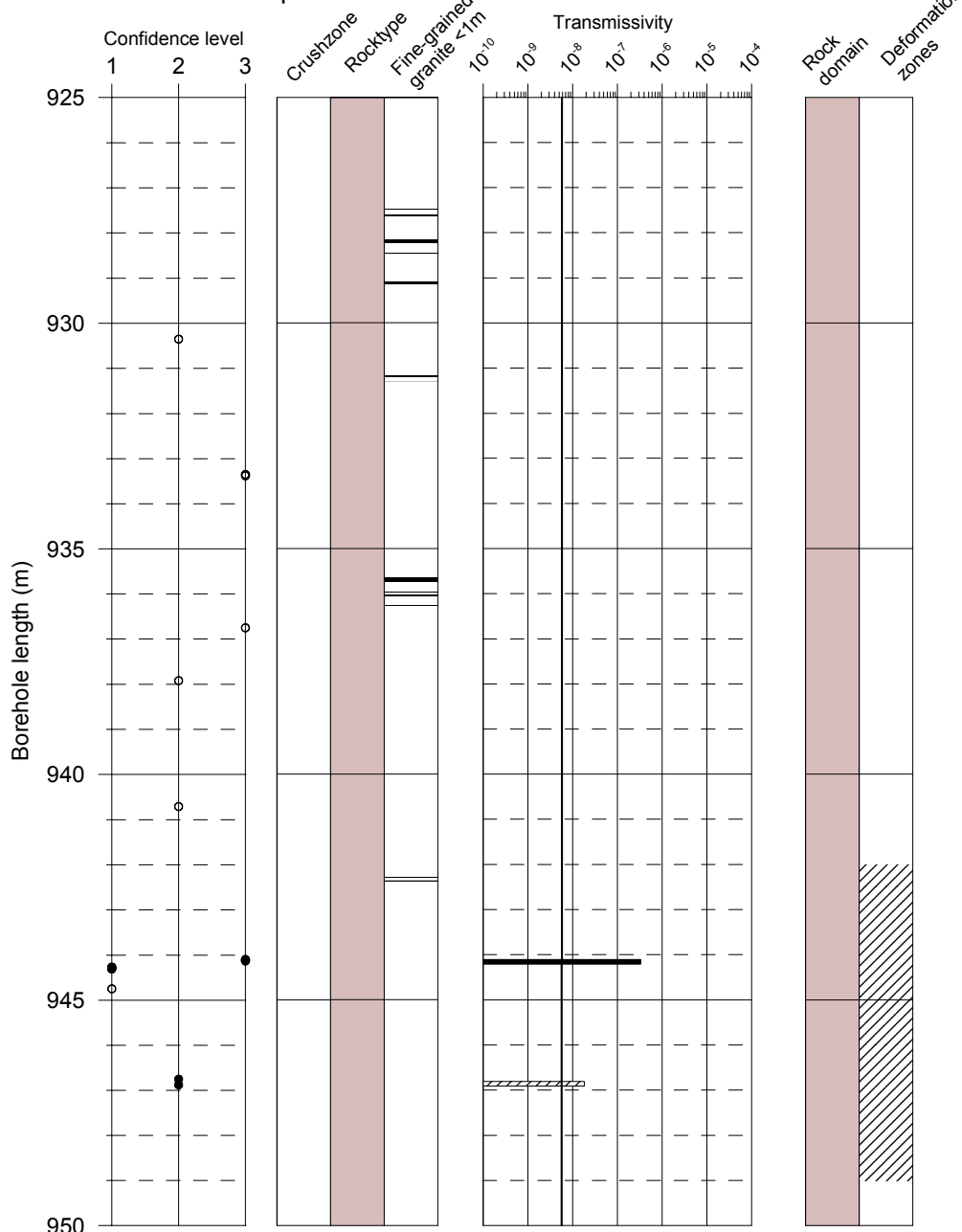
Deformation zones

- ▨ Zone

KFM03A

Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
- Class 3
- Class 4
- Open fracture,
no flow indication

Confidence level
Open fractures

- 1 certain
- 2 probable
- 3 possible

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■ Pegmatite
■ Granite, granodiorite, tonalite
■ Granite to granodiorite
■ Amphibolite
■ Tonalite to granodiorite

PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

Rock domains

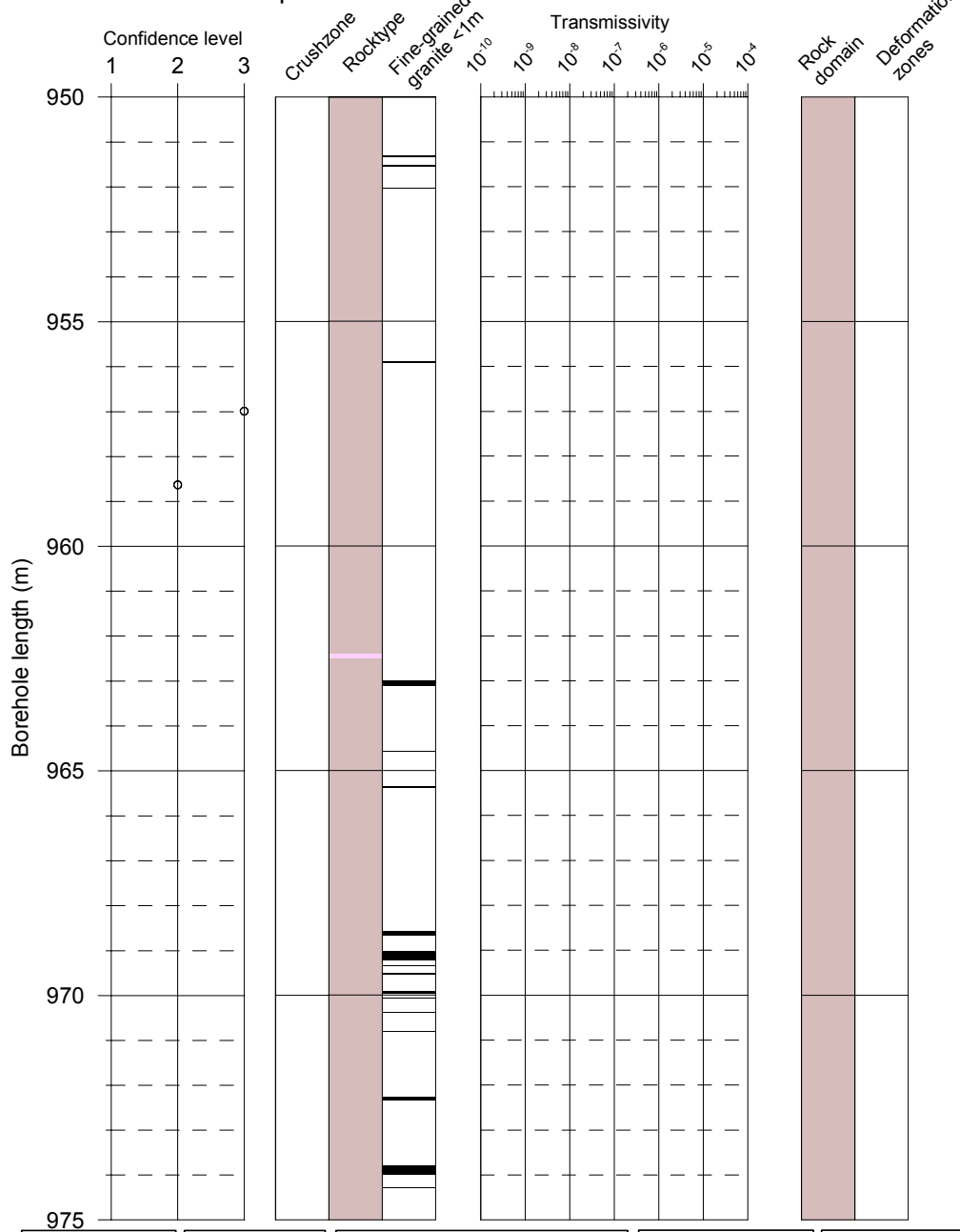
- RFM017
- RFM029

Deformation zones

- ▨ Zone

KFM03A Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
- Class 3
- Class 4
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no flow indication

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- Tonalite to granodiorite

PFL-anomaly
Transmissivity

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Rock domains

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- RFM029

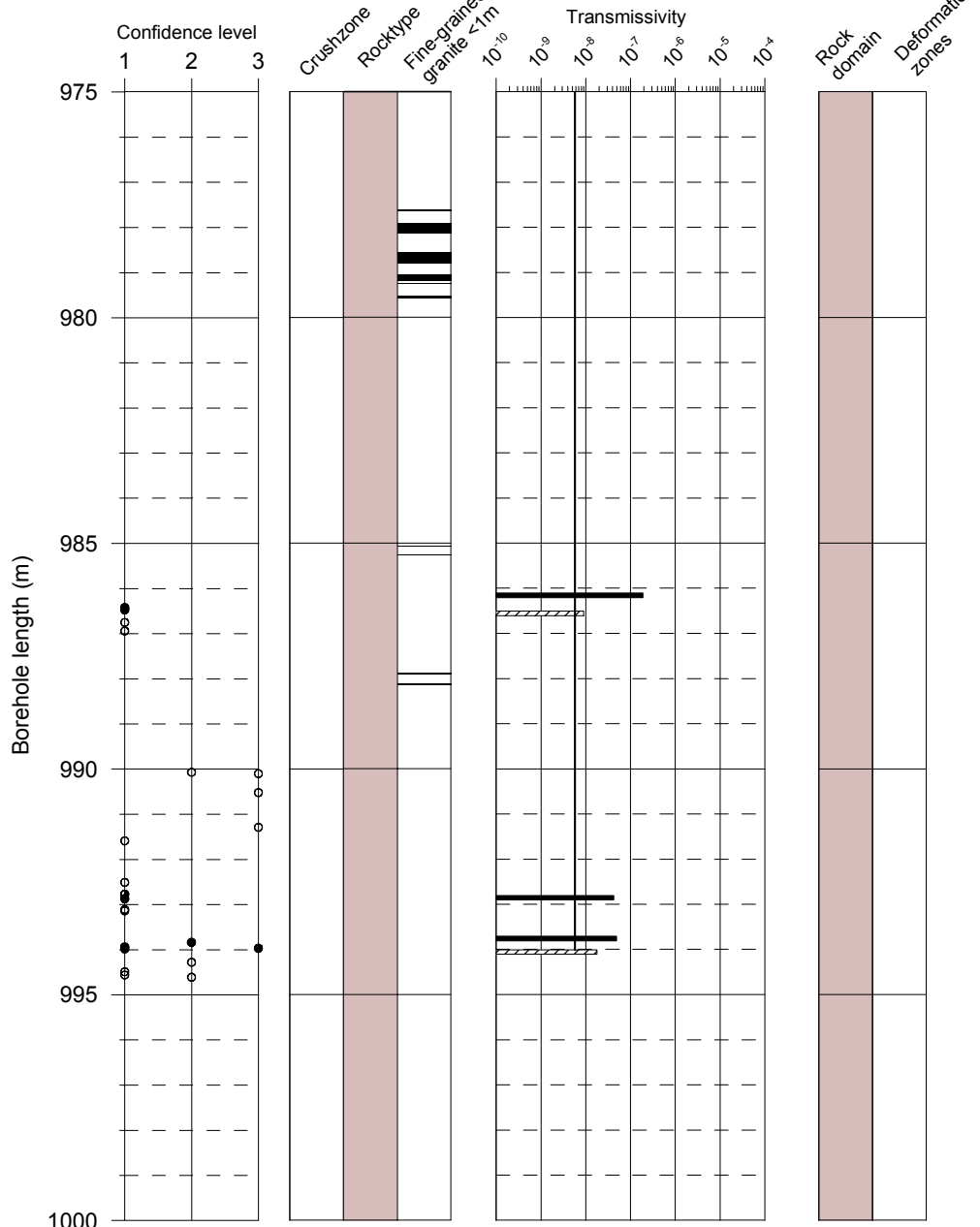
Deformation zones

- ▨ Zone

KFM03A

Boremap

PFL



Flow indication open fractures

- Class 1
- Class 2
- Class 3
- Class 4
- Open fracture, no flow indication

Confidence level Open fractures

- 1 certain
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Rocktype

- Fine-grained granite
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PFL-anomaly Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

Rock domains

- RFM017
- RFM029

Deformation zones

- ▨ Zone

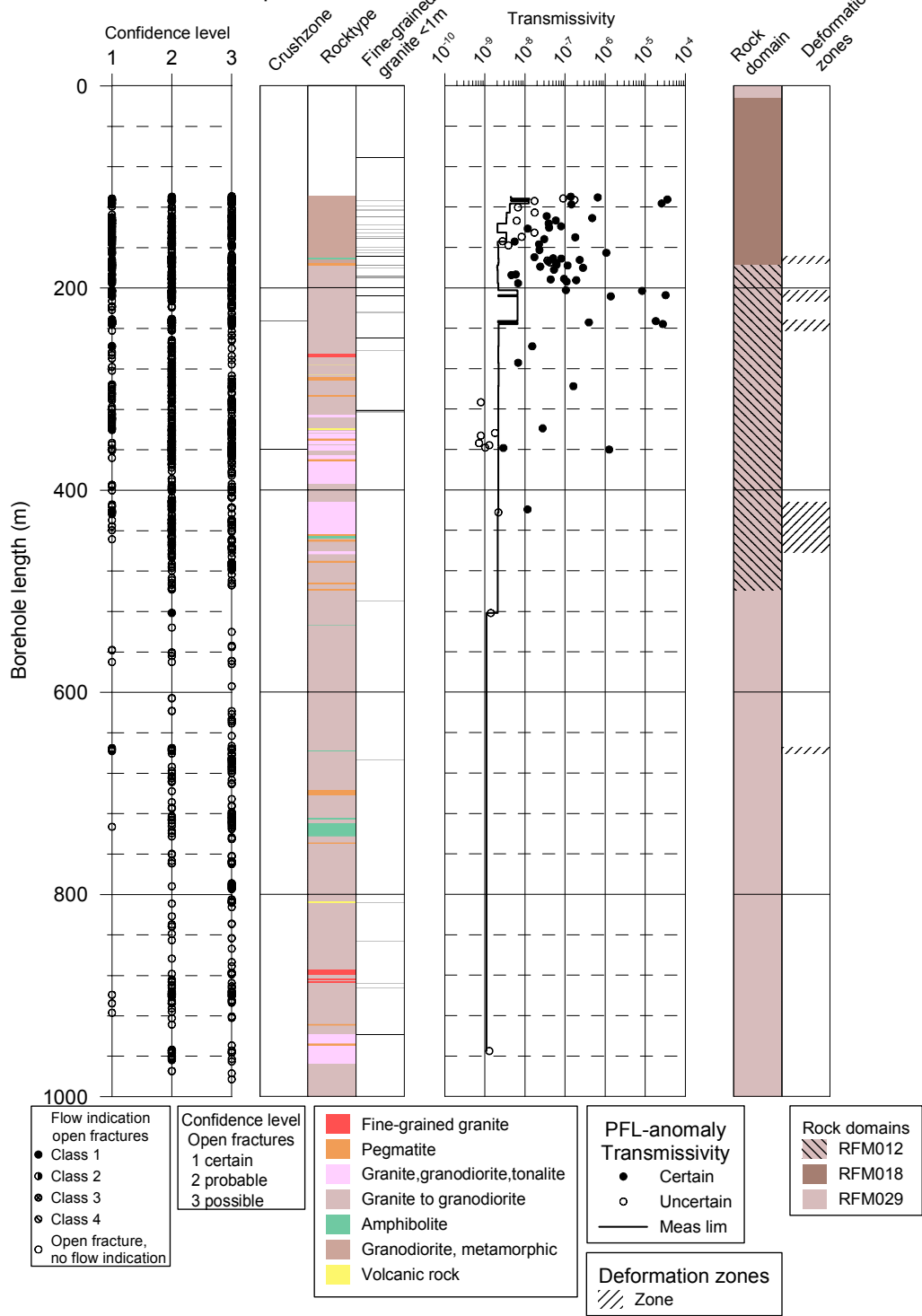
Appendix 3:4 – KFM04A

In this appendix plots showing Flow log anomalies to core mapped features in KFM04A for entire borehole and for every 25 meters of the borehole are found. BIPS images of PFL anomalies are also found.

KFM04A

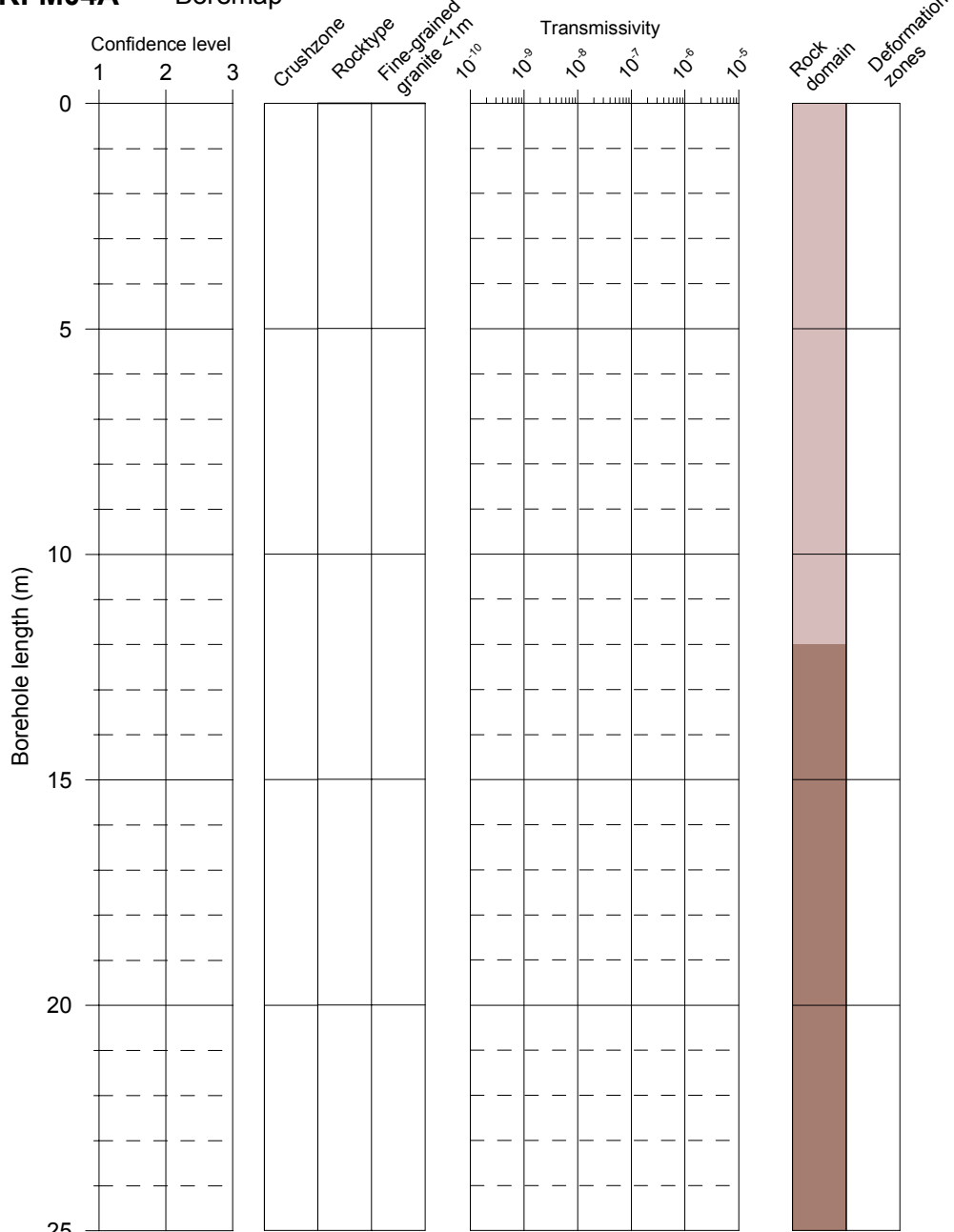
Boremap

PFL



KFM04A Boremap

PFL



Flow indication
open fractures

- Class 1
- ◐ Class 2
- ◑ Class 3
- ◒ Class 4
- Open fracture,
no flow indication

Confidence level
Open fractures

- 1 certain
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■ Amphibolite
■ Granodiorite, metamorphic
■ Volcanic rock

PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

Rock domains

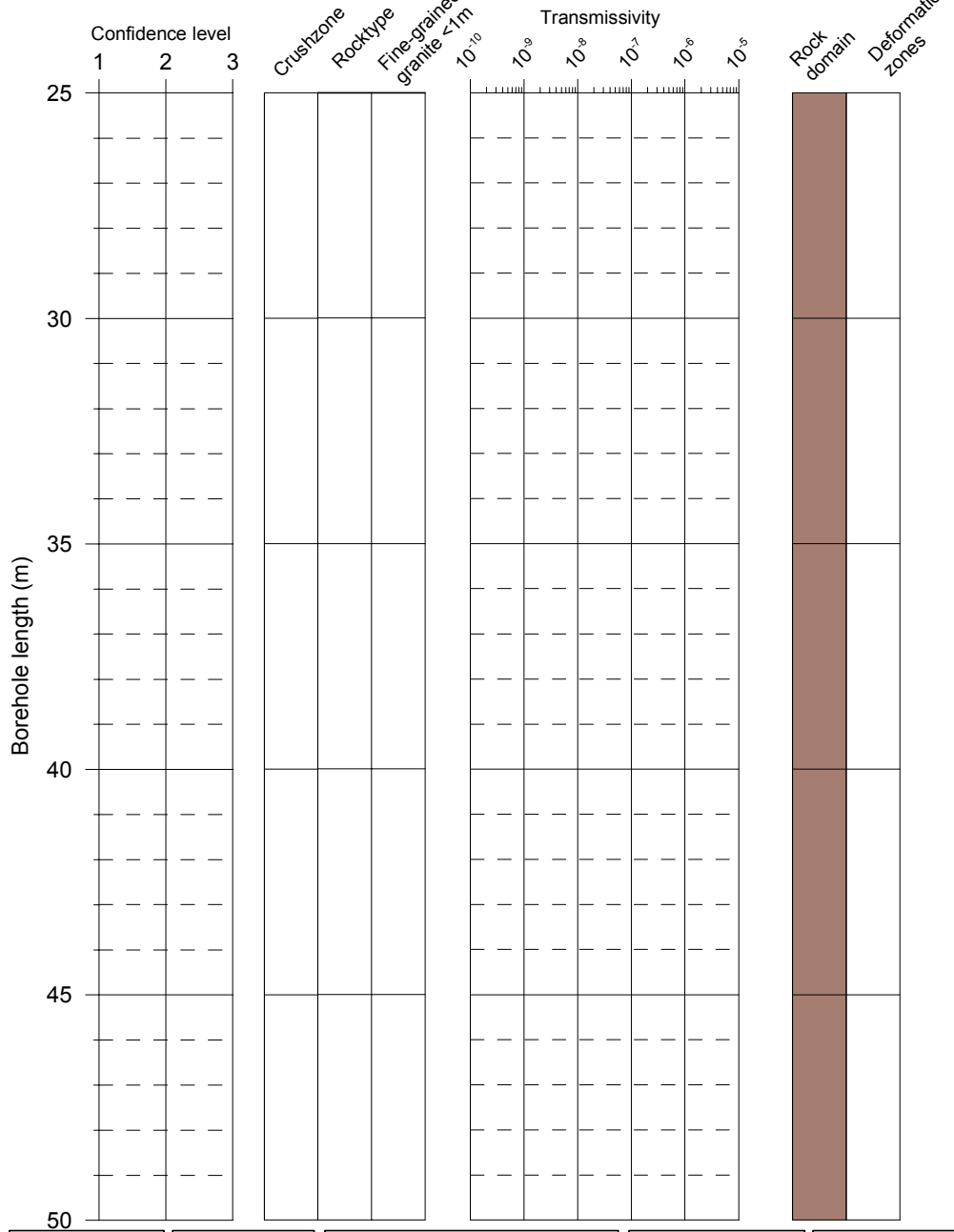
- ▨ RFM012
- RFM018
- ▨ RFM029

Deformation zones

- ▨ Zone

KFM04A Boremap

PFL



Flow indication
open fractures

- Class 1
- ◐ Class 2
- ◑ Class 3
- ◒ Class 4
- Open fracture,
no flow indication

Confidence level
Open fractures

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- Granodiorite, metamorphic
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PFL-anomaly
Transmissivity

- Certain
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Rock domains

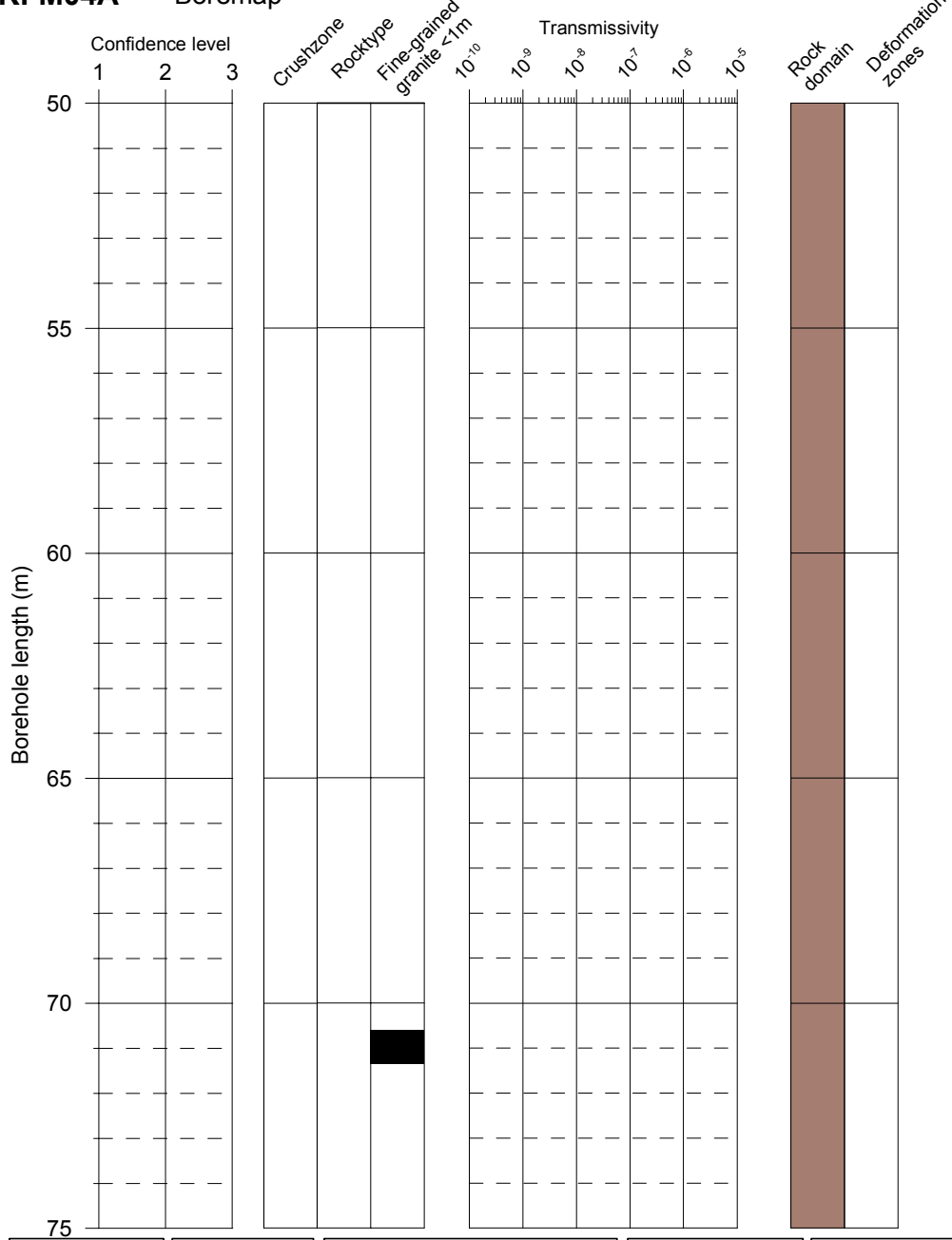
- ▨ RFM012
- RFM018
- ▨ RFM029

Deformation zones

- ▨ Zone

KFM04A Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
- Class 3
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- Open fracture,
no flow indication

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Open fractures

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PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

Rock domains

- ▨ RFM012
- RFM018
- ▨ RFM029

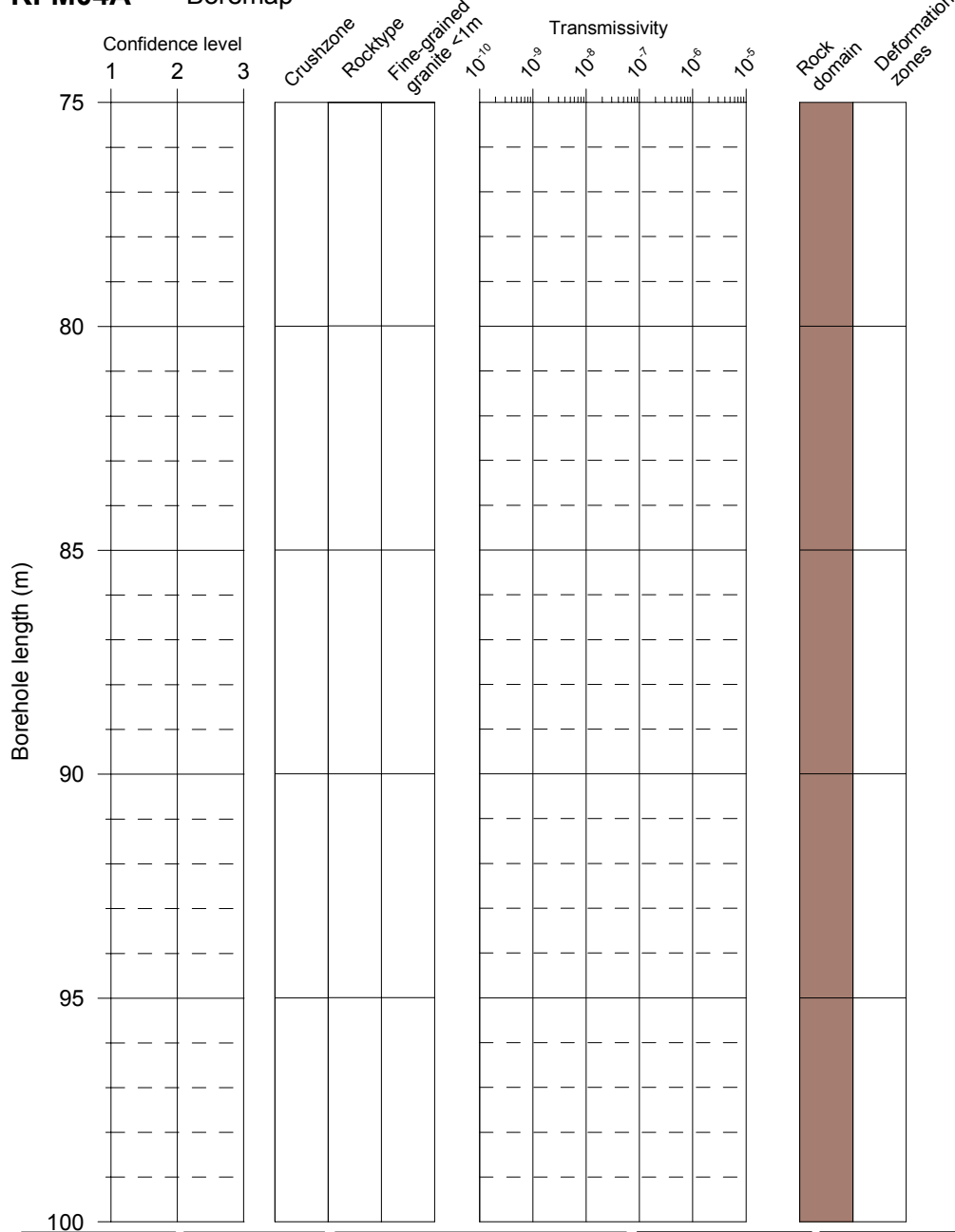
Deformation zones

- ▨ Zone

KFM04A

Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
- Class 3
- Class 4
- Open fracture,
no flow indication

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- Granodiorite, metamorphic
- Volcanic rock

PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

Rock domains

- ▨ RFM012
- RFM018
- RFM029

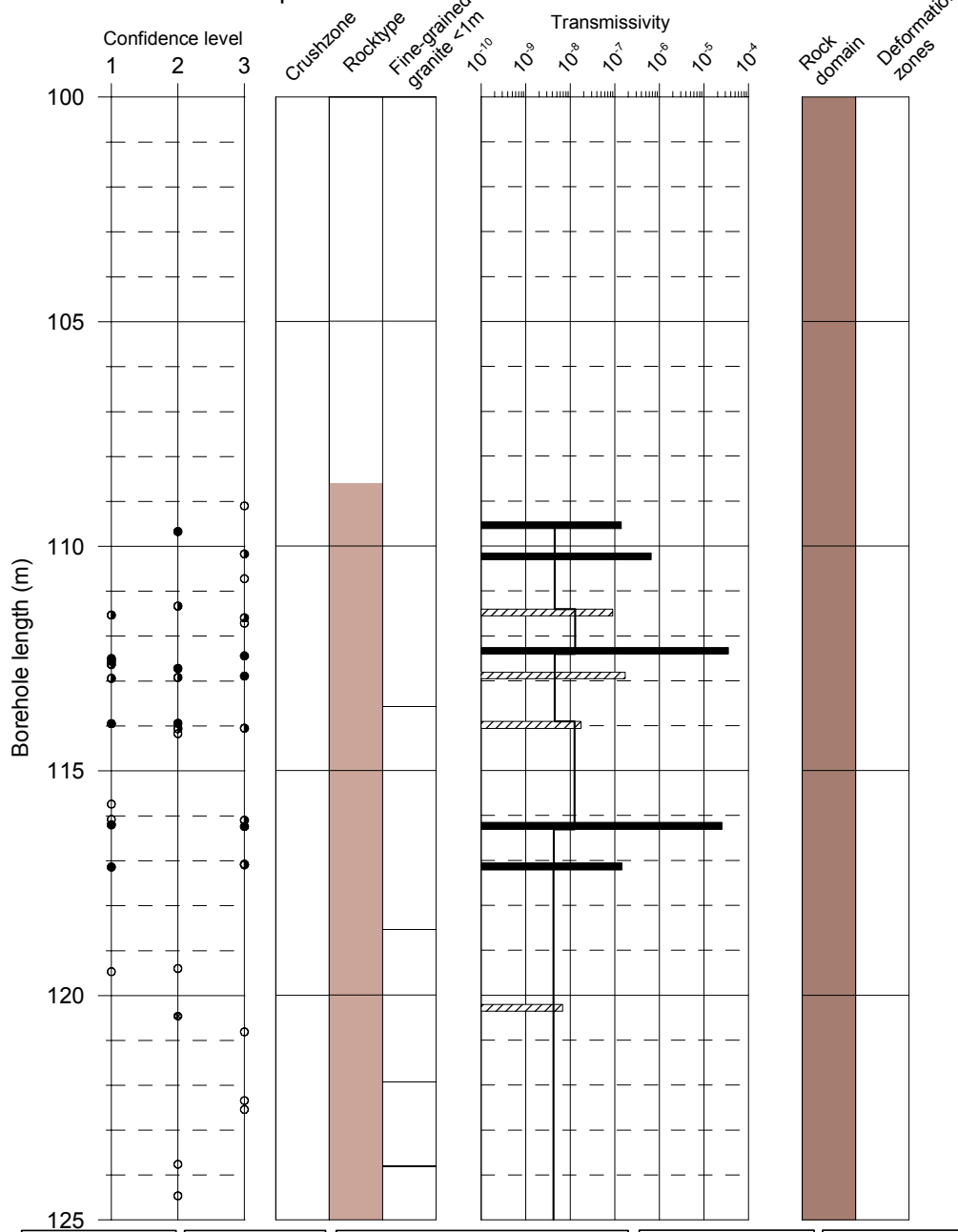
Deformation zones

- ▨ Zone

KFM04A

Boremap

PFL



Flow indication
open fractures

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- Open fracture,
no flow indication

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Open fractures

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PFL-anomaly
Transmissivity

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- Uncertain
- Meas lim

Rock domains

- RFM012
- RFM018
- RFM029

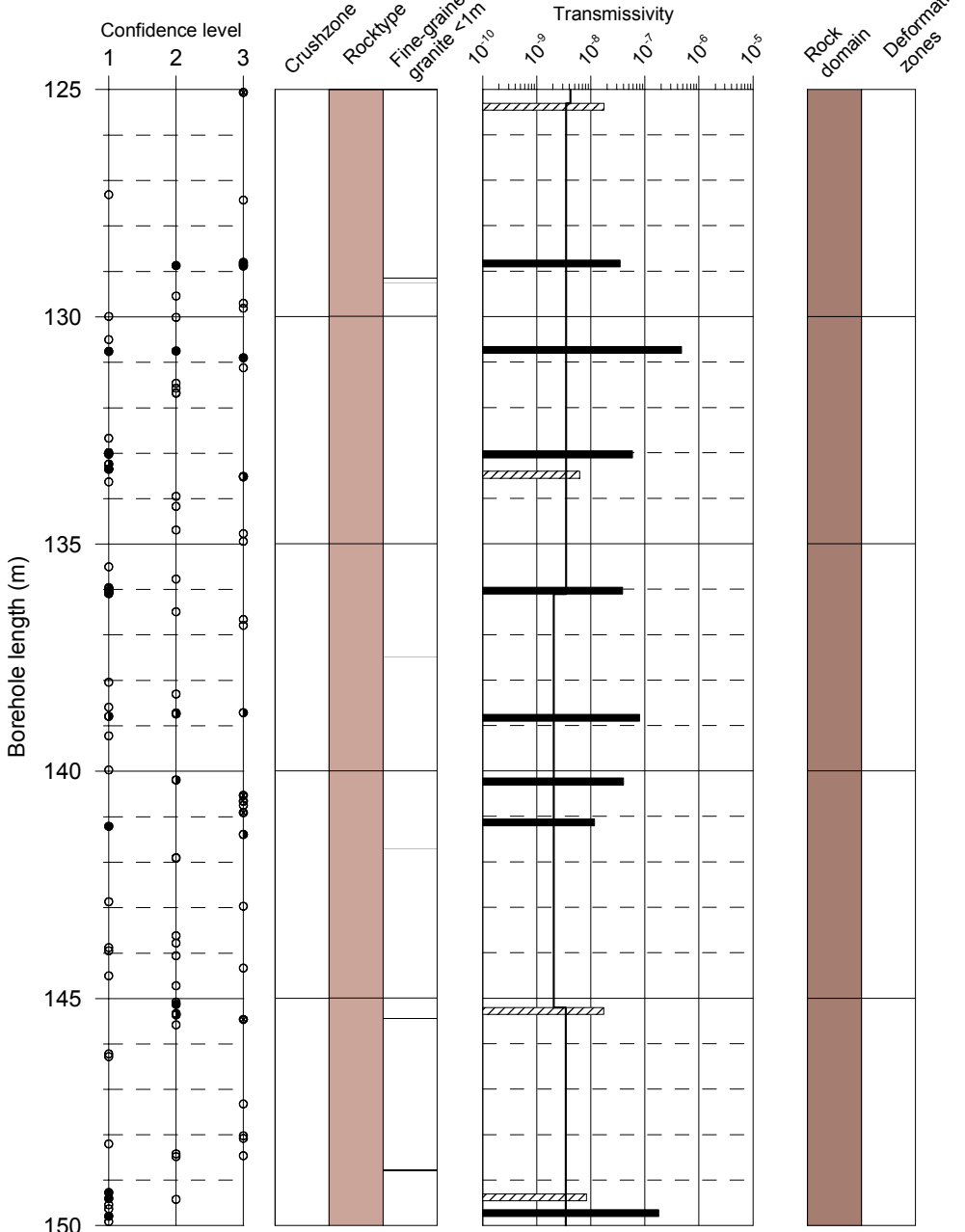
Deformation zones

- Zone

KFM04A

Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
- Class 3
- Class 4
- Open fracture,
no flow indication

Confidence level
Open fractures

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■ Granodiorite, metamorphic
■ Volcanic rock

PFL-anomaly
Transmissivity

- Certain
- Uncertain
- Meas lim

Rock domains

- RFM012
- RFM018
- RFM029

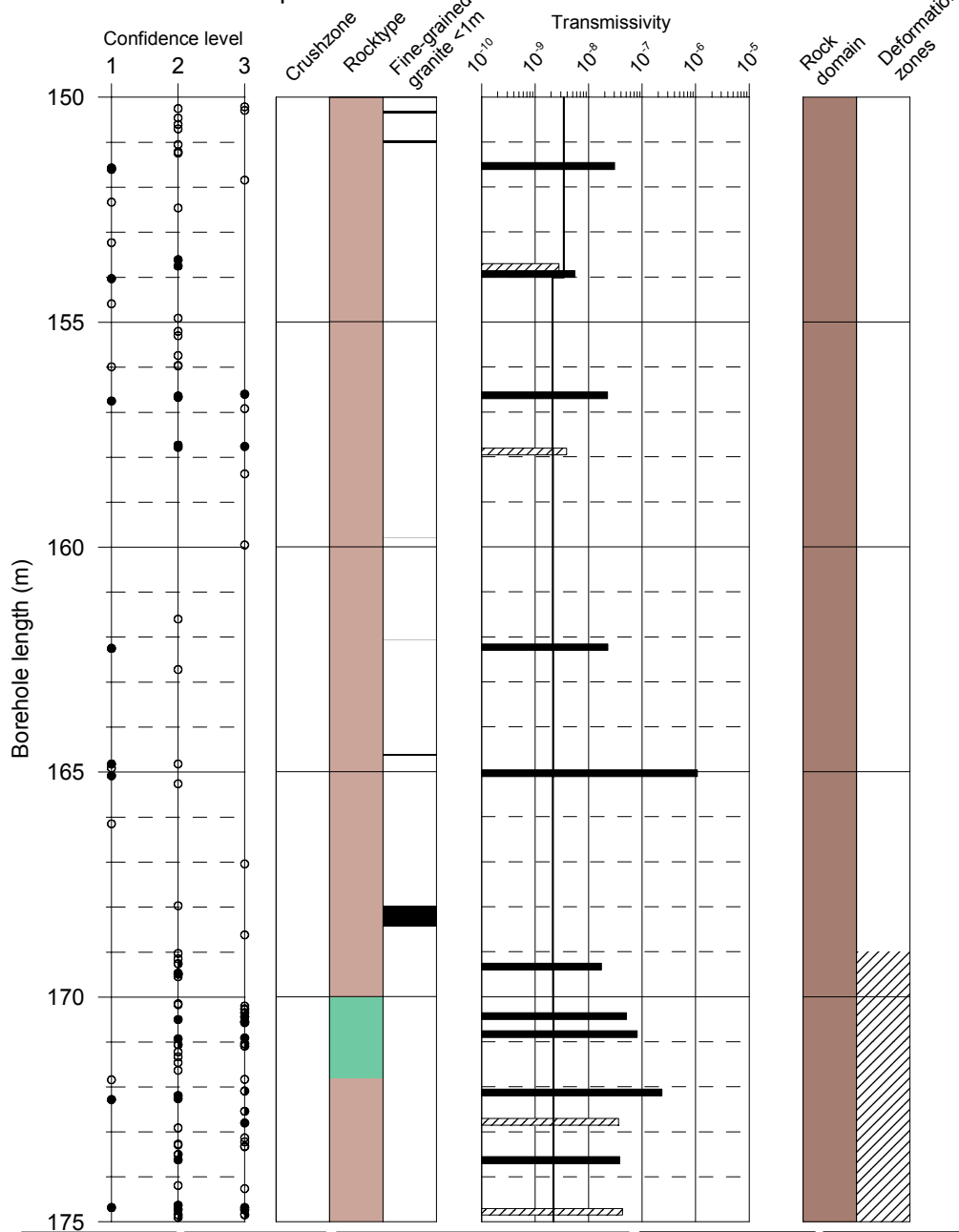
Deformation zones

- Zone

KFM04A

Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
- Class 3
- Class 4
- Open fracture,
no flow indication

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■ Granodiorite, metamorphic
■ Volcanic rock

PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

Rock domains

- ▨ RFM012
- RFM018
- RFM029

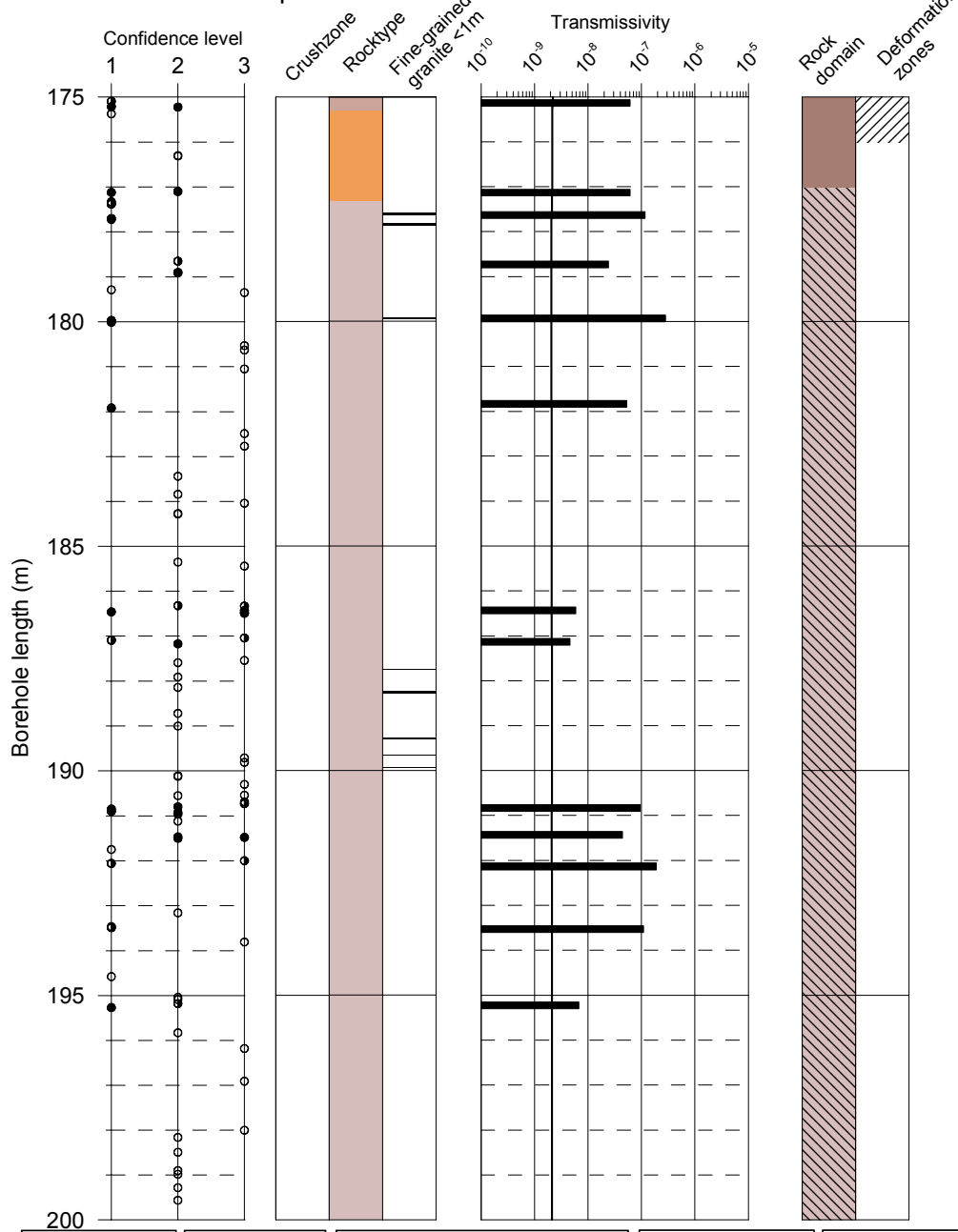
Deformation zones

- ▨ Zone

KFM04A

Boremap

PFL

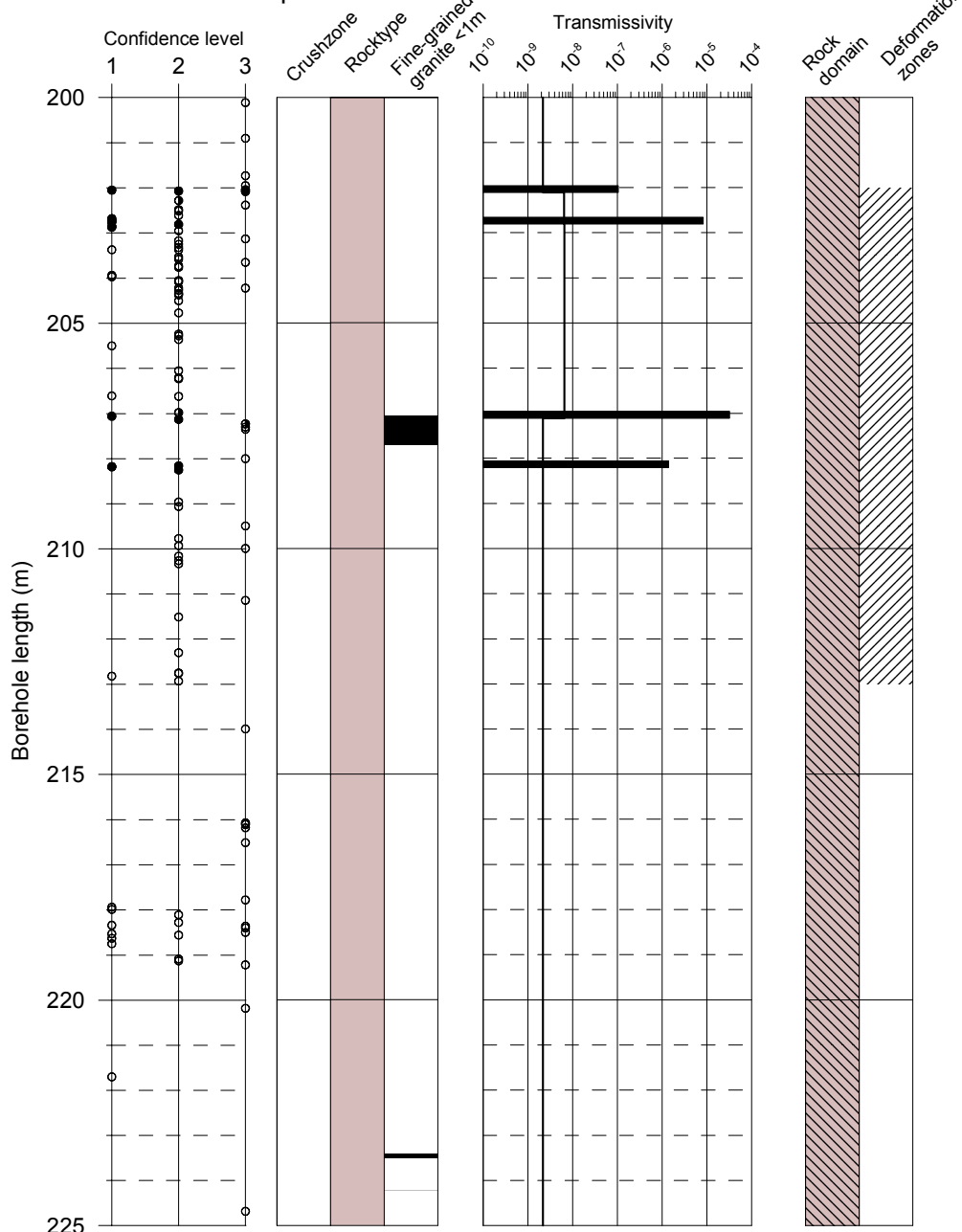


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|--|---|---|---|---|
| <p>Flow indication open fractures</p> <ul style="list-style-type: none"> ● Class 1 ◐ Class 2 ◑ Class 3 ◒ Class 4 ○ Open fracture, no flow indication | <p>Confidence level</p> <p>Open fractures</p> <p>1 certain</p> <p>2 probable</p> <p>3 possible</p> | <p>Rocktype</p> <ul style="list-style-type: none"> ■ Fine-grained granite ■ Pegmatite ■ Granite, granodiorite, tonalite ■ Granite to granodiorite ■ Amphibolite ■ Granodiorite, metamorphic ■ Volcanic rock | <p>PFL-anomaly Transmissivity</p> <ul style="list-style-type: none"> ■ Certain ▨ Uncertain — Meas lim | <p>Rock domains</p> <ul style="list-style-type: none"> ▨ RFM012 ■ RFM018 ■ RFM029 |
| | | <p>Deformation zones</p> <p>▨ Zone</p> | | |

KFM04A

Boremap

PFL



Flow indication
open fractures

- Class 1
- ◐ Class 2
- ◑ Class 3
- ◒ Class 4
- Open fracture,
no flow indication

Confidence level
Open fractures

- 1 certain
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■ Volcanic rock

PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

Rock domains

- ▨ RFM012
- RFM018
- RFM029

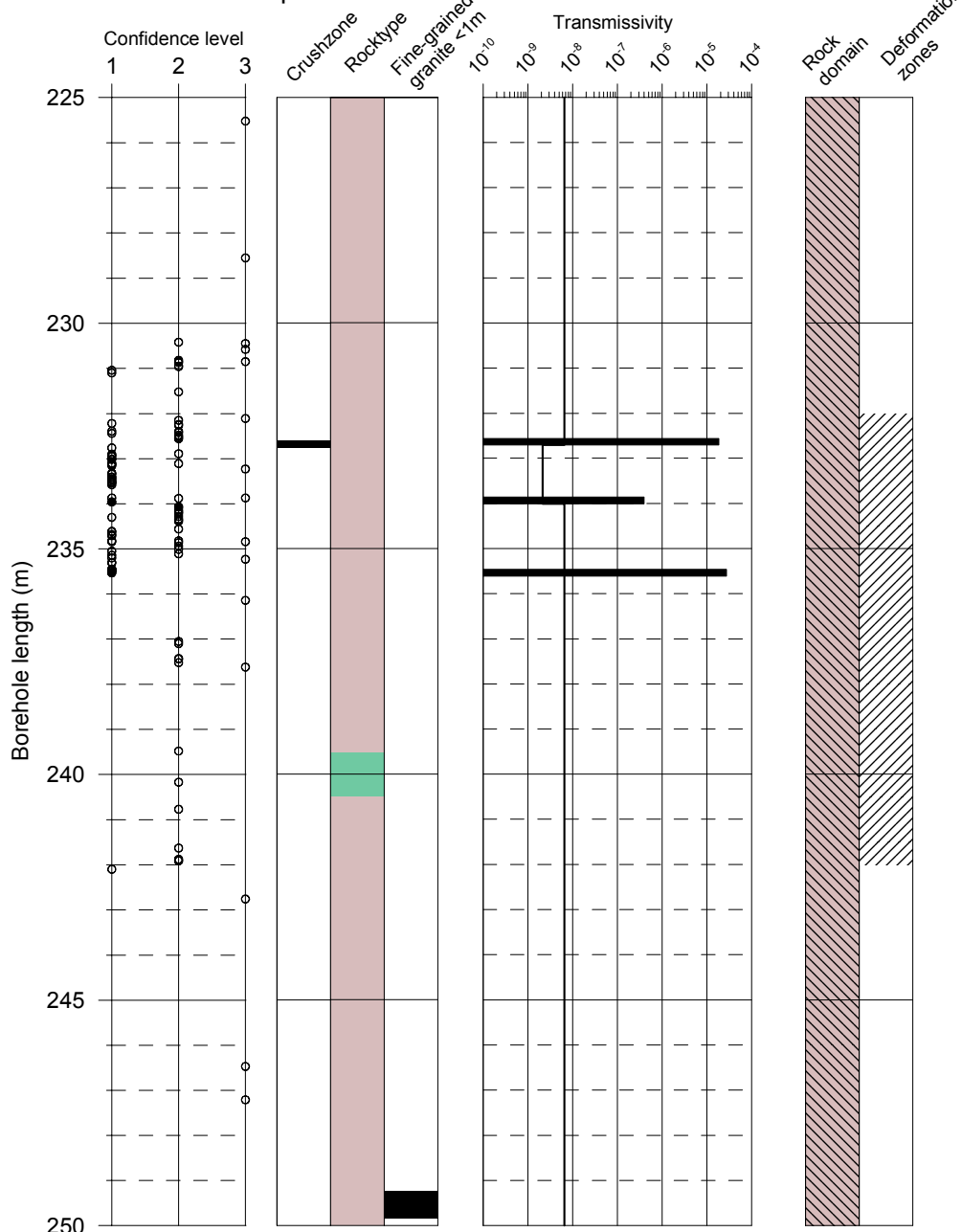
Deformation zones

- ▨ Zone

KFM04A

Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
- Class 3
- Class 4
- Open fracture,
no flow indication

Confidence level
Open fractures

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Rocktype

- Fine-grained granite
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- Granite, granodiorite, tonalite
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- Granodiorite, metamorphic
- Volcanic rock

PFL-anomaly
Transmissivity

- Certain
- Uncertain
- Meas lim

Rock domains

- RFM012
- RFM018
- RFM029

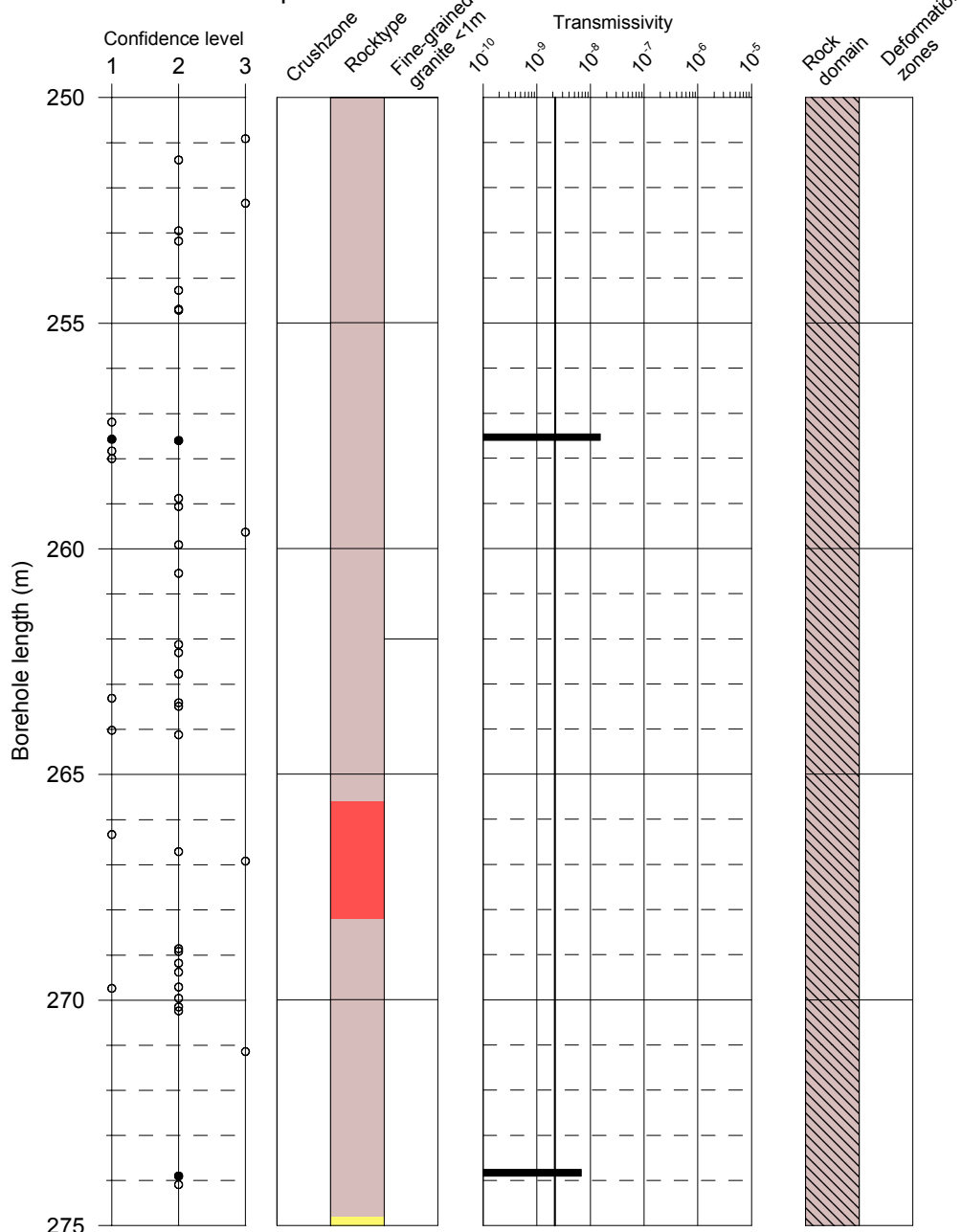
Deformation zones

- Zone

KFM04A

Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
- Class 3
- Class 4
- Open fracture,
no flow indication

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■ Granodiorite, metamorphic
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PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

Rock domains

- ▨ RFM012
- RFM018
- RFM029

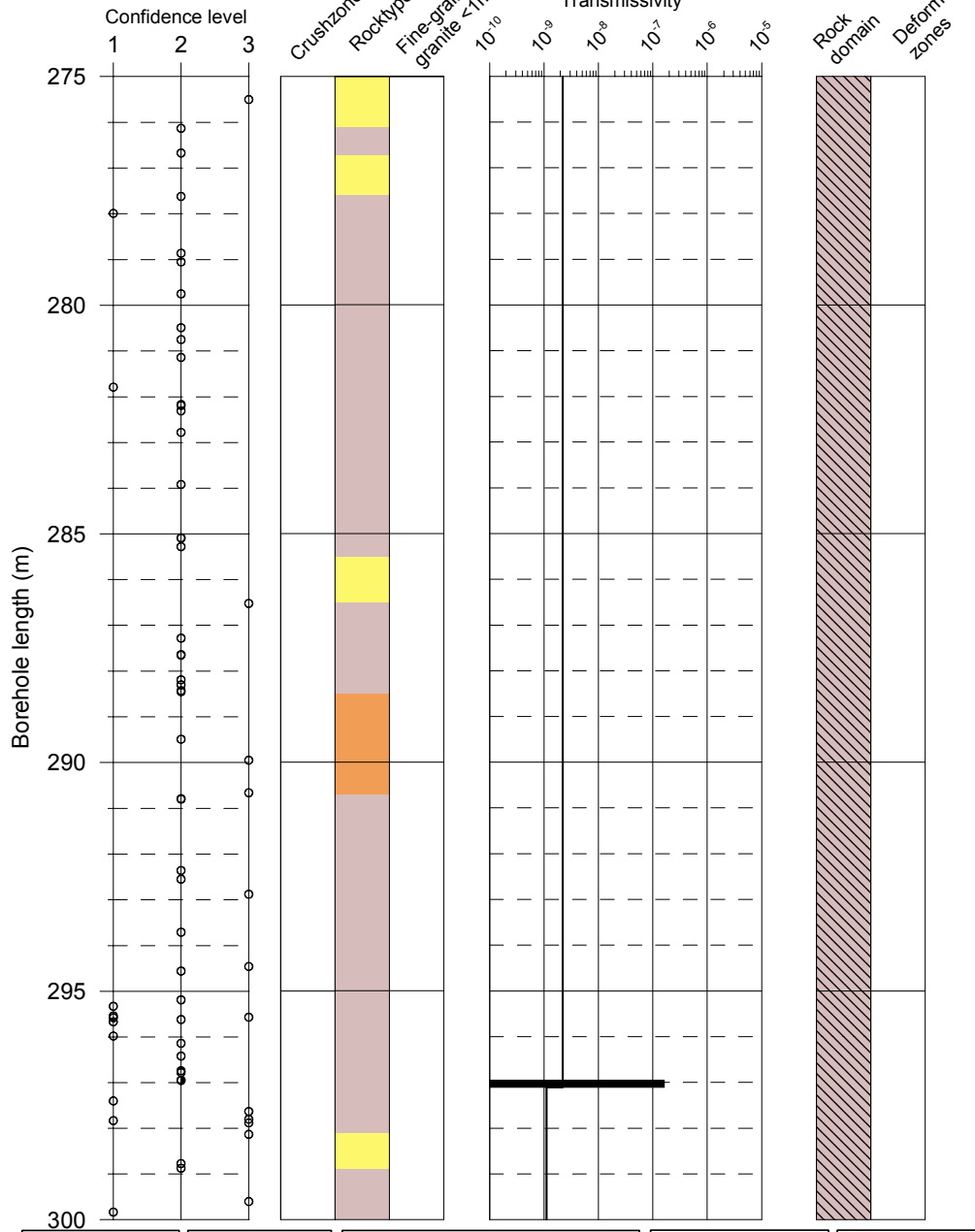
Deformation zones

- ▨ Zone

KFM04A

Boremap

PFL



Flow indication
open fractures

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PFL-anomaly
Transmissivity

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- ▨ Uncertain
- Meas lim

Rock domains

- ▨ RFM012
- RFM018
- RFM029

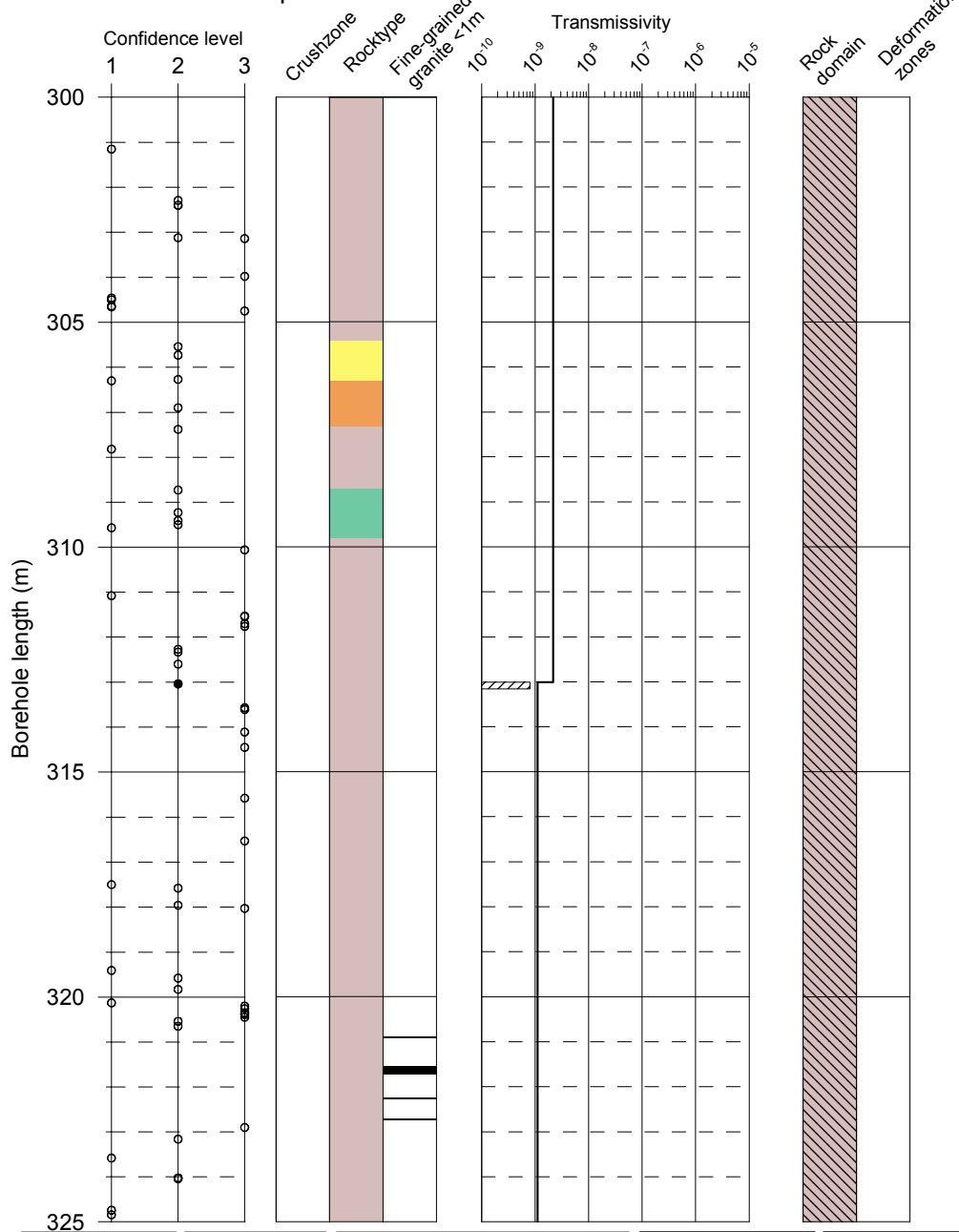
Deformation zones

- ▨ Zone

KFM04A

Boremap

PFL



Flow indication
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Transmissivity

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Rock domains

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- RFM018
- RFM029

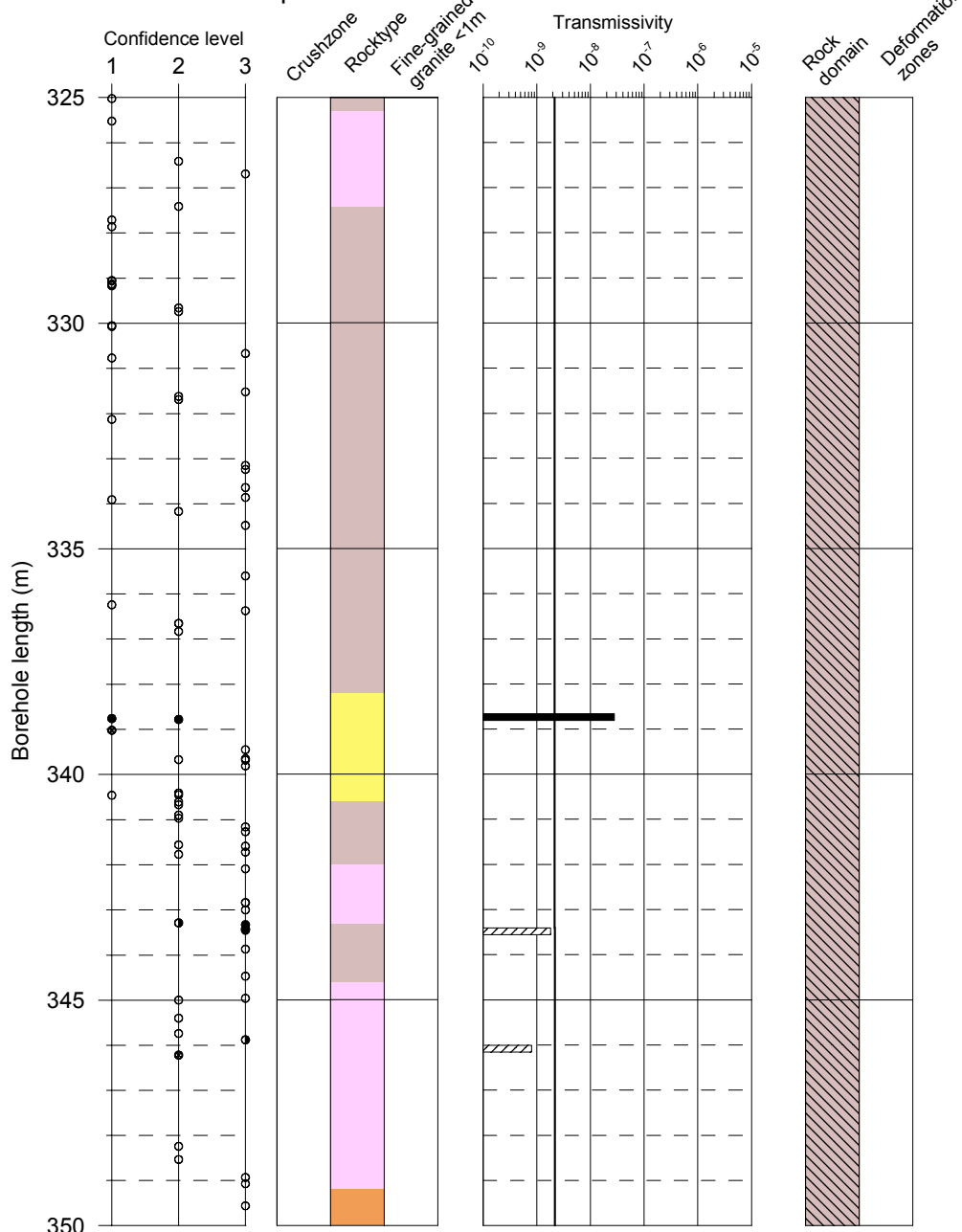
Deformation zones

- ▨ Zone

KFM04A

Boremap

PFL

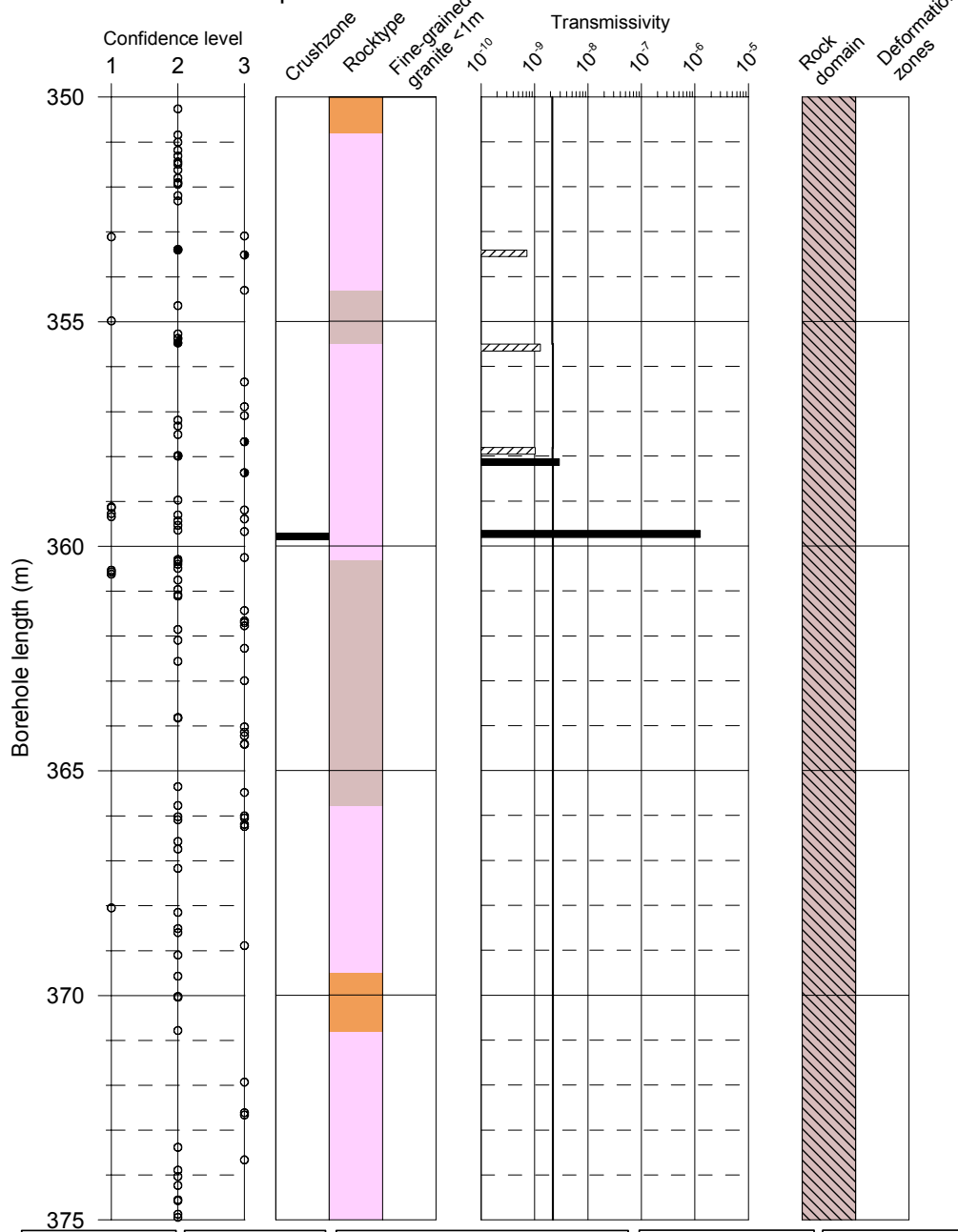


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|--|---|---|---|---|
| <p>Flow indication open fractures</p> <ul style="list-style-type: none"> ● Class 1 ○ Class 2 ● Class 3 ○ Class 4 ○ Open fracture, no flow indication | <p>Confidence level</p> <p>Open fractures</p> <p>1 certain</p> <p>2 probable</p> <p>3 possible</p> | <p>Rocktype</p> <ul style="list-style-type: none"> ■ Fine-grained granite ■ Pegmatite ■ Granite, granodiorite, tonalite ■ Granite to granodiorite ■ Amphibolite ■ Granodiorite, metamorphic ■ Volcanic rock | <p>PFL-anomaly</p> <p>Transmissivity</p> <ul style="list-style-type: none"> ■ Certain ▨ Uncertain — Meas lim | <p>Rock domains</p> <ul style="list-style-type: none"> ▨ RFM012 ■ RFM018 ■ RFM029 |
| <p>Deformation zones</p> <p>▨ Zone</p> | | | | |

KFM04A

Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
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- Open fracture,
no flow indication

Confidence level
Open fractures

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■ Granite to granodiorite
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■ Granodiorite, metamorphic
■ Volcanic rock

PFL-anomaly
Transmissivity

Certain
 Uncertain
 Meas lim

Rock domains

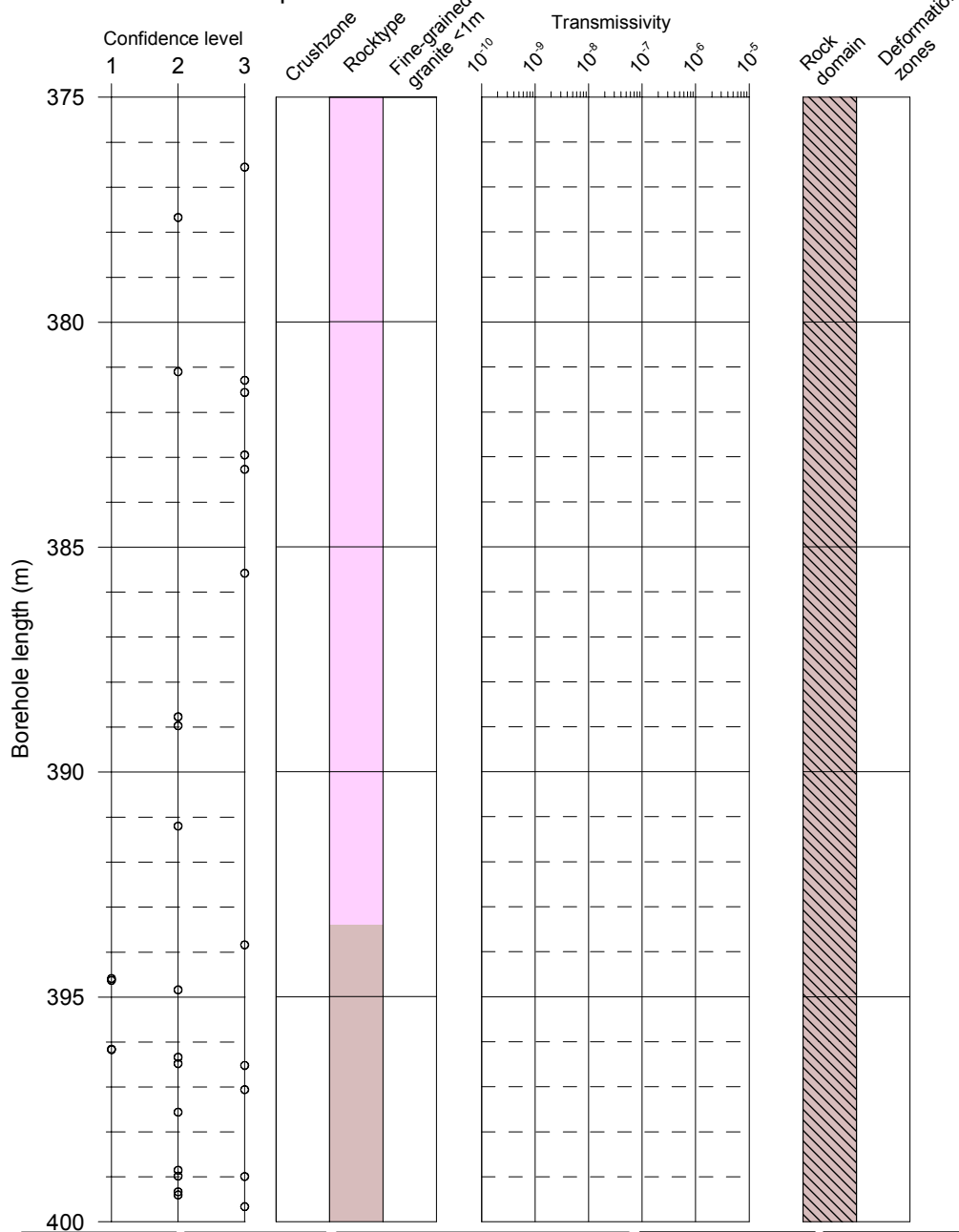
- RFM012
- RFM018
- RFM029

Deformation zones

Zone

KFM04A Boremap

PFL



Flow indication
open fractures

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PFL-anomaly
Transmissivity

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Rock domains

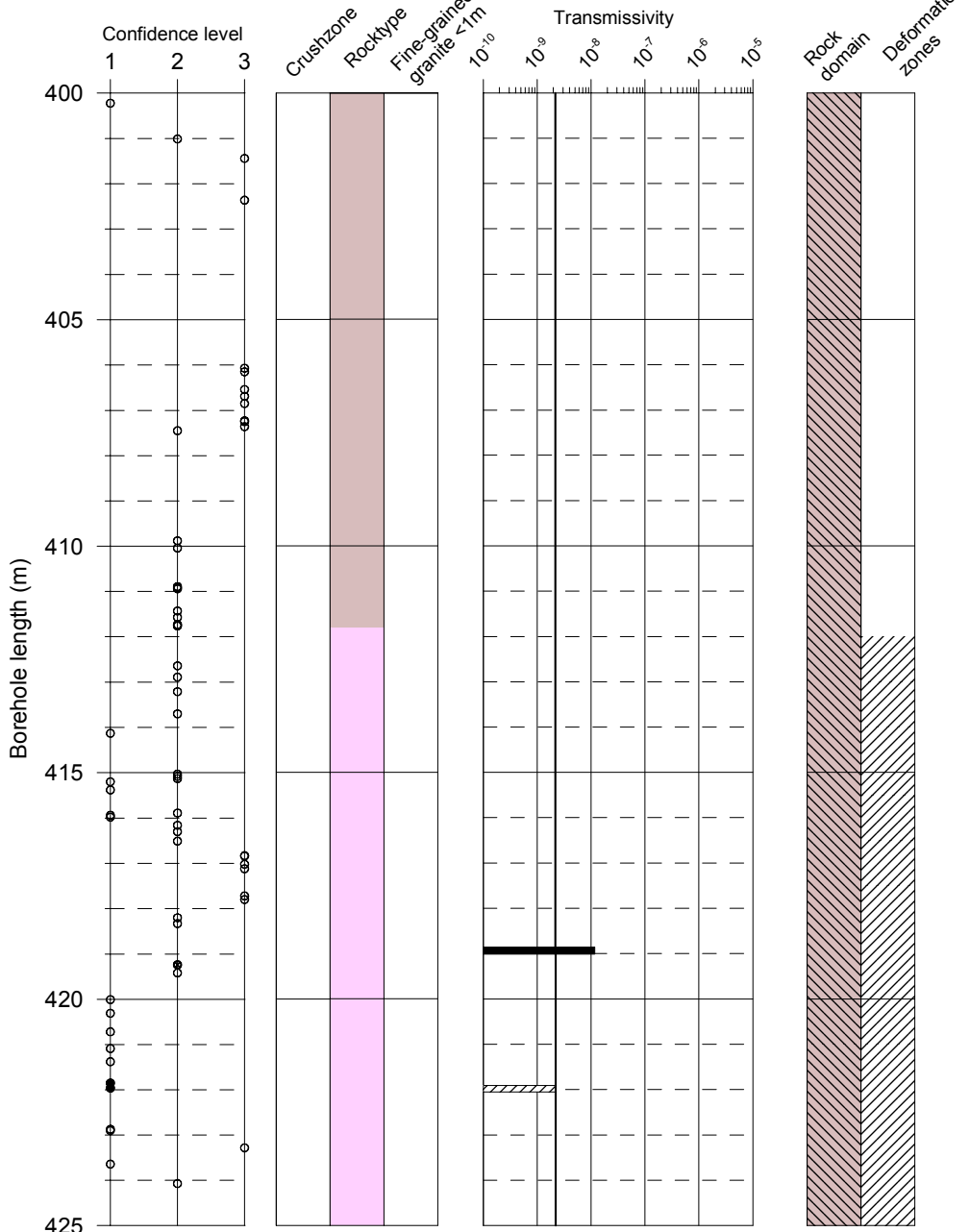
- ▨ RFM012
- RFM018
- RFM029

Deformation zones

- ▨ Zone

KFM04A Boremap

PFL

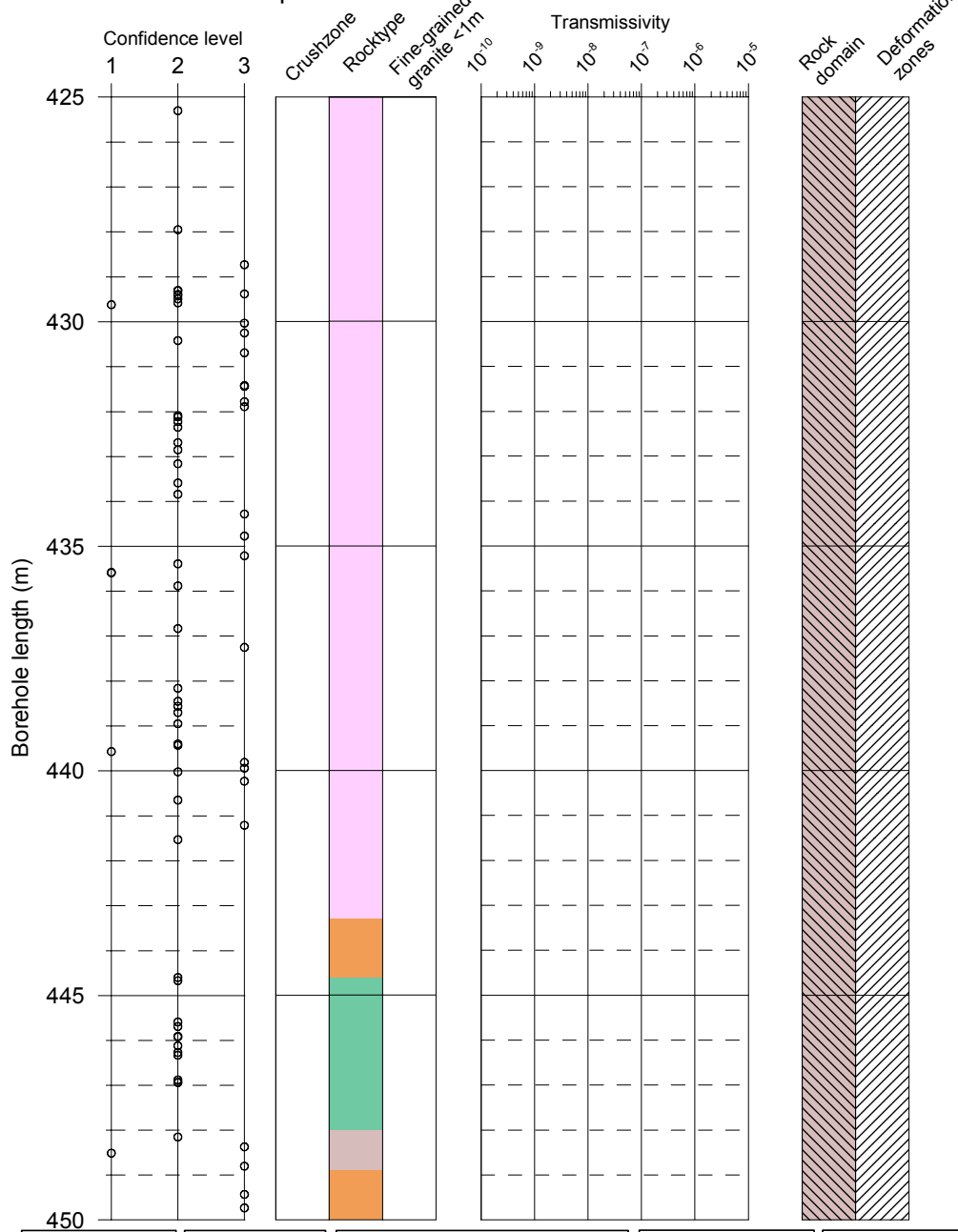


| | | | | |
|--|--|---|---|---|
| <p>Flow indication open fractures</p> <ul style="list-style-type: none"> ● Class 1 ○ Class 2 ○ Class 3 ○ Class 4 ○ Open fracture, no flow indication | <p>Confidence level</p> <p>Open fractures</p> <ul style="list-style-type: none"> 1 certain 2 probable 3 possible | <p>Rocktype</p> <ul style="list-style-type: none"> ■ Fine-grained granite ■ Pegmatite ■ Granite, granodiorite, tonalite ■ Granite to granodiorite ■ Amphibolite ■ Granodiorite, metamorphic ■ Volcanic rock | <p>PFL-anomaly</p> <p>Transmissivity</p> <ul style="list-style-type: none"> ■ Certain ▨ Uncertain — Meas lim | <p>Rock domains</p> <ul style="list-style-type: none"> ▨ RFM012 ■ RFM018 ■ RFM029 |
| <p>Deformation zones</p> <ul style="list-style-type: none"> ▨ Zone | | | | |

KFM04A

Boremap

PFL



Flow indication
open fractures

- Class 1
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no flow indication

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Transmissivity

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Rock domains

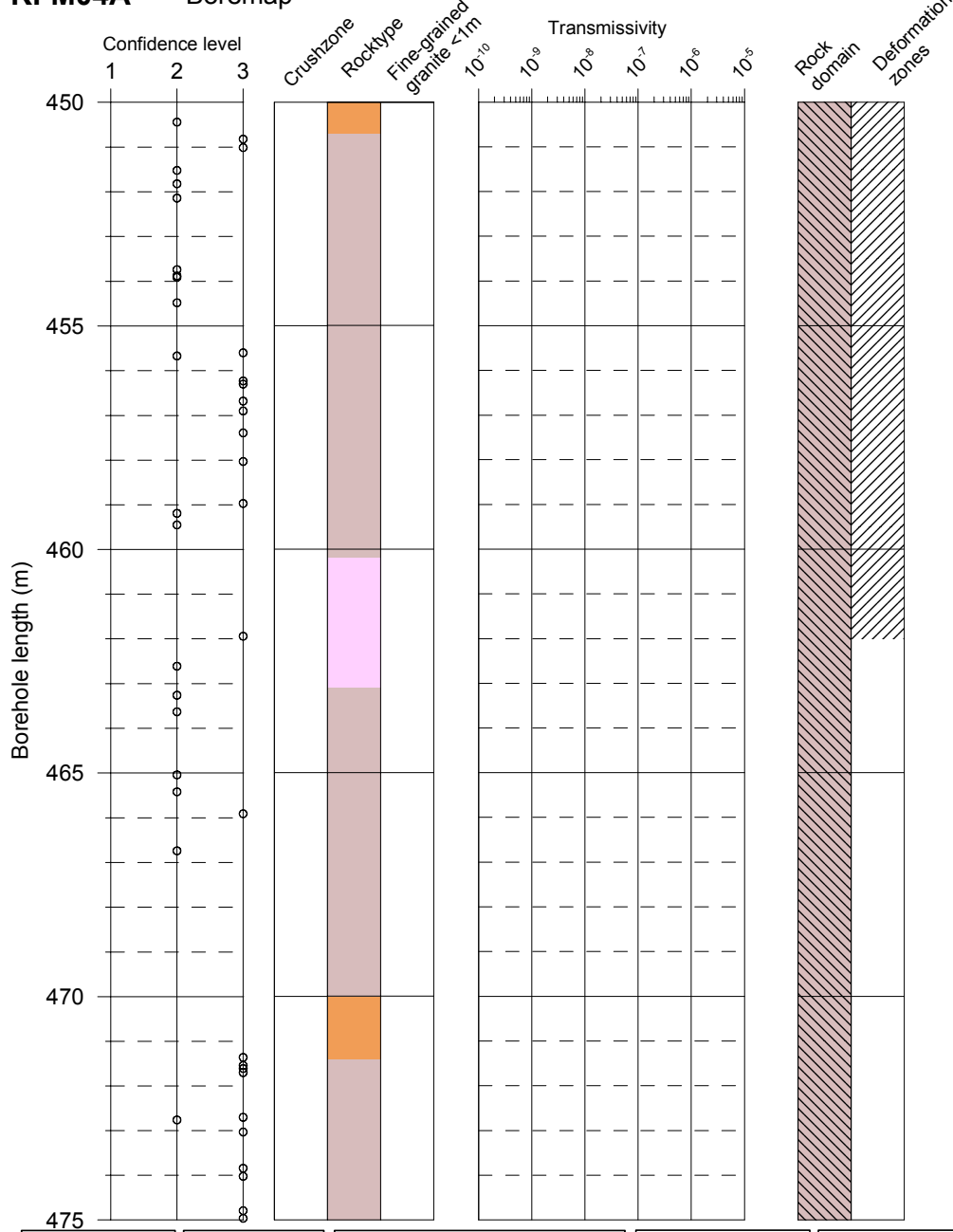
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Deformation zones

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KFM04A Boremap

PFL



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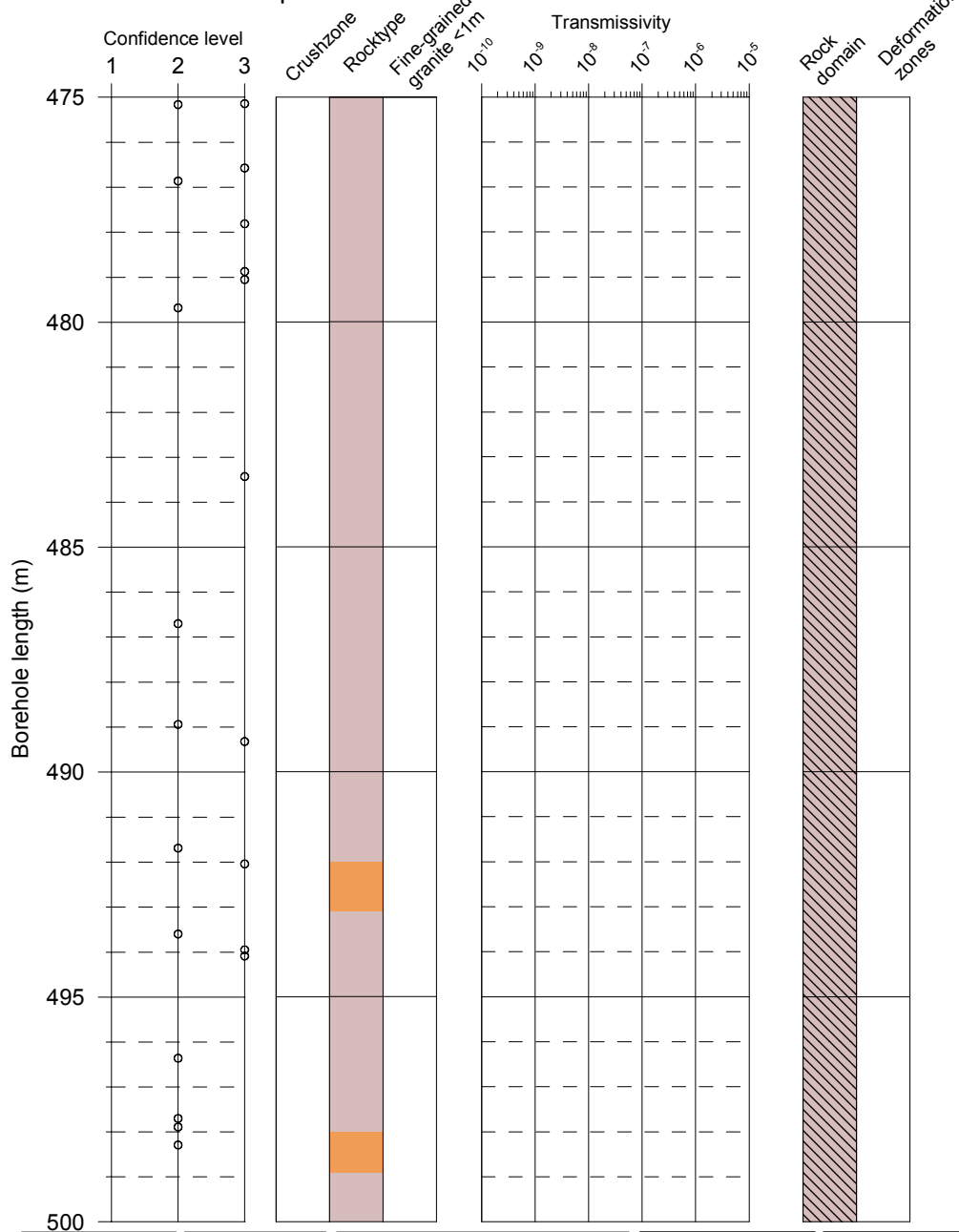
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Deformation zones

- ▨ Zone

KFM04A Boremap

PFL



Flow indication
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Rock domains

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- RFM018
- RFM029

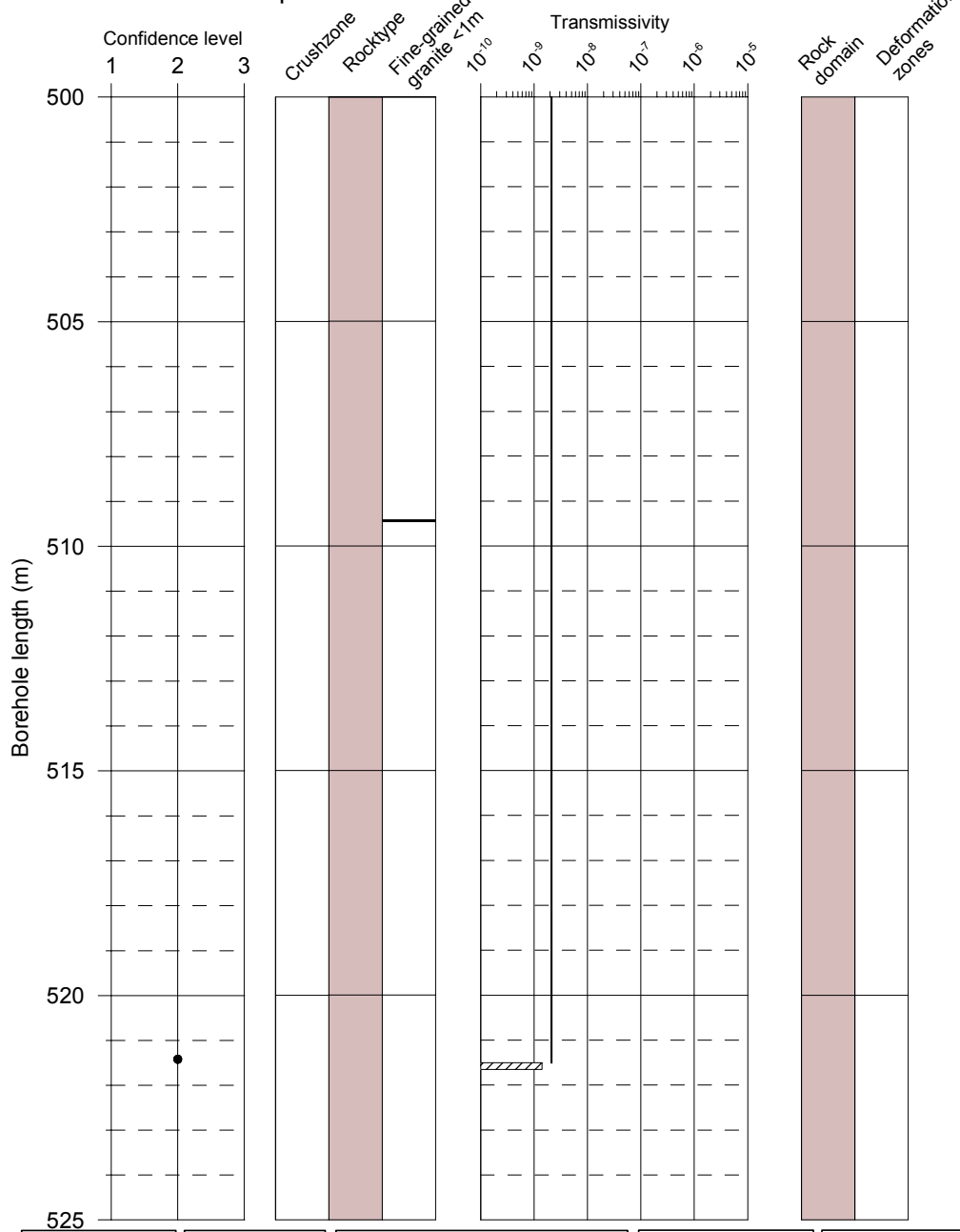
Deformation zones

- ▨ Zone

KFM04A

Boremap

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Flow indication
open fractures

- Class 1
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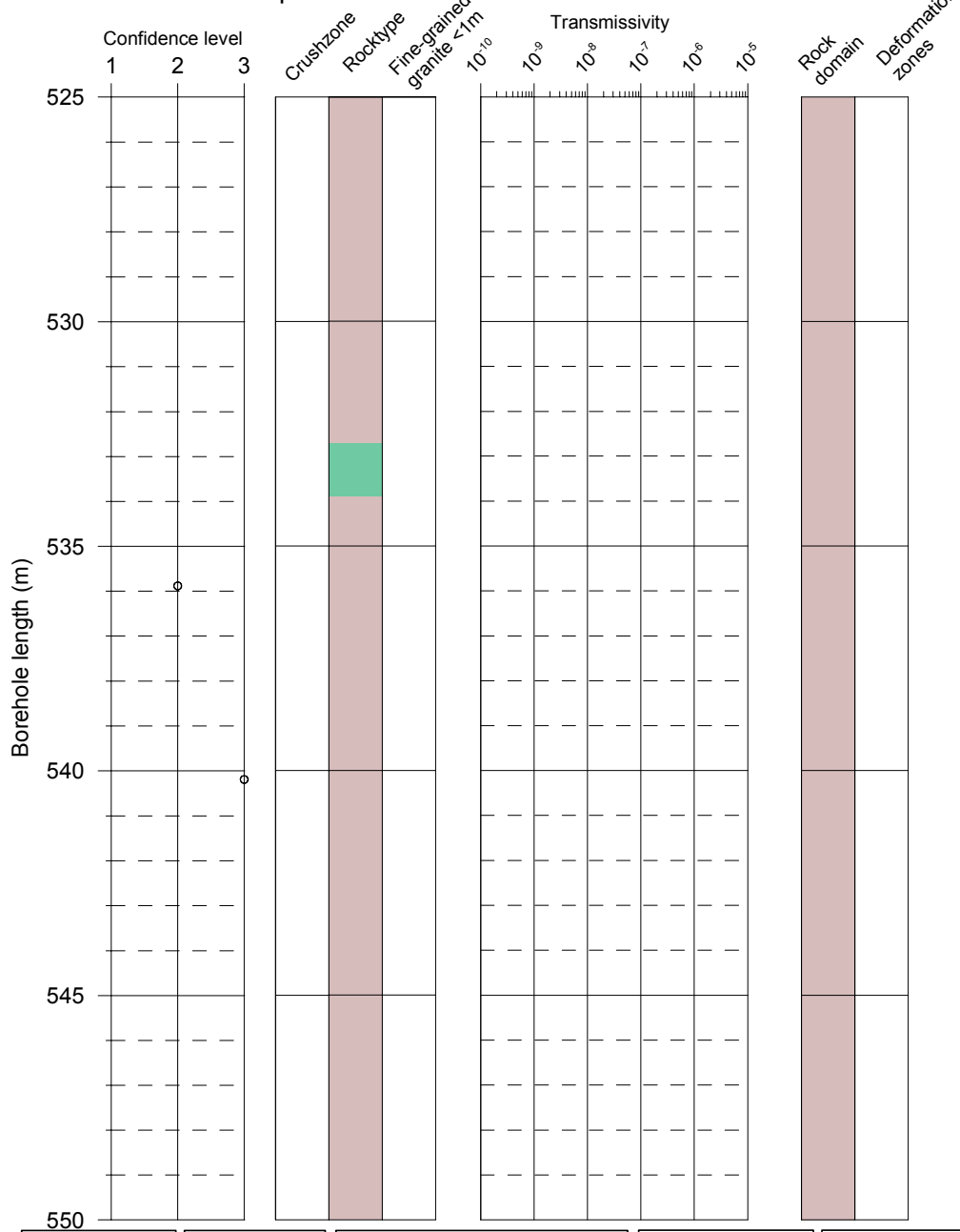
Deformation zones

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KFM04A

Boremap

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■ Granite to granodiorite
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■ Granodiorite, metamorphic
■ Volcanic rock

PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

Rock domains

- ▨ RFM012
- RFM018
- RFM029

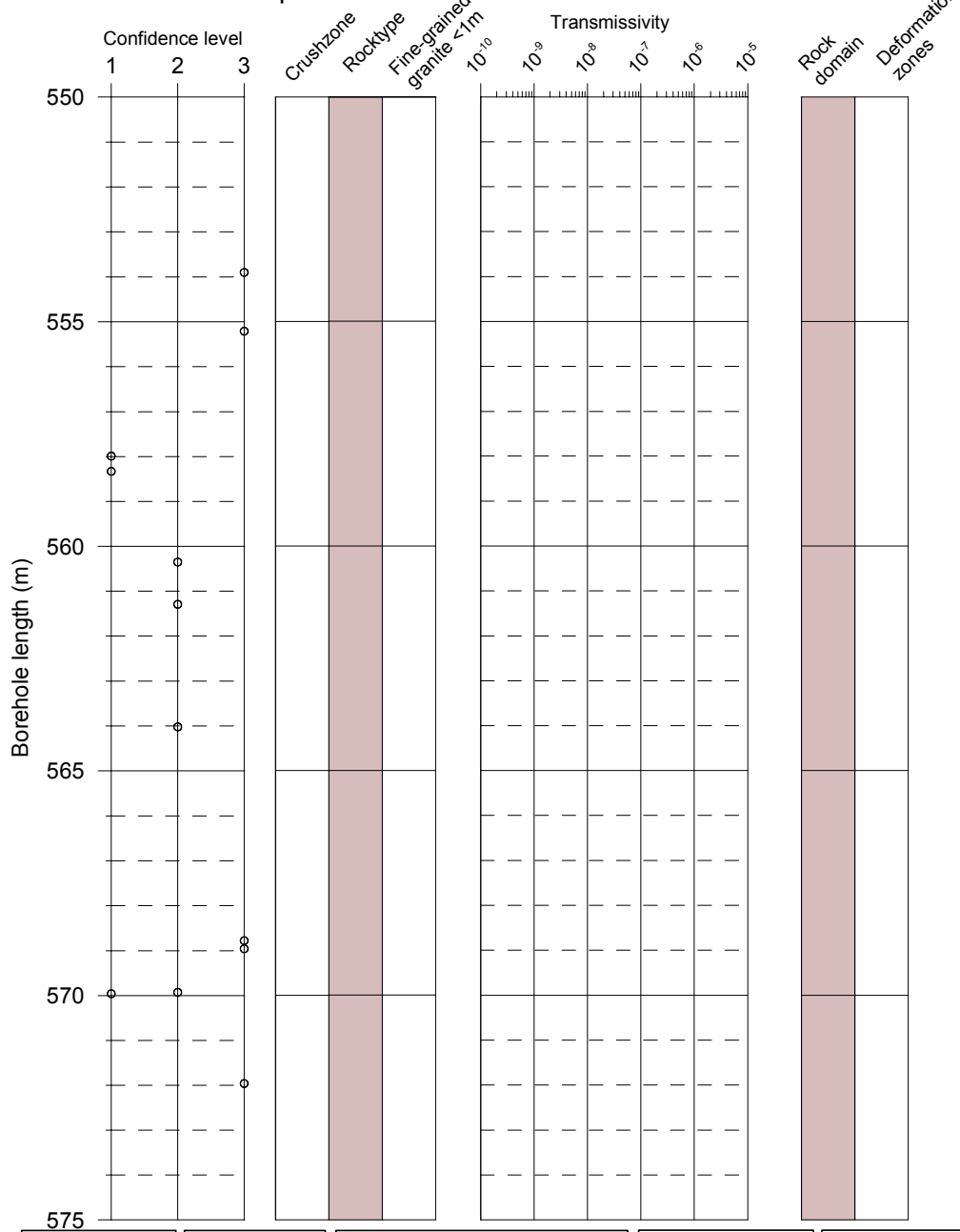
Deformation zones

- ▨ Zone

KFM04A

Boremap

PFL



Flow indication
open fractures

- Class 1
- Class 2
- Class 3
- Class 4
- Open fracture,
no flow indication

Confidence level
Open fractures

- 1 certain
- 2 probable
- 3 possible

■ Fine-grained granite
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PFL-anomaly
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Rock domains

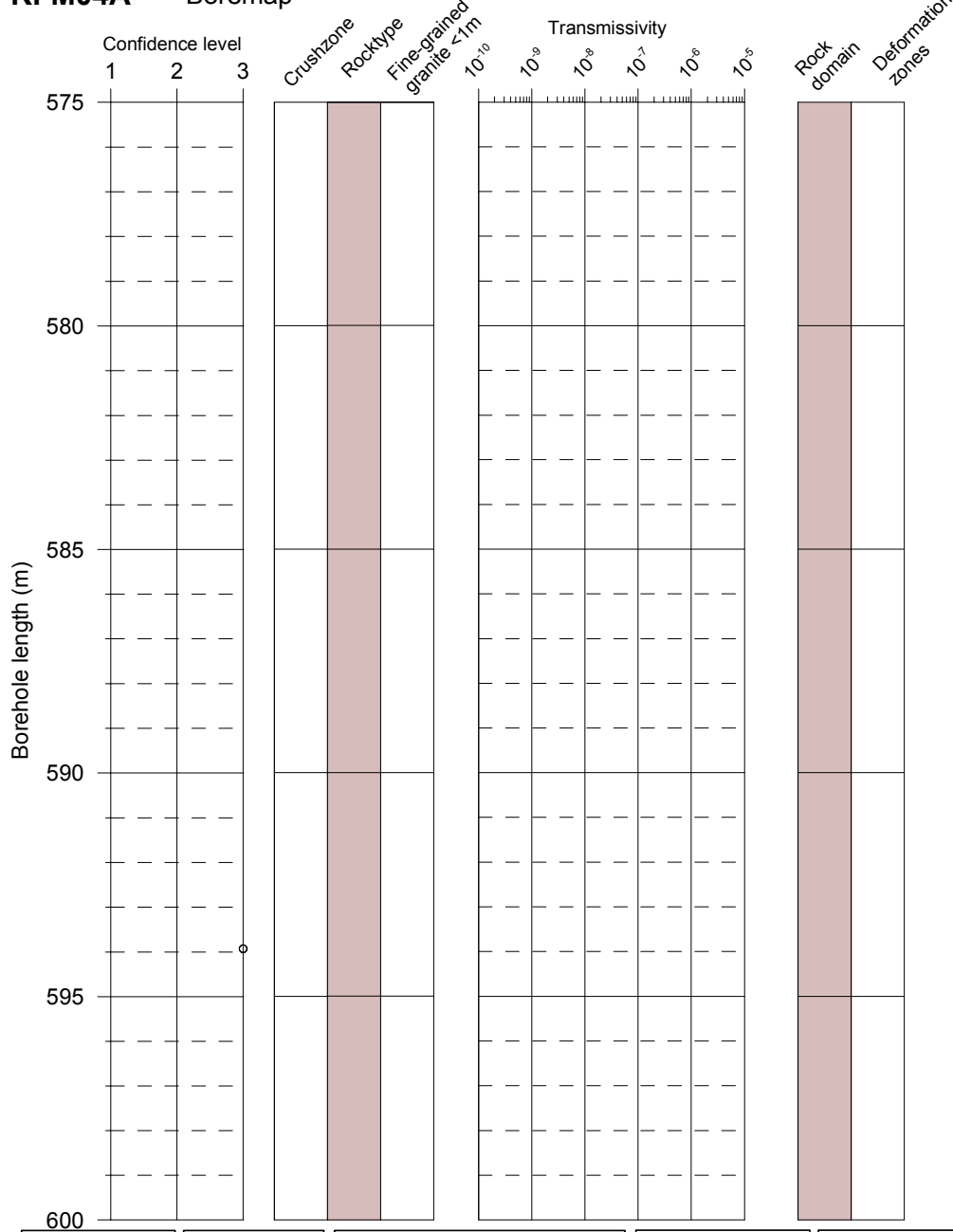
- ▨ RFM012
- RFM018
- RFM029

Deformation zones

- ▨ Zone

KFM04A Boremap

PFL



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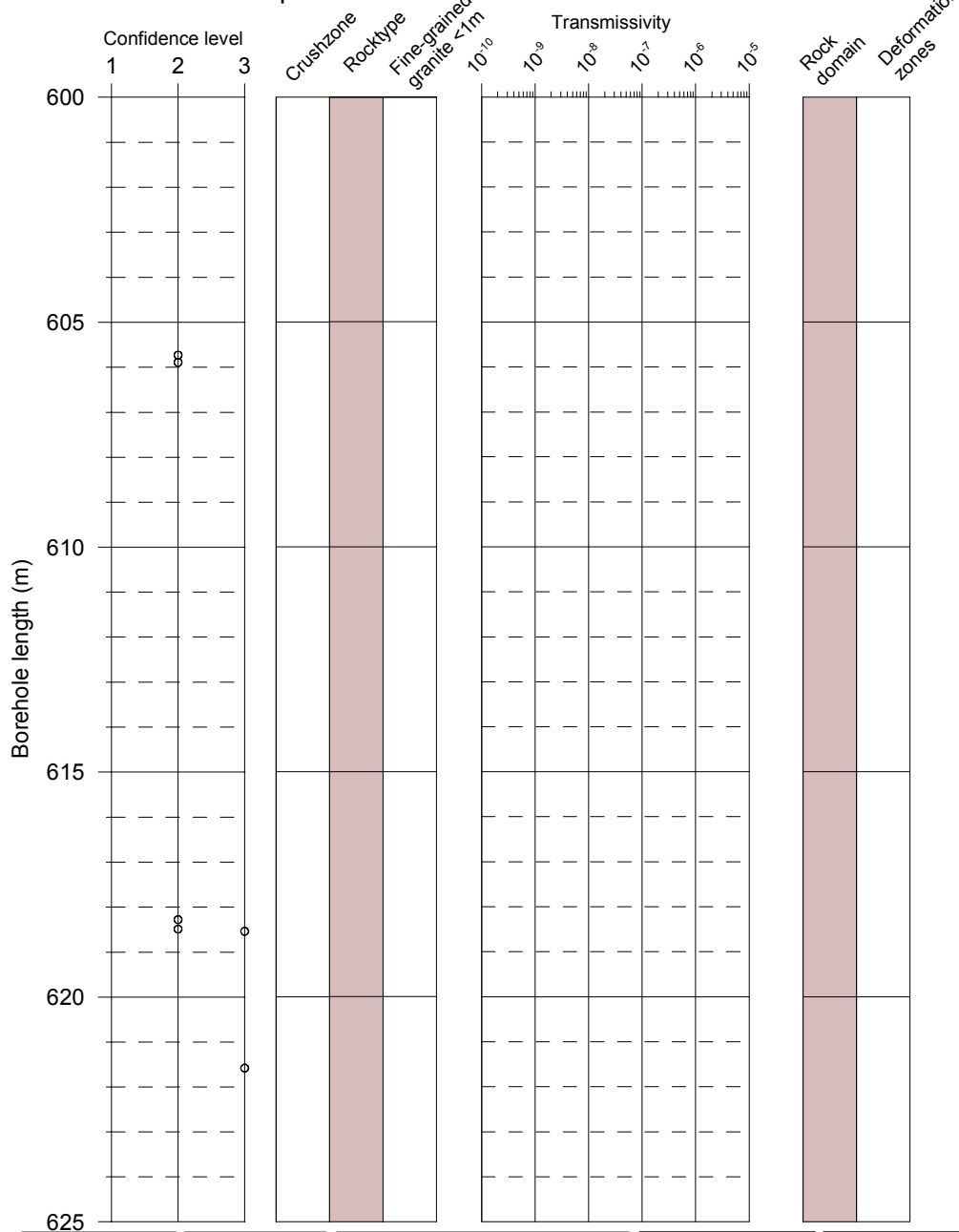
- ▨ RFM012
- RFM018
- RFM029

Deformation zones

- ▨ Zone

KFM04A Boremap

PFL



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Rock domains

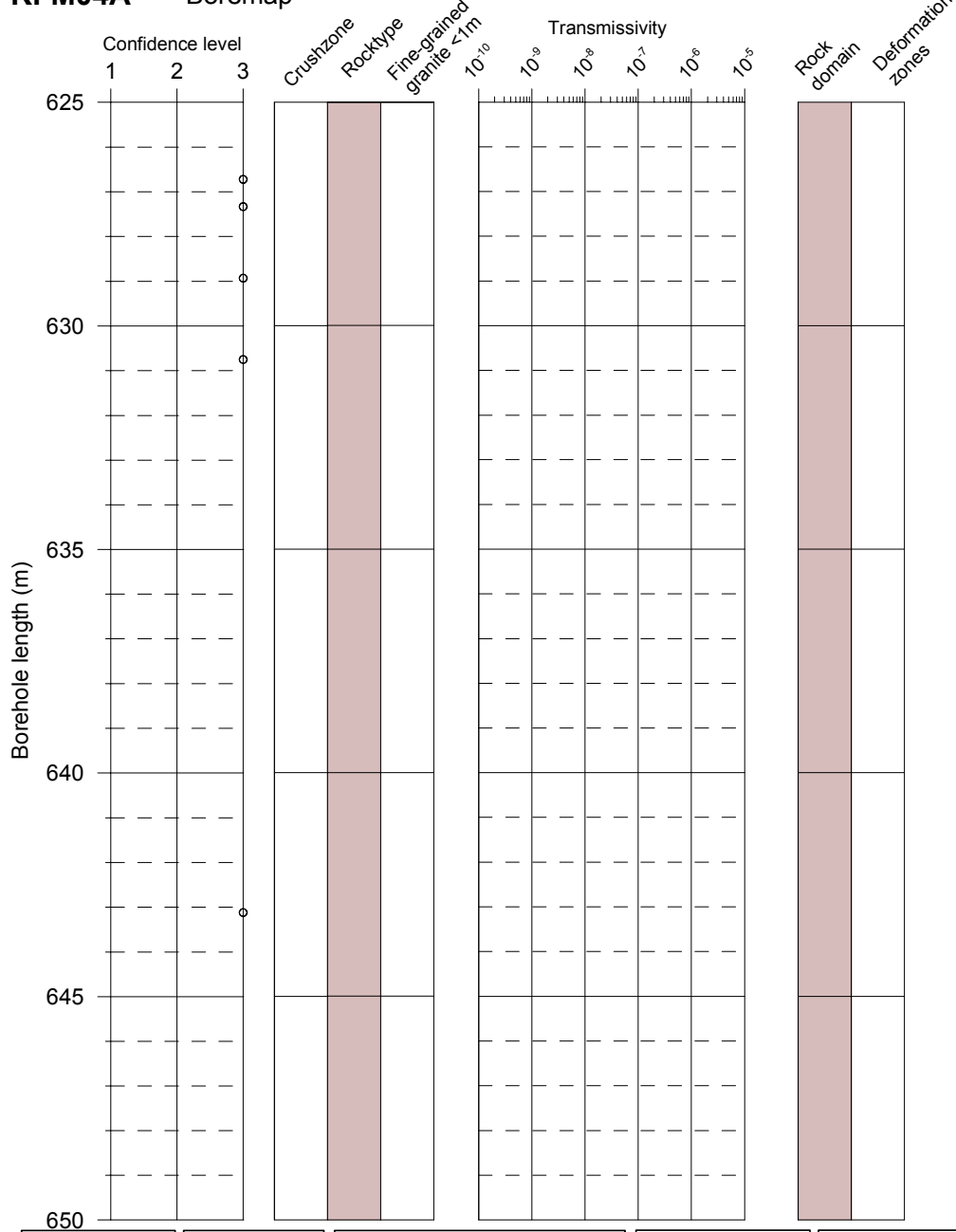
- ▨ RFM012
- RFM018
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Deformation zones

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KFM04A Boremap

PFL



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Rock domains

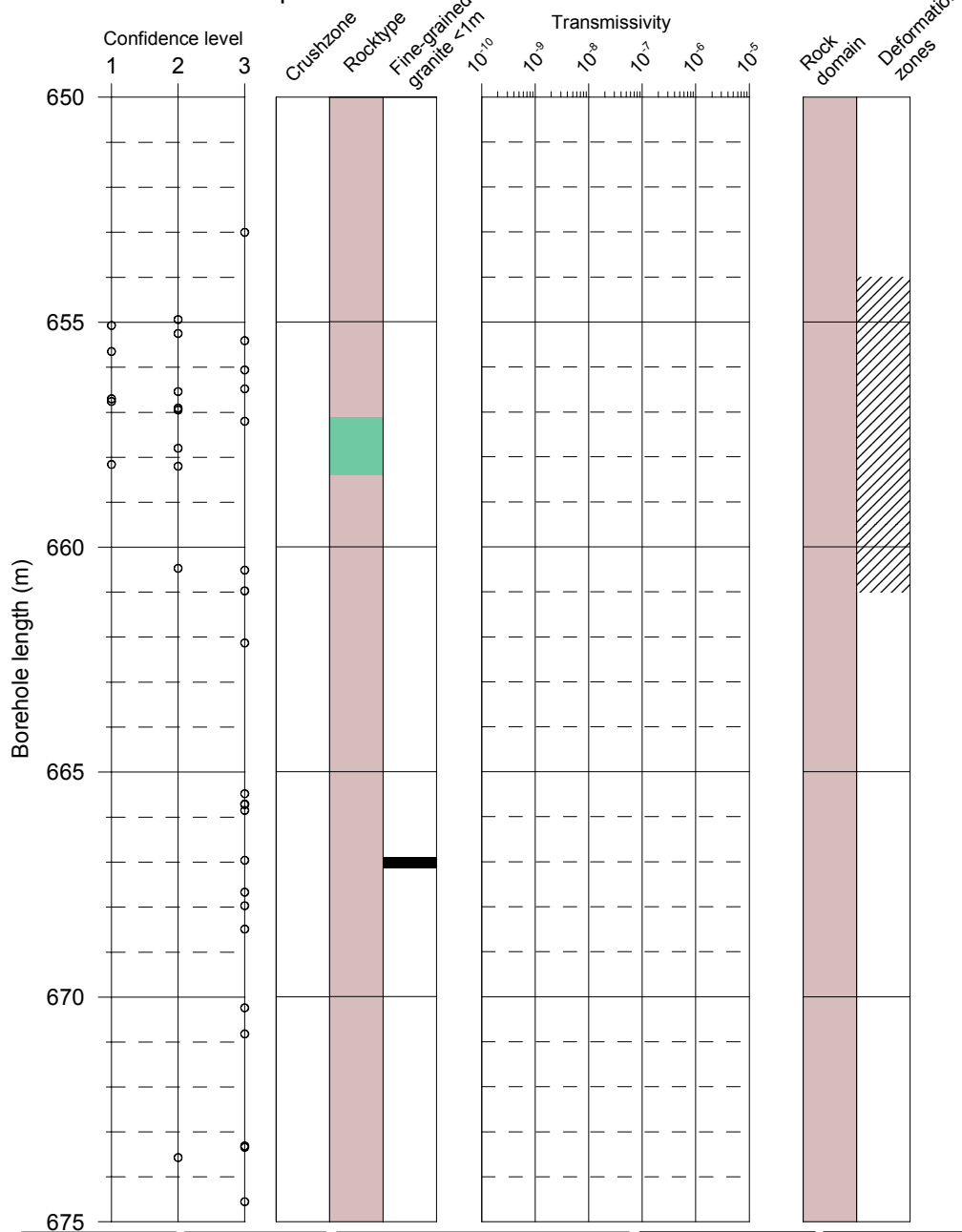
- ▨ RFM012
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- RFM029

Deformation zones

- ▨ Zone

KFM04A Boremap

PFL



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Rock domains

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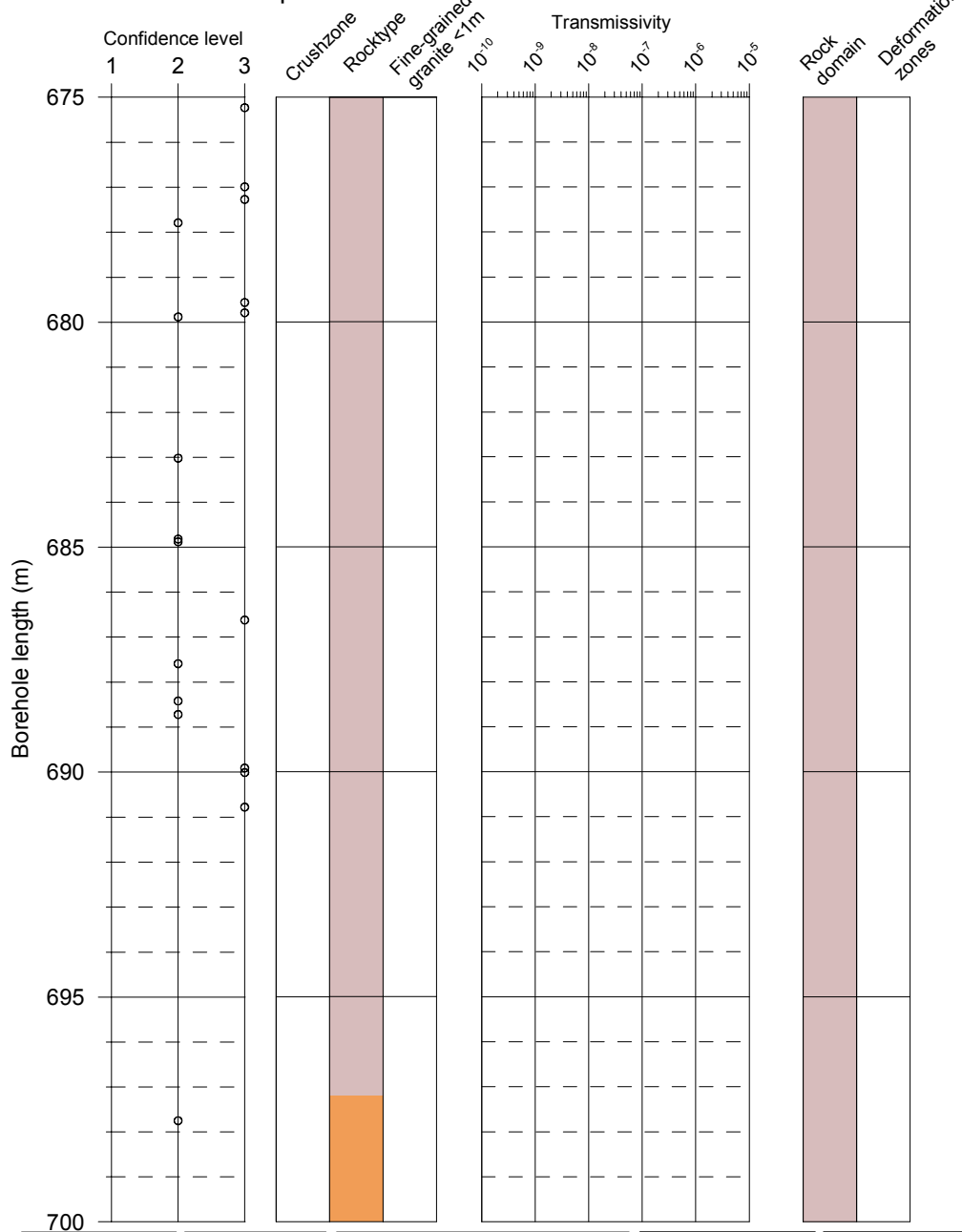
Deformation zones

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KFM04A

Boremap

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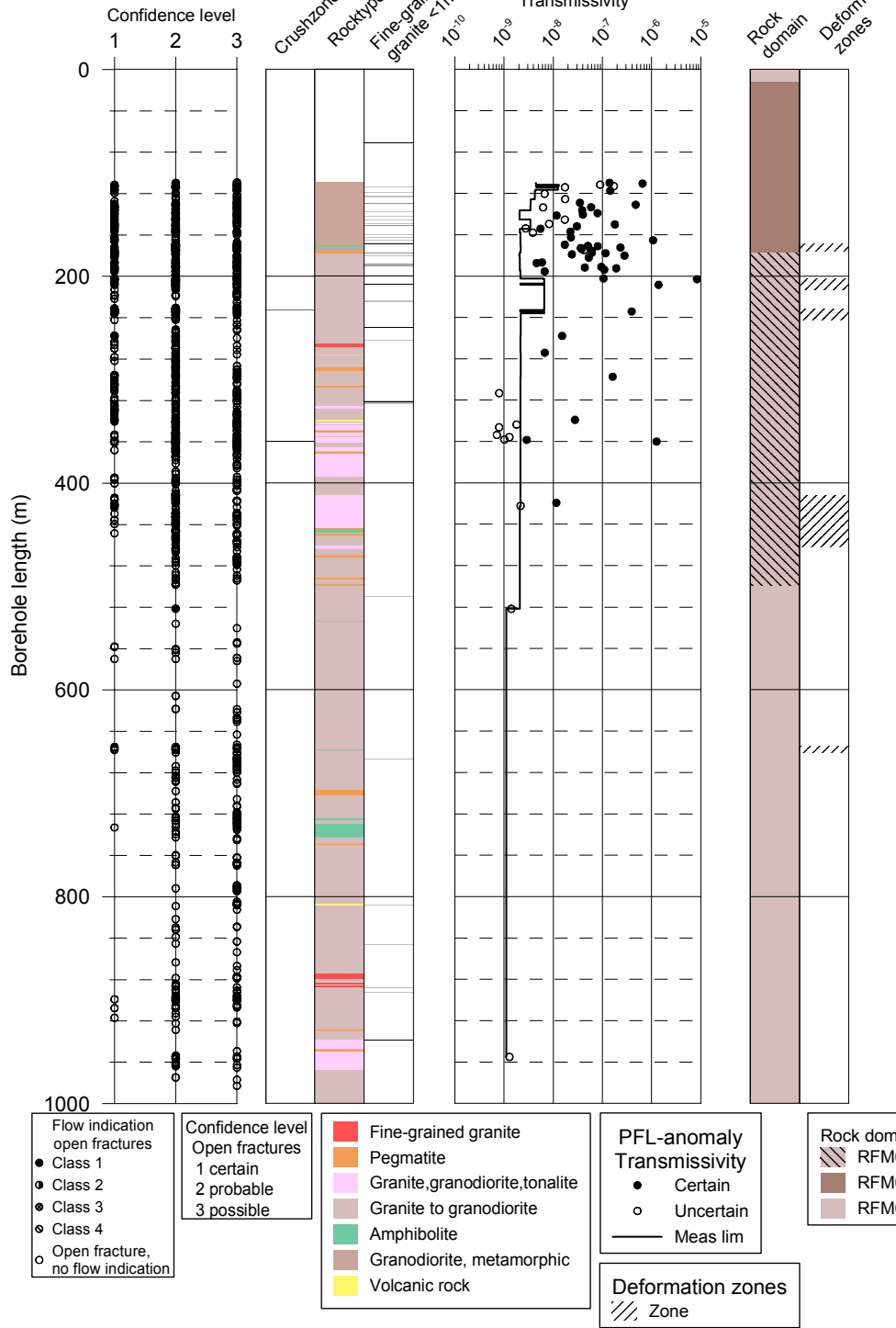
Deformation zones

- ▨ Zone

KFM04A

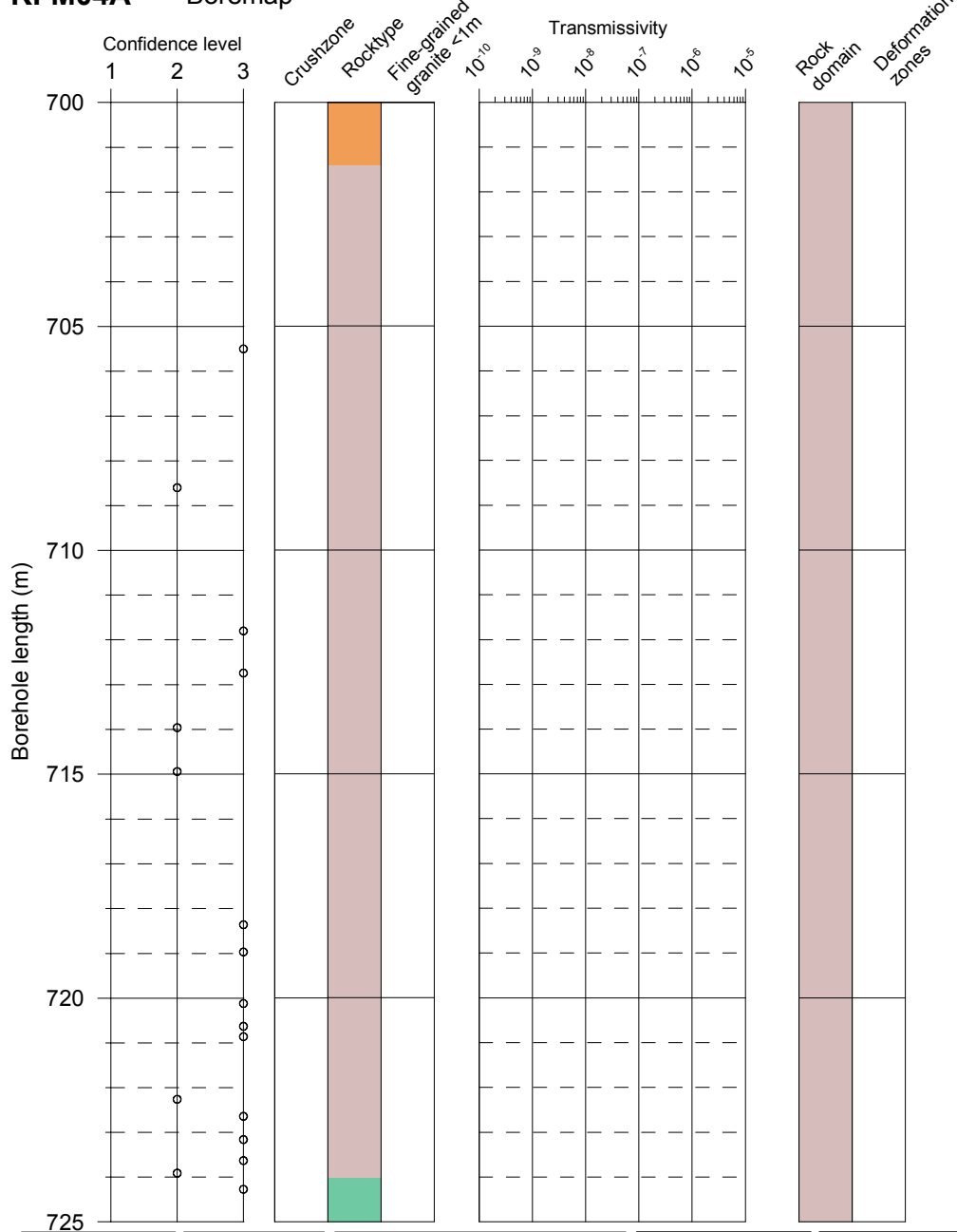
Boremap

PFL



KFM04A Boremap

PFL



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open fractures

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PFL-anomaly
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Rock domains

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- █ RFM029

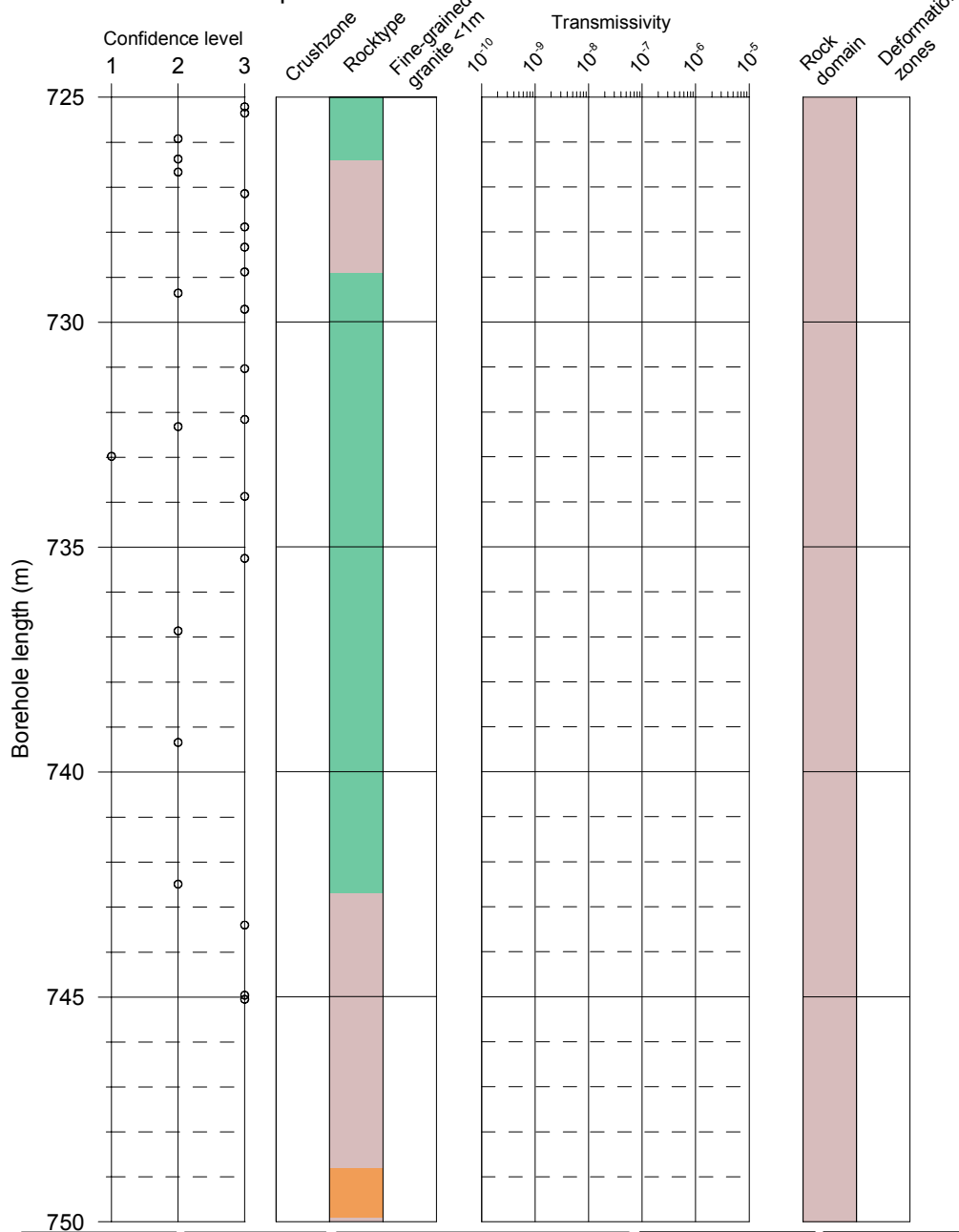
Deformation zones

- ▨ Zone

KFM04A

Boremap

PFL



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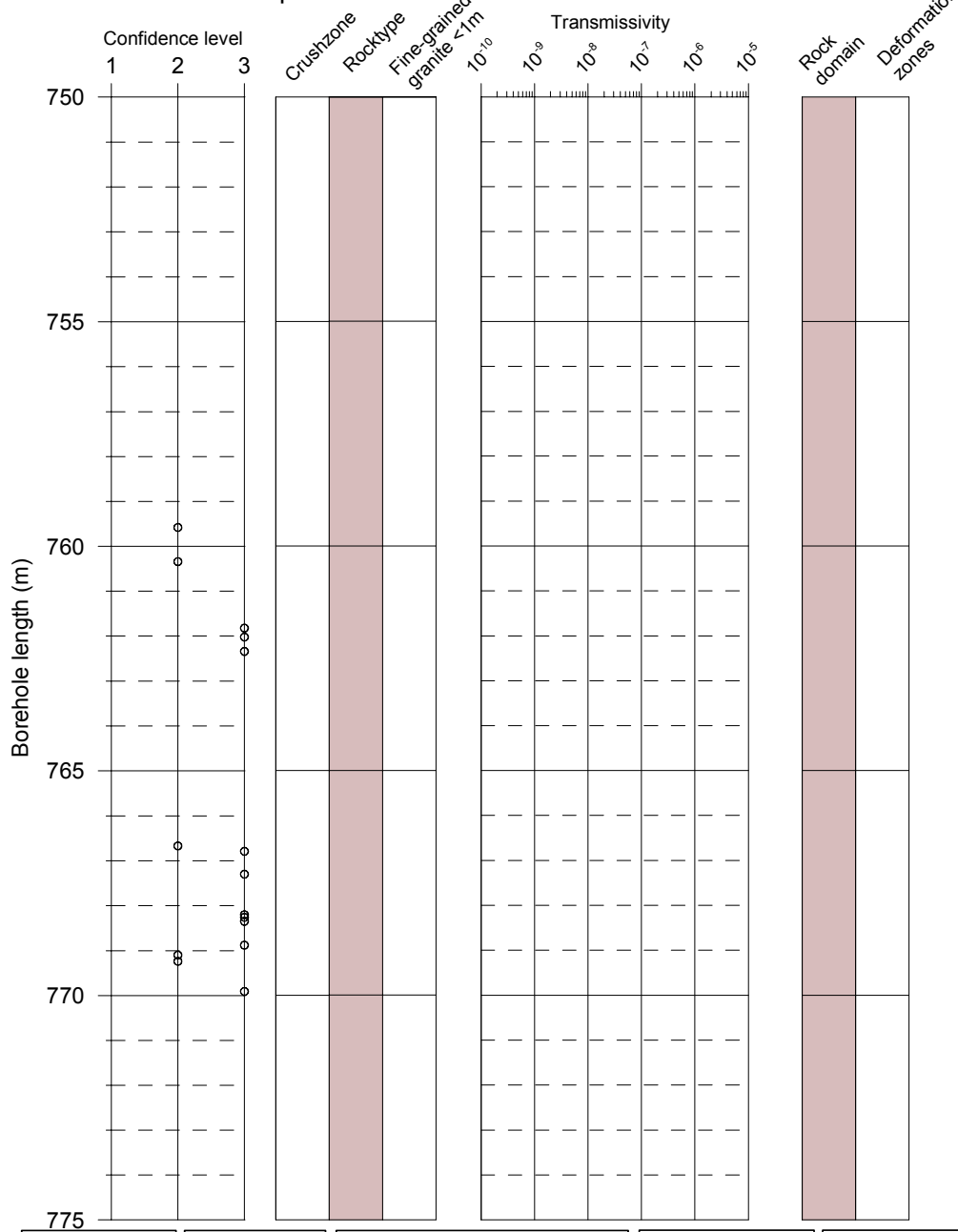
Deformation zones

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KFM04A

Boremap

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Rock domains

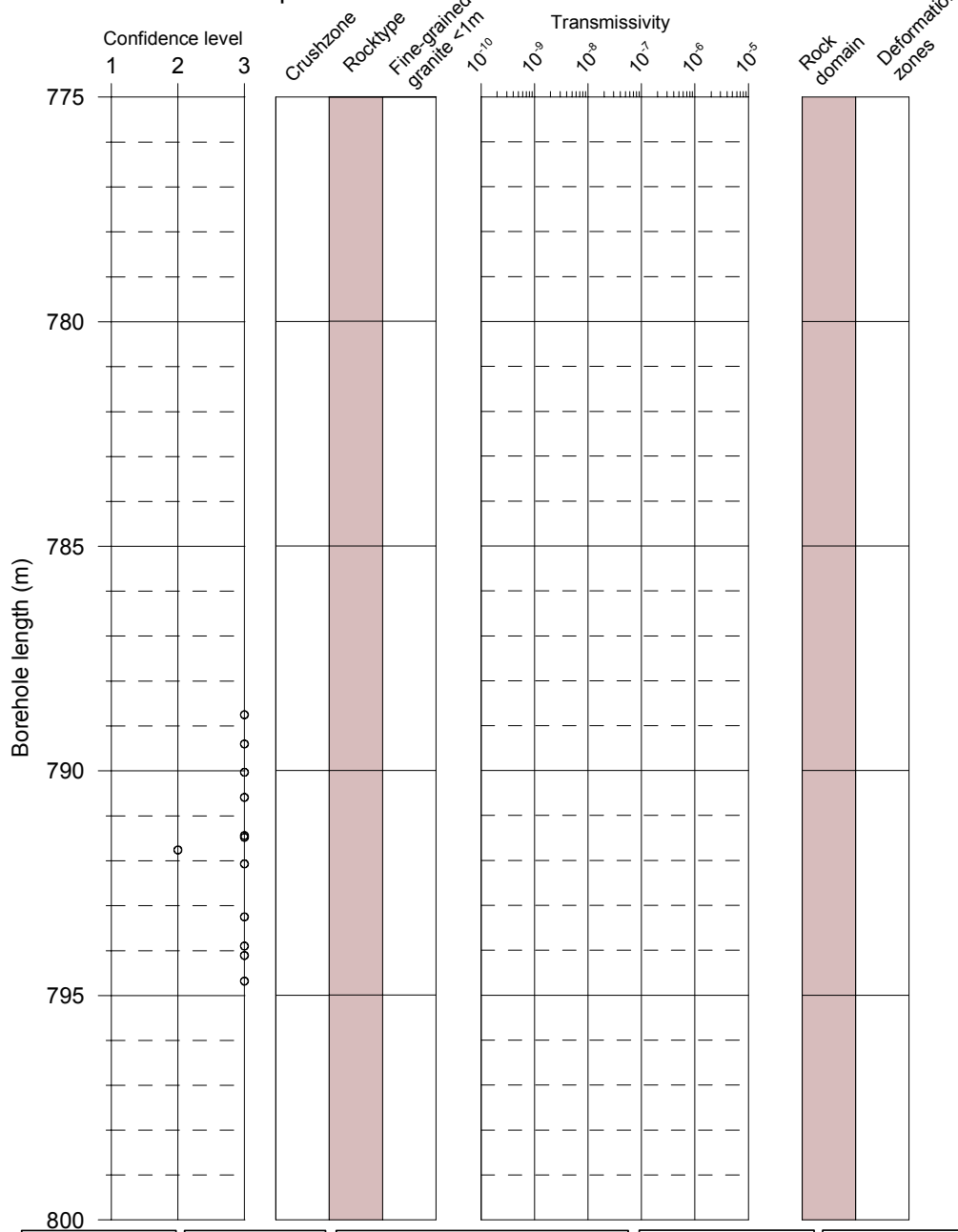
- ▨ RFM012
- RFM018
- RFM029

Deformation zones

- ▨ Zone

KFM04A Boremap

PFL



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Rock domains

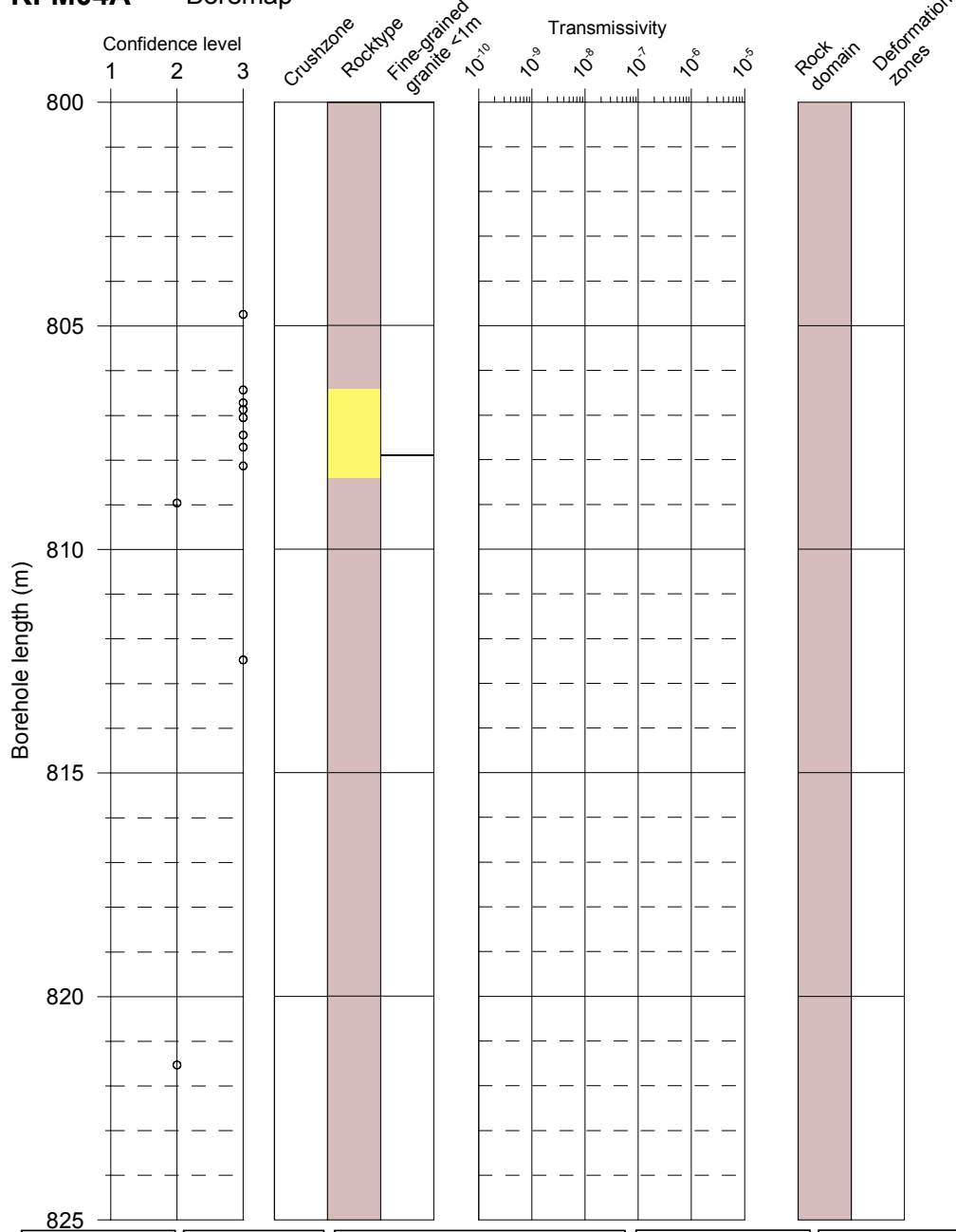
- ▨ RFM012
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Deformation zones

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KFM04A Boremap

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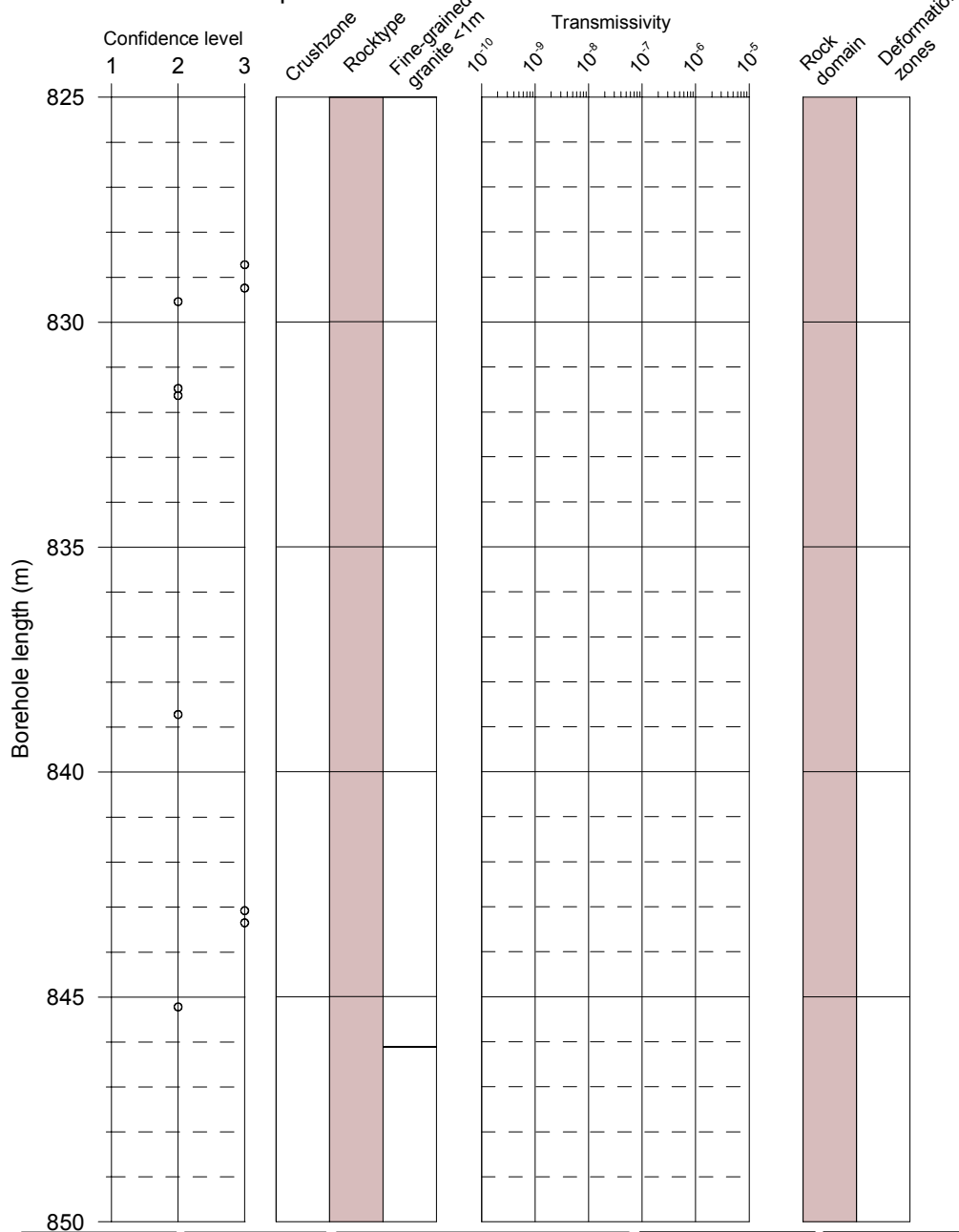
Deformation zones

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KFM04A

Boremap

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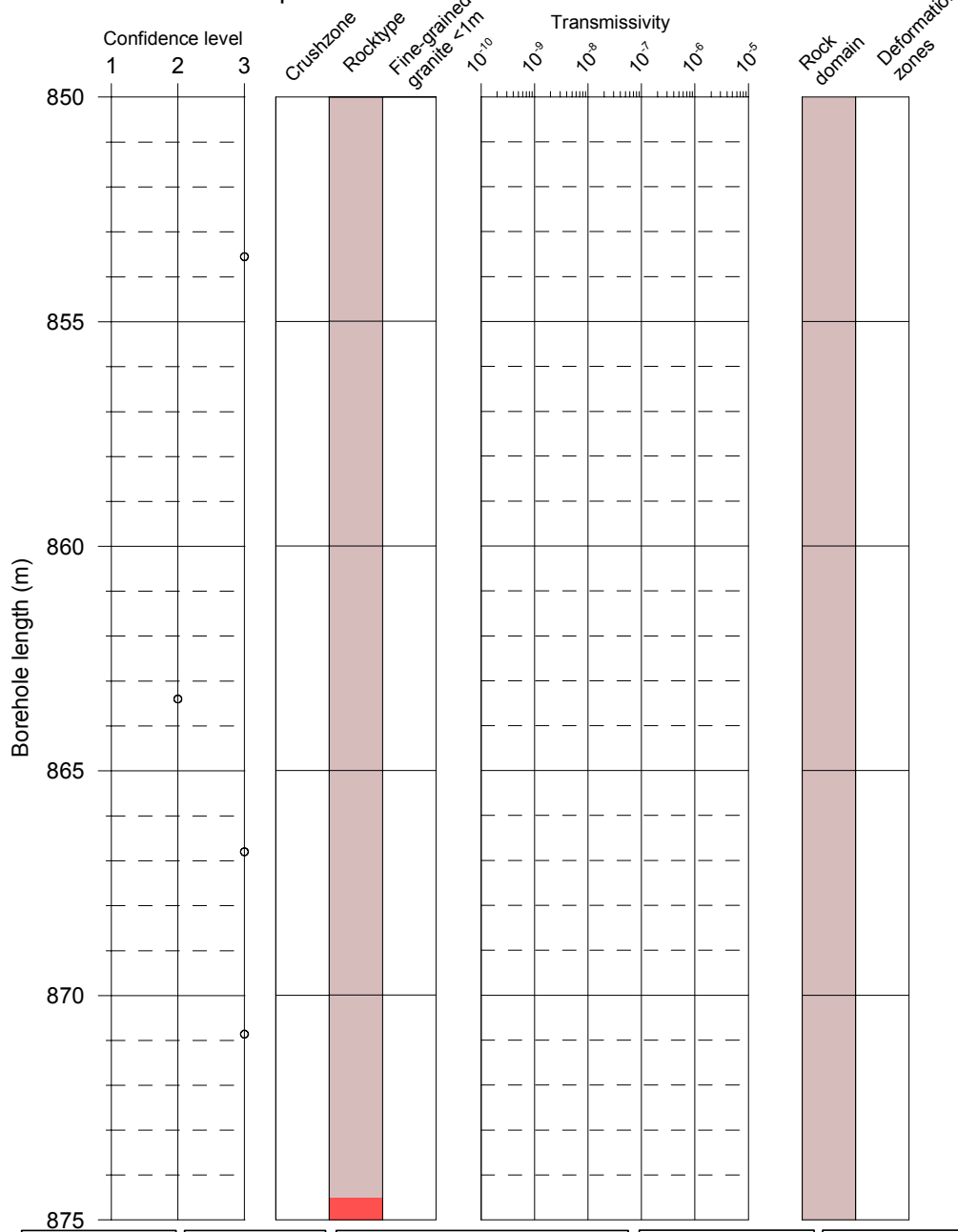
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Deformation zones

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KFM04A Boremap

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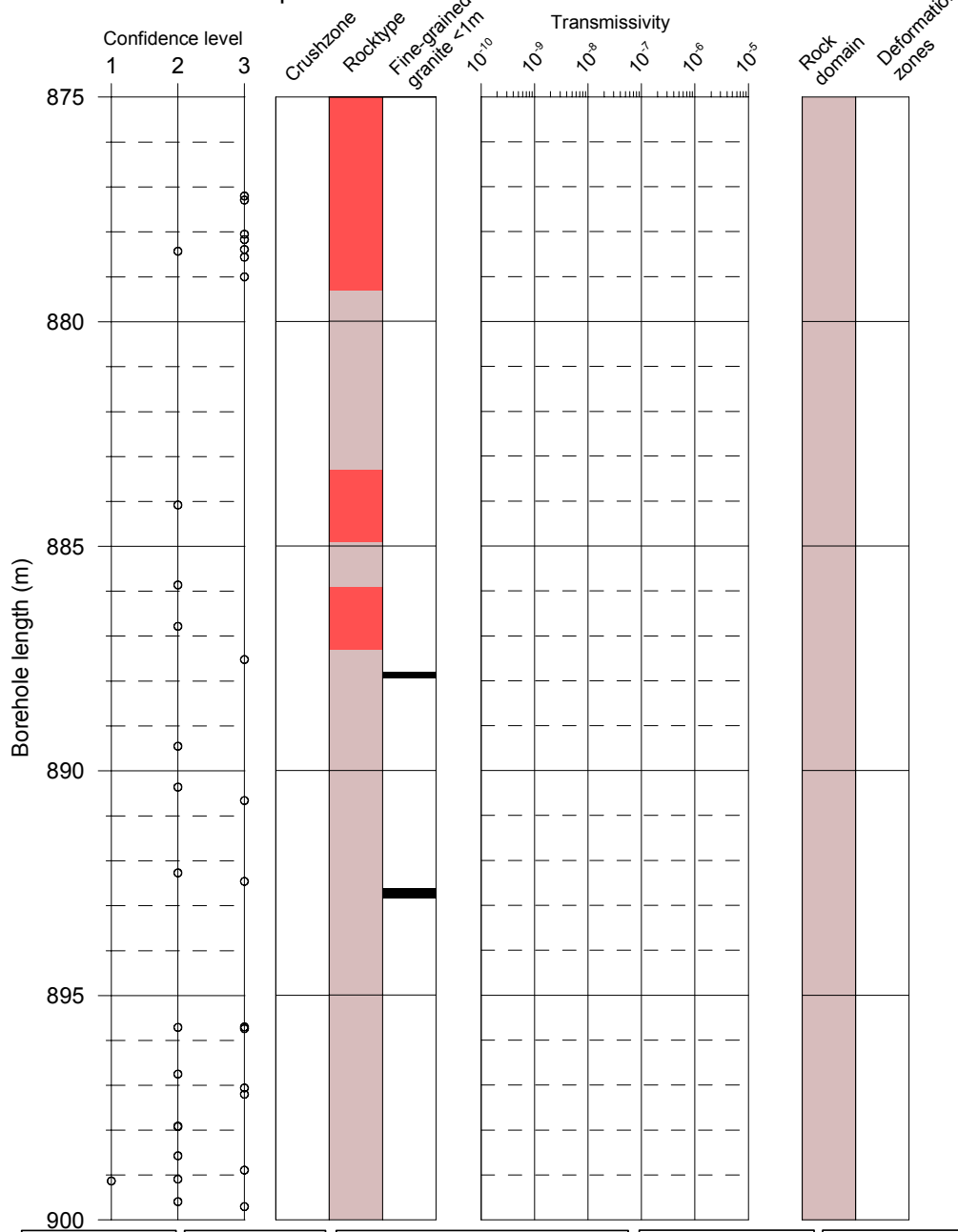
Deformation zones

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KFM04A

Boremap

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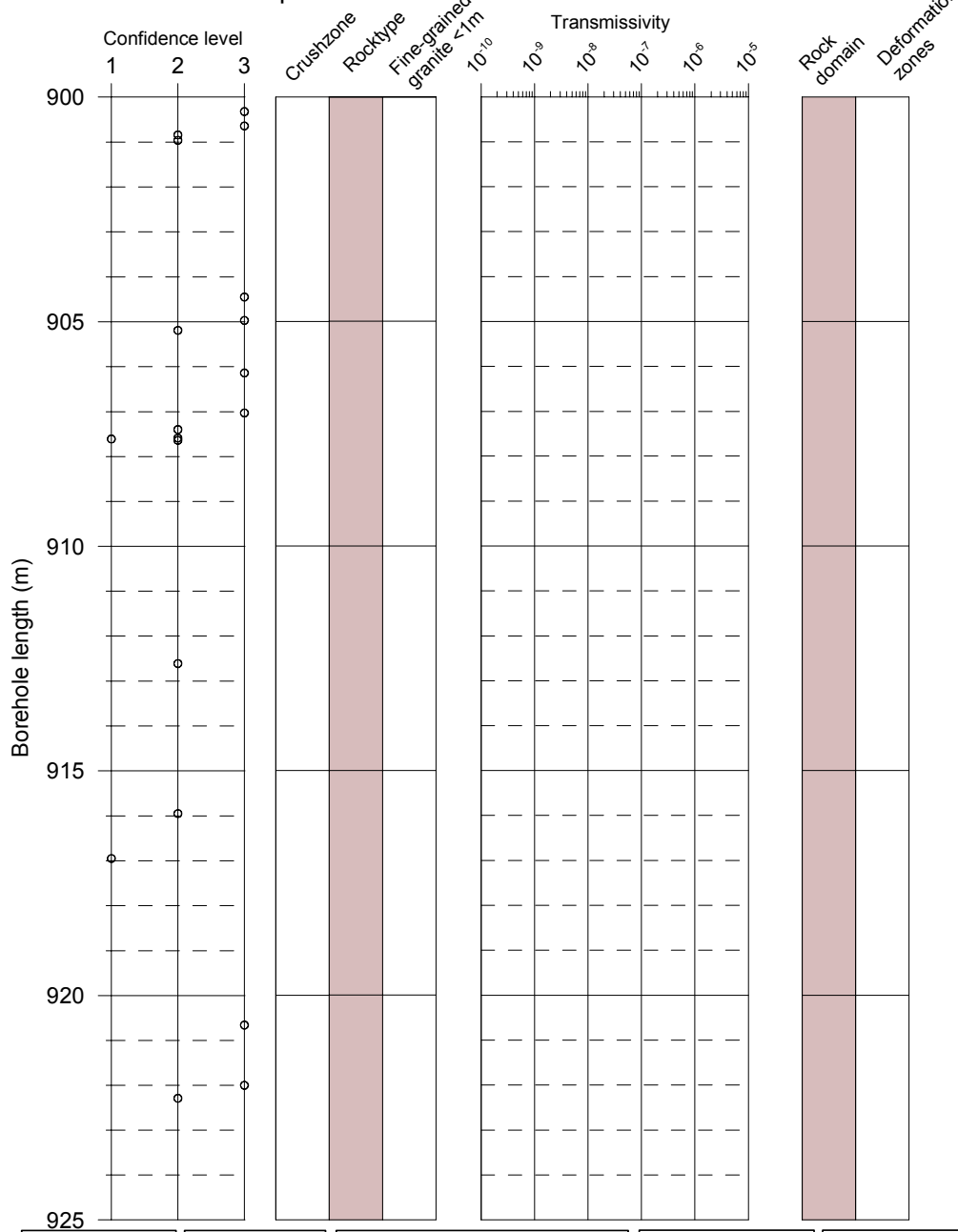
Deformation zones

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KFM04A

Boremap

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Transmissivity

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Rock domains

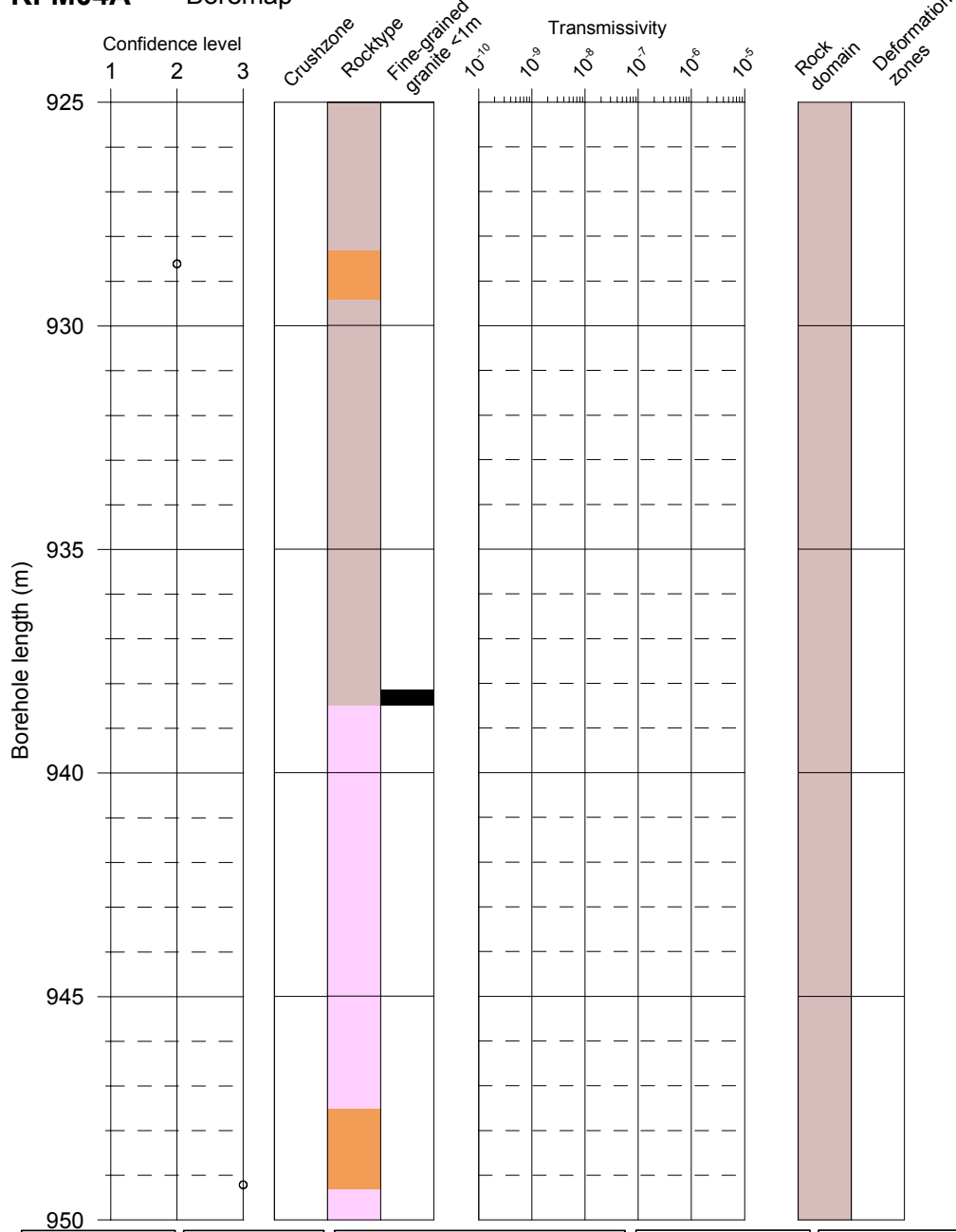
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- RFM029

Deformation zones

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KFM04A Boremap

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PFL-anomaly
Transmissivity

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Rock domains

- ▨ RFM012
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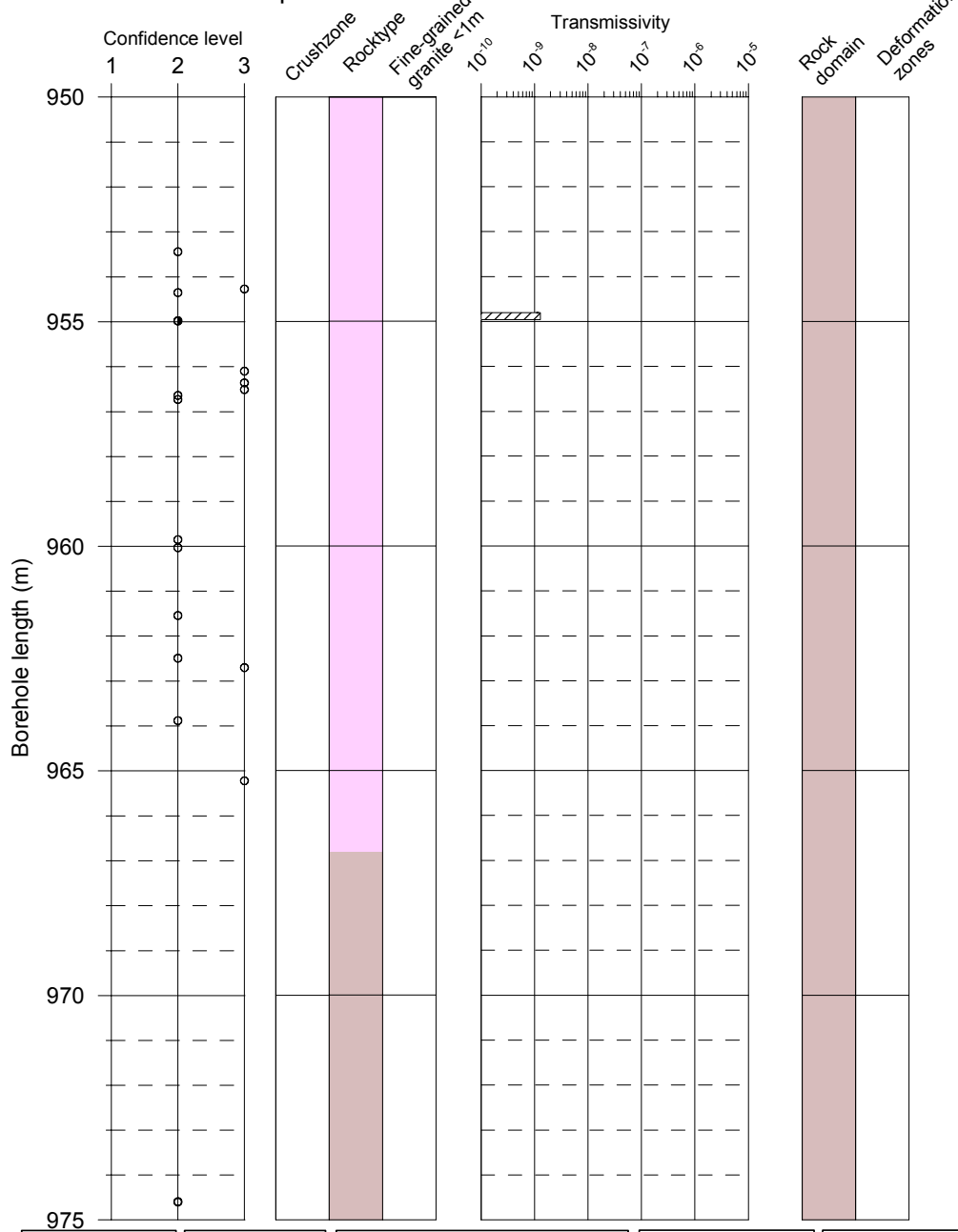
Deformation zones

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KFM04A

Boremap

PFL



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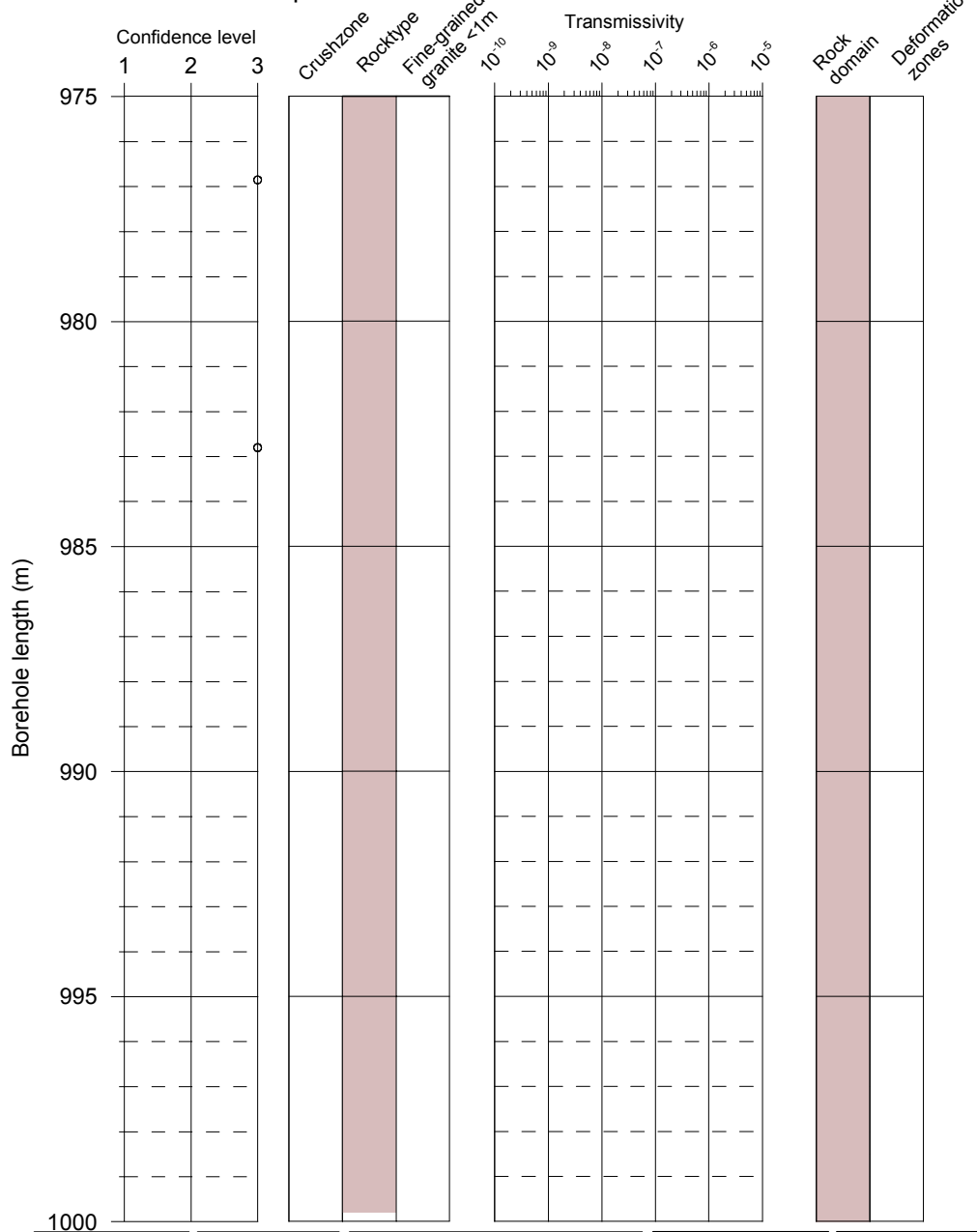
Deformation zones

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KFM04A

Boremap

PFL



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Deformation zones

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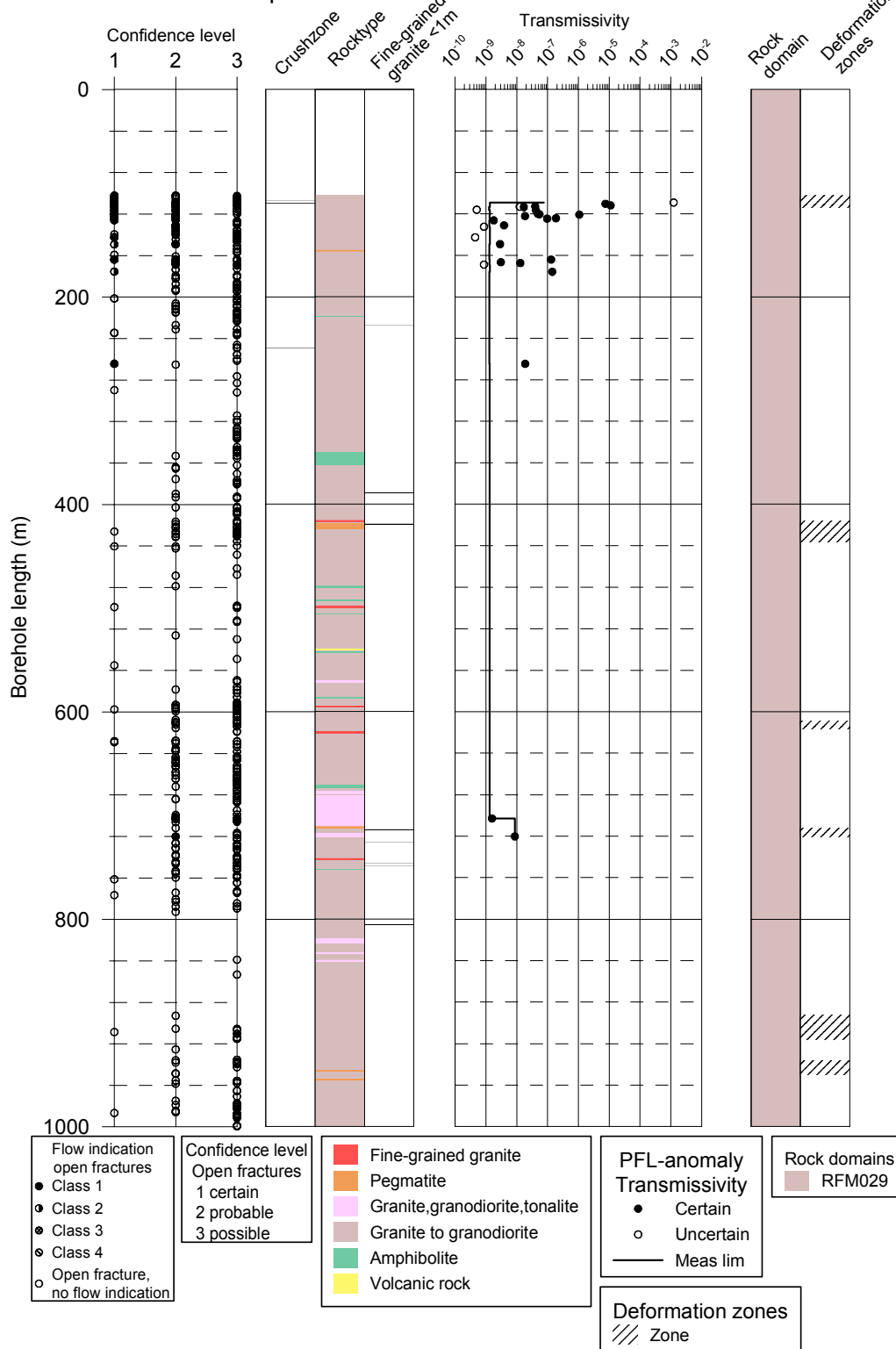
Appendix 3:5 – KFM05A

In this appendix plots showing Flow log anomalies to core mapped features in KFM05A for entire borehole and for every 25 meters of the borehole are found. BIPS images of PFL anomalies are also found.

KFM05A

Boremap

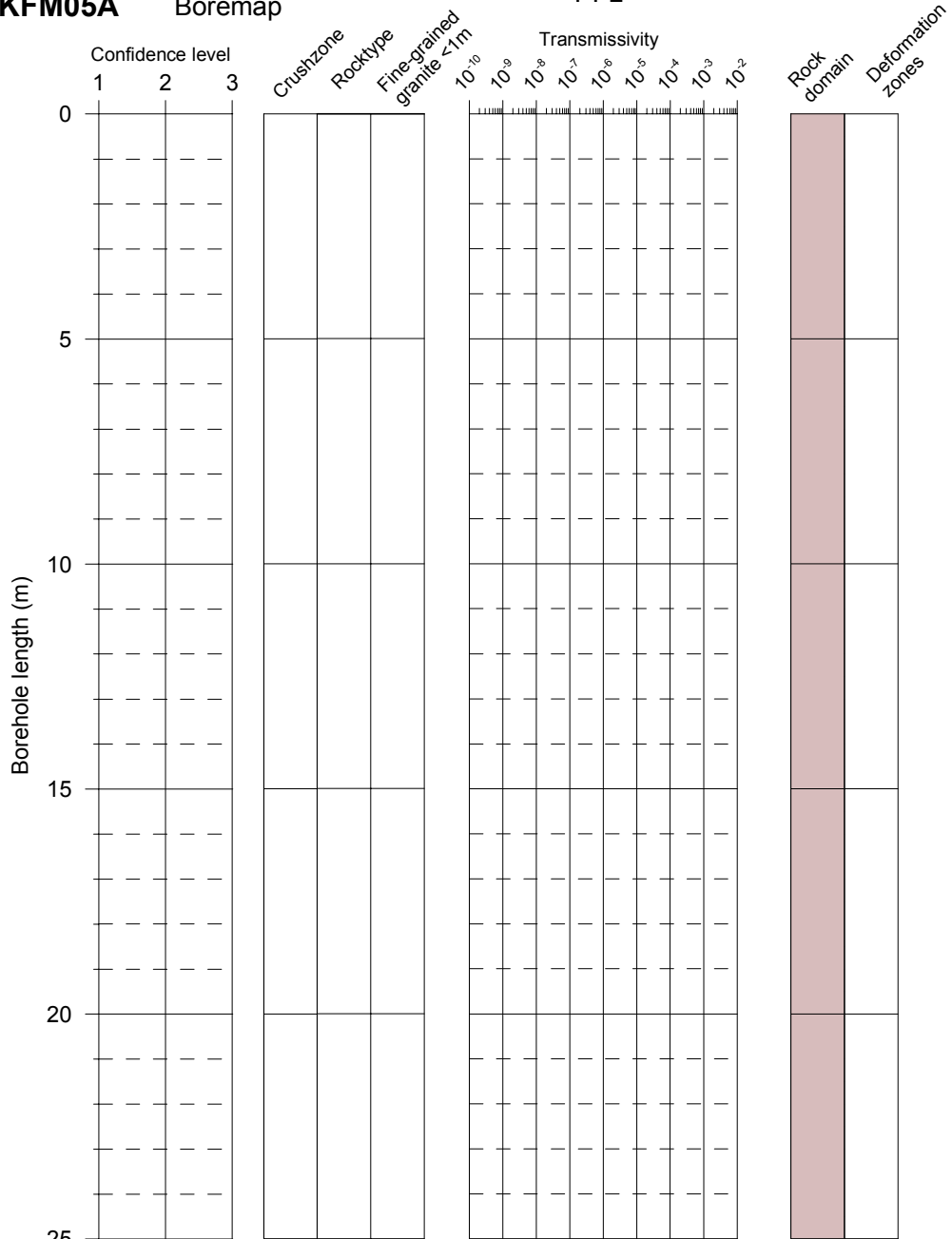
PFL



KFM05A

Boremap

PFL



Flow indication
open fractures

- Class 1
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Confidence level
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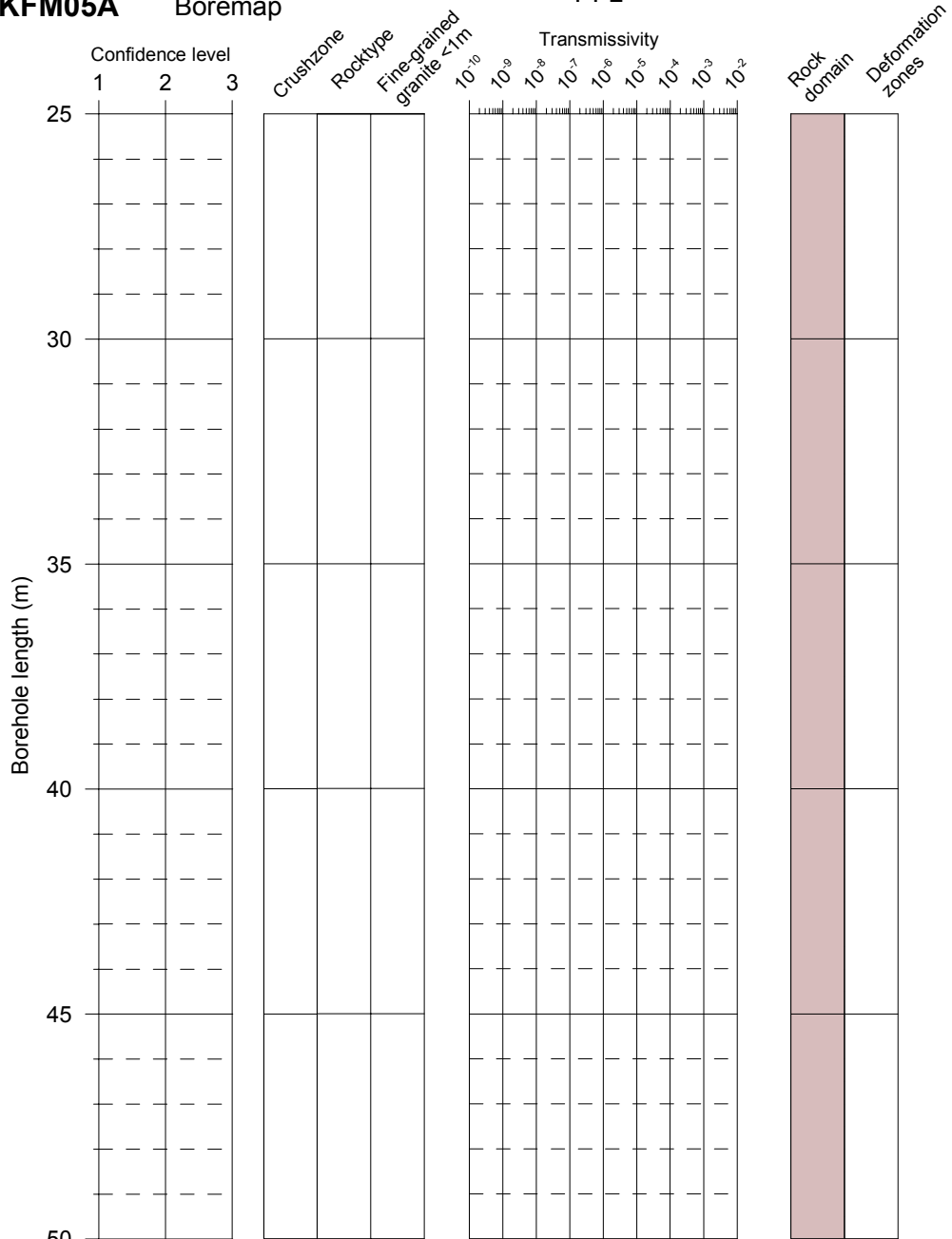
Rock domains
RFM029

Deformation zones
▨ Zone

KFM05A

Boremap

PFL



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Transmissivity

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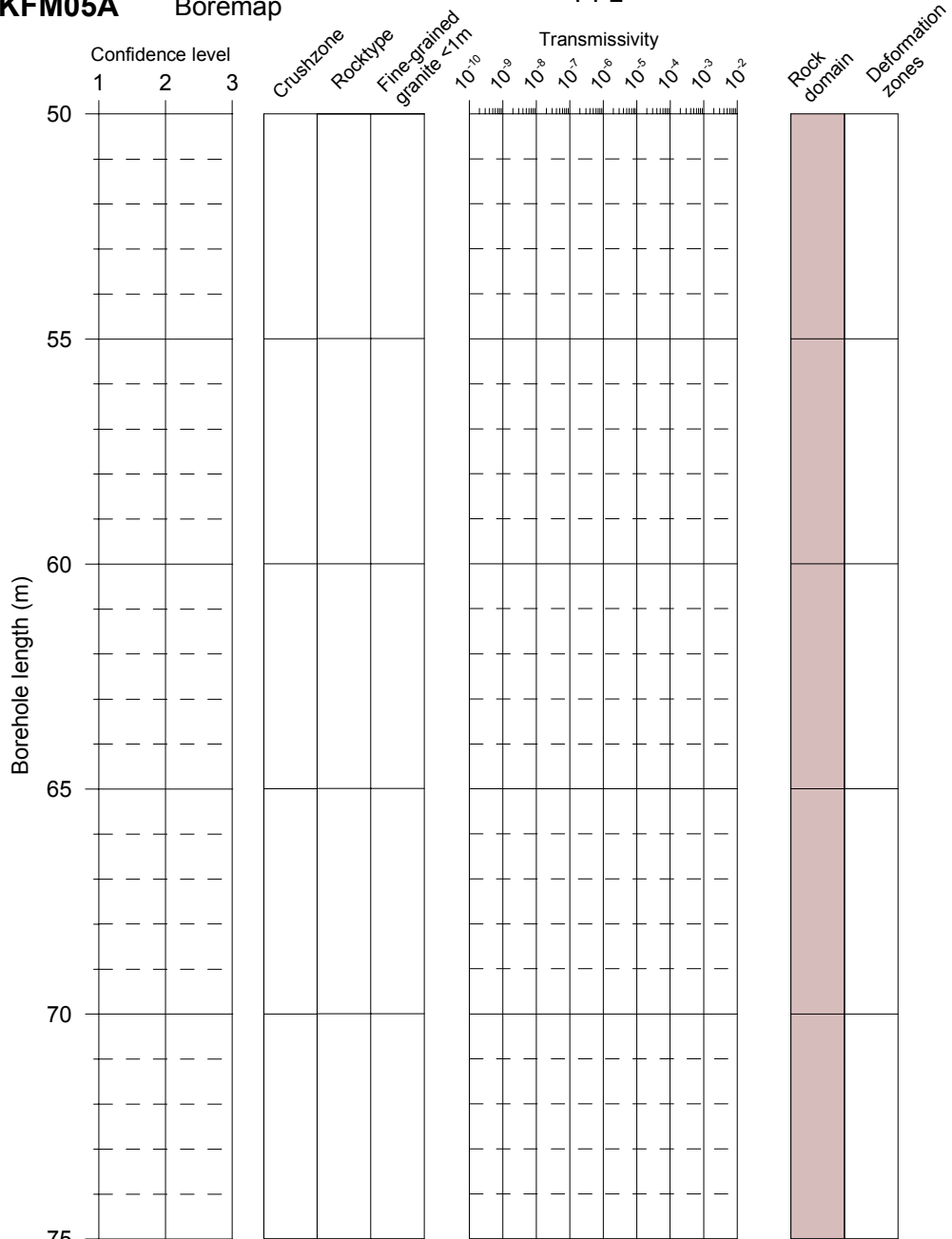
Rock domains
RFM029

Deformation zones
▨ Zone

KFM05A

Boremap

PFL



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Transmissivity

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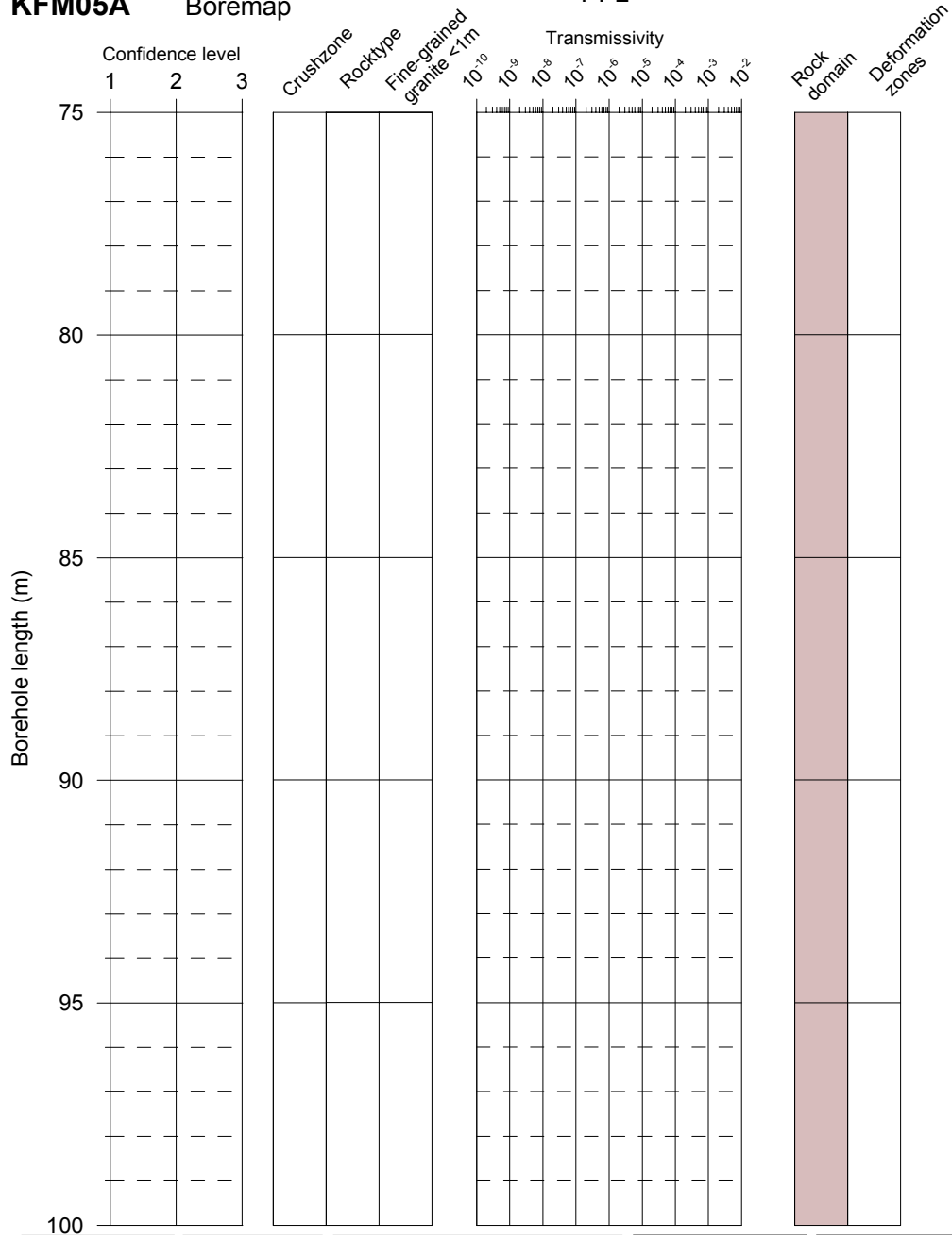
Rock domains
RFM029

Deformation zones
▨ Zone

KFM05A

Boremap

PFL



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PFL-anomaly
Transmissivity

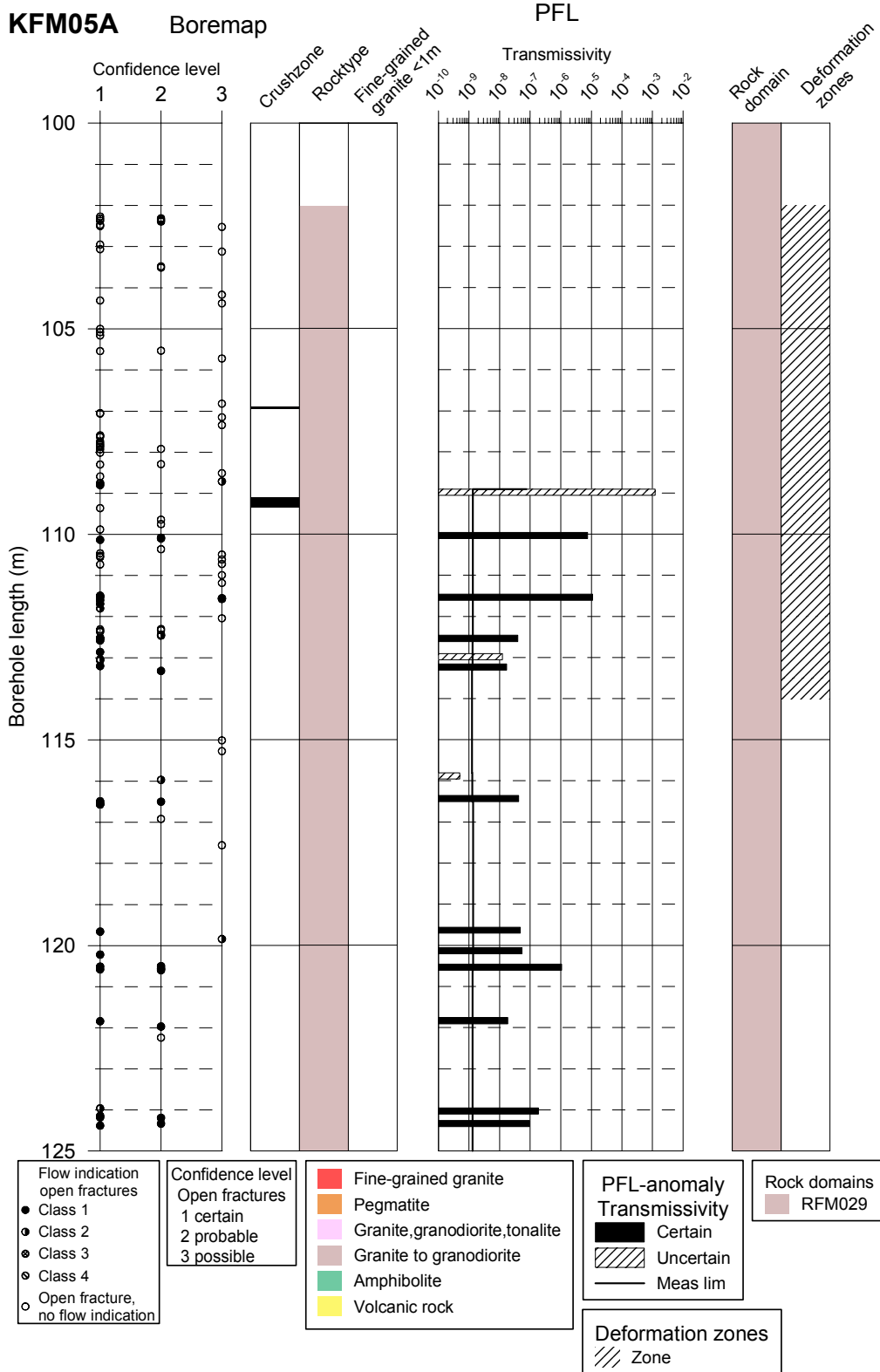
- Certain
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Rock domains

- RFM029

Deformation zones

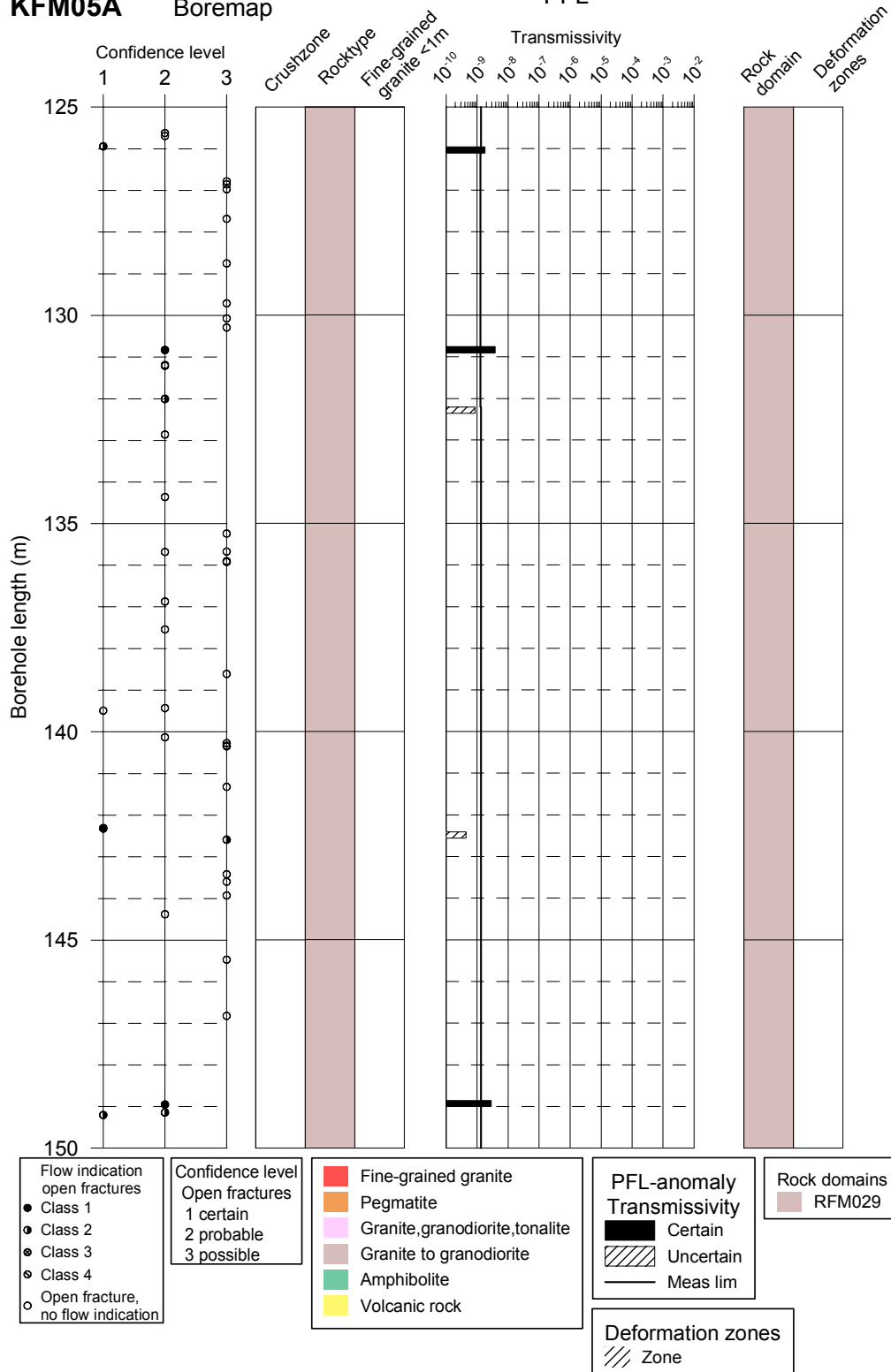
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KFM05A

Boremap

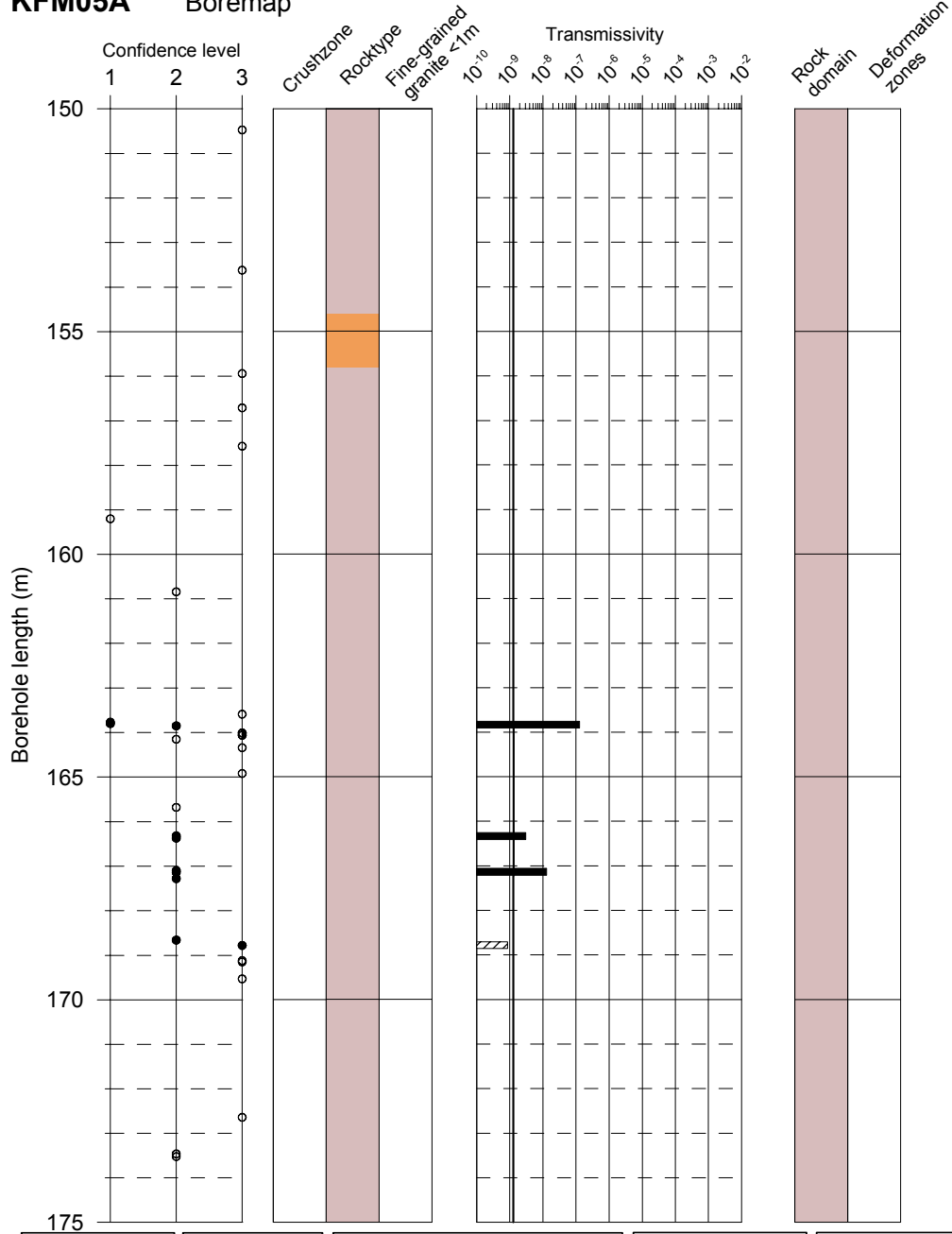
PFL



KFM05A

Boremap

PFL



Flow indication
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Rock domains

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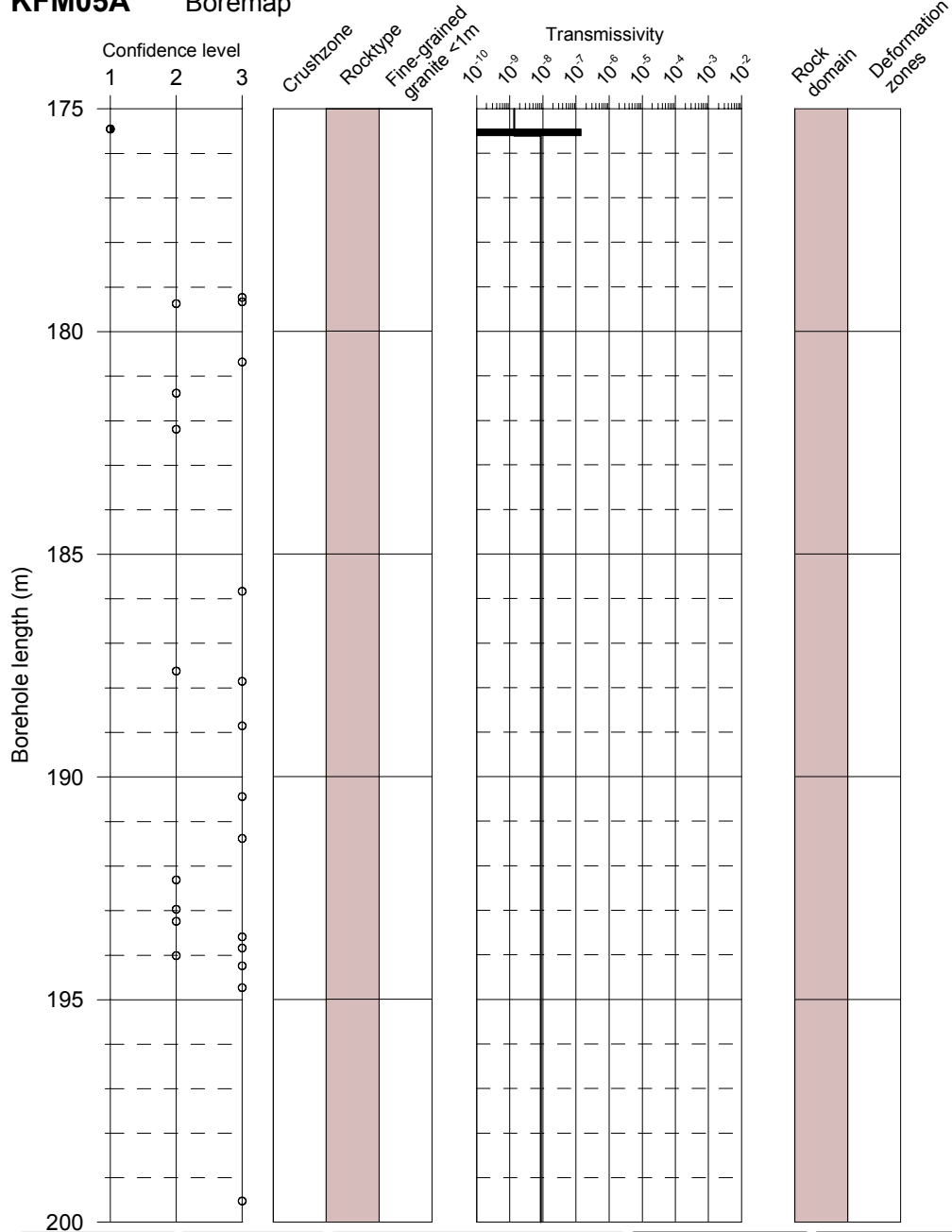
Deformation zones

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KFM05A

Boremap

PFL



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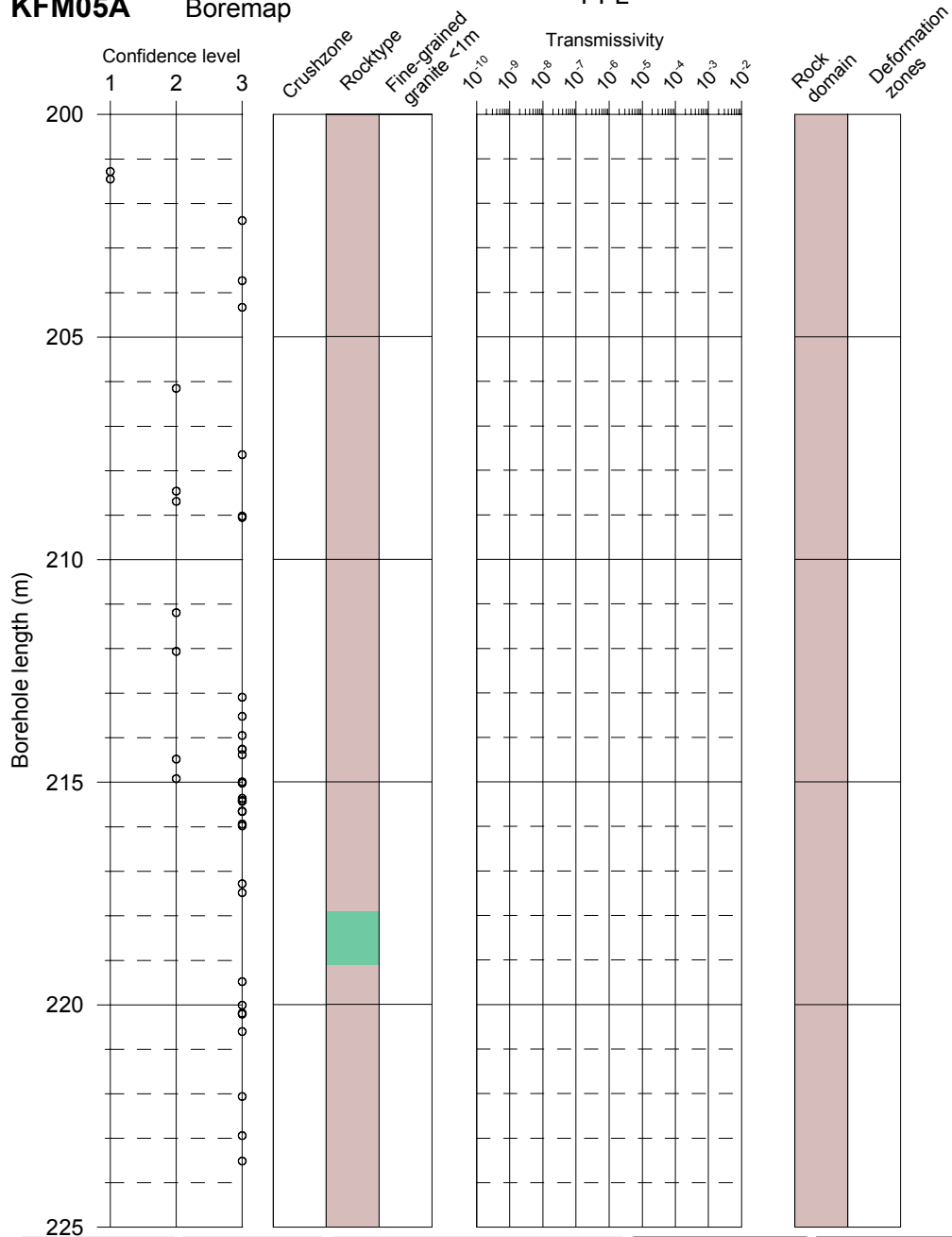
Deformation zones

- Zone

KFM05A

Boremap

PFL



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PFL-anomaly Transmissivity

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Rock domains

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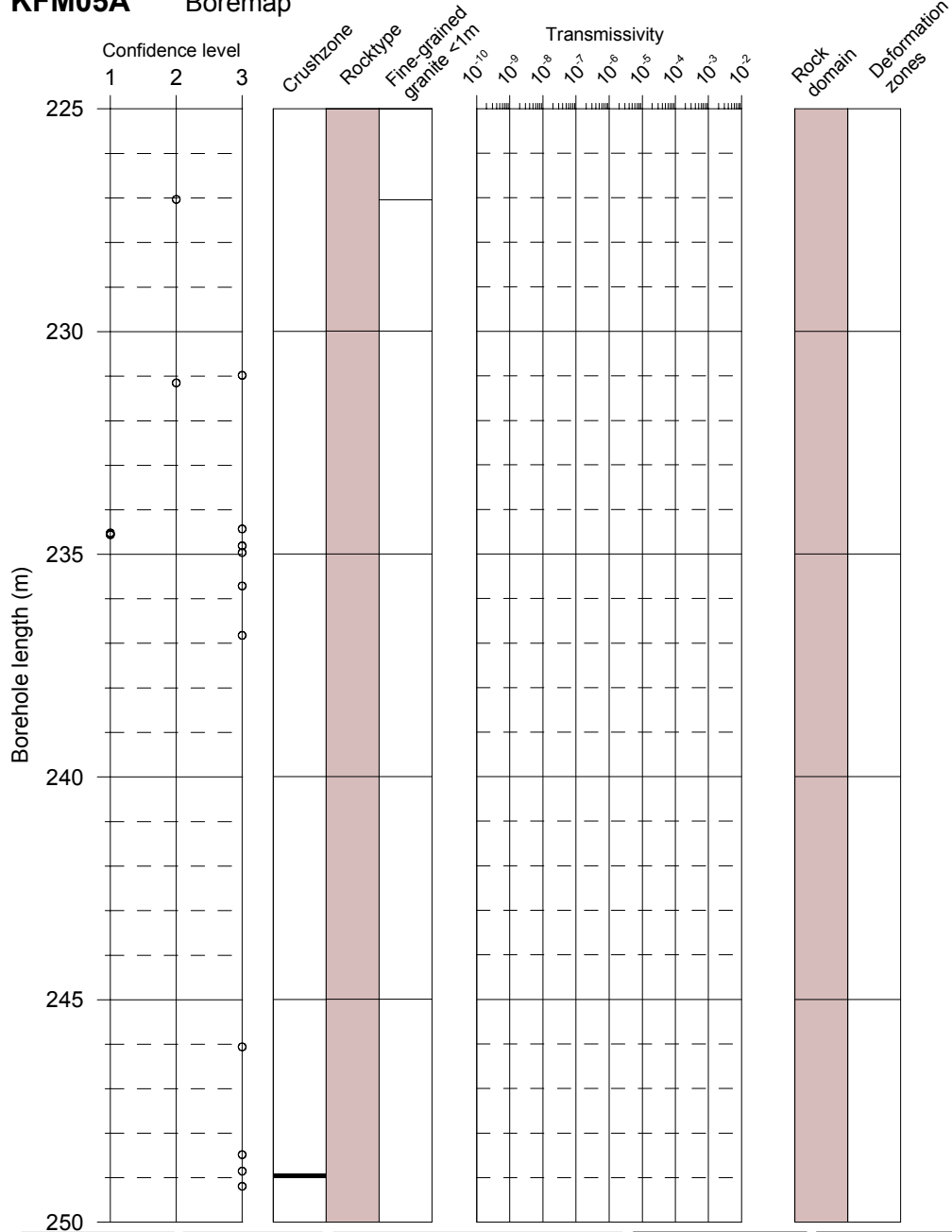
Deformation zones

- Zone

KFM05A

Boremap

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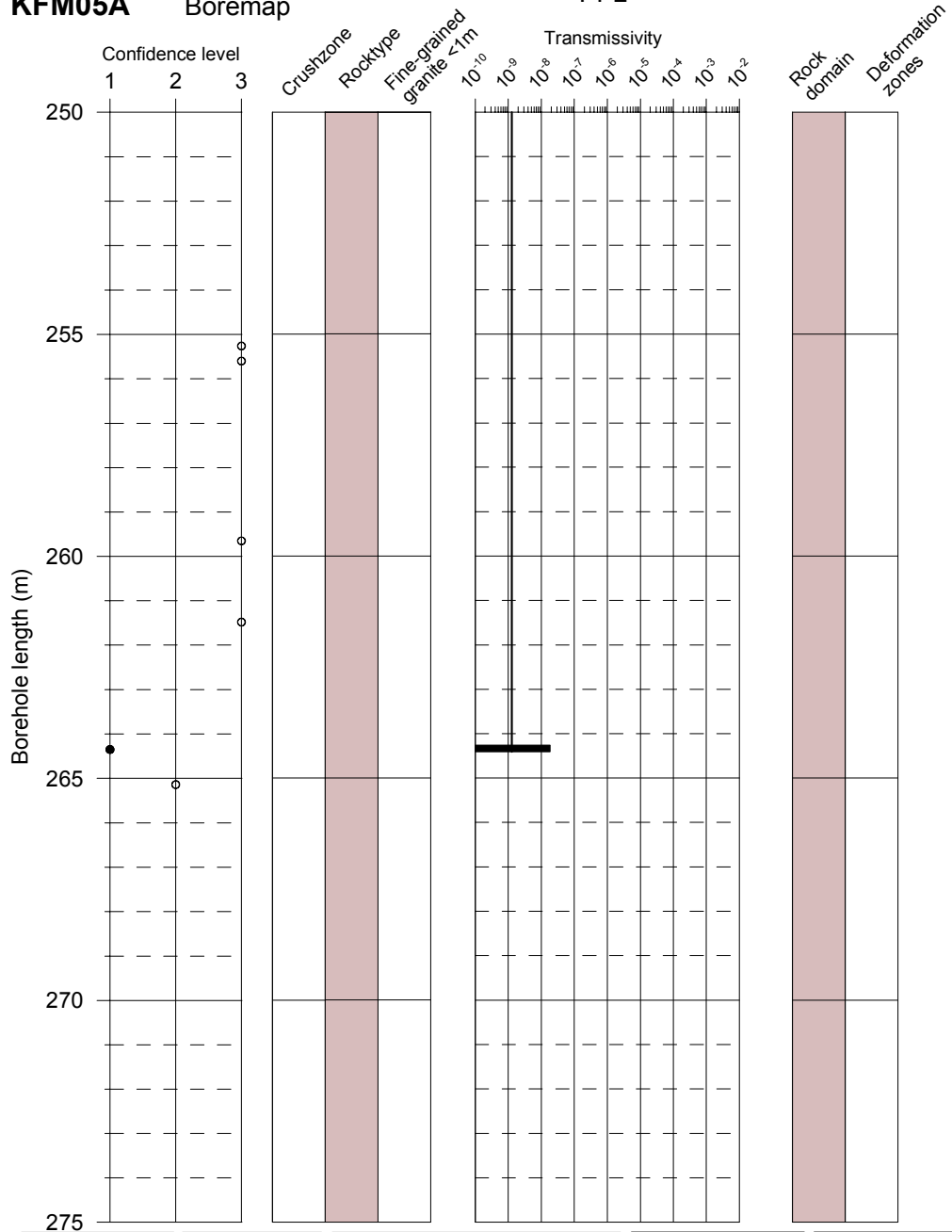
Rock domains
RFM029

Deformation zones
▨ Zone

KFM05A

Boremap

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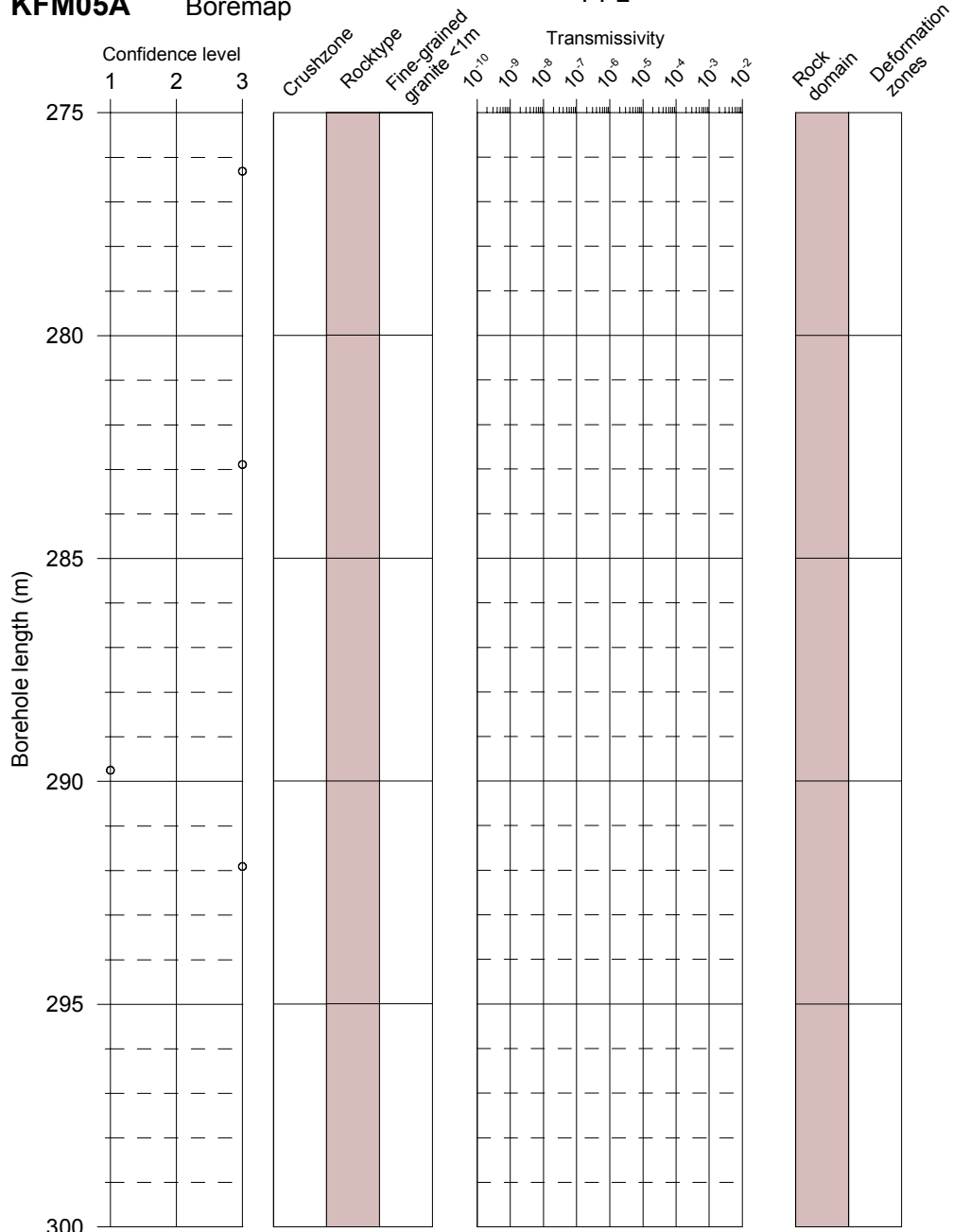
Deformation zones

- ▨ Zone

KFM05A

Boremap

PFL



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- Open fracture,
no flow indication

Confidence level
Open fractures

- 1 certain
- 2 probable
- 3 possible

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- Granite to granodiorite
- Amphibolite
- Volcanic rock

PFL-anomaly
Transmissivity

- Certain
- ▨ Uncertain
- Meas lim

Rock domains

- RFM029

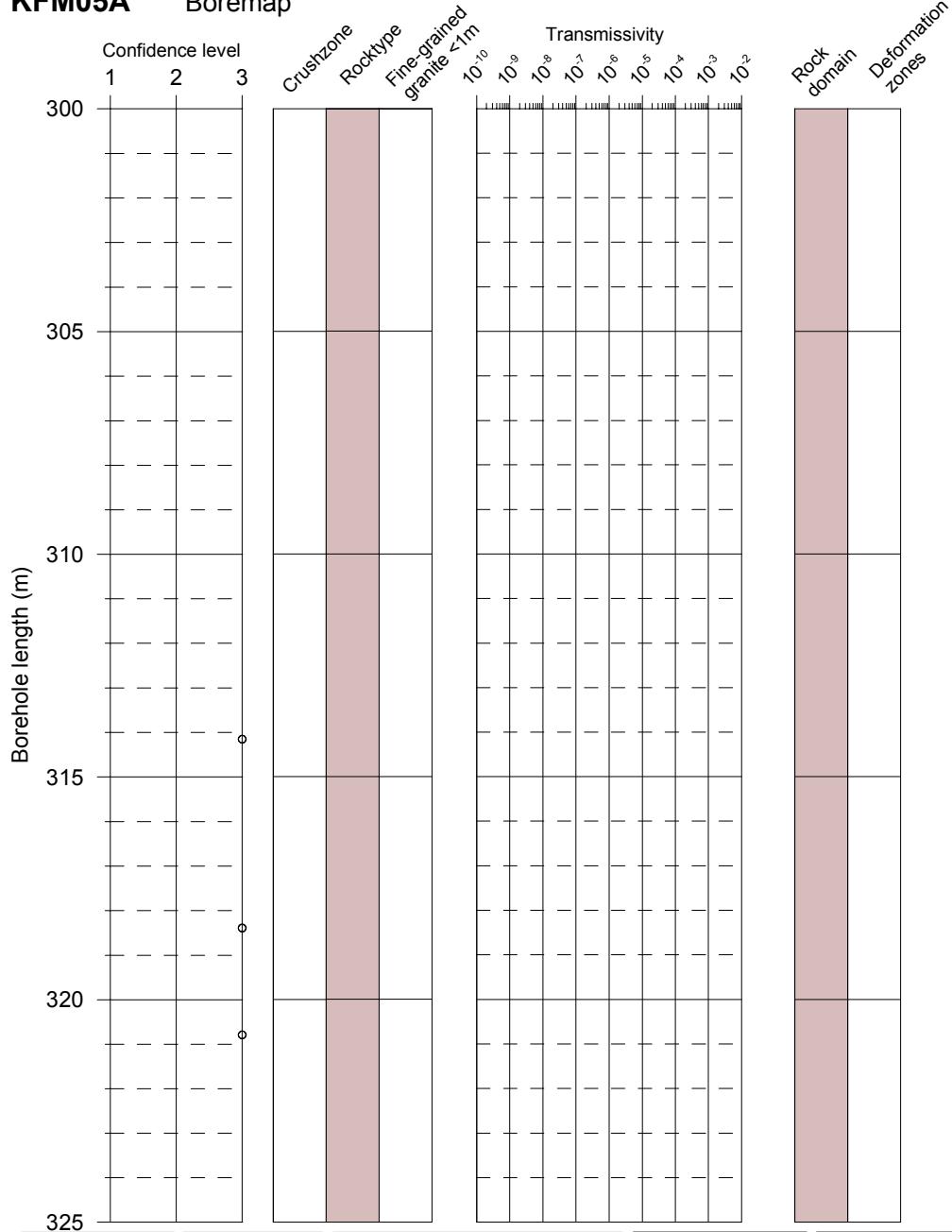
Deformation zones

- ▨ Zone

KFM05A

Boremap

PFL



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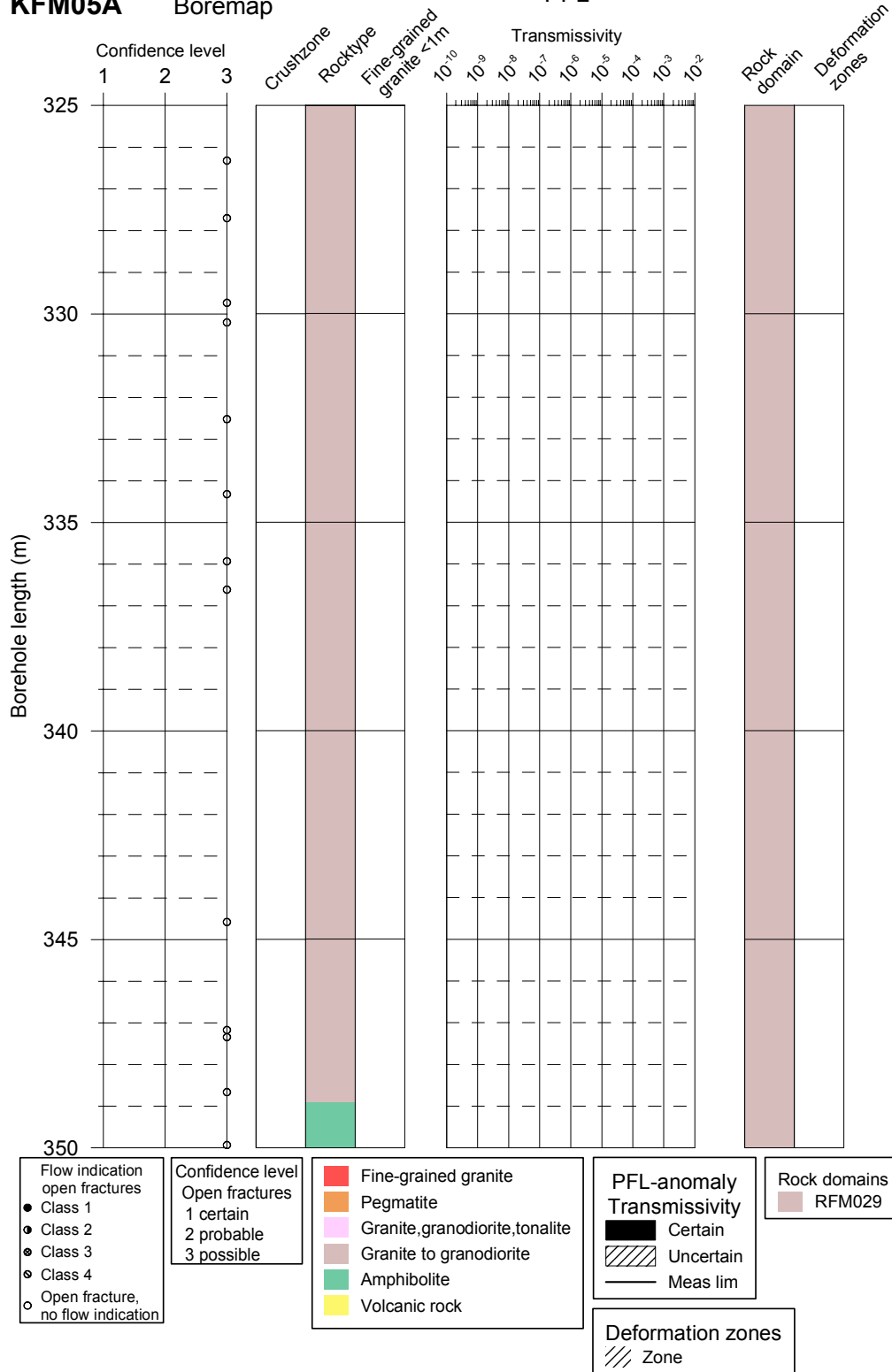
Rock domains
RFM029

Deformation zones
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KFM05A

Boremap

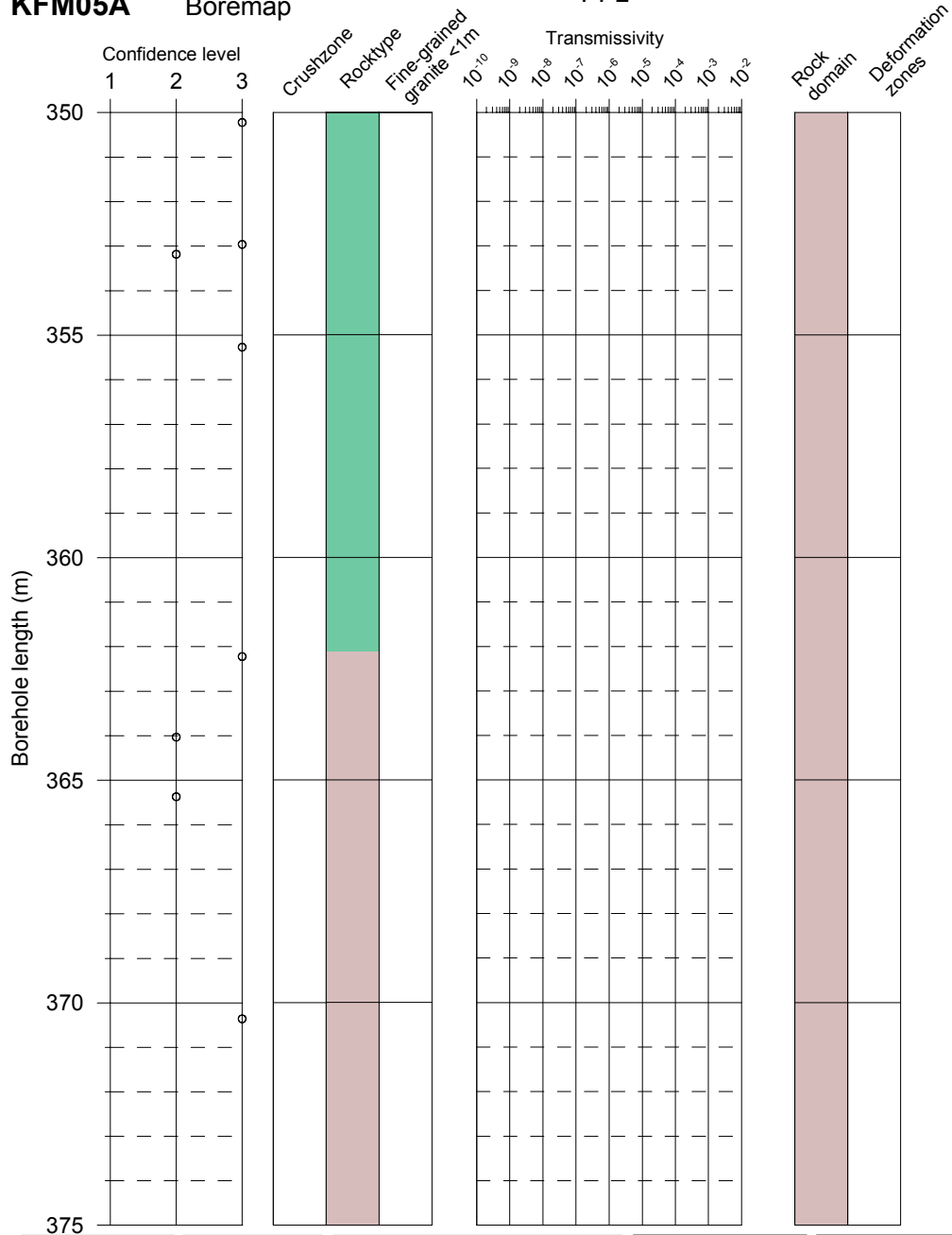
PFL



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Boremap

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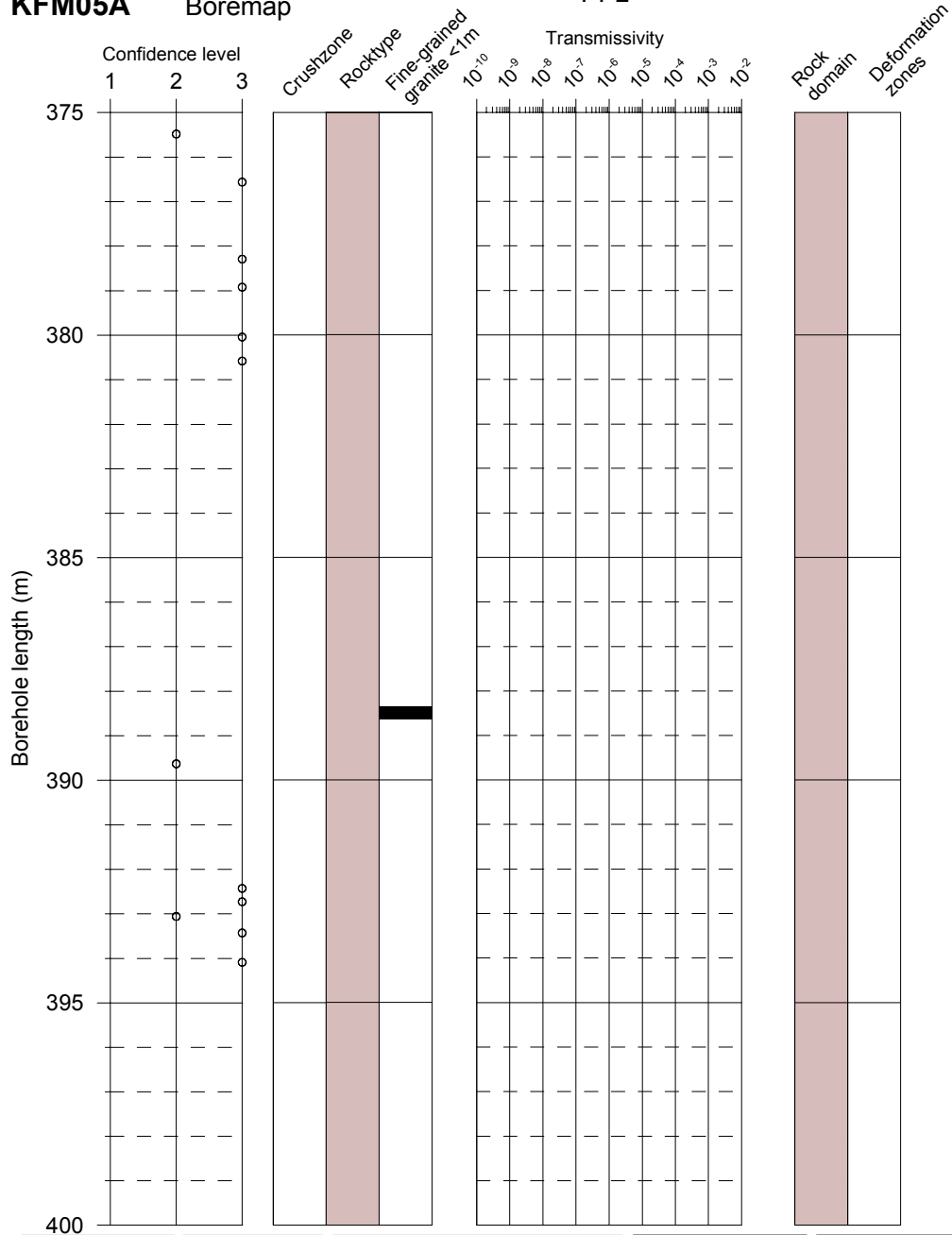
Deformation zones

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KFM05A

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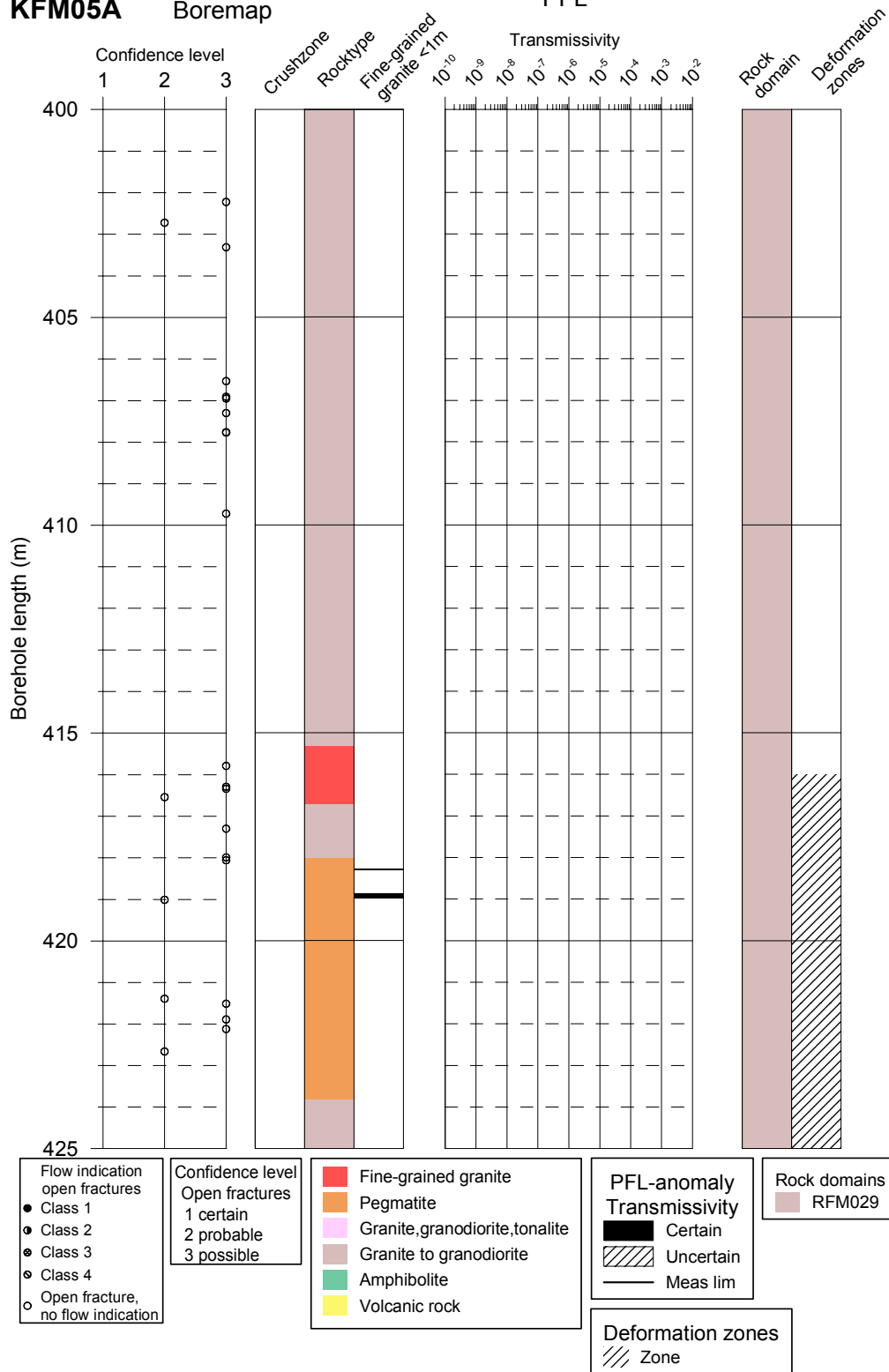
Deformation zones

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KFM05A

Boremap

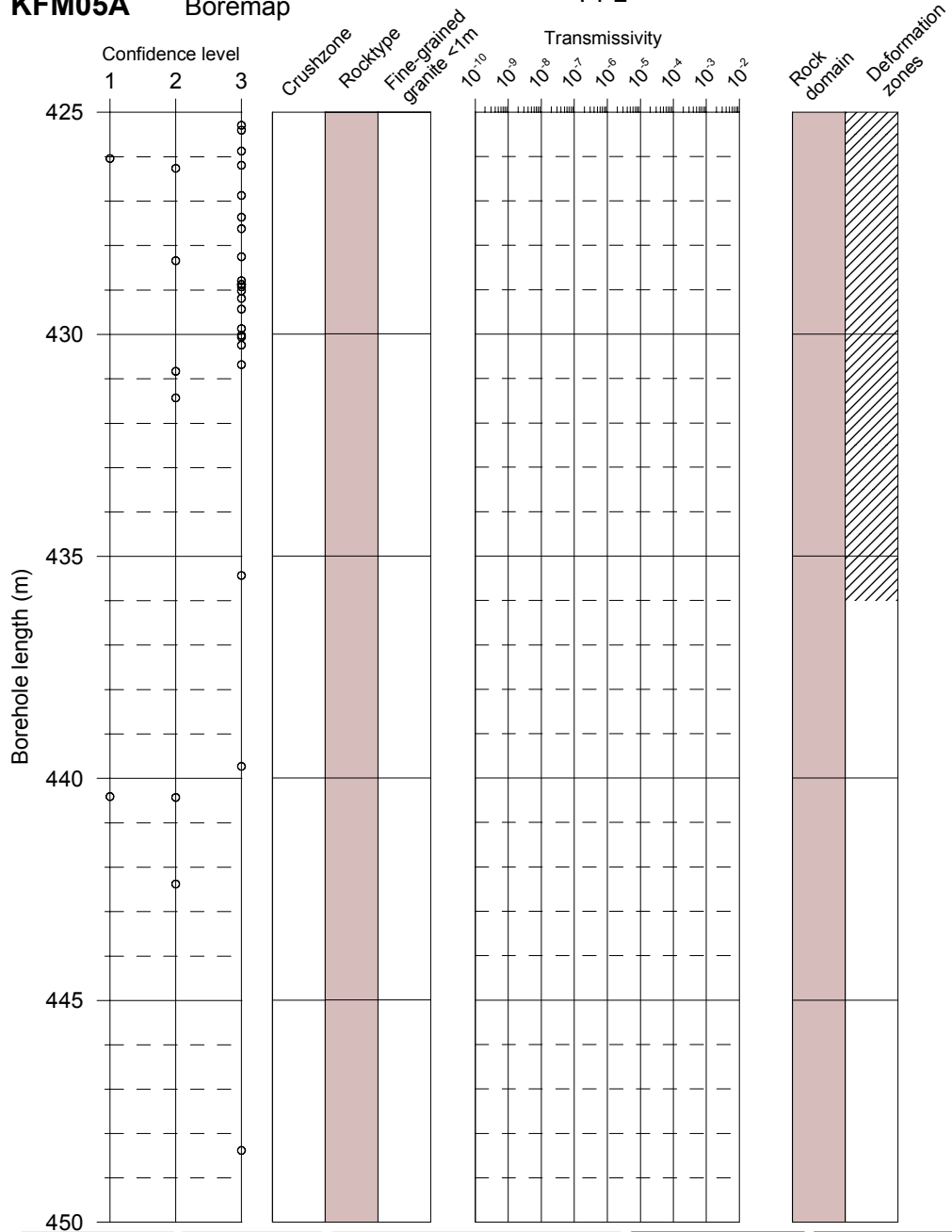
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Boremap

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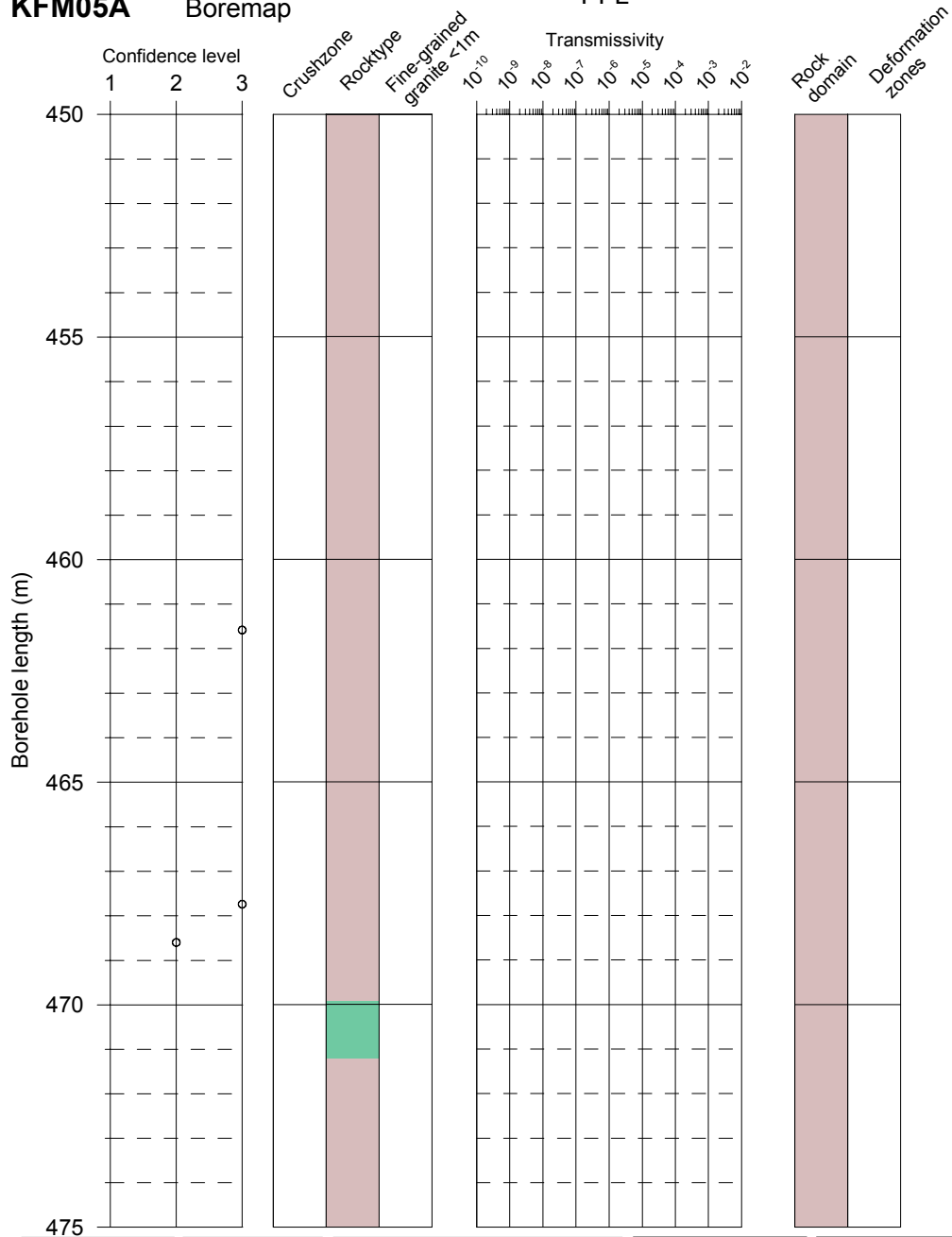
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Boremap

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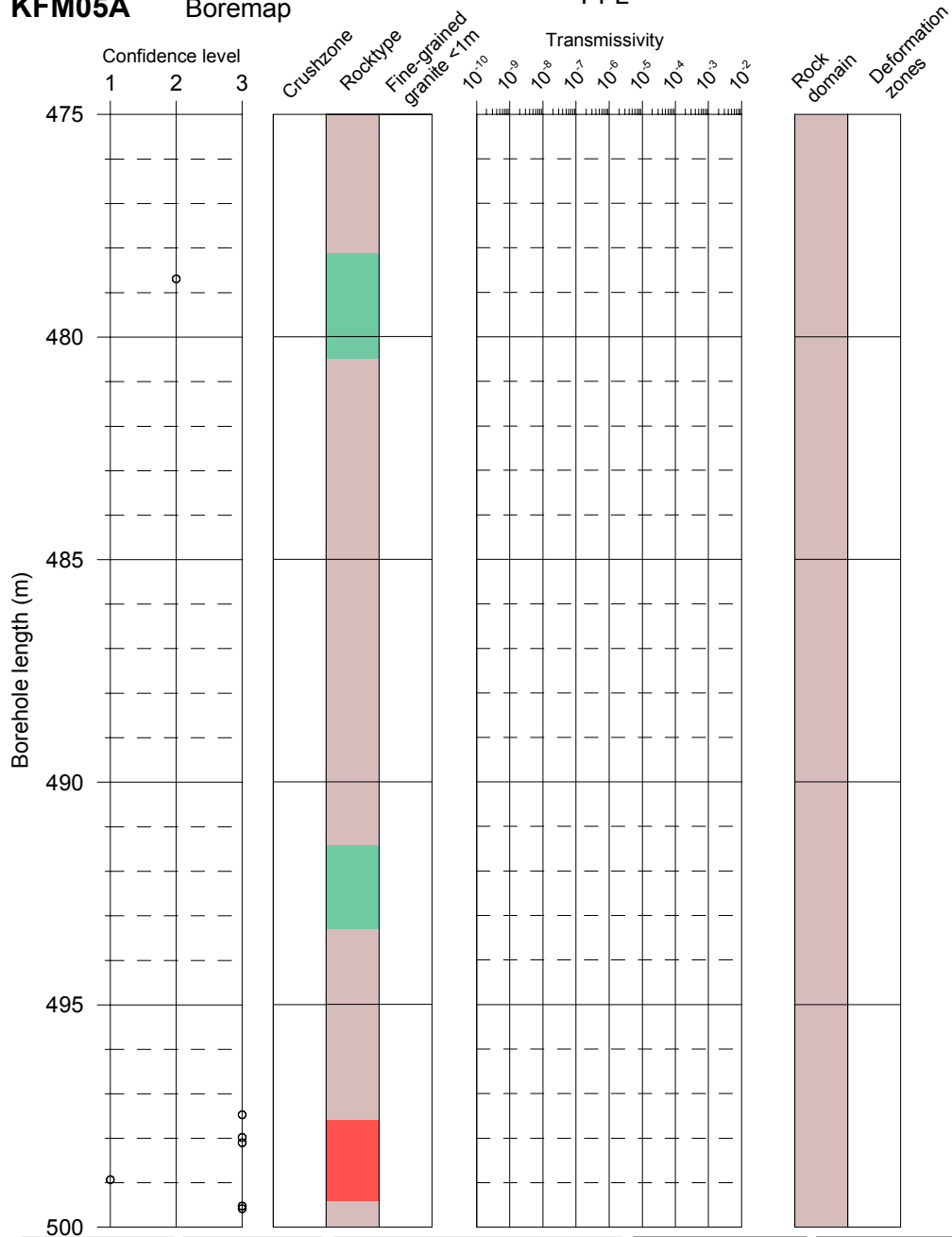
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Deformation zones
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Boremap

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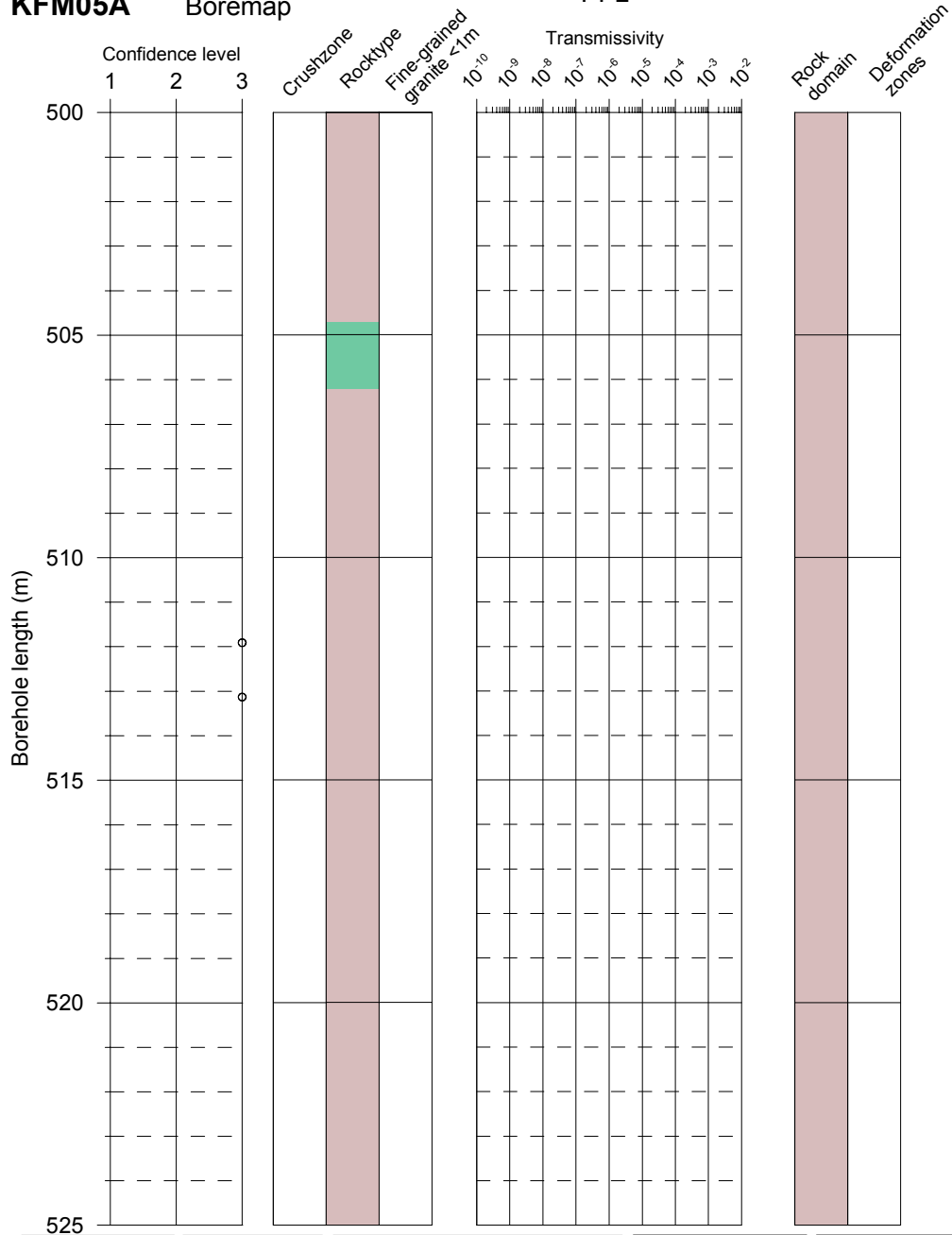
Rock domains
RFM029

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KFM05A

Boremap

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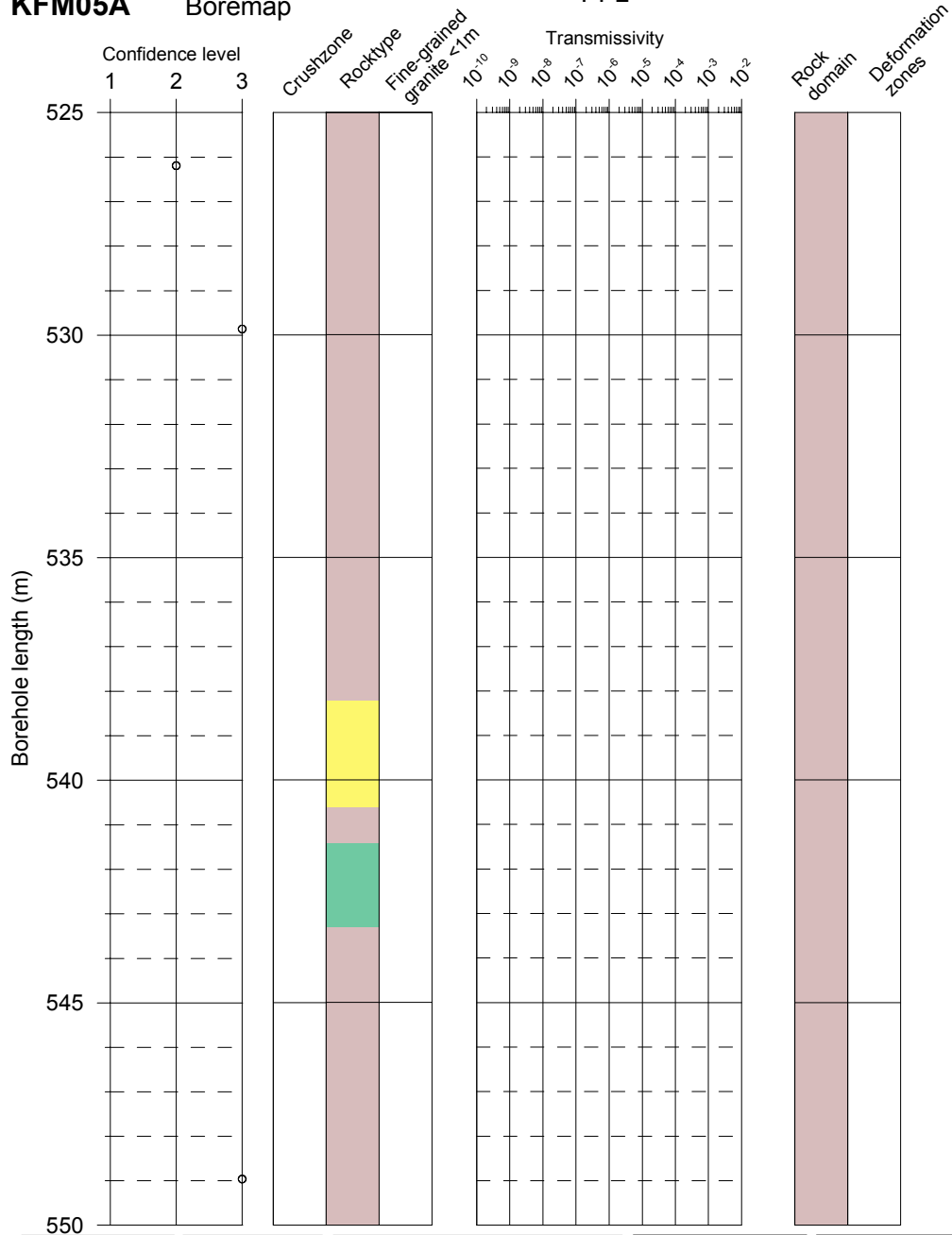
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KFM05A

Boremap

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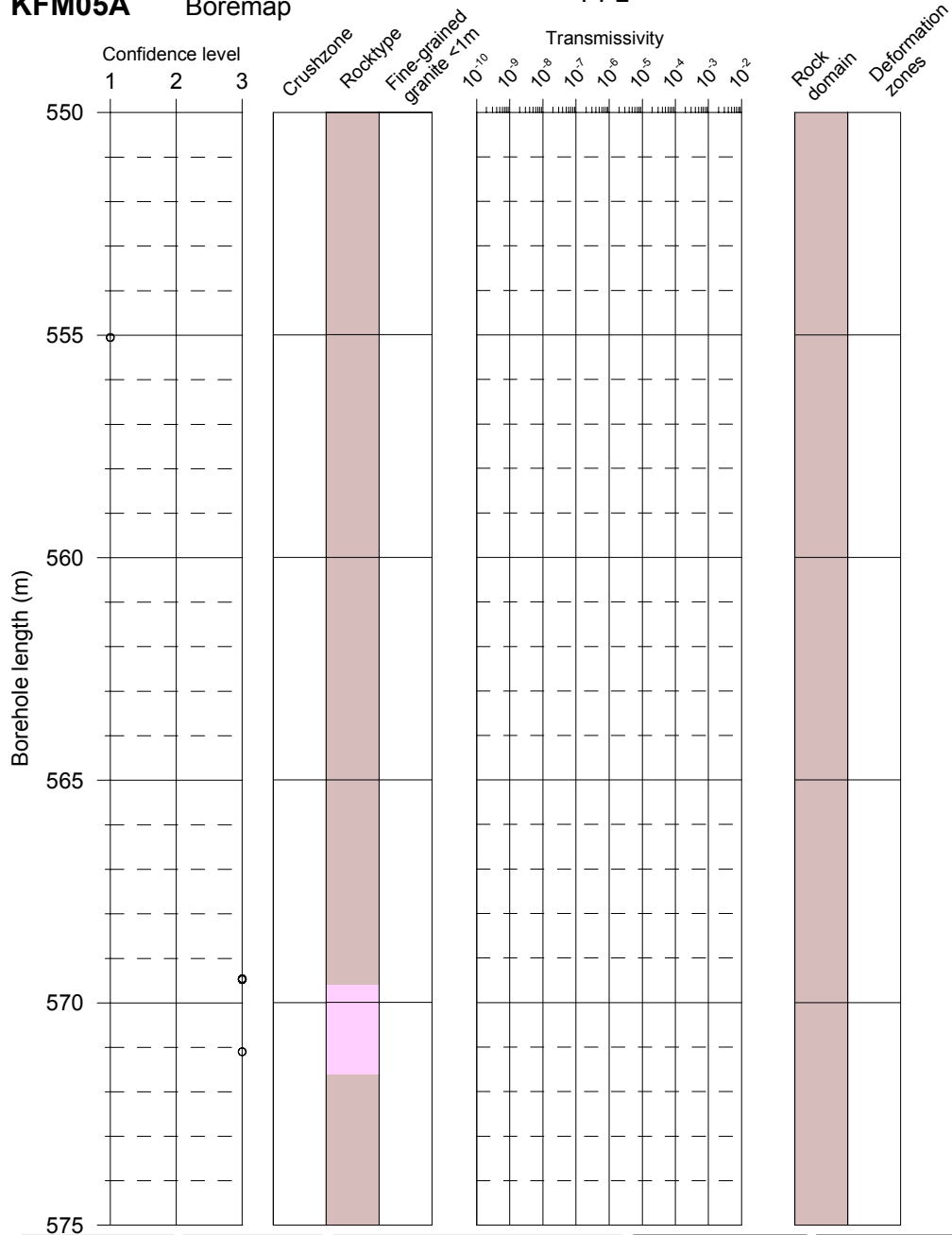
Rock domains
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Boremap

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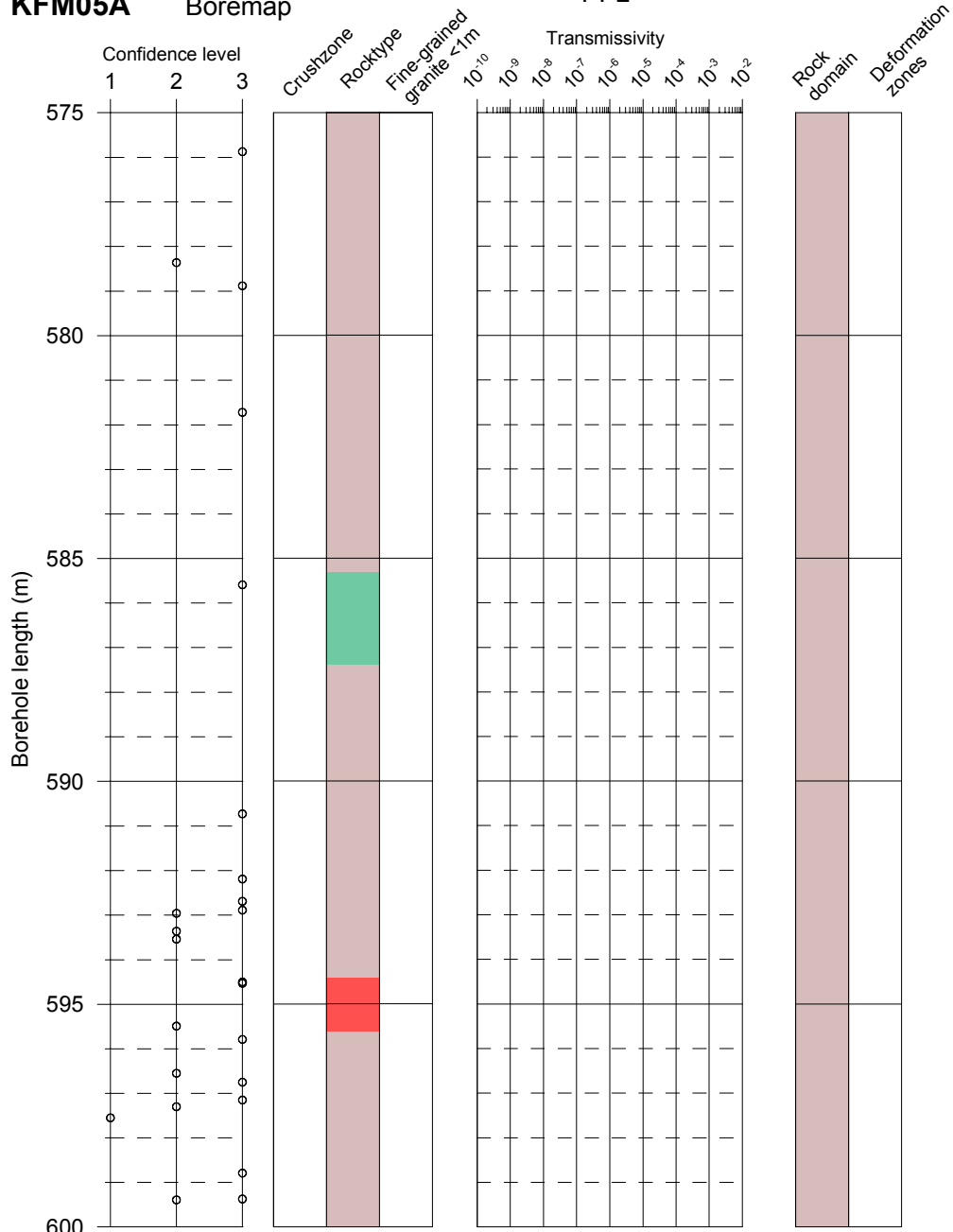
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KFM05A

Boremap

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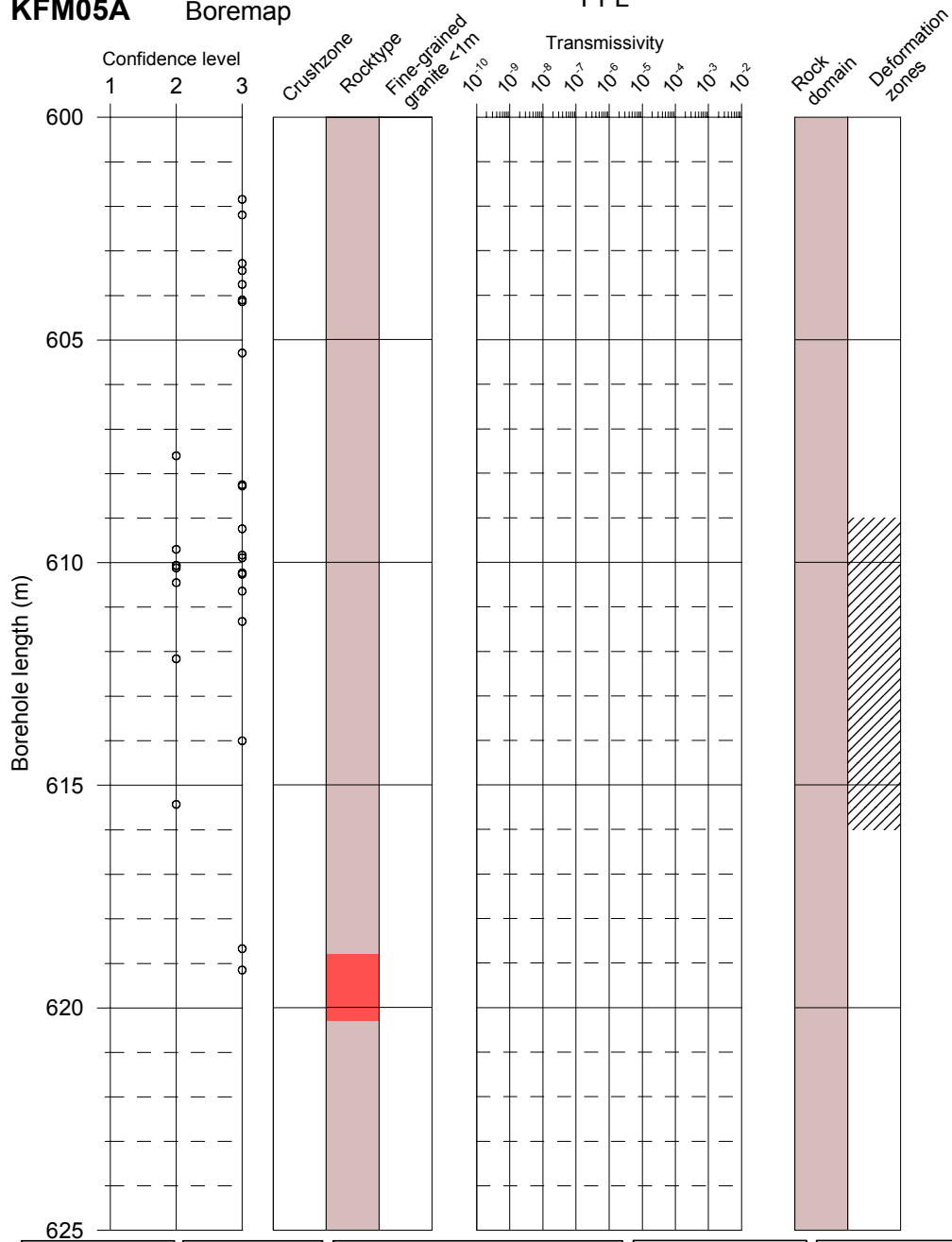
Rock domains
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KFM05A

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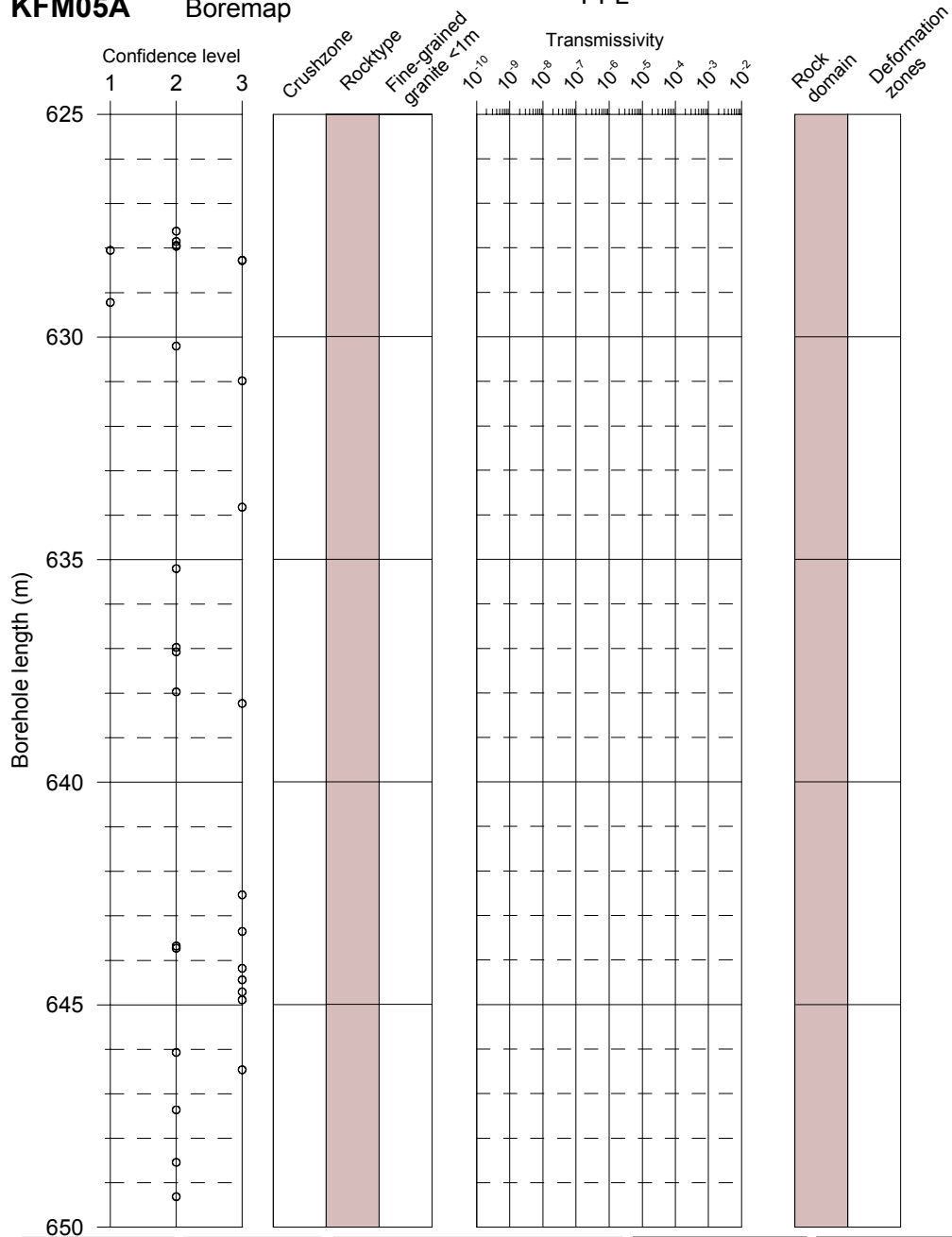
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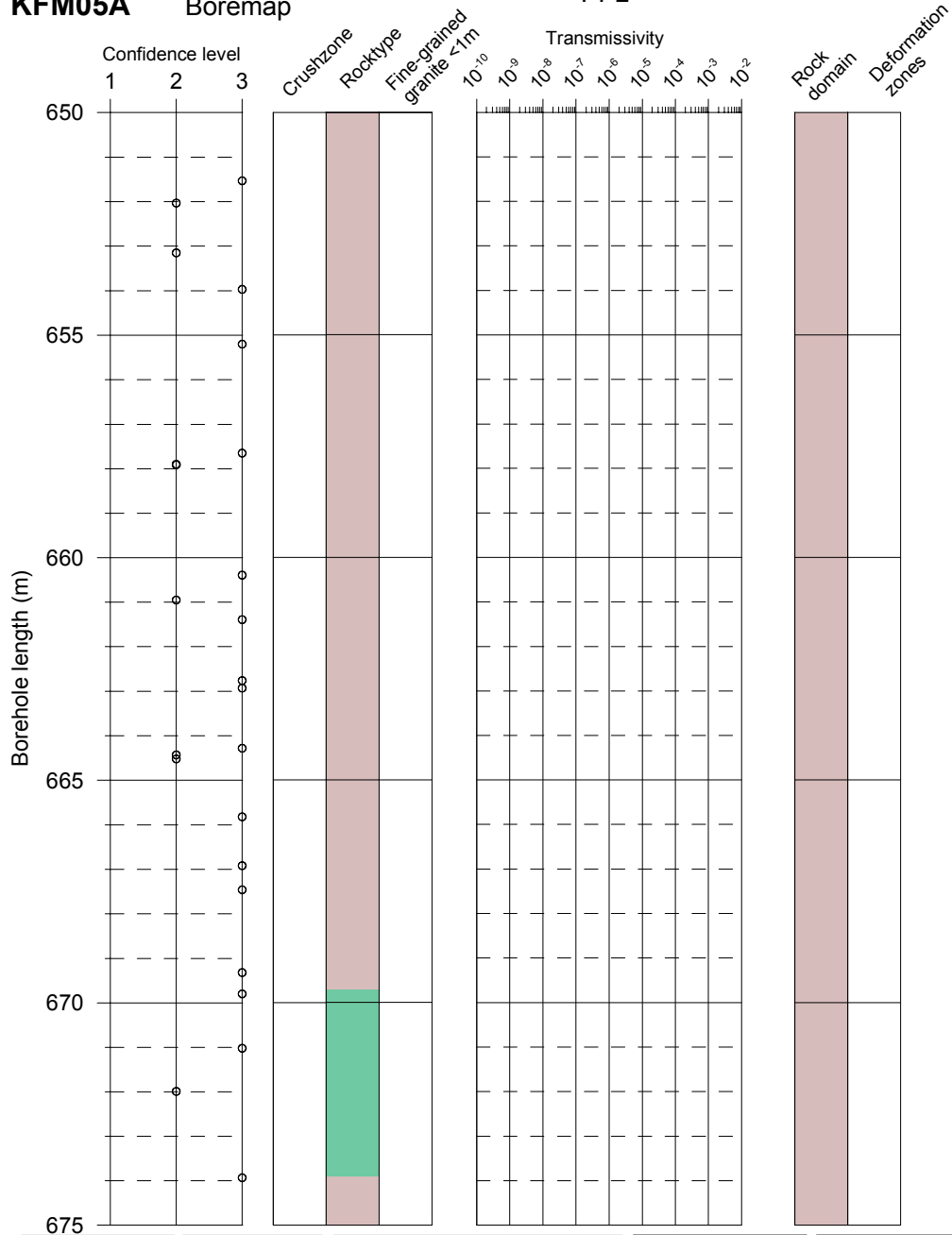
Deformation zones

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KFM05A

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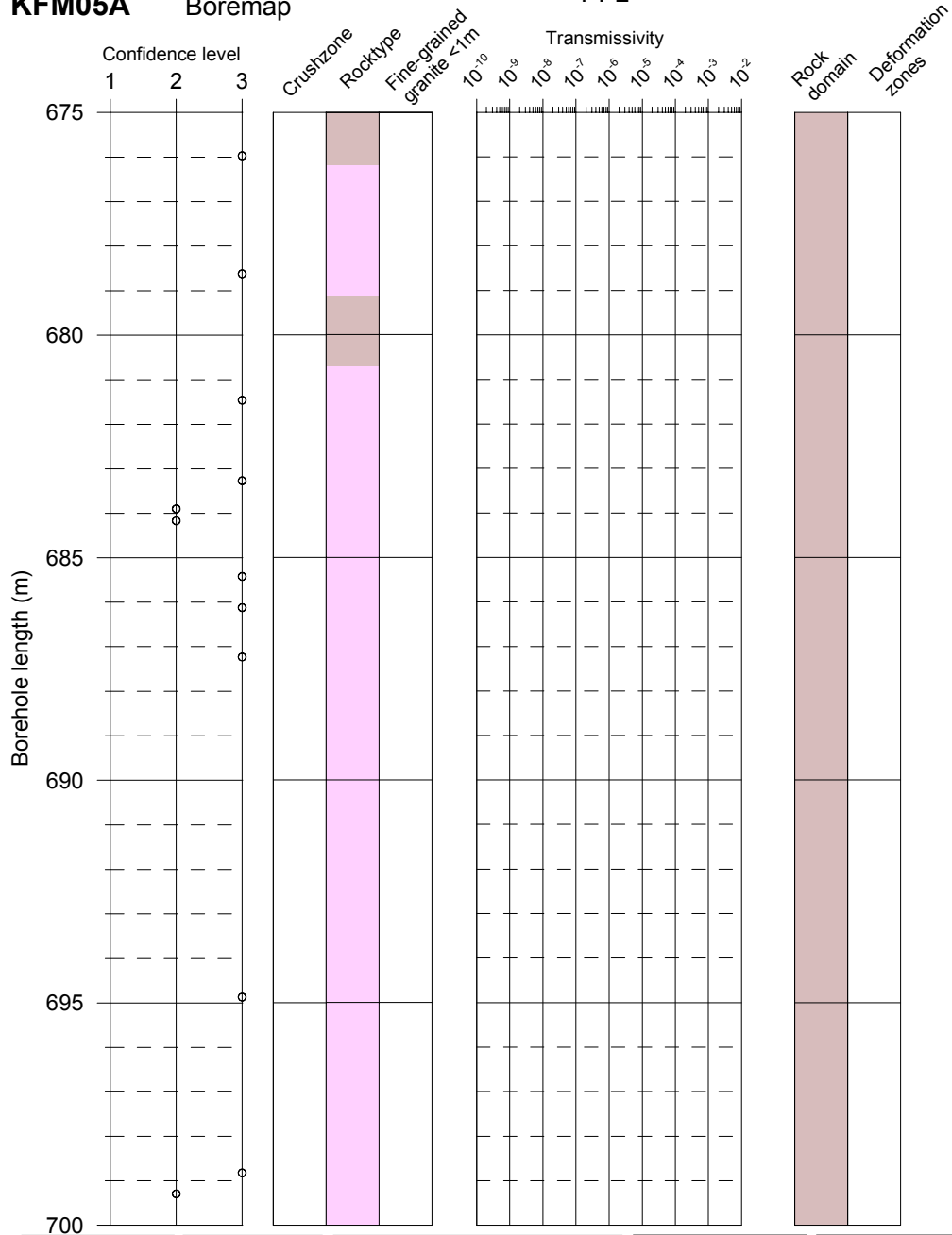
Rock domains
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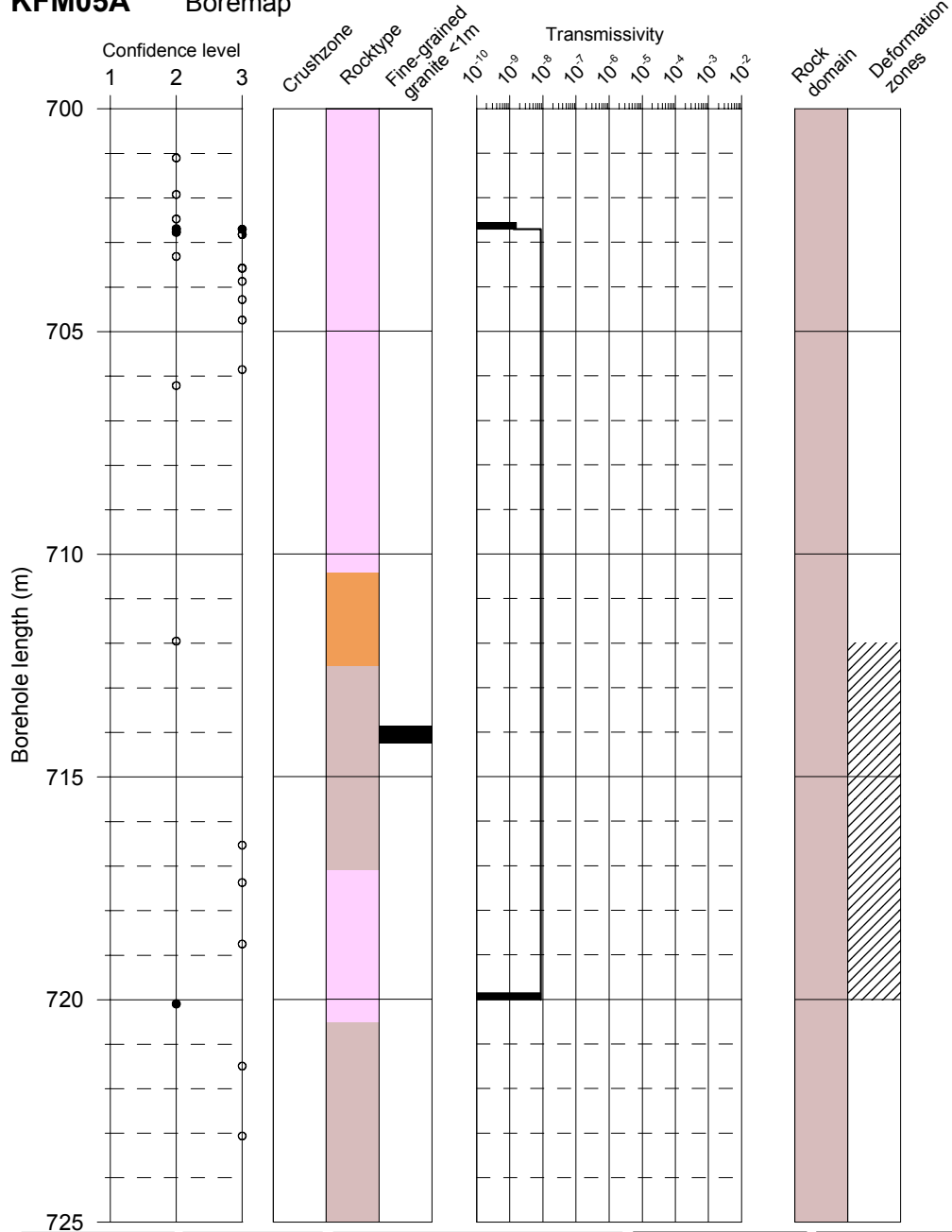
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KFM05A

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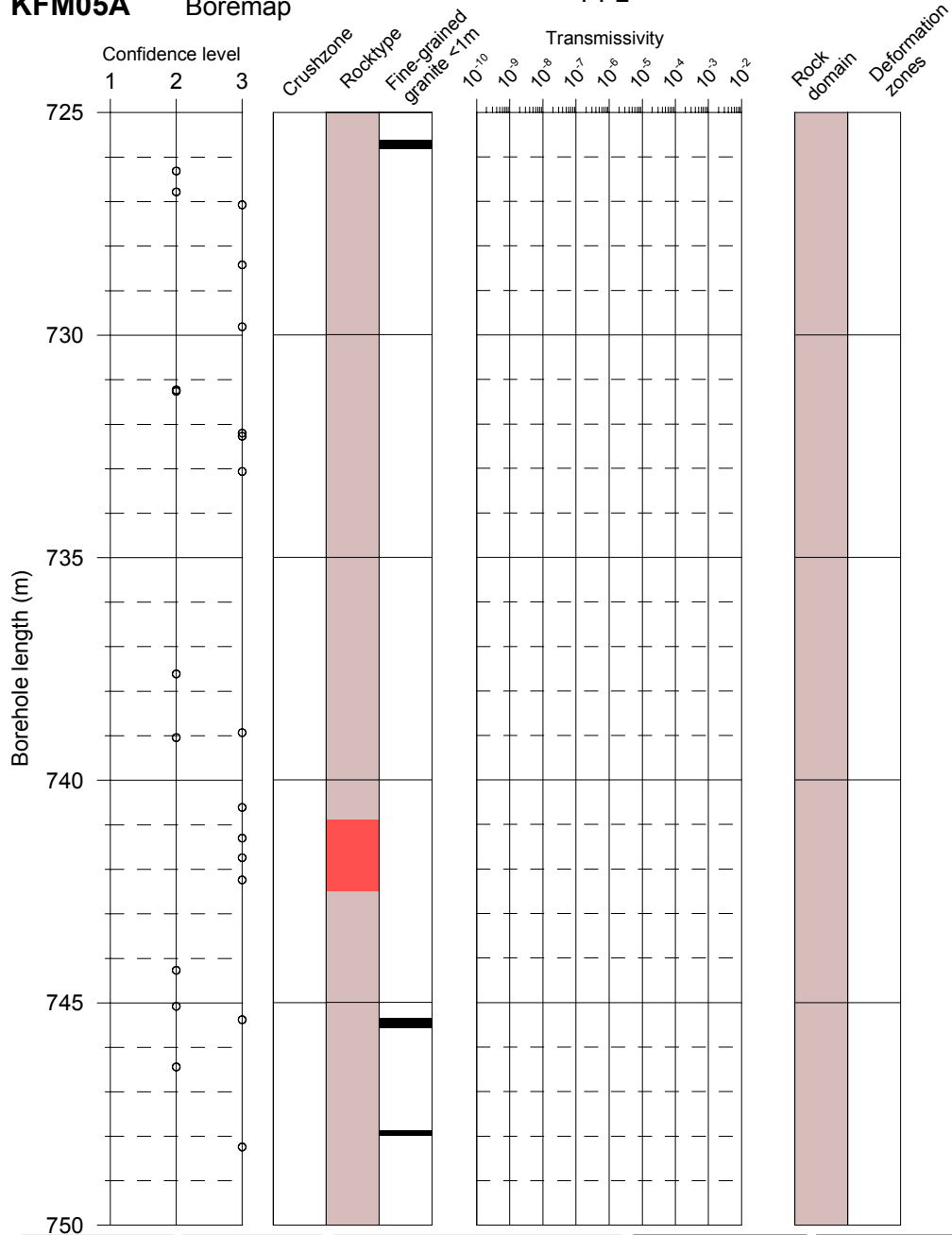
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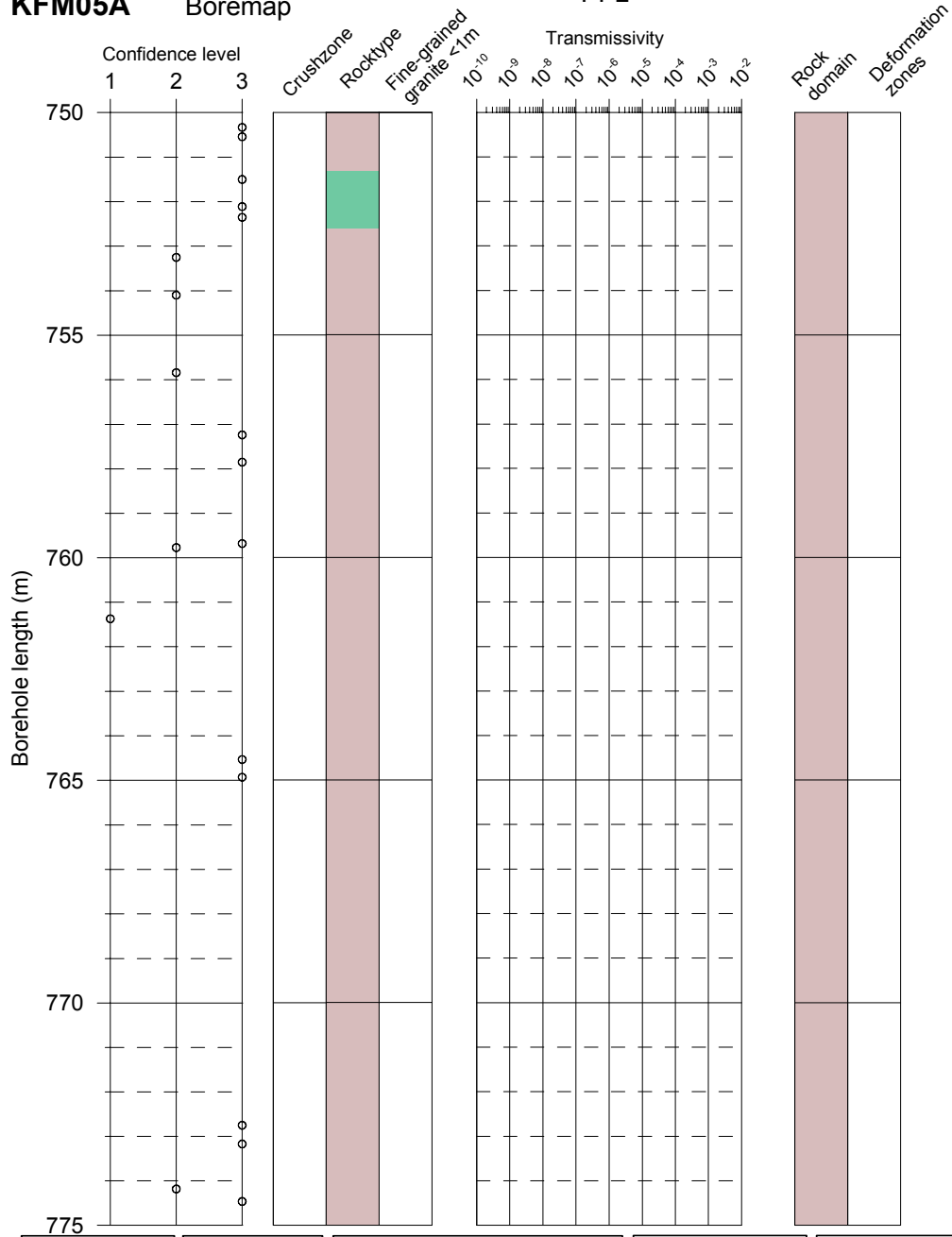
Deformation zones

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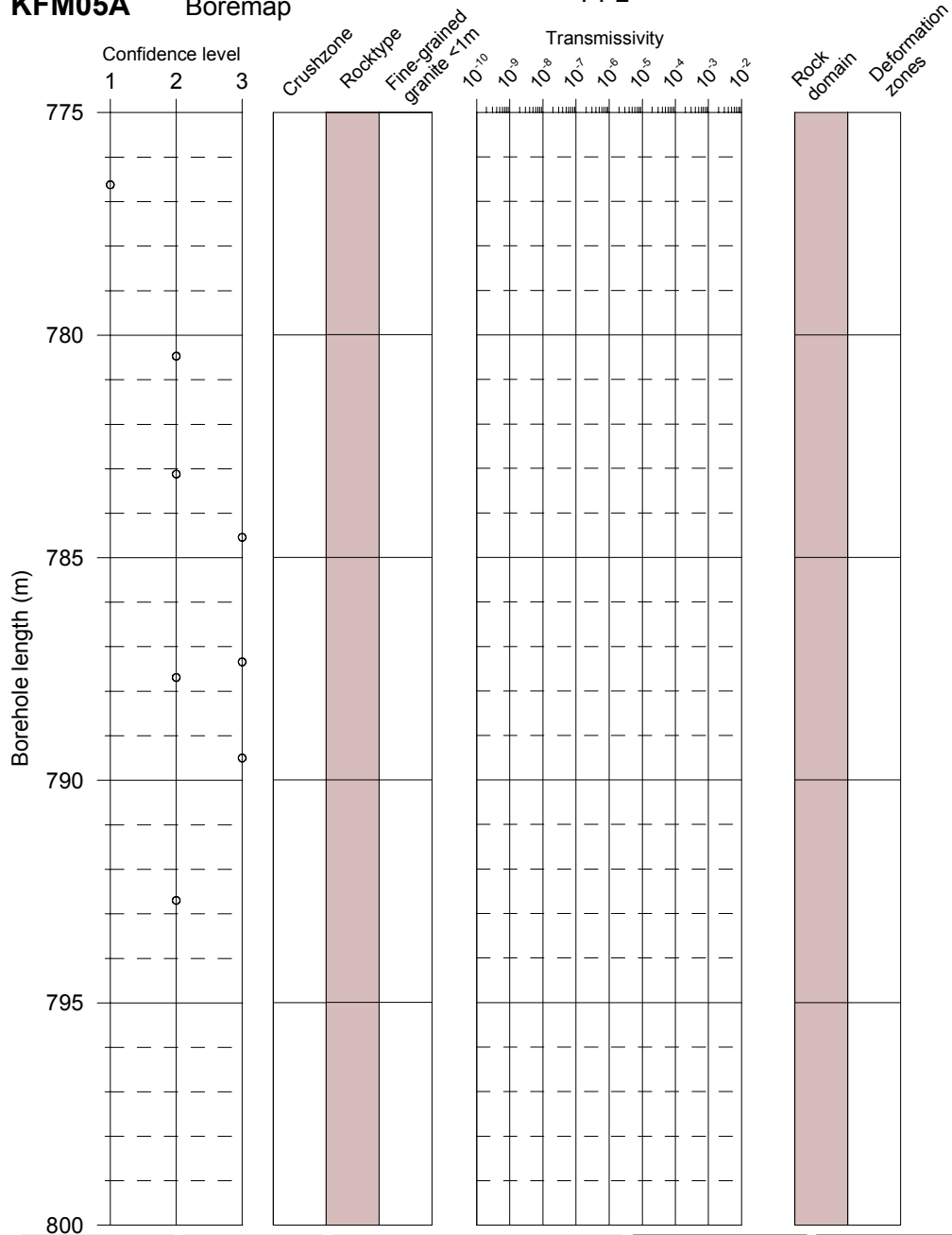
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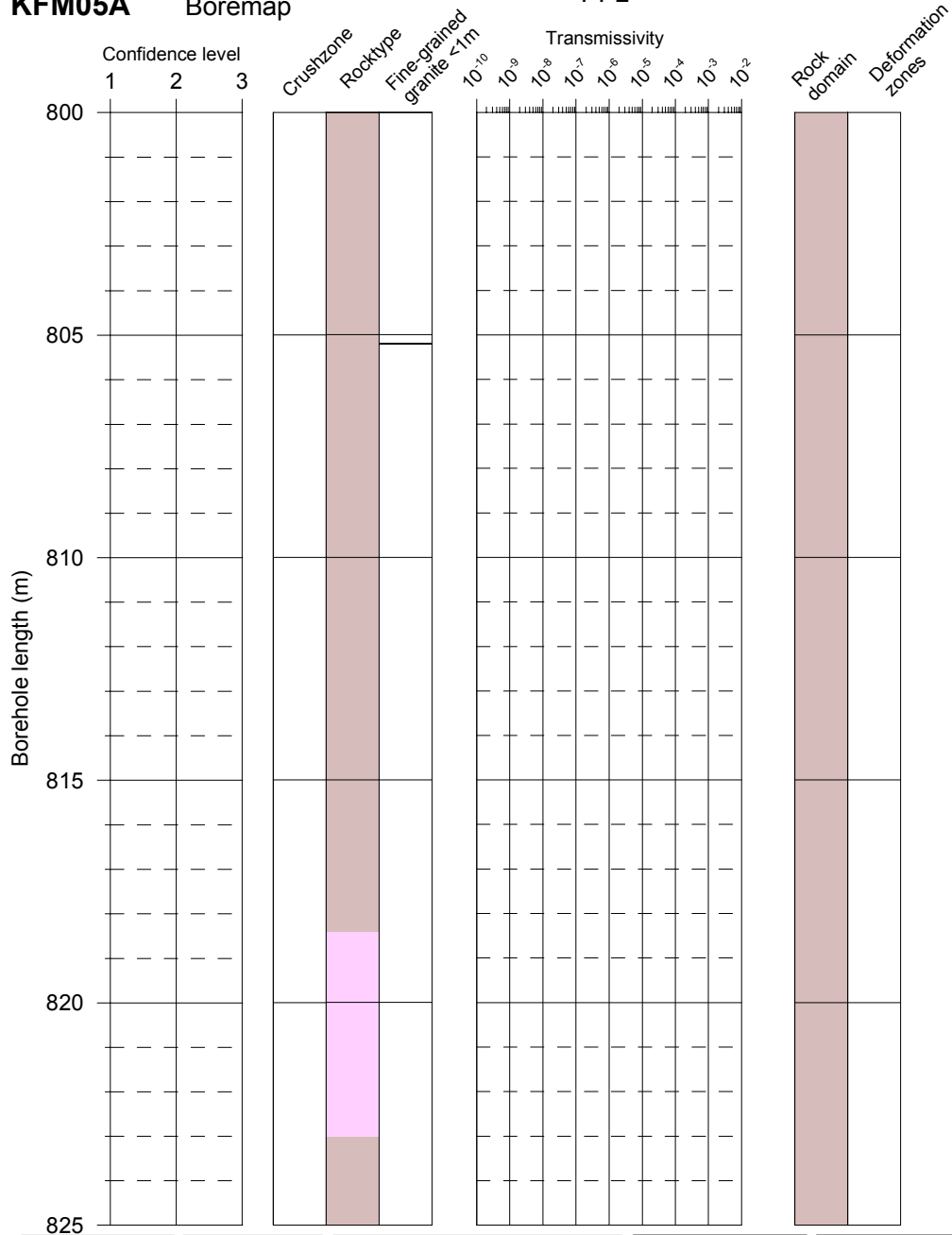
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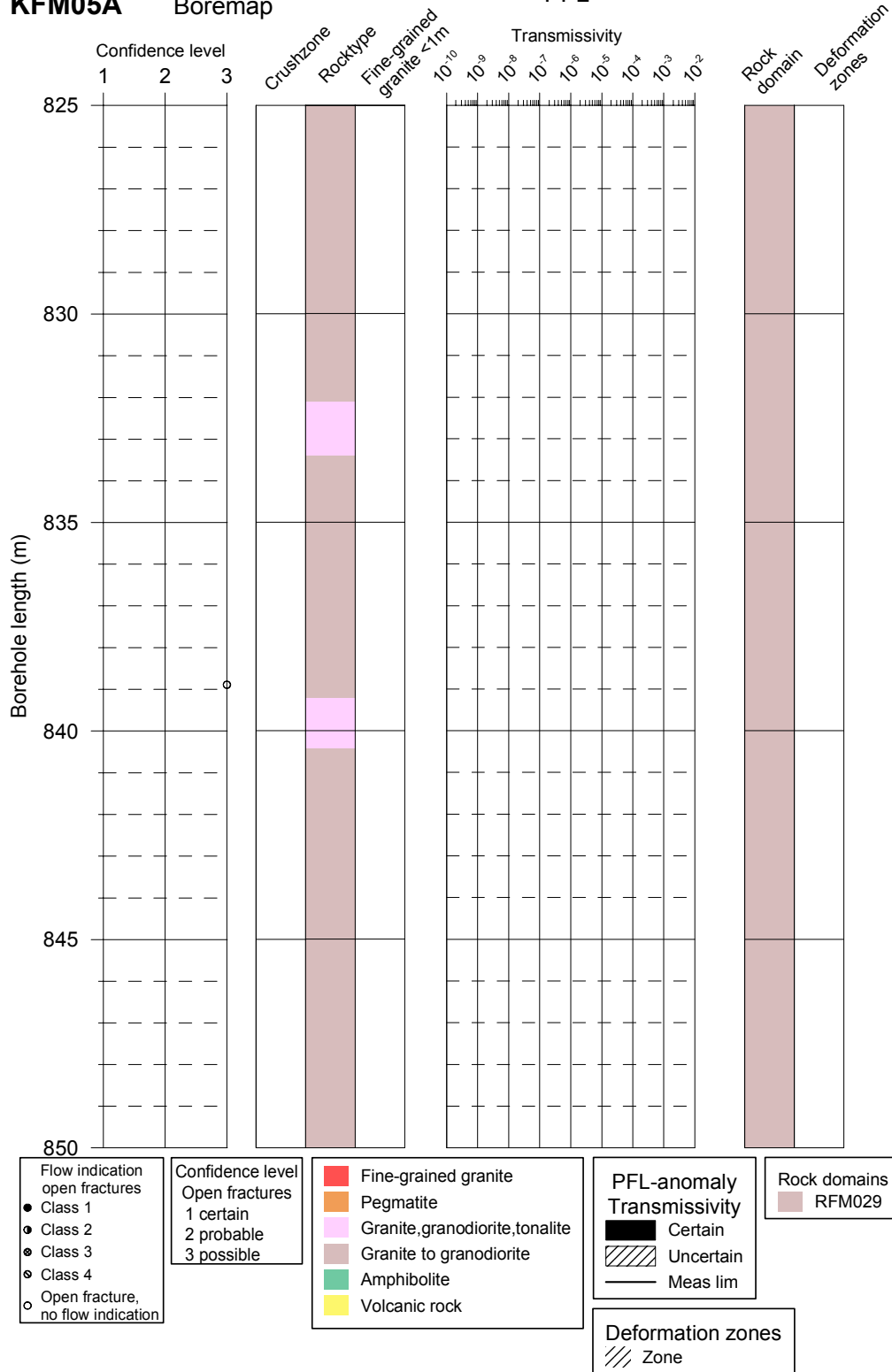
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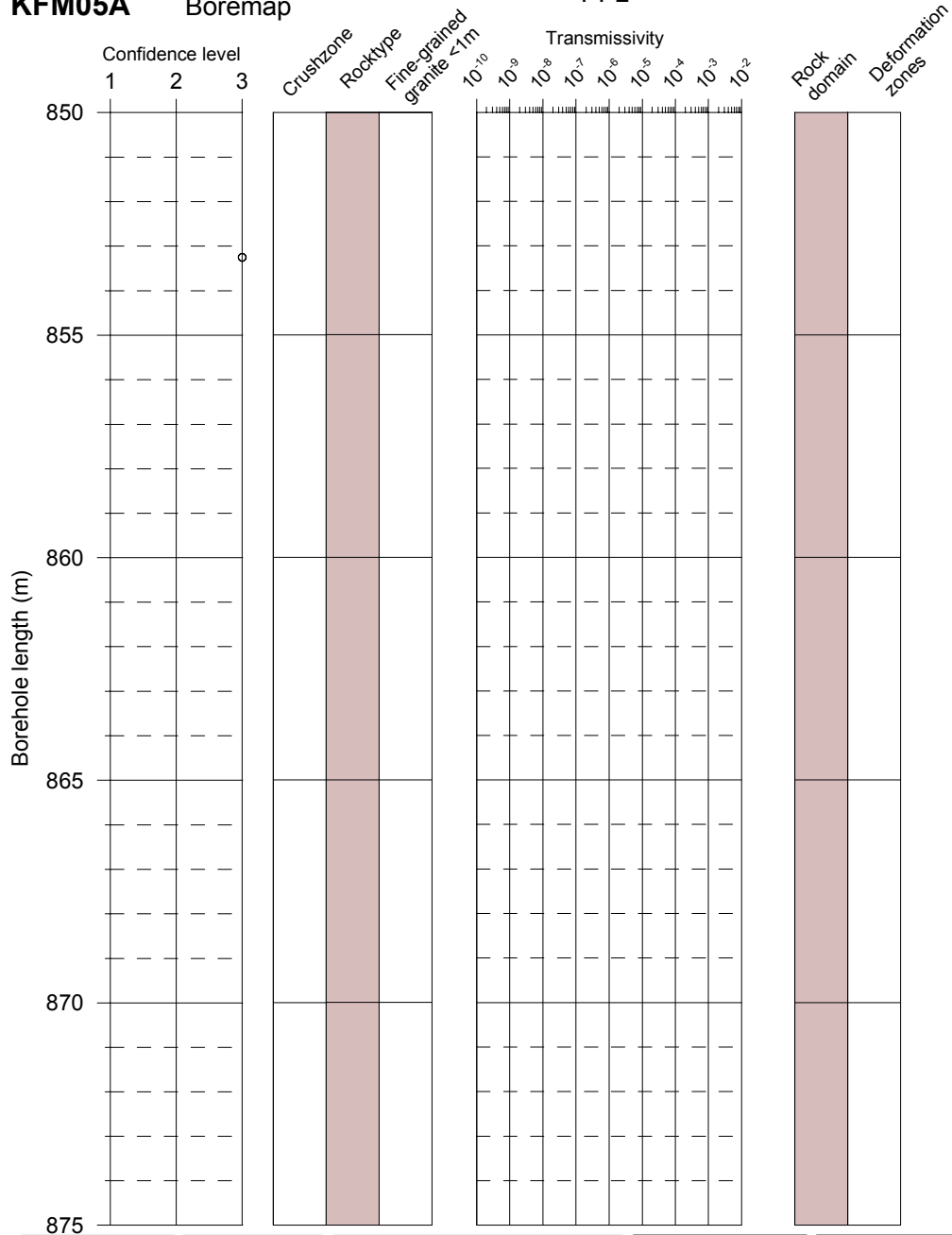
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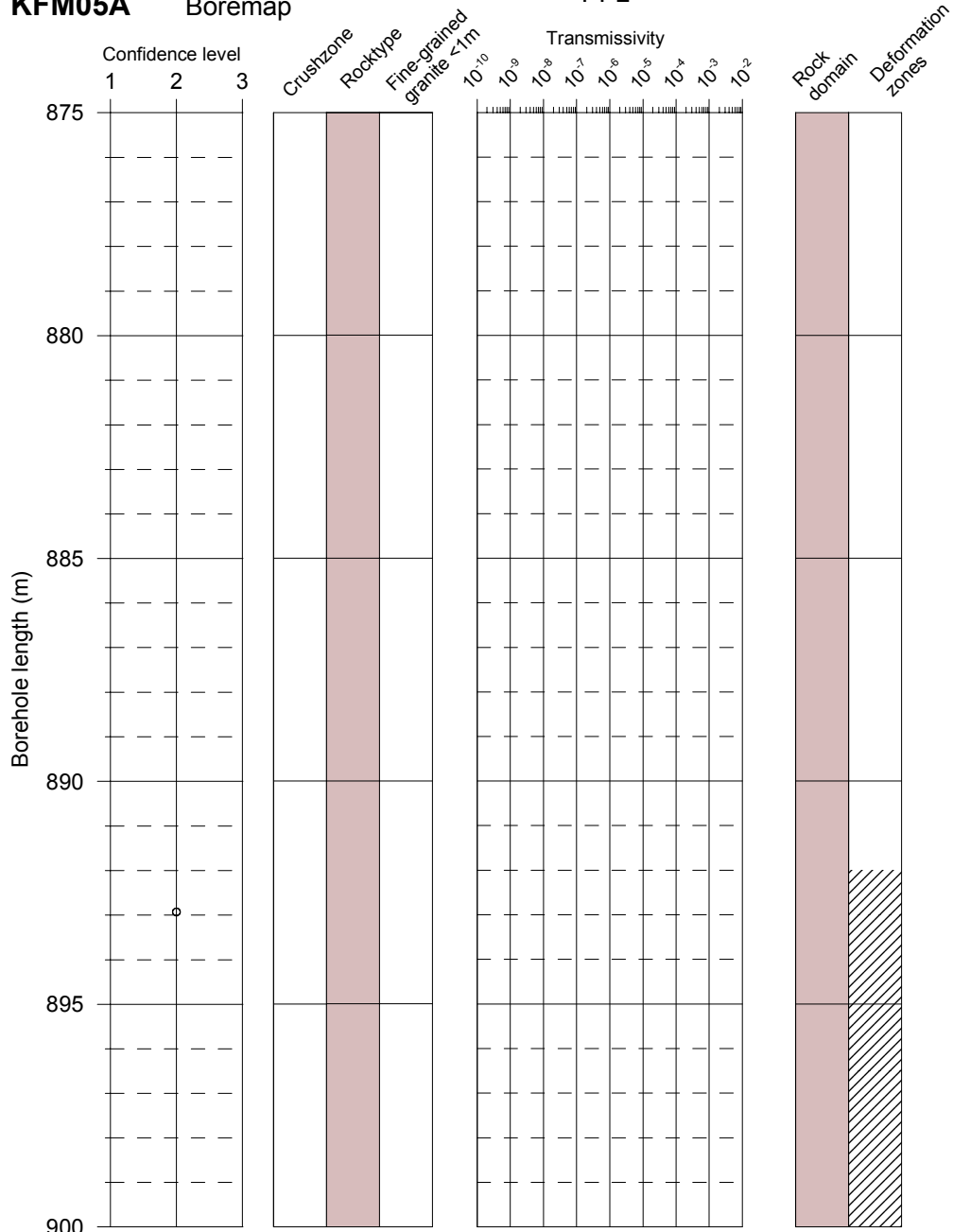
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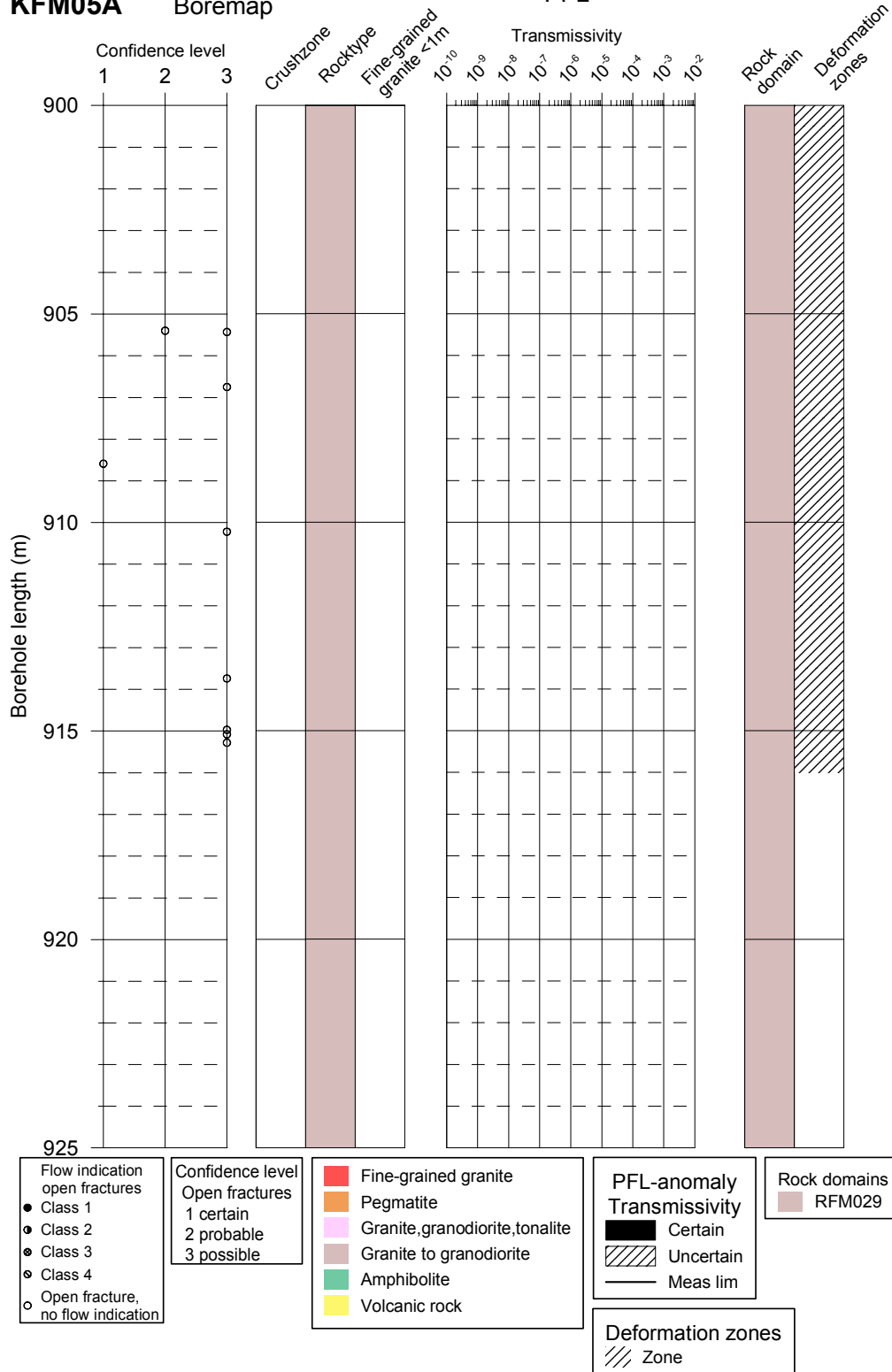
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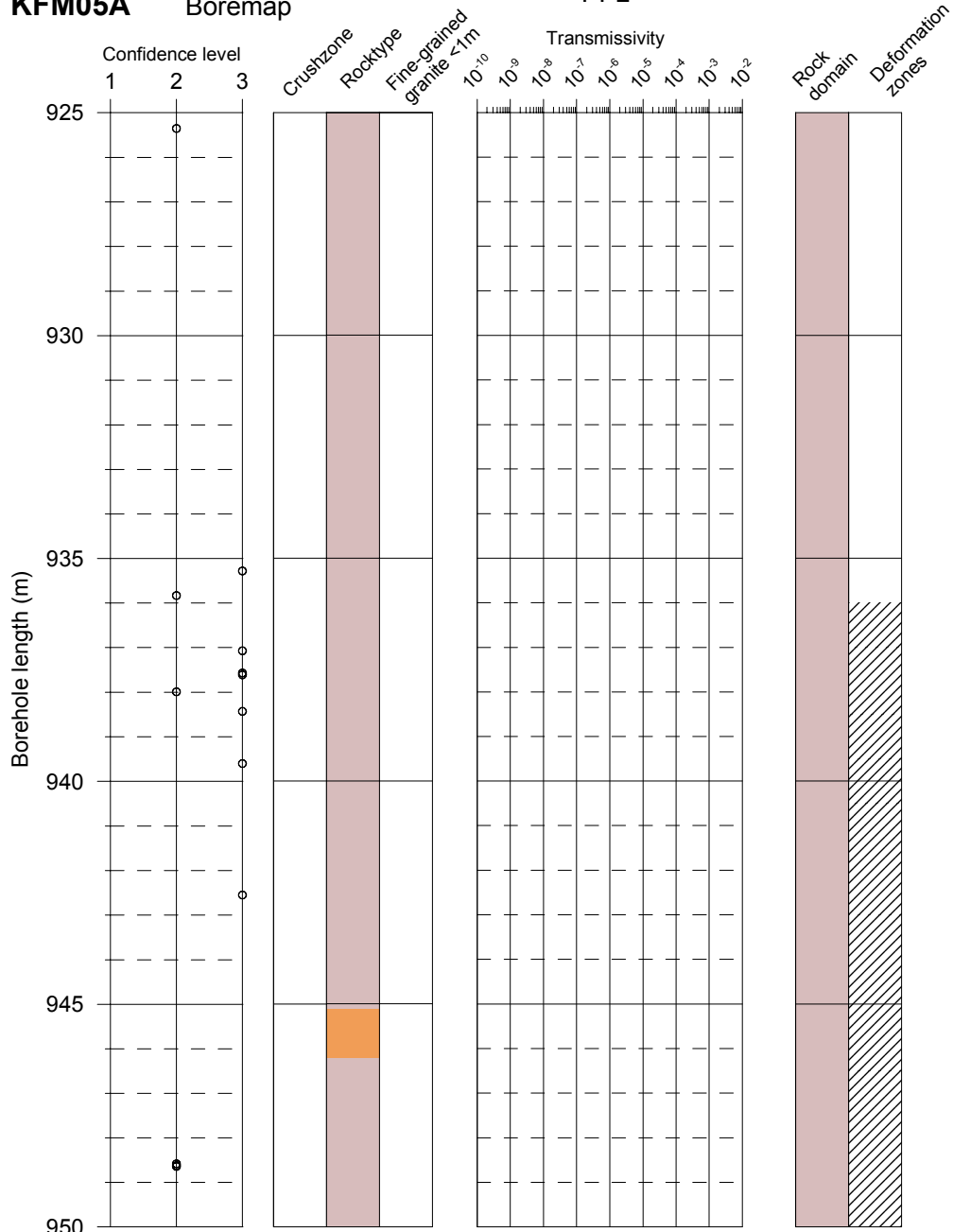
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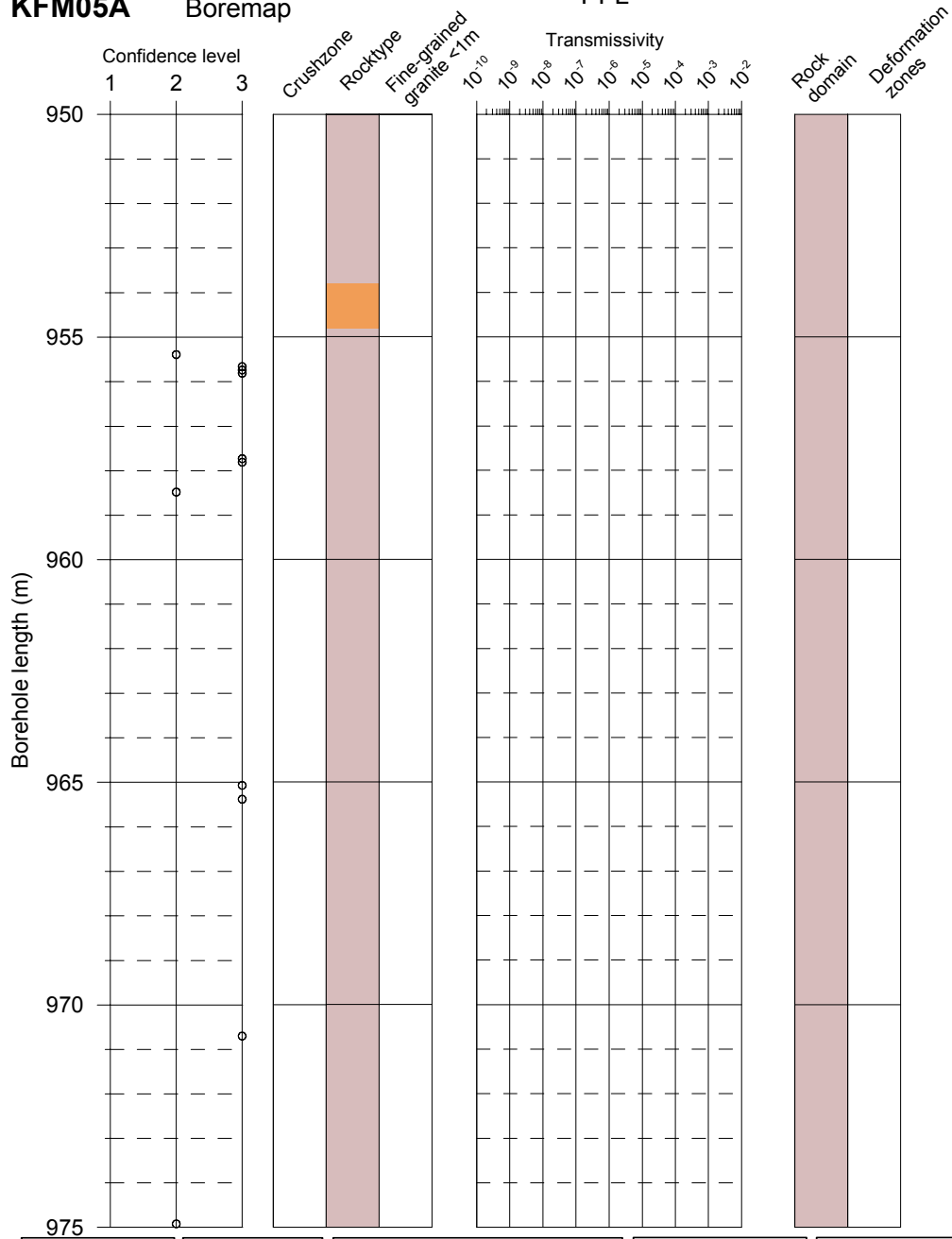
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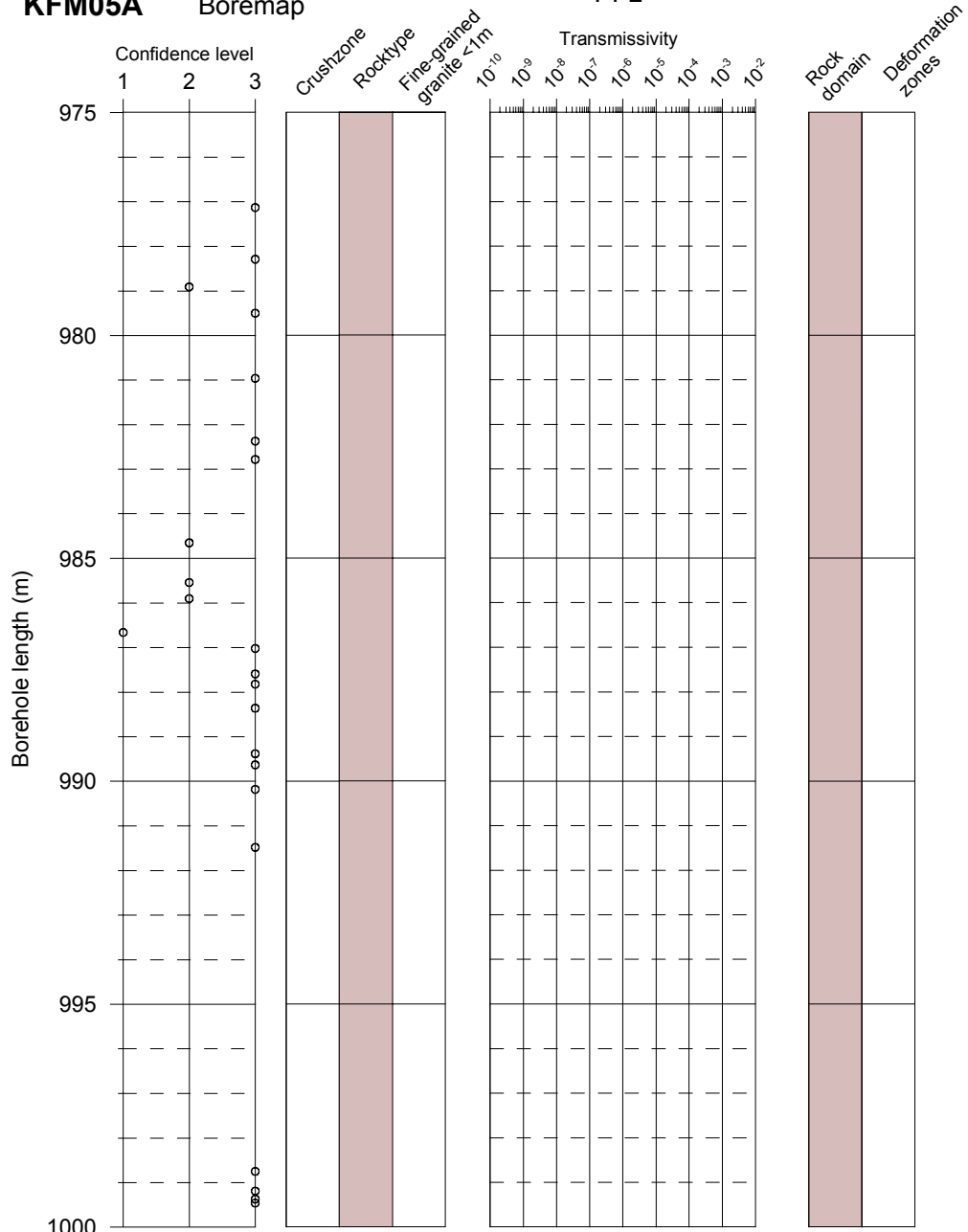
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