

## **Supplementary materials:**

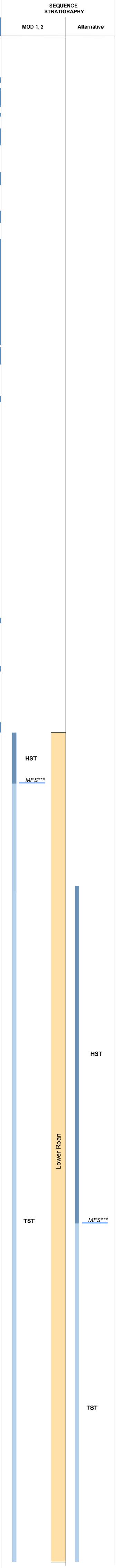
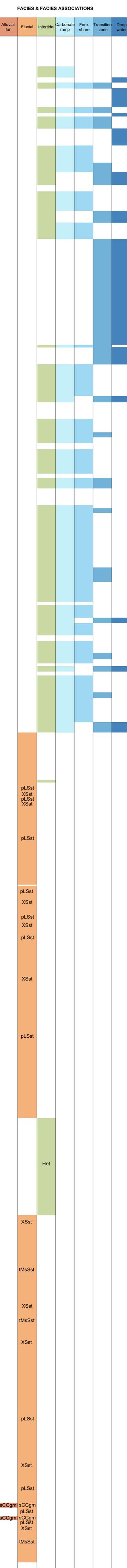
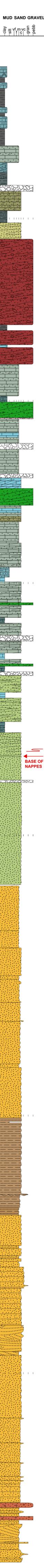
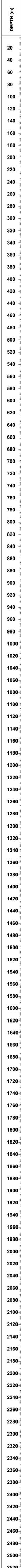
1. Stratigraphic logs of the 8 cores that were used in the subsidence analysis in this study and informed stratigraphic interpretations (this document)
2. Type logs for each core used in the subsidence analysis in this study, showing a best-estimate of the full Katangan stratigraphy prior to basin inversion and erosion
3. Example backstripping spreadsheet of core KN192 showing workflow used to decompact and backstrip the type log of the Konkola area

LITHOLOGIES

-  Stromatolitic silty carbonate
-  Interbedded shale and silty carbonate
-  Silty carbonate
-  Shale
-  Schistose diamictite
-  Sandy carbonate
-  Anhydrite
-  Interbedded (meta)carbonate and (meta)sandstone
-  Carbonate
-  Carbonate-bearing metasandstone
-  Pelitic carbonate
-  Breccia
-  Metasandstone
-  Interbedded sandstone and shale
-  Conglomerate
-  Sandstone

TEXTURE, FABRIC

-  Schistose or intensely folded



BASE OF NAPPE

HST

MFS\*\*\*

HST

Lower Roan

TST

MFS\*\*\*

TST

sCCgm

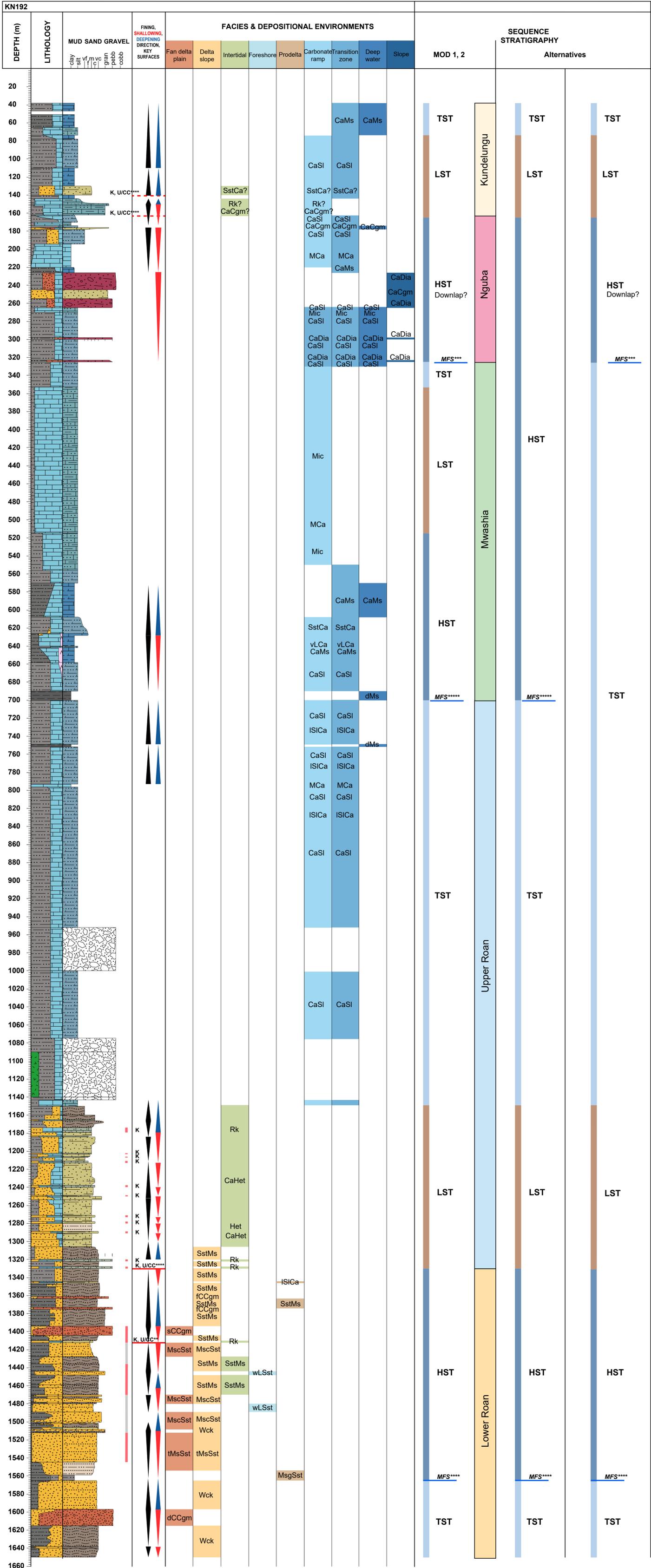
sCCgm

sCCgm

pLSst

pLSst

tMsSst

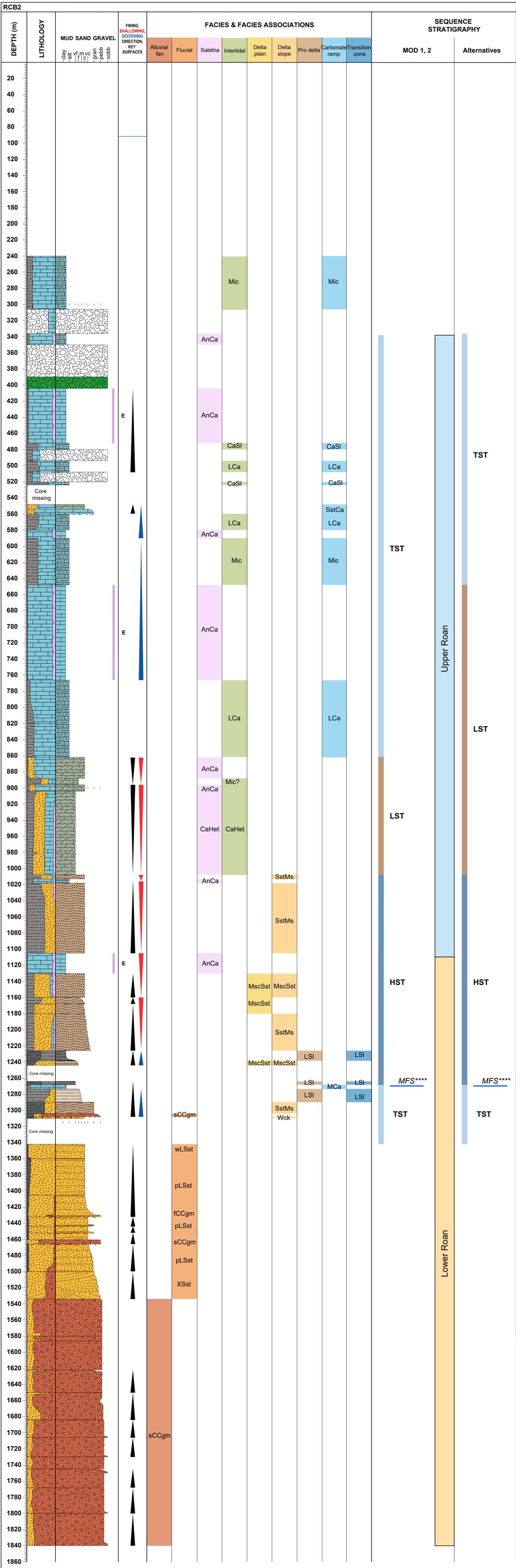


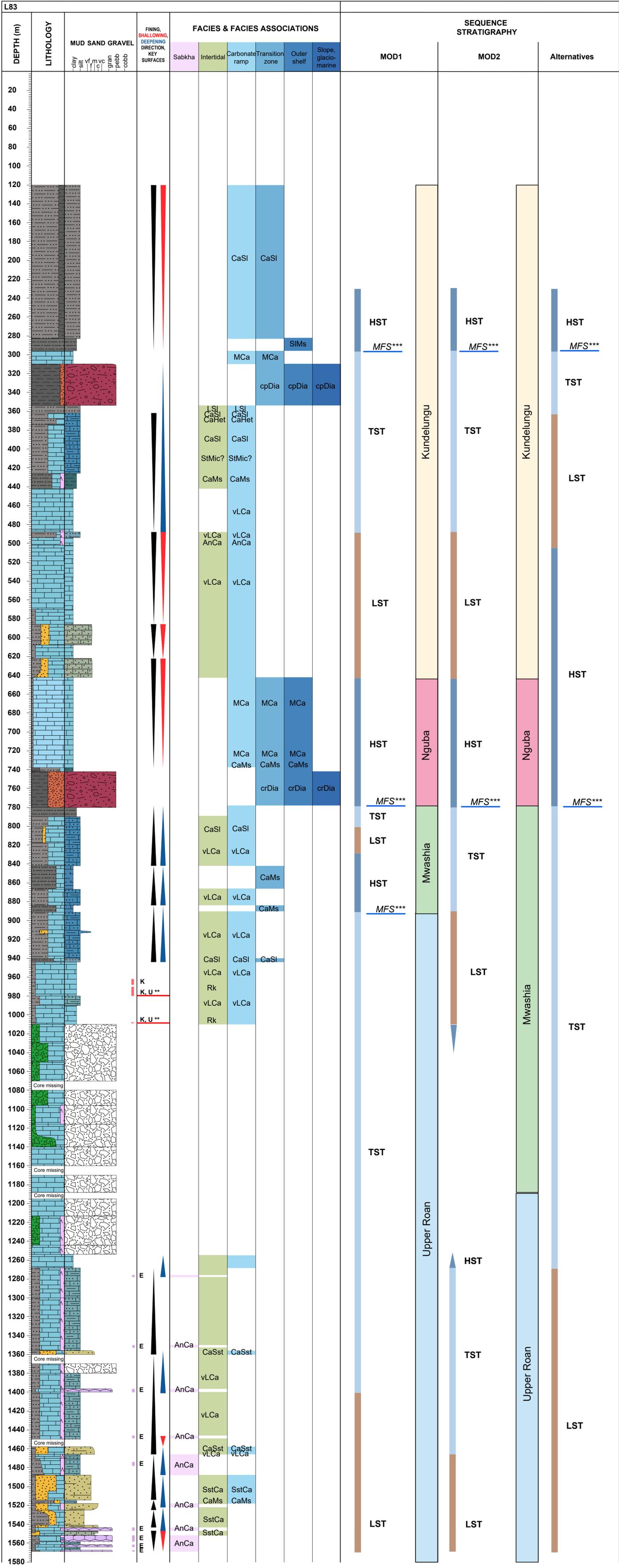
**LITHOLOGIES**

- Interbedded carbonate and carbonate-bearing silt, shale
- Silty carbonate
- Diamictite
- Carbonate-bearing siltstone
- Breccia
- Mafic suites
- Sandy carbonate
- Calcareous sandstone
- Anhydrite
- Clean carbonate
- Silty shale, silty mudstone
- Siltstone
- Wacke, sandy mudstone
- Interbedded mudstone, sandstone
- Mudstone
- Conglomerate
- Sandstone
- Light-coloured, "clean" sands
- Red, oxidised units

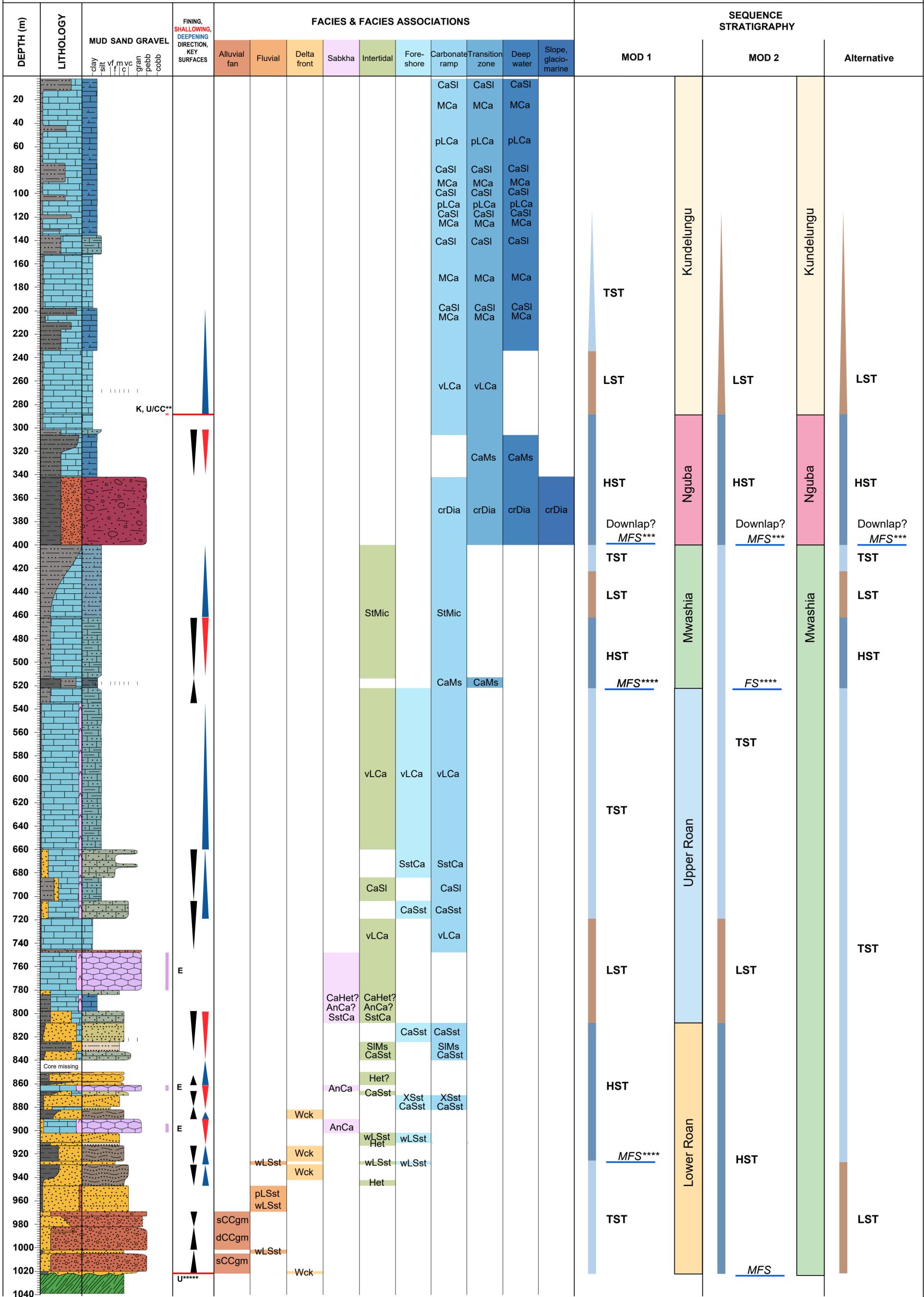
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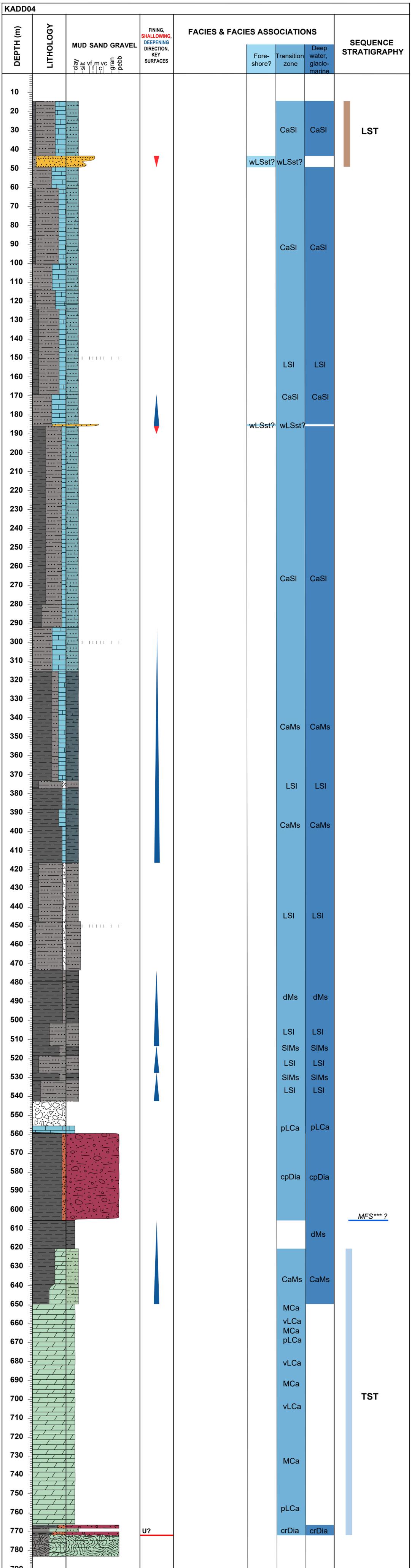
- K: karstification surface
- U/CC: unconformity surface/correlative conformity
- K, U/CC\*\*\*\*: Dissolution features, oxidised, coarse material, facies stacking
- K, U/CC\*\*\*\*: Dissolution features, oxidised, coarse material, facies stacking
- K, U/CC\*\*\*\*: Dissolution features/karst, oxidised, erosive base, facies stacking
- K, U\*\*: Dissolution features, oxidised
- MFS\*\*\*: facies juxtaposition, facies stacking, sharp surfaces
- MFS\*\*\*\*: facies juxtaposition, facies stacking, reduced grain size, reduced, sharp surfaces
- MFS\*\*\*\*: facies juxtaposition, facies stacking, reduced grain size, chemically reduced





- LITHOLOGIES**
- Diamictite
  - Conglomerate
  - Mudstone
  - Calcareous silty shale, calcareous shale
  - Interbedded carbonate and silty carbonate
  - Interbedded carbonate and calcareous shale
  - Silty shale, silty mudstone
  - Calcareous siltstone
  - Brecciated mafic suites
  - Breccia
  - Calcareous sandstone
  - Sandy carbonate
  - Sandstone
  - Siltstone
  - Silty carbonate
  - Carbonate
  - Anhydrite
  - Carbonate with chicken-wire anhydrite
- U: unconformity surface  
E: evaporitic surface  
K: karstification surface
- Red, oxidised units
- Anhydrite-rich units with evaporitic textures
- K, U \*\*: dissolution features/karst, oxidised
- MFS\*\*\*: facies juxtaposition, facies stacking, reduced
- MFS\*\*\*: facies juxtaposition, facies stacking, reduced





**LITHOLOGIES**

-  Sandstone
-  Siltstone
-  Calcareous shale, siltstone
-  Breccia
-  Carbonate
-  Shale
-  Dolomite
-  Dolomitic siltstone
-  Conglomerate
-  Diamictite
-  Schistose dolomitic siltstone

**U/CC:** unconformity surface/ correlative conformity

**MFS\*\*\*:** facies juxtaposition, facies stacking, sharp surfaces

**MUD SAND GRAVEL**

clay silt vf m vc gran pebb

FINING, SHALLOWING, DEEPENING DIRECTION, KEY SURFACES

**FACIES & FACIES ASSOCIATIONS**

Fore-shore? Transition zone Deep water, glacio-marine

**SEQUENCE STRATIGRAPHY**

LST

TST

MFS\*\*\* ?

U?

**LITHOLOGIES**

-  Conglomerate
-  Silty mudstone
-  Silty limestone
-  Limestone
-  Cross-bedded sandstone
-  Wavy laminated sandstone
-  Siltstone
-  Shale, mudstone
-  Diamictite
-  Andesitic basement

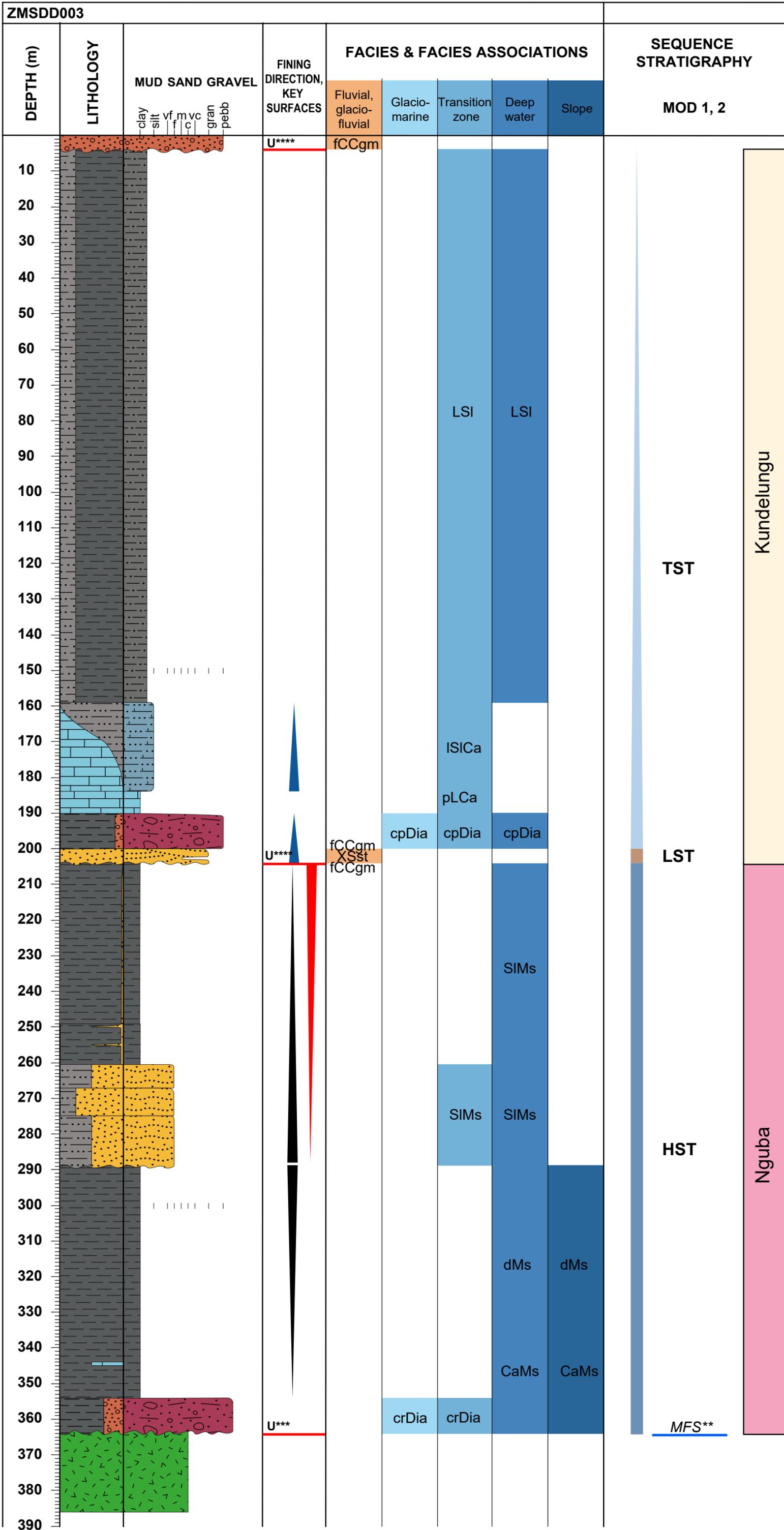
**U:** unconformity surface

**U\*\*\*\*:** erosive base, lithology juxtaposition, oxidised, coarse grain size

**U\*\*\*\*:** erosive base, lithology juxtaposition, oxidised, coarse grain size

**U\*\*\*:** erosive base, lithology juxtaposition, coarse grain size

**MFS\*\*:** lithological juxtaposition, facies stacking

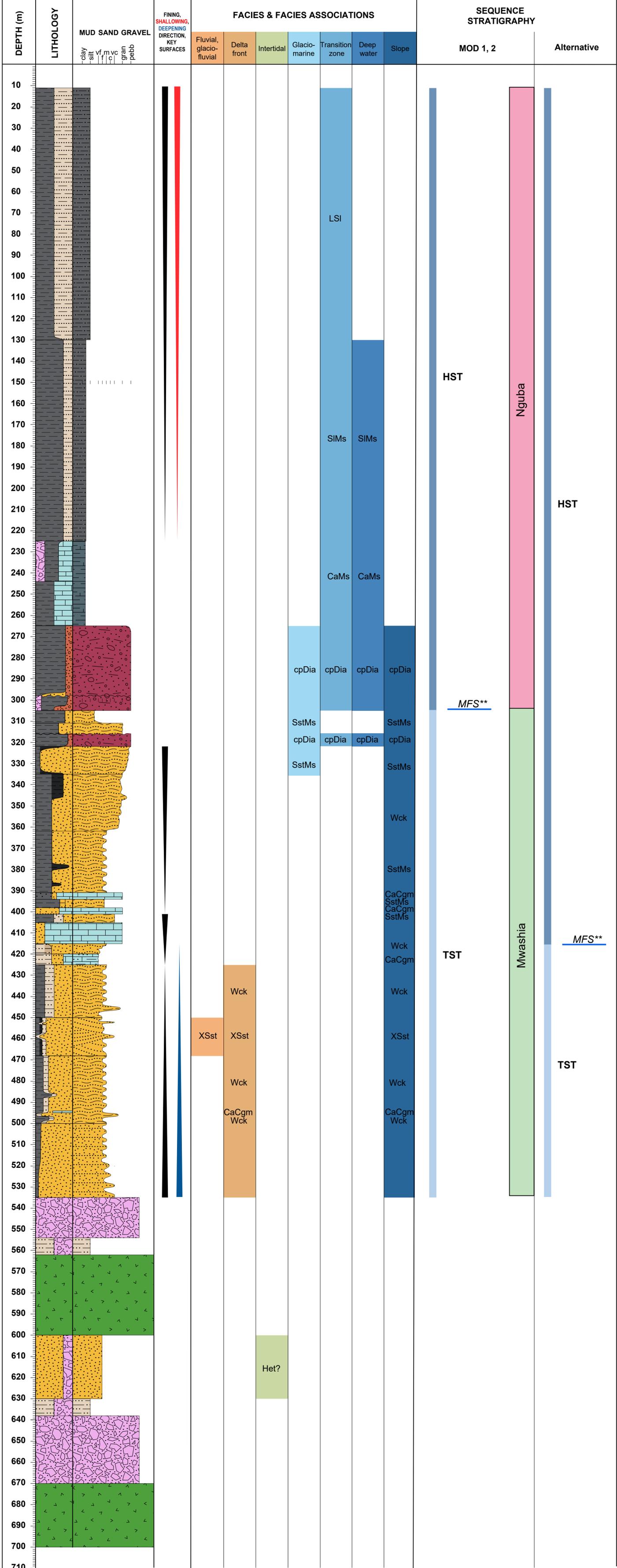


MFS\*\*

CHLDD001

- LITHOLOGIES**
-  Calcareous shale, siltstone
  -  Silty mudstone
  -  Mudstone
  -  Conglomerate
  -  Diamictite
  -  Carbonate
  -  Cross-bedded sand
  -  Wacke, sandy mudstone
  -  Planar laminated sand
  -  Sand
  -  Siltstone
  -  Breccia
  -  Mafic suites

MFS\*\*: facies juxtaposition, facies stacking



HST

Nguba

HST

MFS\*\*

TST

Mwashia

MFS\*\*

TST

Het?