

Sequence Stratigraphy as a tool for water resources management in alluvial coastal aquifers: application to the Llobregat delta (Barcelona, Spain)

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APPENDIX III

PhD Thesis

Department of Geotechnical Engineering and Geo-Sciences (ETCG)
Technical University of Catalonia (UPC)

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Dr. Jesús Carrera Ramírez

Tutor:

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HYDROGEOLOGY GROUP
TECHNICAL UNIVERSITY OF CATALONIA



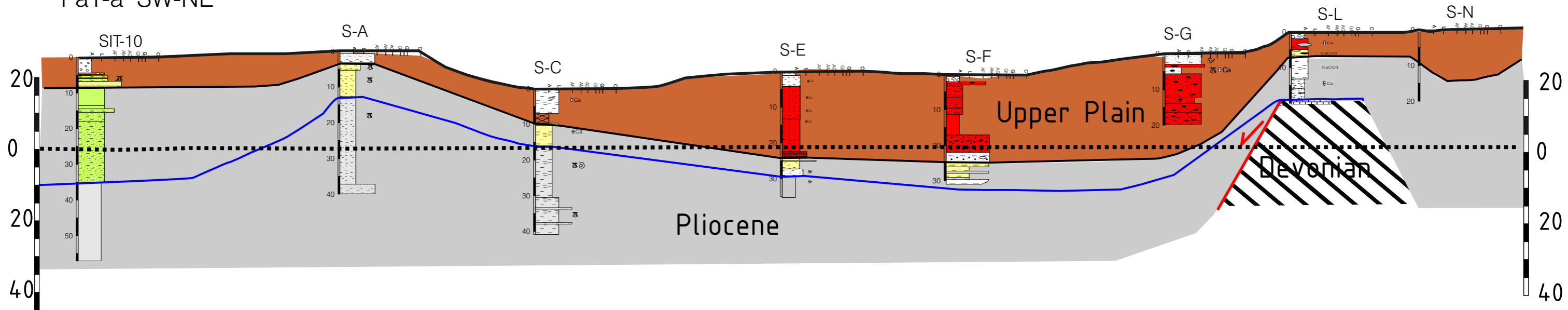
geomodels
centre mixt d'investigació

Hydrogeochemistry
group





Pa1-a SW-NE



Upper Plain (Quaternary)



Pliocene



Paleozoic



Bottom of the Pleistocene



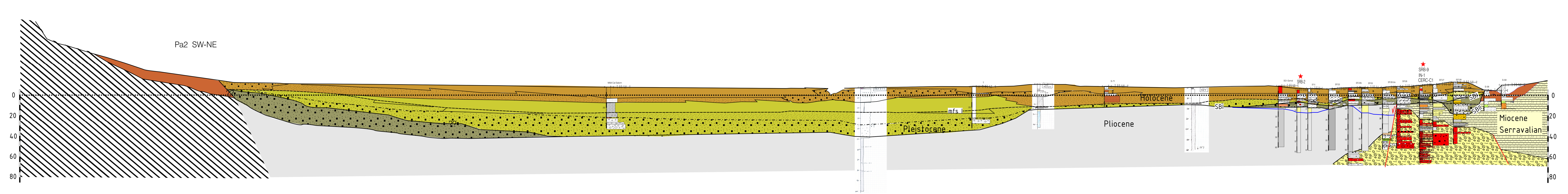
Bottom of the Pliocene (Pl1)



Faults

1.5 km





DEPOSITIONAL SEQUENCE I

- Flood plain, swamp, anthropic sediments (Fp, Sw)
- Alluvial deposits (Fc)
- Delta front (Df)
- Prodelta (P)
- Sand beaches (Bs)
- Gravel facies (Bg-Fc)

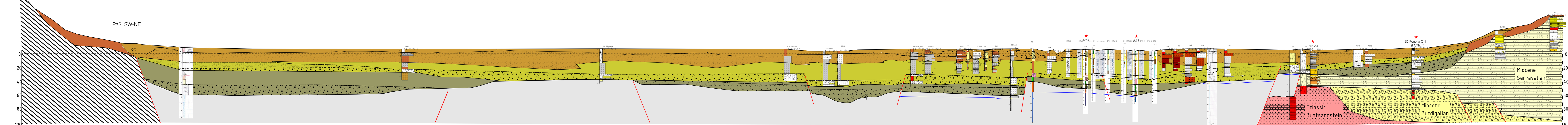
DS II and III

- Fine sediments (Rw) Depositional Sequence II
- Beach gravels and alluvial deposits (Bg-Fc) Depositional Sequence II
- Fine sediments (Rw) Depositional Sequence III
- Beach gravels and alluvial deposits (Bg-Fc) Depositional Sequence III

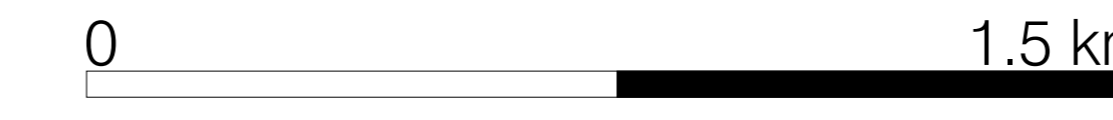
- Upper Plain (Quaternary)
- Pliocene
- Miocene Serravalian
- Miocene Burdigalian
- Paleozoic

- Limit between transgressive sands and gravels
- Maximum flooding surface (mfs)
- Sequence Boundary (SB)
- Bottom of the Pliocene (Pl2)

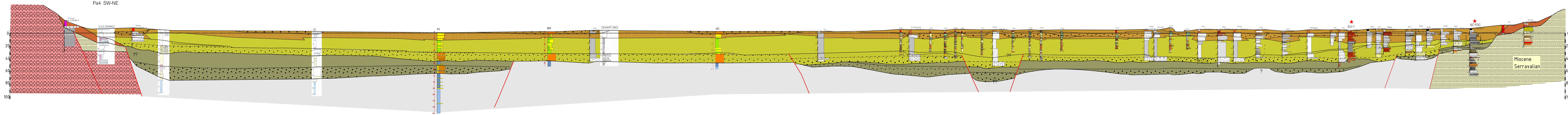
- Faults
- Geological analyses (Annex I)



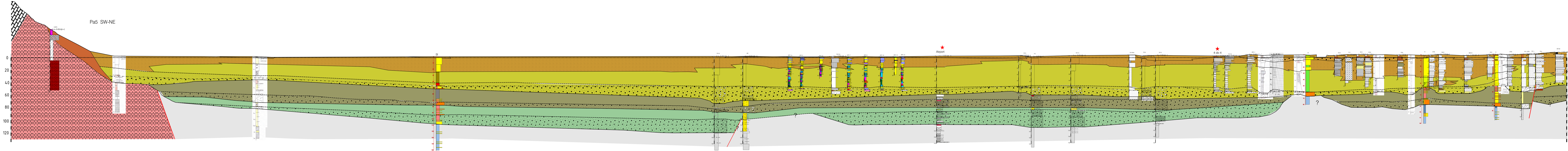
Pa3 SW-NE



- | | | | |
|--|---|--------------------------|---|
| DEPOSITIONAL SEQUENCE I | DS II and III | BASEMENT | |
| Flood plain, swamp, anthropic sediments (Fp, Sw) | Fine sediments (Rw) Depositional Sequence II | Upper Plain (Quaternary) | Limit between transgressive sands and gravels |
| Alluvial deposits (Fc) | Beach gravels and alluvial deposits (Bg-Fc) Depositional Sequence II | Pliocene | Maximum flooding surface (mfs) |
| Delta front (Df) | Fine sediments (Rw) Depositional Sequence III | Miocene Serravalian | Sequence Boundary (SB) |
| Prodelta (P) | Beach gravels and alluvial deposits (Bg-Fc) Depositional Sequence III | Miocene Burdigalian | Bottom of the Pliocene (Pl2) |
| Sand beaches (Bs) | | Triassic | Faults |
| Gravel facies (Bg-Fc) | | Paleozoic | Geological analyses (Annex I) |



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|--|---|--------------------------|--|-------------------------------|
| DEPOSITIONAL SEQUENCE I | DS II and III | BASEMENT | Limit between transgressive sands and gravels | Faults |
| Flood plain, swamp, anthropic sediments (Fp, Sw) | Fine sediments (Rw) Depositional Sequence II | Upper Plain (Quaternary) | Limit between transgressive sands and gravels | Faults |
| Alluvial deposits (Fc) | Beach gravels and alluvial deposits (Bg-Fc) Depositional Sequence II | Pliocene | Maximum flooding surface (mfs) | Geological analyses (Annex I) |
| Delta front (Df) | Fine sediments (Rw) Depositional Sequence III | Miocene Serravalian | Sequence Boundary (SB) | |
| Prodelta (P) | Beach gravels and alluvial deposits (Bg-Fc) Depositional Sequence III | Miocene Burdigalian | Bottom of the Pliocene (P12) | |
| Sand beaches (Bs) | | Triassic | | |
| Gravel facies (Bg-Fc) | | Paleozoic | | |



Pa5 SW-NE

Airport

4 do 4

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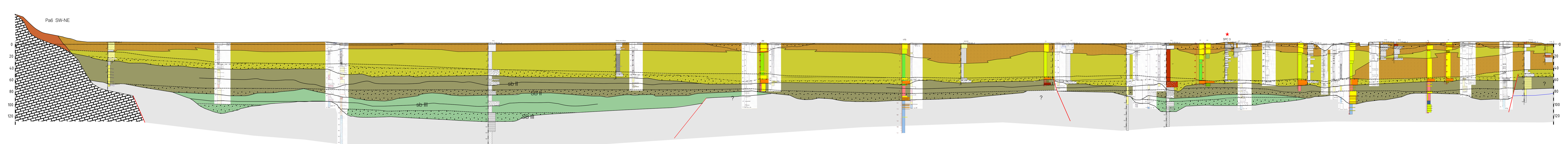
BASEMENT

- Upper Plain (Quaternary)
- Pliocene
- Miocene Serravalian
- Miocene Burdigalian
- Triassic
- Paleozoic

- Limit between transgressive sands and gravels
- Maximum flooding surface (mfs)
- Sequence Boundary (SB)
- Bottom of the Pliocene (P12)

- Faults
- Geological analyses (Annex I)





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BASEMENT

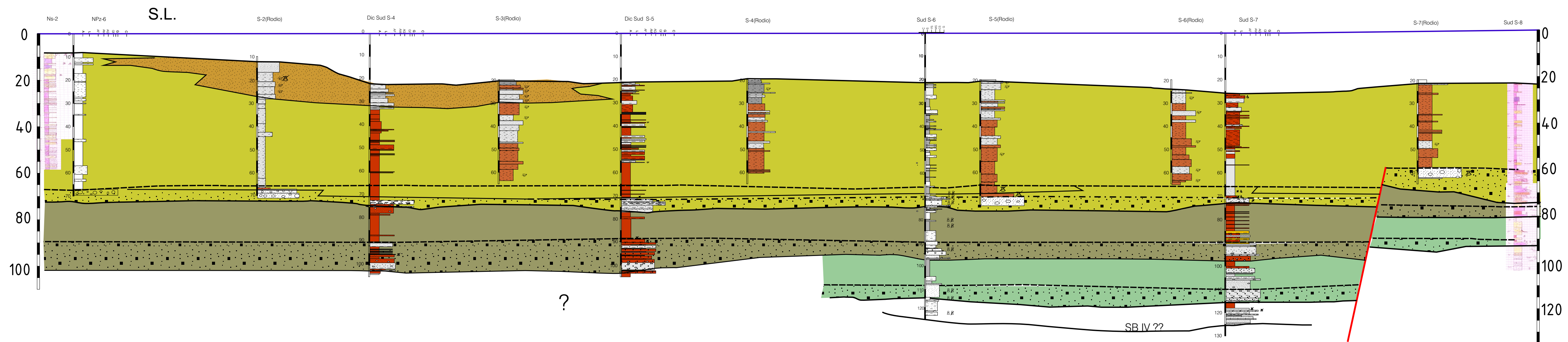
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- Limit between transgressive sands and gravels
- Maximum flooding surface (mfs)
- Sequence Boundary (SB)
- Bottom of the Pliocene (P12)



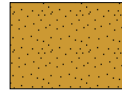


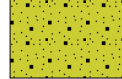
- Faults
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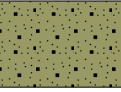

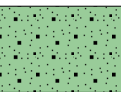
Pa7 SW-NE







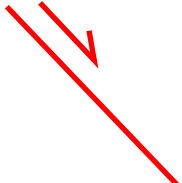
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-  Limit between transgressive sands and gravels
-  Maximum flooding surface (mfs)
-  Sequence Boundary (SB)
-  Bottom of the Pliocene (Pl2)

 Faults

0  1.5 km