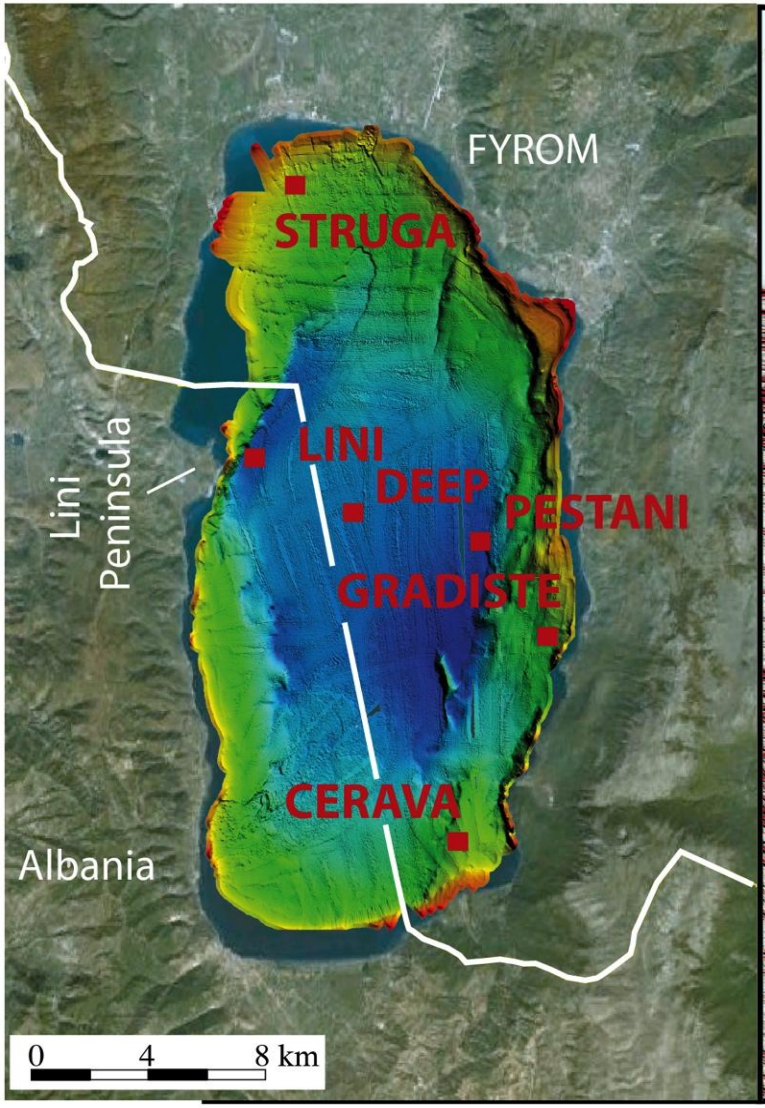
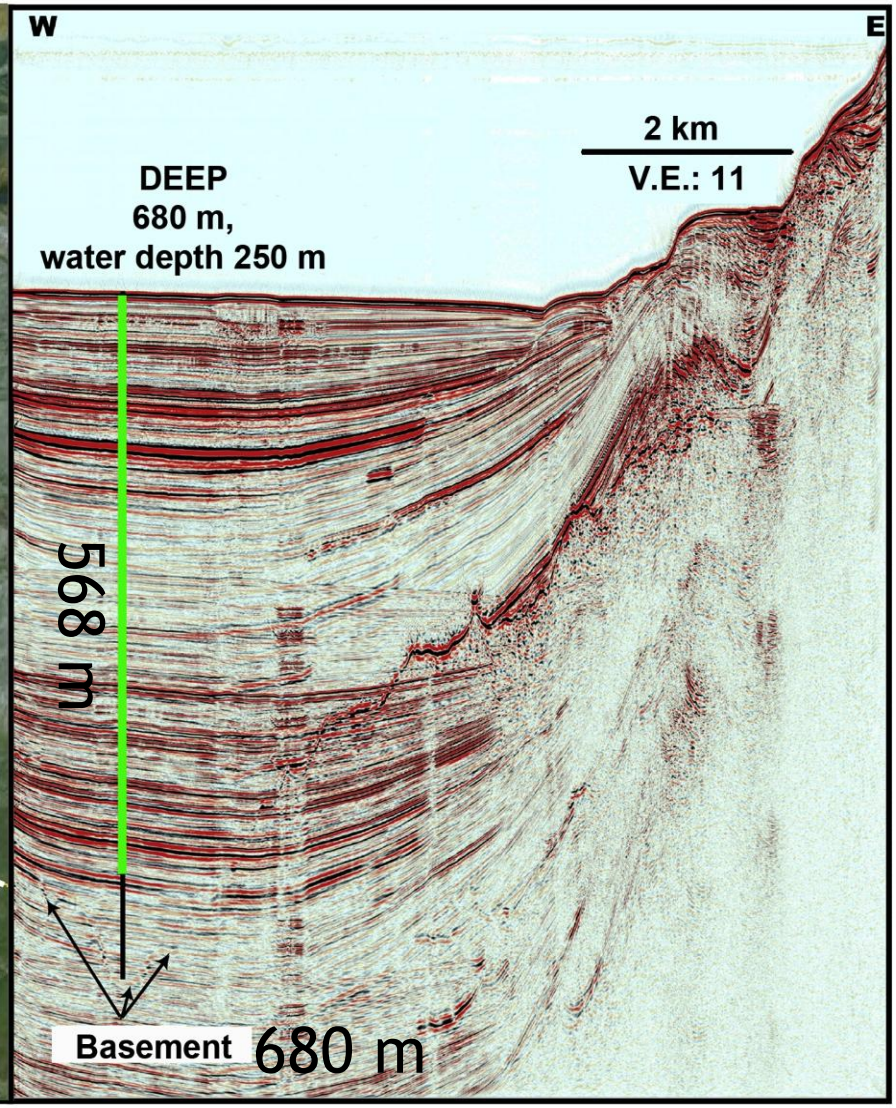
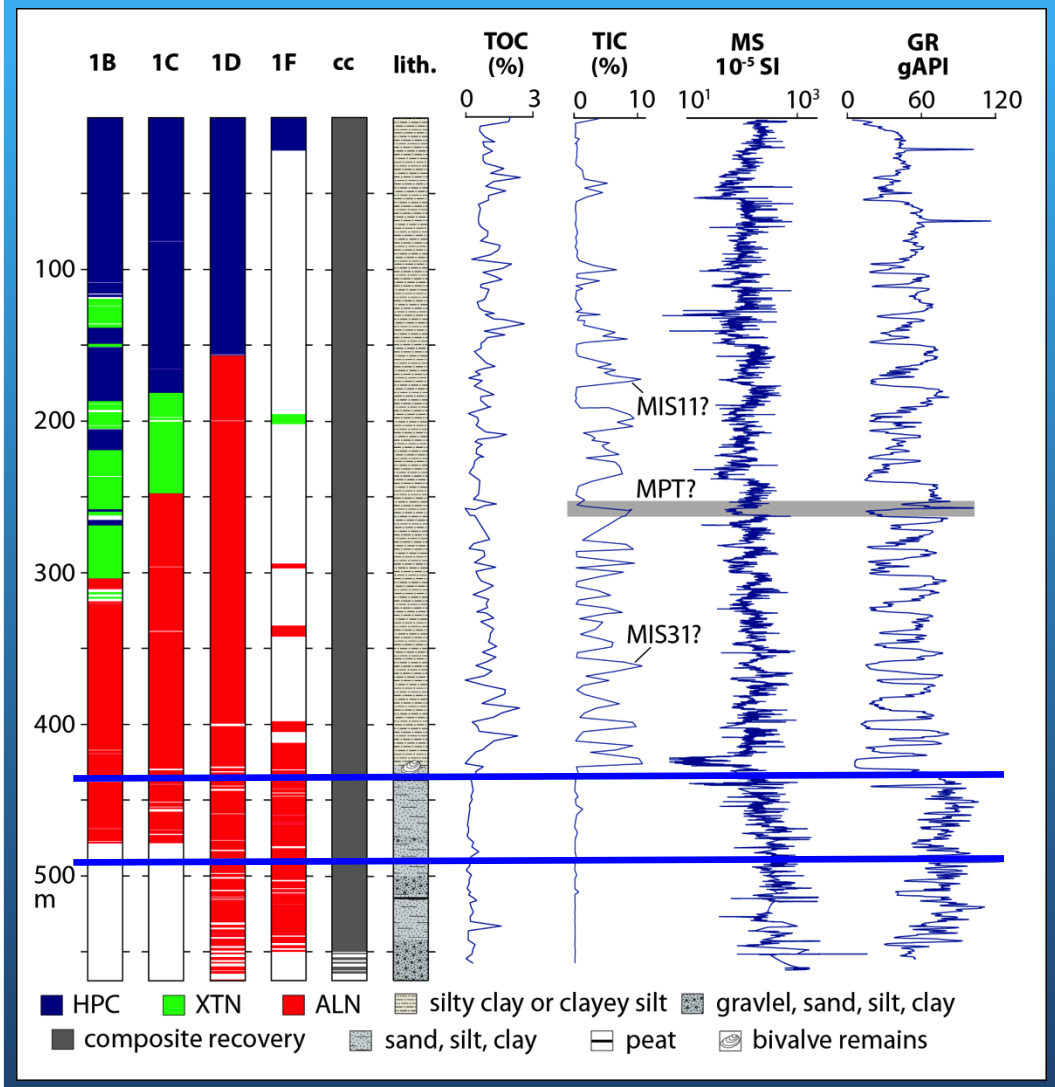
Core Handling in the ICDP SCOPSCO project at the University of Cologne

DEEP


FYROM
STRUGA
LINI
DEEP
PESTANI
GRADISTE
CERAVA
Albania
Lini
Peninsula
0
4
8 km

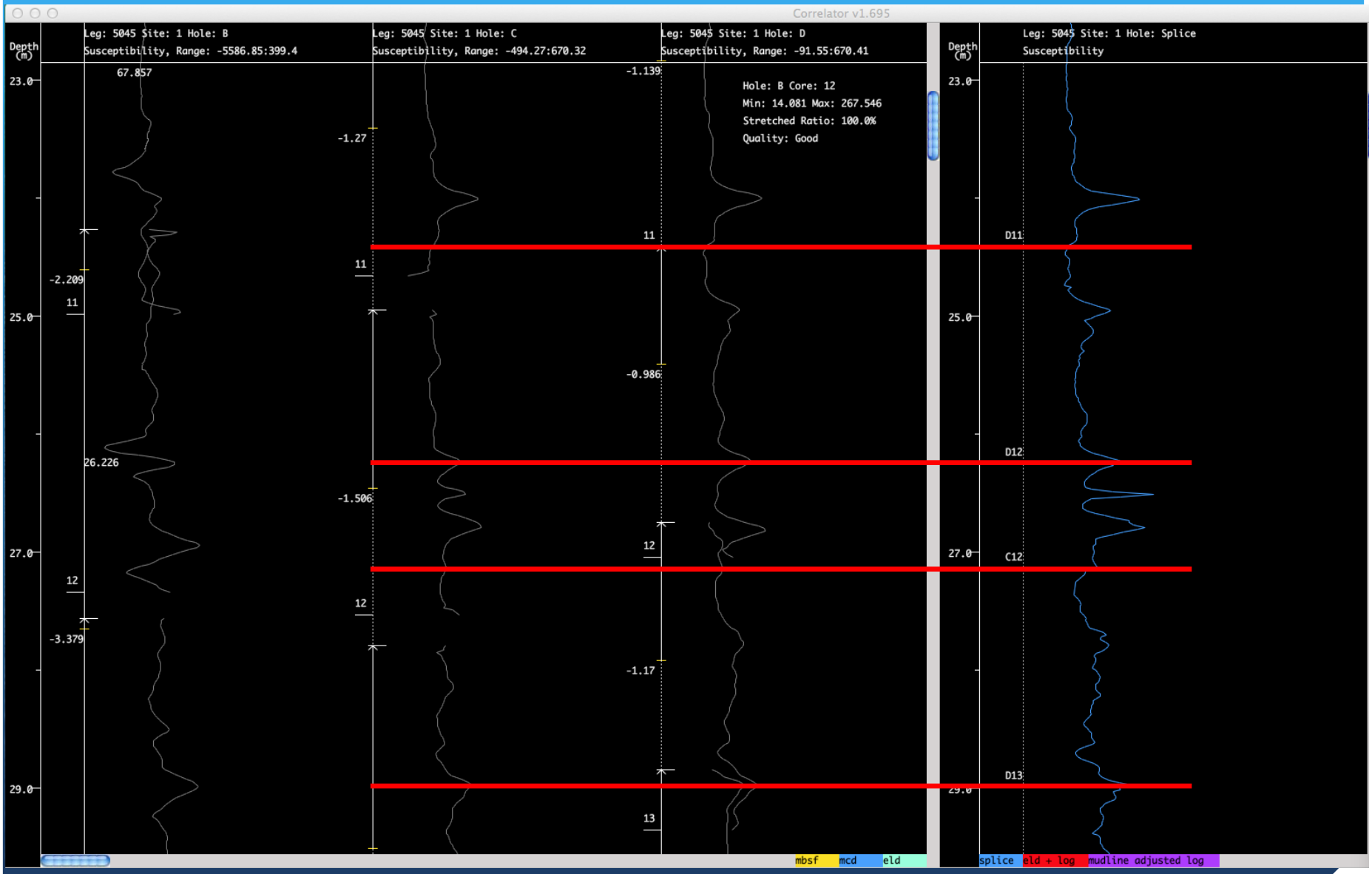

W
E
2 km
V.E.: 11
DEEP
680 m,
water depth 250 m
568 m
Basement
680 m

DEEP - Coring Results



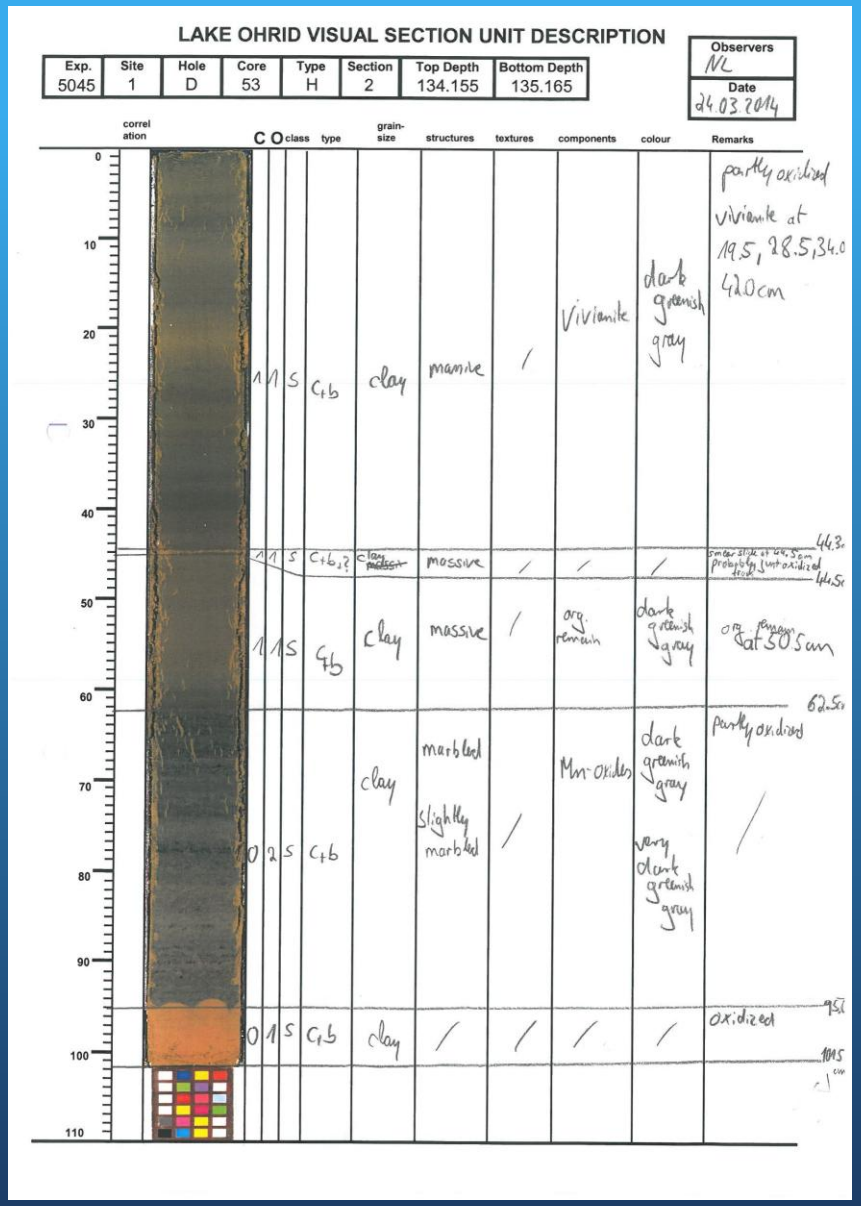
- main drill site, paleoclimate tephrostratigraphy, biodiversity, sedimentology, age of Lake Ohrid
- Water depth: 240m
- 568m deepest hole (1D)
- 1526m of cores
- 95% recovery

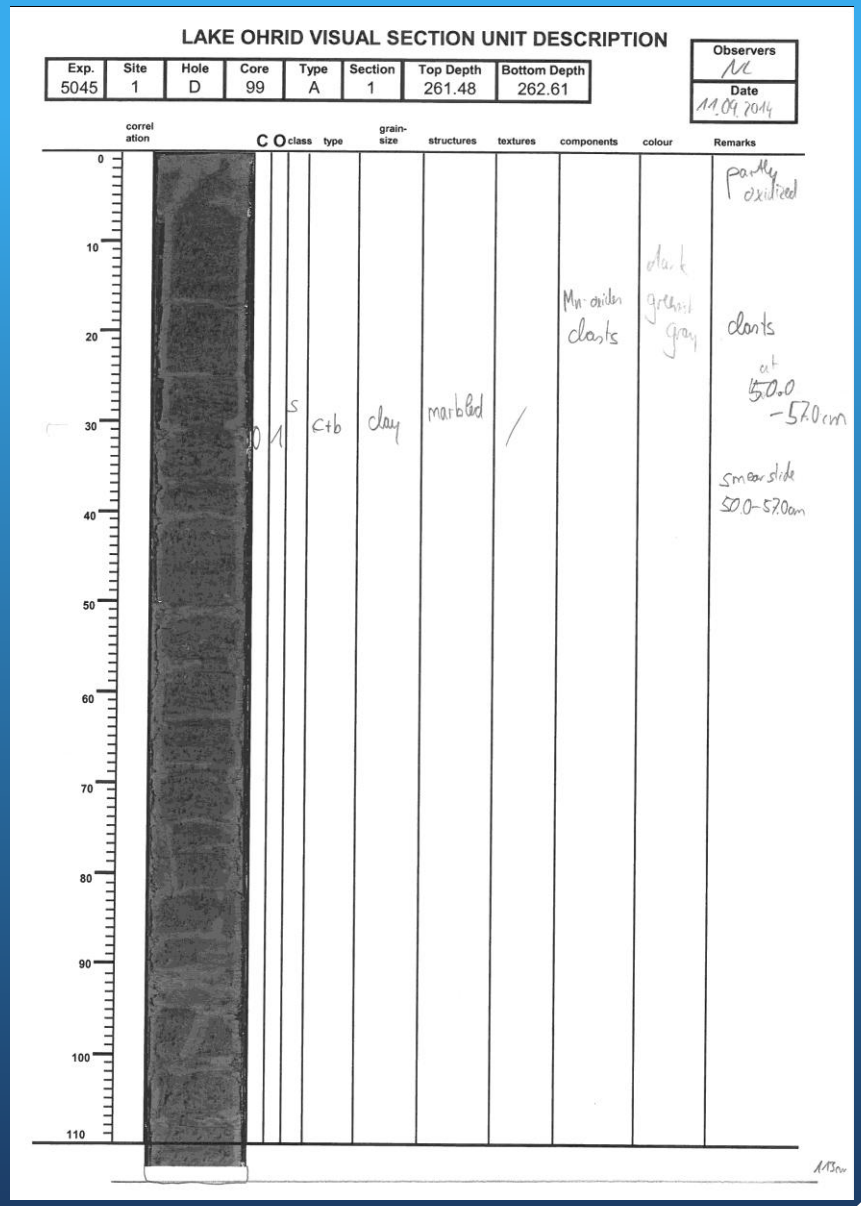
Core Handling



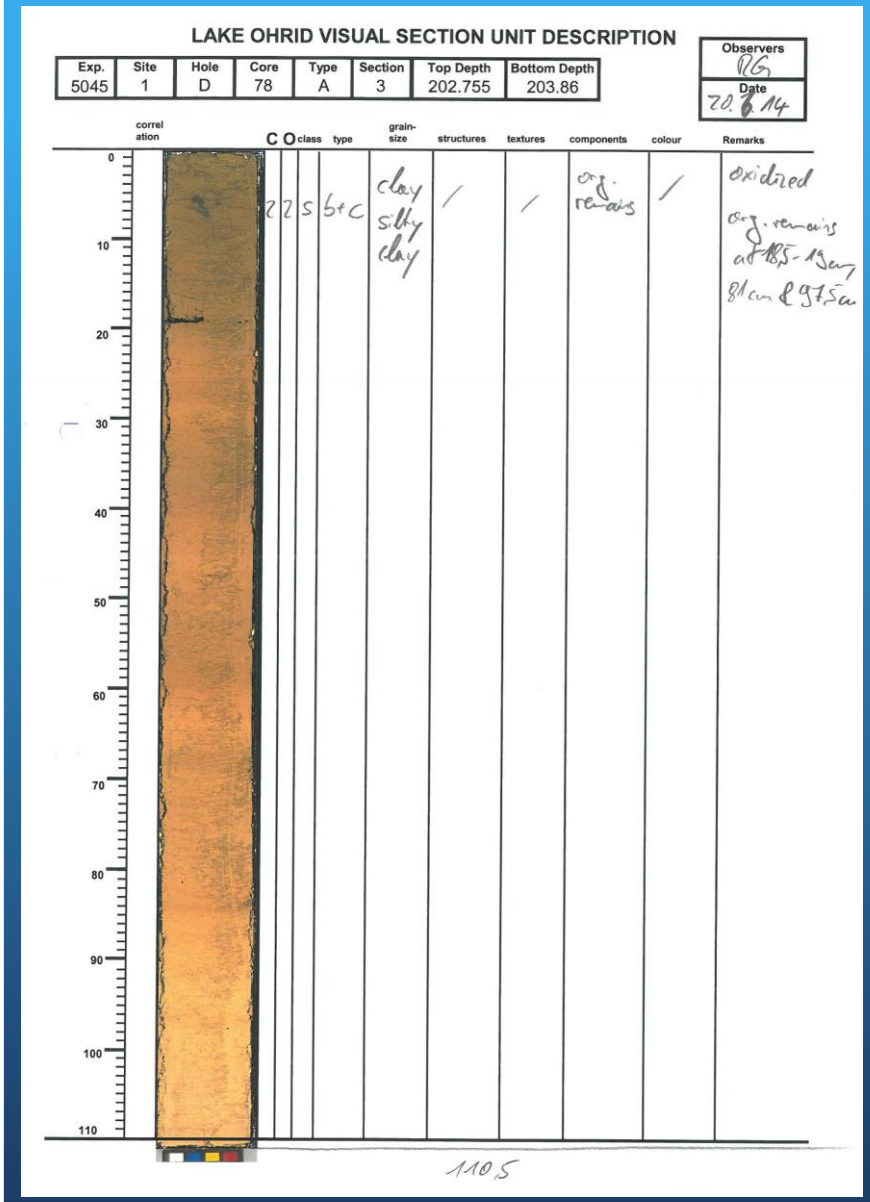
Core Handling

Core Description





Core Description



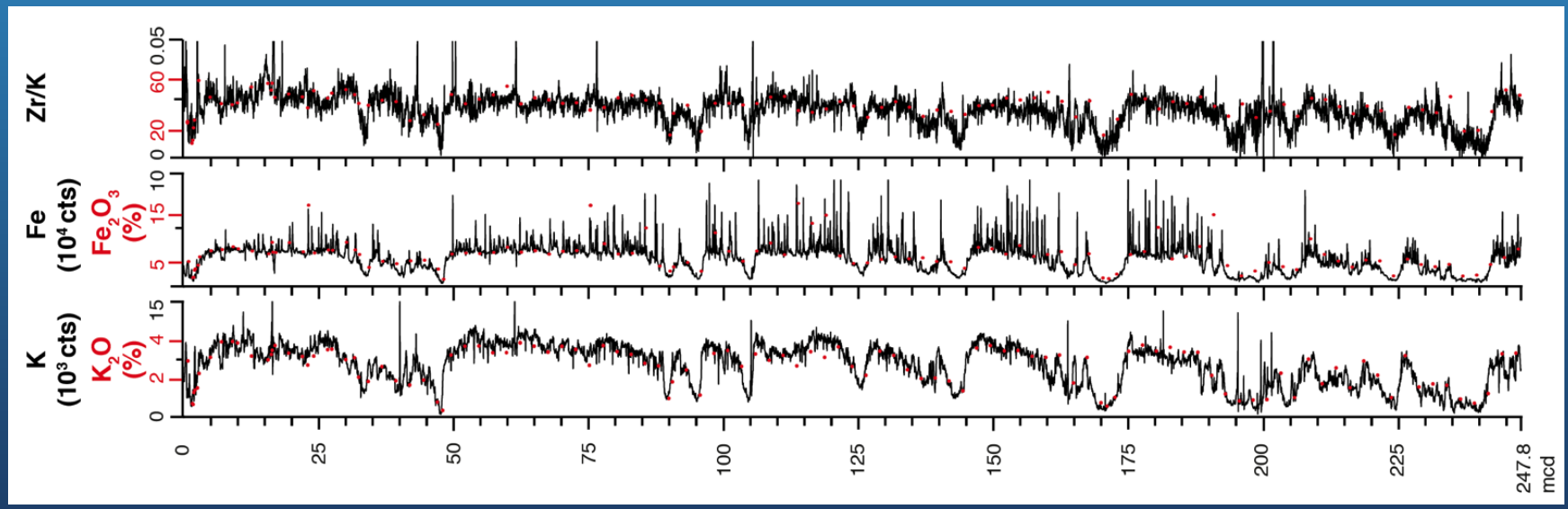
Oxidized core section

0 cm

50 cm

Core Handling - XRF

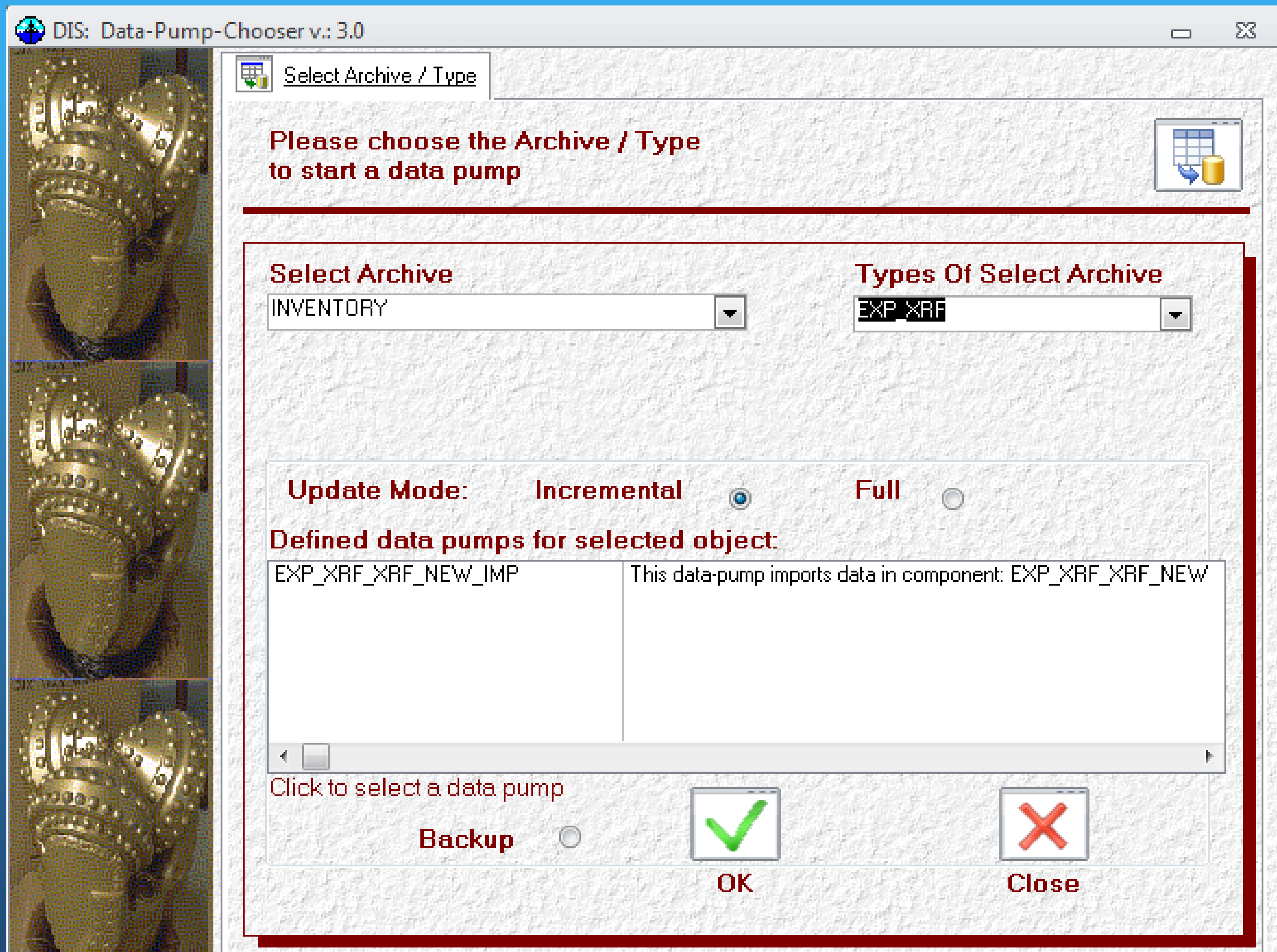
- ITRAX core scanner (COX Analytics
- Resolution: 2.5 mm
- Exposer time: 10 s
- 5 cores / day



Core Handling – MSCL

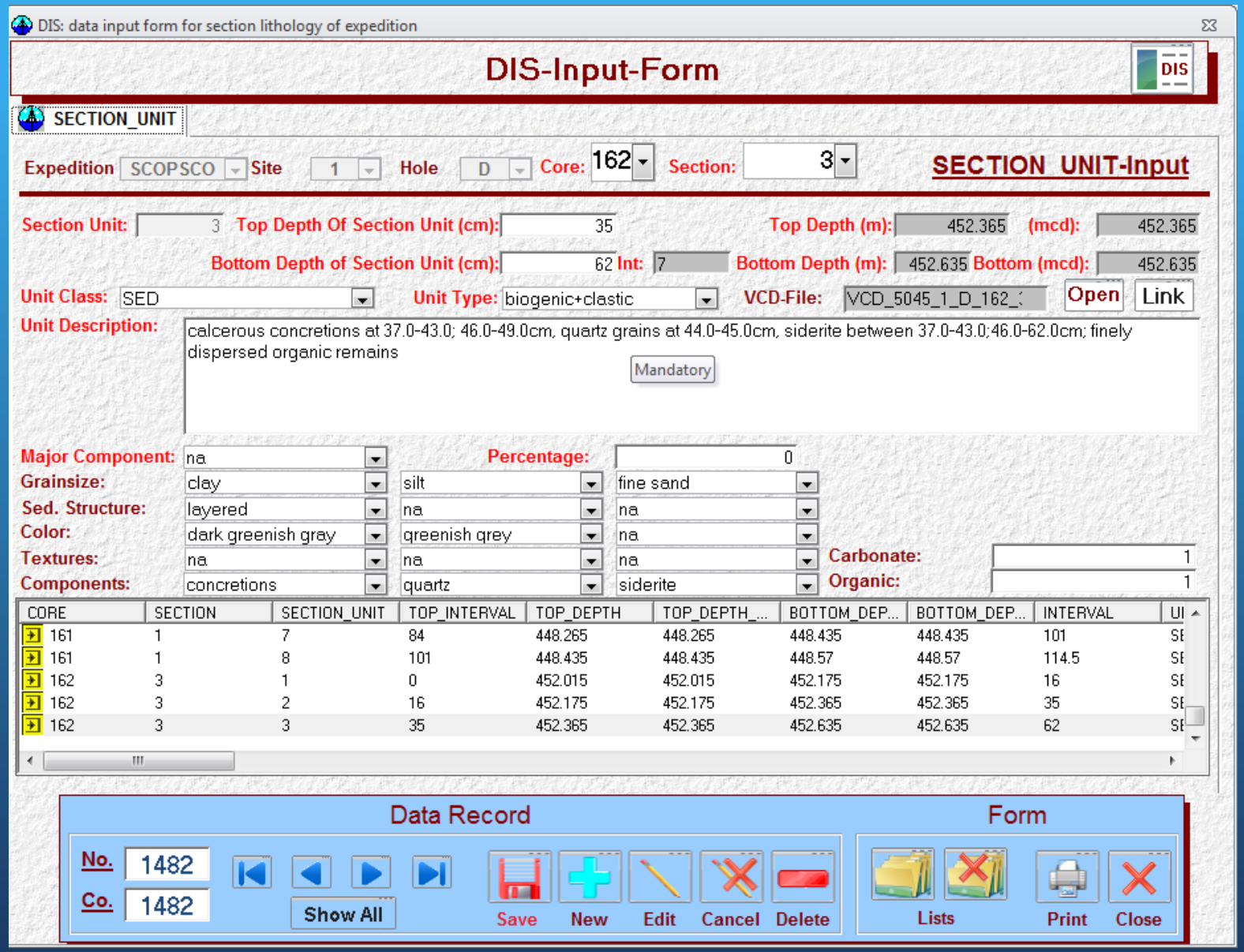
- GEOTEC Ltd.
- Resolution: 1 cm
- High Resolution line scan Image
- Magnetic Susceptibility
- ~~P Wave Velocity~~
- Density
- Color Spectrum ?
- Resistivity

Data Management

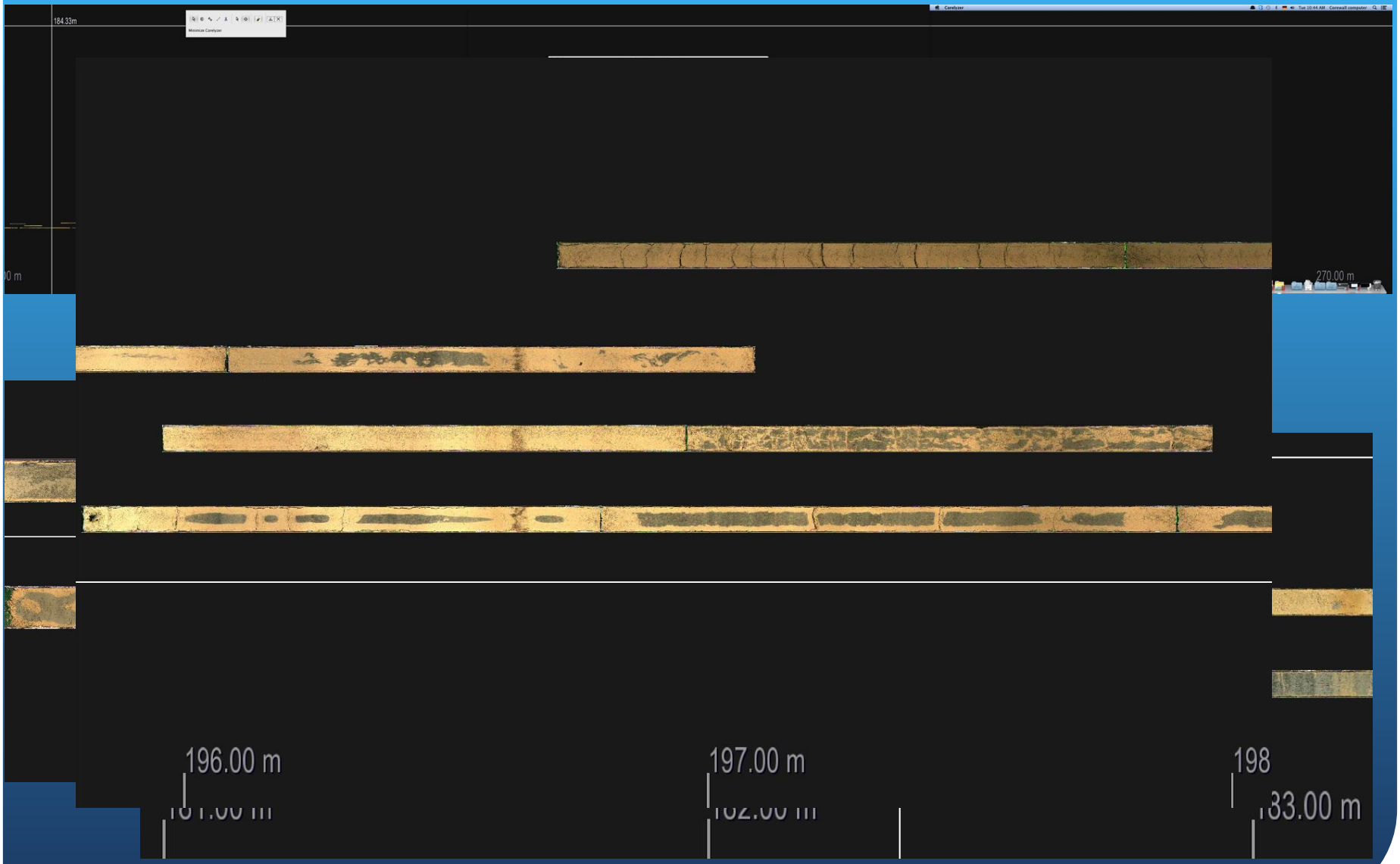


- Management outside DIS: Excel based Macros
- Transfers Section Depths to mDW

Data Management

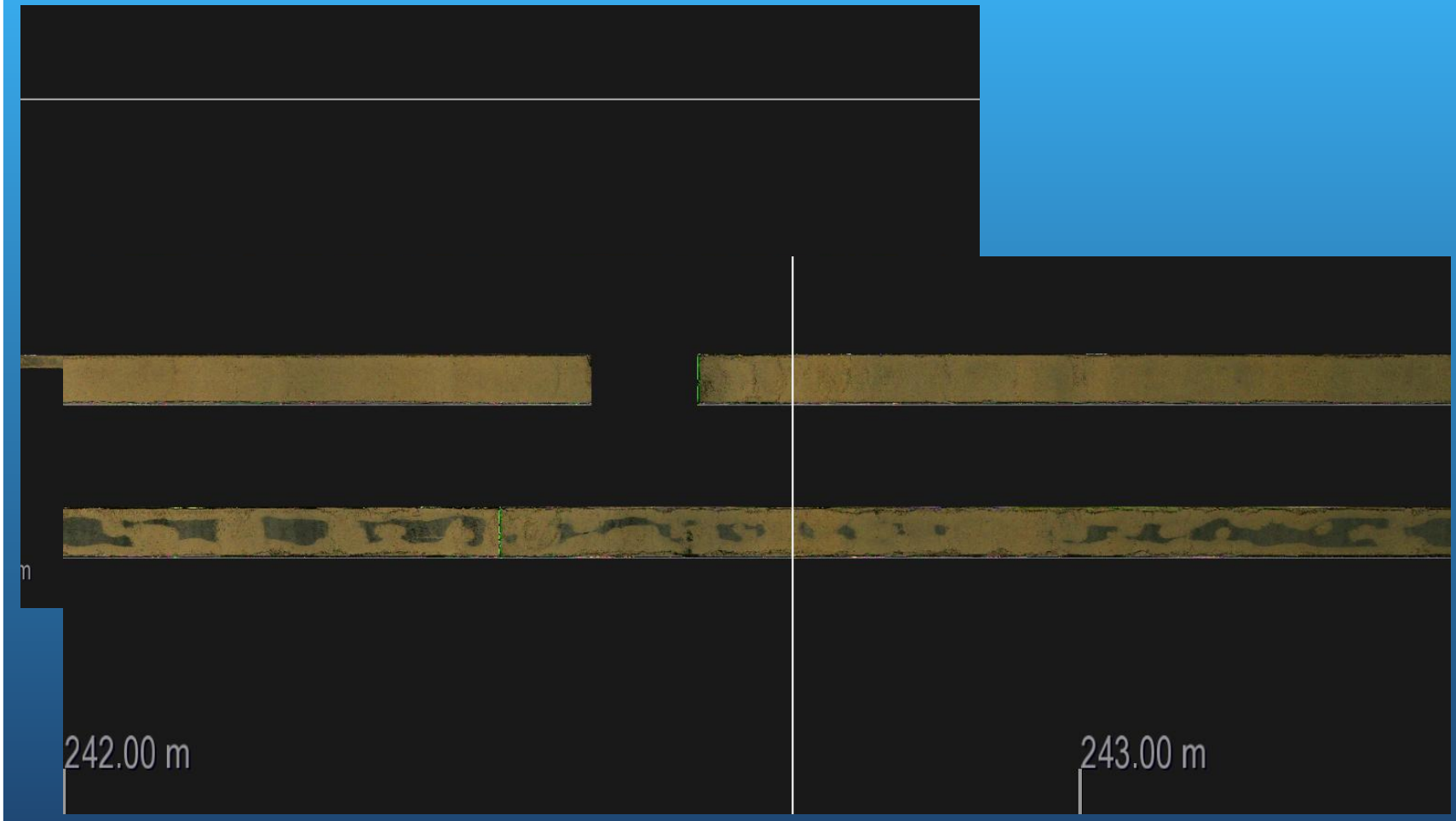


Core Correlation

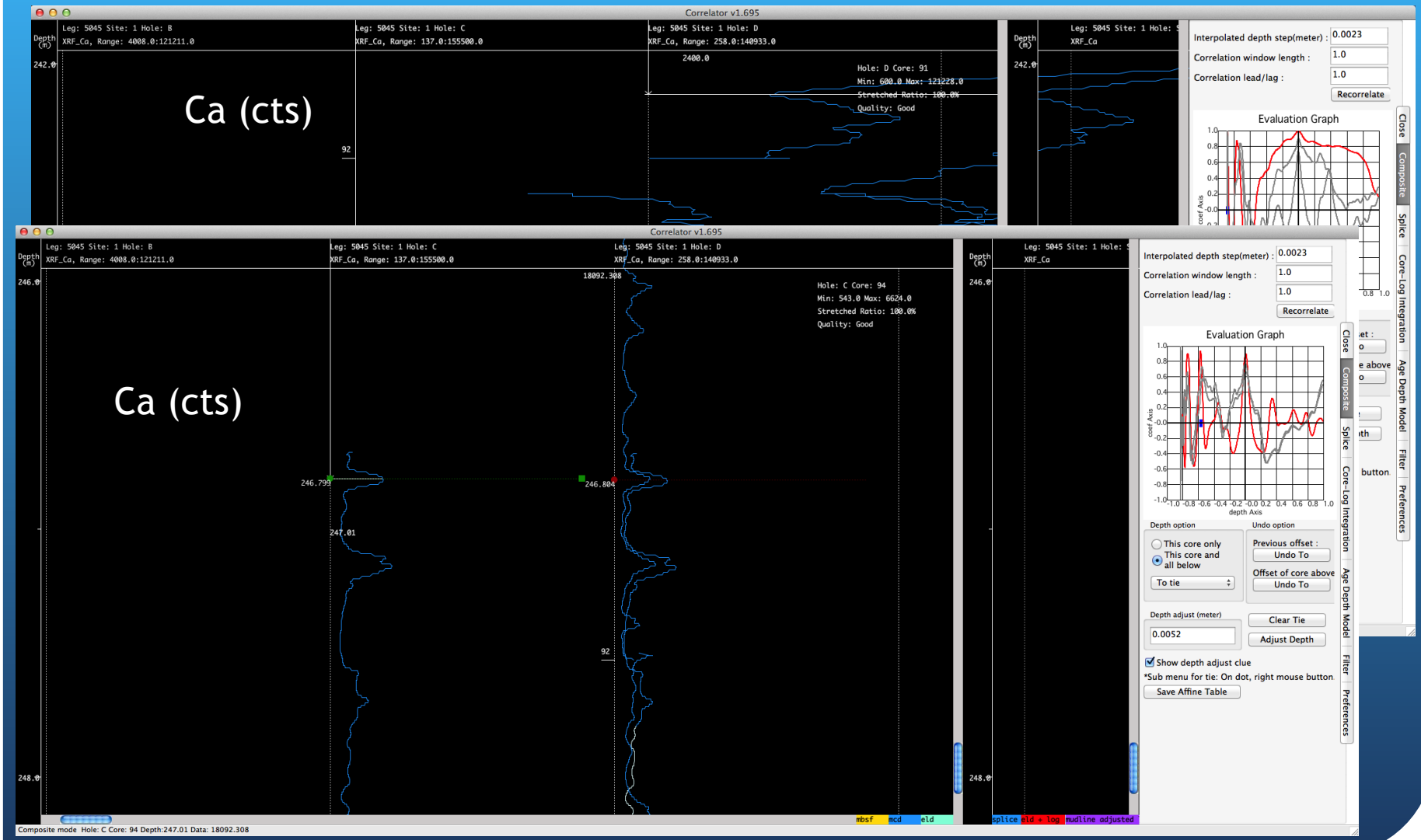


http://www.corewall.org

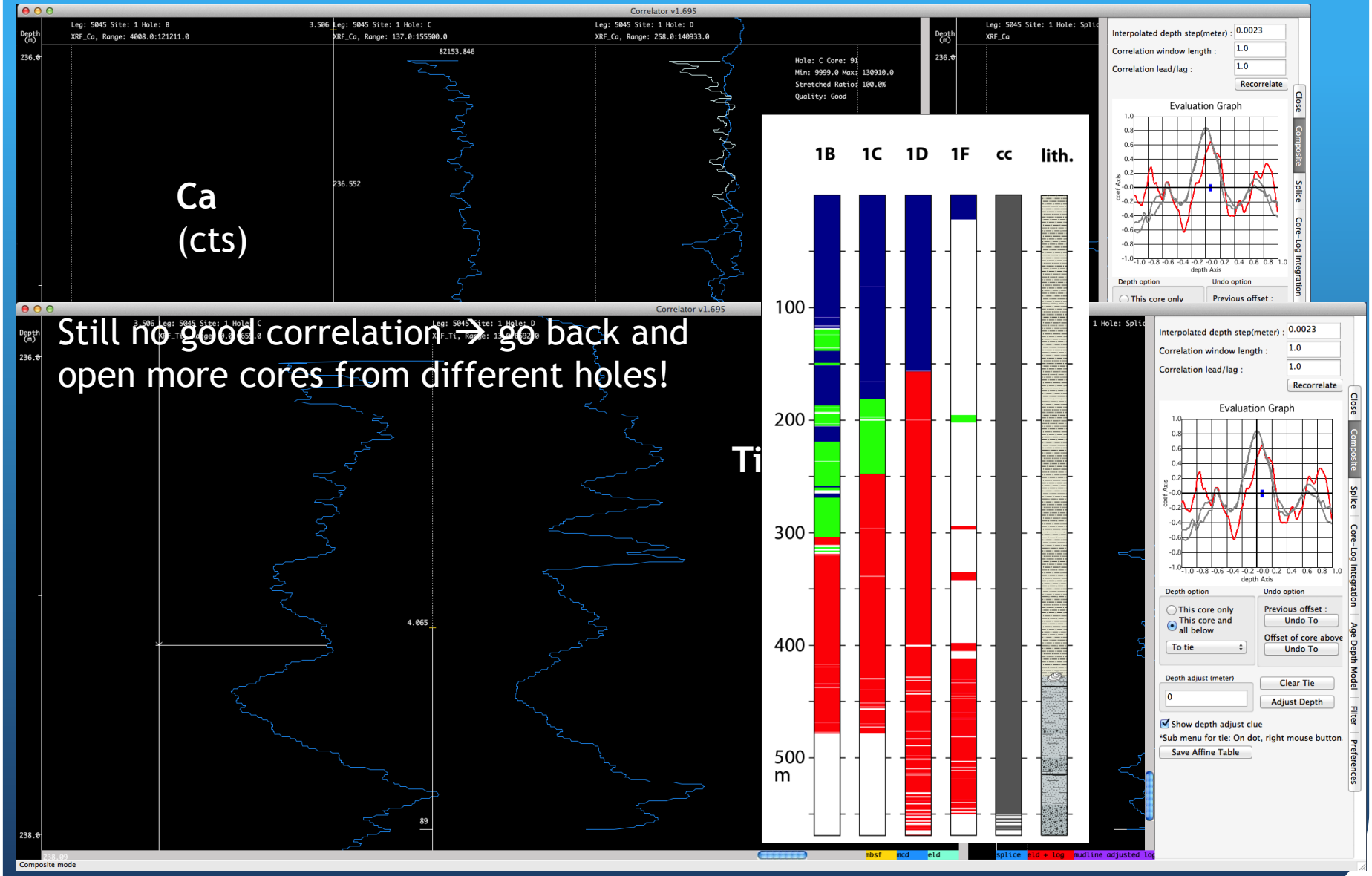
Core Correlation



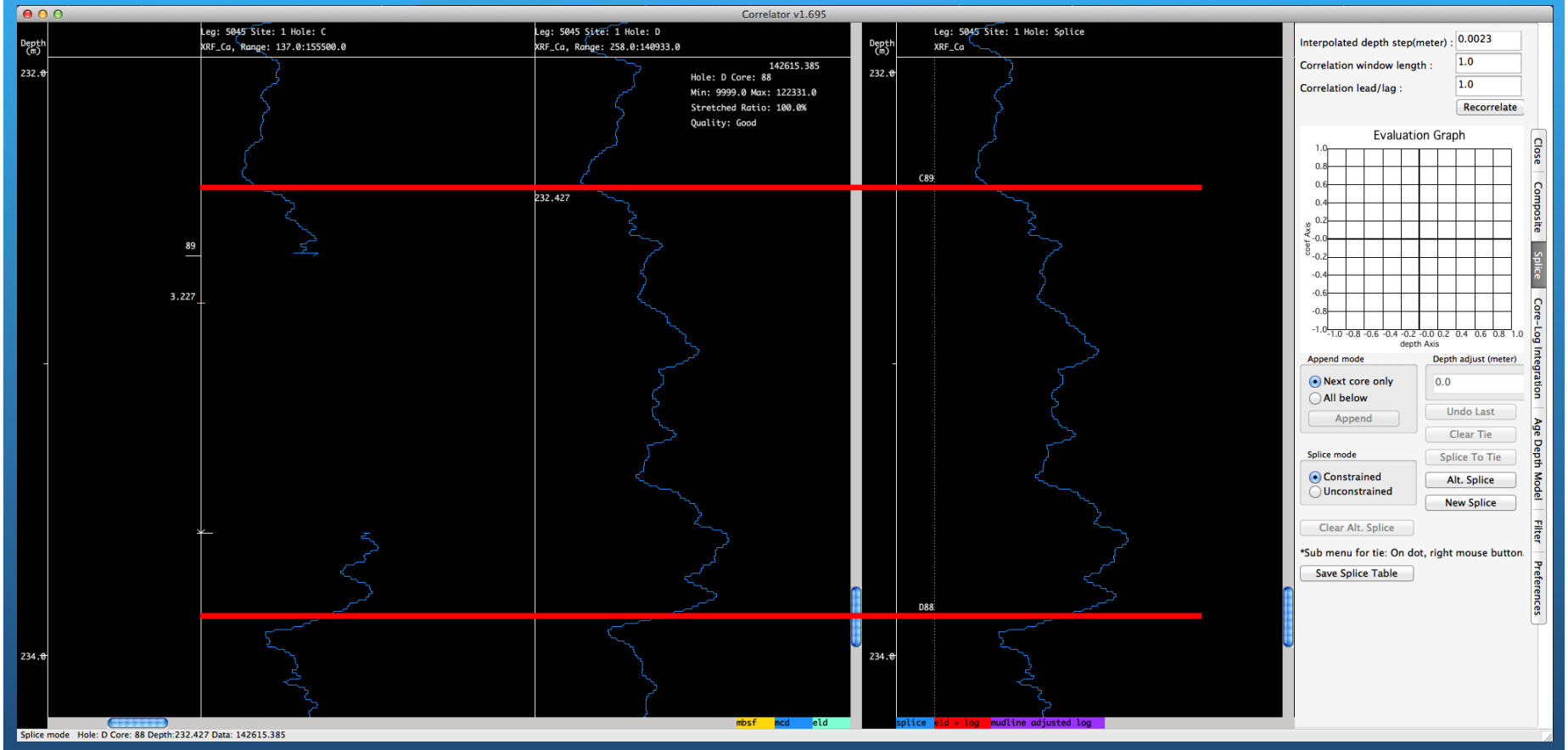
Core Correlation



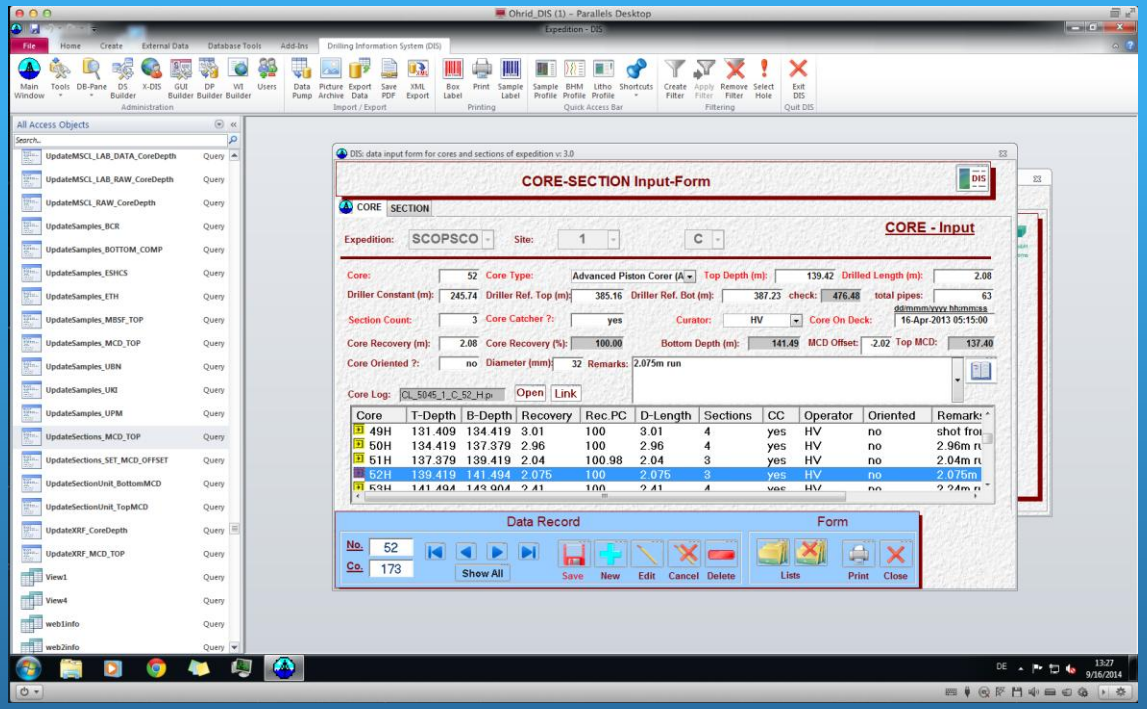
Core Correlation



Splice


Correlator v1.695
Depth (m)
232.0
Leg: 5045 Site: 1 Hole: C
XRF_Ca, Range: 137.0:155500.0
Leg: 5045 Site: 1 Hole: D
XRF_Ca, Range: 258.0:140933.0
142615.385
Hole: D Core: 88
Min: 9999.0 Max: 122331.0
Stretched Ratio: 100.0%
Quality: Good
232.427
89
3.227
234.0
mbsf
mcd
eld
Leg: 5045 Site: 1 Hole: Splice
XRF_Ca
C89
D88
splice
eld + log
mudline adjusted log
Interpolated depth step(meter) :
0.0023
Correlation window length :
1.0
Correlation lead/lag :
1.0
Recorrelate
Evaluation Graph
coef Axis
depth Axis
Append mode
Next core only
All below
Append
Depth adjust (meter)
0.0
Undo Last
Clear Tie
Splice To Tie
Splice mode
Constrained
Unconstrained
Alt. Splice
New Splice
Clear Alt. Splice
*Sub menu for tie: On dot, right mouse button.
Save Splice Table
Close
Composite
Splice
Core-Log Integration
Age Depth Model
Filter
Preferences
Splice mode Hole: D Core: 88 Depth:232.427 Data: 142615.385

Data Management

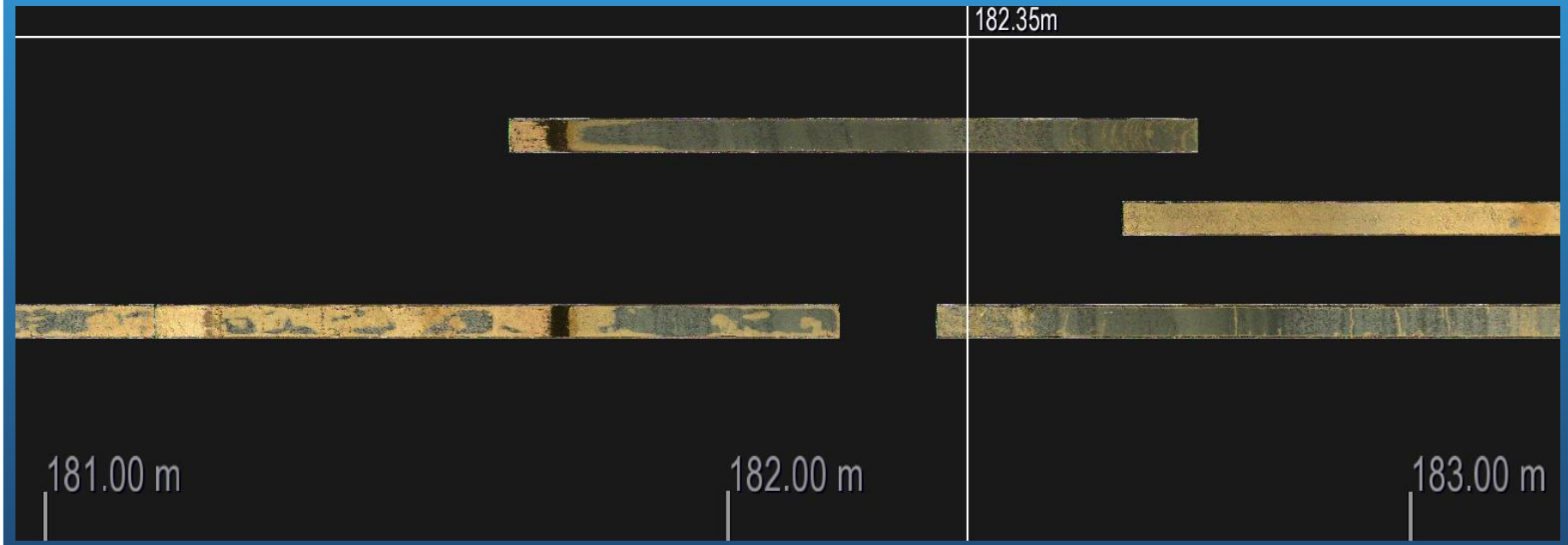


- Offsets are transferred to the DIS
  - → Calculation of composite depths
- Splice is transferred to the DIS
  - → Virtual Hole P
  - → Composite XRF and MSCL data can be exported

Subsampling

- 2cm thick samples: 16 cm resolution
- Cylindrical vials: 16 cm resolution
- Paleomagnetic sampling: 48 cm resolution

→ Sample resolution refers to composite depth



- Composite Depths and core numbers of the samples transferred to DIS
  - → Calculation of Section depths

Subsampling

- 2cm thick samples: 16 cm resolution

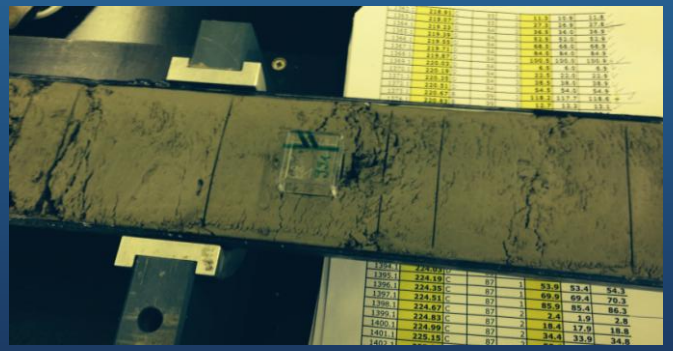
  → 2673 samples

- Cylindrical vials: 16 cm resolution

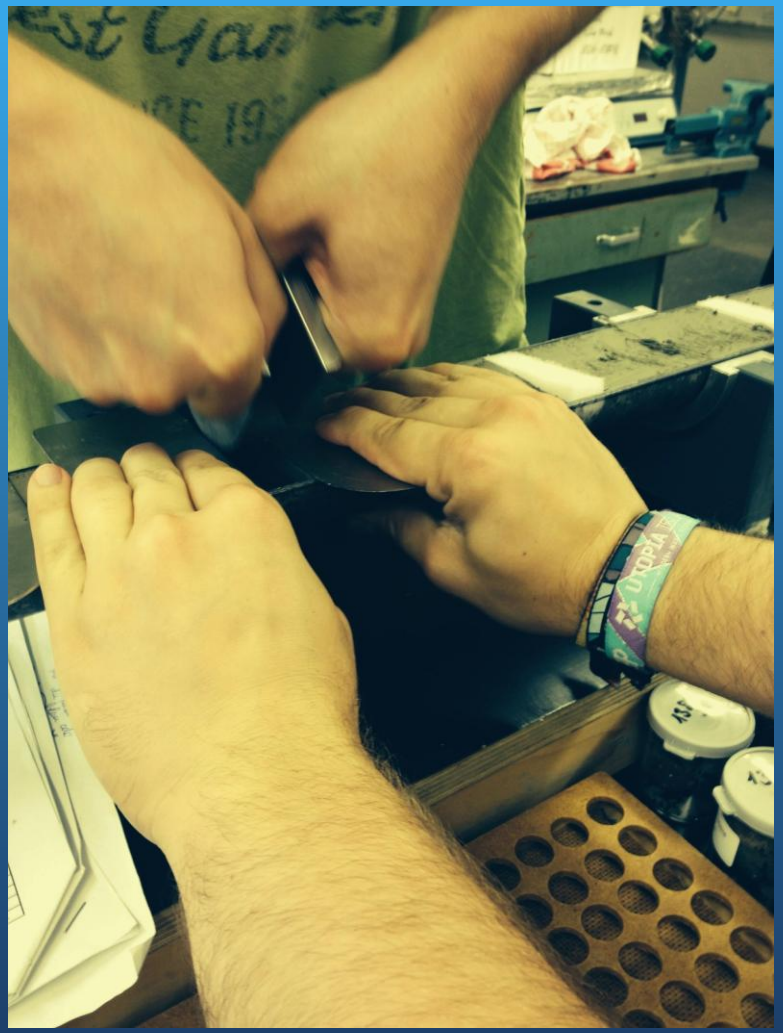
  → 2673 samples

- Paleomagnetic sampling: 48 cm resolution

  → 883 samples



DEEP - Subsampling



DEEP - Subsampling

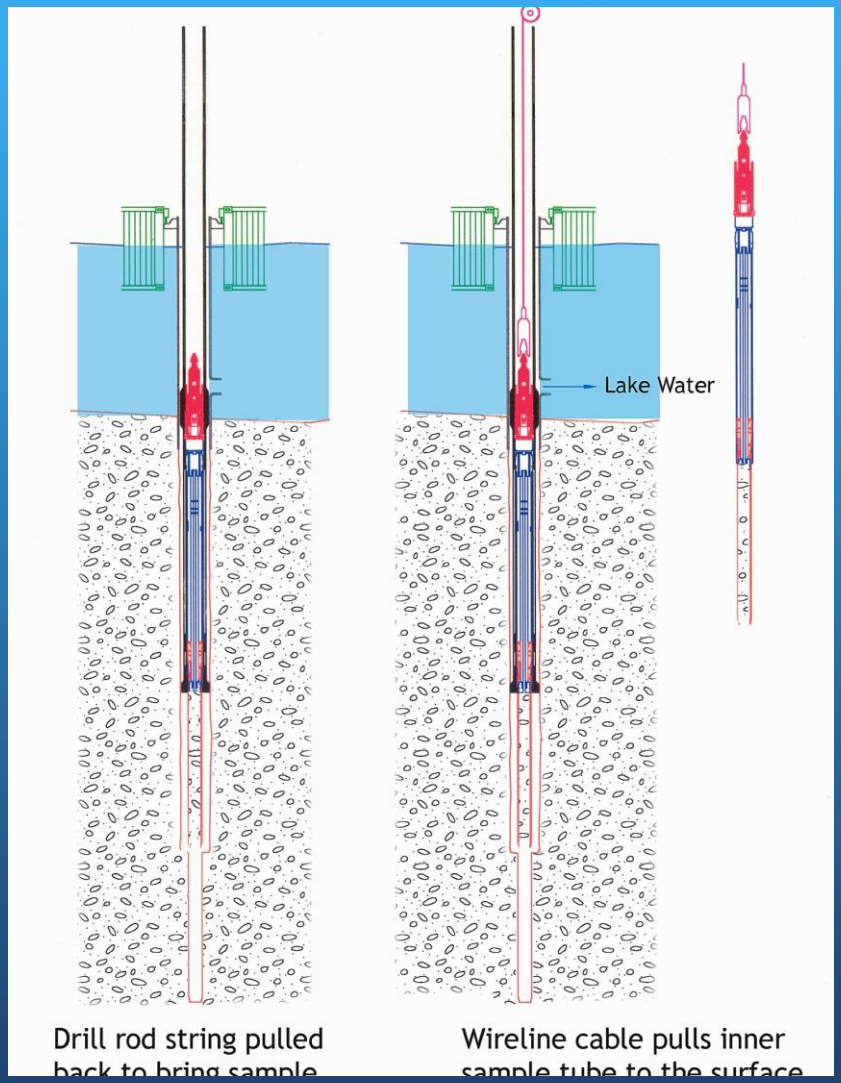
Core Handling

Overall 1156 open section

583 sections in composite profile

- XRF scanning 874 sections
- MSCL scanning 583 sections

Disturbed Core Sections



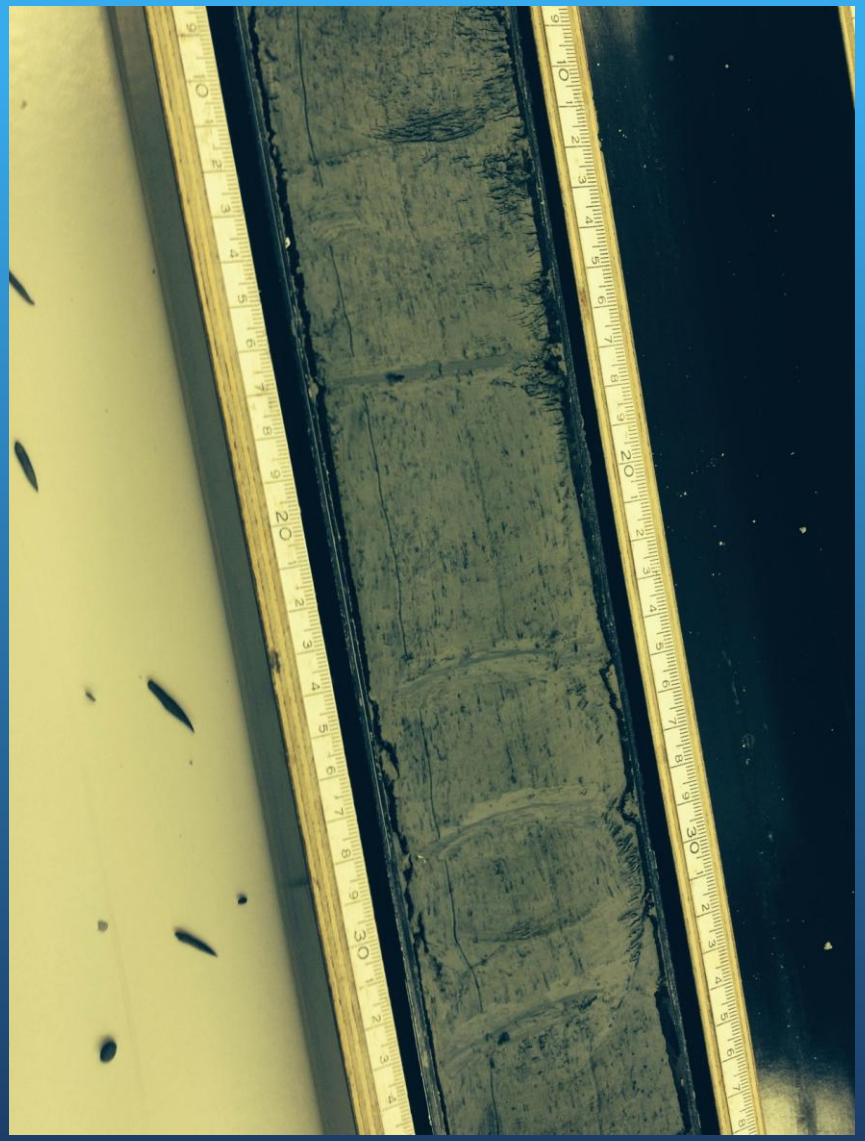
- HPC-shot ca. 20 cm above bottom of the hole
- To account for gas expansion

Disturbed Core Sections

0 cm

30 cm

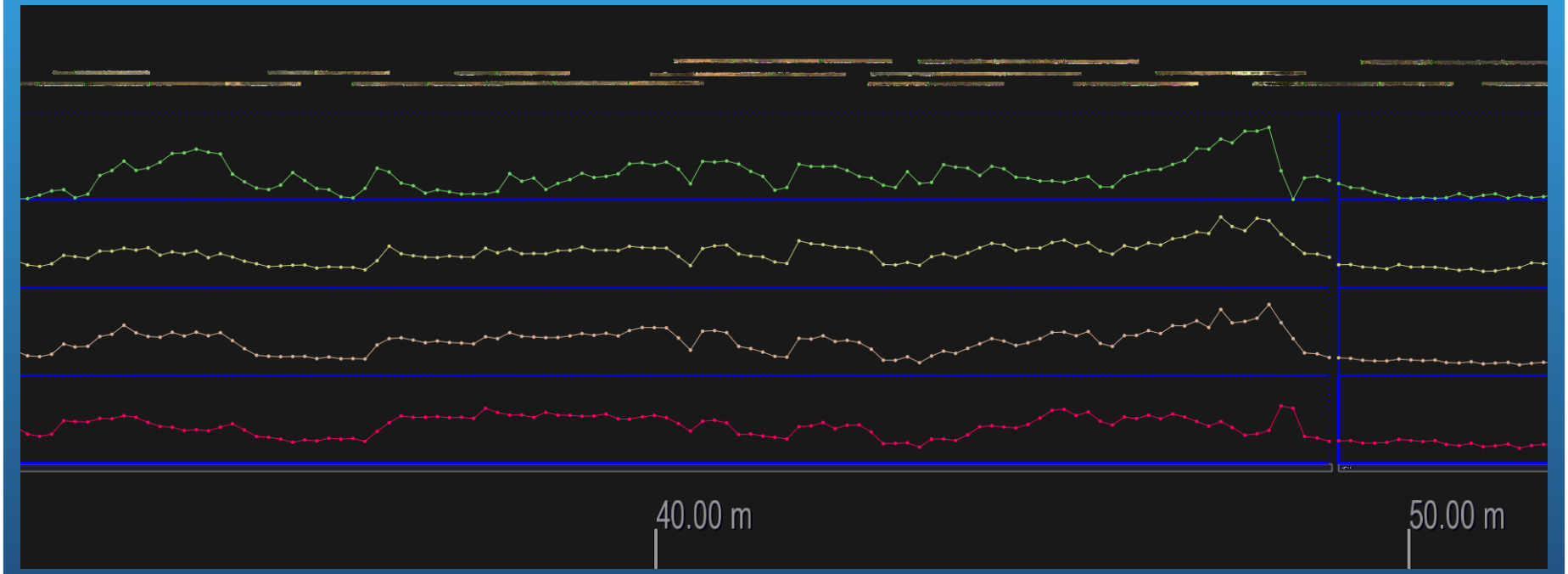
1D-119A-2



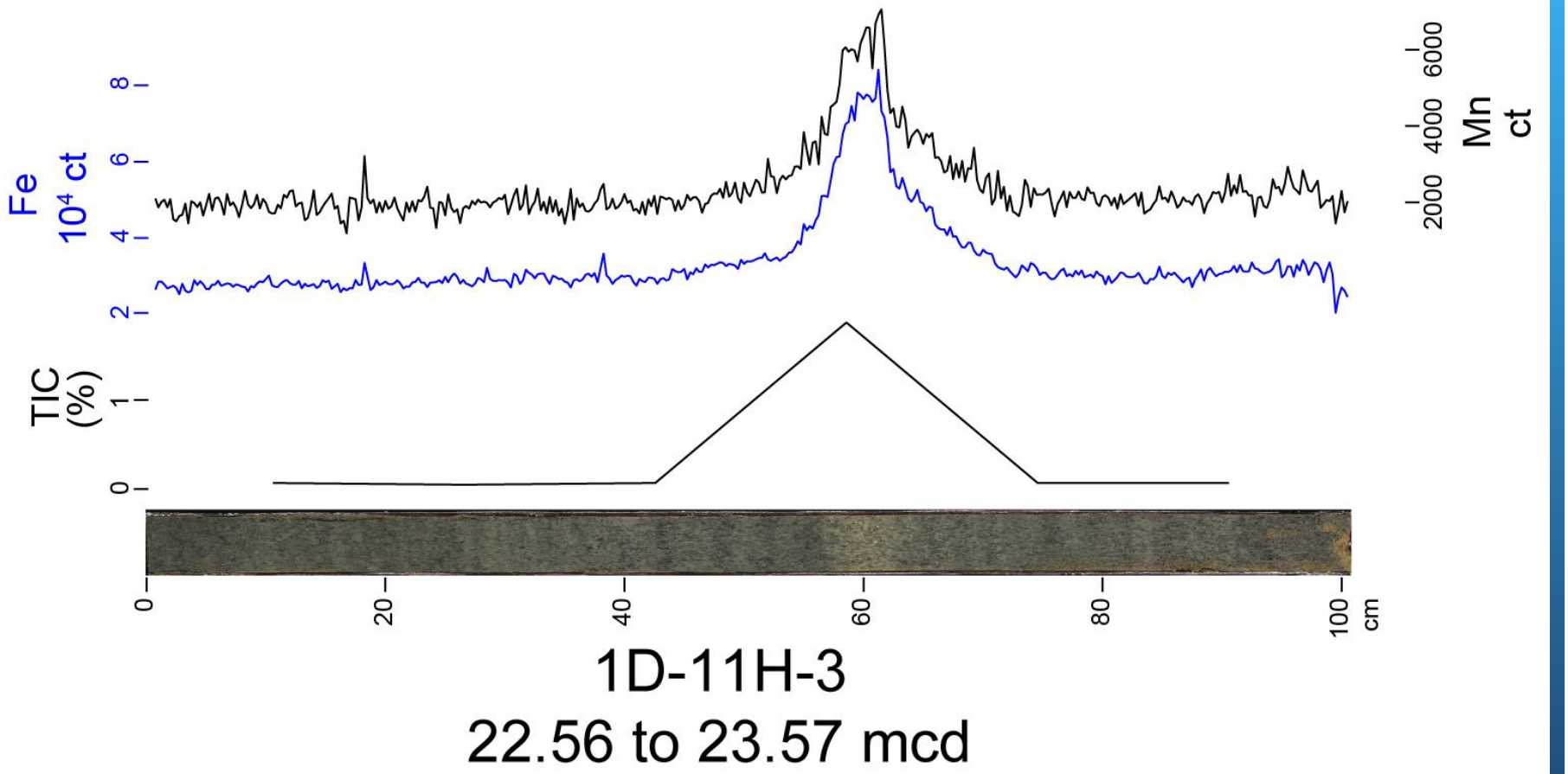
Disturbed Core Sections

DEEP - Lithology

Corewall - Corelyzer

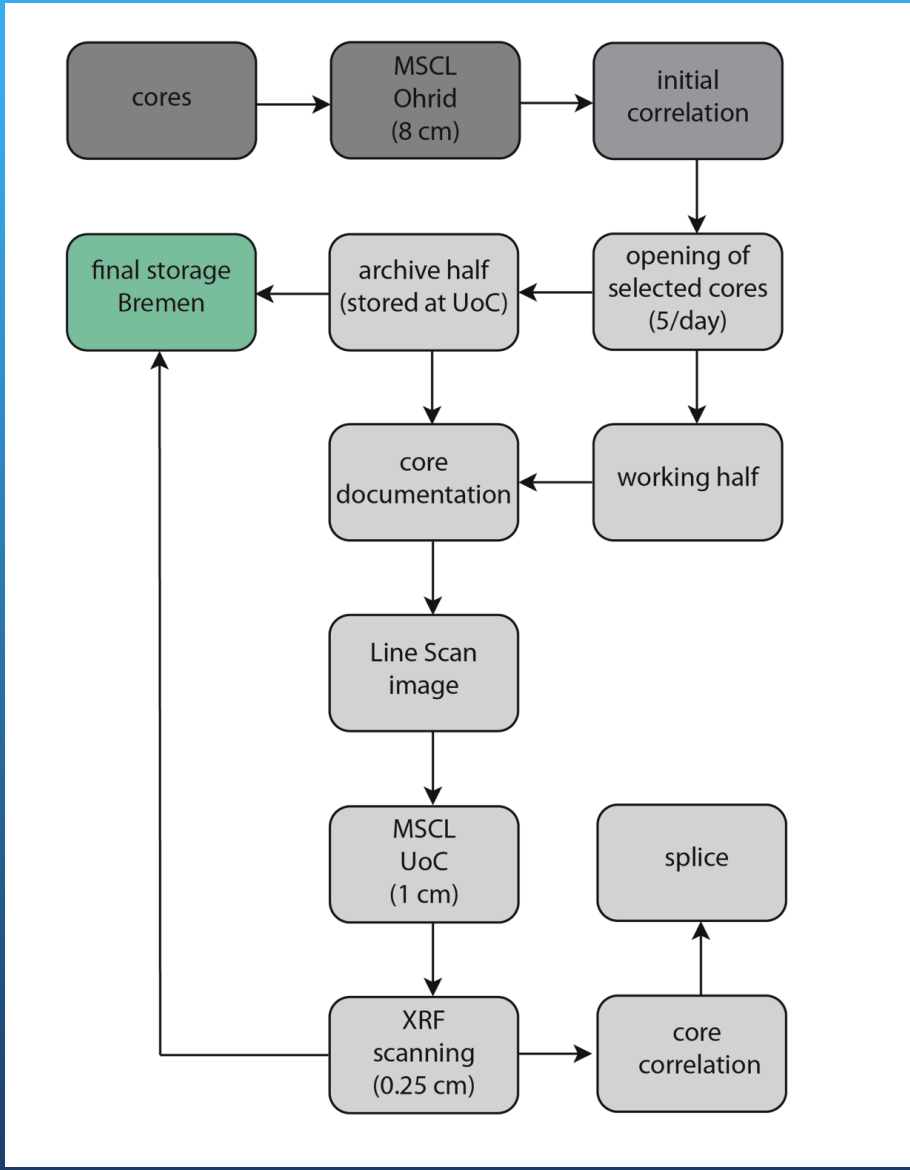


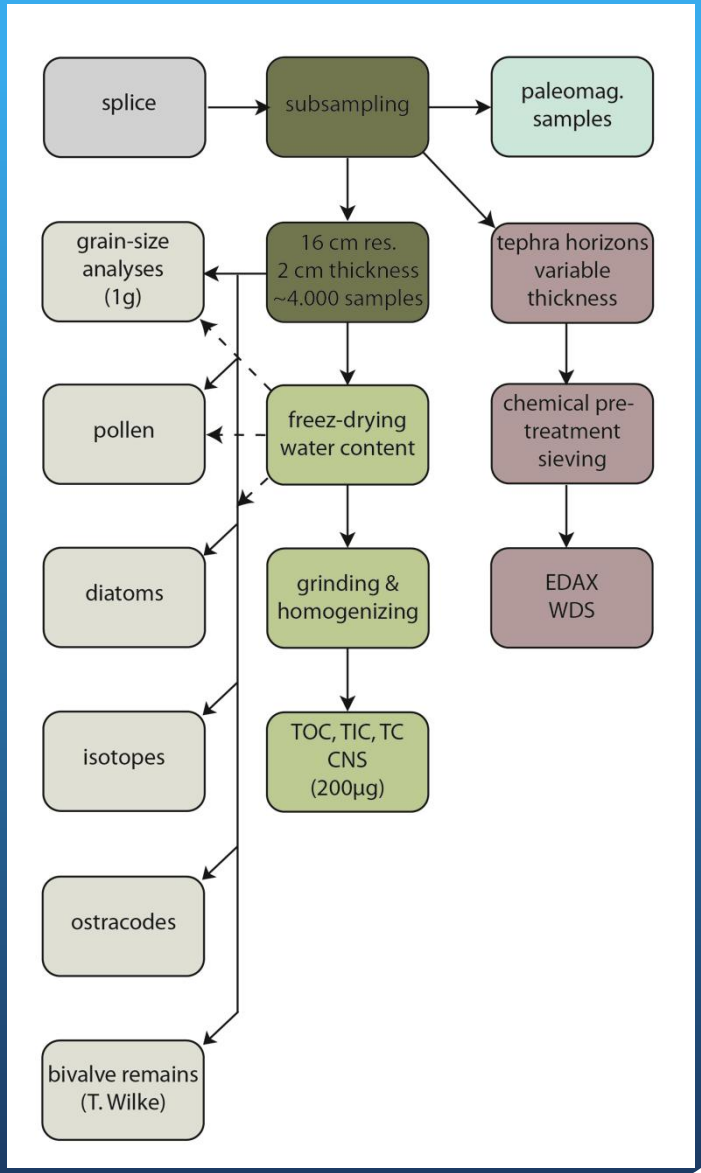
DEEP - Lithology



Thank you for your attention

Work Flow


cores
MSCL Ohrid (8 cm)
initial correlation
opening of selected cores (5/day)
working half
archive half (stored at UoC)
final storage Bremen
core documentation
Line Scan image
MSCL UoC (1 cm)
XRF scanning (0.25 cm)
core correlation
splice


splice
subsampling
paleomag. samples
grain-size analyses (1g)
16 cm res. 2 cm thickness ~4.000 samples
tephra horizons variable thickness
pollen
freez-drying water content
chemical pre-treatment sieving
diatoms
grinding & homogenizing
EDAX WDS
isotopes
TOC, TIC, TC CNS (200µg)
ostracodes
bivalve remains (T. Wilke)