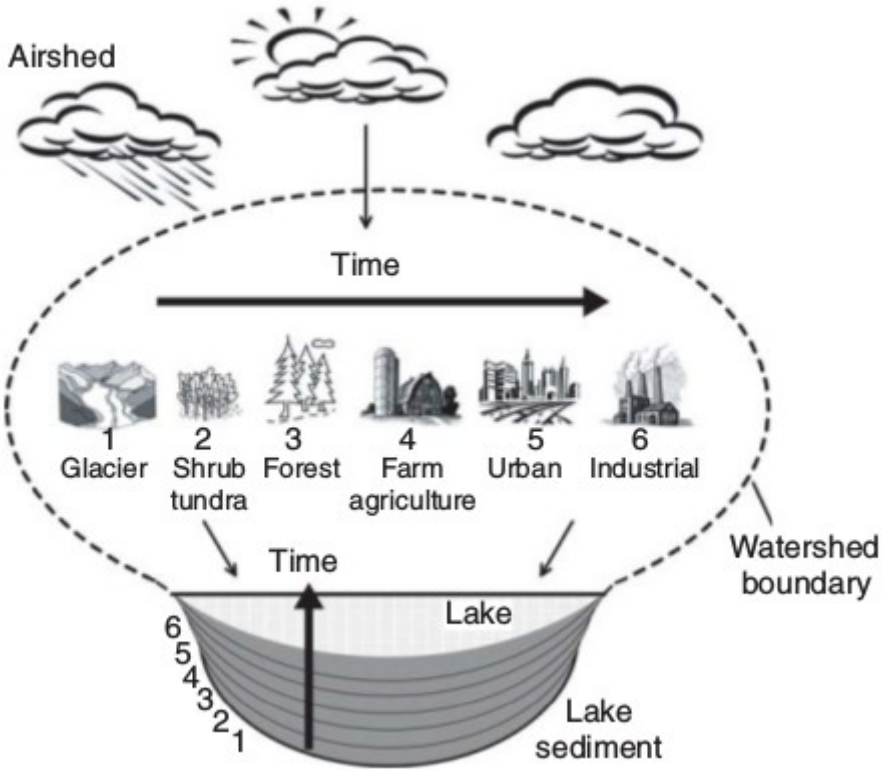
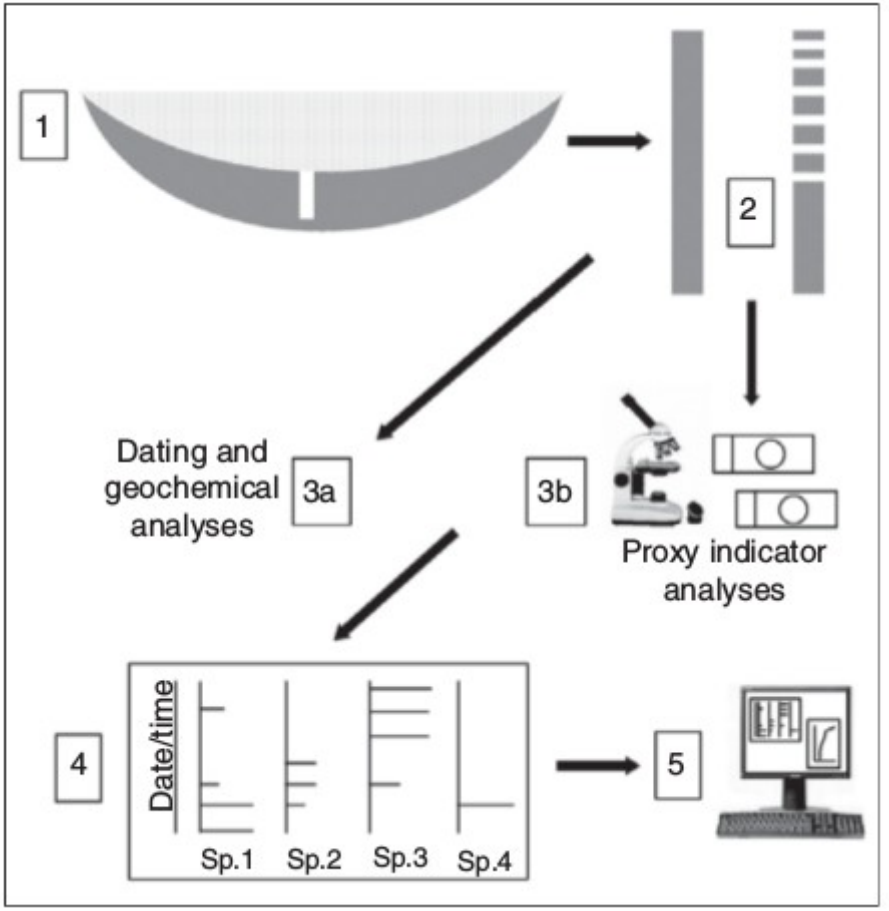
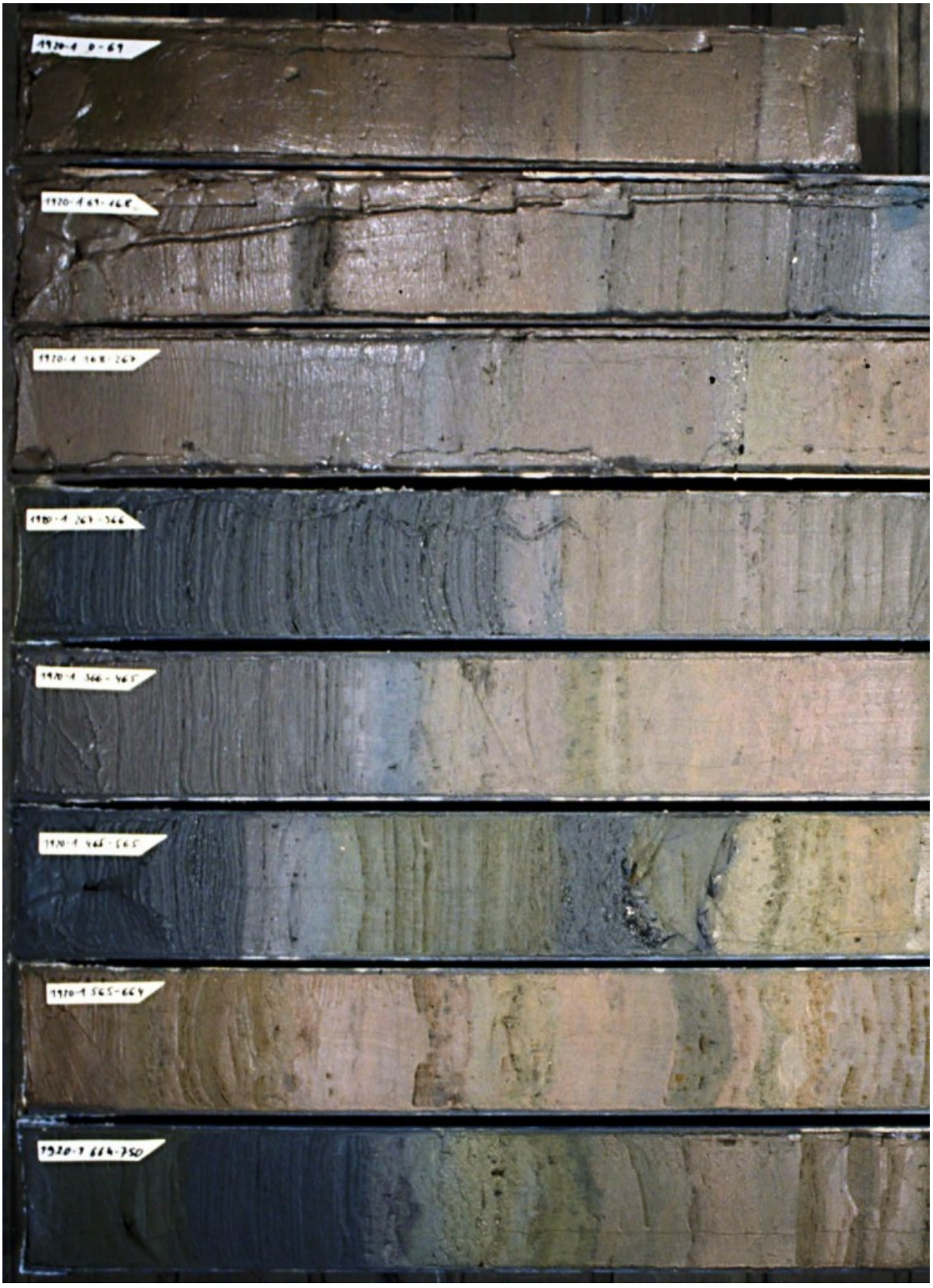
Jezera a jezerní sedimenty

- Jezerní sedimenty jsou vynikajícím archivem, pokud jsou stratifikované
- Odrážejí eroze a akumulaci, acidifikaci, eutrofyzaci i antropogenní vliv



Analýza jezerních sedimentů: multiproxy přístup



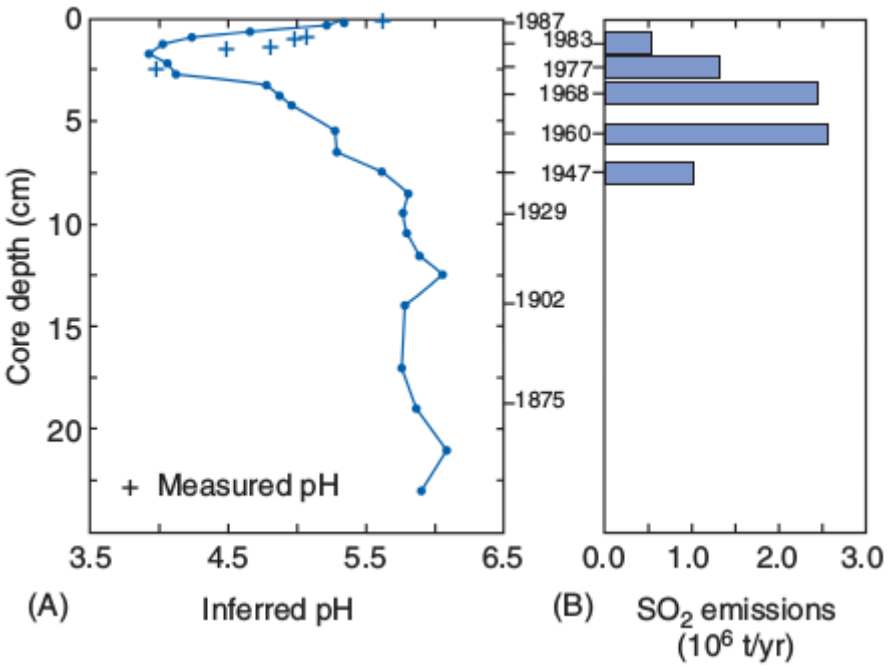

1920-1 0-69
1920-1 69-168
1920-1 168-267
1920-1 267-366
1920-1 366-465
1920-1 465-565
1920-1 565-664
1920-1 664-750

Biogenní proxy

Algae	
Diatoms	Aquatic chemistry and microhabitats
Chrysophytes, scales and cysts	”
Desmids	”
Pigments	Aquatic chemistry and identification of algal classes present
Insects	
Coleoptera	Aquatic chemistry and microhabitats
Chironomids	”
Zooplankton, Crustaceans	
Ostracods	”
Cladocera	”
Copepods	”
Sponges	”
Pollen	Terrestrial vegetation, aquatic macrophytes
Phytoliths	Terrestrial catchment vegetation, especially grasses

Fyzikální a chemická proxy

Grain size	Sediment source and processes of sedimentation, turbulence
Loss-on-ignition	Composition of sediment matrix as inorganic, organic percentage
Mineralogy and elemental composition	Sediment source, water chemistry
Magnetic properties	Sedimentation, erosion, dating
Fluid inclusions	Aquatic paleochemistry and paleoclimate
Fly ash and charcoal	Industrialization: burning of fossil fuels, fires
Organic matter C : N	
Alkenes and alkanes	
Stable isotopes $^{2}H/^{1}H$, $^{15}N/^{14}N$, $^{13}C/^{12}C$, $^{18}O/^{16}O$	Paleoclimate, paleoproductivity
POP (persistant organic pollutants)	Contaminant transportation



Typy jezer

- průsakové bezodtoké
- průtokové

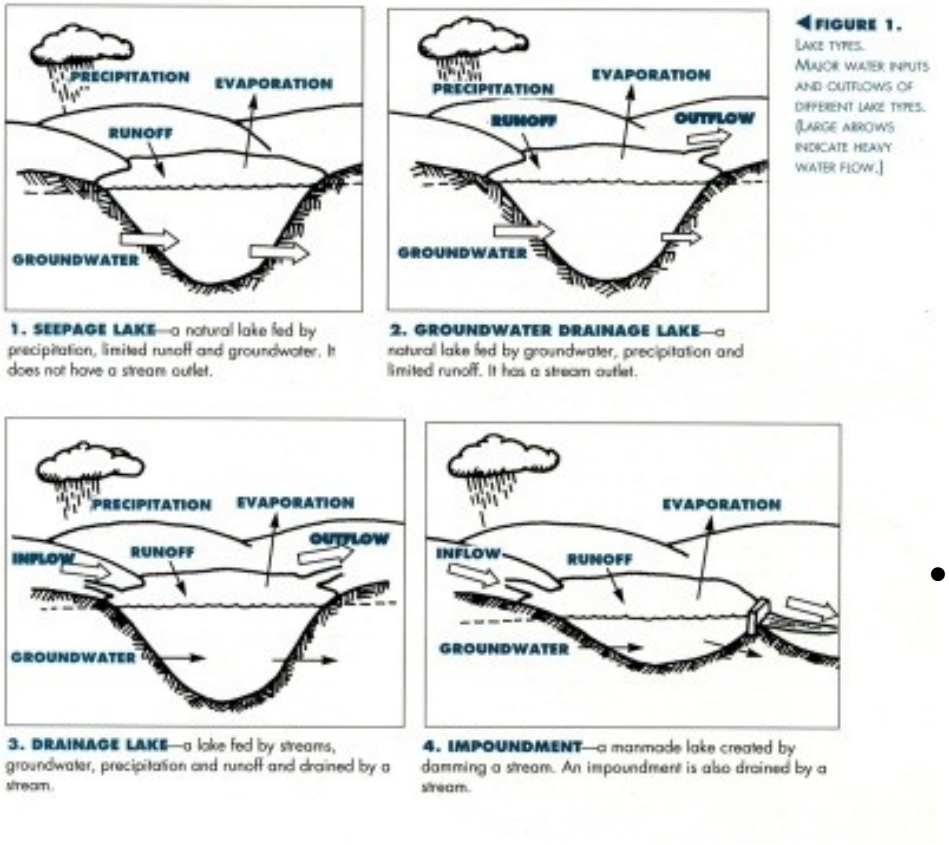


FIGURE 1.
LAKE TYPES.
MAJOR WATER INPUTS AND OUTFLOWS OF DIFFERENT LAKE TYPES. (LARGE ARROWS INDICATE HEAVY WATER FLOW.)

1. SEEPAGE LAKE—a natural lake fed by precipitation, limited runoff and groundwater. It does not have a stream outlet.

2. GROUNDWATER DRAINAGE LAKE—a natural lake fed by groundwater, precipitation and limited runoff. It has a stream outlet.

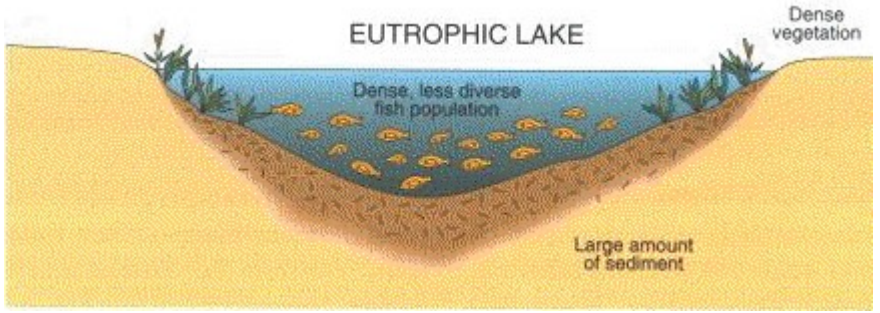
3. DRAINAGE LAKE—a lake fed by streams, groundwater, precipitation and runoff and drained by a stream.

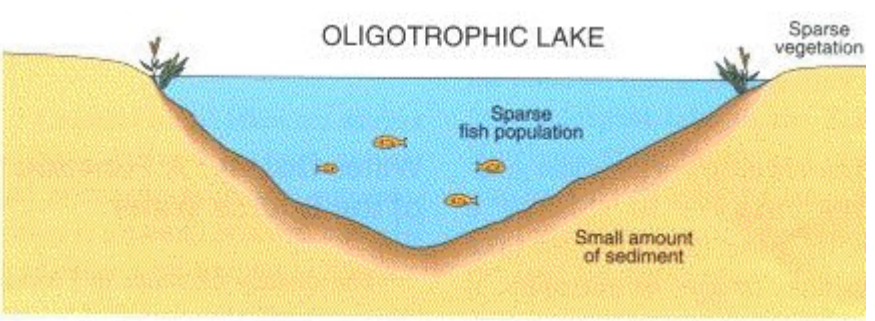
4. IMPOUNDMENT—a manmade lake created by damming a stream. An impoundment is also drained by a stream.

- průsakové s odtokem
- hrazené

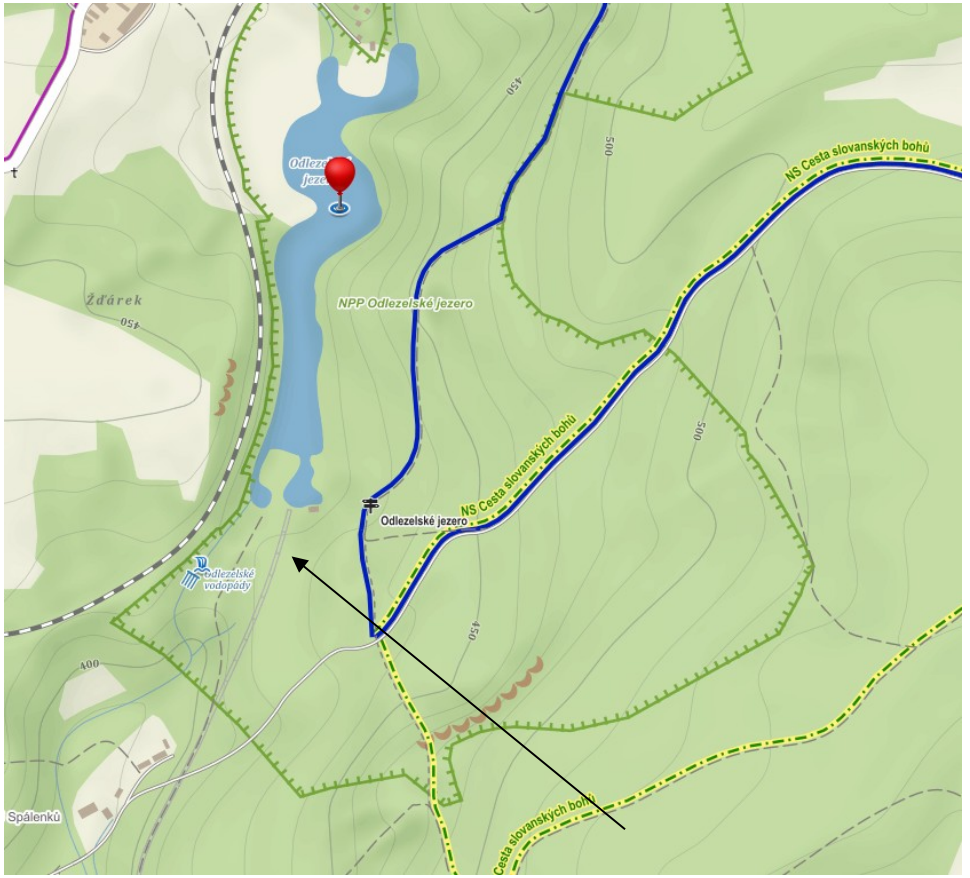
Eutroficka a oligotrofická

- Podle množství živin (fosfor a dusík)





Příklad hrazeného jezera: Odlezelské jezero (sesuv)



Příklad průsakového bezodtokého jezera: Čejčské jezero (zaniklé)

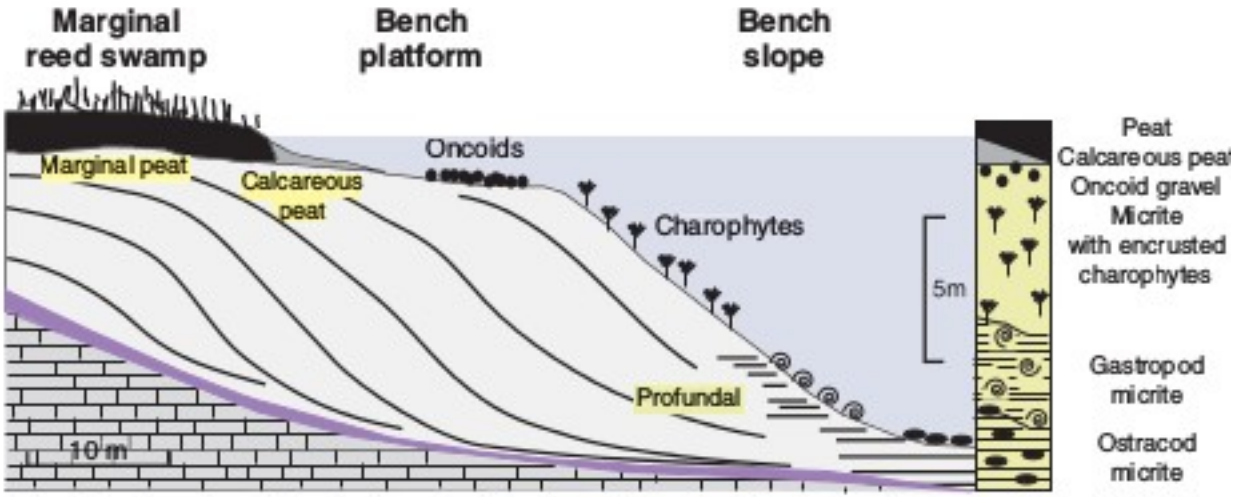
Karová jezera: Černé, Čertovo, Tatry

- Vznikají v depresy vytvořené

ledem v podloží (kar)

- Mohou být hrazena čelní morénou
- Kary v našich podmínkách vznikali v posledním glaciálu

Vápnitá sladkovodní jezera



Santovka


4621-4498 calBC
936-535 calBC
6230-6075 calBC
5637-5198 calBC
5722-5636 cal BC
6226-6079 calBC
0 10 20 30 40 50 cm
4725-4585 calBC
6005-5890 calBC
5765-5670 calBC
0 10 20 30 40 50 cm
936-535 calBC
4621-4498 calBC
6230-6075 calBC
5637-5198 calBC
6226-6079 calBC
5722-5636 calBC
5765-5670 calBC
4725-4585 calBC
6645-6505 calBC
6005-5890 calBC
0 1 2 3 4 5 m
Legenda

Umělé nádrže

Změny hladiny jezer

- Neprůtočná jezera – úroveň hladiny je ovlivněna poměrem přítoku a výparu
- Reagují citlivě na změny podnebí
- Neklimatické vlivy: přirozené zaplnění, vývoj v povodí, antropogenní aktivity, tektonika
- Indikátory:

geomorfologické (např. Terasy)

litologické (mělkovodní a hlubokovodní sedimenty)

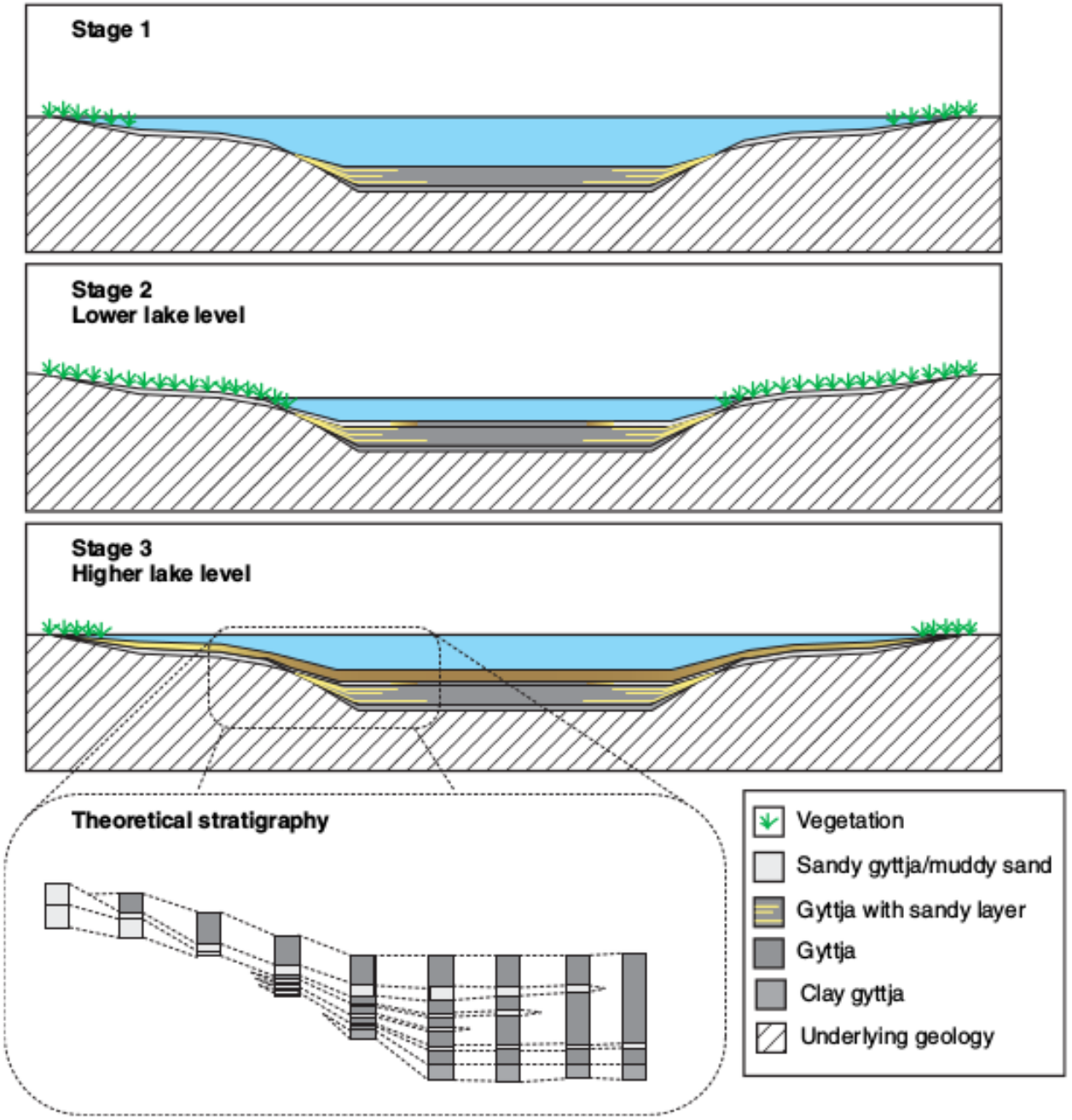
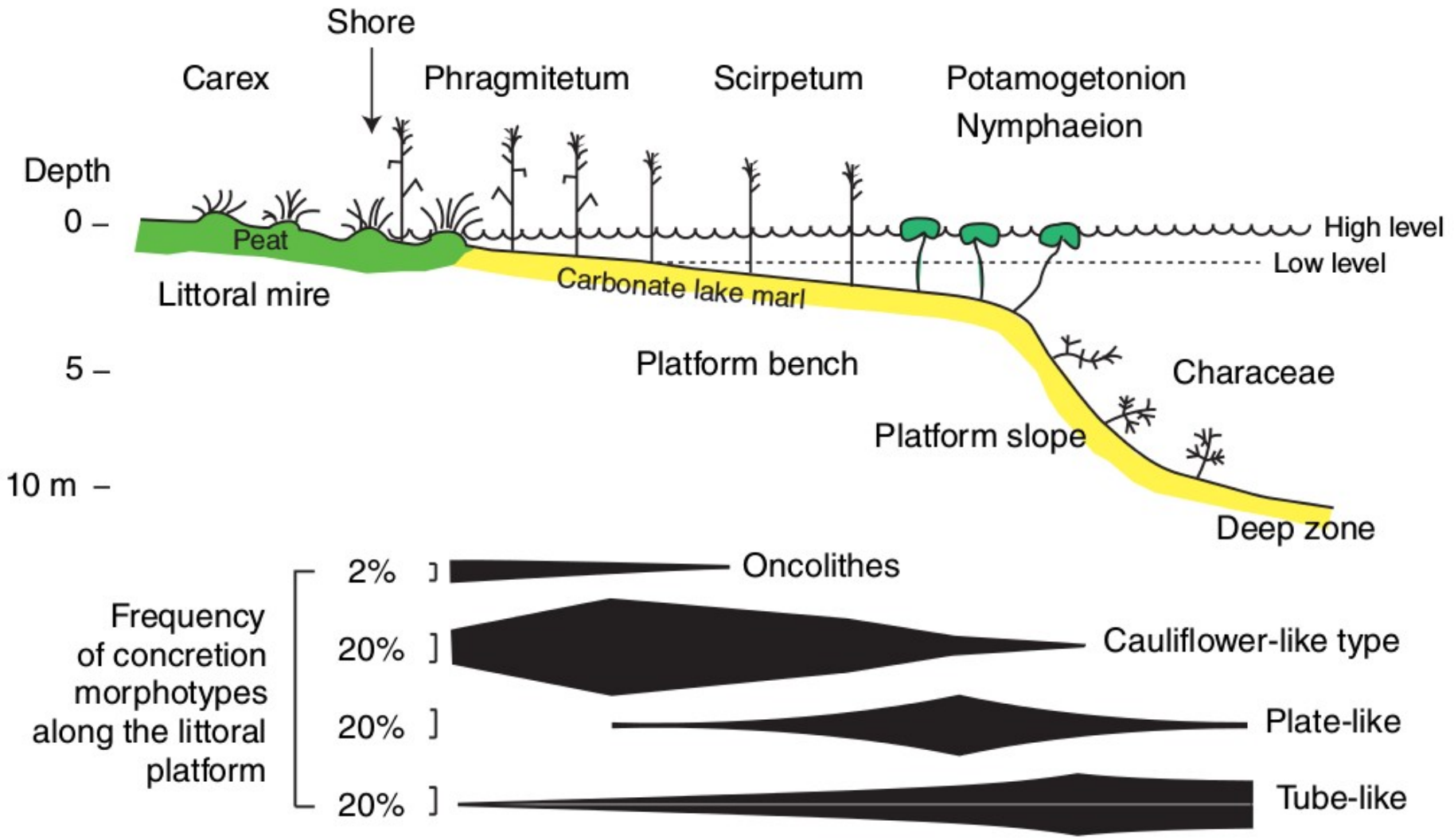
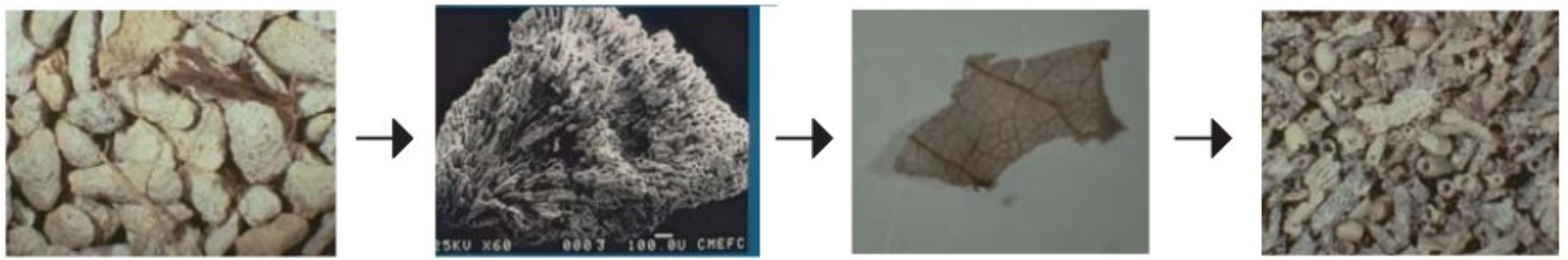


Figure 8 Diagrammatic representation of the lake-level reconstruction approach of Gunnar Digerfeldt (1986). The three temporal stages shown above document the fall and then the subsequent rise in lake level, sedimentation, and the associated movement in the sediment limit (see main text for explanation). The effective movement of the sediment limit is preserved in the stratigraphic transect shown at the base of the diagram by the recorded presence or absence of coarse sandy gyttja/muddy sand which in turn corresponds to periods of low lake level or high lake level, respectively.


Shore
Carex
Phragmitetum
Scirpetum
Potamogetonion
Nymphaeion
Depth
0 –
Peat
Littoral mire
Carbonate lake marl
High level
Low level
5 –
Platform bench
Characeae
Platform slope
10 m –
Deep zone

Frequency of concretion morphotypes along the littoral platform
2%
Oncolithes
20%
Cauliflower-like type
20%
Plate-like
20%
Tube-like


Oncolithes
Cauliflower-like
Plate-like
Tube-like

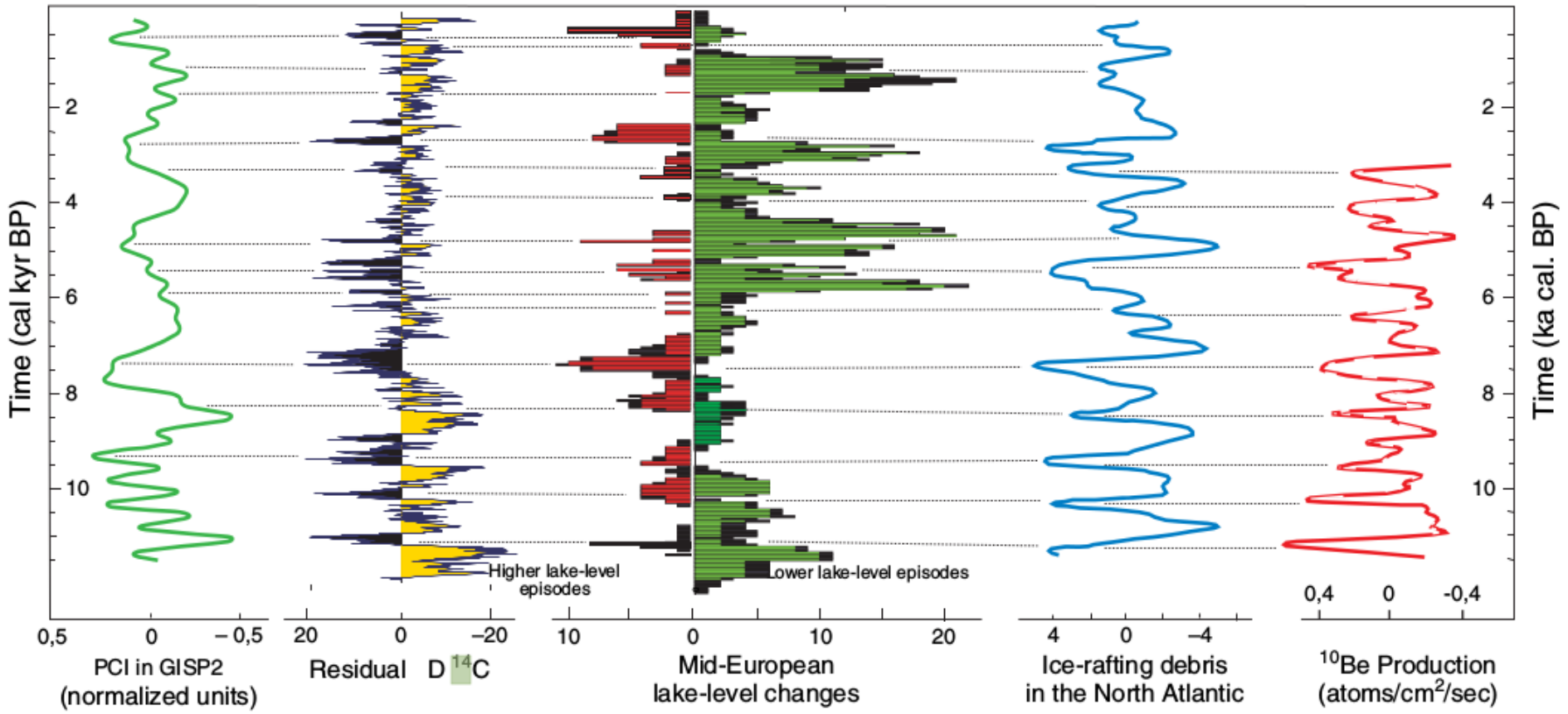


Figure 6 Comparison between the Holocene record of the Polar Circulation Index (PCI) at GISP2 (Mayewski *et al.*, 1997), the atmospheric residual ^{14}C variations (Stuiver *et al.*, 1998), the Greenland ^{10}Be record (Bond *et al.*, 2001), the mid-European phases of higher lake-level (see **Fig. 3**), and the ice-rafting debris (IRD) events in the North Atlantic Ocean (Bond *et al.*, 2001).

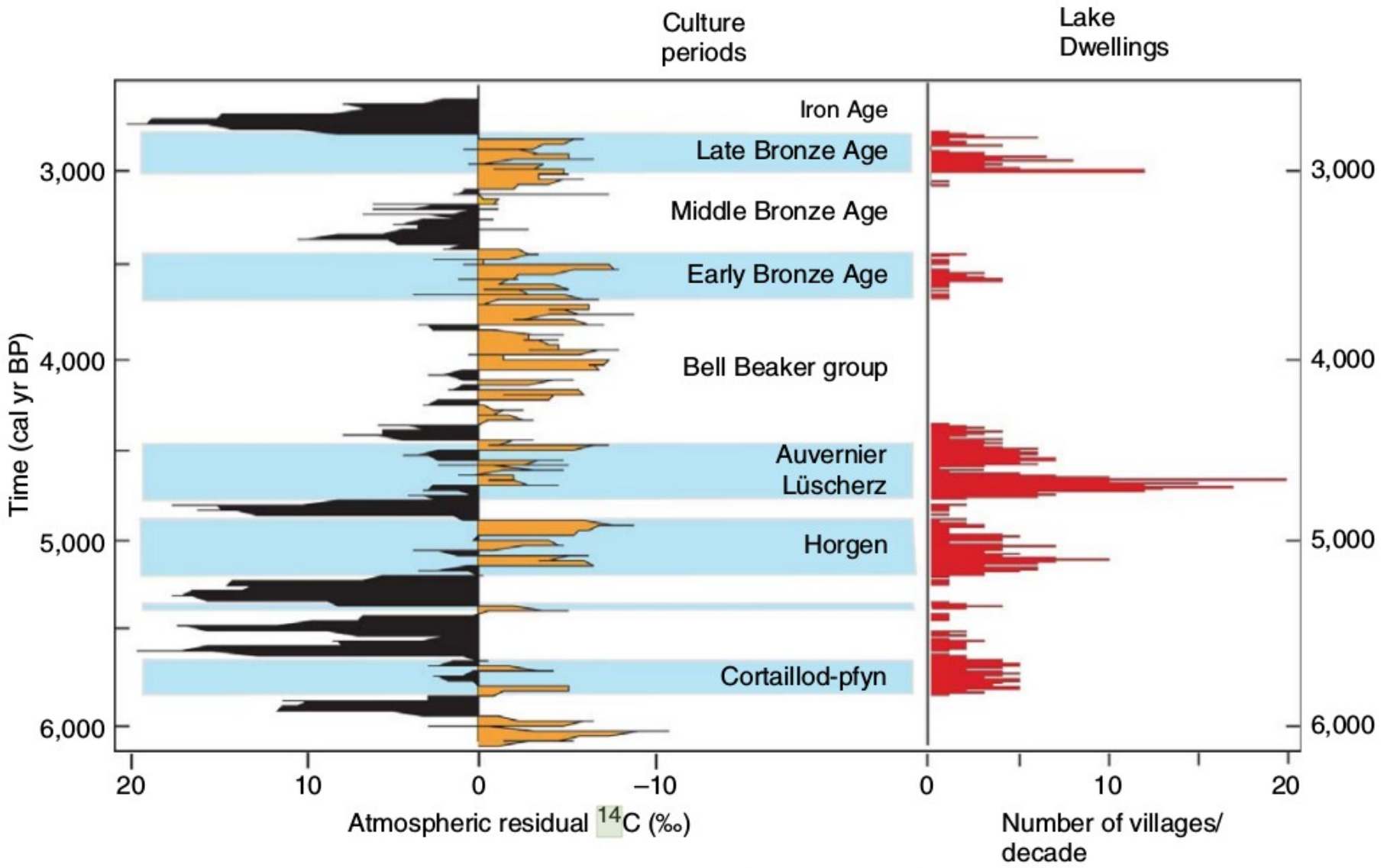


Figure 7 Comparison between the atmospheric residual ^{14}C variations (Stuiver *et al.*, 1998) and the frequency of Neolithic and Bronze Age lake-shore villages in France and in Switzerland.