PŘEDPOKLÁDANÝ ROZSAH A ČLENĚNÍ PALEOKRASOVÉ ČÁSTI:

(podzim 2017)

Teoretická část:

1. **Obecné definice paleokrasu, terminologie**
2. Nejdůležitější ložiska vázaná na paleokras
3. Metody a možnosti stanovení absolutního stáří fenoménů, jeskyní, a jejich výplní
4. Metody a možnosti relativního datování v krasových terénech
5. Metodika mapování „speleomorfních“ jednotek

Praktické ukázky

1. PRAKTICKÁ GEOLOGIE KRASU
2. GEOLOGICKÝ VÝVOJ MORAVSKÉHOKRASU
3. SUCHDOLSKÝ PONOR, PALEOKRAS
4. ZBRAŠOV (VERZE 2013)
5. SVÁŽNÁ STUDNA-MIOCÉN
6. BAUXITY ČERNÉ HORY
7. OMBLA-HYDRO
8. MAGANIK-ENGLISH, DEEP VERTICALS AND GEOLOGY
9. PALEOKRAS BŘEZINA
10. LITOSTRATIGRAFIE PALEOZOIKA
11. KŘTINSKÉ POLOOKNO
12. SEVERNÍ UKONČENÍ MORAVSKÉHO KRASU

VÝBĚROVÝ SEMINÁŘ

PODZIM 2017

ZÁKLADY SPELEOLOGIE

PALEOKRAS

Zpracoval Jiří Otava, Česká geologická služba Brno

POUŽITÉ PRAMENY

- N.P.James – P.W. Choquette – Paleokarst
- Armstrong Osborne – Dating ancient caves and related paleokarsts etc.
- Pavel Bosák – Paleokarst of the Bohemian massif, kompendium Paleokarst etc.
- Vlastní prameny a zdroje

- DEFINICE ZÁKLADNÍCH KRASOVÝCH A PALEOKRASOVÝCH JEVŮ
- OVLIVŇUJÍCÍ FAKTORY
- RYSY SPOJENÉ S PALEOKRASEM
- KRASOVÉ PERIODY

HYDROLOGIE KRASOVÝCH OBLASTÍ

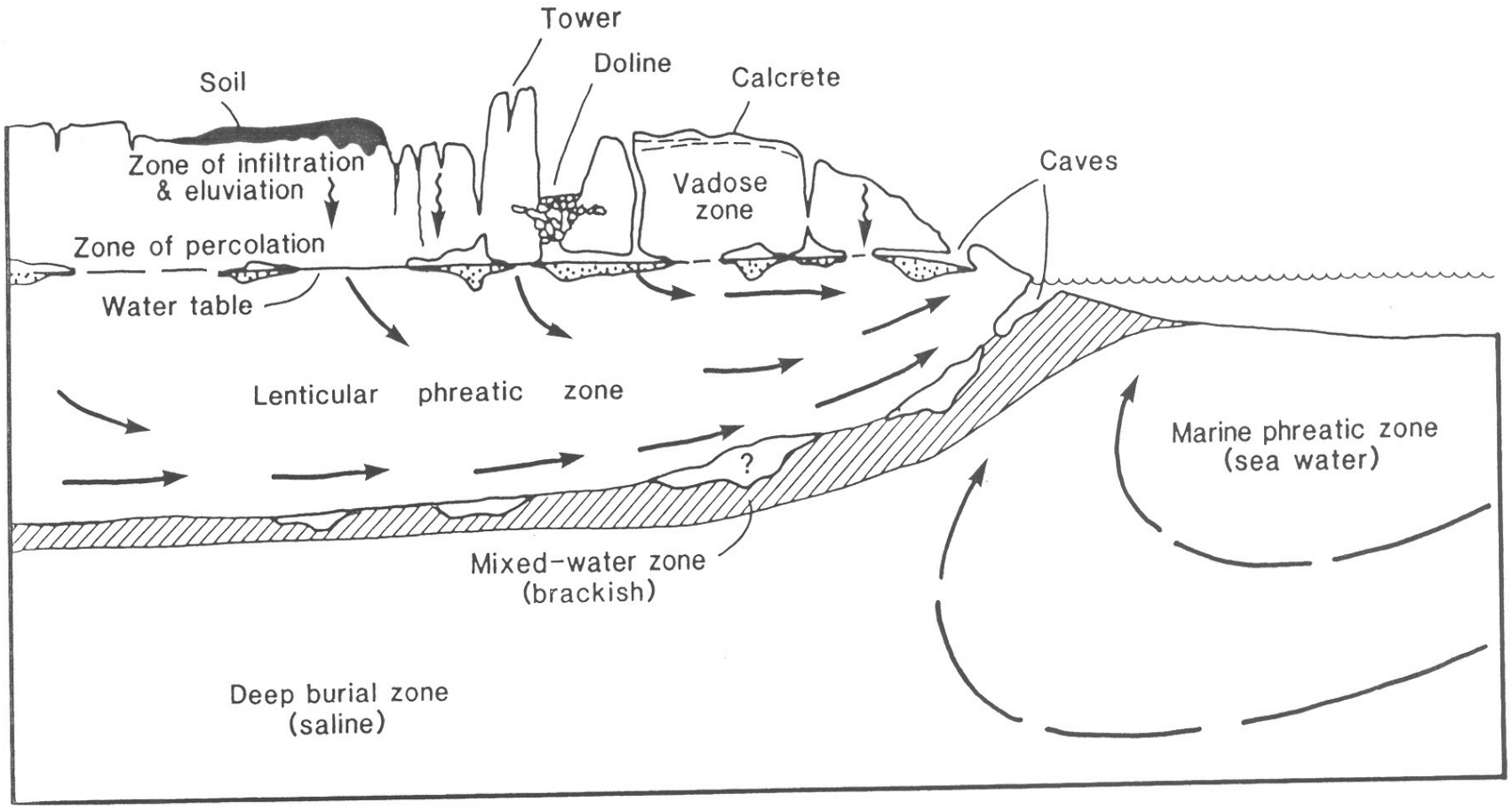

FIGURE 1. A diagram showing the general elements and hydrology of a karst terrane developed on recently deposited carbonates adjoining the sea.

CO OVLIVŇUJE VÝVOJ KRASOVÝCH JEVŮ?

TABLE 1. Factors that influence the development of karst terranes.

Extrinsic	
Climate	Rainfall & evaporation
	Temperature
Base level	Elevation & relief
	Sealevel or local water bodies
Vegetation	
Time Duration	
Intrinsic	
Lithology	Mineralogy
	Bulk purity
	Fabric and texture
	Bedding thickness
	Stratal permeability
	Fractures
Structure & stratigraphy	Attitude of strata
	Confined or unconfined aquifers
	Structural conduits

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LOW
Common fractures
Mostly conduit flow
Surface dissolution karst

HIGH
Rare fractures
Mostly diffuse flow
Subsoil rundkarren
Much intergrain eluviation

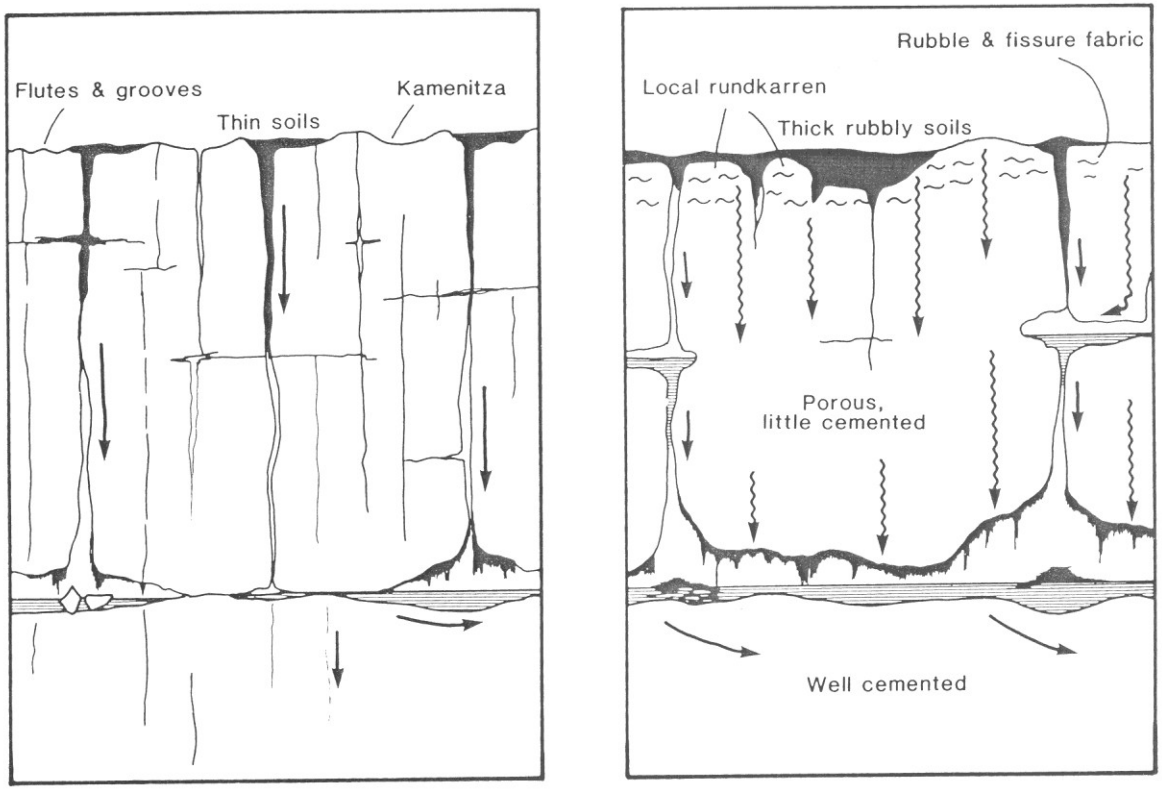

FIGURE 2. A sketch illustrating effects of contrasting stratal permeability on styles of surface and subsurface karst. Low-permeability carbonate might be a partly-lithified to well-lithified lime mudstone or tightly cemented grainstone. High-permeability limestone might be a little-cemented and/or leached, well-sorted lime sand or grainstone. A warm, temperate or humid climate is assumed.

VLIV KLIMATU

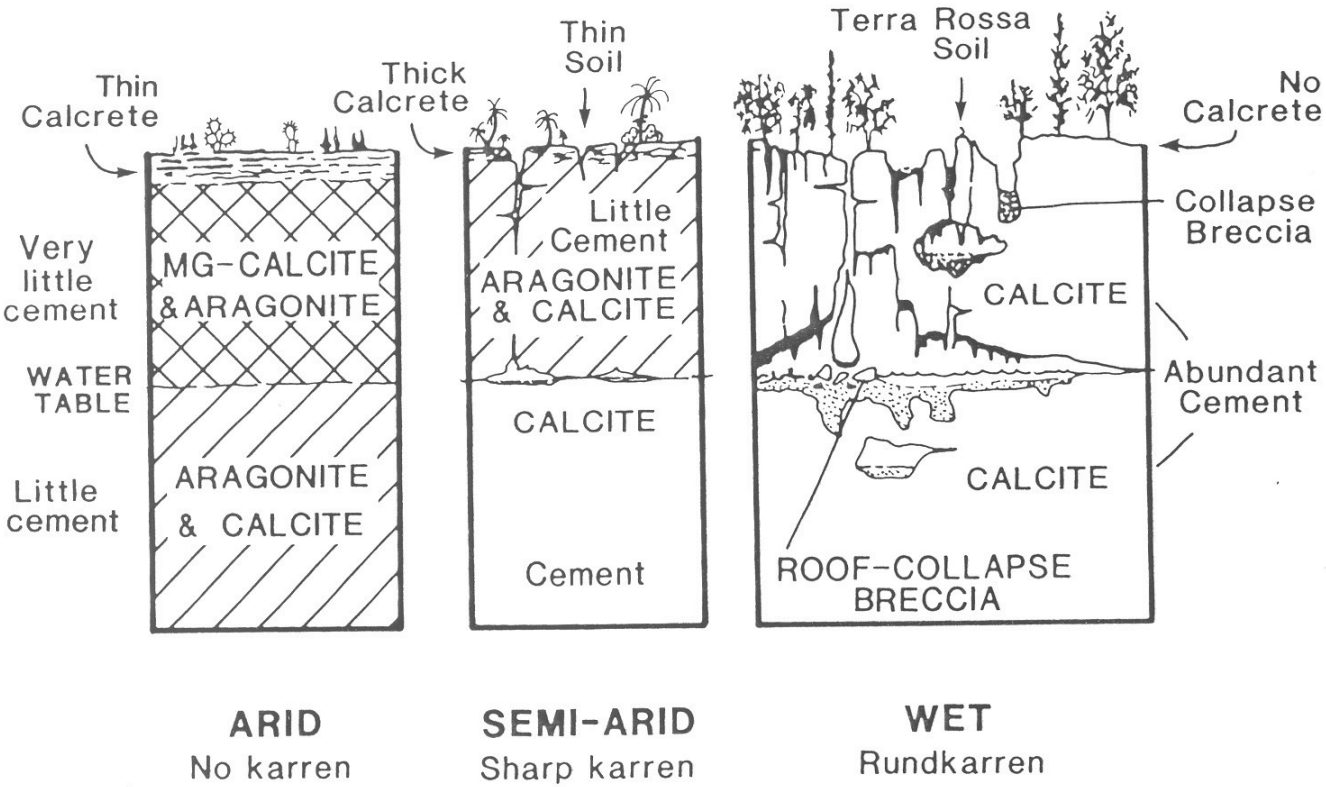

FIGURE 3. A diagram showing common karst features associated with different climatic conditions. Modified from James and Choquette (1984).

VÝVOJOVÁ STÁDIA KRASU

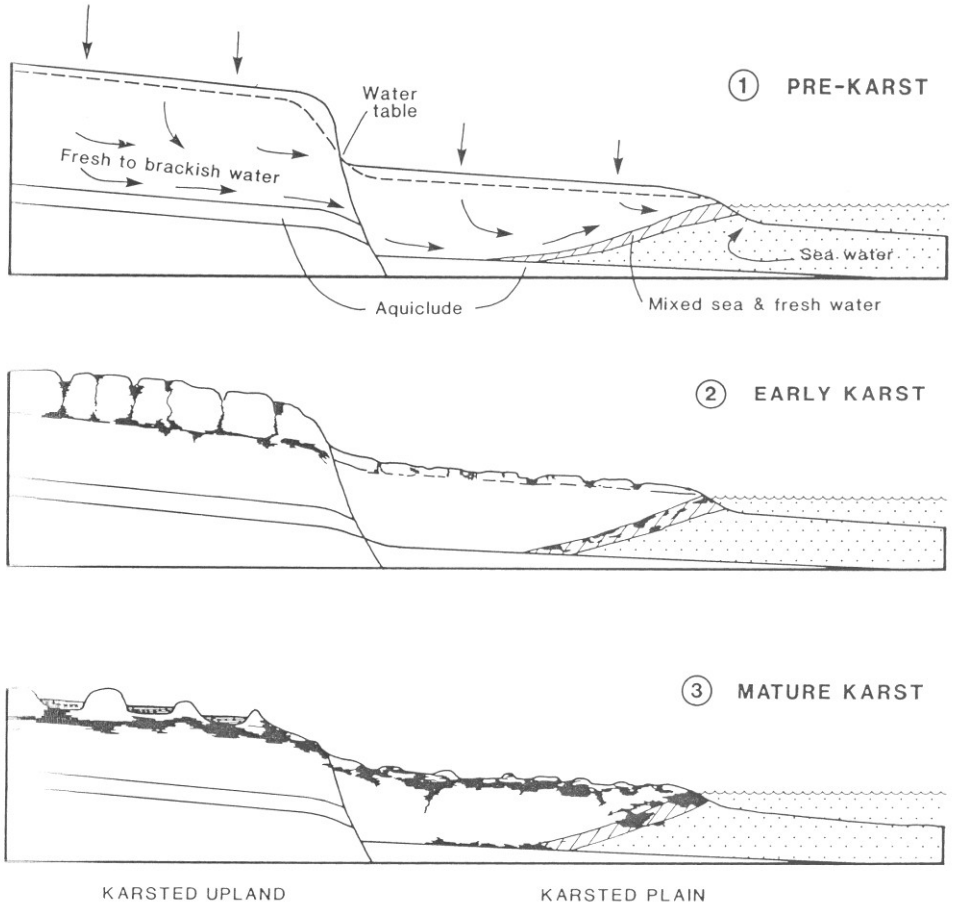

FIGURE 1. A sketch to suggest the kinds of contrasting local landforms likely to develop because of differences in elevation above karst base level, in a slightly emergent carbonate shelf, now a broad coastal plain, adjoining an interior upland. Climate and other factors are assumed to be similar in both parts of the region. Caves are shown in black.

RŮZNÉ TYPY BREKCIÍ KRASOVÝCH OBLASTÍ

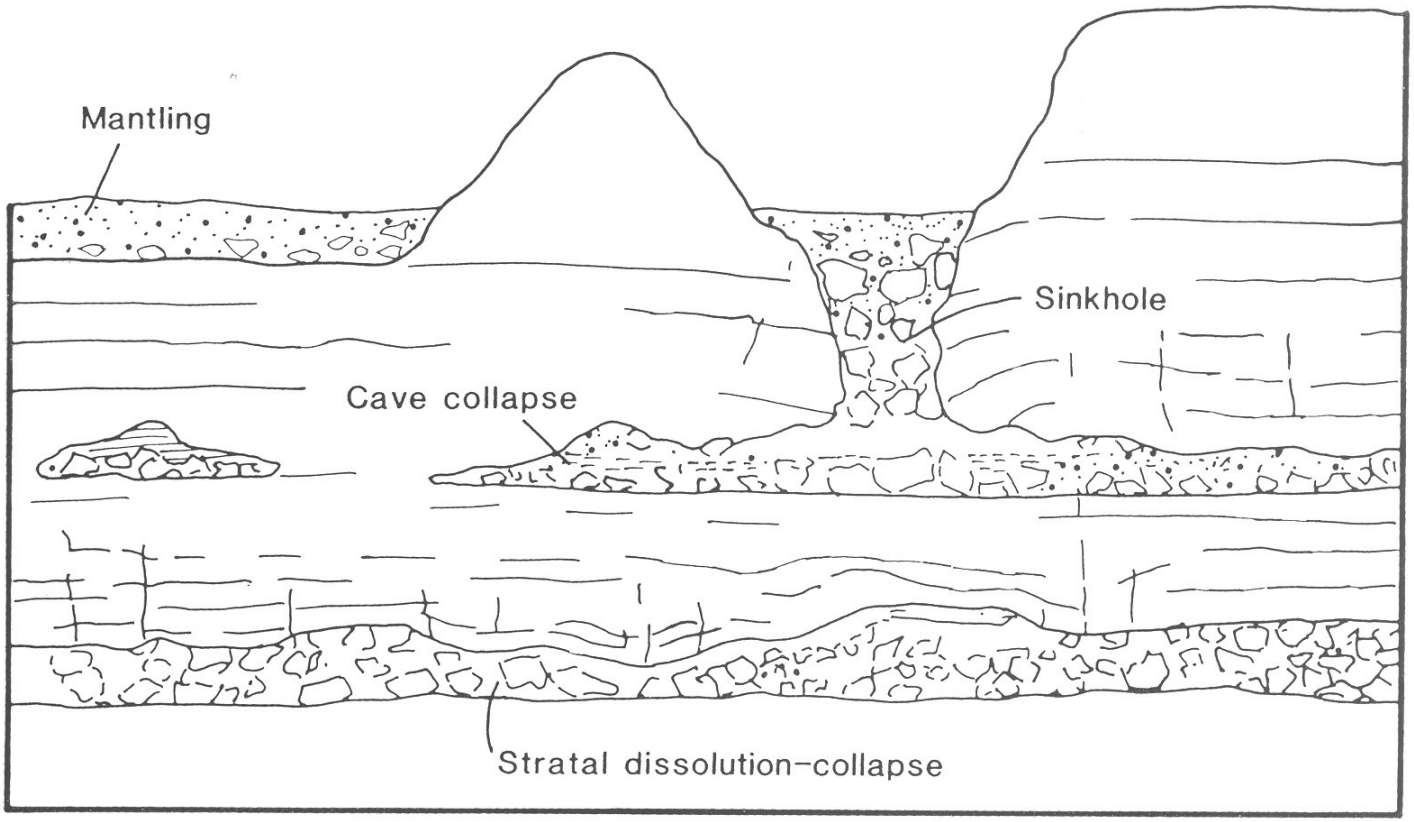

FIGURE 5. A sketch outlining common types of surface and subsurface breddia in karst terranes.

„crackle breccia“, Wombeyan Caves, NSW. Austrálie

Suchdolský ponor, vápencová brekcie

JAK POZNAT PALEOKRAS???

TABLE 2. Features commonly associated with paleokarst.

Stratigraphic–geomorphic
*Karst landforms—towers, dolines, closed depressions, lack of fluviatile sediment
Unconformities—strata below are truncated, strata above onlap prominences
Shallowing-upward cycles—end abruptly at paleokarst surfaces

Macroscopic	
Surface karst	Subsurface karst
* Rundkarren	* Caves & smaller nonselective dissolution voids
* Other karren	* In-place brecciated & fractured strata
Kamenitzas & phytokarst	* Collapse structures
Terra rossa & other soils	* Dissolution-enlarged fractures
* Caliche (calcrete)	* Rubble-and-fissure fabrics
Nonsedimentary channels	Sediment in nondepositional cavities
Lichen structures	* Breccias in irregular bodies, conformable or not
Boxwork structure	
Laminar brown or reddish fracture fillings	
* Mantling nonsedimentary breccias	

Microscopic
* Eluviated soil in small pores
* Etched carbonate cements
Reddened & micritized grains
Meniscus, pendant, and needle-fiber vadose cements
* Extensive, dissolution, or enlarged, fabric-selective pores

* Features that seem especially diagnostic

HLAVNÍ TYPY PALEOKRASOVÝCH JEVŮ:

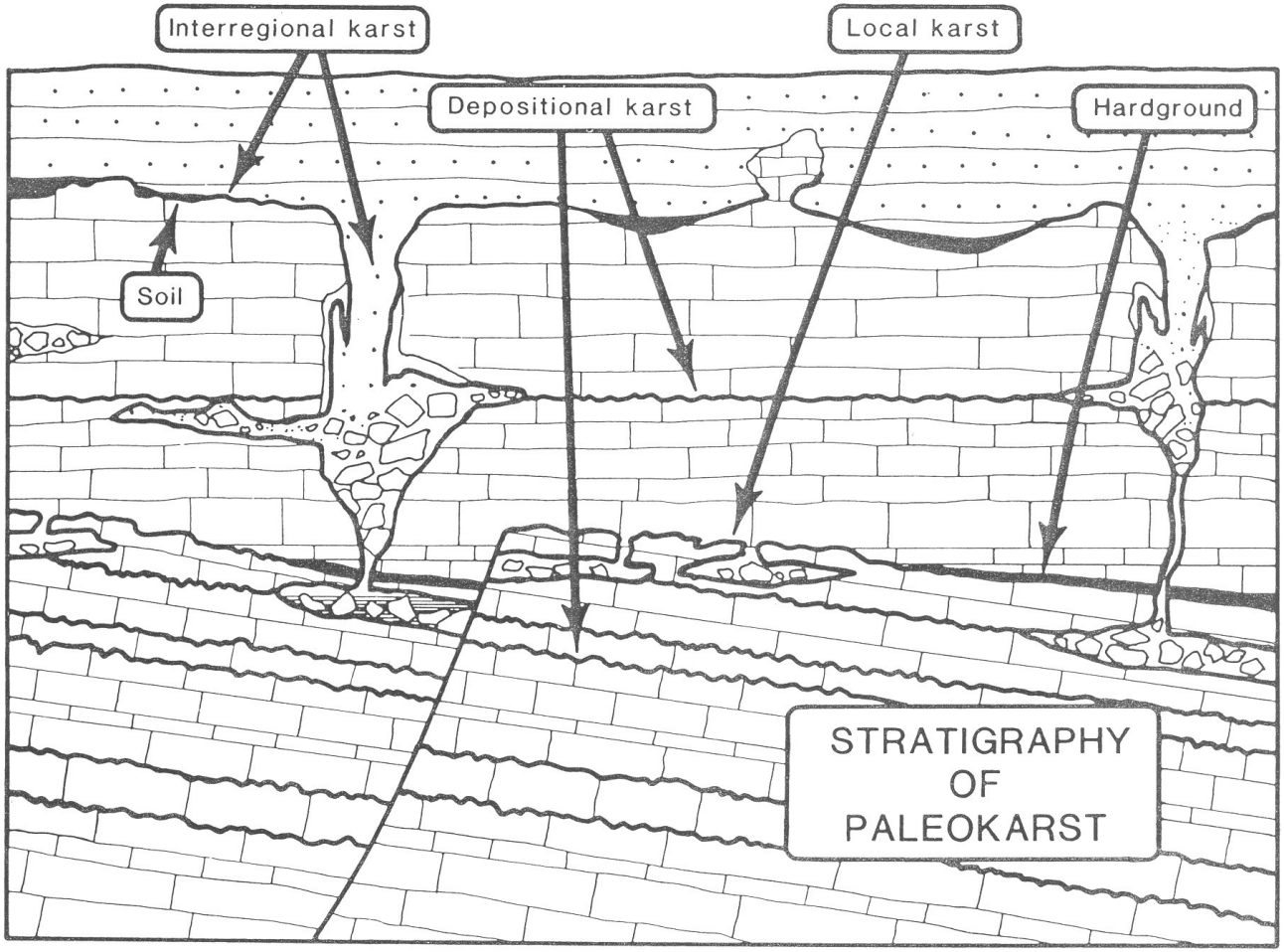

FIGURE 6. A diagram summarizing the different levels of karst to be expected within carbonate terranes.

Hložek, MK, brekcie s fosfority, klasty vzniklé destrukcí „fosfatických hardgroundů“

MOŽNOSTI KATODOLUMINISCENCE PRO ZJIŠTĚNÍ PRŮBĚHU DIAGENEZE, ROZLIŠENÍ ZÓN CEMENTACE:

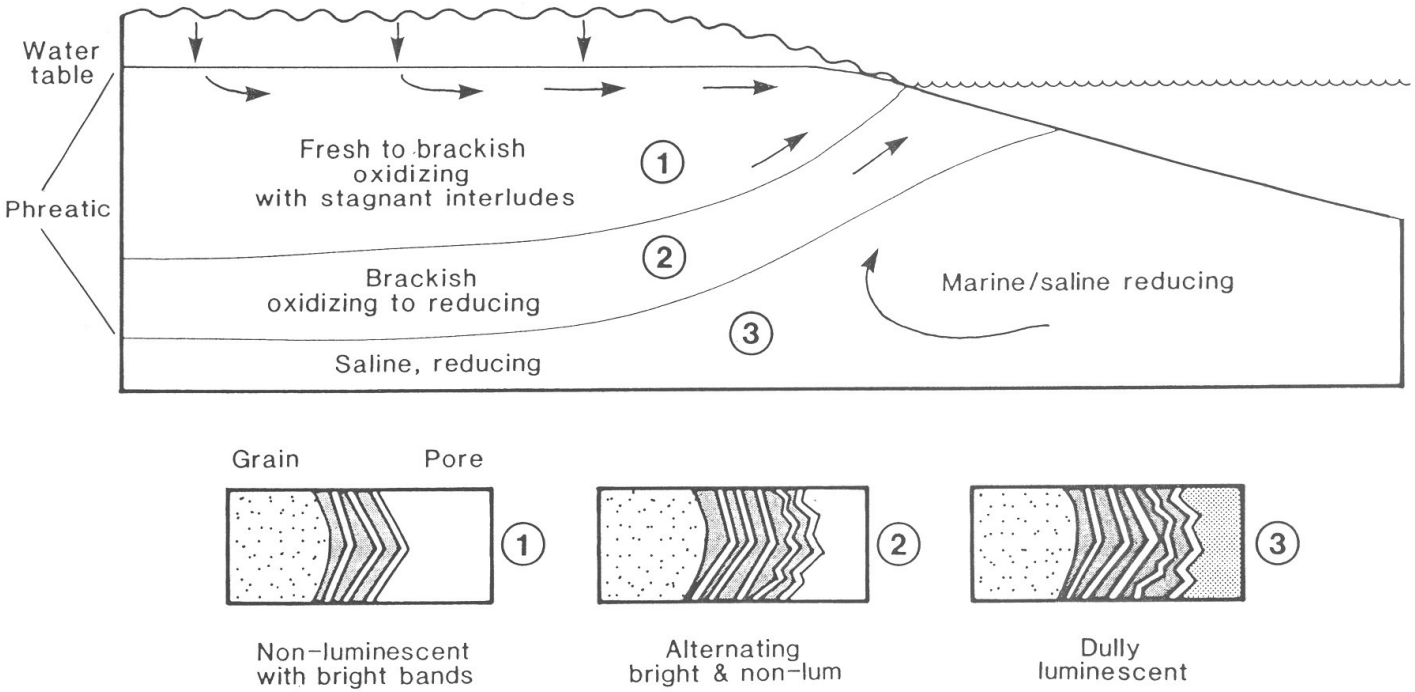

FIGURE 7. A diagram showing interpreted cathodoluminescent cement zones associated with a karst terrane being actively recharged. Groundwater in the phreatic should be dominantly oxidizing (nonluminescent cement), with interludes of stagnant/reducing conditions marked by bands of bright luminescence. Subsurface waters in the deeper burial realm should be more dominantly stagnant and reducing, with higher concentrations of Fe^{+2} and Mn^{+2} that cause luminescence to be generally dull and less sharply zoned. Modified from a diagram in this volume, by Mussman, Montanez, and Read.

PERIODY KRASOVĚNÍ

HRANICKÝ KRAS