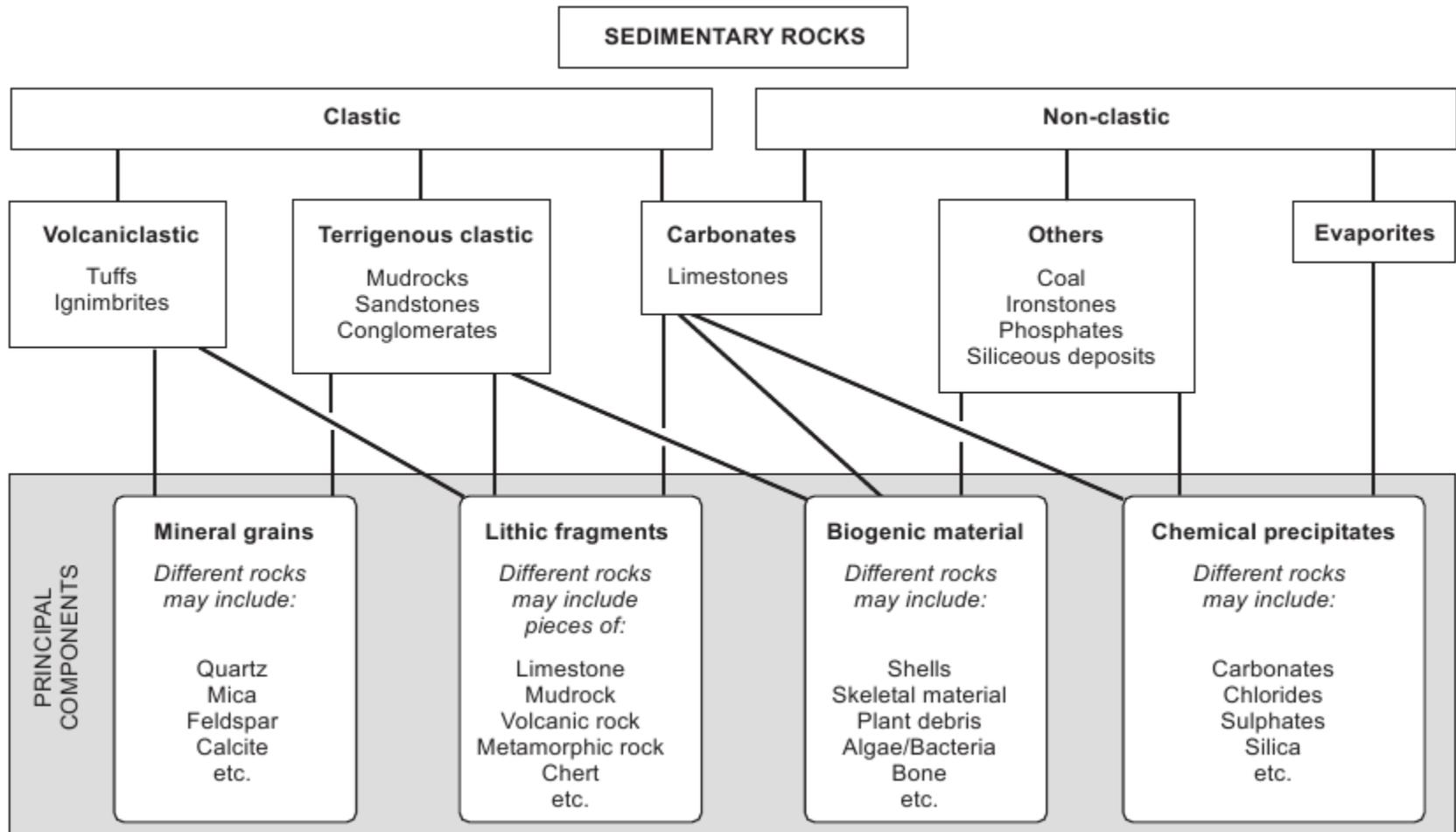


Sedimentos e rochas sedimentares



Sedimentos autóctones

Sedimentos biogênicos



Estromatólitos

Sedimentos biogênicos



Recifes de corais

Sedimentos ortoquímicos





Evaporitos

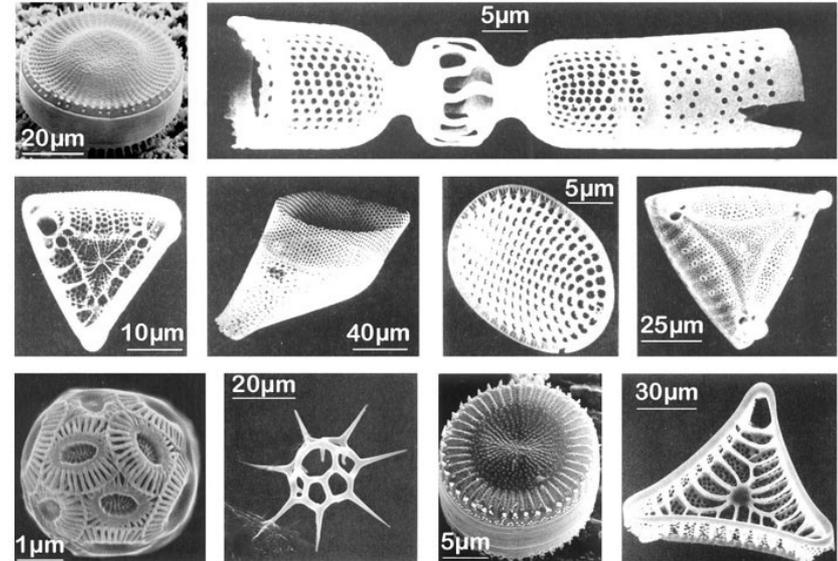
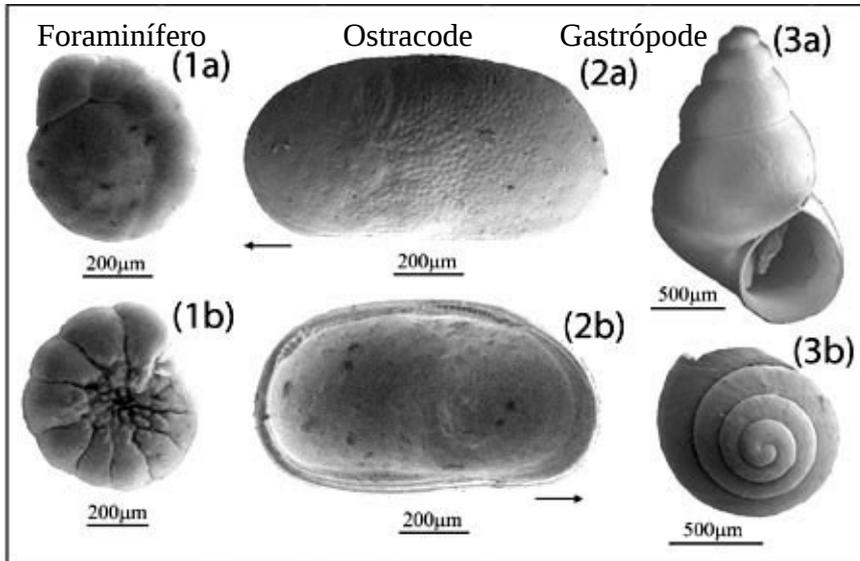
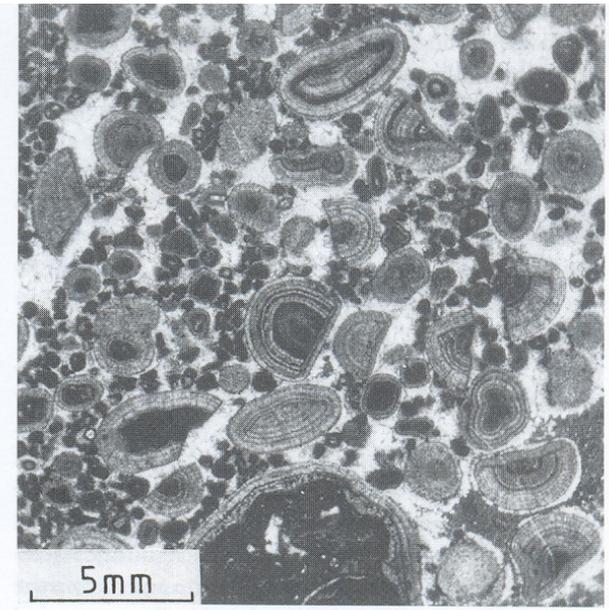
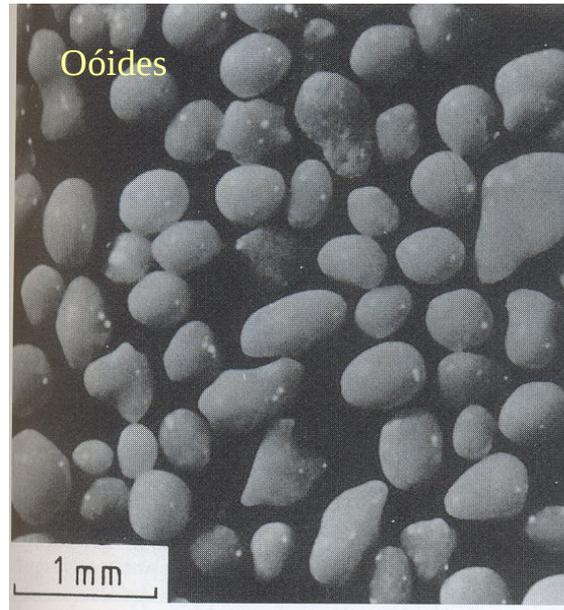
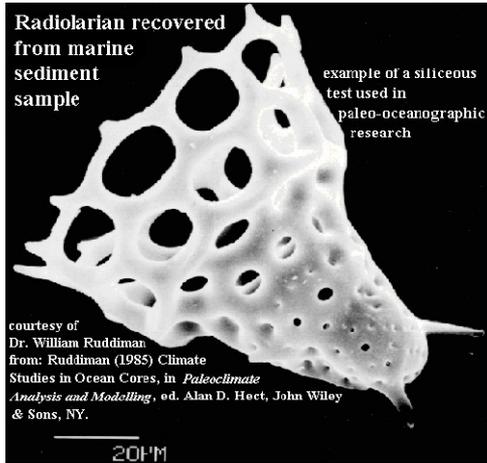


(c)

Evaporitos

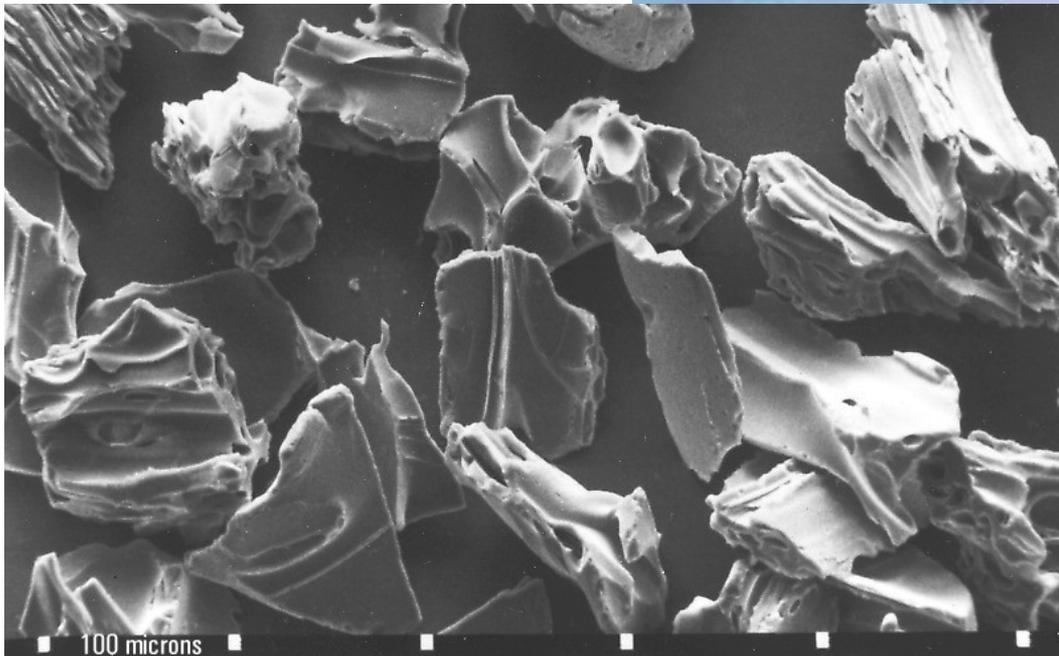
Sedimentos alóctones

Sedimentos alobioquímicos



Selection of planktonic diatoms (not representative for the mediterranean)

Sedimentos vulcanoclásticos



Vidro vulcânico

Sedimentos terrígenos



Univ. of Georgia
Department of
Geology

260
Sample number

1 cm



Quais os critérios utilizados para descrever os sedimentos terrígenos?

Mineralogia e textura

Principais componentes

- Silicatos
 - Quartzo*
 - Feldspato*
 - Minerais pesados (zircão, turmalina, estaurolita, anfibólios, piroxênios, ...)
 - Argilominerais (caulinita, esmectita, illita, clorita...)*
- Fragmentos de rocha
- Óxidos (hematita, rutilo, magnetita, etc.)

O que determina a mineralogia dos sedimentos terrígenos?



Praia de Biondi (Austrália)



Equador



Islândia

Fontes graníticas

10 cm



Fontes Metmórficas



0.3 mm



5 cm

Fontes vulcânicas

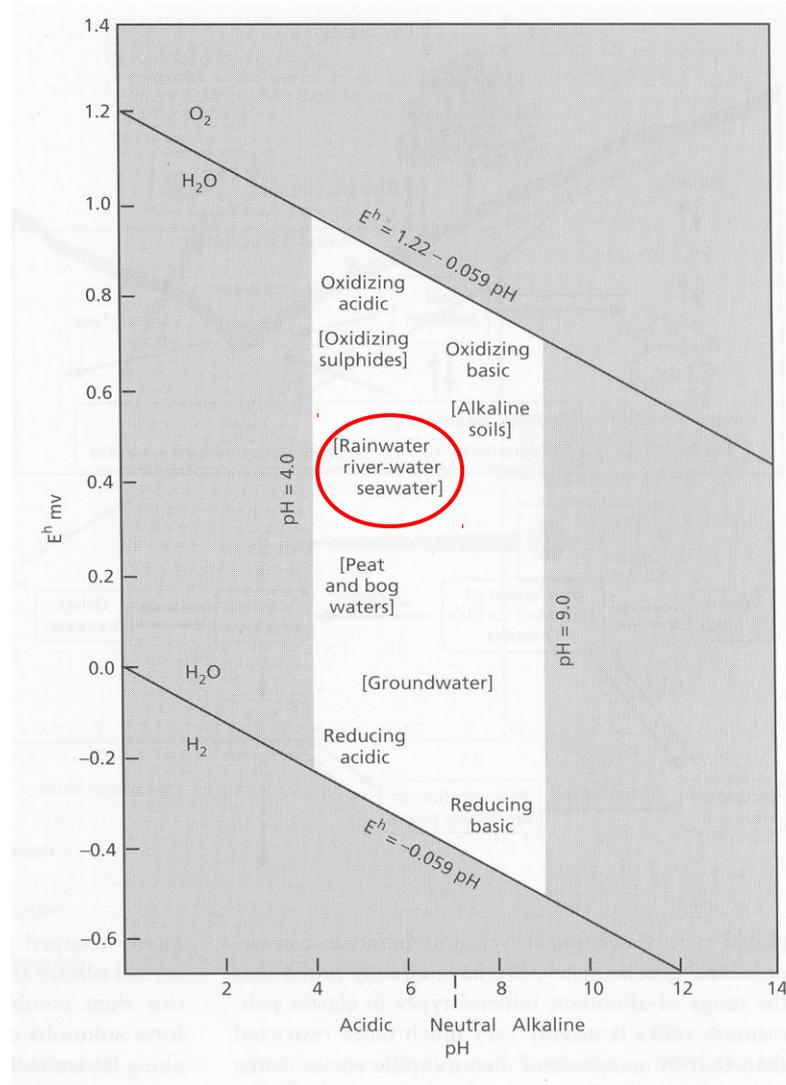


0.3 mm

Arenito



0.3 mm



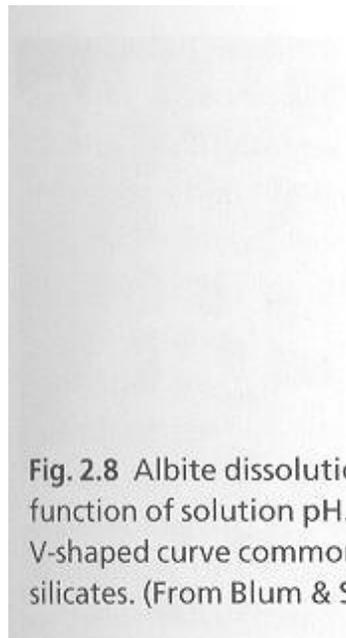
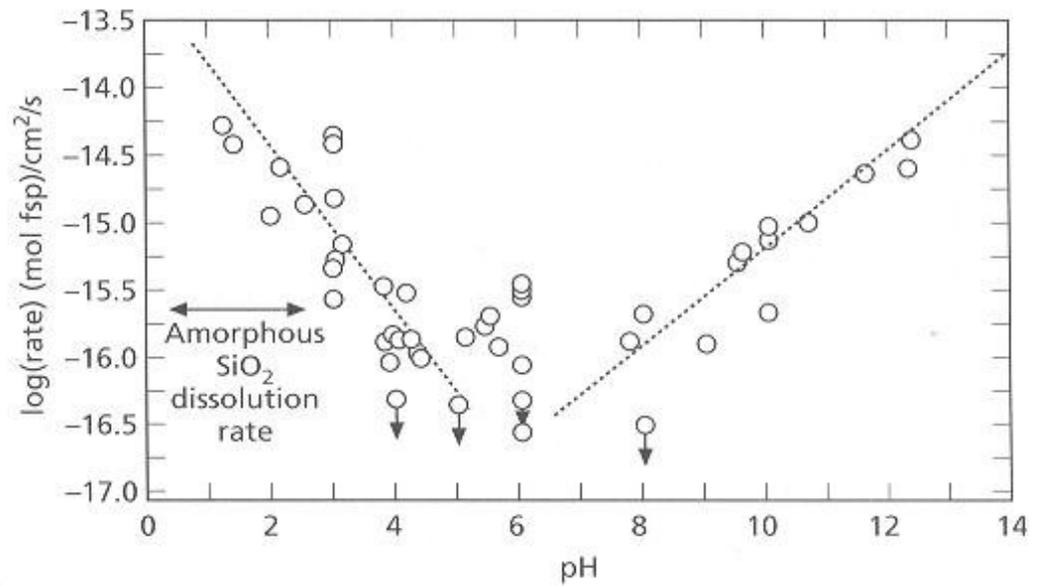
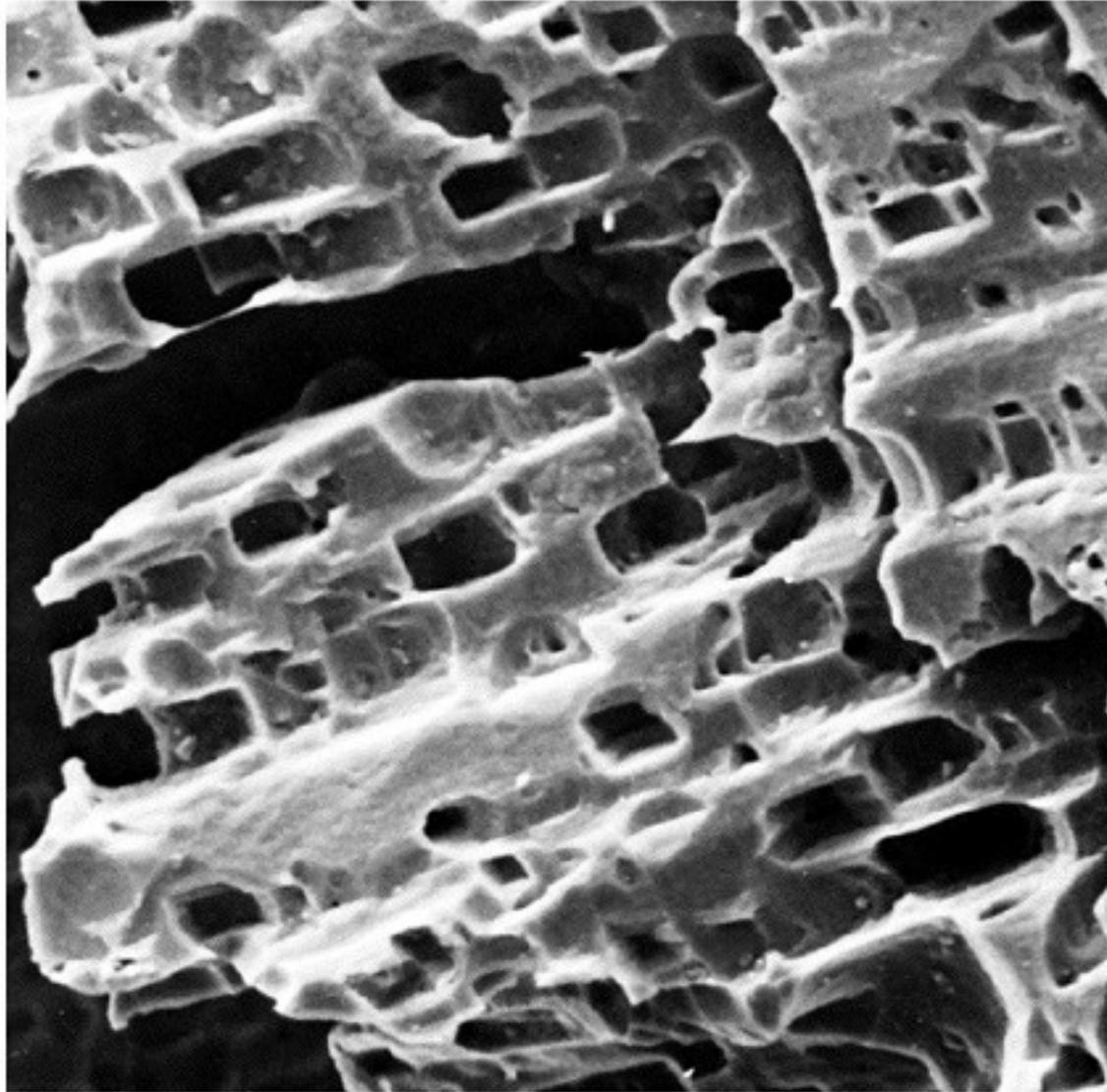
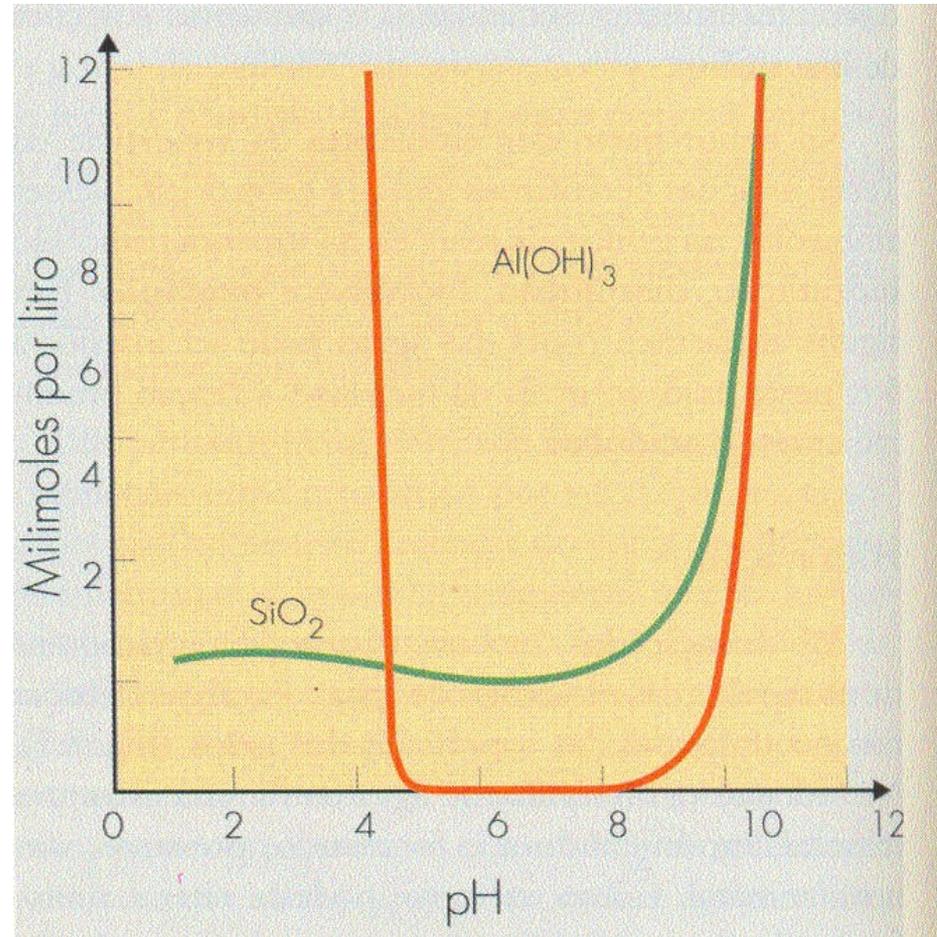


Fig. 2.8 Albite dissolution rate as a function of solution pH. Note the V-shaped curve common to many silicates. (From Blum & Stillings, 1995.)





Solubilidade de sílica e alumina



**Table
6.2**

**Stability of Common Minerals
Under Weathering**

Stability of Minerals	Rate of Weathering
Most stable	Slowest
Iron oxides (hematite)	
Aluminum hydroxides (gibbsite)	
Quartz	
Clay minerals	
Muscovite mica	
Potassium feldspar (orthoclase)	
Biotite mica	
Sodium-rich feldspar (albite)	
Amphiboles	
Pyroxene	
Calcium-rich feldspar (anorthite)	
Olivine	
Calcite	
Halite	
Least stable	

**Table
31**

**Some Common Minerals
of Igneous, Sedimentary,
and Metamorphic Rocks**

Igneous Rocks	Sedimentary Rocks	Metamorphic Rocks
Quartz*	Quartz*	Quartz*
Feldspar*	Clay minerals*	Feldspar*
Mica*	Feldspar*	Mica*
Pyroxene*	Calcite	Garnet*
Amphibole*	Dolomite	Pyroxene*
Olivine*	Gypsum	Staurolite*
	Halite	Kyanite*

Asterisks indicate that a mineral is a silicate.

Table 2.3 Relative rates of dissolution of various minerals in laboratory experiments at pH 5 far from equilibrium. (From Drever & Clow, 1995, and sources cited therein; see also Sverdrup & Warfvinge, 1995, table 20.)

Mineral	Rate/rate for albite
Quartz	0.02
Muscovite (mica)	0.22
Biotite (mica)	0.6
Microcline (K-feldspar)	0.6
Sanidine (K-feldspar)	2
Albite (Na-plagioclase)	1
Bytownite (Na/Ca-plagioclase)	15
Enstatite (orthopyroxene)	57
Diopside (clinopyroxene)	85
Forsterite (Mg-olivine)	250
Dolomite	360 000
Calcite	6000 000

O que é textura?



Granulação

Intervalo granulométrico (mm)	Classificação nominal			
	Proposição original (inglês)		Tradução usual (português)	
> 256	GRAVEL	Boulder	CASCALHO (ou balastro em Portugal)	Matacão
256-64		Cobble		Bloco ou calhau
64-4,0		Pebble		Seixo
4,0-2,0		Granule		Grânulo
2,0-1,0	SAND	Very coarse sand	AREIA	Areia muito grossa
1,0-0,50		Coarse sand		Areia grossa
0,50-0,250		Medium sand		Areia média
0,250-0,125		Fine sand		Areia fina
0,125-0,062		Very fine sand		Areia muito fina
0,062-0,031	SILT	Coarse silt	SILTE	Silte grosso
0,031-0,016		Medium silt		Silte médio
0,016-0,008		Fine silt		Silte fino
0,008-0,004		Very fine silt		Silte muito fino
<0,004	CLAY	Clay	ARGILA	Argila

Granulação de sedimentos

		U.S. standard sieve mesh	Millimeters	Phi (ϕ) units	Wentworth size class
GRAVEL			4096	-12	
			1024	-10	Boulder
		_____	256	-8	_____
		_____	64	-6	Cobble
		_____			_____
			16	-4	Pebble
		5 _____	4	-2	_____
		6 _____	3.36	-1.75	
		7 _____	2.83	-1.5	Granule
		8 _____	2.38	-1.25	
SAND		10 _____	2.00	-1.0	
		12 _____	1.68	-0.75	
		14 _____	1.41	-0.5	Very coarse sand
		16 _____	1.19	-0.25	
		18 _____	1.00	0.0	
		20 _____	0.84	0.25	
		25 _____	0.71	0.5	Coarse sand
		30 _____	0.59	0.75	
		35 _____	0.50	1/2 _____	1.0
		40 _____	0.42		1.25
		45 _____	0.35		1.5
		50 _____	0.30		1.75
		60 _____	0.25	1/4 _____	2.0
		70 _____	0.210		2.25
		80 _____	0.177		2.5
		100 _____	0.149		2.75
		120 _____	0.125	1/8 _____	3.0
		140 _____	0.105		3.25
		170 _____	0.088		3.5
	MUD	SILT	200 _____	0.074	3.75
230 _____			0.0625	4.0	
270 _____			0.053	4.25	
325 _____			0.044	4.5	Coarse silt
_____			0.037	4.75	_____
		_____	0.031	1/32 _____	5.0
		_____	0.0156	1/64 _____	6.0
		_____	0.0078	1/125 _____	7.0
		_____	0.0039	1/256 _____	8.0
CLAY			_____	0.0020	9.0
		_____	0.00098	10.0	Clay
		_____	0.00049	11.0	
		_____	0.00024	12.0	
		_____	0.00012	13.0	
		_____	0.00006	14.0	

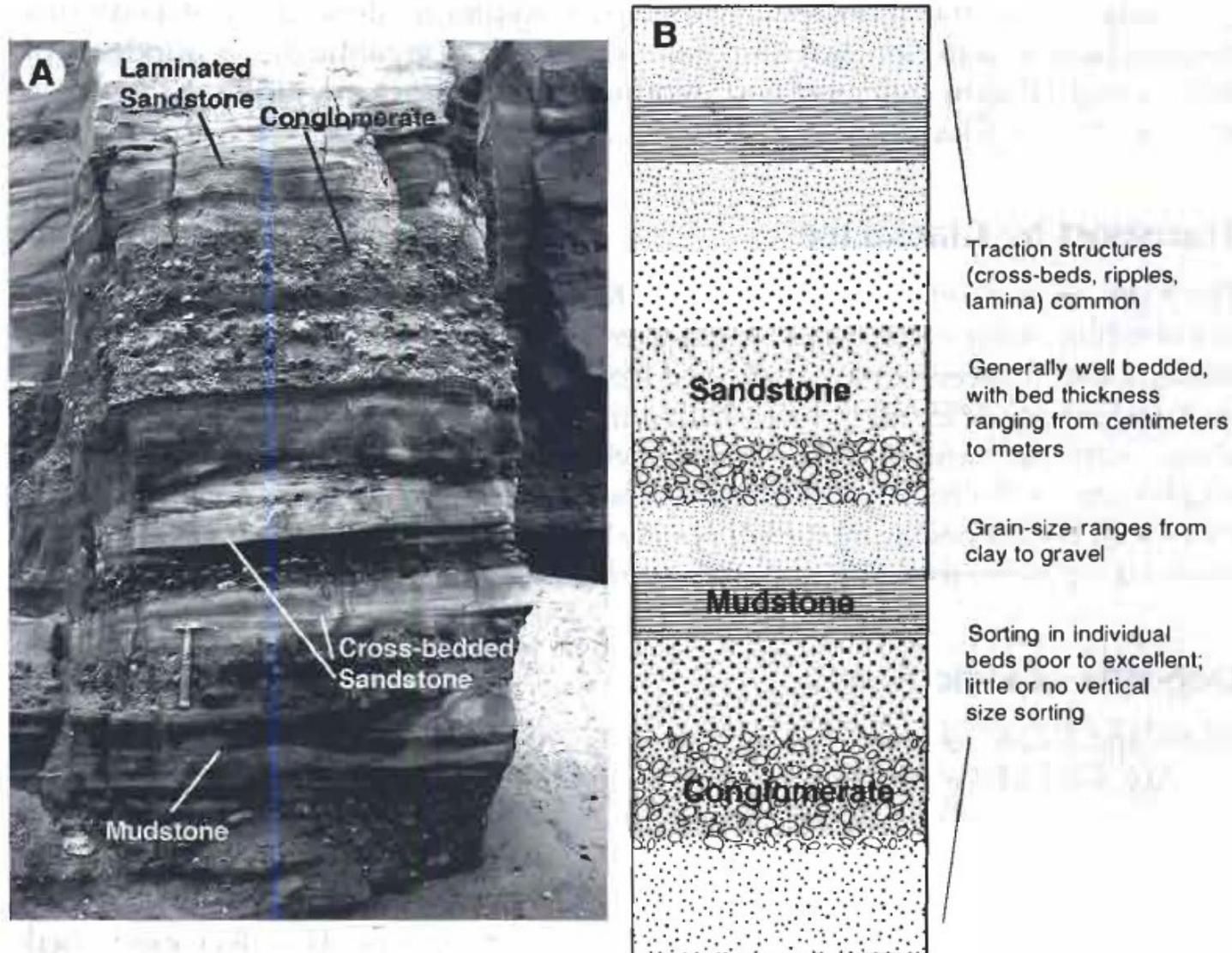


Figure 2.5

A. Photograph of well-bedded fluid-flow deposits, Miocene, Blacklock Point, southern Oregon coast.

B. Schematic representation of typical characteristics of fluid-flow deposits.

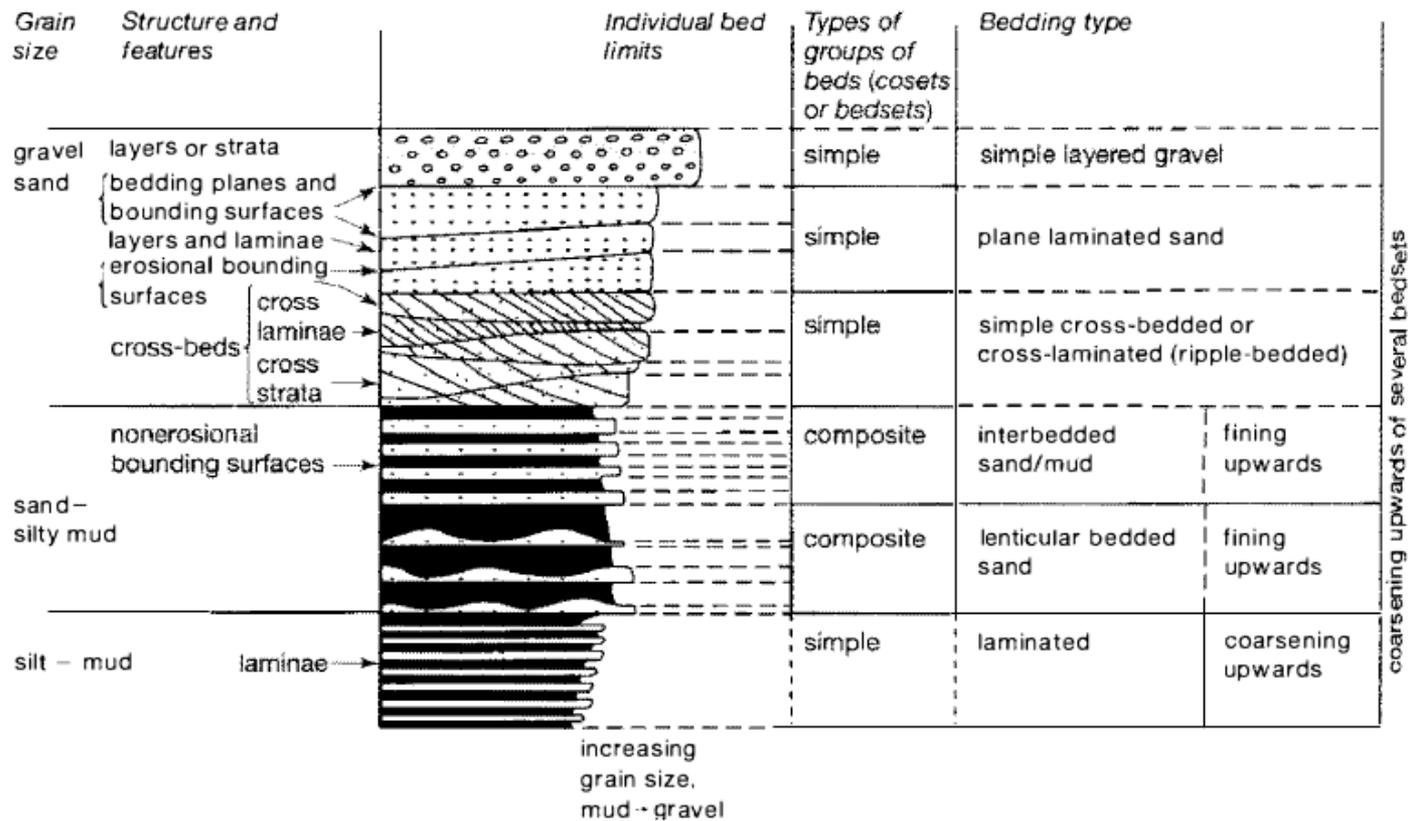
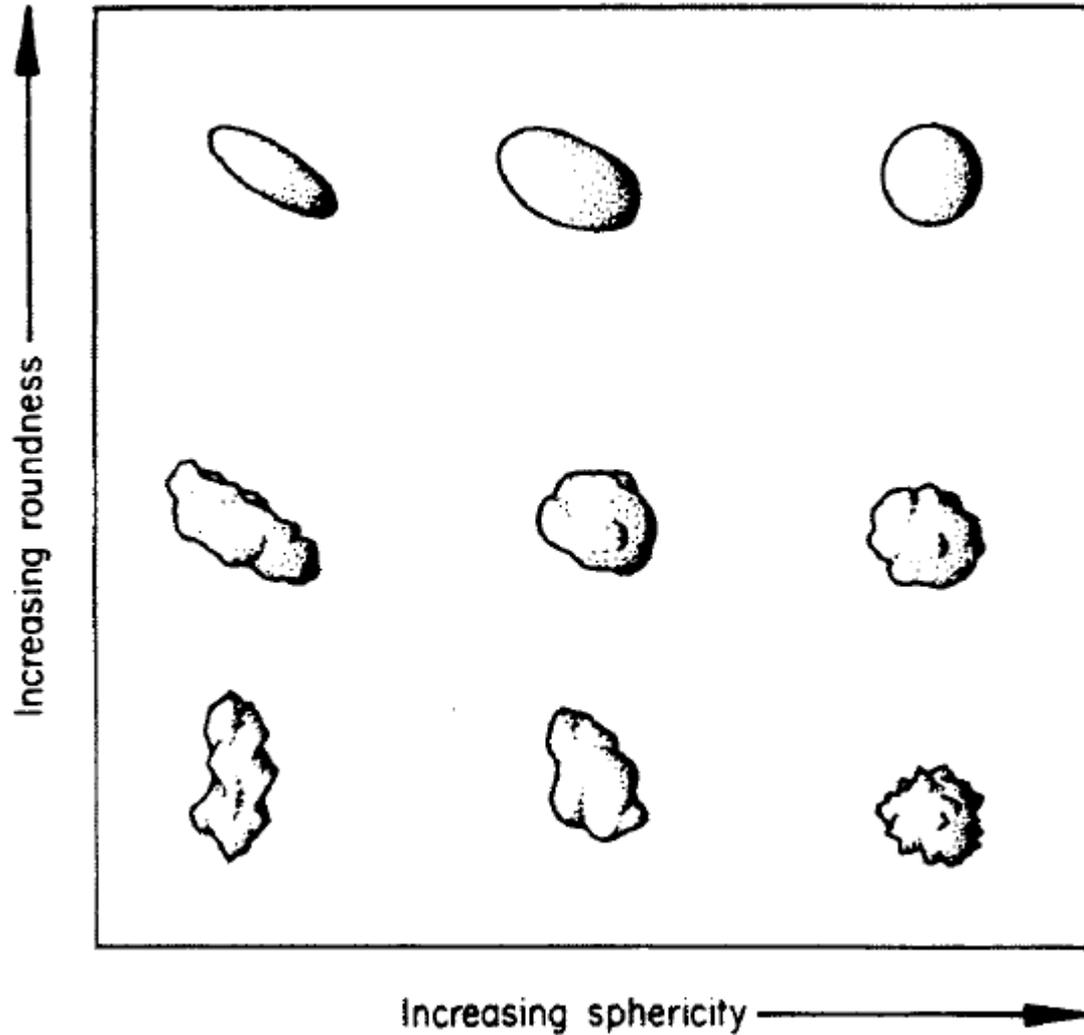


Figure 4.4
 Diagram illustrating the terminology of bedsets. [From Collinson, J. D., and D. B. Thompson, 1982, *Sedimentary structures*: George Allen & Unwin, London, Fig. 2.2, p. 8.]

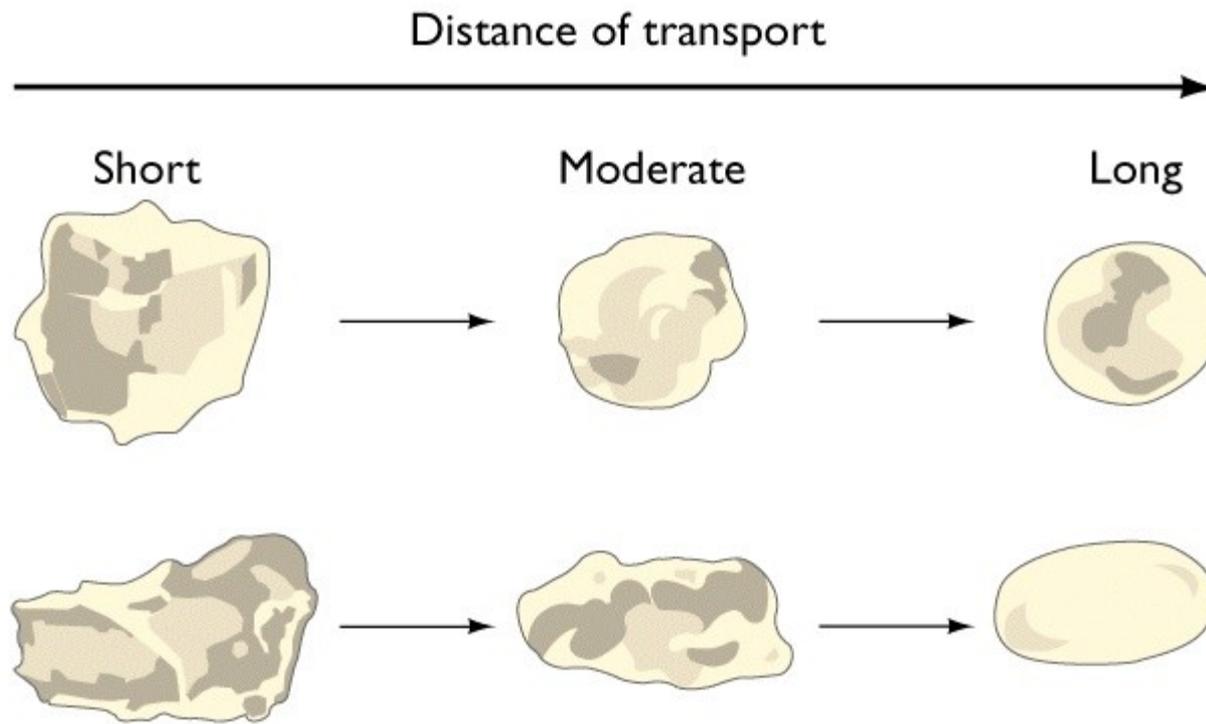
Estruturas sedimentares em seção colunar

Esfericidade e arredondamento

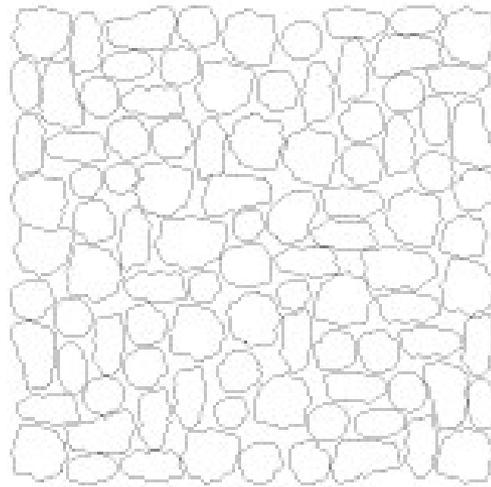


Selley (2000)

O que determina a textura dos
sedimentos?

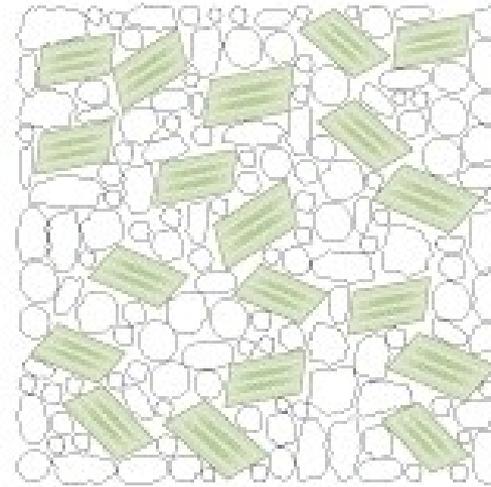


Maturidade mineralógica



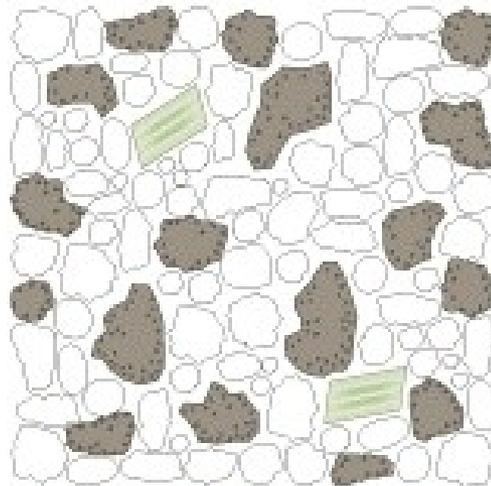
(a) Quartz arenite:
pure quartz

1 mm



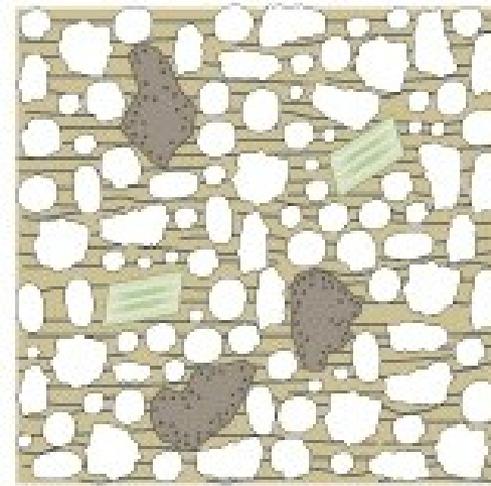
(b) Arkose:
feldspar-rich

1 mm



(c) Lithic sandstone:
rock-fragment-rich

1 mm

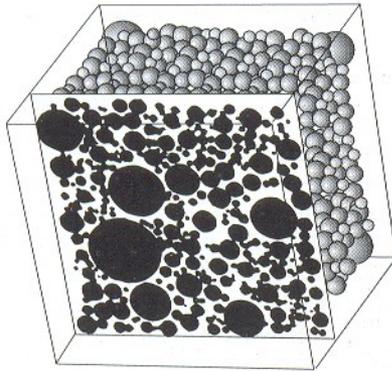


(d) Graywacke:
matrix-rich

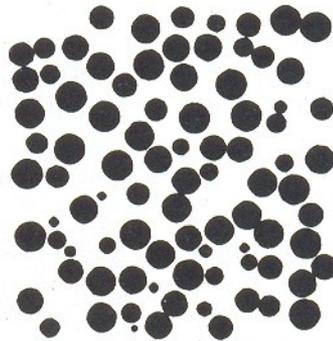
1 mm

Maturidade textural

Seleção

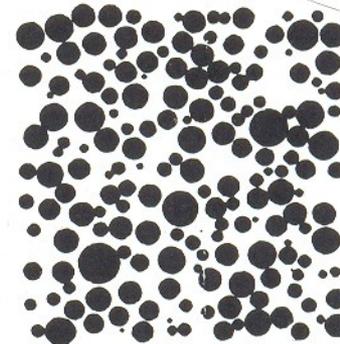


3-D dataset



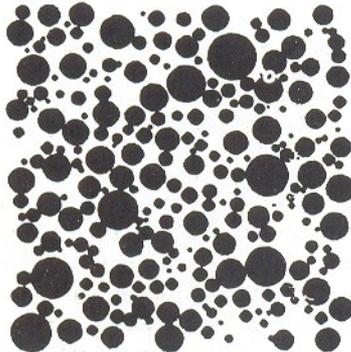
Very well sorted

$\phi = 0.0$



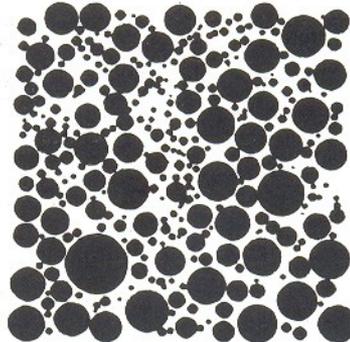
Well sorted

$\phi = 0.36$



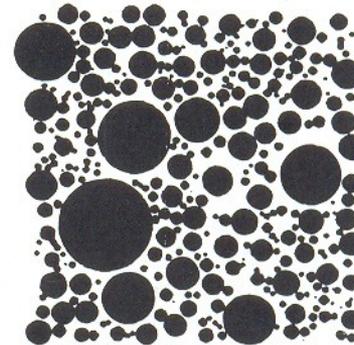
Moderately well sorted

$\phi = 0.67$



Moderately sorted

$\phi = 0.74$



Poorly sorted

$\phi = 1.15$

Arredondamento

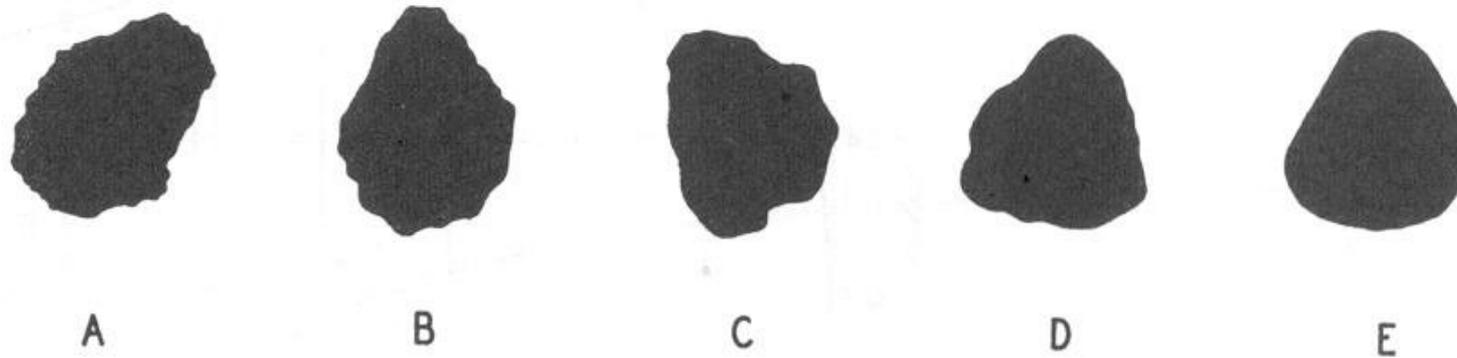
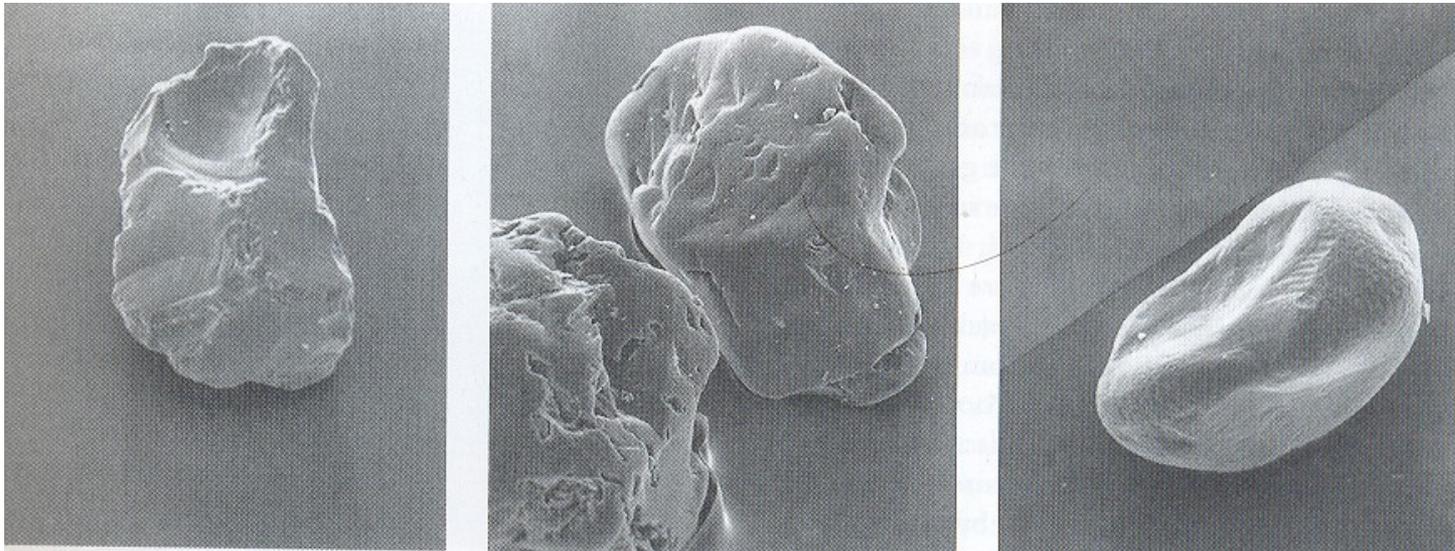
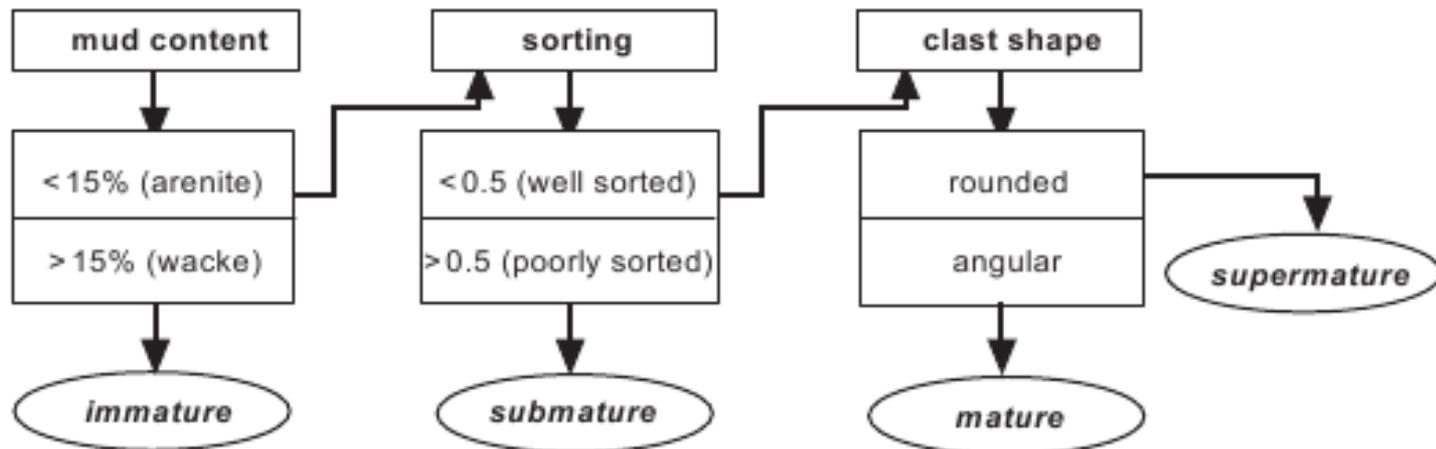


FIG. 3-24. Roundness classes. A: angular; B: subangular; C: subrounded; D: rounded; E: well rounded.



TEXTURAL MATURITY OF SANDSTONES



Nichols 2009

Qual a maturidade?



Qual sedimento apresenta maior maturidade textural?



Sumário

- Tipos de sedimentos
 - Autóctones (biogênicos e químicos)
 - Alóctones (alobioquímicos, terrígenos e alobioquímicos)
- Sedimentos terrígenos
 - Mineralogia
 - Textura
 - Maturidade textural
 - Maturidade mineralógica

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