

# **CHEMICAL CONTROLS ON PHYLLOSILICATE COMPOSITION AT THE EARLY FORMATION STAGE**

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**Felsic**

% ↓ ↓

66-75	12-24	1-4	1-5
SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	MgO	FeO
45-55	12-20	5-12	5-14

**Basaltic**

**Hydrothermal  
alteration of rhyolitic  
glass:**

**Rock control**

# Reaction conditions

**Grain size:** (I) 10-200  $\mu\text{m}$

(II) 20-60  $\mu\text{m}$

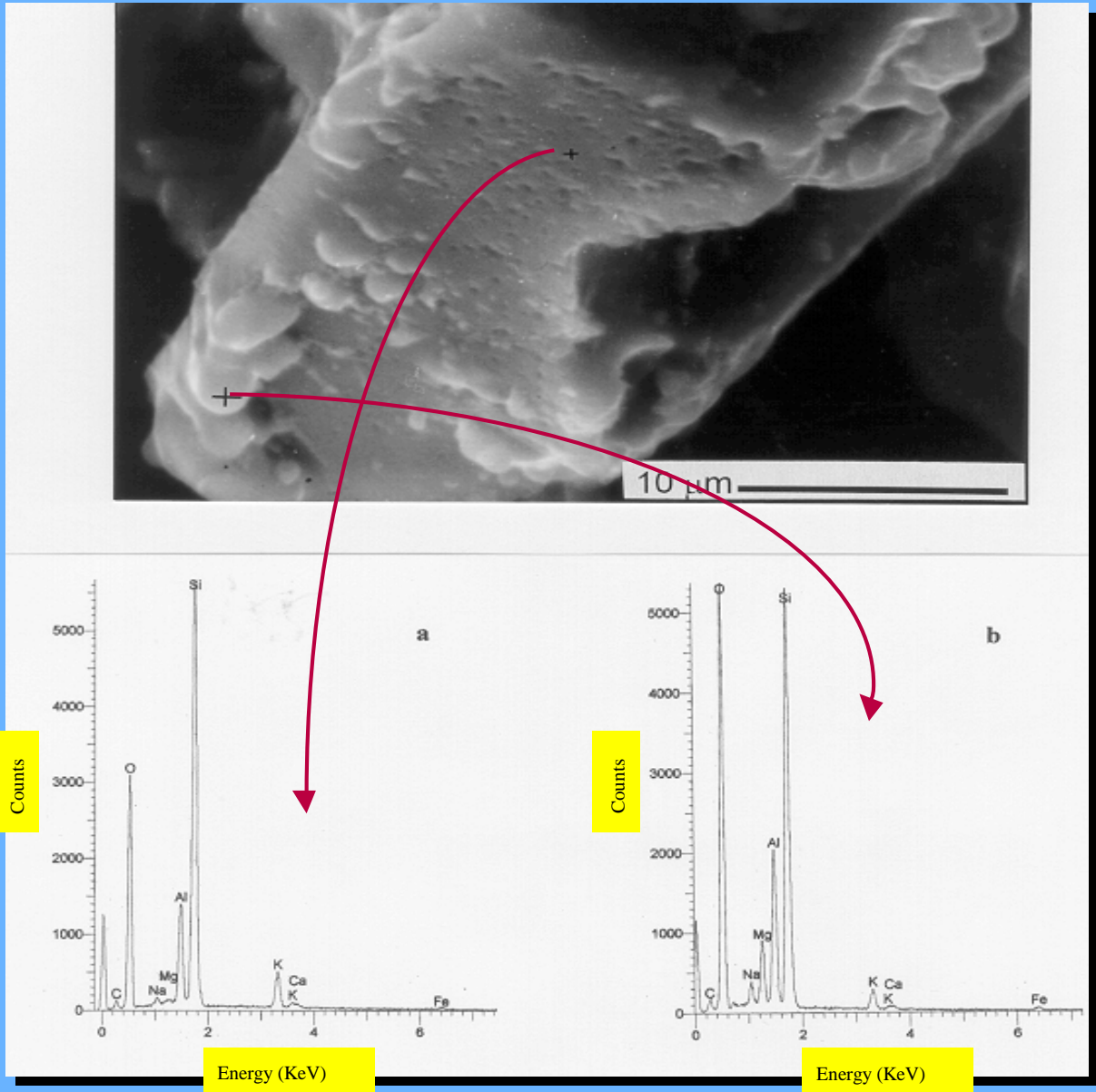
**Temperature:** 60, 80, 120, 160°C

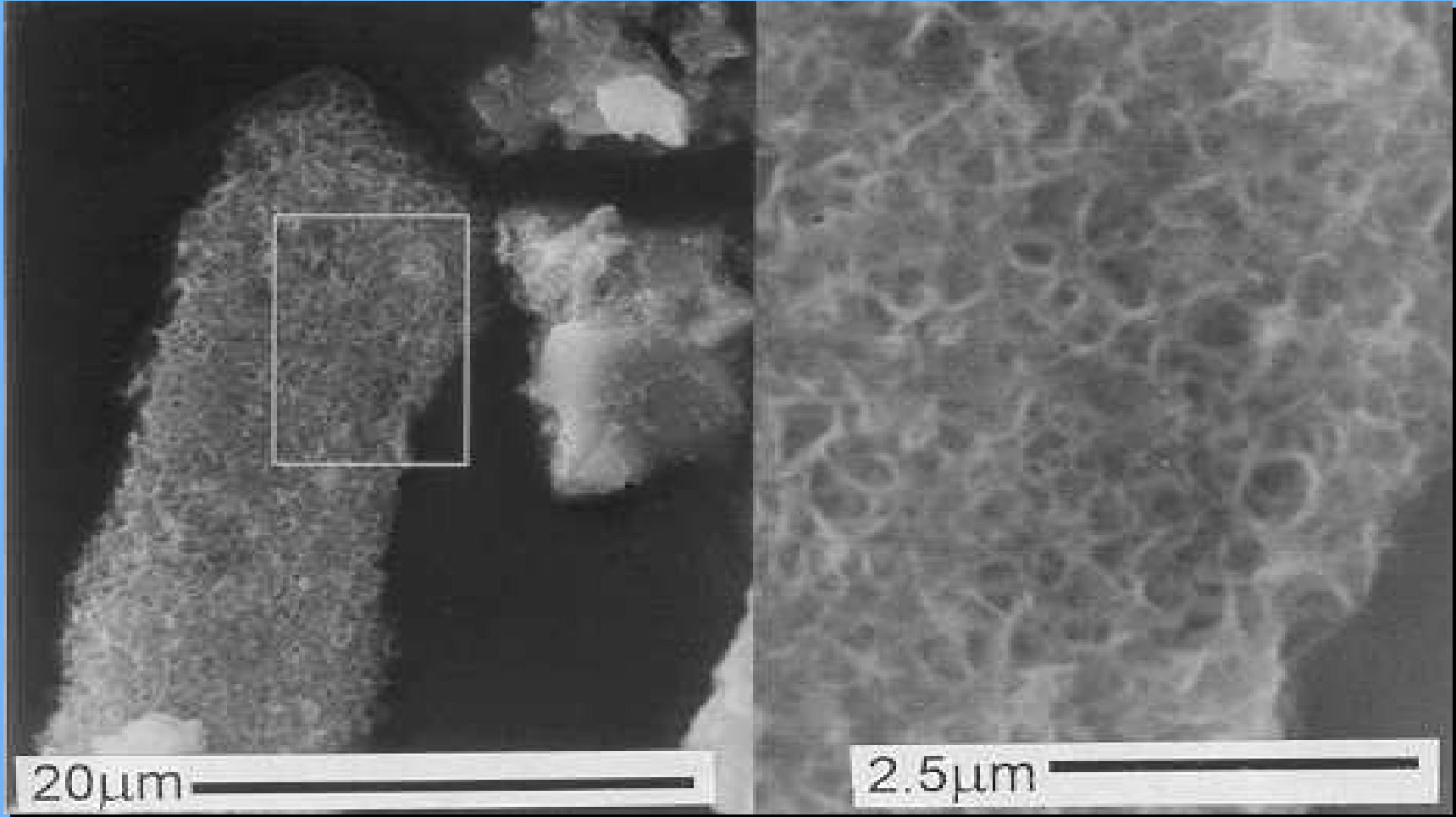
**Time:** 60, 90, 180, 360 days

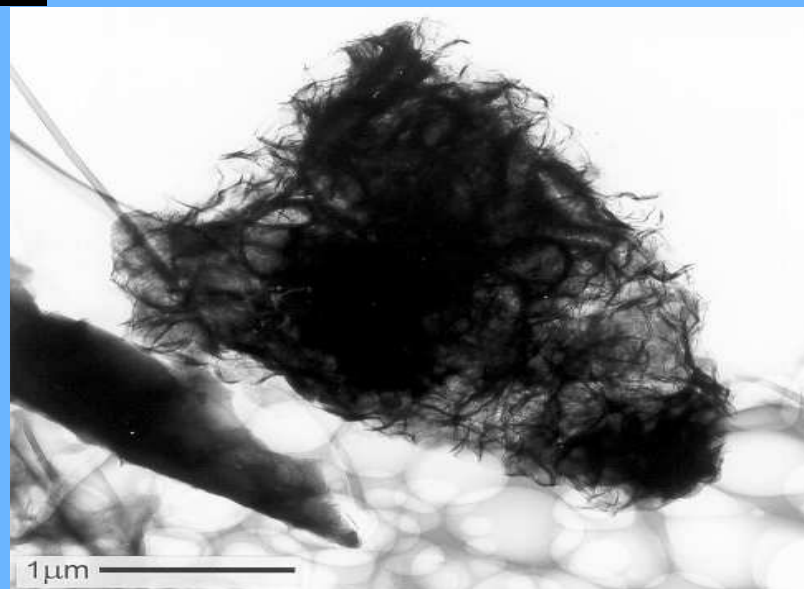
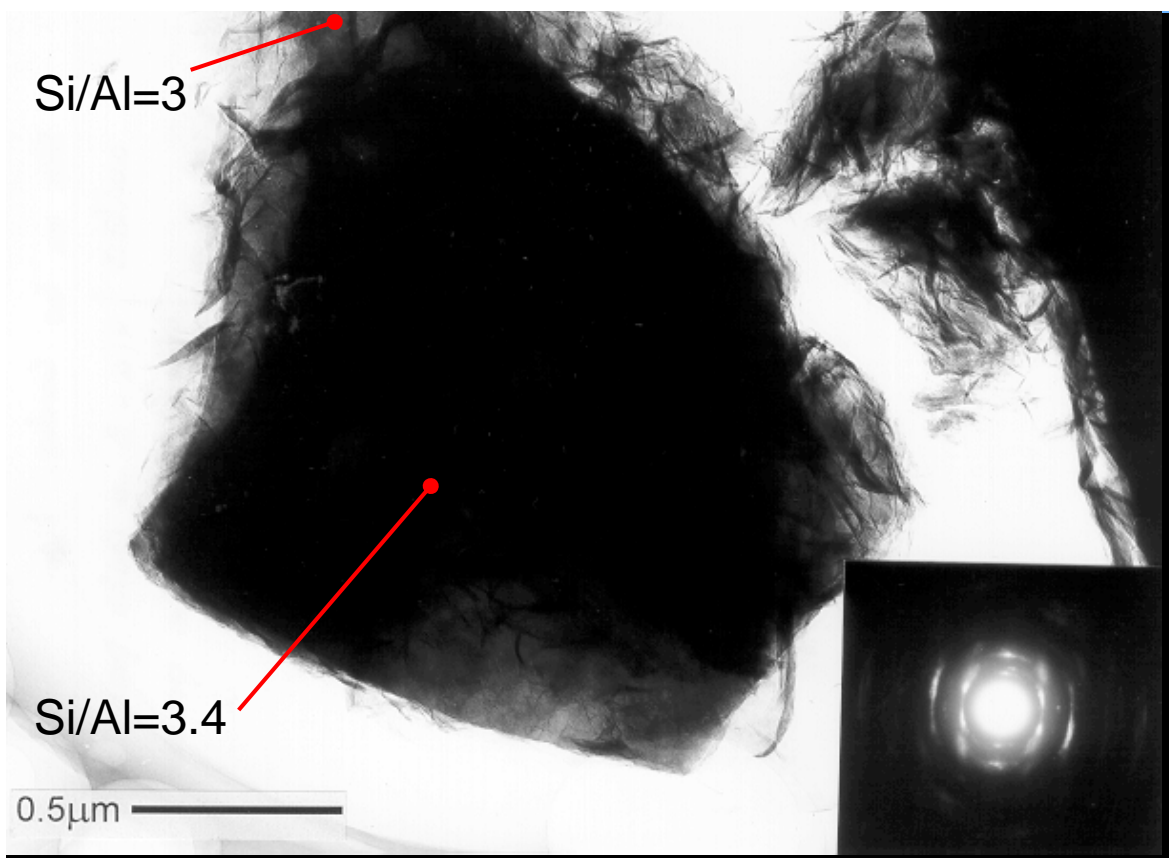
**Na/K:** 0.01, 0.1, 1, 10, 100,  
deionized water

**Concentration:** 0.01, 0.1  
0.2, 0.33, 1.01 M







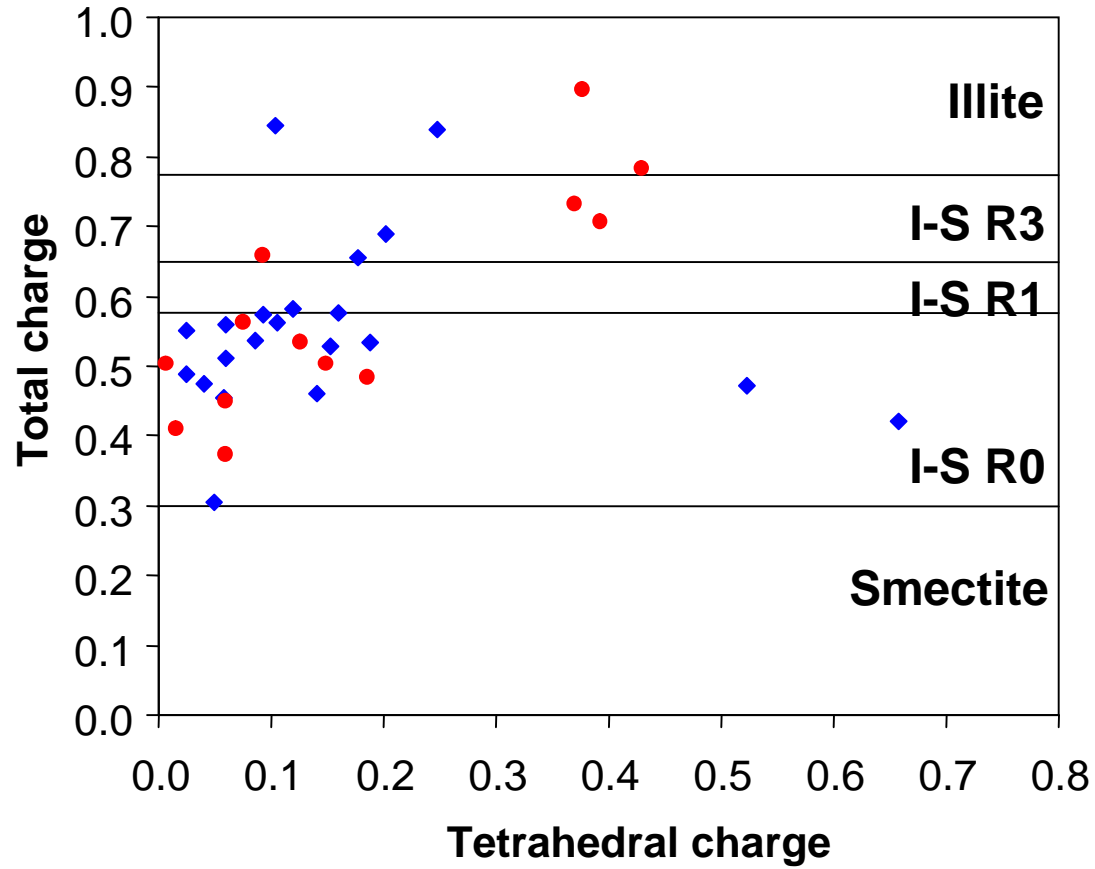
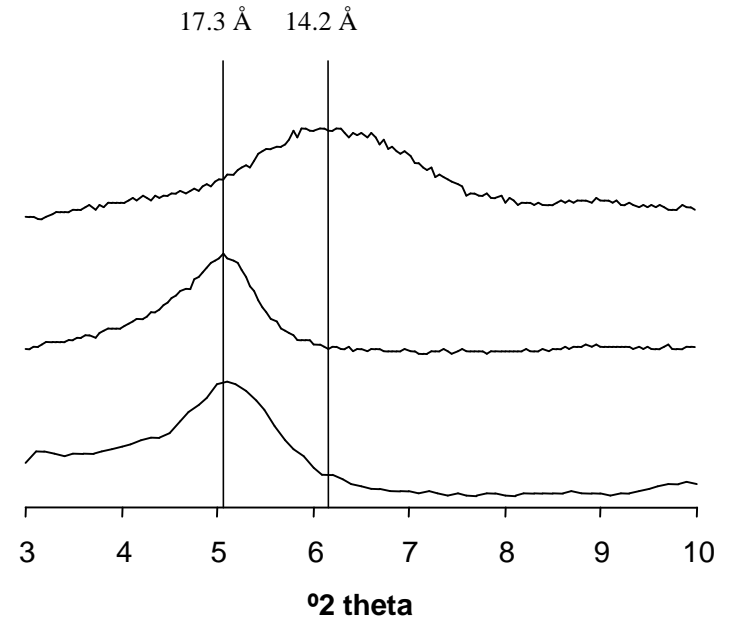


360 days

Air-dry

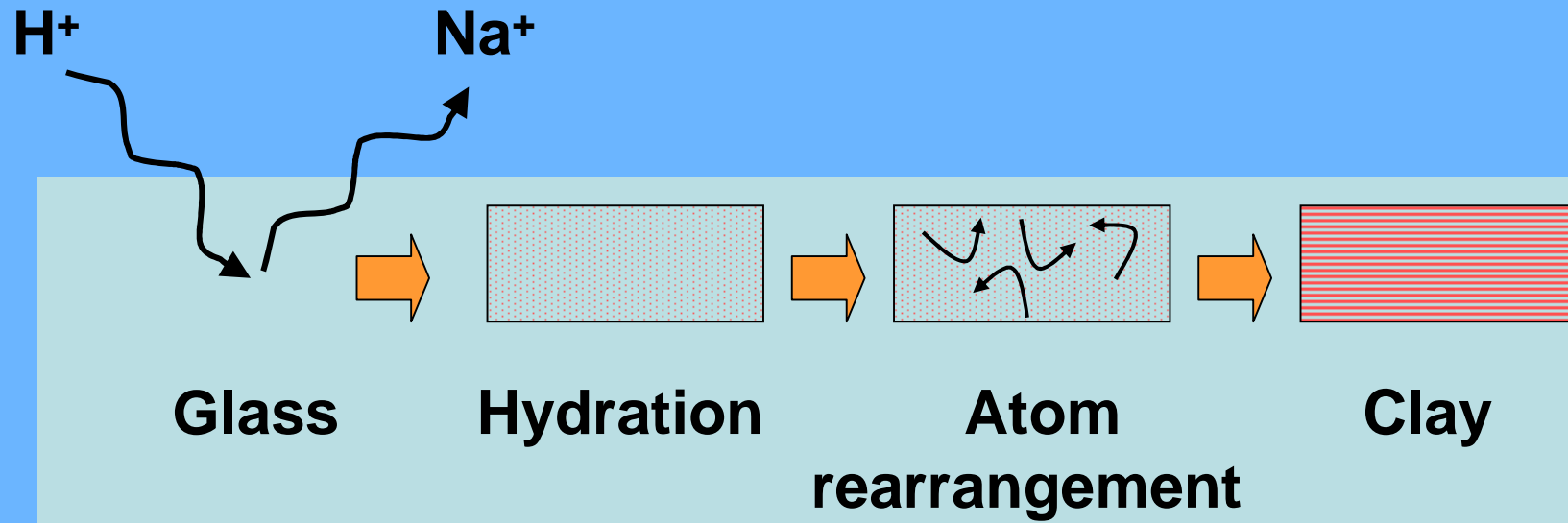
Glycol

Newmod simulation



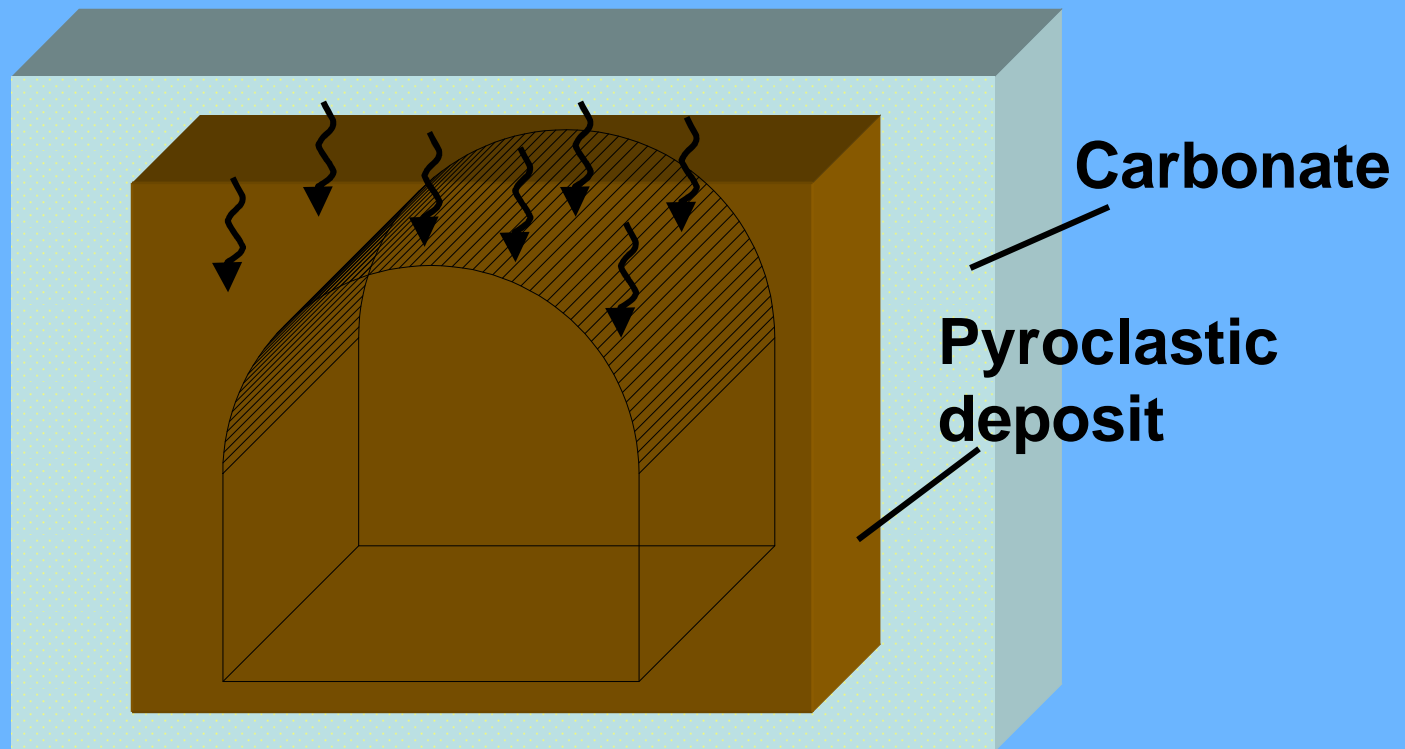
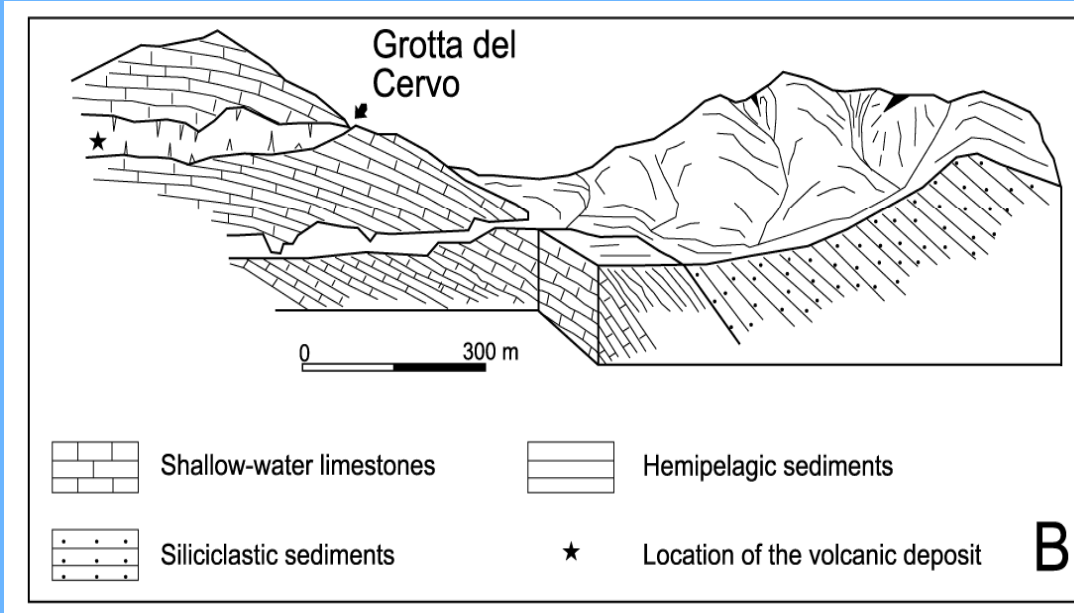


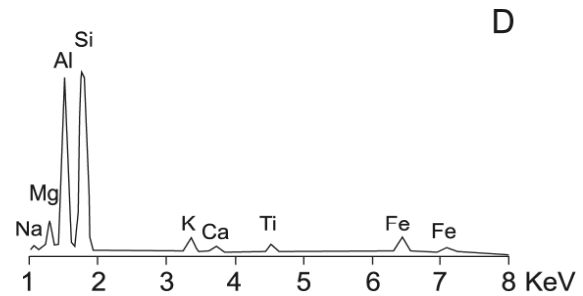
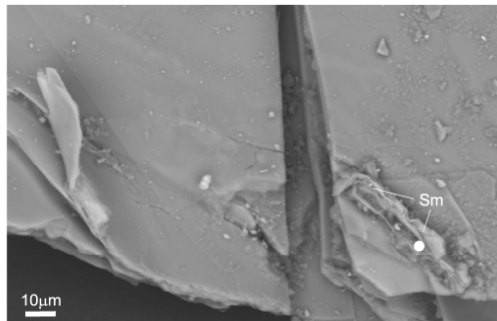
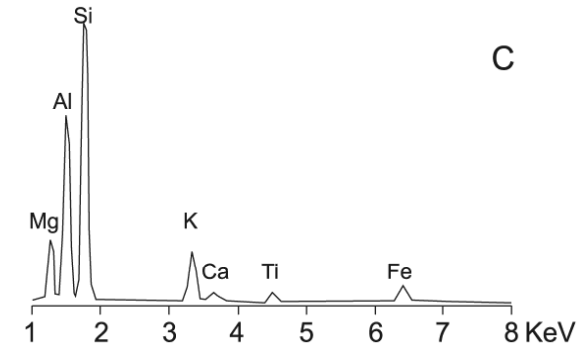
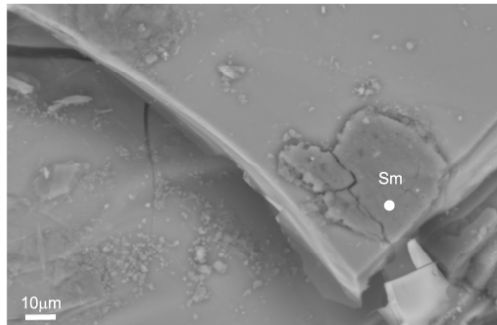
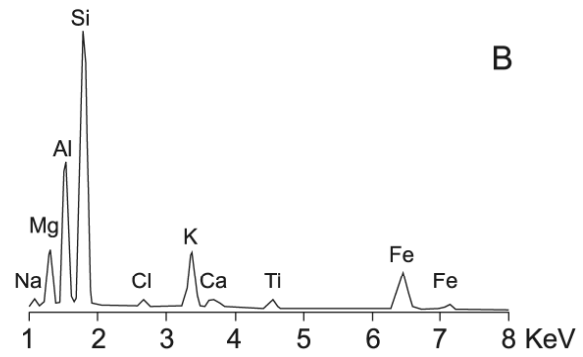
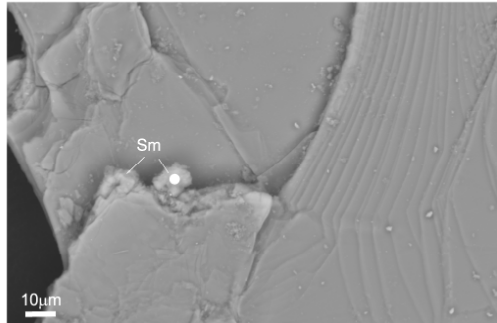
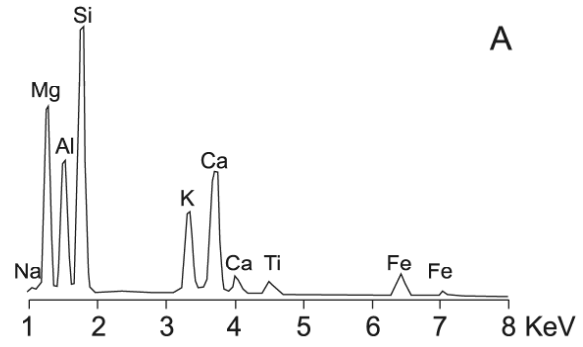
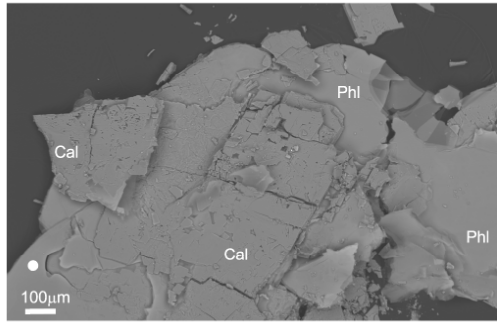
# Solution

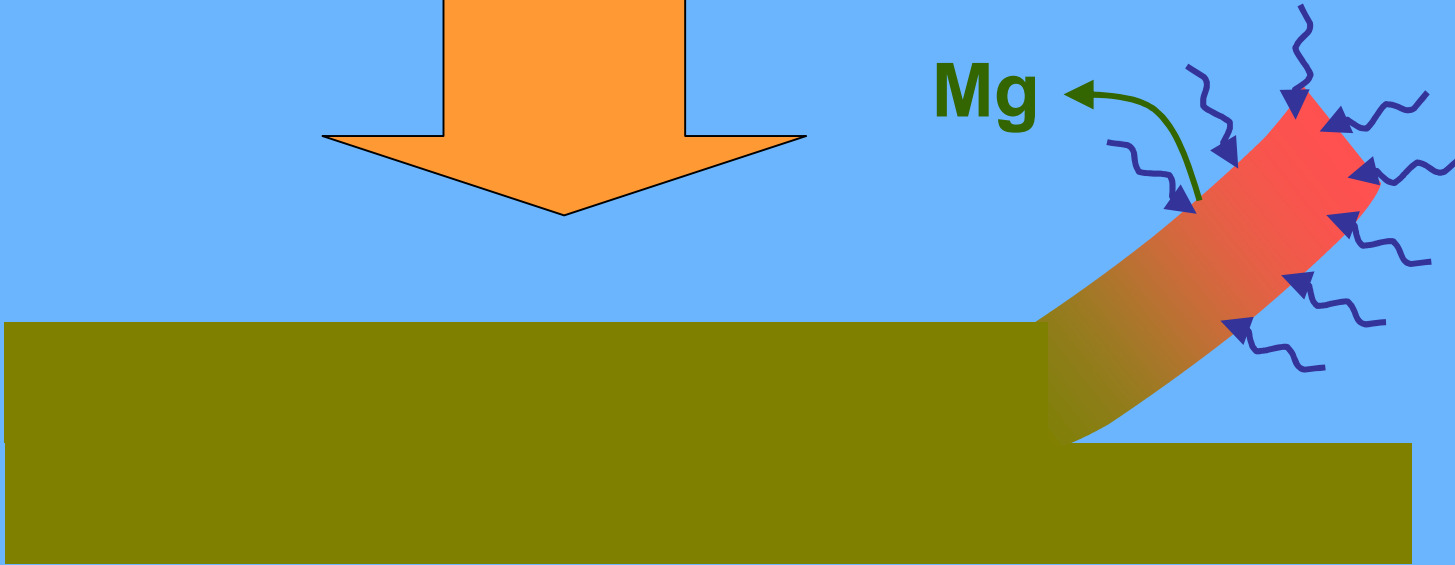
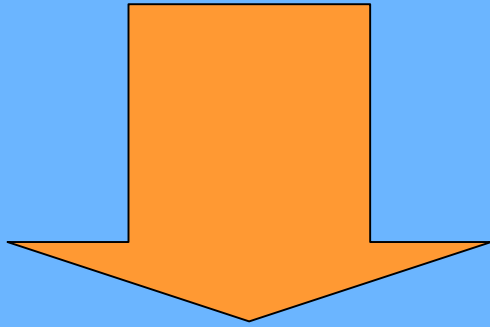
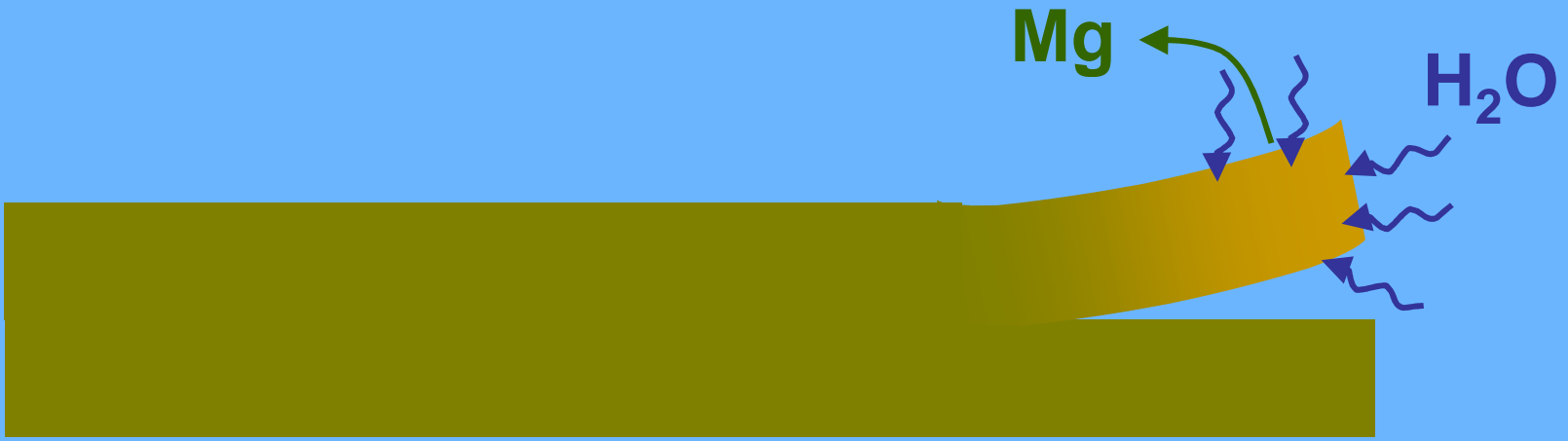


# **Alteration of phlogopite in a karstic environment:**

**Water control**

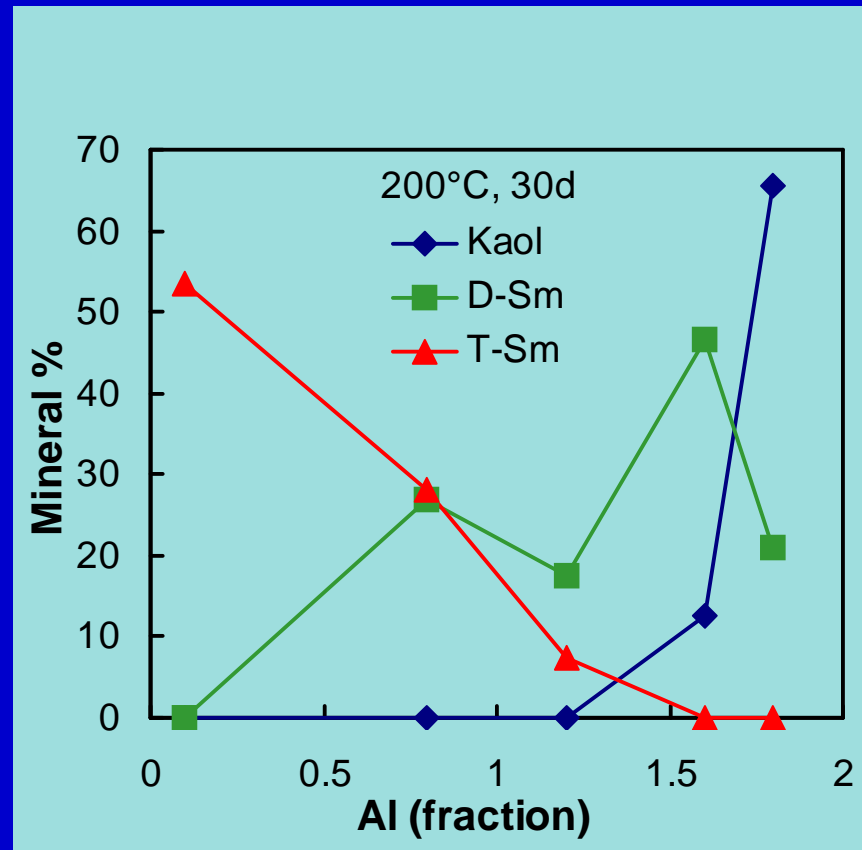




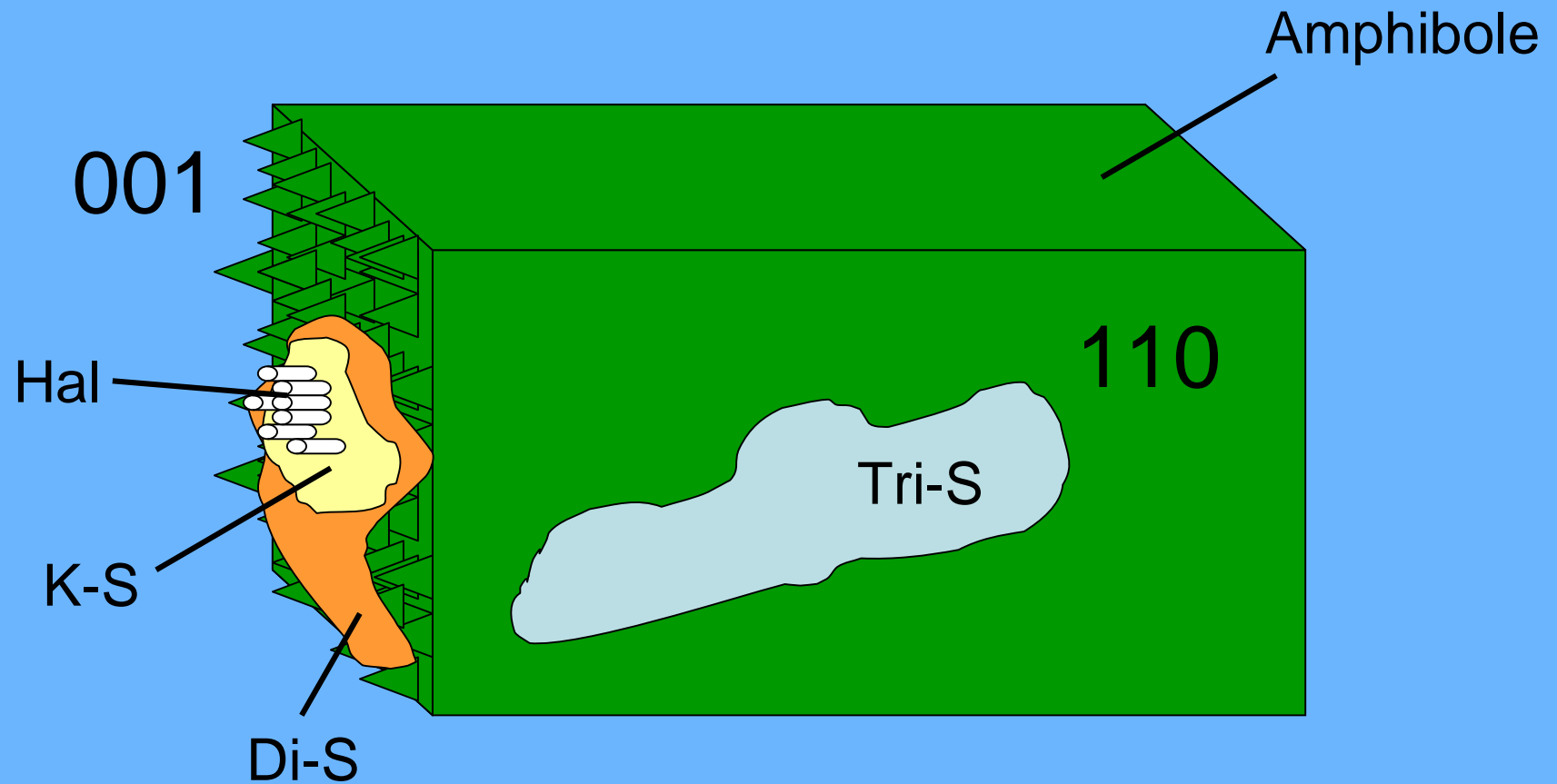


# **Formation of Mg-rich clay**

# Clay synthesis from gels

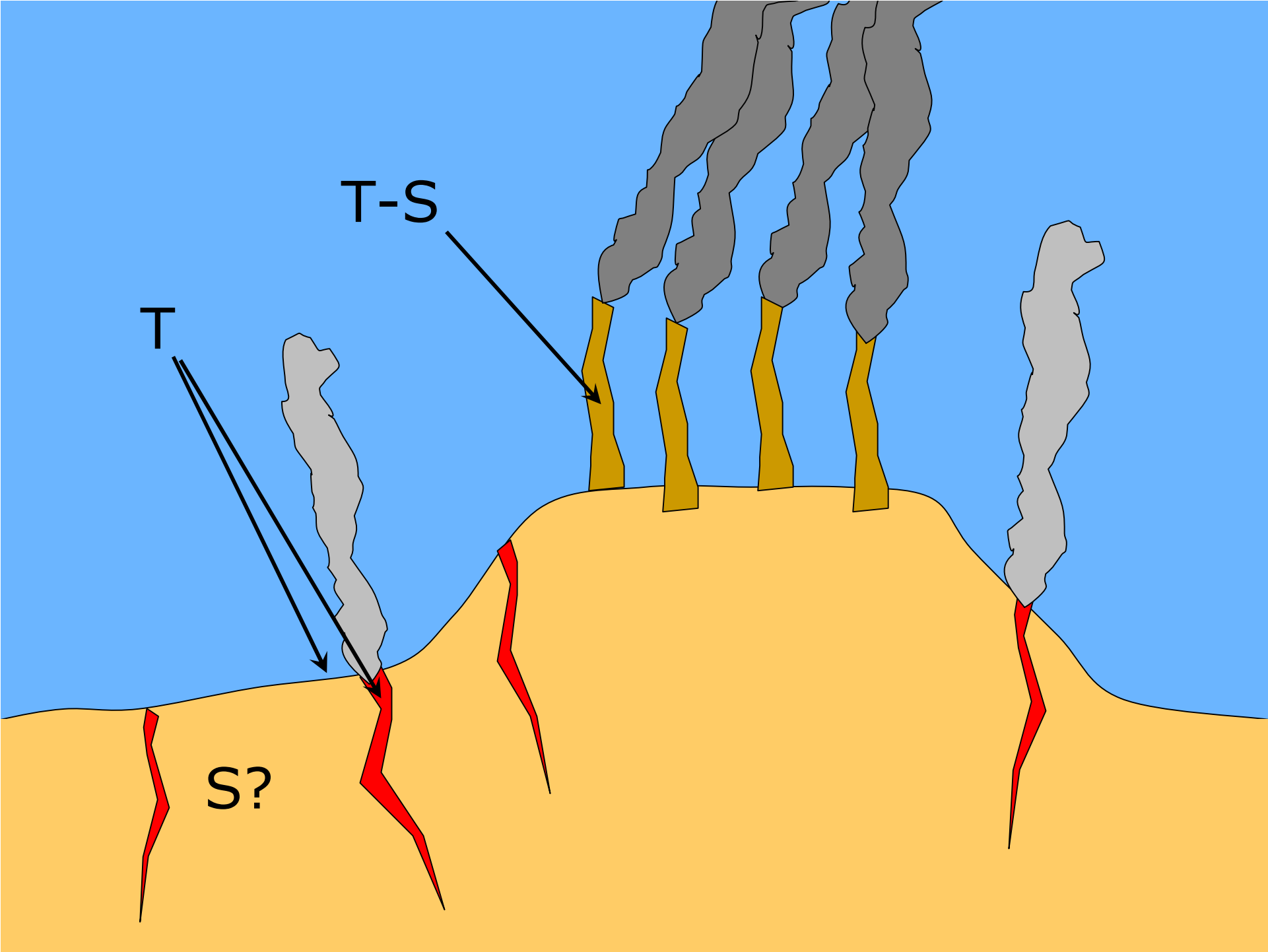


# Proust et al., 2006, CCM







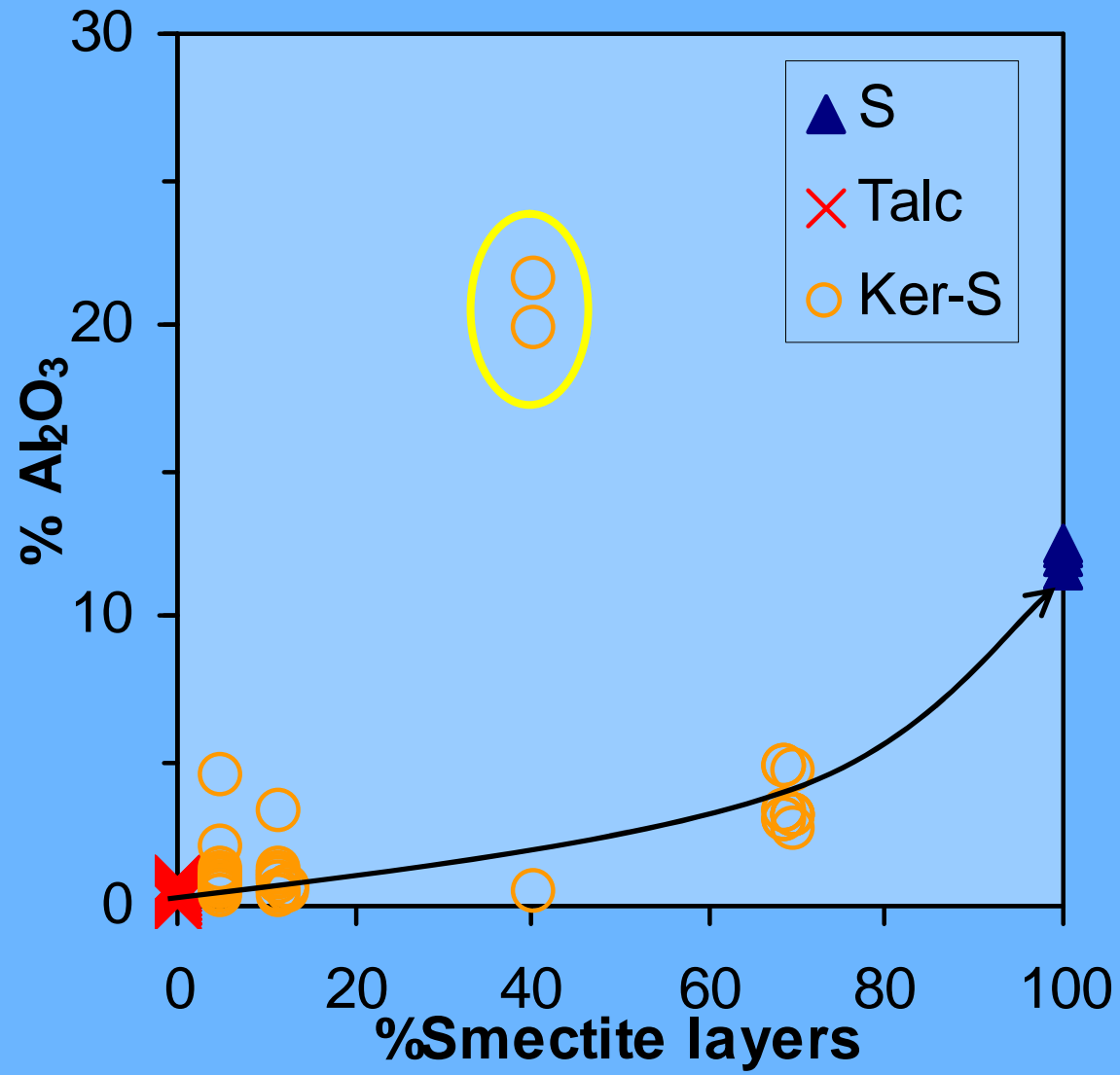




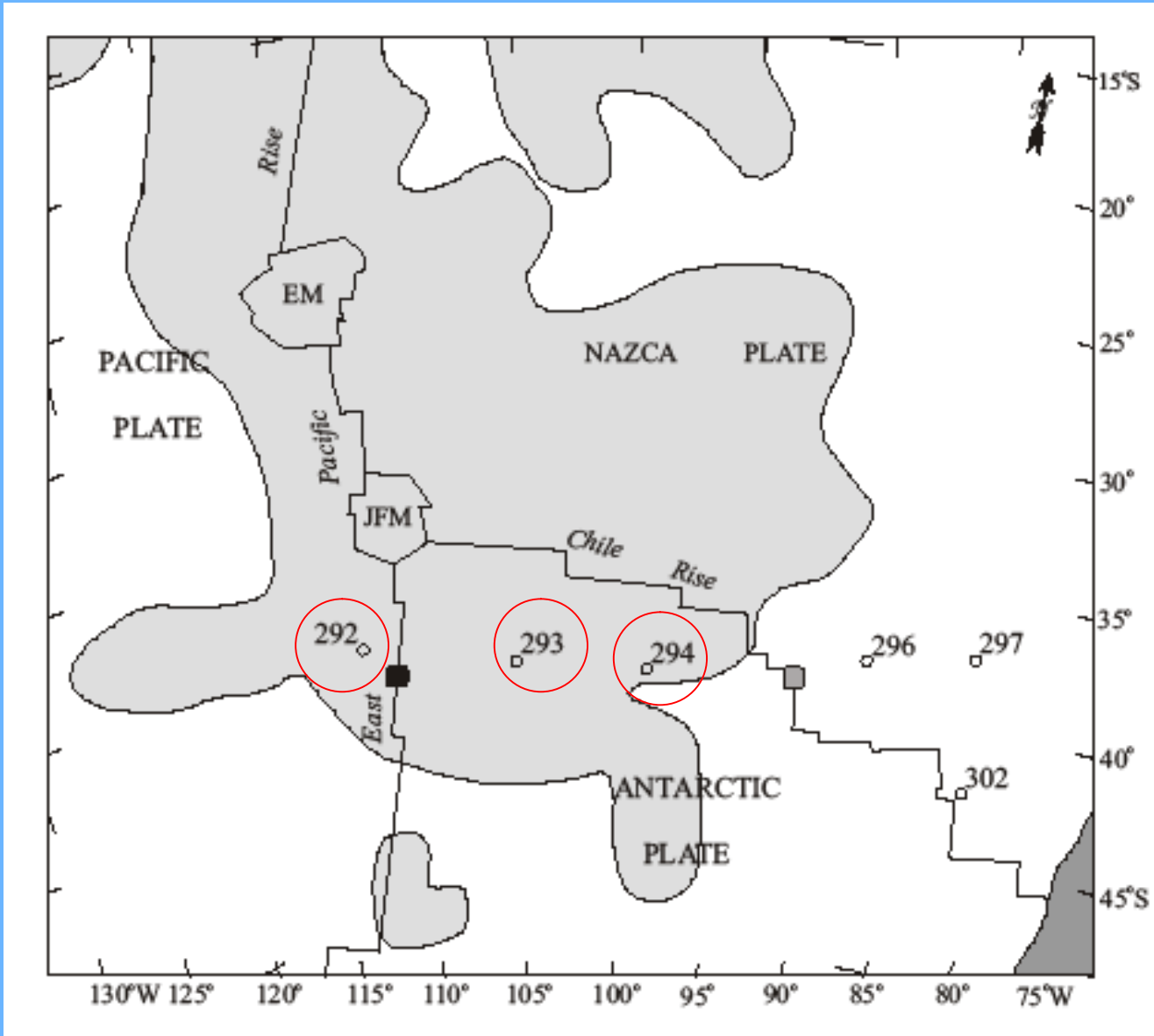
T-S

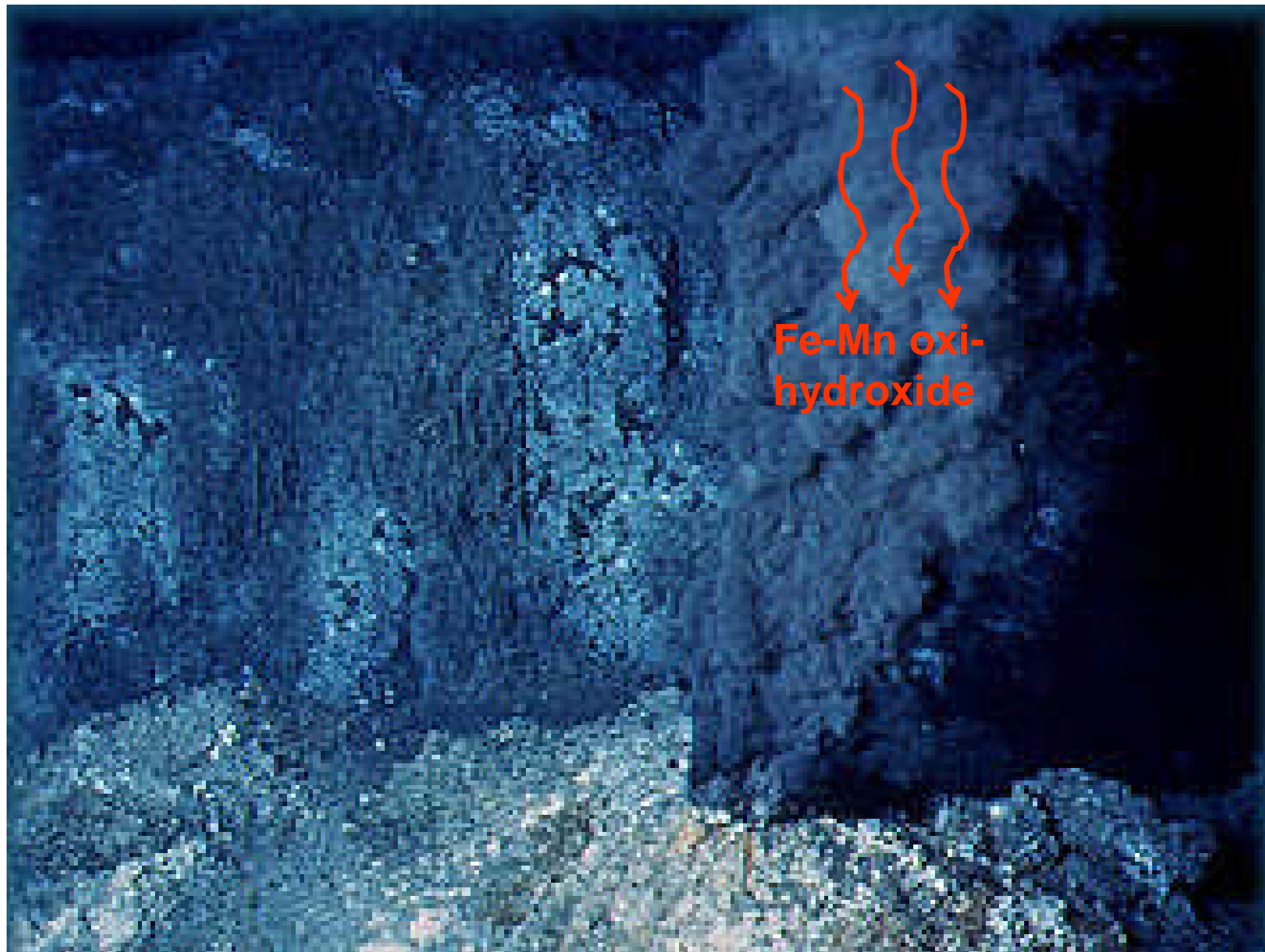


# Microprobe analysis

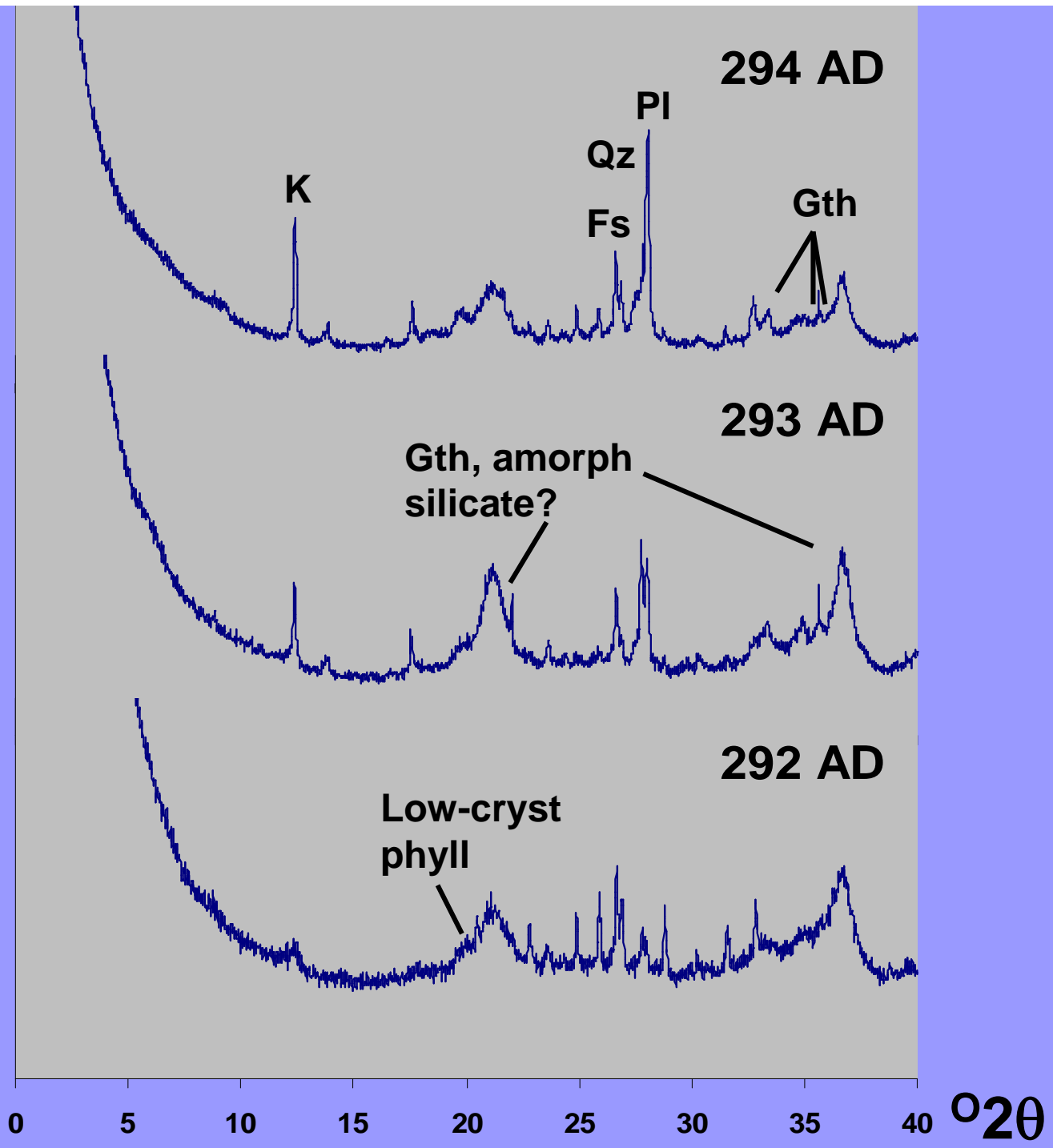


# **Formation of Fe-rich clay**

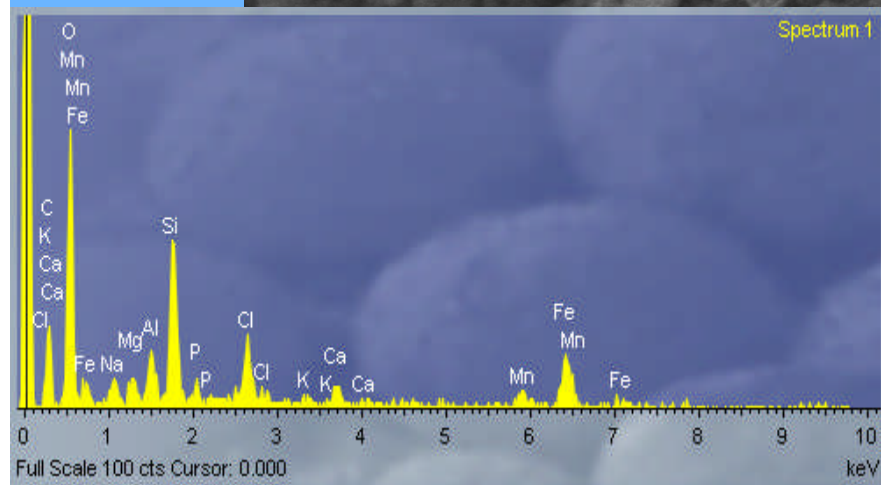
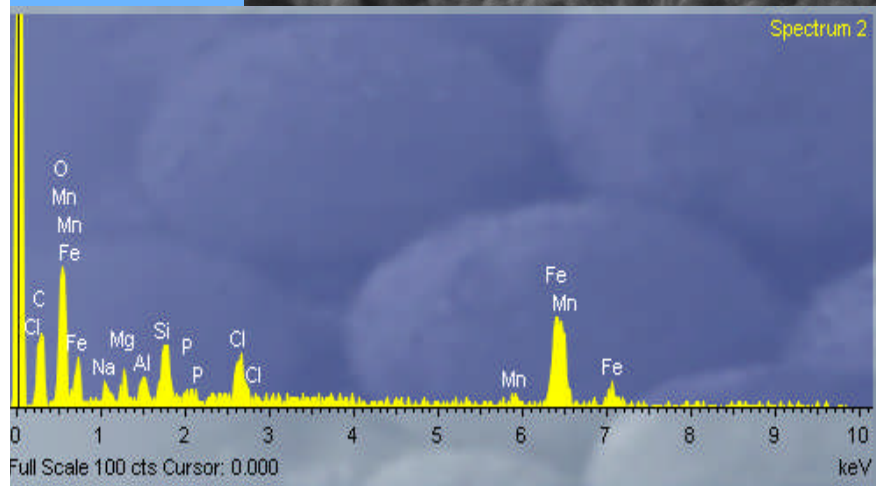




Fe-Mn oxyhydroxide



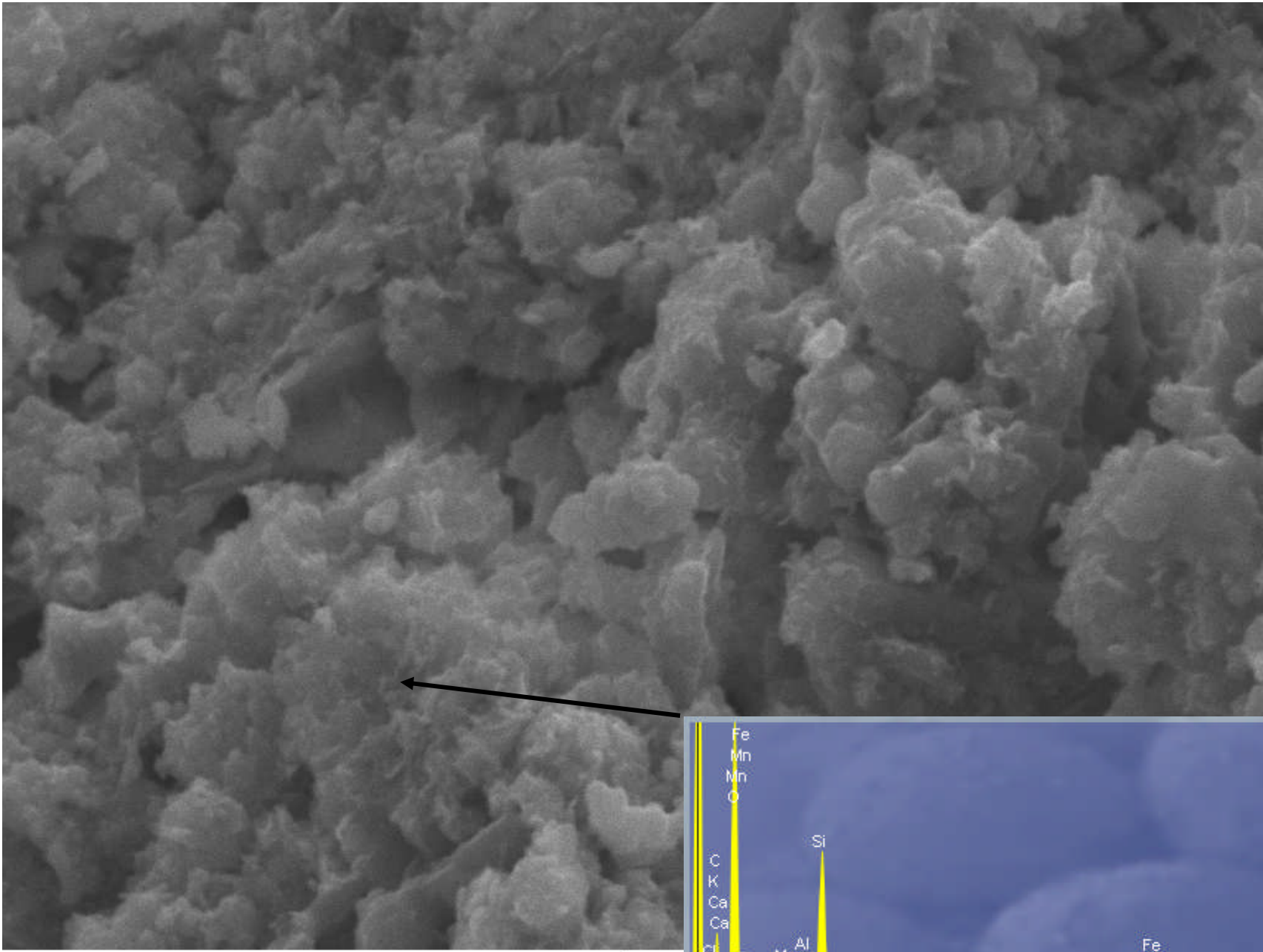




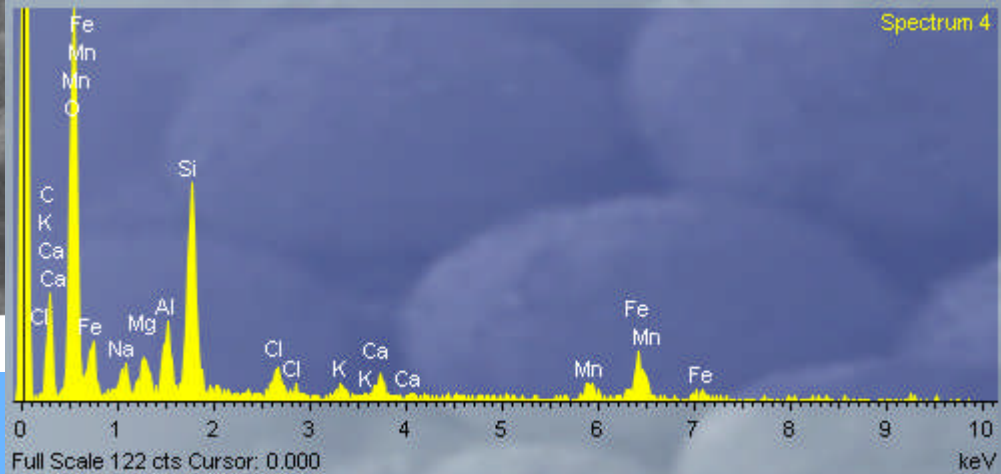
Spectrum 2

Spectrum 1

60µm



20µm



**Si** Mg Al

**Fe** Mn

**Si** Al...

**Nontronite.....Montmorillonite**

