

Sarah Lambart - 2016

LECTURE 13: MAGMATIC SERIES



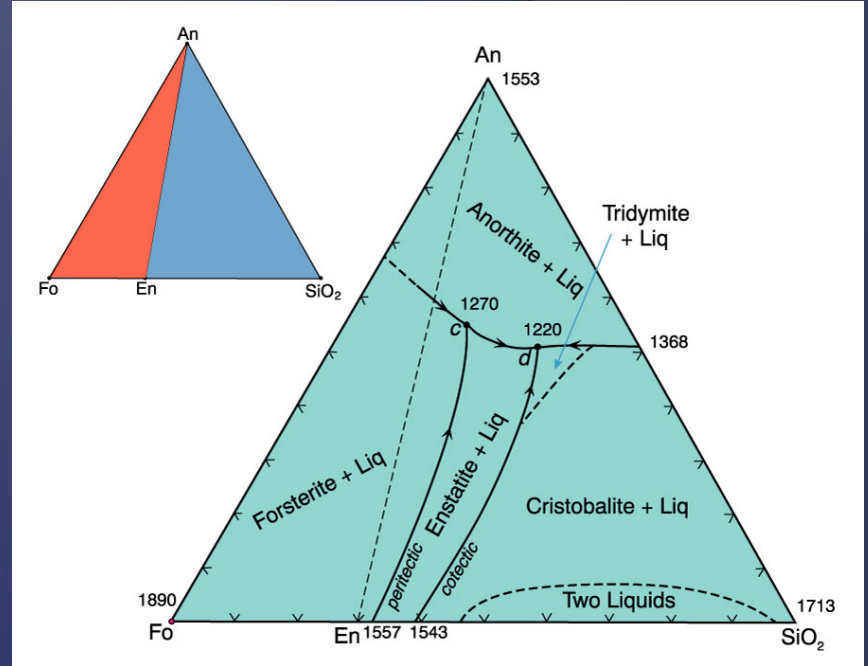
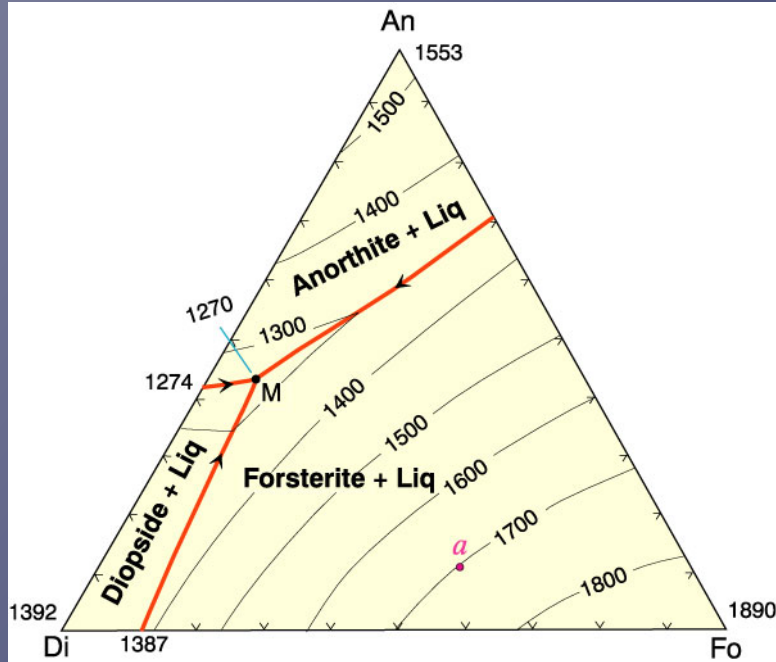
Recap Lecture 10-12

- Work at const. $P \Rightarrow$

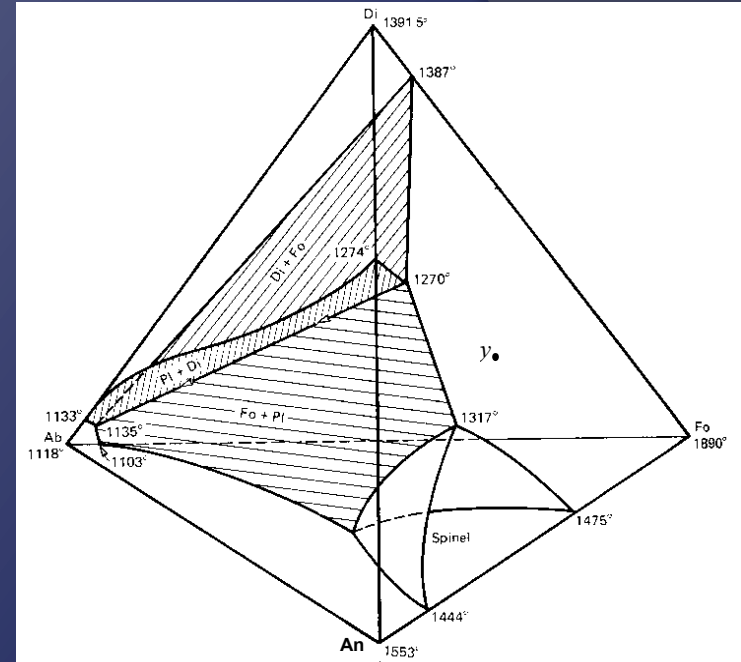
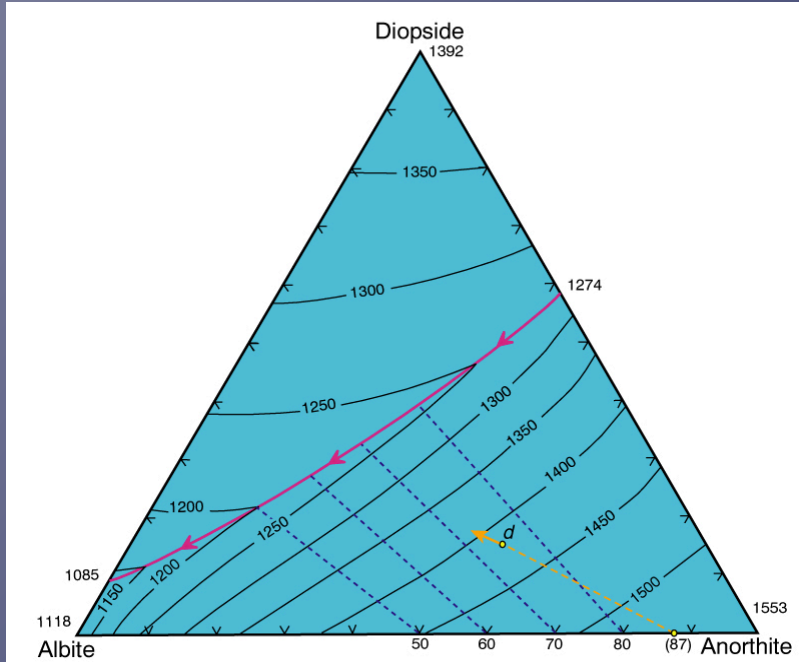
Reduced Gibbs phase rule: $f = c + 1 - \Phi$

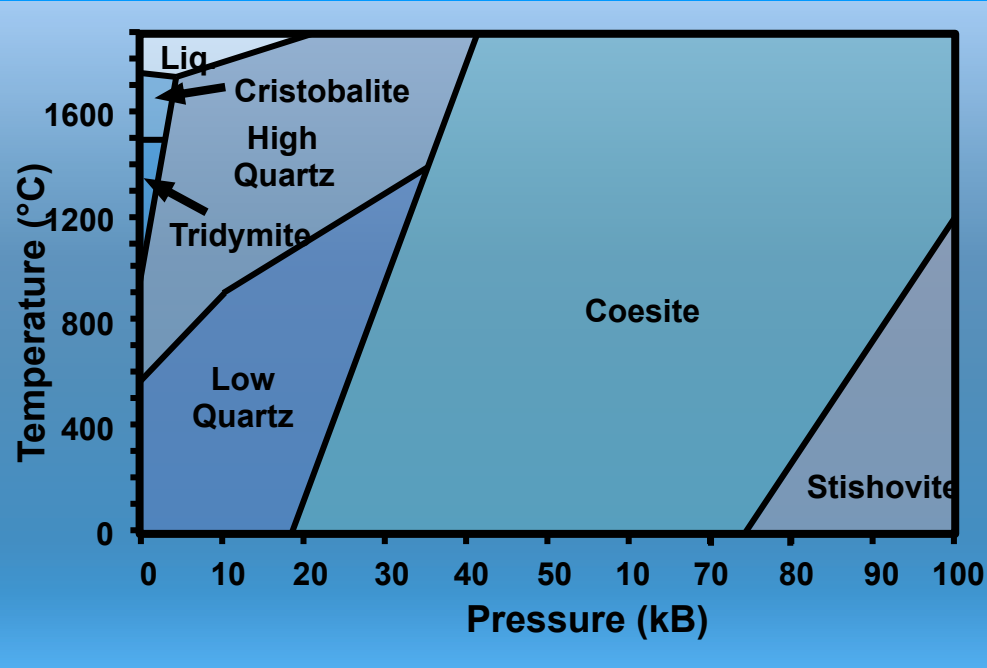
- Three component systems $\Rightarrow \Phi_{\max} = 4$
- 2 different cases:
 - System with eutectic
 - System with solid solution

Recap Lecture 10-12



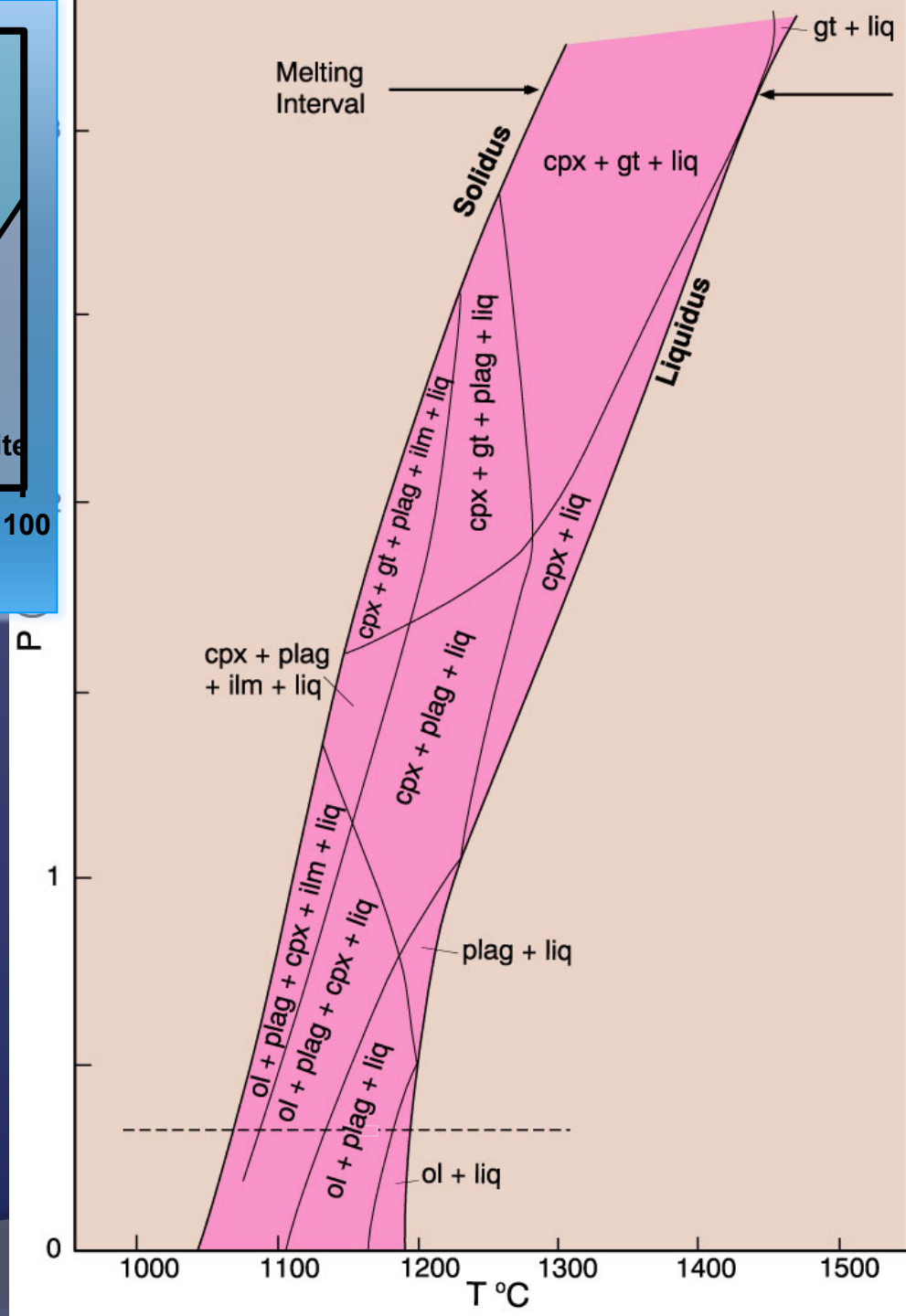
Recap Lecture 10-12



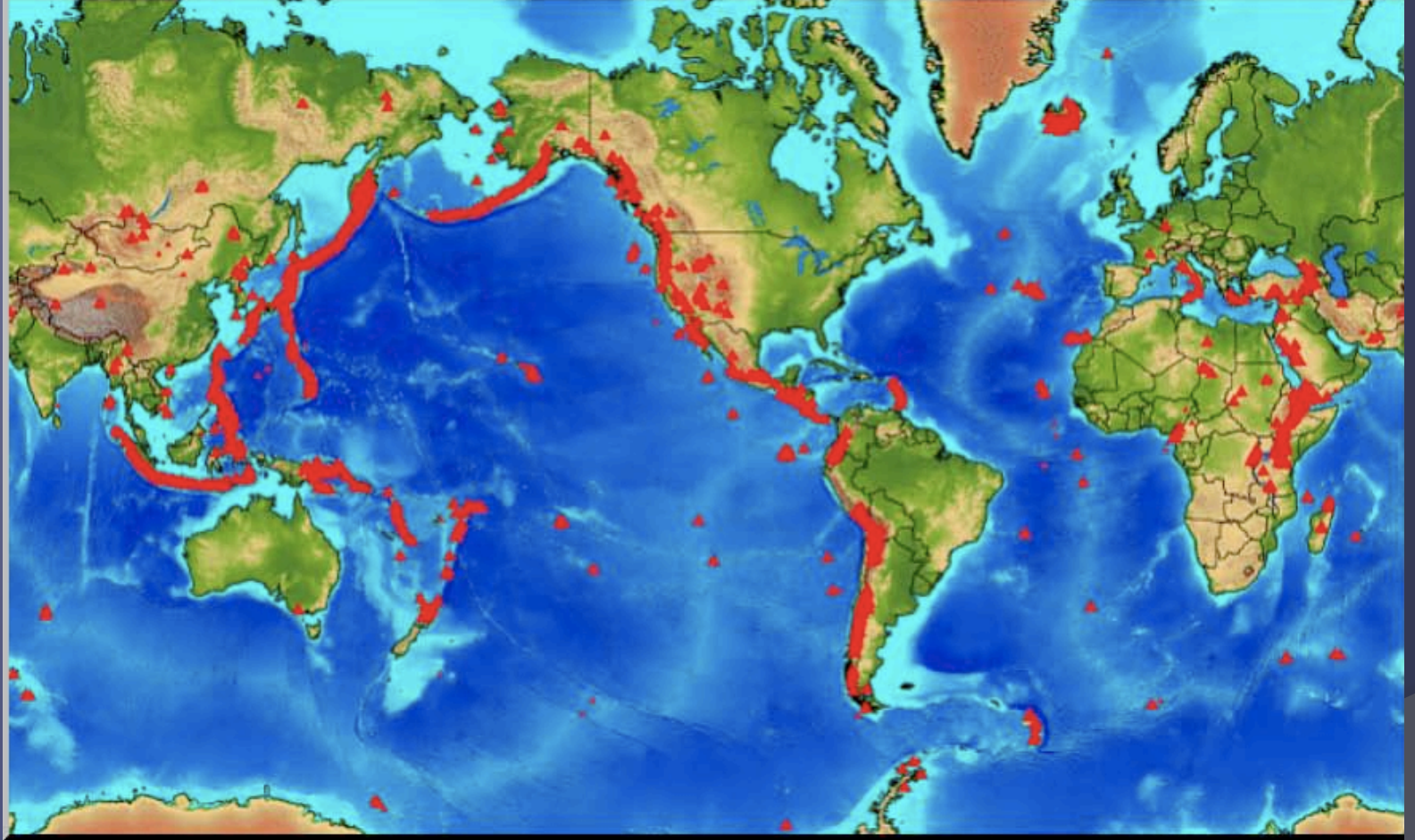


- Increase of $P \Rightarrow$ Increase of melting T
- Increase of the water pressure $\Rightarrow$ Decrease of melting T
- $\pm$ change of melting relation

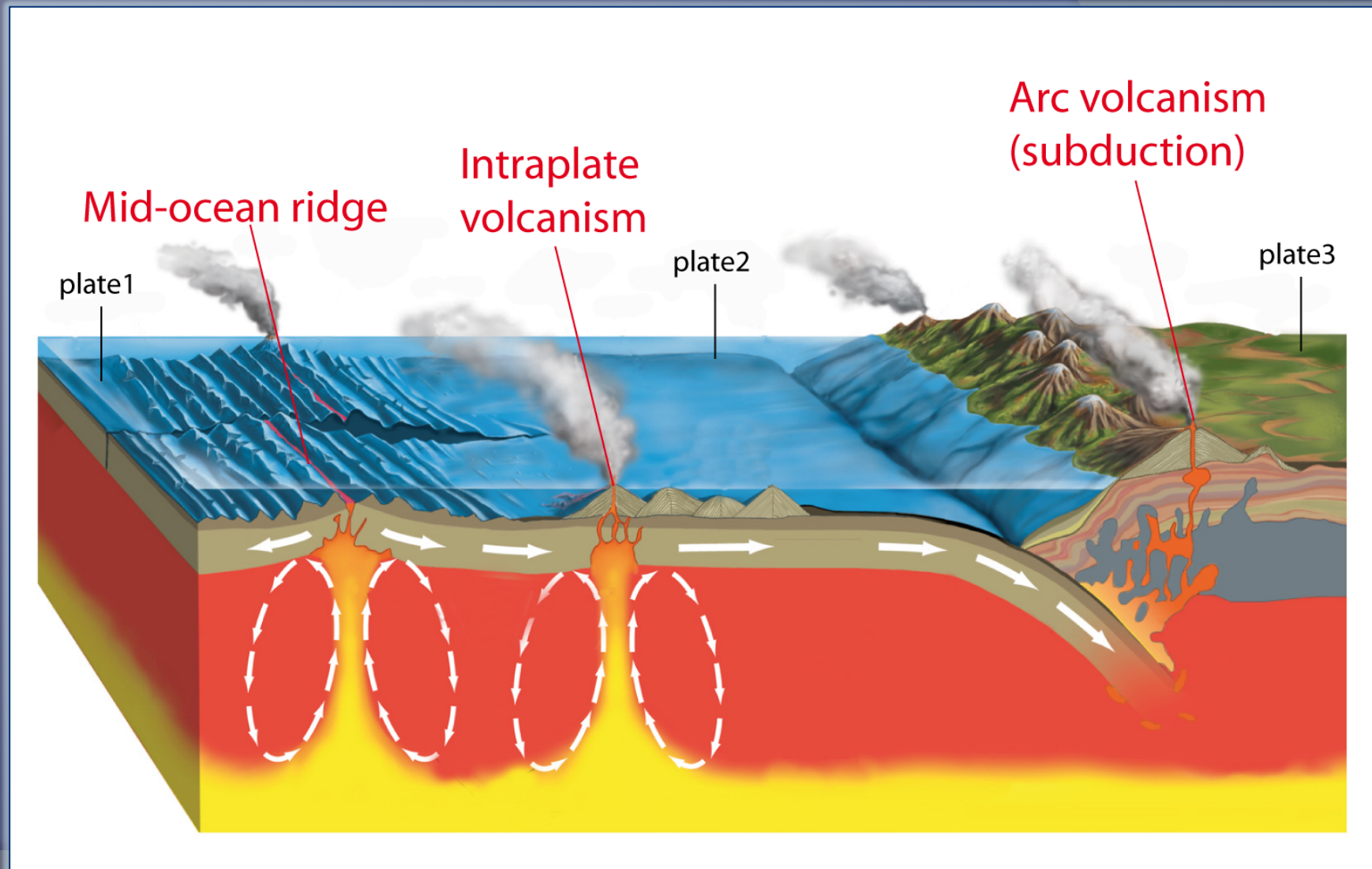
Fig. 7.13 - Winters



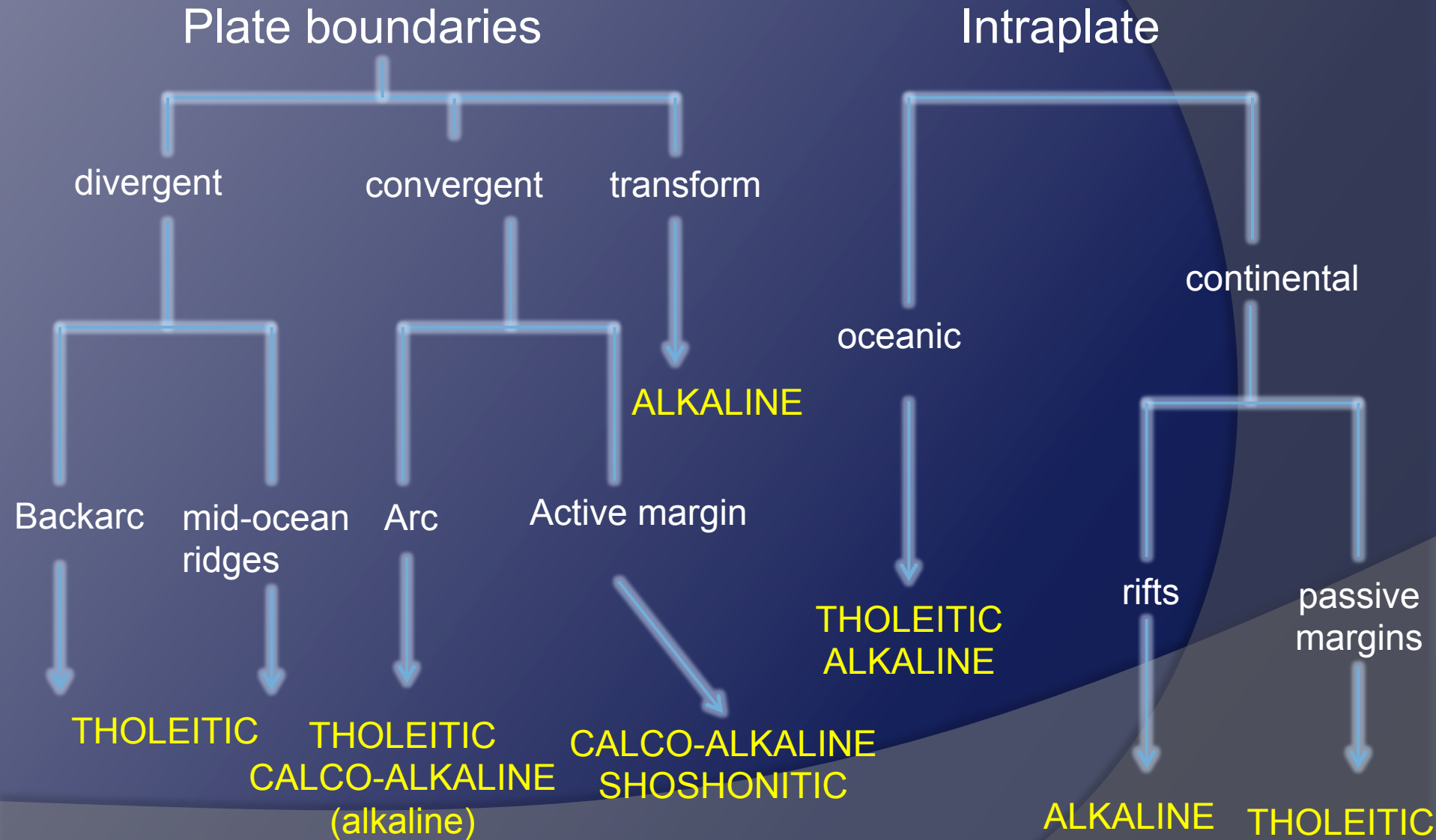
Magma series



Magma series

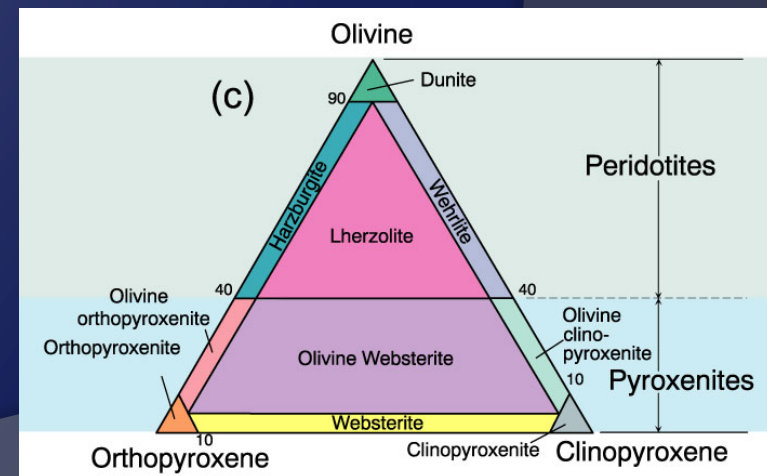
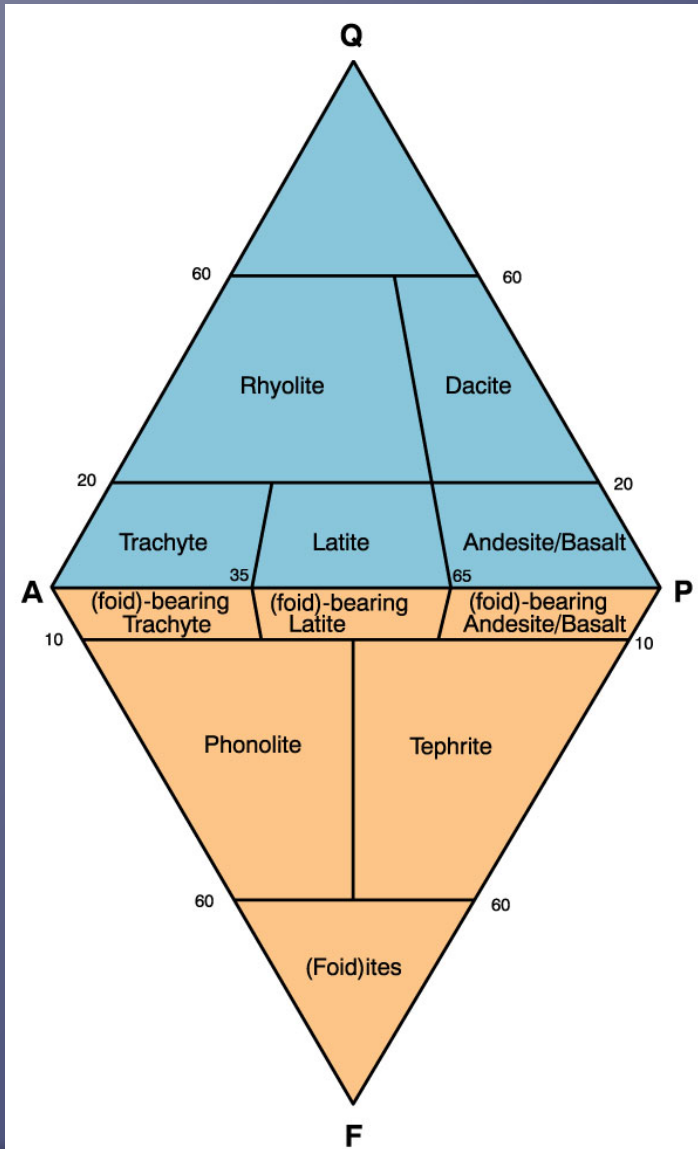


Current Magmatism



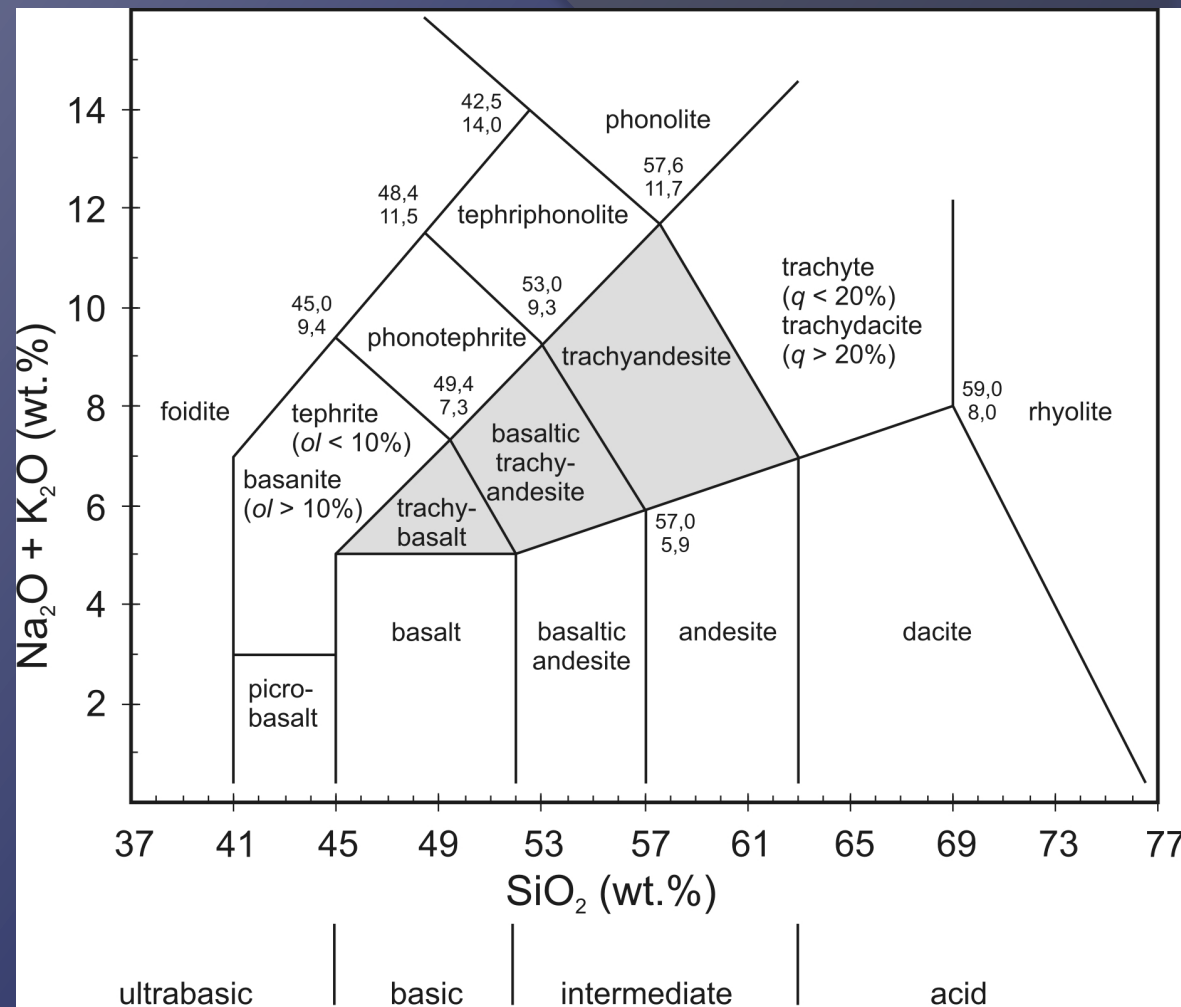
Classification

Plutonic rocks



Classification

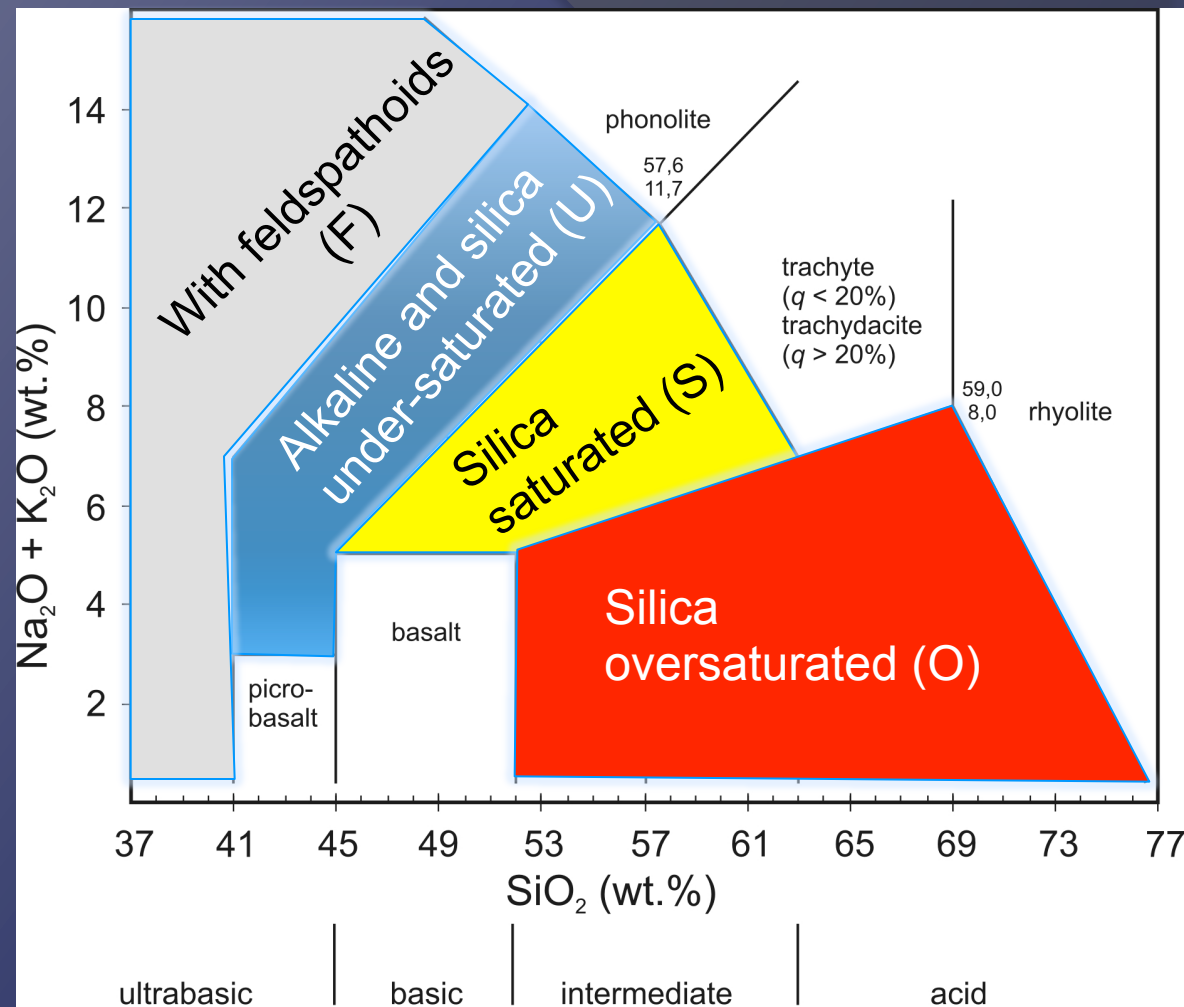
Volcanic rocks



Further subdivisions of shaded fields	trachybasalt	basaltic trachyandesite	trachyandesite
$\text{Na}_2\text{O} - 2.0 \geq \text{K}_2\text{O}$	hawaiiite	mugearite	benmoreite
$\text{Na}_2\text{O} - 2.0 \leq \text{K}_2\text{O}$	potassic trachybasalt	shoshonite	latite

Classification

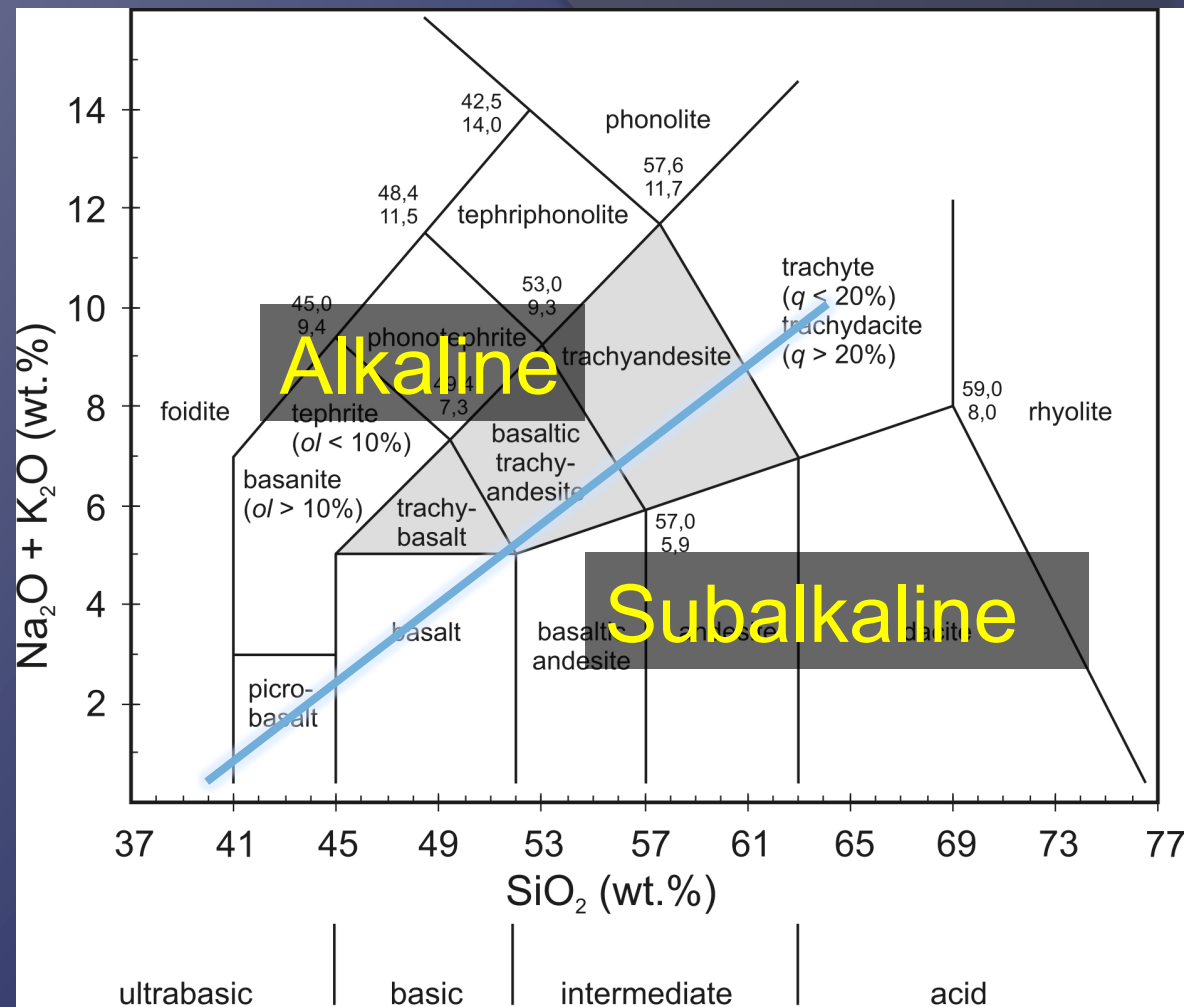
Volcanic rocks



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Classification

Volcanic rocks

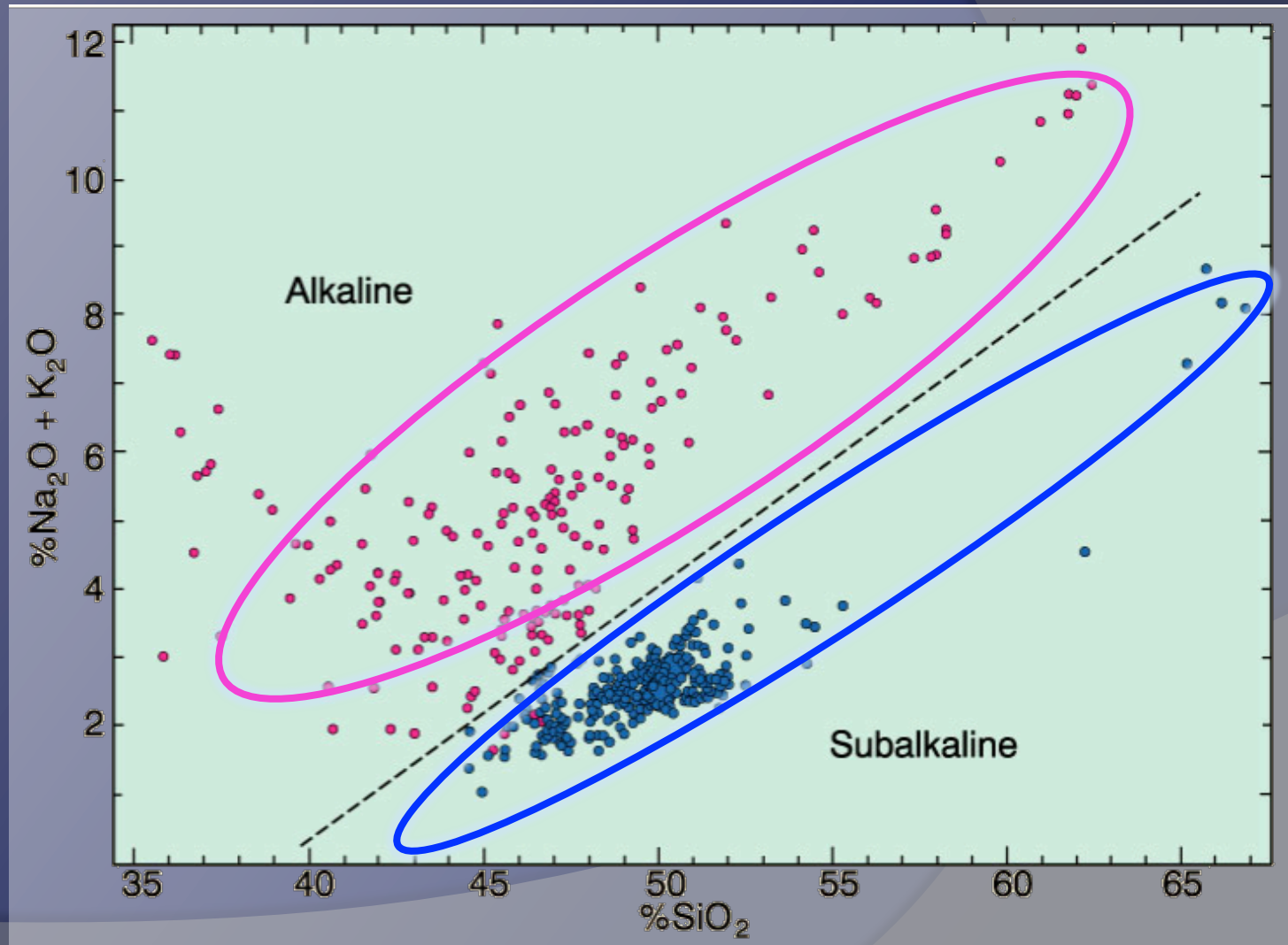


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Classification

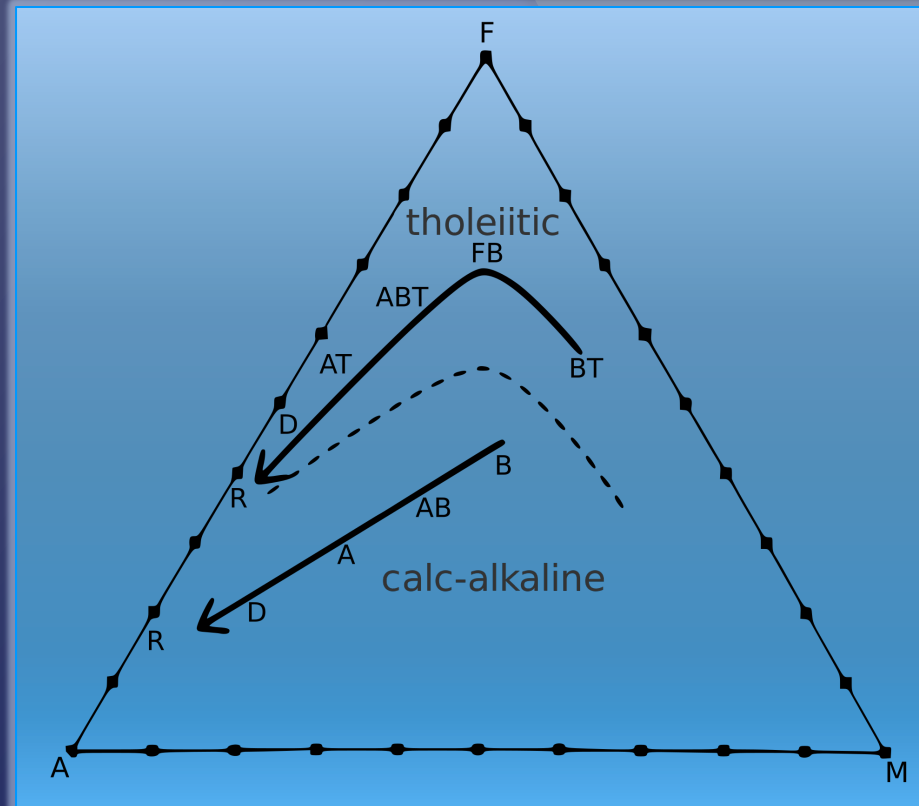
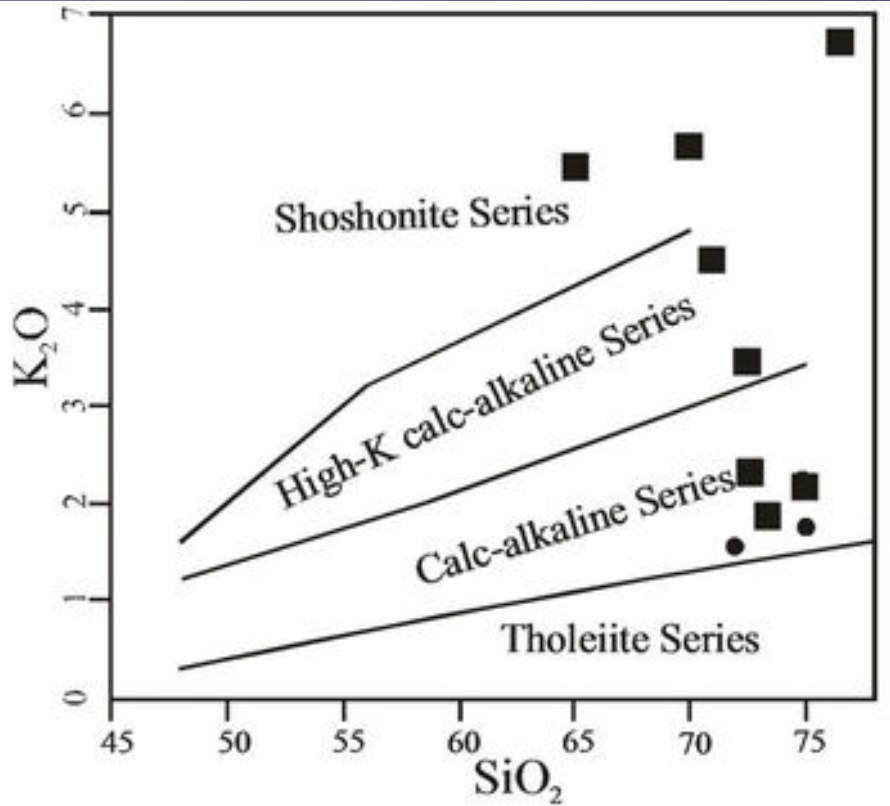
Volcanic rocks

Fig. 8.11 in Winters

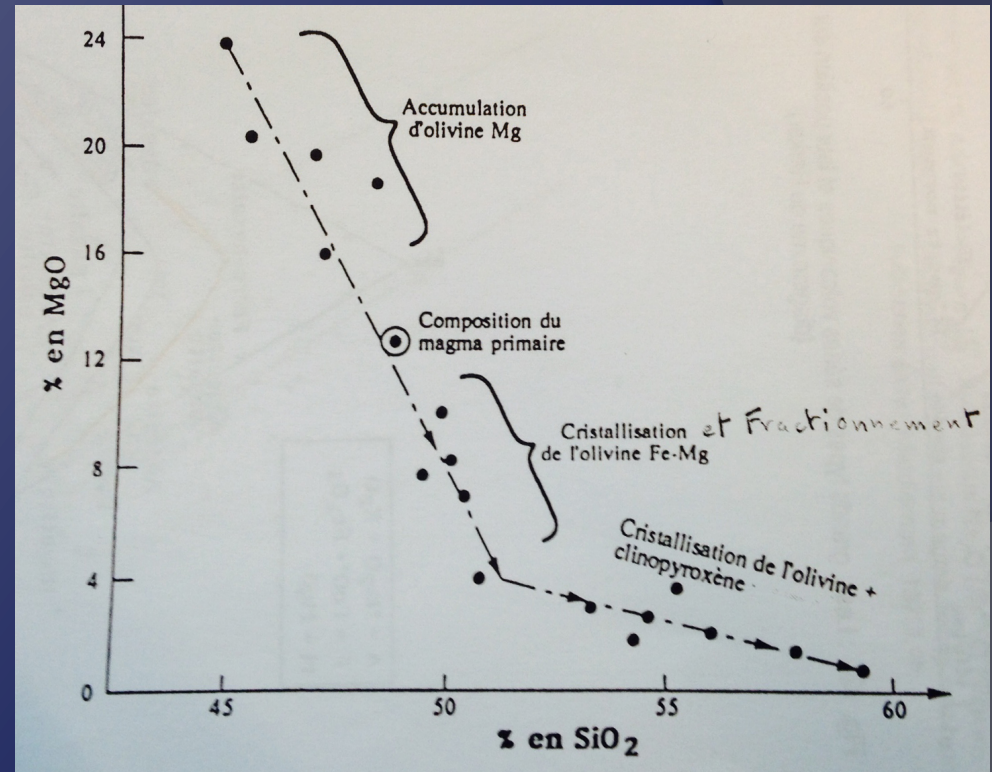
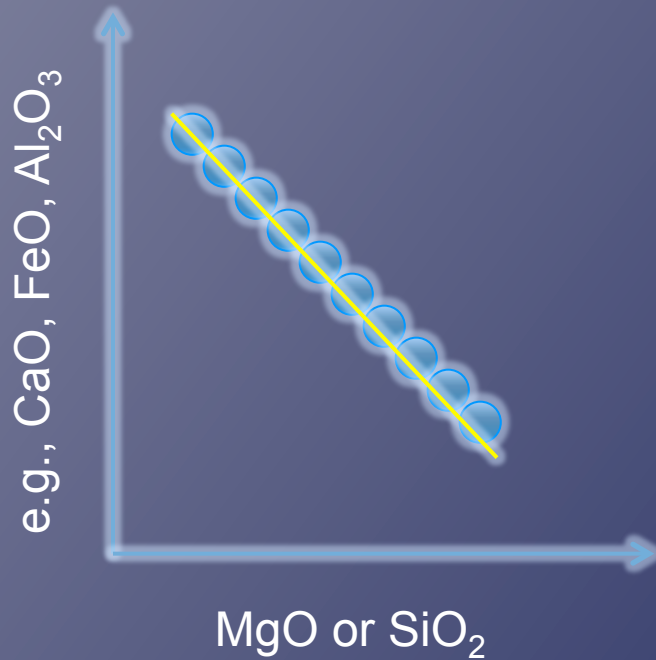


Classification

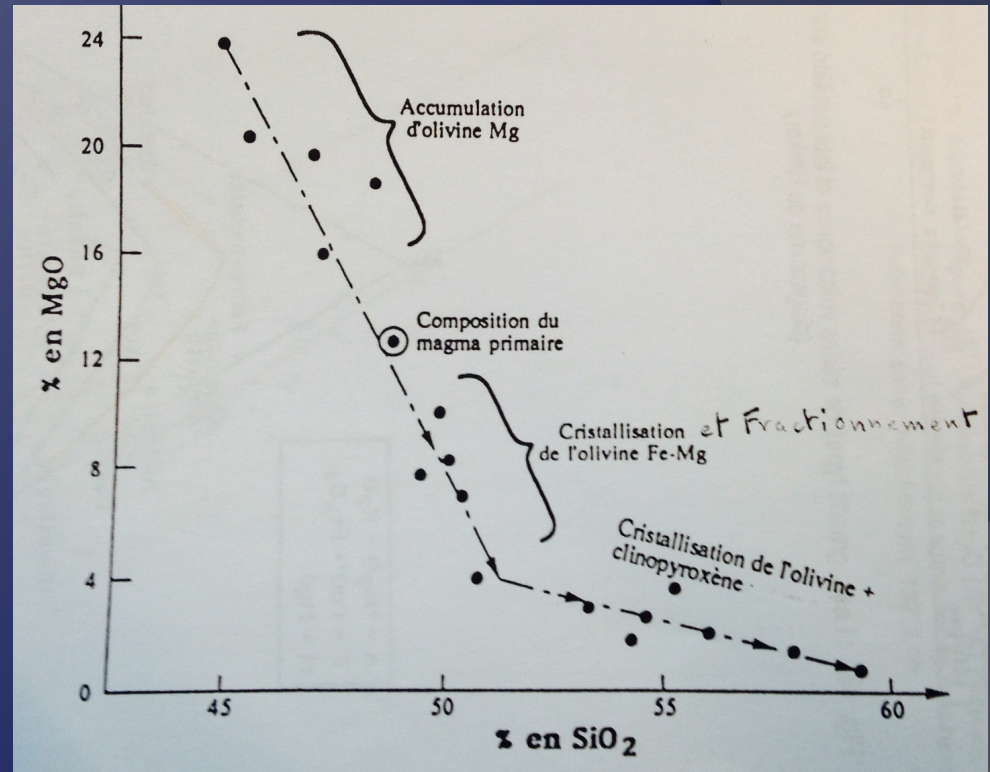
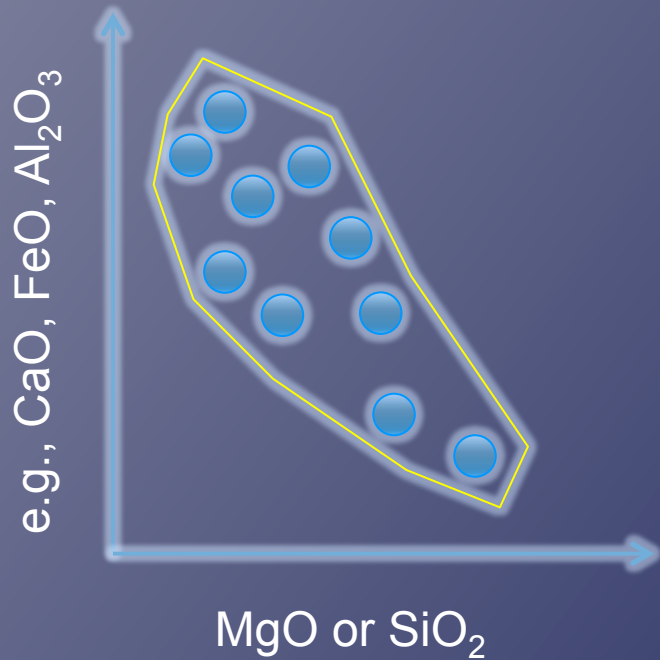
Volcanic rocks



Major elements: **Harker** diagrams



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Major elements: **Harker** diagrams

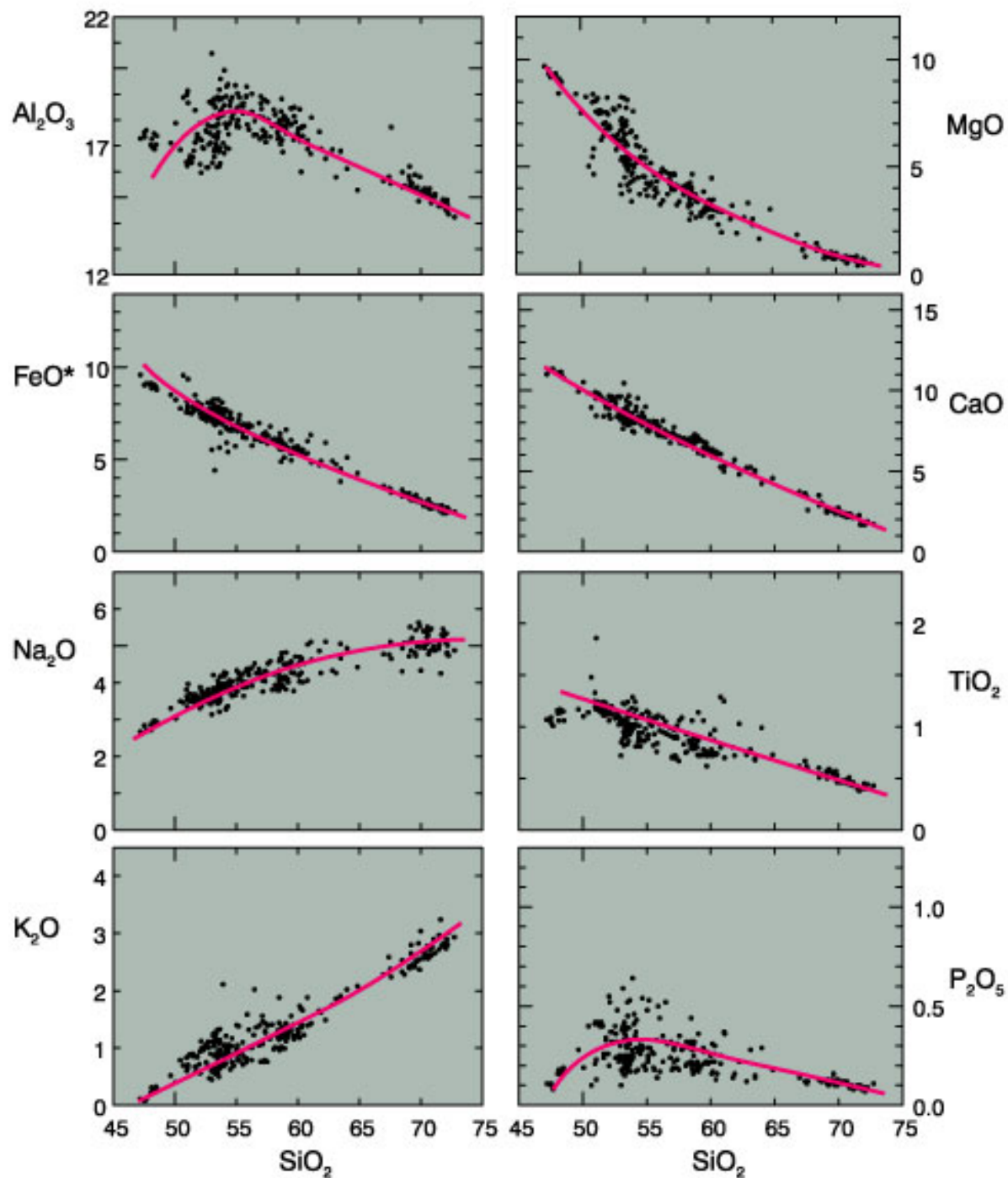


Fig. 8.2 in Winters

Fig. 8.3 in Winters

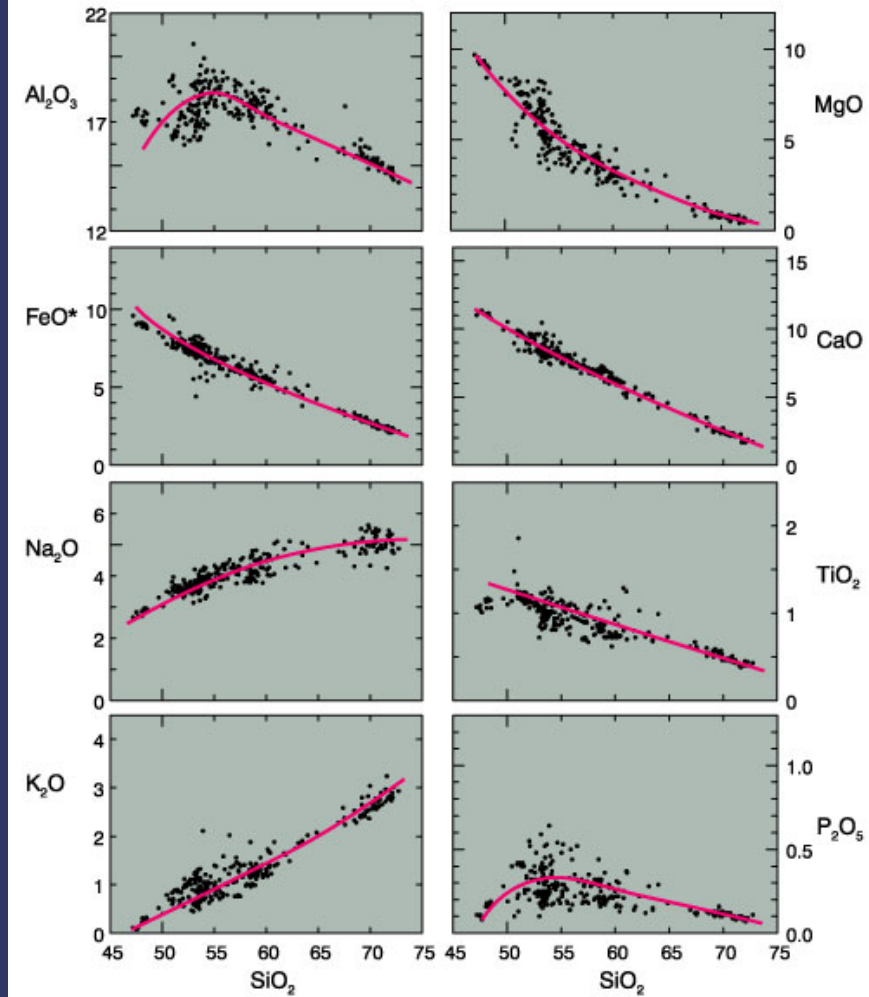
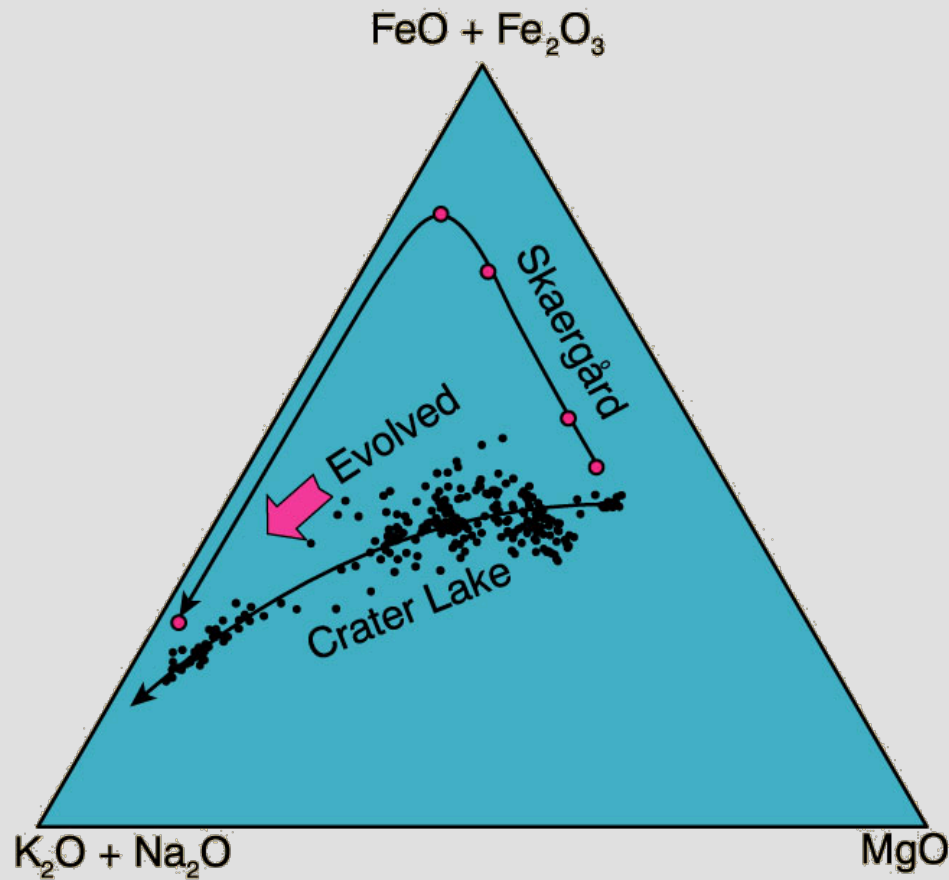
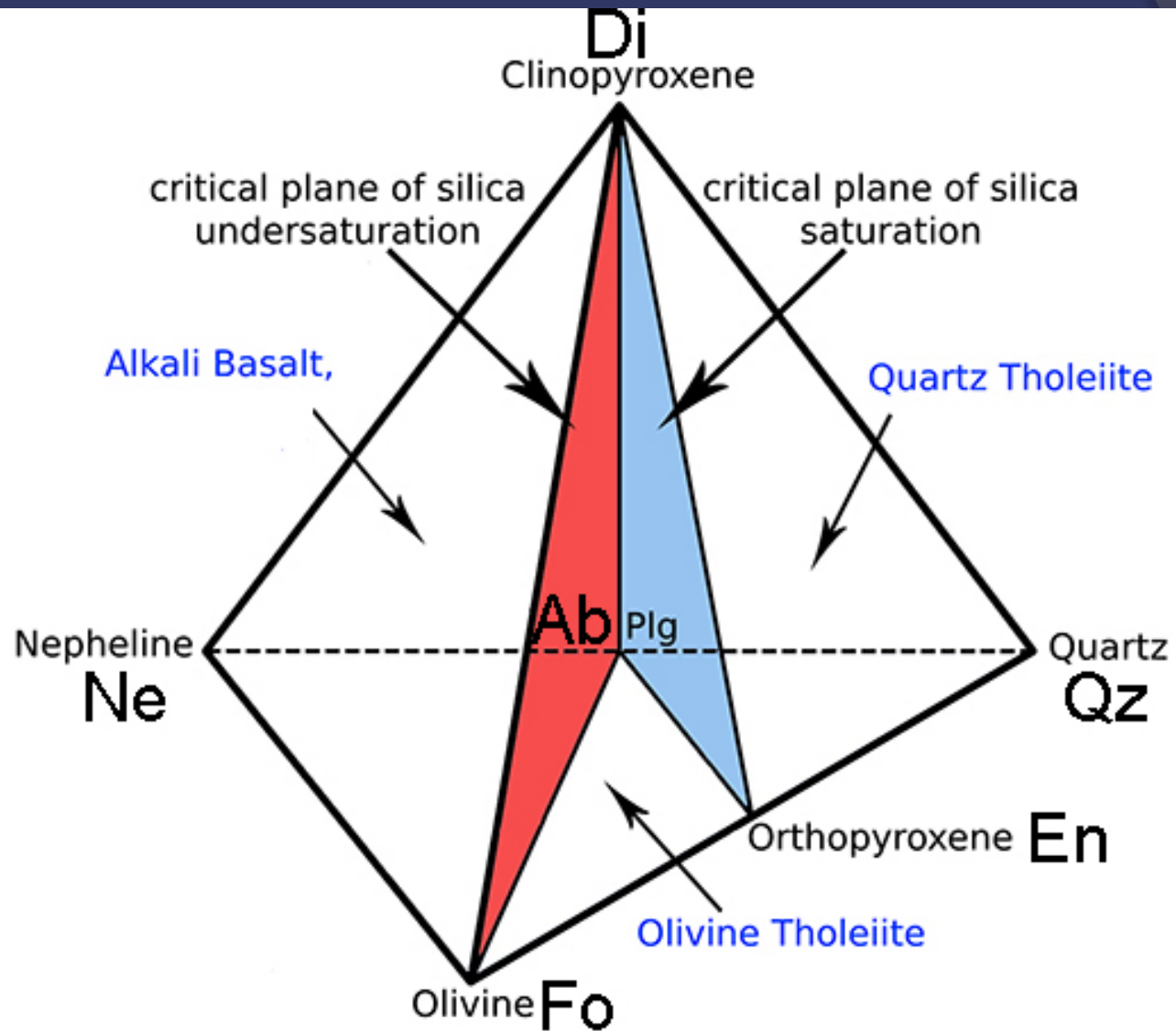
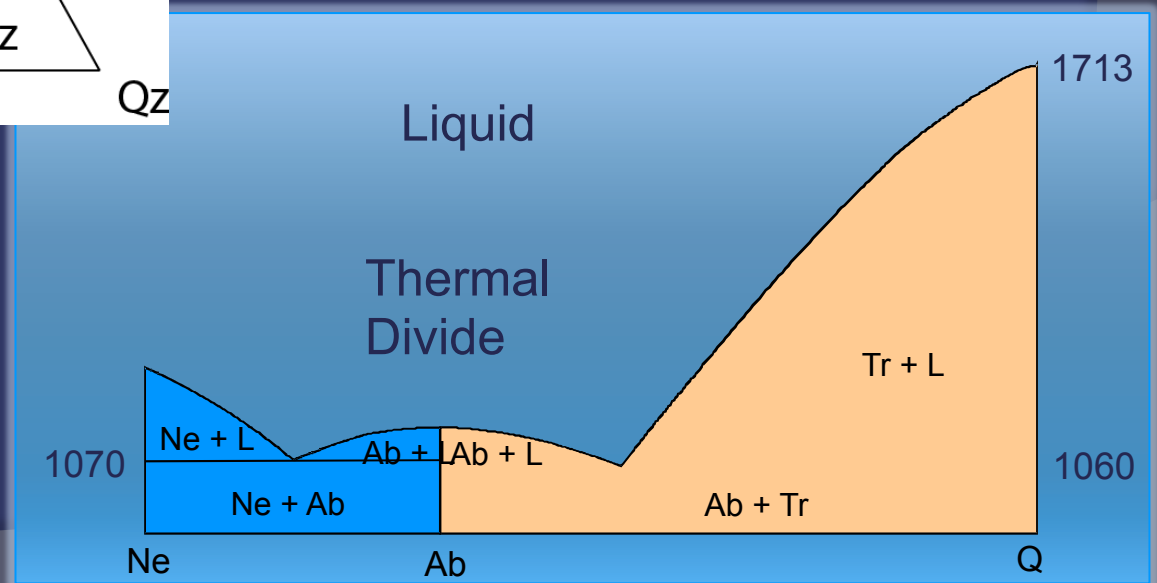
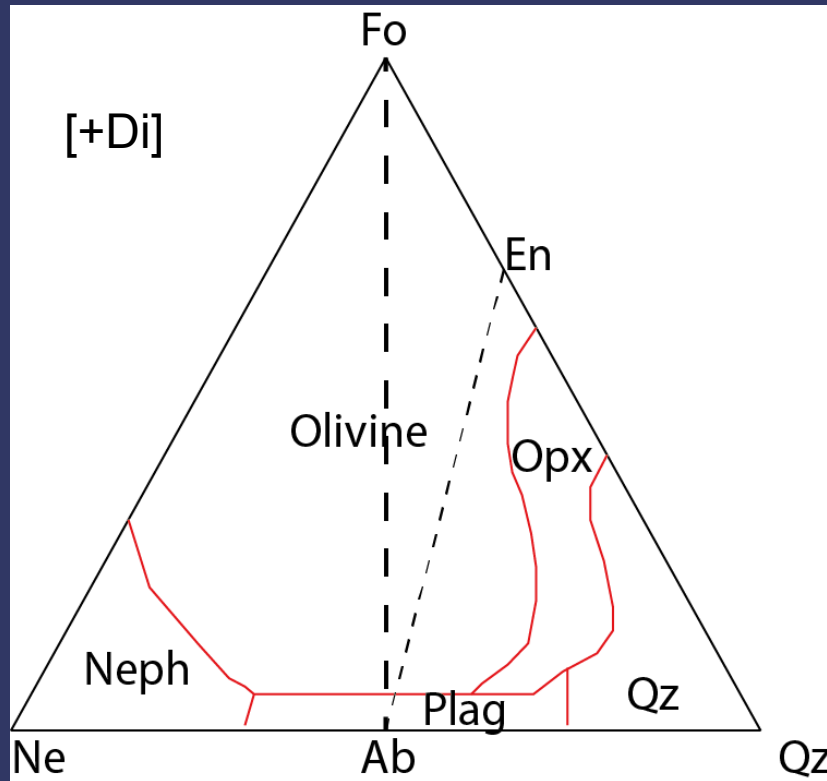


Fig. 8.2 in Winters

Basalt Tetrahedron



Basalt Tetrahedron



NEXT TIME

Trace elements

TO READ:

Chapters 9

FIGURE PRESENTATION