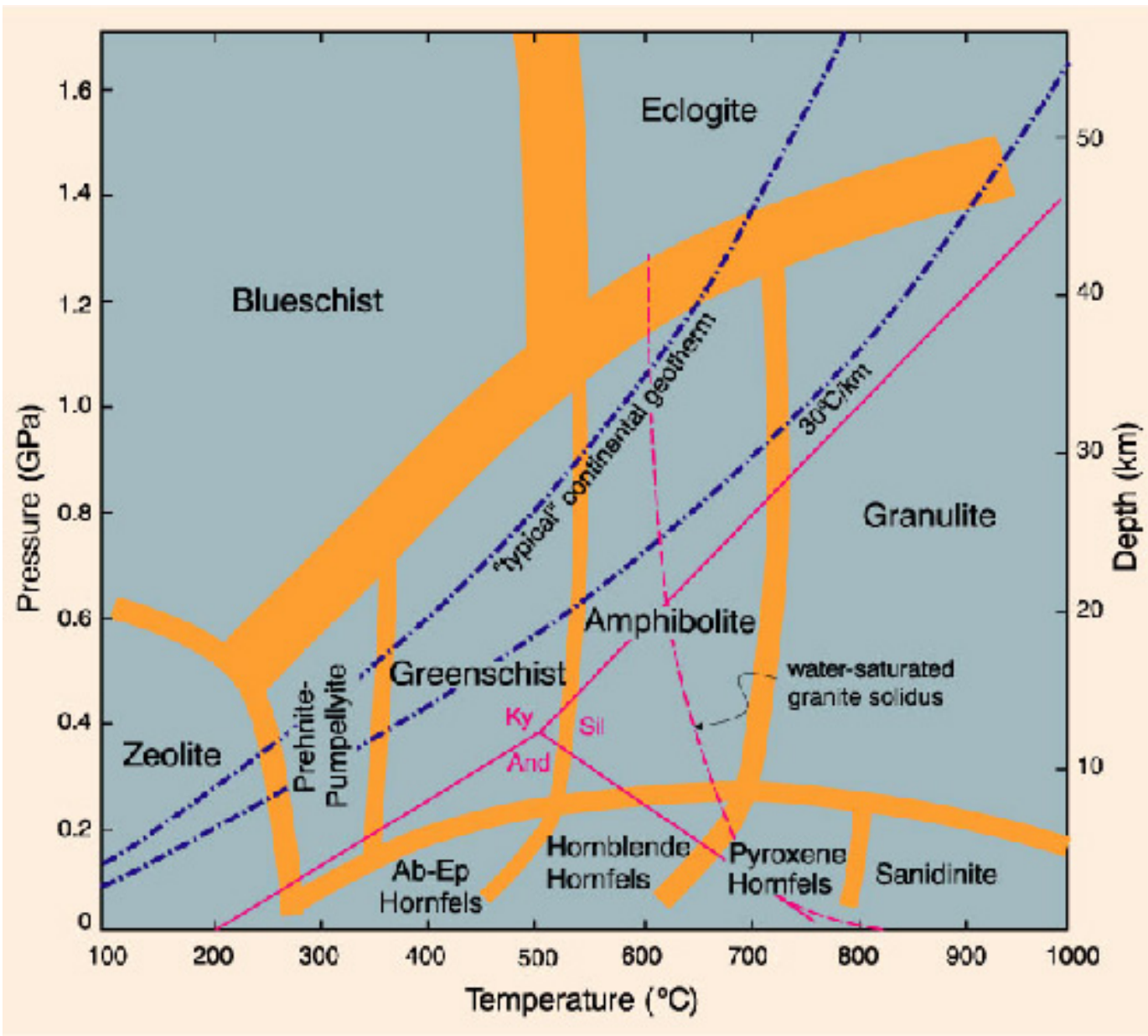


# EAS 332 Metamorphic Petrology

## Lab 8: Blueschists and Eclogites

(Mafic Bulk Composition)





# Mineral Assemblages

## Blueschist Facies

- Glaucophane
- Lawsonite
- Epidote
- ± garnet, chlorite, omphacite, albite

## Eclogite Facies

- Omphacite
- Garnet
- Rutile
- ± glaucophane, kyanite, epidote



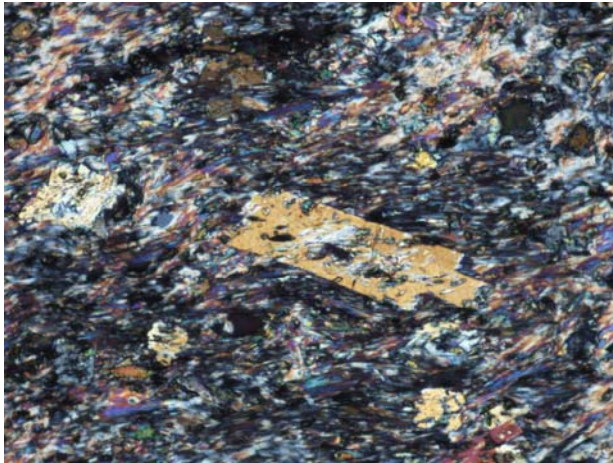
Minerals you may need to know:

**Glaucophane** ( $\text{Na}_2\text{Mg}_3\text{Al}_2\text{Si}_8\text{O}_{22}(\text{OH})_2$ ) and  
**Lawsonite** ( $\text{CaAl}_2(\text{Si}_2\text{O}_7)\text{OH}_2\cdot\text{H}_2\text{O}$ )



### Glaucophane

- distinct blue pleochroism (light-med blue)
- up to low 2<sup>nd</sup> order birefringence
- moderate relief
- prismatic crystal habit, typically occurs as aggregates



### Lawsonite

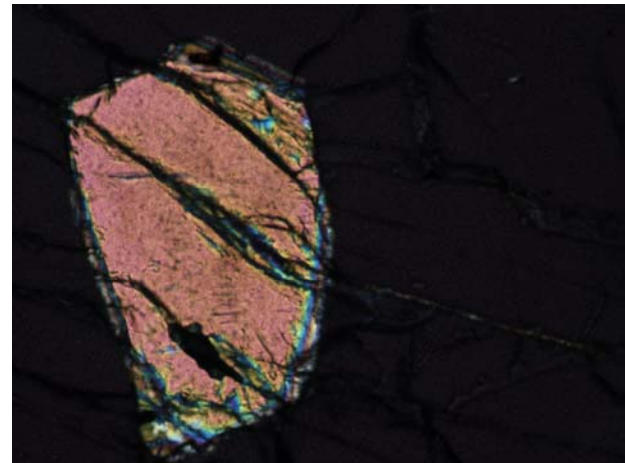
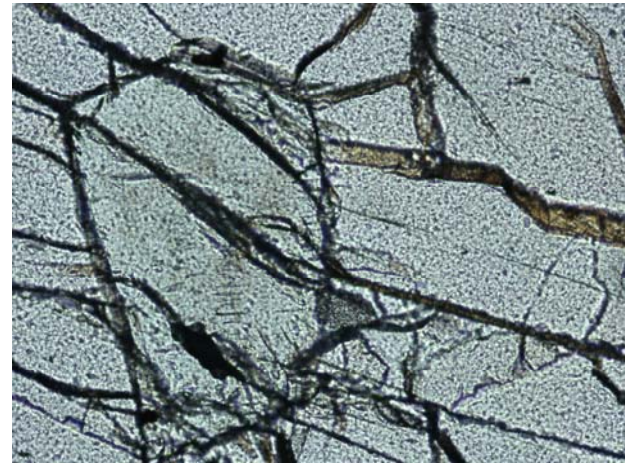
- Colourless in ppl
- 2<sup>nd</sup> order birefringence
- moderate relief
- prismatic crystal habit

Minerals you may need to know:

# Omphacite $((\text{Ca}, \text{Na})(\text{Mg}, \text{Fe}^{2+}, \text{Fe}^{3+}, \text{Al})\text{Si}_2\text{O}_6)$

Omphacite (intermediate within  
augite-jadite series)

- weakly green pleochroic
- high relief
- inclined extinction
- up to lower second order  
birefringence



# Eclogite Groups (Coleman et al., 1965)

Subdivision of eclogites based on occurrence:

- Group A: xenoliths in kimberlites and basalts
- Group B: bands or lenses in migmatitic gneisses
- Group C: bands or lenses associated with blueschists



Decreasing Temperature

**Note:** Different temperatures associated with different groups = different textures and mineralogy (p.508)

# What to do, what to do.....

- Answer questions associated with each sample (4 samples total)
- Complete description of either sample:  
2042 (handsample is 2043)

OR

PE-85-21