

Phase Diagrams and Chemographic Diagrams

C:\Courses\320\fall2005\inclass, etc\57-ProjectionsNotes.wpd; October 9, 2003 (6:09pm)

This exercise is a good way to get students thinking about the phase rule, metastable and stable reactions and phase diagrams.

The exercise contains a lot of reading. It is suitable for in-class work or for homework. The idea is that students can do this on their own with little instructor assistance.

The students only answer a few questions – so this is more of a tutorial than a worksheet.

This exercise can serve as an introduction to a unit on phase equilibria.

Prior to assigning this, instructors should introduce the phase rule, discuss mineral equilibria in general, and explain the basics of phase diagrams. But leave the details for the students to figure out.

After completing this, students should:

- Better understand the phase rule
- Be able to explain why some reactions are metastable and why some reaction lines on phase diagrams stop when they hit others
- Plot mineral compositions on a triangular diagram
- Be able to apply the phase rule
- Be able to use a phase diagram to determine the PT conditions at which a given assemblage formed