GLY 4310   Name_____
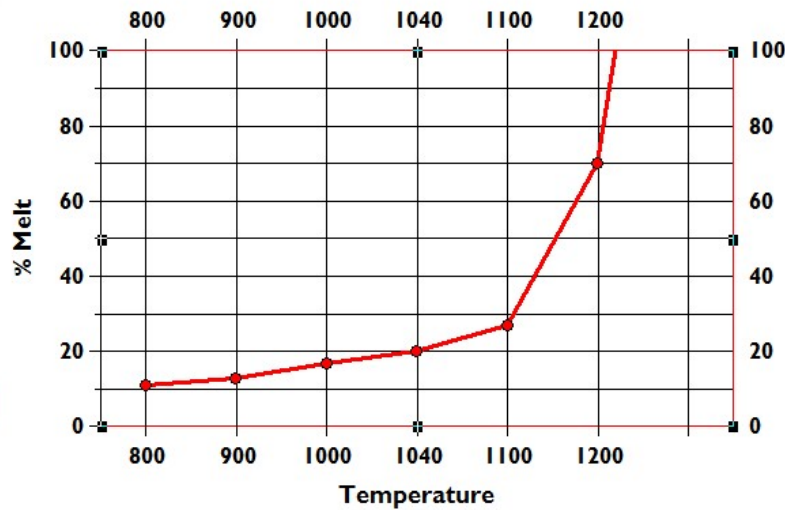Homework Exercise 3

Melting Relationships in the System Albite-H_2O - KEY

      Using the attached diagram Figure 7-22, prepare a graph similar to figure 7-23 (Winter, p. 131) showing the %Melt versus the temperature in °C. Assume an initial position of 700°C, 0.700 GPa, with a rock containing 7.00 mol percent water. The graph may be drawn by hand or plotted using computer software. Then answer the following questions.

1. At what temperature does the first melt appear? _____750°C_____

2. Using the graph you prepared, estimate the temperature at which the following percent of melt are achieved. Express answers to the correct number of significant figures. Data does not support 4 significant figures. You simply cannot measure that precisely.

    % Melt   Temperature

      25   ____1080°C_____

      50   ____1160°C_____

      75   ____1210°C_____

     100   ____1220°C_____
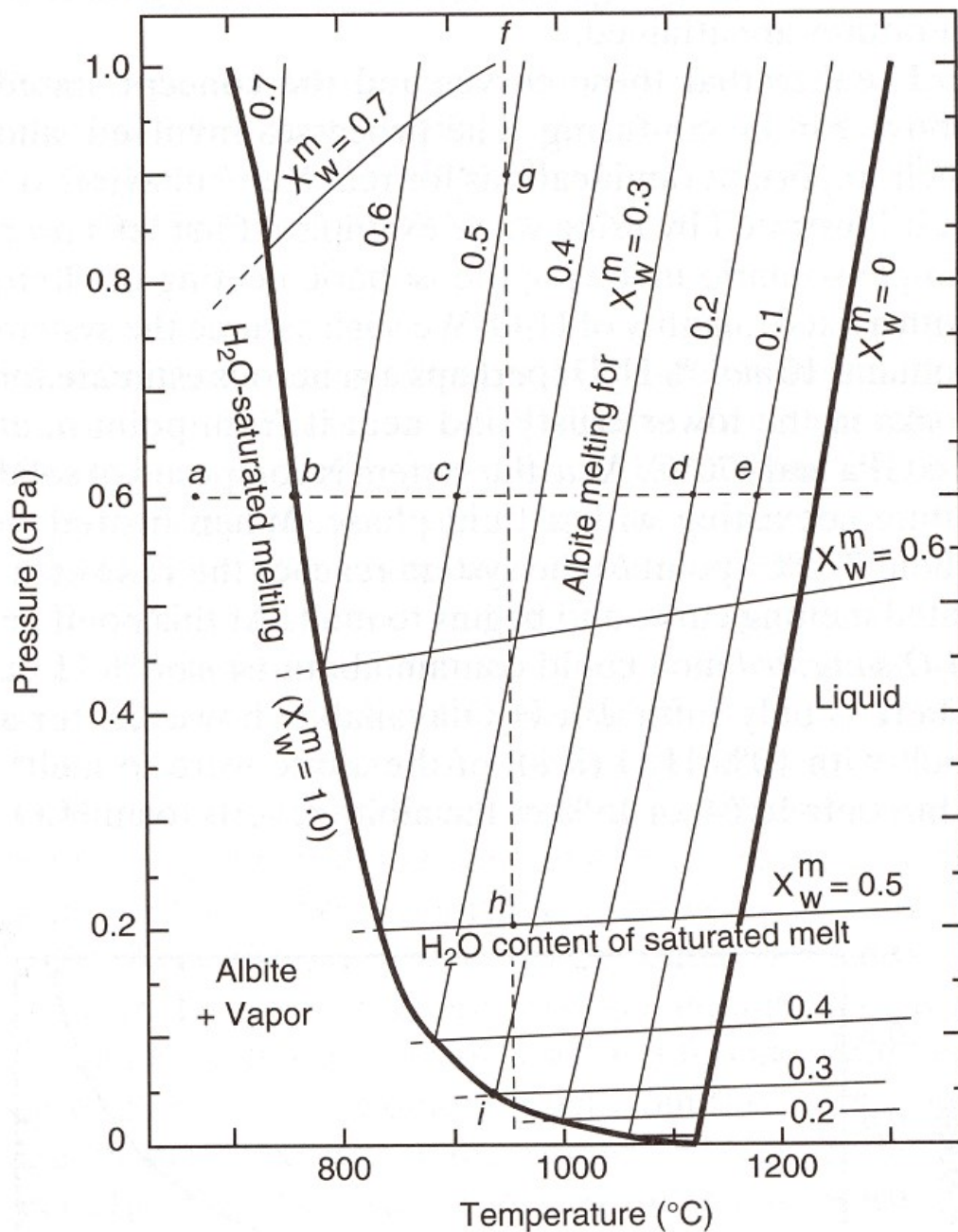

% melt should go to 100%, not 1.0

Figure 7–22 Pressure-temperature projection of the melting relationships in the system albite-H_2O. From Burnham and Davis (1974). Reprinted by permission of the American Journal of Science.

Grading: 1 point per blank, 5 points for graph - including proper labels (1 point each axis), reasonable intervals, and proper plotting of points