Homework 6 Due April 27

1. Problem 9.8. Add (K) Plot the major ions on the trilinear diagram with three x symbols.

2. The following analyses of water are from the perched aquifer beneath the Pantex Plant.

Constituent	Measurement
Calcium	34.6 mg/L
Magnesium	33.4 mg/L
Sodium	26.5 mg/L
Potassium	5.7 mg/L
Bicarbonate	298 mg/L
Sulfate	26.0 mg/L
Chloride	24.0 mg/L
Temperature	15°C
pH	7.28

[a] Calculate the ionic strength of the water.
[b] Plot the major ions on the trilinear diagram with three circle (o) symbols.
[c] Find the P_{CO2} in bar for this water in the aquifer. Consider only the carbonate equilibrium, and use the activities.
[d] When the water is brought to the surface, it comes in contact with the atmosphere. The CO_2 degasses and the P_{CO2} in the water drops to $10^{-3.5}$ bar, with the other dissolved concentrations (except pH) and temperature are unchanged. Find the pH of the water after it was brought to the surface. Consider only the carbonate equilibrium and use the activities.

4. Problem 10.1.

5. Problem 10.5.

6. Problem 10.7.

Cations

Anions