

Geology 222b

Binary Phase Diagram Experiment

With your lab partner(s), determine the saturation curve (liquidus) for ice in one of the following chloride solutions: $\text{H}_2\text{O}-\text{NaCl}$, $\text{H}_2\text{O}-\text{KCl}$, $\text{H}_2\text{O}-\text{CaCl}_2$, $\text{H}_2\text{O}-\text{MgCl}_2$. Each person in the group should submit their own report on the experiments that includes the following:

- (1) A description of your procedures that would make it possible for another experimenter to duplicate your experiments.
- (2) A table of your data that includes a reasonable estimate of the uncertainty of the numbers reported.
- (3) A Temperature-Composition phase diagram for your system that shows your data points and their uncertainty. Label all fields on the diagram.

Data for all these chemical systems exists in the chemical literature. You may find published data useful for comparison and for those parts of the phase diagram that you do not determine.