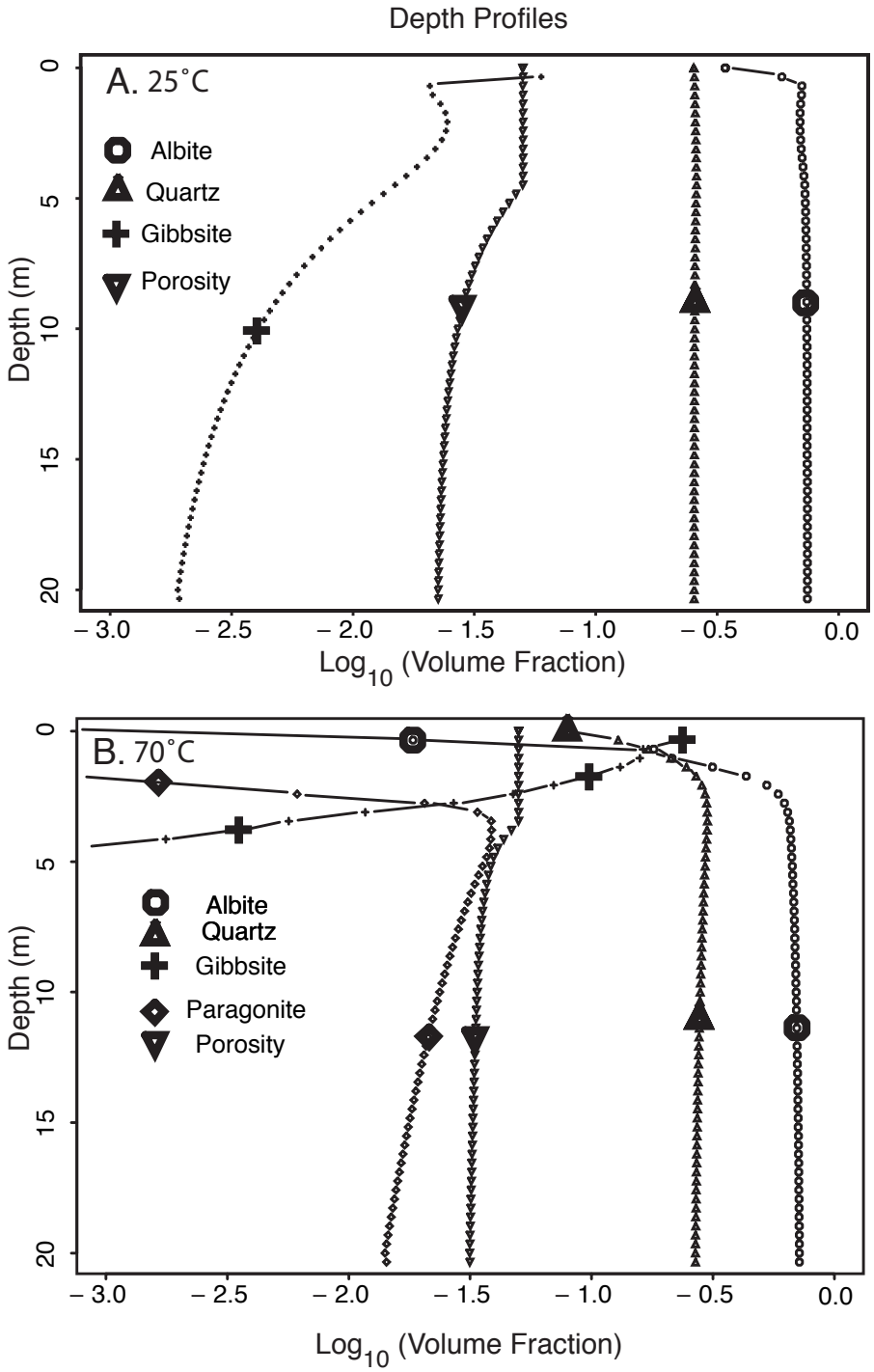

Figure 1. Depth profiles of minerals for two different temperatures (A: 25˚C, B: 70˚C) after 60,000 years of water infiltration into a matrix initially composed of 25% quartz, and 75 % albite, in a Na, Si, Al, O, H system. Initial porosity was 2% and infiltration was about 1 cubic m/yr per m^2 land surface. The grain spacing was 1 mm for quartz and albite and 0.4 mm for all other minerals. The order of abundance of minerals at the surface for 25˚C (albite, quartz, gibbsite) is reversed for the 70˚C run. The simulation also includes kaolinite as a secondary mineral, but only trace amounts exist. Ten aqueous species are included in the calculation, as well as downward solute transport, and some compaction. All mineral reactions are based on kinetic control.
From Rye & Bolton (2007) Fall GSA meeting.