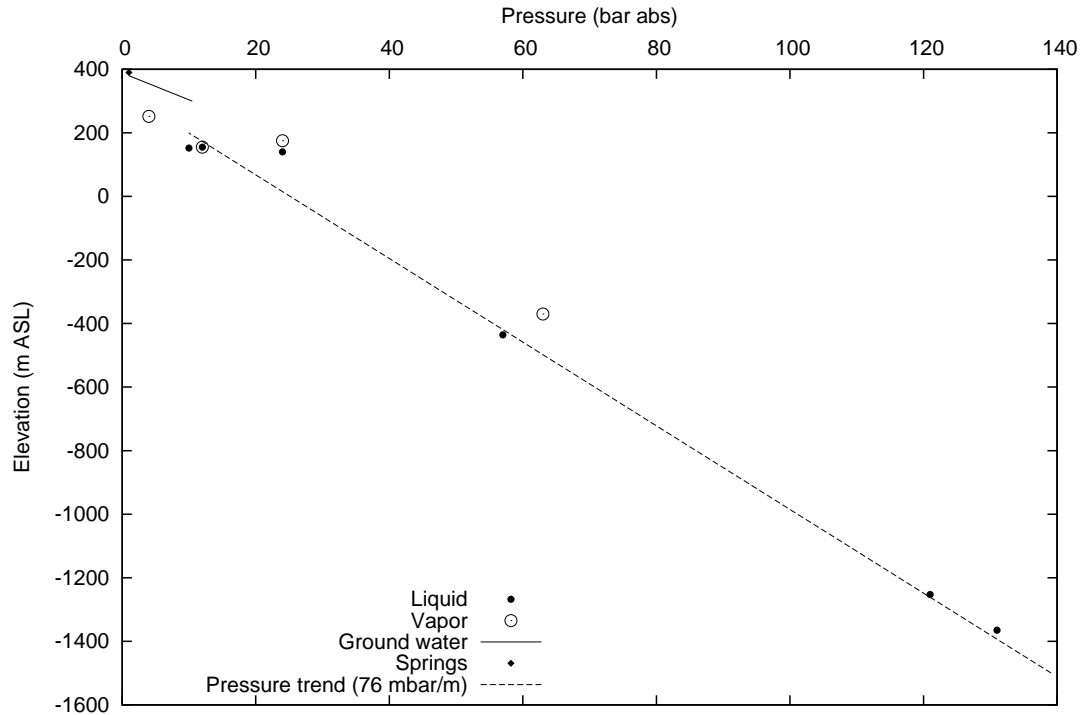


HW #3, Reservoir Characterization Example Solution



Discussion

The plot has data from the pressure vs. depth plots and the local groundwater information. Spring and groundwater data represent the local cold-water system, which is almost certainly decoupled from the hot-water reservoir system of interest. Likewise, the steam data are possibly due to local boiling and/or flow in the wells. Thus, the hot-water depth points are the only ones of interest and only those points should be used for the regression to find the local hot-water hydrostat.

Fitting the hot-water points with a linear least-squares (in this case, `polyfit()` in Matlab or Octave with degree 1) results in a pressure trend of 0.076 bar/m or 76 mbar/m.

Temperatures are not easily plotted on a single graph to find a reservoir-wide distribution, like pressure. The temperatures are too variable, which is equivalent to saying the temperatures are highly dependant on local conditions in each part of the reservoir.