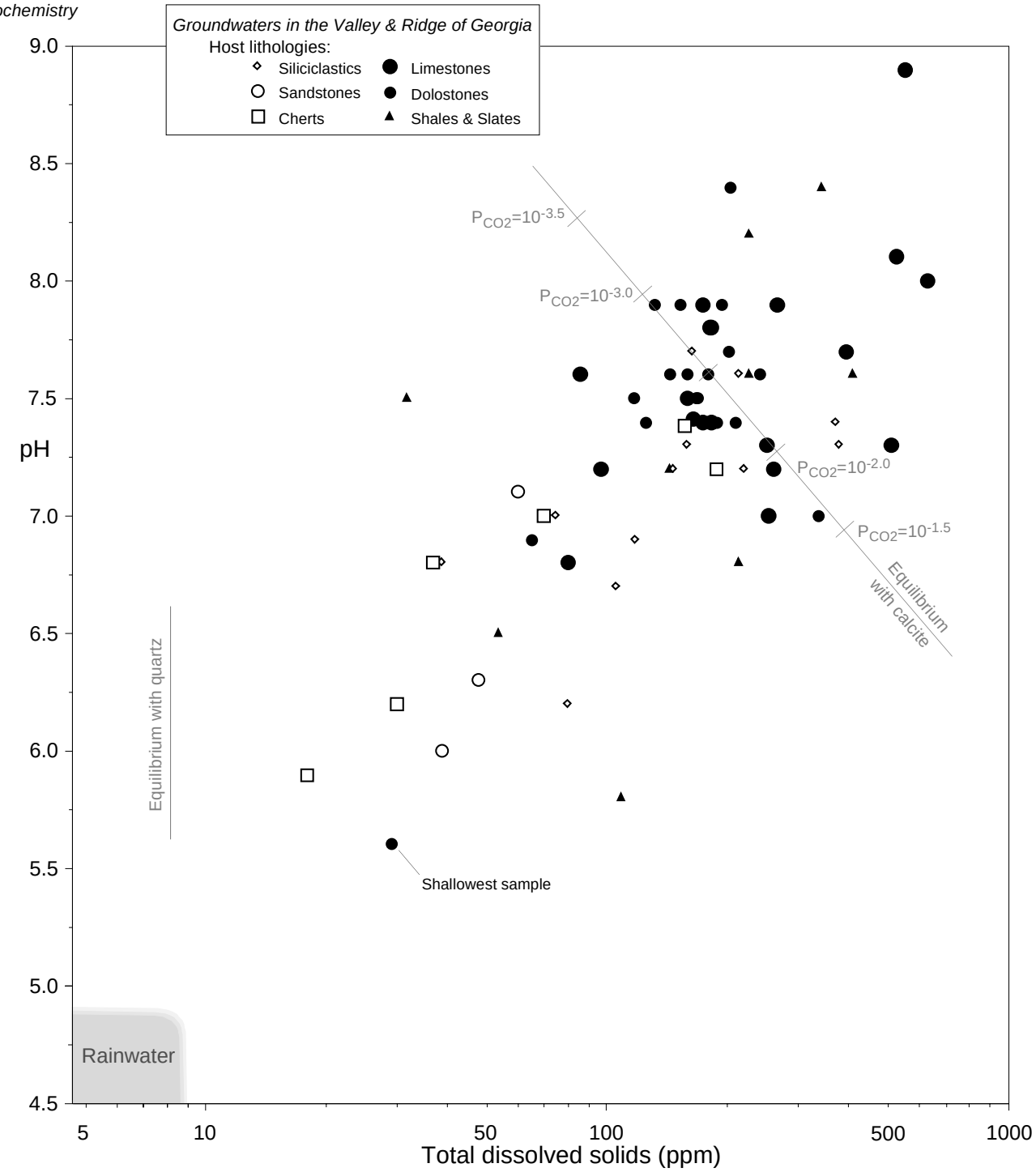
Variation in groundwater chemistry with host lithology

Because groundwater undergoes chemical reactions with the aquifer(s) through which it passes or the host lithology in which it resides, one might expect its geochemistry to vary with host lithology. The plot at right shows that expectation is met in groundwaters from the Valley and Ridge of the state of Georgia in the southeastern United States. The filled symbols represent lithologies likely to donate dissolved solids and buffer acidity, whereas the open symbols represent lithologies that are more inert. Groundwaters from the more reactive lithologies plot at higher pH and TDS.

One should nonetheless appreciate that such relationships aren't always so recognizable. For example, chemistry of groundwater in the Piedmont of Georgia shows a much less demonstrable relationship to host lithology (Railsback et al., 1996).



Adapted from Figure 13 of Railsback et al. (1996) A survey of the major-element geochemistry of Georgia groundwater: *Southeastern Geology,* v. 36, p. 99-122.