

Curso Corto de Hidrogeología

Andrew S. Reeve

Day 3: Geochemical Plots, Karst Hydrology

Gráficos de Geoquímicos:

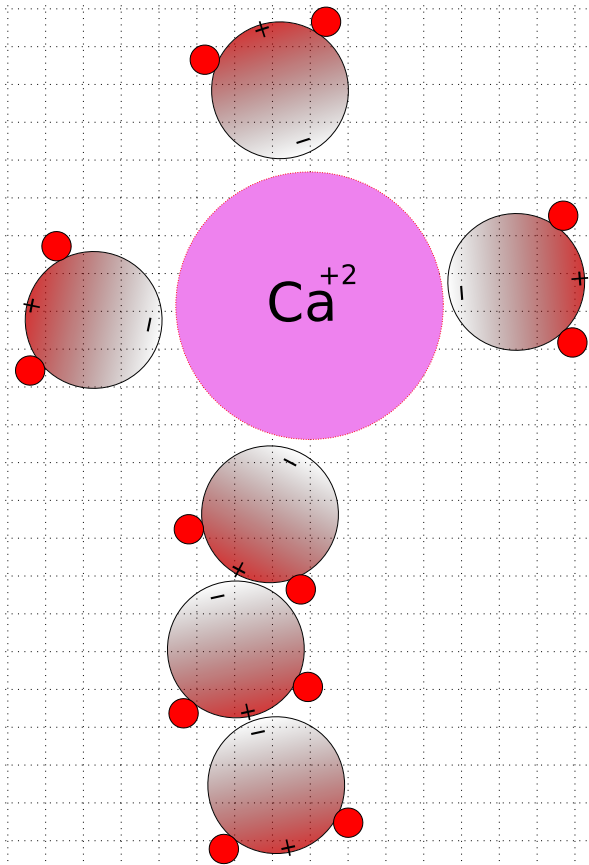
- Agua es polar
 - forma cadenas
 - jaulas alrededor iones, aumenta la solubilidad
 - tensión superficial

- Unidades
 - masa/masa (ppm)
 - mol/masa (molaridad)
 - equivalentes (mol de carga)

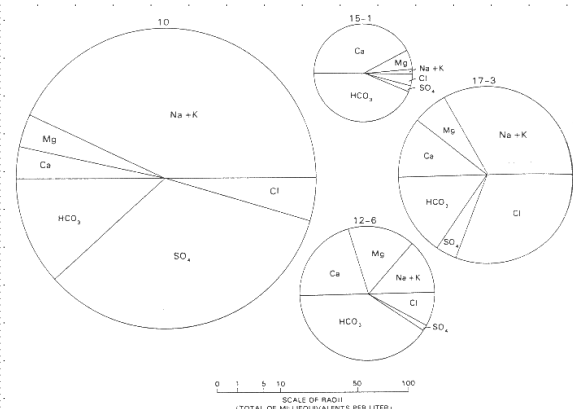
- * equiv/liter, equiv/Kg
- * $1 \text{ mol } Ca^{2+} = 2 \text{ equiv } Ca^{2+}$

- Aguas naturales, siete iones son las mayores de químicos

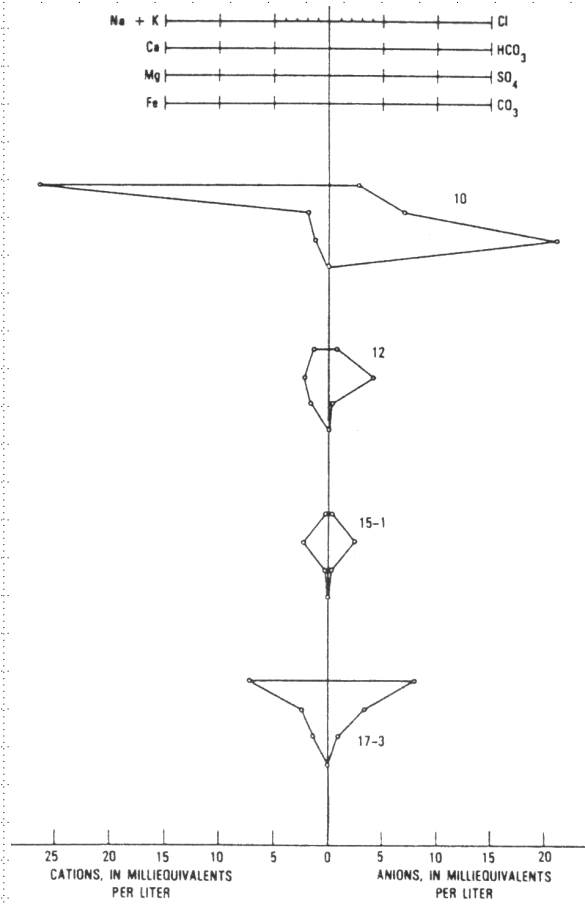
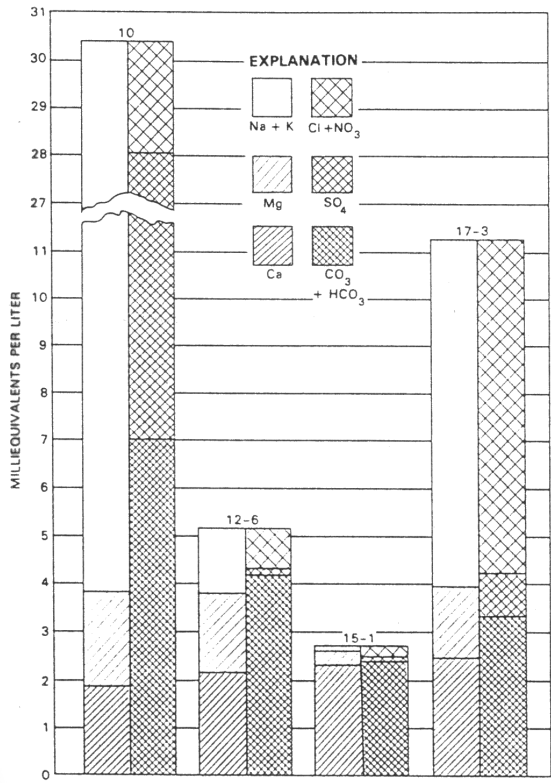
- Ca^{2+} , Mg^{2+} , Na^+ , K^+
- HCO_3^- , SO_4^{2-} , Cl^-
- otras en ambientes inusuales?



graficas sencillas ¹

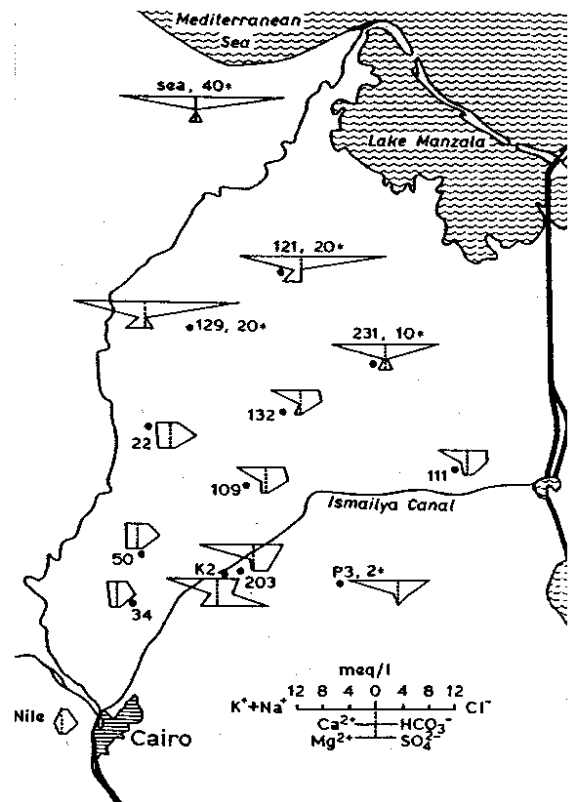


¹from: Hem, J.D. (1985) Study and Interpretation of the Chemical Characteristics of Natural Water, U.S. Geological Survey, Water Supply Paper 2254



Los Gráficos especializados: Graficas de Stiff

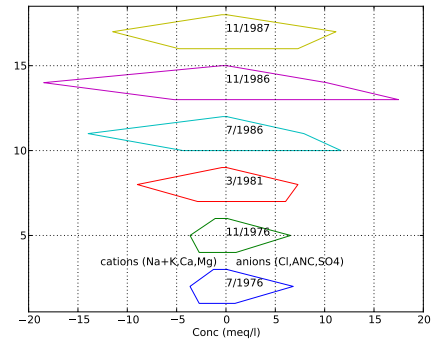
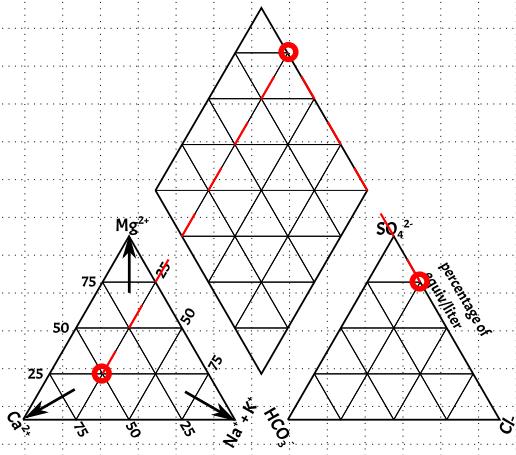
2



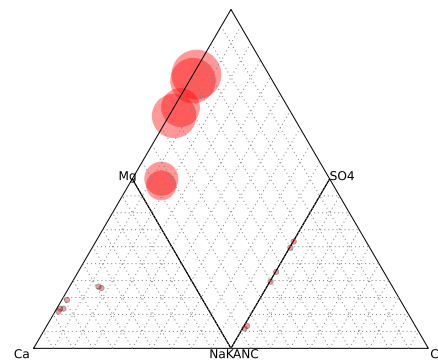
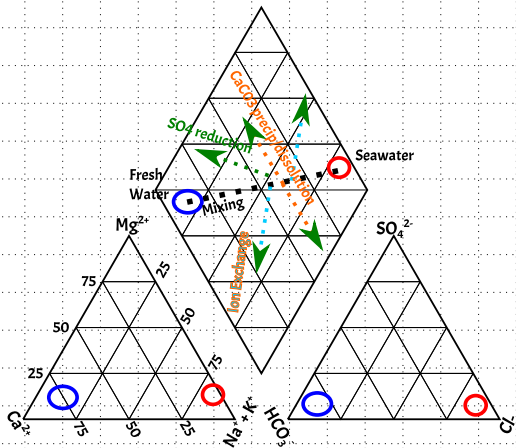
from: Hem, J.D. (1985) Study and Interpretation of the Chemical Characteristics of Natural Water, U.S. Geological Survey, Water Supply Paper 2254 (left) and (right) Appelo, C.A.J. and Postma, D. (1996) Geochemistry, Groundwater and Pollution. AA Balkema, Rotterdam

Los Gráficos Especializados: Graficas de Piper

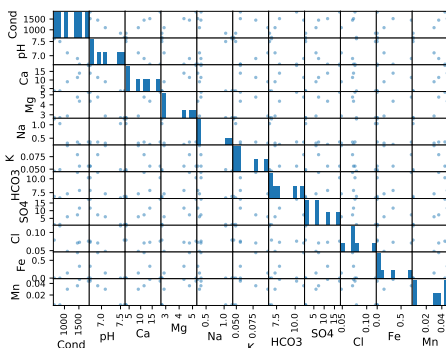
2



Los Gráficos Especializados: Ejemplo



Los Gráficos Especializados: Ejemplo ³



Los Gráficos Especializados: Ejemplo

³Data from: Cunningham, W.L. and Jones, R.L. Jones (1990) Long-term effects of surface coal mining on ground-water levels and quality in two small watersheds in eastern Ohio, U.S. Geol. Survey, Water-Resources Investigations Report 90-4136