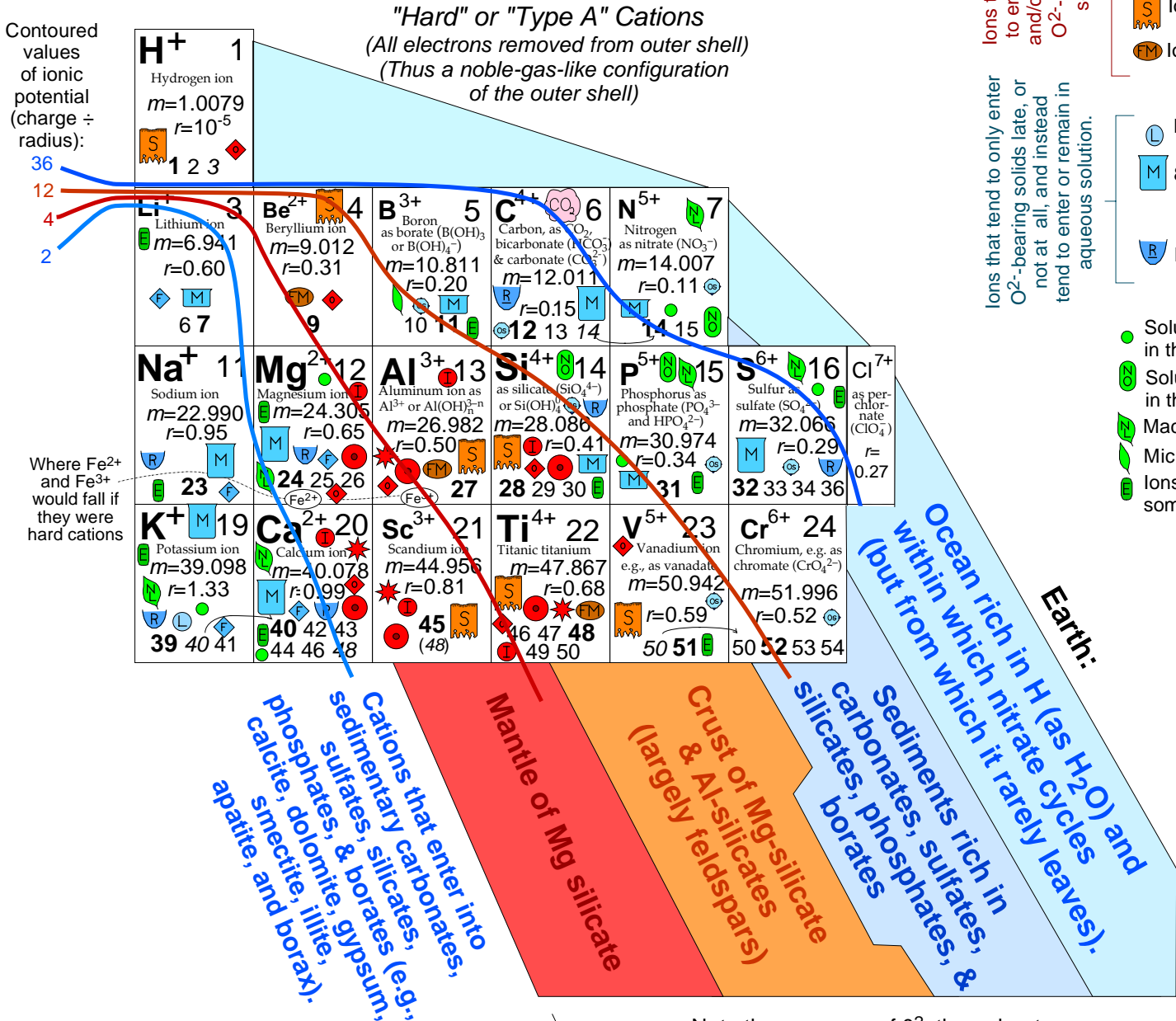


A bit of the Earth Scientist's Periodic Table of the Elements and Their Ions as a cross-section of the Earth



- ◆ Cations that form simple oxide minerals
- Ions least depleted from mantle in formation of crust
- ★ Ions enriched in CAIs (Ca-Al-rich inclusions in meteorites) relative to the composition of the solar system
- Ⓛ Ions that enter early-forming phases in igneous rocks
- Ⓢ Ions commonly concentrated in residual soils and residual sediments. Small symbol (Ⓢ_s) indicates less certainty.
- Ⓜ Ions concentrated in deep-sea ferromanganese nodules relative to seawater

Ions that tend to enter into O²⁻-bearing solids and/or stay in O²⁻-bearing solids

Ions that tend to only enter O²⁻-bearing solids late, or not at all, and instead tend to enter or remain in aqueous solution.

- Ⓛ Ions that enter later phases in igneous rocks because of their large size (mostly "large-ion lithophiles")
- Ⓜ 8 most abundant solutes dissolved in seawater
- Ⓜ 9th to 16th most abundant
- Ⓜ 17th to 22nd most abundant
- Ⓜ Most abundant solute in average river water (HCO₃⁻)
- Ⓜ 2nd to 8th most abundant solutes in average river water

- Solute that can be limiting nutrients in the growth of bacteria
- Solute that can be limiting nutrients in the oceans
- Macronutrient solutes on land
- Micronutrient solutes on land
- Ions essential to the nutrition of at least some vertebrates ("essential minerals")

For the entire Earth Scientist's Periodic Table of the Elements and Their Ions, go to www.gly.uga.edu/railsback/PT.html

