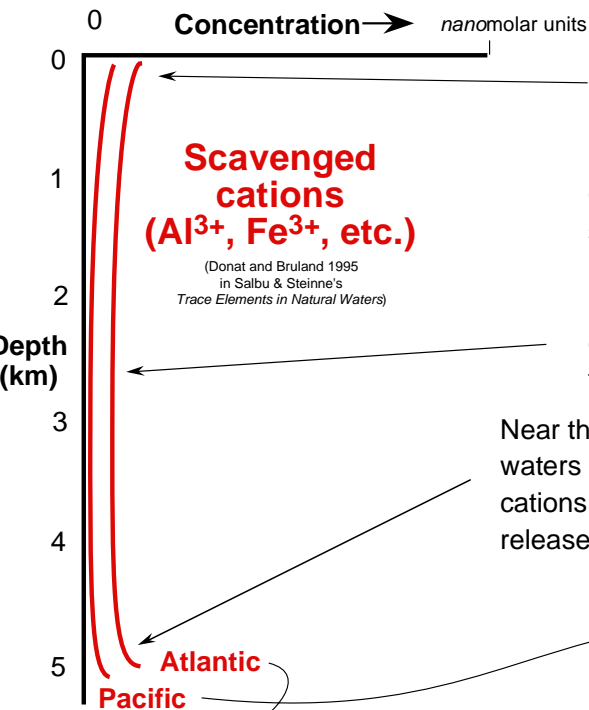


# Variation in concentration of solutes in the oceans V: Scavenged ions



Concentrations of highly charged cations (Al<sup>3+</sup>, Fe<sup>3+</sup>, Ni<sup>3+</sup>, etc.) are small in the surface water because these cations are relatively insoluble and instead form oxides or hydroxides.

Concentrations of highly charged cations are even smaller in deeper waters because those ions are "scavenged" (absorbed) by sinking particles. Most particles have negative surface charge, and highly charged cations are electrostatically attracted to those particles and adsorbed onto them.

Near the seafloor, H<sup>+</sup> ions of sediment pore waters more acidic than seawater may displace cations from the surfaces of particles, allowing release of cations back into the bottom water.

Concentrations of these cations in deep waters of the Pacific are even smaller than those in the Atlantic because Pacific deep water is older and has had more time to be cleansed by scavenging particles.

Concentrations of these cations in deep waters of the Atlantic are small, but not as small as those in the Pacific because Atlantic deep water is younger and hasn't been cleansed as long by scavenging particles.

