Role of Vegetation on Fe Cycling in Terrestrial Systems

Satish C. B. Myneni
Department of Geosciences,
Princeton University, Princeton, NJ

Iron is an abundant element in soil systems, and is also an essential nutrient for all organisms. However, organisms have to use different types of Fe chelating ligands, such as siderophores, to acquire mineral bound Fe from soils. In addition to Fe-minerals, Fe in plant biomass can be an important source of Fe for other organisms. We examined the chemical form of Fe in decaying plant matter as a function of location in soil profiles, and climate gradient- from tropics to polar regions. Our observations suggest that the speciation and distribution of Fe changes significantly as the weathering of plant biomass continues. These modifications contribute soluble Fe-organic complexes to aquatic pool, and can be an important labile pool of Fe in terrestrial ecosystems. Results of these studies will be presented.