



Hydrothermal source of dissolved iron in the tropical Pacific Ocean

J. Wu

South China Sea Institute of Oceanology, 164 Xin Gang Xi Rd, Guangzhou, 510301 China
(jwu@iarc.uaf.edu)

Increases in iron supply to open ocean surface waters are believed to have enhanced ocean primary production and initiated cooling trends in global climate during the geological past. Variation in dust deposition is thought to be the primary factor regulating iron supply, but far greater inputs of iron to open ocean waters are possible via hydrothermal vent activity. We present evidence that a significant biogeochemically relevant fraction of iron from mid ocean ridges is stabilized in deep ocean waters by organic complexation. We show that the hydrothermally-derived iron can be traced over several thousand kilometers and is an important source of deep-water dissolved Fe. Our results suggest that the hydrothermal iron input has the potential to enhance biological production in high latitude Oceans and hence the oceanic uptake of atmospheric carbon dioxide during periods of intensified seafloor spreading.