Scientific Achievement
Discovered a link between deep-earth carbon reservoirs and the oxidation state of iron in mid-ocean ridge basalts

Significance and Impact
Showed that the oxidation state of iron in lava varies systematically from place to place around the globe

Research Details
– Scientists had previously thought that rare elements, such as barium, thorium, and lanthanum, were present at higher concentrations in oxidized volcanic glass.
– Now, researchers have discovered that rare elements are, in fact, present in relatively reduced volcanic glass.
– Their findings show that carbon stored for billions of years in the depths of earth may be acting to reduce the oxidation states of the iron.


Work was performed at Brookhaven National Laboratory