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ABOUT THE COVER: NASA'S incredible Blue Marble 2012

image shows Earth's oceans,

vegetation, and atmosphere,

and emphasizes the whole-Earth (and beyond) perspective

of nitrogen adopted in this

Atmospheric nitrogen is fixed

into the biosphere (including

into the deeper Earth through subduction, continental

collision, and sedimentary burial.

by humans), then conveyed

issue. At Earth's surface, nitrogen largely resides in its very thin atmosphere.

continental surfaces with



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Nitrogen: Highly Volatile yet **Surprisingly Compatible** Gray E. Bebout, Marilyn L. Fogel, and Pierre Cartigny



and Pierre Cartigny

Stable Isotopes as Tracers of **Anthropogenic Nitrogen Sources, Deposition, and Impacts** Meredith G. Hastings, Karen L. Casciotti, and Emily M. Elliott



Biogeochemical Cycling of Nitrogen on the Early Earth Christophe Thomazo and Dominic Papineau



Nitrogen in the Silicate Earth: Speciation and Isotopic **Behavior during Mineral-Fluid Interactions** Vincent Busigny and Gray E. Bebout



Nitrogen Isotopes and Mantle Geodynamics: The Emergence of Life and the Atmosphere-Crust-Mantle Connection Pierre Cartigny and Bernard Marty



Nitrogen in Extraterrestrial Environments: Clues to the Possible Presence of Life Marilyn L. Fogel and Andrew Steele

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