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Nitrogen and Its (Biogeocosmo) Chemical Cycling

GRAY E. BEBOUT, MARILYN L. FOGEL, and PIERRE CARTIGNY, Guest Editors

Nitrogen: Highly Volatile yet Surprisingly Compatible

Stable Isotopes as Tracers of Anthropogenic Nitrogen

Nitrogen on the Early Earth

Nitrogen in the Silicate Earth

Nitrogen Isotopes and Mantle Geodynamics

Nitrogen in Extraterrestrial Environments



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

incredible Blue Marble 2012 image shows Earth's oceans, continental surfaces with vegetation, and atmosphere, and emphasizes the whole-Earth (and beyond) perspective of nitrogen adopted in this issue. At Earth's surface, nitrogen largely resides in its very thin atmosphere. Atmospheric nitrogen is fixed into the biosphere (including by humans), then conveyed into the deeper Earth through subduction, continental collision, and sedimentary burial.

ABOUT THE COVER: NASA'S



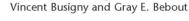
Stable Isotopes as Tracers of Anthropogenic Nitrogen Sources, Deposition, and Impacts Meredith G. Hastings, Karen L. Casciotti, and Emily M. Elliott



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**





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

The Elements Toolkit – A New Facility for the



Nitrogen in Extraterrestrial Environments: Clues to the Possible Presence of Life

DEPARTMENTS

Marilyn L. Fogel and Andrew Steele

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