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Clintion Picks His Science Adviser

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Ancient and Modern, Rock and Fluid Meet in San Francisco

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ARTICLES

The Directed Mutation Controversy and Neo-Darwinism
R. E. Lenski and J. E. Mittler

Atmospheric Lifetimes of Long-Lived Halogenated Species
A. R. Ravishankara, S. Solomon, A. A. Turnipseed, R. F. Warren

RESEARCH ARTICLE

A 100-Year Average Recurrence Interval for the San Andreas Fault at Wrightwood, California
T. E. Fumal, S. K. Pezzone, R. J. Weldon II, D. P. Schwartz

REPORTS

Verification of the Onsager Reciprocal Relations in a Molten Silicate Solution
P. J. Spera and A. F. Trial

Comparative Compressibilities of Silicate Spinel S: Anomalous Behavior of (Mg,Fe)2SiO4
R. M. Hazen
Six crystals of silicate spinel, a high-pressure mineral abundant in the transition zone of Earth’s mantle, confined in a diamond-anvil cell (mount diameter, 0.45 millimeter). High-pressure x-ray studies of these crystals reveal that the Mg$_2$SiO$_4$ end member is 13% more compressible than the Fe$_2$SiO$_4$ end member even though its molar volume is 6% less. Such anomalous compressibility suggests that the behavior of Mg$^{2+}$ and Fe$^{2+}$ at mantle pressures is divergent. See page 206. [Photo: R. M. Hazen]