



Robert A. Berner, Emeritus Professor at Yale University, won the 2013 Benjamin Franklin Medal in Earth and Environmental Science of the Franklin Institute “for deepening our understanding of the Earth system through studies of the chemistry of geologic processes and their influence on the atmosphere and oceans.” In his 55 years of research, Robert Berner has tried to show how chemical principles can be applied to a wide variety of geo-

logical problems. This includes the mineralogy and thermodynamic stability of iron sulfides and iron oxides, the processes of sedimentary pyrite formation, the electrochemistry of modern sediments, calcium carbonate chemistry in the oceans, silicate mineral surface chemistry during weathering, modeling of biogeochemical changes during early diagenesis, the effect of land plants on chemical weathering, and the geochemical cycles of carbon, sulfur, and phosphorus. His work has led to the development and refinement of models for the evolution of atmospheric oxygen and carbon dioxide over Phanerozoic time.

Founded in 1824, along with the Franklin Institute, the Franklin Institute’s awards program has long been recognized as bestowing the oldest and most comprehensive science and technology honor in the United States and around the world. Dr. Berner will receive his award in April at the Franklin Institute.



J. William Schopf, Distinguished Professor of Paleobiology at the University of California, Los Angeles, is the recipient of the U.S. National Academy of Sciences Award in Early Earth and Life Sciences, presented this year with the Charles Doolittle Walcott Medal. Schopf is being honored for his studies of the microscopic fossils that represent the earliest forms of life on Earth and for his generous and inspirational leadership of large,

collaborative research groups. These “Precambrian Paleobiology Research Groups” have brought together scientists from multiple scientific disciplines and focused their efforts to yield new ideas and information. Their work has stimulated countless further studies of the earliest history of life on Earth. The Walcott Medal is presented every five years with a \$10,000 prize and recognizes contributions to research on Cambrian or Precambrian life. Schopf contributed to the Early Earth issue of *Elements* with an article titled “The First Billion Years: When Did Life Emerge?” He will be among the 18 individuals recognized by the National Academy of Sciences for their outstanding scientific achievements in a wide range of fields spanning the physical, biological, and social sciences. The National Academy of Sciences is a private, nonprofit institution that was established under a congressional charter signed by President Abraham Lincoln in 1863. The year 2013 marks the 150th anniversary of its creation.

2012 AGU FELLOWS

Among the 61 individuals who were elected as 2012 Fellows of the American Geophysical Union, we highlight those who are members of one of *Elements*’ participating societies. Fellowship is awarded to AGU members who have made exceptional scientific contributions and attained eminence in the fields of Earth and space sciences. The 2012 Fellows were recognized during an honors ceremony at the 2012 AGU Fall Meeting in San Francisco.



- 1 **Joel D. Blum**, for innovative and important contributions in trace metal and isotopic geochemistry that have significantly advanced understanding of Earth processes
- 2 **Janne Blichert-Toft**, for being the world’s leading geochemist in the application of hafnium isotopes to the evolution of the Earth and the early Solar System
- 3 **Robert H. Byrne**, for his groundbreaking research and scientific leadership in the physical chemistry of seawater and the global carbon cycle
- 4 **John M. Ferry**, for his contributions to metamorphic geology and fluid-mediated processes in Earth’s crust

- 5 **Andrew J. W. Gleadow**, for pioneering contributions to fission-track analysis as a tool for geological dating and thermotectonic investigations
- 6 **Nicolas Gruber**, for his extraordinary scientific accomplishments and visionary leadership in ocean biogeochemistry research and education
- 7 **George W. Luther III**, for his pioneering research in redox reactions, trace element speciation, and the development of novel in situ electrochemical methods
- 8 **Kenneth H. Nealson**, for his pioneering work and leadership in the fields of geomicrobiology and geobiology and for his qualities as an inspirational mentor and creative scientist

- 9 **Yuji Sano**, for his studies of volatile isotopes of volcanic and environmental systems, and for his invention and application of ion microprobe U–Pb dating of apatite
- 10 **Jane Selverstone**, for elucidating the relationships among metamorphism, fluid composition, and fluid flow, and the mechanisms of deformation in the crust
- 11 **Stephen Self**, for his fundamental work in understanding the mechanisms and consequences of explosive and effusive eruptions