

GSA MGPV DIVISION CAREER ACHIEVEMENT AWARD TO FREDERICK FREY



Frederick Frey, emeritus professor of geochemistry at MIT, is the 2014 recipient of the Distinguished Geologic Career Award of the Geological Society of America's Mineralogy, Geochemistry, Petrology, and Volcanology Division (MGPV). The award is given in recognition of an individual's lifetime contribution in one or more of the division's fields of research, with particular emphasis on field-based multidisciplinary work. The award was made at the MGPV Reception (held jointly with the Mineralogical Society of America and the Geochemical Society) during the GSA's

Annual Meeting in Vancouver, British Columbia, in October. We reproduce an abbreviated citation by J. Michael Rhodes.

The award of the 2014 Geological Society of America's Distinguished Career Award in Petrology, Mineralogy, and Geochemistry to Fred Frey is a fitting tribute to his remarkable career. Formally trained in chemistry, Fred rapidly established a reputation as a leading geochemist. Fred made some of the earliest contributions to understanding the trace element geochemistry of the rare earth elements in a wide variety of rocks. This work undoubtedly honed Fred's uncompromising insistence on the importance of the highest-quality geochemical data.

The instrumental revolution beginning in the late 1960s significantly improved data quality, making possible quantitative trace element modeling of magmatic processes, to which Fred and his students contributed groundbreaking studies of trace element partitioning between crystals and melts.

In the course of his career, Fred has collaborated with a veritable "who's who" in geology, petrology, volcanology, and geochemistry. Fred has studied mantle peridotites, ocean-floor basalts, subduction-related and hotspot-related volcanoes, and a submarine large igneous province, and has even found time to look at granites!

He has contributed significantly to the geoscience community by sitting on numerous committees, co-convening GSA Penrose conferences and AGU Chapman conferences, and offering yeoman service as associate editor of *Geochimica et Cosmochimica Acta* for over twenty years. He also served as president-elect and president of the Volcanology, Geochemistry, and Petrology Section of the American Geophysical Union from 1988 to 2002. At MIT, Fred has trained 32 students, most of whom have gone on to successful careers in the geosciences. Fred received the prestigious AGU Bowen Award in 1986 and was elected a fellow of the American Geophysical Union in 1996 and a fellow of both the Geochemical Society and the European Association of Geochemistry in 2000 for major contributions to the field of geochemistry.

Altogether, Fred Frey has had an outstanding, highly productive, and sustained career lasting more than 48 years. His publications (211 to date), almost all in highly rated journals, cover an exceedingly wide range of topics, from peridotites to tektites. Many are "classics" that have been highly influential in modern geochemistry.

EMU MEDAL FOR RESEARCH EXCELLENCE 2013 AWARDED AT IMA 2014

Exceptionally, in 2013 the European Mineralogical Union (EMU) honored two outstanding young scientists with the EMU Medal for Research Excellence. **Giacomo Diego Gatta** (Dipartimento di Scienze della Terra, Università degli Studi di Milano, Italy) received the medal during the EGU General Assembly 2014 (see *Elements*, vol. 10, no. 4). **Razvan Caracas** (Centre National de Recherche Scientifique, École Normale



Razvan Caracas (center) receiving the Medal for Research Excellence and certificate from Corina Ionescu (EMU vice president, right) and Catherine McCammon (citationist, left). PHOTO: DAVE HANN (SOUTH AFRICA)

Supérieure de Lyon, France) was awarded the medal during the 21st General Meeting of the International Mineralogical Association (IMA 2014) in Sandton, Johannesburg, South Africa. At the meeting, he delivered an invited talk entitled "Applications of the Density Functional Theory in the Study of the Interior of the Earth."

As a result of his early scientific work on incommensurate modulations in minerals, Razvan Caracas has established himself as a specialist in computational methods for predictive mineralogy. Part of his early work contributed to the development of basic tools for ab initio modeling, in particular ABINIT software, a powerful and widely used density functional theory package. The fundamental contributions by the awardee to the mineralogical sciences include the use of ab initio calculations to determine how elements like Fe²⁺, Fe³⁺, and Al³⁺ affect the elasticity of post-perovskite. He has also studied the energetics, crystal structures, and elastic properties of CaSiO₃ perovskite, providing essential information for interpreting the structure of the Earth's interior. He has worked on a diverse range of problems, such as novel high-pressure Al³⁺-bearing phases, the silica polymorphs, and ice polymorphs, and has also published on a possible FeSi phase in the core. He is interested in the properties of Earth's core that involve metallic alloys, complex volatile-bearing silicate melts, ultrahigh-pressure phase diagrams, and the transport properties of planet-forming materials for geodynamical and astrophysical applications. Razvan Caracas is a productive, incredibly talented young researcher, who has forged collaborations in Europe, North America, and Japan spanning a broad cross section of the Earth sciences. As a colleague, he stands out for his extraordinary enthusiasm and open personality and for his dedication to the promotion of European research in mineralogy at the international level.

DINGWELL INDUCTED INTO ACATECH

Donald Bruce Dingwell (Experimental Geosciences, Ludwig-Maximilian University of Munich) has been inducted into acatech, Germany's national academy of science and technology. The ceremony took place in Berlin in early November. Dingwell was cited for his fundamental contributions to science. The event included a speech by Germany's Minister for Research, Dr. Johanna Wanka, which was given in the presence of former German Presidents Horst Koehler and Roman Herzog. acatech is composed of some 400 regular members

and a senate of representatives from the private and public sectors. It is routinely involved in advising the German government on issues of science and technology.



Don Dingwell, flanked by the presidents of acatech, Prof. Dr. Reinhard F. Hüttel (left) and Prof. Dr. Henning Kagermann (right)

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