



Japan Association of Mineralogical Sciences

<http://jams.la.coocan.jp>

JAPAN ASSOCIATION OF MINERALOGICAL SCIENCES AWARDEES

The Japan Association of Mineralogical Sciences (JAMS) is proud to announce the recipients of its 2018 society awards. The **Japan Association of Mineralogical Sciences Award** is presented to a maximum of two scientists in any one year and is awarded for exceptional contributions to mineralogical and related sciences. The **Manjiro Watanabe Award**—named in honor of Professor Manjiro Watanabe, a famous Japanese mineralogist, and founded at his bequest—is awarded every year to one scientist who has significantly contributed to mineralogical and related sciences over his or her long career. The **Sakurai Medal**—named in honor of Dr. Kin-ichi Sakurai, the discoverer of many new minerals—is awarded to a scientist who has made a lasting contribution to the study of new minerals.

Japan Association of Mineralogical Sciences Award to Susumu Umino



Susumu Umino

Susumu Umino is a professor at the Institute of Science and Engineering, Kanazawa University (Japan). He specializes in igneous petrology and physical volcanology, especially magma genesis and mantle evolution through subduction initiation. Professor Umino began his geological career by studying and experimenting on boninite from the type locality of the Bonin Islands (central Pacific Ocean, south of Tokyo).

Based on the primitive melt inclusions in chromites derived from boninite, Umino found the coexistence of high-silica and low-silica boninite magmas, thereby providing constraints on the development of the mantle wedge during subduction initiation. Using these results, combined with Nd–Hf–Os isotopic analyses, he articulated the different origins of the boninite sources.

Professor Umino has also been engaged in a geological mapping project organized by the Oman government. He has been working on the Oman ophiolite and studying evidence for the different types of volcanic processes exhibited by the paleo-ridge system and how that ridge transformed into an ephemeral arc. Umino showed how the Oman protoarc magmas, including the boninites first reported by Tsuyoshi Ishikawa (in collaboration with Umino), both resembled and differed from the *T–P–X* evolution shown by the Izu–Bonin–Mariana protoarc magmas. In addition to submersible dives to seamounts off Hawaii (USA) and the East Pacific Rise, he joined Ocean Drilling Program (later becoming the Integrated Ocean Drilling Program) expeditions to Hole 504B (200 km south of the Costa Rica Rift) and Hole 1256D (equatorial East Pacific Rise), both of which drilled into intact oceanic crust.

Prof. Umino has been promoting a project MoHole, a plan to drill through the entire oceanic crust to the Mohorovičić Discontinuity and into the mantle to recover pristine, in-situ, mantle materials for the first time in human history.

Japan Association of Mineralogical Sciences Award to Hiroshi Kojitani



Hiroshi Kojitani

Hiroshi Kojitani is a research associate in the Department of Chemistry at Gakushuin University (Japan). He has studied mantle minerals and their analog materials using the techniques of calorimetry, spectroscopy, X-ray diffraction and high-pressure–high-temperature experiments. He learned thermodynamic investigation methods of mantle minerals under the supervision of Prof. Masaki Akaogi at

Kanazawa University and Gakushuin University. Kojitani's PhD thesis, focused on the melting enthalpies of mantle rocks and basalts, has subsequently been widely used in mantle dynamics simulations and for constraining potential mantle temperatures. After a postdoc at Prof. Alexandra Navrotsky's laboratory (University of California at Davis, USA), he started a crystal structure refinement study using powder X-ray diffraction to reveal the aluminum substitution mechanism with oxygen vacancies in MgSiO_3 bridgmanite. Similarly, he refined the crystal structures of calcium ferrite-type MgAl_2O_4 , $\text{NaMg}_2\text{Al}_5\text{SiO}_{12}$ and $\text{KMg}_2\text{Al}_5\text{SiO}_{12}$ hexagonal aluminous phases, and postperovskite-type CaRuO_3 , which is a quenchable analog of postperovskite-type MgSiO_3 that was first synthesized at high pressure and high temperature by Kojitani and his group. He has also refined the enthalpy and heat capacity data of MgSiO_3 bridgmanite, MgSiO_3 akimotoite, and Mg_2SiO_4 ringwoodite. Over the last decade, he had added the techniques of high-pressure Raman spectroscopy and lattice vibrational model calculations to his array of research methods for estimating the thermodynamic parameters of high-pressure minerals (based on lattice vibrational data). Using newly assessed thermodynamic datasets, he recently succeeded in the thermodynamic calculation of the post-spinel phase boundary in Mg_2SiO_4 .

Manjiro Watanabe Award to Yuzo Kato



Yuzo Kato

Yuzo Kato, currently professor emeritus at the University of Ryukyus (Japan), received his PhD in 1968 from Tohoku University (Japan). His doctoral thesis, "Petrology of the Tertiary Granitic Rocks around the Kofu Basin, Central Japan", was supervised by Prof. Y. Ueda. After earning his PhD, he stayed at Tohoku University and continued working on the granitic rocks in the Kitakami mountains of northeast Japan while also helping to characterize

the chemical compositions of reference rock standards that were being distributed by the Geological Survey of Japan. From 1979 to 2004, he worked at the University of the Ryukyus (Japan). There, both he and his students started a major geological, petrological, and geochronological investigation into the igneous rocks of the Ryukyu islands. In addition to land-based sampling, Professor Kato also surveyed the submarine volcanic activity around the Ryukyu arc: in the young back-arc basin of the Okinawa Trough he discovered a new type of pumice, which he termed "woody pumice". This type of pumice results from super-rapid cooling under high-pressure deep-sea conditions.

Professor Kato also performed a mineralogical study on the "tsunami boulders" of the Ryukyu Islands and revealed reliable past inundation heights and flow paths of paleo-tsunamis, which has helped in tsunami hazard assessments. He also performed a pioneering work on accretionary lapilli. By a detailed study of the morphological and internal structure of accretionary lapilli from diverse occurrence, he succeeded in categorizing several types of accretionary lapilli based on their conditions of formation. And he has devoted much effort to spreading geological and mineralogical knowledge to the general public. Books by Prof. Kato include the *Atlas of Rocks and Minerals of the Amami and Okinawa Islands* (1985, in Japanese), which attracted public attention by providing a unique display from outcrop through hand specimen to photomicrograph for many typical rocks of the islands.

Professor Kato has greatly contributed petrological, mineralogical, volcanological, and mitigation studies of the Ryukyu island arc. He has also enthusiastically educated the public and popularized the geology of these fields. Since 2004, he has been an emeritus professor at the University of Ryukyus.