



# Japan Association of Mineralogical Sciences

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## JAPAN ASSOCIATION OF MINERALOGICAL SCIENCES AWARDEES

The Japan Association of Mineralogical Sciences (JAMS) is proud to announce the recipients of its 2019 society awards. The **JAMS Award for Young Scientists** is awarded to two scientists under 37 years of age who have made exceptional contributions to mineralogical and related sciences. The **JAMS Research Paper Award** is awarded to the authors of excellent papers that have been published either in the *Journal of Mineralogical and Petrological Sciences (JMPS)* or in *Ganseki Kobutsu Kagaku (GKK)* in the past three years.

### JAMS Award for Young Scientists to Shumpei Yoshimura



**Shumpei Yoshimura** is an assistant professor at the Department of Earth and Planetary Sciences, Hokkaido University, Sapporo (Japan). He received his PhD from Tohoku University (Japan) under the supervision of Professor Michihiko Nakamura. Yoshimura studies the mechanisms of volcanic eruptions from the perspective of high-temperature experiments on magma vesiculation, degassing,

glass sintering, and volatile dissolution and diffusion in the melt. He also carries out numerical simulations of fluid transport in magma and has theorised on the chemical evolution of magma and volcanic gas. Recently, Yoshimura experimentally demonstrated that Cl diffusion in silicic melts is much slower than previously thought. This finding motivated him to inspect Cl spatial distributions in natural silicic lavas in the hope that degassing-related Cl heterogeneity would remain in groundmass glass even if other volatiles had been completely lost or homogenised because of their much higher diffusivity. He observed that the groundmass is highly heterogeneous in its Cl content. Combining this Cl heterogeneity with Cl diffusion calculations, he proposed a new cyclic degassing model as the controlling process behind non-explosive lava eruptions. Yoshimura is now applying this Cl-mapping method to a variety of volatile-related processes, including gas transfer upon magma mixing, in order to understand volcanic eruption dynamics in even more detail.

### JAMS Award for Young Scientists to Ayako Shinozaki



**Ayako Shinozaki** is an assistant professor at Hokkaido University (Japan). She received her PhD from Ehime University (Japan) under the supervision of Professor Hisako Hirai. Using high-pressure and high-temperature experiments, Shinozaki has studied the effects of reduced C–O–H fluids on the stability and phase relation of silicate minerals at mantle conditions. Using laser-heated diamond-

anvil cells combined with X-ray diffraction measurements under high-pressure conditions, plus scanning electron microscopy and transmission electron microscopy, Shinozaki found that forsterite and enstatite incongruently dissolve in H<sub>2</sub> fluid to form periclase crystals in the Mg<sub>2</sub>SiO<sub>4</sub>–H<sub>2</sub> and MgSiO<sub>3</sub>–H<sub>2</sub> systems, respectively. Shinozaki also discovered, from infra-red and Raman spectroscopic measurements, that SiO<sub>2</sub> dissolves in H<sub>2</sub> fluid to become SiH<sub>4</sub> and H<sub>2</sub>O molecules. This indicates that the dissolution mechanism of silicates in H<sub>2</sub> fluid is different from that observed in the MgO–SiO<sub>2</sub>–H<sub>2</sub>O systems. In the reduced mantle, C–O–H fluids are expected to contain a substantial amount of H<sub>2</sub> in addition to H<sub>2</sub>O and CH<sub>4</sub>. The H<sub>2</sub> component is likely to enhance the Mg/Si fractionation between the fluid and the solid phases of mantle minerals. Shinozaki is also researching organic materials as a reservoir of light elements in the Earth's interior, in ice

satellites, and in meteorites by determining the crystal structures and the chemical reactions of aromatic compounds and amino acids under high-pressure and high-temperature conditions.

### JAMS Research Paper Award to Yohei Igami, Akira Miyake, Norimasa Shimobayashi



“Mullite in a Buchite from Asama Volcano and its Sub-Micrometric Core–Rim Texture with Sillimanite.” *Journal of Mineralogical and Petrological Sciences*, 2018, v.113-114, pp 198-206.

### JAMS Research Paper Award to Yoshihiro Nakamuta



“In situ Observation, X-Ray Diffraction and Raman Analyses of Carbon Minerals in Ureilites: Origin and Formation Mechanisms of Diamond in Ureilites”. *Journal of Mineralogical and Petrological Sciences*, 2016, v.111-114, pp 252-269.

## JOURNAL OF MINERALOGICAL AND PETROLOGICAL SCIENCES



The *Journal of Mineralogical and Petrological Sciences (JMPS)* is an international, peer-reviewed open access journal from the Japan Association of Mineralogical Sciences. The journal's impact factor, as reported in the 2018 *Journal Citation Reports*, is 1.472. The *JMPS* publishes original articles, reviews, and letters in the fields of mineralogy, petrology, economic geology, geochemistry, planetary science, and instrumental analysis technology. Our journal also encourages and develops a variety of new inter-

disciplinary scientific fields, in the hope of new fields blooming in the future. Please feel free to submit a paper to the *JMPS* by going to <https://www.jstage.jst.go.jp/browse/jmps>.

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