



# Japan Association of Mineralogical Sciences

[http://jams.la.coocan.jp/e\\_index.html](http://jams.la.coocan.jp/e_index.html)

## JOURNAL OF MINERALOGICAL AND PETROLOGICAL SCIENCES



The *Journal of Mineralogical and Petrological Sciences (JMPs)* publishes original articles, reviews, and letters in the fields of mineralogy, petrology, economic geology, geochemistry, planetary materials science, and related scientific fields. As an international journal, *JMPs* aims to provide a worldwide forum for disseminating high-quality data-based research, not only from Japan, but around the world, and to serve as a medium with

high impact on global scientific communication. Recently, online publications in a variety of fields have expanded remarkably, including publications covering planetary and earth sciences, materials science, and instrumental analysis technology. We hope to encourage such new fields to develop widely in the future and to contribute to the rapidly growing international scientific community.

The *JMPs* is an online-only, full color, and free access journal published through J-STAGE (<https://www.jstage.jst.go.jp/browse/jmps/>). Articles accepted for publication in *JMPs* are free to access and download for academic use. As a copyright holder, the Japan Association of Mineralogical Sciences permits authors to freely distribute their articles published in *JMPs* and to deposit them in self-archiving sites of their institutions. The author who is responsible for the publication expenses is requested to pay page charges of JPY8,000 per printed page. Members of the Japan Association of Mineralogical Sciences receive a discounted page charge of JPY6,000 per printed page.

We hope that many researchers around the world will take full advantage of the free-access *Journal of Mineralogical and Petrological Sciences* and we look forward to your contributions. With an efficient and active editorial team, we hope to serve your needs for timely and rapid publication of important research results.

**M. Satish-Kumar**  
Editor-in-Chief

## SPECIAL ISSUE ON ANTARCTICA

The Antarctic continent covers 9% of the Earth's surface landmass. Nevertheless, because of its remoteness and inaccessibility, extensive studies (e.g., geological, petrological, mineralogical, geochemical, geochronological) are limited to the narrow coastal belts or high mountains standing out of the thick ice sheet. The recent activities of



Marvelous outcrops in Antarctica, perfectly suited for field geology; an example from Akarui Point, Lützow-Holm Complex. PHOTO COURTESY OF JARE-46.

the Japanese Antarctic Research Expedition (JARE) cover ca. 1500 km along the coast and inland of East Antarctica 10° E to 45° E in Dronning Maud Land and Enderby Land. In this thematic issue, we present recent advances of multiple subjects including mineralogy, petrology, geochemistry, and geochronology in Antarctica, not limited by discussions regarding the regions where JARE is actively carrying out research, but also to broader topics of continent-scale regional correlations, as well as orogenesis and supercontinent formation and breakup. This new information will contribute to filling the knowledge gap on how and when the orogenic zones within the amalgamated Gondwana fragments formed, and promote the understanding of the physical and chemical processes during the formation of supercontinents.

**Tomokazu Hokada, M. Satish-Kumar, and Tetsuo Kawakami**  
Guest Editors

## Vol. 118, Issue Antarctica, 2023

(\* Advance online publications as of 25 May 2023)

\* The Kuunga Accretionary Complex of Sverdrupfjella and Gjelsvikfjella, western Dronning Maud Land, Antarctica. Geoffrey H. GRANTHAM, M. SATISH-KUMAR, Kenji HORIE, Henriette UECKERMANN H.

\* Metamorphic age and pressure–temperature conditions recorded in a sillimanite-garnet-bearing pelitic gneiss from Niban-nishi Rock of Niban Rock on the Prince Olav Coast, eastern Dronning Maud Land, East Antarctica: Evidence for Tonian metamorphism. Yuki MORI, Tomokazu HOKADA, Tomoharu MIYAMOTO, Takeshi IKEDA.

Multiple post-peak metamorphic fluid infiltrations in southern Perlebandet, Sør Rondane Mountains, East Antarctica. Fumiko HIGASHINO, Tetsuo KAWAKAMI, Tatsuro ADACHI, Masaoki UNO.

Boron isotope compositions of coexisting kornerupine and tourmaline in high-grade metabasic rocks: an example from Akarui Point, Lützow-Holm Complex, East Antarctica. Tetsuo KAWAKAMI, Simon L. HARLEY.

Nanogranitoid inclusions with grandidierite in mafic granulite from Austhovde, Lützow-Holm Complex, East Antarctica. Yoshikuni HIROI, Tomokazu HOKADA, Tatsuro ADACHI, Kazuyuki SHIRAIISHI, Yoichi MOTOYOSHI, Edward S. GREW.

Counter-clockwise P-T history deduced from kyanite-bearing pelitic gneiss in Tenmondai Rock, Lützow-Holm Complex, East Antarctica. Sotaro BABA, Prayath NANTASIN, Atsushi KAMEI, Ippei KITANO, Yoichi MOTOYOSHI, Nugroho I. SETIAWAN, Davaa-ochir DASHBAATAR, Tomokazu HOKADA.

## Vol. 118, Issue 1, 2023

### Original Articles

Protolith age and metamorphic temperature of the Yokokawagawa metamorphic rocks in Nagano Prefecture, central Japan, and comparison with the Sanbagawa metamorphic rocks. Hiroshi MORI, Tetsuya TOKIWA, Hiroki MIZUMURA, Kohei YOSHIKAWA, Yuki NOBE, Yui KOUKETSU.

Crystal structures of anhydrous borax  $\alpha$ -Na<sub>2</sub>B<sub>4</sub>O<sub>7</sub> and  $\gamma$ -Na<sub>2</sub>B<sub>4</sub>O<sub>7</sub> and ab initio quantum chemical calculations of structural stability on their fundamental building blocks. Wataru NISHIYASU, Atsushi KYONO.

Syntheses, single crystal structure analyses and ultraviolet light emission of CaW<sub>1-x</sub>Mo<sub>x</sub>O<sub>4</sub> ( $x = 0.0$ – $1.0$ ) scheelite-powellite solid solutions. Kei-ichiro MURAI, Koyumi YAMASHITA, Ginga KITAHARA, Makoto TOKUDA, Akira YOSHIASA.



**Identification of fracturing behavior in thermally cracked granite using the frequency spectral characteristics of acoustic emission.** Kazumasa SUEYOSHI, Manami KITAMURA, Xinglin LEI, Ikuro KATAYAMA.

**Effect of acidic microbial polysaccharides on calcium carbonate polymorph formation in hot water at 40-80 °C.** Motoharu KAWANO, Jinyeon HWANG.

**New data on S-bearing katoite from Tadano, Fukushima Prefecture, Japan: an implication of the presence of both  $(\text{SO}_3)^{2-}$  and  $(\text{SO}_4)^{2-}$  in the garnet structure.** Yasuyuki BANNO, Koichi MOMMA, Ritsuro MIYAWAKI, Michiaki BUNNO.

**Determination of orientational ordering of hydroxy groups in kulanite between 120-353 K using single-crystal X-ray diffraction.** Ryo YAMANE, Makoto TOKUDA, Kazumasa SUGIYAMA.

**U-Pb zircon ages of metamorphic rocks and granitoids from the Nagato Tectonic Zone in Yamaguchi, southwest Japan: Implication for the geological correlation with the Kurosegawa Tectonic Belt.** Ippei KITANO, Yasuhito OSANAI, Nobuhiko NAKANO, Ryosuke KATO, Vuong BUI THI SINH.

**Serpentinization of forsterite under hydrothermal conditions and controlled synthesis of lizardite.** Zhiqiang ZHOU, Hongjuan SUN, Tongjiang PENG.

### Letters

**Change in size distribution of porewater and entrapped air with progression of water infiltration in sandstone.** Tadashi YOKOYAMA, Satoki SHINTAKU, Naoki NISHIYAMA.

**Hydrocarbon fluid inclusions in authigenic quartz from the Torinosu Limestone at Sakawa town, Kochi Prefecture, Japan.** Taro KIDO, Masanori KUROSAWA, Kei IKEHATA.



### SFMC HAÜY-LACROIX PRIZE 2023

*The jury of the French Society of Mineralogy and Crystallography awarded its Haüy-Lacroix 2023 prize jointly to Clément Herviou and Rémy Pierru*



The PhD thesis of **Clément Herviou** entitled “Fluid circulation and deformation mechanisms in the Schistes Lustrés of the Liguro-Piedmont domain: Implications for the functioning of subduction zones,” was carried out at the Institut des Sciences de la Terre de Paris (Sorbonne University), France under the supervision of Philippe Agard and Anne Verlaquet. The aim of his thesis was to gain a better understanding of the composition of fluids and how they migrate through the crust in the context of oceanic subduction. The jury appreciated Clément's efforts to put the results into a broader perspective, illustrated by the integration of a variety of data, ranging from field data to analyses of fluid inclusions on a regional scale. This work is also an important contribution to our understanding of the paleogeography and tectono-metamorphic evolution of the Liguro-Piedmont area in the Western Alps.



**Rémy Pierru** completed his PhD at the Magmas and Volcanoes Laboratory (University of Clermont-Auvergne), France under the supervision of Denis Andraut and Geeth Manthilake. The aim of his thesis, entitled “High-pressure and high-temperature mantle melting: Application to the dynamics of the early Earth,” was to experimentally constrain the conditions under which the Earth's mantle melts. The jury appreciated the novelty of the experimental approach used, for example, to detect the first traces of partial melting. The uniqueness of these experiments, some of which were carried out at the synchrotron, was also noted. The implications of the results of Rémy's thesis for understanding the evolution of mantle melting during Earth's history, as the source of the magmas in the major Archean magma provinces, go far beyond the scope of experimental petrology.