Workshop on Caldera Volcanism in Japan and New Zealand

Geological Survey of Japan, AIST Tuesday 26 September 2023

Overview

Caldera-forming eruptions that are capable of causing widespread damage and destruction to natural and built environments have occurred repeatedly throughout the Quaternary in Japan and New Zealand. Studying the long-term histories and modern activities of caldera volcanoes are necessary tasks for outlining the potential future hazards associated with these features. To address the "big questions about big eruptions", it is critical not only to integrate findings from various fields within volcanology, but also to share perspectives from researchers based in different countries where caldera volcanoes pose as major threats.

This workshop will cover the recent research efforts that have advanced our understanding of the processes that drive the generation and eruption of large-volume felsic magma bodies at caldera volcanoes in Japan and New Zealand. Presentations and discussions will be centred around three key themes: (1) eruption histories and styles; (2) magma generation processes; and (3) volcano monitoring and unrest. The schedule is shown on the following page.

The one-day workshop will be hosted by the Geological Survey of Japan, AIST, in Tsukuba, Ibaraki. This event is part of an ongoing bilateral research project (*Volcanic response to the depressurization of magma systems: the roles of deglaciation and collapse*), which is jointly funded by the Japan Society for the Promotion of Science and the Royal Society of New Zealand. Five researchers from New Zealand will join the workshop in-person. Presentations and discussions will be in English. Researchers in Japan can attend in-person or online via Microsoft Teams (registration is required). Please contact us if you intend to attend in-person.

Date: 26/09/2023 (10:00–17:15)

Location: AIST Building 7-3C Room 211 (visitors must check-in at GSJ reception first)

Online: Registration is required. Deadline of 25/09/2023 at 10:00. Link for registration:

https://teams.microsoft.com/registration/yP6nGC9lm0CDaSctnOgGIA,KOqwce98L0ylDBzS4_83SA,mXgkleuJlE6pFE17NRGEBg,x4tFaUMaNUaEuL82w_TMmA,WYLcAVlJFEav7pKCss_1XQ,ut-7zgFP-kWxz_AjeF_kjg?mode=read&tenantId=18a7fec8-652f-409b-8369-272d9ce80620

Inquiries

Contact **c.conway@aist.go.jp** for more information.

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305-8567, JAPAN

Schedule

Introduction

10:00 Osamu Ishizuka

Eruption histories and styles

10:15 Shinji Takarada – New series of distribution maps of ignimbrites in Japan

10:30 Graham Leonard – New geological map for the Taupō Volcanic Zone (TVZ)

10:45 Simon Barker – Caldera-forming eruptions and impacts

11:00 Shohei Shibata – Paleomagnetic directions of Kutcharo pumice flow deposits II/III and Aso-4 tephra

11:15 Takeshi Hasegawa – The duration of caldera-forming eruptions based on paleomagnetic methods

11:30 Discussion – Comparing the productivity of New Zealand and Japan calderas

12:00 lunch

Magma generation processes

13:30 Shane Rooyakkers – O-isotope insights into TVZ magmatic-hydrothermal interactions

13:45 Simon Barker – Magma genesis at Taupō Volcano and along the TVZ

14:00 Takayuki Nakatani – Experimental petrology constraints on magma storage conditions

14:15 Isoji Miyagi – Basaltic magma degassing at Aso Volcano

14:30 Discussion – Unravelling mantle and crustal contributions to arc magmatism

15:00 break

Volcano monitoring and unrest

15:30 Bubs Smith – Co-production of volcano research with local communities in the TVZ

15:45 Finn Illsley-Kemp – Recent earthquake activity and unrest at Taupō Volcano

16:00 Graham Leonard – Monitoring volcanoes and hazard communication in New Zealand

16:15 Kazutaka Mannen – Unrest and hydrothermal eruptions at Hakone Volcano in the 21st century

16:30 Discussion – Future research activities at active caldera volcanoes

Conclusion

17:00 Chris Conway

日本語 アナウンス

【開催案内】Japan-New Zealand：カルデラ噴火ワークショップのお知らせ

【趣旨】日本やニュージーランドでは、広範に被害をもたらす破局的なカルデラ形成噴火が、第四紀に繰り返し発生しています。これら巨大噴火に取り組むためには、火山学の多様な分野の知見を統合するだけでなく、カルデラ火山が大きな脅威となっている各国の研究者の視点が必要です。今回日本学術振興会と RSNZ のファンドによる日本―ニュージーランド二国間共同研究「Volcanic response to the depressurization of magma systems: the roles of deglaciation and collapse」の一環としてニュージーランド側研究者 5 名が来日するのに合わせてワークショップを開催します．本ワークショップでは、日本とニュージーランドのカルデラ火山における巨大なマグマ生成と噴火のプロセスに関する理解を深めるための最近の研究成果を取りあげます。ぜひご参加いただけますようお願いいたします。

【日時】2023 年 9 月 26 日（火）　10：00～17：15

【主催】 国立研究開発法人 産業技術総合研究所地質調査総合センター

活断層・火山研究部門

【場所/形式】産総研第七事業所 7-3C 棟 211 大会議室+ Teams Webinar オンライン併用

ニュージーランドからの講演者は来日

【産総研会場で参加】当日、産総研第七事業所受付にて入館登録をお願いします。

【オンラインで参加】以下のリンクより事前参加登録をお願いします。

〆切 9 月 25 日（月）10 時

https://teams.microsoft.com/registration/yP6nGC9lm0CDaSctnOgGIA,KOqwce98L0ylDBzS4_83SA,mXgkleuJlE6pFE17NRGEBg,x4tFaUMaNUaEuL82w_TMmA,WYLcAVlJFEav7pKCss_1XQ,ut-7zgFP-kWxz_AjeF_kjg?mode=read&tenantId=18a7fec8-652f-409b-8369-272d9ce80620

【言語】英語

【問い合わせ先】

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【プログラム概要】(敬称略)

Introduction

10:00 石塚 治（産総研）

Part 1. Eruption histories and styles (噴火史と様式)

10:15 宝田晋治（産総研） – New series of distribution maps of ignimbrites in Japan

10:30 Graham Leonard (GNS Science, NZ) – New geological map for the Taupō Volcanic Zone (TVZ)

10:45 Simon Barker (Victoria Uni., NZ) – Caldera-forming eruptions and impacts

11:00 柴田翔平（茨城大学） – Paleomagnetic directions of Kutcharo pumice flow deposits II/III and Aso-4 tephra

11:15 長谷川 健（茨城大学） – The duration of caldera-forming eruptions based on paleomagnetic methods

11:30 Discussion – Comparing the productivity of New Zealand and Japan calderas

Part 2. Magma generation processes (マグマ生成プロセス)

13:30 Shane Rooyakkers (GNS Science, NZ) – O-isotope insights into TVZ magmatic-hydrothermal interactions

13:45 Simon Barker (Victoria Uni., NZ) – Magma genesis at Taupō Volcano and along the TVZ

14:00 中谷貴之（産総研）– Experimental petrology constraints on magma storage conditions

14:15 宮城磯治（産総研）– Basaltic magma degassing at Aso Volcano

14:30 Discussion – Unravelling mantle and crustal contributions to arc magmatism

Part 3. Volcano monitoring and unrest (火山活動の高まりと監視)

15:30 Bubs Smith (Ngāti Tūwharetoa) – Co-production of volcano research with local communities in the TVZ

15:45 Finn Illsley-Kemp (Victoria Uni., NZ) – Recent earthquake activity and unrest at Taupō Volcano

16:00 Graham Leonard (GNS Science, NZ) – Monitoring volcanoes and hazard communication in NZ

16:15 萬年一剛（神奈川県温泉地学研究所）– Unrest and hydrothermal eruptions at Hakone Volcano in the 21st century

16:30 Discussion – Future research activities at active caldera volcanoes

Conclusion

17:00 Chris Conway （産総研）