

This file contains email receipts and tracking record of samples for our study. In order, it contains:

P2-4 Results for day 1 as emailed to our HVO collaborator.

P5 Results for day 2

P6 Results for day 4

P7-10 Tracking record of the sample shipping

P11 Nature Geoscience submission confirmation from Research Square

P12-13 Nature Geoscience submission receipt from N. Geoscience editorial office

P14 Nature Geoscience email about editorial delays that led to a decision 1 month after submission

P15 Submission confirmation from PNAS

P16 Decision from PNAS



Penny Elaine Wieser <penny_wieser@berkeley.edu>

Prelim results

Penny Elaine Wieser <penny_wieser@berkeley.edu>
To: "Lynn, Kendra J" <klynn@usgs.gov>

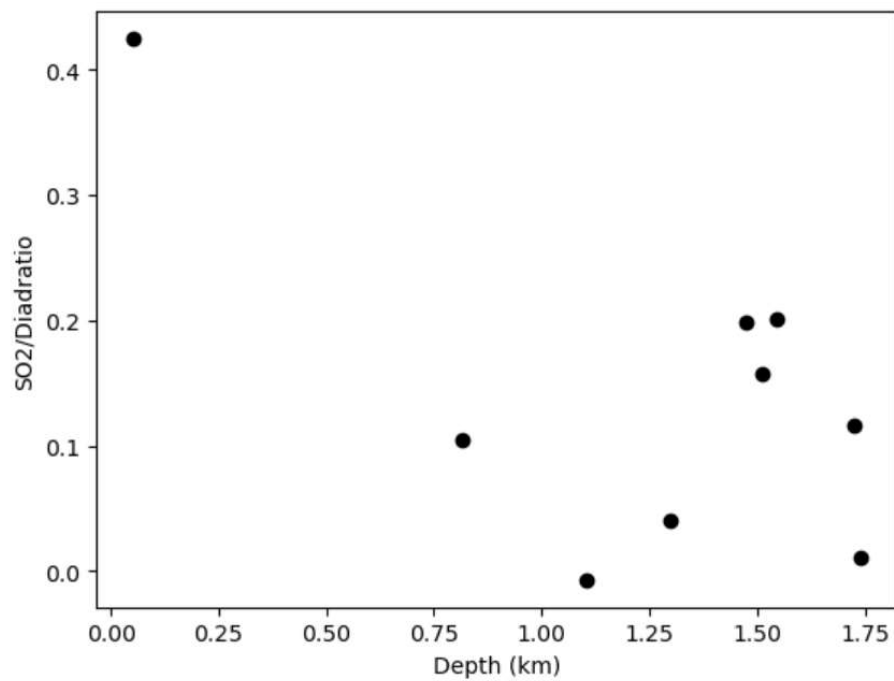
Wed, Sep 20, 2023 at 6:44 PM

Hi Kendra,

First 10 FI are analysed. See depths below using the Ryan-Lerner density model for Kilauea. The y axis is related to the % SO₂ in the fluid - basically a measure of 'degassing' so we would discard the lower one as degassed. Unsuprisingly, HMM reservoir, but we think its cool none the less!

We have ~20 more FI ready to analyse first thing tomorrow morning. Those results will be in by the end of day tomorrow. My students will be prepping more during the day too. Probably get 30-40 pressures total in 3 days. Enough to define the reservoir very well. To clarify, this is actually the labour of 1 person for 1 day, I started crushing + sieving (9-930 while training my grad student how to do so), picking (930-11), prepping (12-145) and Ramaning (1:45-530) to get started. My students/postdoc prepped FI all day so that we can Raman all day long tomorrow. So it only gets faster from here!

Plan is to get Forsterite contents using the EDS here on monday (The earliest we can get on). We will run some Kilauea olivines we measured at stanford and Cam to assess precision/accuracy + normal sec standards. Any chance you have glass EPMA yet so we can assess ol-liq equilibrium (or approx whole-rock MgO-FeO as not to phyrical). Else we will run a few glass spots!



--

Penny Wieser (she/her)
Assistant Professor
Earth and Planetary Science
UC Berkeley
<https://sites.google.com/view/penny-wieser>

Results for our (timestamped) records

Penny Elaine Wieser <penny_wieser@berkeley.edu>

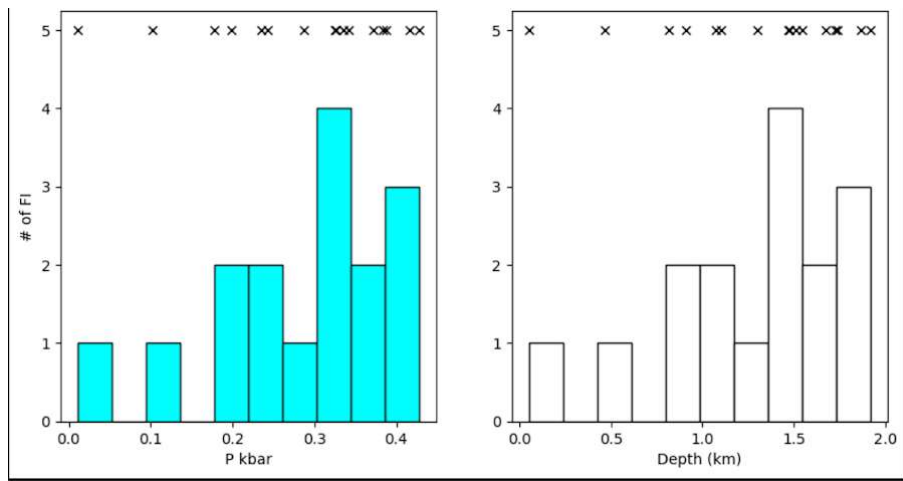
Wed, Sep 20, 2023 at 7:13 PM

To: "Lynn, Kendra J" <klynn@usgs.gov>

Hi Kendra,

Here are the finalized results for day1. 16 FI in total. Histogram and individual measurements shown in black. Will fill out distribution more tomorrow.

Lowest 2 show some textural and chemical signs of being trapped upon ascent to the surface.



--

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Penny Elaine Wieser <penny_wieser@berkeley.edu>

Day 2 results

Penny Elaine Wieser <penny_wieser@berkeley.edu>
 To: "Lynn, Kendra J" <klynn@usgs.gov>
 Cc: Charlotte Laila Justine Devitre <cdevitre@berkeley.edu>

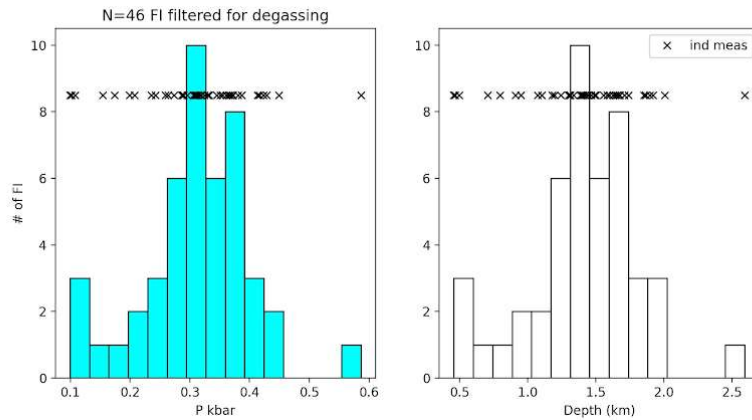
Thu, Sep 21, 2023 at 8:24 PM

Hi Kendra,

Please see Day 2 results attached. 46 FI, with a preliminary filter applied for degassing. Individual measurements in black as well as histograms. Still nothing from SC reservoir, despite the much larger N. With this N in older eruptions we do start picking up the SC reservoir, so pretty confident no contribution. Fo contents on Saturday will confirm that for sure - our tests today on the samples Charlotte probed at USGS show we can reproduce the Fo almost exactly, so old EDS system doing well.

Follow up email with more info about our writing plans, but sending this for our records! Feel free to share with HVO. We would also love to contribute to a Volcano watch or any other sci com format USGS uses for these sort of collabs.

The Berkeley team contributing to this is: Raman+FI: Charlotte DeVitre, Penny Wieser, Raela Richie, Berenise Rangel, Alex Bearden. EDS- Matthew Gleeson, John Grimsich



--

Penny Wieser (she/her)
 Assistant Professor
 Earth and Planetary Science
 UC Berkeley
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Day 4 results

Charlotte Laila Justine Devitre <cdevitre@berkeley.edu>

Sat, Sep 23, 2023 at 7:17 PM

To: klynn@usgs.gov

Cc: Penny Elaine Wieser <penny_wieser@berkeley.edu>

Hi Kendra,

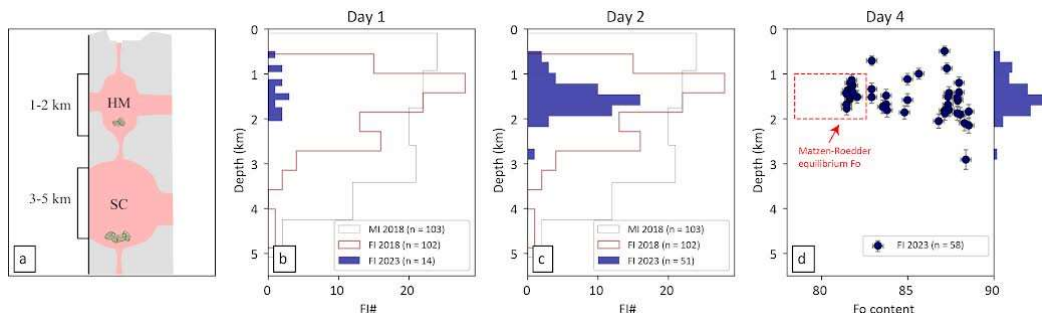
See Day 4 results attached with our EDS Fo contents! (panel d). This is now our Figure 2 for the paper, which we have made some good progress on today! You can see in panels b and c the data collected for the 2018 LERZ eruption using the same sample splits as Penny used for her MI work. For the LERZ, our FI method yielded the same results as MI work, within uncertainty; So, it's not an artifact of the method or undersampling, rather we really think that the HMM reservoir is likely the one that supplied the eruptive melt.

I am adding here our current paragraph of interpretations:

Our results clearly show that the majority of FI were entrapped ~1-2 km (Fig.2 a-d), which aligns well with the depth of the Hale'au'au reservoir revealed by geophysical studies (Anderson et al., 2012,2016,2019), Melt Inclusion barometry (Wieser et al., 2021; Lerner et al., 2021), and FI barometry (Devitre and Wieser, 2023). While the larger number of analyses from data processed on Day 2 and Day 4 certainly build up the picture, it is notable that the correct storage reservoir was identified with the depths we obtained within a day. Rapid EDS analyses of olivine compositions close to each fluid inclusion reveal that olivines grew from a wide range of melt compositions. It is interesting to note that FI in the cores of high-Fo olivines return pressures indicative of the shallower HMM reservoir – it has been suggested in previous eruptions that these high Fo olivines predominantly grow in the deeper South Caldera Reservoir (3-5 km), where high MgO melts are thought to arise. We suggest three possible scenarios to explain the relatively shallow pressures recorded by these high Fo olivines. 1) FI in higher Fo olivines were entrapped at SC reservoir and reequilibrated at HM pressure prior to eruption. 2) High MgO melts were injected into the HMM reservoir, where high Fo olivines crystallized and trapped FI 3) Complex skeletal growth of olivine during extensive undercooling meant that relatively low pressure FI were trapped within high Fo olivine cores which grew in the SC reservoir incorporated. We think that scenario 1 is unlikely given the results of our previous work for the Kilauea 2018 LERZ eruption (Devitre and Wieser, 2023). Even with up to 2 years of stalling (Mourey et al., 2021), no more than 10% re equilibration would occur given that the internal pressures are very low. Regardless of the exact mechanism, our FI pressures indicate that the erupted crystal cargo experienced storage in the HMM reservoir, and thus this is the most probable reservoir supplying the eruptive melt to the surface.

Best,

Charlotte





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DIMENSIONS 13x10x11 in.

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Ascending



Local Scan Time





- 2:27 PM
Shipment information sent to FedEx
- 4:54 PM
At FedEx origin facility
HILO, HI
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Picked up
Package received after FedEx cutoff
HILO, HI

Monday, 9/18/23

- 1:22 PM
Shipment arriving On-Time
HILO, HI
- 2:10 PM
Left FedEx origin facility
HILO, HI

Tuesday, 9/19/23

- 1:15 AM
Operational Delay
OAKLAND, CA
- 1:15 AM
Arrived at FedEx hub
OAKLAND, CA
- 6:04 AM
Departed FedEx hub
OAKLAND, CA
- 7:21 AM
At local FedEx facility
EMERYVILLE, CA
- 8:02 AM
On FedEx vehicle for delivery
EMERYVILLE, CA
- 8:08 AM
Shipment arriving early
EMERYVILLE, CA
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Track the status of your submission to Nature Geoscience

Research Square <info@researchsquare.com>

Wed 9/27/2023 5:45 PM

To:Charlotte Laila Justine Devitre <cld243@cornell.edu>

Dear Dr. Charlotte DeVitre,

Congratulations on your manuscript submission to Nature Geoscience. In partnership with Springer Nature, [Research Square](#) provides a private dashboard where you can track the status of your manuscript "Depths in a day - A new era of rapid-response Raman-based barometry using fluid inclusions" that is under consideration at Nature Geoscience. To access your dashboard and start tracking the progress of your manuscript through the peer review process, please log in to your account:

[Log in to your account](#)

Although you chose not to share your manuscript as a preprint when you submitted it to the journal, you can still do so through your dashboard. Preprints are given a DOI and posted permanently online on Research Square, allowing for more collaboration opportunities, earlier citations, and community comments. If you are interested in this option, log in via the link above and then select "Post My Preprint".

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Sincerely,

The Research Square Team

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Nature Geoscience: Receipt of manuscript NGS-2023-09-01950

Geoscience@nature.com <Geoscience@nature.com>

Thu 9/28/2023 3:08 AM

To:Charlotte Laila Justine Devitre <cld243@cornell.edu>

Our ref: NGS-2023-09-01950

28th Sep 2023

Dear Dr DeVitre,

Thank you for submitting your Brief Communication entitled "Depths in a day - A new era of rapid-response Raman-based barometry using fluid inclusions."

Your submission has been assigned the following tracking number: NGS-2023-09-01950. We will be in touch again as soon as we have reached a decision. Please quote the tracking number in any communication.

Please note that this e-mail simply acknowledges receipt of your submission. It does not imply that the paper will be sent out for formal review. Should the editors decide for editorial reasons that the paper is unsuitable for publication in Nature Geoscience, you will be informed as soon as possible.

If an editor decides to send your manuscript for external review, they will first contact you and ask you to complete an Editorial Policy Checklist that verifies compliance with all required editorial policies. More information about our editorial policies, including a flattened version of this form can be found at: www.nature.com/authors/policies/availability.html

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Thank you for choosing to submit your manuscript to Nature Geoscience.

Yours sincerely,

Manuscript Administration, Nature Geoscience

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RE: NGS-2023-09-01950 manuscript status

Wed 10/25/2023 1:19 AM

To:Charlotte Laila Justine Devitre <cld243@cornell.edu>

Dear Dr Devitre,

Please accept my apologies for not dealing with your manuscript sooner. The journal has experienced an exceptionally busy month. And unfortunately we don't automatically receive messages sent through the portal, so I was unaware you had tried to contact us.

I will look at your manuscript today, and again, we are sorry for the delay in making this decision.
All the best,

Editor, Nature Geoscience.



Charlotte Laila Justine Devitre <cdevitre@berkeley.edu>

PNAS MS#2023-19031 Submitted

1 message

journalstaff@pnascentral.org <journalstaff@pnascentral.org>

Tue, Oct 31, 2023 at 2:08 PM

Reply-To: pnas@nas.edu

To: cl.devitre@gmail.com

Cc: cdevitre@berkeley.edu

October 31, 2023

Dear Dr. DeVitre,

Thank you for your submission to PNAS. Your Brief Report was received and will be processed within 4-5 business days. You will receive an email once the staff have confirmed everything is in order or letting you know if any changes are necessary.

Sincerely,

PNAS Editorial Office

(p) 202.334.2679

(e) pnas@nas.edu

[PNAS](#) | [PNAS Nexus](#)



Charlotte Laila Justine Devitre <cdevitre@berkeley.edu>

PNAS MS# 2023-19031 Decision Notification1 message

CCarpenter@pnas.nas.edu <CCarpenter@pnas.nas.edu>

Wed, Nov 15, 2023 at 12:52 PM

Reply-To: CCarpenter@pnas.nas.edu

To: cl.devitre@gmail.com

Cc: cdevitre@berkeley.edu

November 15, 2023

Title: "Depths in a day - A new era of rapid-response Raman-based barometry using fluid inclusions"

Tracking #: 2023-19031

Authors: DeVitre et al.

Dear Dr. DeVitre,

Thank you for submitting your manuscript, titled "Depths in a day - A new era of rapid-response Raman-based barometry using fluid inclusions", to PNAS; the results of our assessment have led us to the decision to decline to consider it for publication at this time.

PNAS is a multidisciplinary journal that aims to publish high-impact research of general interest to the scientific community. Because we receive more than 18,000 submissions every year, incoming manuscripts undergo an initial evaluation by a member of the Editorial Board, who is also a member of the National Academy of Sciences, to determine whether the potential novelty, impact, and relevance in the broad scientific community merit further detailed technical review. In your case, our assessment is that your manuscript does not meet one or more of the principal aims of our journal and on this basis we expect that the likelihood that detailed review will lead to publication is low. This decision is necessarily subjective and does not reflect an evaluation of the technical quality of your work or of its appropriateness for a more specialized audience.

Thank you for submitting your work to PNAS; we wish you success in finding a more suitable venue for publication soon.

Yours,

Editor-in-Chief, PNAS
(e) pnas@nas.edu

PNAS
PNAS Nexus

Editor Comments:

This is indeed an interesting real-time procedure but may be too specialized for PNAS.