TRR 170 NEWSLETTER #8 11_2023

TRR 170
LATE ACCRETION
ONTO TERRESTRIAL PLANETS

› Editorial

Dear Colleagues,

As we reach the end of 2023, we also approach the end of our second funding period. The evaluation for the third funding period in Berlin went very well, but….

Nevertheless, the third funding period will unfortunately not be supported by the DFG. We have received one year of final funding to complete the projects from the second funding period. The coordination will remain in Münster.

Earlier this year, Dr. Carolyn van der Bogert and Dr. Iris Weber took over parts of the work of the former coordinator Sabine Hunze. Beginning in October Dr. Katharina Reitze replaced Kelly Cairns, and she will continue into 2024 as a coordination assistant for the close-out of the TRR.

One of the TRR PIs and former speaker, Prof. Dr. Thorsten Kleine became a Geochemistry Fellow this year! Congratulations to Thorsten on his award!!

The TRR supported a very successful German-Suisse Geodynamics Workshop in Haltern that inspired lots of scientific exchange and intense discussions between the TRR 170 members. A three-day writing retreat for our PhD students in the ‘Landhaus Rothenberge’ in Wettringen (somewhere in the middle of nowhere) was successful. The students enjoyed a chance to team build and help one another on their writing projects. Another scientific writing in English online workshop was also organized for mid-December, which allowed a lot of discussion and self-reflection on scientific writing style.

Our Annual Retreat 2023 took place in Münster after the DFG decision for the third funding period end of November. The Retreat was a fruitful meeting with intense discussions and communications between the TRR 170 members of all project groups and institutions. We enjoyed hosting you all in Münster!

All the best for the holidays and the start in the new year!

Carolyn van der Bogert, Iris Weber, Harald Hiesinger

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› Personnel

New Coordinators

Dr. Carolyn van der Bogert
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Carolyn van der Bogert is a planetary geologist, who has worked at the Institut für Planetologie since 2006 on projects ranging from analysis of NASA Stardust samples to acting as a co-investigator for the Lunar Reconnaissance Orbiter Camera. Her current research focuses on understanding the geological history of the Moon through geological mapping and crater size-frequency distribution (CSFD) measurements, as well as understanding geological processes using remote sensing observations and CSFD measurements. She is also involved in the characterization of potential lunar landing sites for upcoming international missions and has worked on the ESA strategy for exploration of the Moon.

Dr. Iris Weber (IfP, Uni Münster)
Iris.weber@uni-muenster.de

Iris Weber is a geoscientist and since 2006 involved in various space missions like Rosetta, ExoMars and now BepiColombo. During her PhD thesis she was working on microstructural investigation of achondrites including Martian meteorites and eucrites. As a post-doctoral fellow, she was working on interplanetary dust particles (IDPs), as well as on the MIDAS, and the Stardust experiments. After that her focus moved to IR and Raman spectroscopy for the MERTIS instrument on BepiColombo mission as well as to project management, which is why she took over the coordinator position for the remaining time of the TRR project together with Carolyn van der Bogert.

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› Publications (March – November 2023)

Allibert, L., Landeau, M., Röhlen, R., Maller, A., Nakajima, M., Wünnemann, K. (2023): Planetary Impacts: Scaling of Crater Depth From Subsonic to Supersonic Conditions. Journal of Geophysical Research: Planets. https://doi.org/10.1029/2023JE007823

Bischoff, A., Komnik, M., Storz, J., Berndt, J. (2023): Anorthositic lunar regolith breccia Dhofar 1769 - Clear indications for repeated mixing of impact melt lithologies, Meteoritics & Planetary Science. https://doi.org/10.1111/maps.14052

Bischoff, A., Patzek, M., Di Rocco, T., Pack, A., Stojic, A., Berndt, J., Peters, S. (2023): Saint-Pierre-le-Viger (L5-6) from asteroid 2023 CX1 recovered in the Normandy, France—220 years after the historic fall of L'Aigle (L6 breccia) in the neighborhood, Meteoritics & Planetary Science. https://doi.org/10.1111/maps.14074

Budde, G., Tissot, F.L.H., Kleine, T., Marquez, R.T. (2023): Spurious molybdenum isotope anomalies resulting from non-exponential mass fractionation, Geochemistry. https://doi.org/10.1016/j.chemer.2023.126007

Collinet, M., Plesa, A.-C., Ruedas, T., Schwinger, S., Breuer, D. (2023): The Temperature and Composition of the Mantle Sources of Martian Basalts, Geophysical Research Letters. https://doi.org/10.1029/2023GL103537

Haupt, C.P., Renggli, C.J., Klaver, M., Steenstra, E.S., Berndt, J., Rohrbach, A., Klemme, S. (2023): Experimental and petrological investigations into the origin of the lunar Chang'e 5 basalts, Icarus. https://doi.org/10.1016/j.icarus.2023.115625

Hellmann, J.L., Schneider, J.M., Wölfer, E., Drążkowska, J., Jansen, C.A., Hopp, T., Burkhardt, C., Kleine, T. (2023): Origin of isotopic diversity among carbonaceous chondrites, The Astrophysical Journal Letters. https://doi.org/10.3847/2041-8213/acc102

Iqbal, W., Hiesinger, H., Borisov, D., van der Bogert, C.H., Head III, J.W. (2023): Geological Mapping and Chronology of Lunar Landing Sites: Apollo 14, Icarus. https://doi.org/10.1016/j.icarus.2019.06.020

Kleine, T., Steller, T., Burkhardt, C., Nimmo, F. (2023): An inner solar system origin of volatile elements in Mars, Icarus. https://doi.org/10.1016/j.icarus.2023.115519

Klöcking, M., Wyborn, L., Lehnert, K.A., Ware, B., Prent, A.M., Profeta, L., Kohlmann, F., Noble, W., Bruno, I., Lambart, S., Ananuer, H., Barber, N., Becker, H., Brodbeck, M., Deng. H., Deng, K., Elger, K., de Souza Franco, G., Gao, Y., Ghasera, K.M., Hezel, D.C., Huang, J., Kerswell, B., Koch, H., Lanati, A.W., ter Maat, G., Martínez-Villegas, N., Yobo, L.N., Redaa, A., Schäfer, W., Swing, M.R., Taylor, R.J.M. , Traun, M.K., Whelan, J., Zhou, T. (2023): Community recommendations for geochemical data, services and analytical capabilities in the 21st century, Geochimica et Cosmochimica Acta. https://doi.org/10.1016/j.gca.2023.04.024

Liu, T., Michael, G., Wünnemann, K. (2023): The Timeline of Early Bombardment Constrained by the Evolving Distributions of Differently Aged Melt, The Planetary Science Journal. https://doi.org/10.3847/PSJ/ace0bb

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› Publications (March – November 2023)

Oetting, A., Schmedemann, N., Hiesinger, H., van der Bogert, C.H. (2023): Slopes of Lunar Crater Size-Frequency Distributions at Copernican-Aged Craters, Journal of Geophysical Research: Planets. https://doi.org/10.1029/2023JE007816

Pape, J., Zhang, B., Spitzer, F., Rubin, A.E., Kleine, T. (2023): Isotopic constraints on genetic relationships among group IIIF iron meteorites, Fitzwater Pass, and the Zinder pallasite, Meteoritics & Planetary Science. https://doi.org/10.1111/maps.14075

Rout, S.S., Storz, J., Davydok, A., Bischoff, A., John, T., Krywka, C., Ritter, M. (2023): Formation of diamond and lonsdaleite in ureilites by impact shock processing of graphite, Meteoritics & Planetary Science. https://doi.org/10.1111/maps.14082

Schneider, J.M., Burkhardt, C., Kleine, T. (2023): Distribution of s-, r-, and p-process nuclides in the early Solar System inferred from Sr isotope anomalies in meteorites, The Astrophysical Journal Letters. https://doi.org/10.3847/2041-8213/ace187

Sikdar, J., Becker, H., Schuessler, J.A. (2023): Silicon and iron isotopes in components of enstatite chondrites: Implications for metal–silicate–sulfide fractionation in the solar nebula, Meteoritics & Planetary Science. https://doi.org/10.1111/maps.13990

Steenstra, E.S., Renggli, C.J., Berndt, J., Klemme, S. (2023): Evaporation of moderately volatile elements from metal and sulfide melts: implications for volatile element abundances in magmatic iron meteorites, Earth and Planetary Science Letters. https://doi.org/10.1016/j.epsl.2023.118406

Wölfer, E., Budde, G., Kleine, T. (2023): Age and genetic relationships among CB, CH and CR chondrites, Geochimica et Cosmochimica Acta. https://doi.org/10.1016/j.gca.2023.10.010

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› INF project and database TRR170-DB

The data storage options have been extended to include large datasets. Since the repository limits file uptakes to 2GB, larger datasets are now stored at a server, while linking the dataset location to the metadata information of the dataset. An example is given at the currently published dataset by Orgel et al. (Replication Data for: Characterization of high-priority landing sites for robotic exploration missions in the Apollo basin, Moon) at https://doi.org/10.35003/PI5HHE. This dataset is for a paper currently in production for a special Lunar Reconnaissance Orbiter collection at the Planetary Science Journal.

The TRR170-DB repository metadata are mirrored by the FU Berlin's library system at https://refubium.fu-berlin.de/handle/fub188/38514. Thus, TRR 170 data sets are now findable using keyword searches via global search machines and information services.

A contribution at the AGU Fall Meeting 2023 introduces the Planet Explorer (Lehmann et al. 2023, '*Exploring the Moon Using Planet Explorer - A Browser Visualizing Planetary Sample Data in a Spatial Context*', AGU Fall Meeting, P11C-2733). A test version is planned to be available in early 2024.

Some more training opportunities in research data management are offered by FU Berlin's research data management team activities.
https://www.fu-berlin.de/sites/forschungsdatenmanagement/aktuelles/2023/10-17-schulungen-wise-2023.html

Check back the TRR170-DB website for regular updates.

Questions?

Contact:

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› Activities 1

August 27 - 30, 2023

German-Swiss Geodynamics Workshop 2023 in Haltern am See

From August 27-30, 2023, the German-Swiss Geodynamics Workshop of the DGG working group "Dynamics of the Earth's Interior" was held after a two year pause. This year, Prof. Dr. Ulrich Hansen and his working group organized the meeting in Haltern am See in the extended Münsterland region. With a total of 48 participants from Germany, Switzerland, France, the Czech Republic, Norway, Great Britain and the USA, the workshop was very well attended. The participants were able to present their current scientific work in the form of lectures and posters. The workshop thus provides an important platform for the exchange of ideas and findings in the fields of Earth dynamics, the evolution of terrestrial planets, the interior of icy moons and exoplanets.

The scientific program was very broad and offered an excursion from the interior of the Earth to exoplanets and was funded by the TRR 170.

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› Activities 2

November, 2023

Writing Retreat "Haus Rothenberge"

The Writing Retreat took place from 13th to the 15th of November in the middle of nowhere – Landhaus Rothenberge.

The recently completed renovation and restoration of the Landhaus Rothenberge marks an important milestone in preserving this architectural jewel for generations to come. Now the University of Münster is the principle user of the building. The villa has a modern seminar room. Twenty-eight guests can comfortably stay overnight. Thus, it seemed the ideal location to offer the students an opportunity to retreat for a few days to work on their writing task, whether dissertation, journal article, or revision. The students were glad to have an opportunity to meet alone without their advisors (!) and get to know one another better, but also discuss their writing projects, problems and solutions.

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› Gender Activities

October, 2023
'Women in Science' series #4

Interview with Barbara Giuri on 27.10.2023

Barbara Giuri is a PhD student in the TRR 170 Project A 6 at the Institute für Planetologie in Münster, Germany, since 2020.

Barbara was born near Rome, but has lived across the world in different places, living 10 years in the UK, before coming to Germany. She earned her bachelor's and master's degrees while in the UK, but at it was difficult to find a PhD in the UK, she was very happy that by chance she saw a TRR 170 job advertisement on the homepage of a geochemical journal which brought her to Münster. From the very beginning, she felt that the TRR 170 project was made for her and exactly matched her interests and skills.

As a woman in science, she did not feel discriminated against in either the UK or Germany, and did not experience any differences between the countries. Of course, there are always personal preferences, she said, but she has always felt comfortable, equal, and valued in TRR 170. So, she was very happy and thankful to be part of the TRR 170. In addition, she has found many members of TRR 170 to be very open and interested in her and her work. Currently, she is still working on her PhD. After completing her PhD, she would like to stay on in the academic context as a postdoc. She is open to all options and curious about what life will bring, although she would of course be happy to return to UK, or even go to the US.

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› Outreach

July 2023

Geochemistry Fellow

The Geochemical Society and the European Association of Geochemistry introduced the honorary title of "Geochemistry Fellow" in 1996. This title is awarded to outstanding scientists who have made a significant contribution to the field of geochemistry over a number of years.

Thorsten Kleine was named a **Geochemistry Fellow** in 2023!

Since 2022 Thorsten Kleine is the head of the Max Plank Institute for Solar System Research in Göttingen, Germany. He is known for his ground-breaking new findings on the formation and early development of our Solar System based on isotopes. Thorsten Kleine's work focuses on analyzing isotopes from meteorites and other extraterrestrial rocks. In these investigations, the samples provide information about their place of origin, their further development and their age and thus help to understand the origin and formation of our Solar System

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› Upcoming events

2023			
13 December	Writing workshop	TRR 170 (2nd funding period)	PhD students

Upcoming international conferences, which cover aspects of TRR 170

EGU General Assembly 2024

Vienna, Austria
April 14 – 19, 2024

GOLDSCHMIDT® 2024
Chicago
18-23 August

2024 METSOC BRUSSELS

Brussel
July 28th – August 2nd 2024

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› Impressum

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