Pr. Dr. Vinciane Debaille

Present Position

Since October 2018: FRS-FNRS Senior Research Associate at the Université Libre de Bruxelles (permanent position).

Scientific interests

- Isotope ratios (Nd, Hf, Os, Sr, Pb, Cu, Fe, Zn, Mg, Ca) and trace element concentrations as petrogenetic tracers
- Long-lived (Sm-Nd, Lu-Hf, ^{206}Pb-^{207}Pb) and short-lived (^{146}Sm-^{142}Nd, Al-Mg) geochronometers for dating the early solar system
- Early solar system composition and chronology of meteorites
- Early planetary differentiation processes: Mars, Moon, Earth, Vesta
- Ancient Earth: continental crust formation and komatiites
- Secondary alteration and stable isotope ratios
- Isotope bioarcheology and environmental studies
- Curation of meteorites and sample return missions

Publications

PEER-REVIEWED ARTICLES

Since 2004: 93 peer-reviewed publications, H-factor 24, i10-index 46 (google scholar). See list of publications in annex.

CONFERENCE PRESENTATIONS

More than 200 conference abstracts, 41 as first author.

Teaching

Elemental and Isotope Geochemistry: 5 ECTS (master level) at ULB (36 h theory)
Cosmochemistry/Planetology: 5 ECTS (master level) at ULB (18 h theory)
Global Chemical Geodynamics: 5 ECTS (master level) at ULB (12 h theory)
Geology of Belgium: 5 ECTS, 8h and 2 days of fieldtrip (bachelor level) at ULB
Astrobiology: Archean Earth; classification of meteorites: 8 h theory (master level) at ULiège

Employment and Education

2018-present: FRS-FNRS Senior Research Associate (Maître de recherche)
2010-2018: FRS-FNRS Research Associate (chercheur qualifié)
2007-2010: FRS-FNRS postdoctoral researcher at the Université Libre de Bruxelles. In collaboration with Nadine Mattielli (ULB).
2005-2007: Postdoctoral fellowship at the Lunar and Planetary Institute and NASA-Johnson Space Center, Houston, USA. In collaboration with Alan D. Brandon (NASA-JSC)
2002-2005: Ph.D., Université Blaise Pascal, Clermont-Ferrand, France. Dissertation: Small-scale spatial heterogeneities of oceanic basalts based on variations in Sr, Nd, Pb and Hf space. Advisor: Pierre Schiano, with the collaboration of Janne Blichert-Toft and Francis Albarede (ENS-Lyon, Lyon, France).
2001-2002: M.S., magmatic and metamorphic processes and volcanology, Laboratoire Magmas et Volcans, Université Blaise Pascal, Clermont-Ferrand, France. Thesis: Geochemistry of lavas from Merapi volcano (Java, indonesia): source constraints and temporal evolution according Sr, Nd, Pb and Hf isotope ratios. Advisor: Pierre Schiano.
1997-2001: Undergraduate in Earth Sciences at Université Catholique de Louvain, Belgium. Thesis: Petrological and geochemical study of basaltic lavas from Saint Paul Island, Indian Ocean : Implications for the plume-ridge interaction on the Amsterdam-Saint Paul plateau. Advisors: Dominique Weis and James Scoates (Université Libre de Bruxelles)

Supervision of master and PhD students, and post-doc

Master students
2009-2023: 17 Ms students

PhD students
As main supervisor:

- Pierre Buelens, Petro-mineralogical and geochemical characterization of the Larvik Complex (Norway) and its P-REE mineralization: insights into resources of strategic raw materials for Europe (started in 2020, co-supervisor Sophie Decrée)
- Jerôme Roland, Condensation processes in impact-related vapor plume evidenced by isotope fractionation (started in 2019, co-supervisor Steven Goderis)
- Julien Robic, using Zn isotopes as tracers of hydrothermal circulation (started in 2017, co-supervisor Alain Bernard)

As co-supervisor:

- Thomas Dehais, impact breccias diversity (started in 2017, supervisor Steven Goderis)
- Ryoga Maeda, Sm-Nd and Lu-Hf systematics in chondrites related to extraterrestrial and terrestrial alteration (started in 2018, supervisor Steven Goderis)
- Valentin Fortier, investigating the abiotic production of methane on Mars by rock alteration (started in 2018, supervisor Véronique Dehant)
- Veronica Tollenaar, Antarctic blue ice as a porthole to the Solar System and Earth's changing climate (started in 2020, supervisor Frank Pattyn)
- Rohan Arora, Understanding the mechanisms towards extreme stress tolerance in the Bdelloid rotifer Adineta vaga (Started in 2019, supervisor Karine Vandoninck)

Finished:

- Geneviève Hublet, The early 26Al-26Mg chronology of Vesta and the ureilite parent body. (2010-2015, Supervisor)
- Nadia Van Roosbroek, The record of primitive IIE meteorites: Implications for the formation of silicate-bearing iron meteorites. (2012-2015, Supervisor)

- Maria Valdes, The Ca isotopic composition of the Moon and its evolution with time (2014-2018, Supervisor)
- Joseph Martial Akame, Archean geodynamic evolution in the North-West Congo Craton (2018-2021, Supervisor)
- Bastien Soens, Investigation of the population of micrometeorites in Antarctica (2016-2021, supervisor Steven Goderis)
- Nina Zaronikola, Investigation of primary and secondary mineralization of Cyprus-type VMS deposits and their host rocks from Troodos ophiolite (Cyprus) by using stable non-traditional stable isotopes of Cu, Zn and Fe (2017-2021, co-supervisor Sophie Decrée)

- Participation to 24 PhD committees in Belgium, France and Australia

Post-doc
Dr Lisa Kramer Ruggiu, Dr Ségolène Rabin, Dr Hamed Pourkhorsandi, Dr Maxwell Thiemens (left), Dr Fiona Thiessens (left), Dr Cédric Gillmann (left), Dr Matthias Van Ginneken (left), Dr Ashlea Wainwright (left), Dr Nina Bellot (left), Dr Rosalind Armytage (left), Dr Lidia Pittarello (left), Dr Fatima El Atrassi (left), Dr Yoshihiro Hidaka (left), Dr Céline Martin (left)

Funding, Award and Community Service

Funding:
2023-2027: Brain-Be (Belspo) "ULTIMO": Unlocking tThe scientific potential of the Belgica Mountains, East Antarctica (co-PI)
2020-2023: Mars2020 Returned Sample Science participating scientist (ESA)
2020-2024: Brain-Be (Belspo) "DESIRED": Tracing differentiation processes through siderophile elements, from meteorites to giant ore deposits (co-PI)
2020-2024: PdR FRS-FNRS: "Life in Archean coastal environments" (Co-PI)
2018-2023: Excellence of Science "ET-HOME": Evolution and Tracers of the Habitability of Mars and ancient Earth (main PI of the consortium)
2017-2021: Brain-Be (Belspo) "BAMM!": Belgian Antarctic Meteorites and Micrometeorites (co-PI)
2017-2019: Brain-Be (Belspo) "DIABASE": Disclosing the Antarctic basement by sampling ice field moraines (PI)
2016-2018: Brain-Be (Belspo) "Amundsen": Antarctic Meteorites curation, Digitalization and conservation (co-PI)
2015-2017: Hubert Curien-Tournesol grant with University Aix-Marseilles (PI)
2015-2017: H2020 "Euro-Cares" project (co-PI)
2014-2019: ERC Starting Grant "ISoSyC": Initial Starting Composition of the Solar System (PI)
2012-2017: Inter-University Attractive Pole "Planet Topers" (Co-PI)
2012-2016: Belgian Science Policy Research program "Science for a Sustainable Development (Polar Research)" "BELAM": Belgian Antarctic Meteorite: curation and research (Co-PI)
2013: FNRS grant "gros équipments": acquisition of a new generation MC-ICP-MS at ULB (Co-PI)
2012-2014: Incentive Grant from the FRS-FNRS (PI)
2012: Europlanet FP7 Research Infrastructure funding: ion probe at CRPG, France (Co-PI)
2010-2012: Fonds InBev-Baillet Latour Antarctica Prize (co-awarded with Steven Goderis, VUB)
2010: Europlanet FP7 Research Infrastructure funding: ion probe at CRPG, France (PI)
2010-2014: Belgian Science Policy Research program "SAMBA": Search for Antarctic Meteorites: Belgian Approach (Co-PI)

Travel grants:
Earth and Life Science Institute (ELSI, Tokyo, Japan)
28/02-03/03/2019: "Aquaplanetology" workshop (Koyasan and Tokyo, Japan)

14/05-08/05/2018 “Puzzles and Solutions in Astrobiology” Workshop (Tokyo, Japan)
ESA
14/01-16/01/2019: “MSR Science in Containment” Workshop (Columbia, USA)
16/10-18/10/2018: The fourth and final landing site workshop for the Mars 2020 rover mission (Glendale, USA)

Award:
October 2014: Selected as “Rising talent” in the frame of the Women’s forum for the economy and society
2014: Atomia Prize from the Brussels-Capital region
2012: Baron Van Ertborn Price from the Royal Academy of Belgium

Community service:
2022- : participation to the ESA Curation Expert Group
2021- : member of the European Space Sciences Committee (European Science Foundation)
2020-2021: participation to the Mars sample return planning group-phase 2 (MSPG-2)
2019-2020: elected leader of the Working Group “Planetary Environment and Habitability” of the European Astrobiology Institute
2019-2024: member of the organising committee for the 86nd Annual Meeting of the Meteoritical Society in Brussels
2018- 2020: member of the meteorite working group of the CAPTEM (NASA)
2018-2019: participation to the report iMOST: “The Potential Science and Engineering Value of Samples Delivered to Earth by Mars Sample Return” by the International MSR Objectives and Samples Team
2017-2021: FRS-FNRS FRIA jury (president of the committee in 2019)
2016-2020: councillor of the Rector of ULB for quality
2015-2020: member of the meteorite nomination committee (meteoritical society)
2014- : curator of the Belgian Antarctic meteorite collection hosted at the Royal Belgian Institute for Natural Science
2012-2017: elected councillor of the European Association of Geochemistry

Field missions:
Dec. 2022-Jan. 2023: Field mission in Antarctica for collecting meteorites (Belspo funding, Blue ice fields surrounding the PrincessElisabeth Belgian Antarctic station, 32 days)
Nov. 2019: Participation of a field mission for collecting meteorites in hot desert area (Chile).
Nov. 2015: Participation of a field mission for collecting meteorites in hot desert area (Chile).
Dec. 2014-Jan. 2015: Field mission in Antarctica for collecting meteorites with the Antarctic Search for meteorite (Ansmet) team (NASA funding, Transantarctic Mountains Davis Nunatak/Mount Ward Ice Field, 60 days)
Dec.2012-Jan. 2013: Field mission in Antarctica for collecting meteorites; leader of the Belgian team (Belspo funding, Nansen Ice Field, 75 days)
Dec.2010-Jan. 2011: Field mission in Antarctica for collecting meteorites (Belspo funding, Nansen Ice Field, 45 days)

Grant reviewer:
ANR (France), NSF (USA), FRQNT (Quebec), MIUR (Italy), FWO (Belgium-Flanders), FRIA (Belgium-Wallonia)

Invited seminar and Science Popularization

Invited seminars

University College Dublin (IE), ESA (Estec site – NL), CEREGE-U. Aix-Marseilles (F), Université Paris-Sud-Orsay (F), ETH-Zurich (CH), Open University (UK), Université de Toulouse (F), University of Bonn (D), Cambridge University (UK), University of Cologne (D)

Invited conferences

- Goldschmidt Conference (keynote), July 2021, virtual
- Aquaplanetology Winter School: Isotope geochemistry and cosmochemistry: using natural radioactivity, extant and extinct, for dating geological and planetary processes, February 2019, Koyasan, Japan.
- GeoBonn: Archean geodynamics and the onset of plate tectonics, September 2018
- ESA Alpbach Summer school: "Sample return from small solar system bodies", July 2018
- Workshop « Puzzles and Solutions in Astrobiology", Earth and life Institute, Tokyo, Japan, May 2018
- ISSI Workshop EuroPlaNet "Role of Sample Return in Addressing Major Outstanding Questions in Planetary Sciences", February 2018, Bern, Switzerland.
- Workshop "Evolutions primitives de Vénus et de la Terre", November 2010, Orsay, France.
- ISSI Workshop EuroPlaNet "Quantifying the Martian geochemical reservoirs", April 2011, Bern, Switzerland.
- Goldschmidt Conference (keynote), August 2015, Prague, Czech Republic

Large audience conferences: More than 30 since 2012
Interview on television: More than 15 for televisions news (RTBF and RTL)
Interview on radio: More than 10 for various stations of RTBF
Written press : More than 25 in Belgian journals (La Libre Belgique, le Soir, l'echo, le Vif)

Internet press

- FNRS TV: 2018: the EOS project: https://www.youtube.com/watch?v=tGznUbkLN2Y
- Daily science 2/05/2016 http://dailyscience.be/2016/05/02/les-meteorites-belges-recoltees-en-antarctique-menacees-par-la-rouille/
- Blog espace des sciences : l'antarctique un endroit idéal pour trouver des météorites ; 29 novembre 2012
- http://www.elle.be/fr/30445-5-bonnes-raisons-pour-faire-carriere-dans-la-science.html
- http://avisdechercheurs.ulb.ac.be/#Vinciane_Debaille

Large audience journal

-Mission vie sur Mars, L'artichaut, revue de l'université InterAges de l'ULB, Octobre 2021
-Les météorites en Antarctique : les archives de notre système solaire, L'artichaut, revue de l'université InterAges de l'ULB, Février 2016
-ALH84001: une énigme parmi les météorites martiennes, L'astronomie, revue de la société astronomique de France, 22, 18-20 (2009).
-Comment sait-on que les météorites martiennes viennent de Mars ?, L'astronomie, revue de la société astronomique de France, 7-8, 48-49 (2008).
-Processus d'éjection des météorites martiennes, L'astronomie, revue de la société astronomique de France, 4, 43 (2008).

Miscellaneous:

-30/01/2017: Speech about "Women in Sciences" at the ULB-VUB avant-première of the movie "Hidden Figures", Brussels
-02/03/2015 : participation à la foire du livre de Bruxelles, séance de questions/réponses avec Hubert Reeves

List of publications

2022

1. Kaskes, P., de Graaff, S.J., Feignon, J.-G., Déhais, T., Goderis, S., Ferrière, L., Koeberl, C., Smit, J., Wittmann, A., Gulick, S.P.S., **Debaille, V.**, Mattielli, N., Claeys, P. (2022). Formation of the crater suevite sequence from the Chicxulub peak ring: A petrographic, geochemical, and sedimentological characterization. *Bulletin of the Geological Society of America*, 134 (3-4), pp. 895-927. doi: 10.1130/B36020.1
2. Lampe, S., Soens, B., Chernonozhkin, S.M., de Vega, C.G., van Ginneken, M., Van Maldeghem, F., Vanhaecke, F., Glass, B.P., Franchi, I.A., Terryn, H., **Debaille, V.**, Claeys, P., Goderis, S. (2022). Decoupling of chemical and isotope fractionation processes during atmospheric heating of micrometeorites. *Geochimica and Cosmochimica Acta* 324, 221-239. doi: 10.1016/j.gca.2022.02.008
3. de Graaff, S.J., Kaskes, P., Déhais, T., Goderis, S., **Debaille, V.**, Ross, C.H., Gulick, S.P.S., Feignon, J.-G., Ferrière, L., Koeberl, C., Smit, J., Mattielli, N., Claeys, P. (2022). New insights into the formation and emplacement of impact melt rocks within the Chicxulub impact structure, following the 2016 IODP-ICDP Expedition 364. *Bulletin of the Geological Society of America* 134 (1-2), pp. 293-315. doi: 10.1130/B35795.1
4. Tollenaar, V., Zekollari, H., Lhermitte, S., Tax, D.M.J., **Debaille, V.**, Goderis, S., Claeys, P., Pattyn, F. (2022). Unexplored Antarctic meteorite collection sites revealed through machine learning. *Science Advances* 8 (4), eabj8138. doi: 10.1126/sciadv.abj8138
5. Krämer Ruggiu, L., Devouard, B., Gattacceca, J., Bonal, L., Leroux, H., Eschrig, J., Borschneck, D., King, A.J., Beck, P., Marrocchi, Y., **Debaille, V.**, Hanna, R.D., Grauby, O. (2022). Detection of incipient aqueous alteration in carbonaceous chondrites. *Geochimica et Cosmochimica Acta* 336, 308-331
6. Farley, K.A., Stack, K.M., Shuster, D.L., Horgan, B.H.N., Hurowitz, J.A., Tarnas, J.D., Simon, J.I., Sun, V.Z., Scheller, E.L., Moore, K.R., McLennan, S.M., Vasconcelos, P.M., Wiens, R.C., Treiman, A.H., Mayhew, L.E., Beyssac, O., Kizovski, T.V., Tosca, N.J., Williford, K.H., Crumpler, L.S., Beegle, L.W., Bell, J.F., Ehlmann, B.L., Liu, Y., Maki, J.N., Schmidt, M.E., Allwood, A.C., Amundsen, H.E.F., Bhartia, R., Bosak, T., Brown, A.J., Clark, B.C., Cousin, A., Forni, O., Gabriel, T.S.J., Goreva, Y., Gupta, S., Hamran, S.-E., Herd, C.D.K., Hickman-Lewis, K., Johnson, J.R., Kah, L.C., Kelemen, P.B., Kinch, K.B., Mandon, L., Mangold, N., Quantin-Nataf, C., Rice, M.S., Russell, P.S., Sharma, S., Siljeström, S., Steele, A., Sullivan, R., Wadhwa, M., Weiss, B.P., Williams, A.J., Wogsland, B.V., Willis, P.A., Acosta-Maeda, T.A., Beck, P., Benzerara, K., Bernard, S., Burton, A.S., Cardarelli, E.L., Chide, B., Clavé, E., Cloutis, E.A., Cohen, B.A., Czaja, A.D., **Debaille, V.**, Dehouck, E., Fairén, A.G., Flannery, D.T., Fleron, S.Z., Fouchet, T., Frydenvang, J., Garczynski, B.J., Gibbons, E.F., Hausrath, E.M., Hayes, A.G., Henneke, J., Jørgensen, J.L., Kelly, E.M., Lasue, J., Le Mouélic, S., Madariaga, J.M., Maurice, S., Merusi, M., Meslin, P.-Y., Milkovich, S.M., Million, C.C., Moeller, R.C., Núñez, J.I., Ollila, A.M., Paar, G., Paige, D.A., Pedersen, D.A.K., Pilleri, P., Pilorget, C., Pinet, P.C., Rice, J.W., Royer, C., Sautter, V., Schulte, M., Sephton, M.A., Sharma, S.K., Sholes, S.F., Spanovich, N., St. Clair, M., Tate, C.D., Uckert, K., VanBommel, S.J., Yanchilina, A.G. and Zorzano, M.-P. (2022). Aqueously altered igneous rocks sampled on the floor of

Jezero crater, Mars. *Science*, 377(6614): eabo2196.

7. Tait, K. T., McCubbin, F. M., Smith, C. L., Agee, C.B., Busemann, H., Cavalazzi, B., **Debaille, V.**, Hutzler, A., Usui, T., Kminek, G., Meyer, M. A., Beaty, D.W., Carrier, B.L., Haltigin, T., Hays, L. E, Cockell, C. S., Glavin, D. P., Grady, M. M., Hauber, E., Marty, B., Pratt, L. M, Regberg, A. B., Smith, A. L., Summons, R. E., Swindle, T. D, Tosca, N. J., Udry, A., Velbel, M. A., Wadhwa, M., Westall, F., & Zorzano, M.-P. (2022). Preliminary Planning for Mars Sample Return (MSR) Curation Activities in a Sample Receiving Facility. *Astrobiology*, 22, S57-S80. http://doi.org/10.1089/AST.2021.0105
8. Carrier, B.L., Beaty, D.W., Hutzler, A., Smith, A. L., Kminek, G., Meyer, M. A., Haltigin, T., Hays, L. E, Agee, C.B., Busemann, H., Cavalazzi, B., Cockell, C. S., **Debaille, V.**, Glavin, D. P., Grady, M. M., Hauber, E., Marty, B., McCubbin, F. M., Pratt, L. M, Regberg, A. B., Smith, C. L., Summons, R. E., Swindle, T. D, Tait, K. T., Tosca, N. J., Udry, A., Usui, T., Velbel, M. A., Wadhwa, M., Westall, F., & Zorzano, M.-P. (2022). Science and Curation Considerations for the Design of a Mars Sample Return (MSR) Sample Receiving Facility. *Astrobiology*, 22, S-217-S-237. http://doi.org/10.1089/AST.2021.0110
9. Tosca, N. J., Agee, C.B., Cockell, C. S., Glavin, D. P., Hutzler, A., Marty, B., McCubbin, F. M., Regberg, A. B., Velbel, M. A., Kminek, G., Meyer, M. A., Beaty, D.W., Carrier, B.L., Haltigin, T., Hays, L. E, Busemann, H., Cavalazzi, B., **Debaille, V.**, Grady, M. M., Hauber, E., Pratt, L. M, Smith, A. L., Smith, C. L., Summons, R. E., Swindle, T. D, Tait, K. T., Udry, A., Usui, T., Wadhwa, M., Westall, F., & Zorzano, M.-P. (2022). Time-Sensitive Aspects of Mars Sample Return (MSR) Science. *Astrobiology*, 22, S81-S111. http://doi.org/10.1089/AST.2021.0115
10. Grady, M. M., Summons, R. E., Swindle, T. D, Westall, F., Kminek, G., Meyer, M. A., Beaty, D.W., Carrier, B.L., Haltigin, T., Hays, L. E, Agee, C.B., Busemann, H., Cavalazzi, B., Cockell, C. S., **Debaille, V.**, Glavin, D. P., Hauber, E., Hutzler, A., Marty, B., McCubbin, F. M., Pratt, L. M, Regberg, A. B., Smith, A. L., Smith, C. L., Tait, K. T., Tosca, N. J., Udry, A., Usui, T., Velbel, M. A., Wadhwa, M., & Zorzano, M.-P. (2022). The Scientific Importance of Returning Airfall Dust as a Part of Mars Sample Return (MSR). *Astrobiology*, 22, S176-S185. http://doi.org/10.1089/AST.2021.0111
11. Velbel, M. A., Cockell, C. S., Glavin, D. P., Marty, B., Regberg, A. B., Smith, A. L., Tosca, N. J., Wadhwa, M., Kminek, G., Meyer, M. A., Beaty, D.W., Carrier, B.L., Haltigin, T., Hays, L. E, Agee, C.B., Busemann, H., Cavalazzi, B., **Debaille, V.**, Grady, M. M., Hauber, E., Hutzler, A., McCubbin, F. M., Pratt, L. M, Smith, C. L., Summons, R. E., Swindle, T. D, Tait, K. T., Udry, A., Usui, T., Westall, F., & Zorzano, M.-P. (2022). Planning Implications Related to Sterilization-Sensitive Science Investigations Associated with Mars Sample Return (MSR). *Astrobiology*, 22, S-112-S-164. http://doi.org/10.1089/AST.2021.0113
12. Haltigin, T., Hauber, E., Kminek, G., Meyer, M. A., Agee, C.B., Busemann, H., Carrier, B.L., Glavin, D. P., Hays, L. E, Marty, B., Pratt, L. M, Udry, A., Zorzano, M.-P., Beaty, D.W., Cavalazzi, B., Cockell, C. S., **Debaille, V.**, Grady, M. M., Hutzler, A., McCubbin, F. M., Regberg, A. B., Smith, A. L., Smith, C. L., Summons, R. E., Swindle, T. D, Tait, K. T., Tosca, N. J., Usui, T., Velbel, M. A., Wadhwa, M., & Westall, F. (2022). Rationale and

proposed design for a Mars Sample Return (MSR) science program. *Astrobiology*, 22, S27-S56. http://doi.org/10.1089/AST.2021.0122

13. Meyer, M. A., Kminek, G., Beaty, D.W., Carrier, B.L., Haltigin, T., Hays, L. E, Agee, C.B., Busemann, H., Cavalazzi, B., **Debaille, V.**, Cockell, C. S., Glavin, D. P., Grady, M. M., Hauber, E., Hutzler, A., Marty, B., McCubbin, F. M., Pratt, L. M, Regberg, A. B., Smith, A. L., Smith, C. L., Summons, R. E., Swindle, T. D, Tait, K. T., Tosca, N. J., Udry, A., Usui, T., Velbel, M. A., Wadhwa, M., Westall, F., & Zorzano, M.-P. (2022). Final report of the MSR Science Planning Group 2 (MSPG2). *Astrobiology*, 22, S5-S26. http://doi.org/10.1089/AST.2021.0121
14. Déhais, T., Chernonozhkin, S.M., Kaskes, P., de Graaff, S. J., **Debaille, V.**, Vanhaecke, F., Claeys, P., Goderis, S. (2022). Resolving impact volatilization and condensation from target rock mixing and hydrothermal overprinting within the Chicxulub impact structure. *Geoscience Frontiers*, 13, 101410. https://doi.org/10.1016/j.gsf.2022.101410.
15. Pourkhorsandi, H., Gattacceca, J., Rochette, P., Smith, T., Bonal, L., D'Orazio, M., Devouard, B., Sonzogni, C. and **Debaille, V.** (2022), The Famenin fall and other ordinary chondrites intermediate between H and L groups. *Meteoritics and Planetary Science*, 57, 1038-1059. https://doi.org/10.1111/maps.13801
16. Rochette, P., Bezaeva, N.S., Beck, P., **Debaille, V.**, Folco, L., Gattacceca, J., Gounelle, M. and Masotta, M. (2022), Obsidian and mafic volcanic glasses from the Philippines and Vietnam found in the Paris Museum Australasian tektite collection. *Meteoritics and Planetary Science*, 57: 1460-1471. https://doi.org/10.1111/maps.13825
17. van Ginneken, M., **Debaille, V.**, Decrée, S., Goderis, S., Woodland, A.B., Wozniakiewicz, P., De Ceukelaire, M., Leduc, T. and Claeys, P. (2022), Artificial weathering of an ordinary chondrite: Recommendations for the curation of Antarctic meteorites. *Meteoritics and Planetary Science*, 57: 1247-1266. https://doi.org/10.1111/maps.13818

2021

18. Pourkhorsandi, H., **Debaille, V.**, Gattacceca, J., Greenwood, R., Leduc, T., De Ceukelaire, M., Decrée, S., & Goderis, S. (2021). Tintigny meteorite: the first Belgian achondrite. *Planetary and space science*, 209, 105372. doi:10.1016/j.pss.2021.105372
19. Sabaux, C., Veselka, B., Capuzzo, G., Snoeck, C., Sengeløv, A., Hlad, M., Warmenbol, E., Stamataki, E., Boudin, M., Annaert, R., Dalle, S., Salesse, K., **Debaille, V.**, Tys, D., Vercauteren, M., & De Mulder, G. (2021). Multi-proxy analyses reveal regional cremation practices and social status at the Late Bronze Age site of Herstal, Belgium. *Journal of Archaeological Science*, 132, 105437. doi:10.1016/j.jas.2021.105437
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4. **Debaille, V.,** Roland, J., Goderis, S., Hublet, G., Pourkhorsandi, H. (2022). Asuka 12325: Expanding the Chemical Variety of the Martian Mantle Sampled by Shergottites. Abstract #2433. The 53rd Lunar and Planetary Science Conference, the Woodlands.

5. **Debaille, V.**, Wainwright, A. N., Hoffmann, E. J., Viehmann, S., & Bau, M. (2021). Ancient mantle heterogeneities recorded in igneous and sedimentary rocks. Goldschmidt 2021, Virtual (keynote).

6. **Debaille, V.** (2019). The differentiation and evolution of terrestrial planets using short-lived isotope systems. Aquaplanetology workshop, Earth and Life Science Institute (Tokyo, Japan).

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14. **Debaille, V.**, François, C., Javaux, E., O'Neill, C. & Brandon, A.D. (2018). Archean geodynamics and the onset of plate tectonics. Geobonn (Bonn, Germany).

15. **Debaille V.**, Wainwright A. (2017). Global Archean geodynamics evidenced by 142Nd. EGU Galileo conference: Geoscience for understanding habitability in the solar system and beyond.

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