

Amy J. V. Riches

Planetary and Earth Geologist | Isotope Cosmochemist / Geochemist | Petrologist | Educator

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PUBLICATION LIST

Unless marked otherwise, authorship order relates to intellectual contribution. Record also available at [ORCID](#).
Specialist laboratory and petrology based. I support [DORA](#), the [Leiden Manifesto](#), [ARRA](#), [Open Science](#), [Plan-S](#), [FAIR](#) data.

CHRONOLOGICAL COMPLETED PUBLISHED WORKS

* denotes work led by / involving student colleagues that I have guided and supported.

† denotes works for which, with the exception of the first author, alphabetical ordering of authors applies.

Not listed in this doc. version are ~7 further peer-reviewed research articles + review and frontier works on their way.

- 2026 [\[86\] submitting in ~early-July](#) Correction Note - Origin of CFB magmatism: multi-tiered intracrustal picrite–rhyolite magmatic plumbing at Spitzkoppe, western Namibia, during early Cretaceous Etendeka magmatism. **Riches A.J.V.** and Antoshechkina P. (Minor, yet duty for the record with JoP)
- 2026 [\[85\]](#) With neutrality, respect for committee processes, avoiding any COIs, and for gov-funder etc accountability in line with Astronomer Royal for Scot.'s broad community call to action – quick, short evidence note serving geology, planetary sample sci. & cosmochemistry. To cross-party MPs. **Riches A.J.V.**
- 2026 [\[84\] Under review ~June](#). Evident bullying, harassment, and discrimination in the UK academic geochemistry workplace as systemic barriers to career progression and retention of diverse talent Gagnon J, Anand P., Bots P., Appiah F., Bhagwat S., **Riches A.J.V.** + credits. *Gender, Work & Organisation Journal*

► Immediately below, for UK Space Frontiers 2025 joint-agency review. (STFC-UKSA-DSIT)

“To define ambitious strategic priorities for a 10-year unified vision for UK leadership in space exploration.”

- 2025 [\[83\] Expert White Paper \(Authorship – equal lead\)](#) - Constraining rocky body and Solar System history via Laboratory-based Isotope Cosmochemistry and Geochemistry . [ISOTOPE_+HSE_SCIENCE] *Barrett T., ***Riches A.J.V.**, Belhadfa E. C.. [Link](#) For UK Space Frontiers 2025 review (STFC-UKSA-DSIT)
[This White Paper requests broadly beneficial solutions to structural set-up for planetary sample science + strategic ring-fenced schemes e.g. alike to a Germany-India programme. Proposes a named, purposefully coordinated interdisciplinary centre to include ~£5M-£10M planetary group lab. investment. Potential to link / nest with the scalable ‘SNAC’ proposal - available to assessors on basis of discretion.](#)
- 2025 [\[82\] Expert White Paper \(Contributorship\)](#) - The PRIME Mission (Protoplanetary Remnant Investigation & Mapping of Eccentric Bodies) - The Scientific Case to Visit Asteroid (34698) 2001 OD22
[ECR Leaders:](#) Rider-Stokes B.G, Branagan-Harris E.
[Early Career Contributors:](#) Harrison C., Lyster D. G., Topping N., Findlay R., Shaw K. M. M., Gruyer C., Grant H., Davies F. A., Staddon L.G., Magnarini G., Wong A., Lee K. M., Shirley, K. A., Wilcocks F.M, Sunderland J., Habib N., Henderson F.H.M., Belhadfa E.C., Brown E., Bates H.C.
[Senior/Mid-Career Contributors:](#) Grady M. M., Russell S. S., Bryson J., Downes H., Daly L., Tartèse R., Greenwood R. C., Anand M., Bowles N., White L. F., Suttle M., King, A. J., Darling, J., **Riches A.J.V.**, Crowther S.A., Williams H., Stabbins R., Chan Q.H.S.
[UK-led Orbiter + Sample Return; ~M-class mission £500M to £700M value.](#)
For UK Space Frontiers 2025 review (STFC-UKSA-DSIT)
- 2025 [\[81\] Expert White Paper \(Authorship\)](#) – Asteroids: The Past, Present and Future of the Solar System. King A.,.....**Riches A.J.V.**.... Theme-led. For UK Space Frontiers 2025 review (STFC-UKSA-DSIT)
- 2025 [\[80\] Expert White Paper \(Authorship + chosen targets engaged from among my useful global networks\)](#) - Shackleton: An Expedition to the Lunar South Pole. Harkness P., Barber S., Barrett T., Bowles N., Crawford I., Hague P., Joy K., Martin-Torres J., Morse A., Olsson-Francis K., **Riches A.J.V.** Rasera J., Sargeant H., Worrall K. [~£22M Lunar Rover programme value.](#)
For UK Space Frontiers 2025 review (STFC-UKSA-DSIT)

- 2025 [79] **Expert White Paper Team** – Small-Spacecraft 4 Minor Bodies: Minor Body Exploration with Small-Spacecraft. Vasile M., Ceriotti M., Baresi N., Feng J., Snodgrass C., Stefania S., King A., (then alphabetical) Almeida N., Avdellidou C., Bates H., Belhadfa E., Bowles N., Branagan-Harris E., Bryson J., Burchell M., Chan Q., Ceriotti M., Crowther S., Daly L., Davies F., Eckersley S., Findlay R., Garrington S., Greenwood R., Harrison C., Jones R., Lee M., Lowry S., Matia I., Murphy B., **Riches A.J.V.**, Rider-Stokes B., Rozek A., Russell S., Sanderson H., Shirley K., Steele R., Suttle M., Topping N. Theme-led. For UK Space Frontiers 2025 review (STFC-UKSA-DSIT)
- Signatory below => further frontier science / transformative innovation, significant in making history, high value, impact & legacy.
- 2025 [vi] **White Paper Signatory** - Understanding the formation and evolution of bodies in our Solar System through analysis of extra-terrestrial samples. By the UK Cosmochemical Analysis Network. For UK Space Frontiers 2025 review (STFC-UKSA-DSIT)
- 2025 [v] **White Paper Signatory** Micro- and nano-geoscience for analysis of meteorites and mission returned samples. *Hallis L., et al.* For UK Space Frontiers 2025 review (STFC-UKSA-DSIT)
- 2025 [iv] **White Paper Signatory** The Science Case in Support of the Exploration of Icy Ocean Worlds. *Hay H., et al.* For UK Space Frontiers 2025 review (STFC-UKSA-DSIT)
- 2025 [iii] **White Paper Signatory** Transformational astrophysics and exoplanet science with Habitable Worlds Observatory's High Resolution Imager. *Van Eyland V., et al.* UK Space Frontiers 2025 review (STFC-UKSA-DSIT)
- 2025 [ii] **White Paper Signatory** - The UK Fireball Alliance – building an all-sky UK meteor observatory. King A., *et al.* For UK Space Frontiers 2025 review (STFC-UKSA-DSIT)
- 2025 [i] **White Paper Signatory** - The UK's role in lunar science and exploration. Tartèse R., *et al.* For UK Space Frontiers 2025 review (STFC-UKSA-DSIT)
- 2025 [78] Community Co-developed Letter -> Request: Remove EAG's Goldschmidt Conference bid area exclusions *Submitted to the European Association of Geochemistry's Council and Executive Director.*
- 2025 [77] Royal Society Profile Feature of Amy J. V. Riches. <https://tinyurl.com/5bvxfdpv> *Authored by Isi Moss*
- 2025 [76] Steered constructive feature with Nature.
- 2025 [75] Recognising & developing technical talent: Strategies for growth and development. Royal Soc. event
- 2025 [74] May Planetary Sci. & Geochemistry Opportunities, A reply to the UK Government Scotland Office.
- 2025 [73] Developing, Retaining, & Supporting all Talent for UK Planetary Science Leadership Evidence brief. For Inquiry: Science Diplomacy. UK Science, Innovation and Technology Committee
- 2025 [72] April Planetary Sci. & Geochemistry Opportunities Update, for Westminster senior politicians.
- 2025 [71] **Input** to Royal Astronomical Society's response brief to House of Lord's call for evidence to inform the new Select Committee on UK Engagement with Space.
- 2025 [70] January II Planetary Sci. & Geochemistry Opportunities Update, for Westminster senior politicians.
- 2025 [69] January I Planetary Sci. & Geochemistry Opportunities Update, for Westminster senior politicians.
- 2024 [68] You can't climb a broken ladder: Examining underrepresentation of multiply-disadvantaged groups in secure and senior roles in UK geochemistry. Anand P., Bots P., Gagnon J., Appiah F., Maters E., Bhagwat S., Little S., Riches A., Chi Fru E., Lawrence A., Ngwenya B., Earth Science, Systems and Society, <https://doi.org/10.3389/esss.2024.10098> (Open Access)
- Notable among findings informing positive actions across funders, employers, and gov. are e.g. indications of absences of ethnic-minority women and gender-queer neurodivergent males in secure and senior roles.
- 2024 [66 -67] Report on the Inaugural Forming and Exploring Habitable Worlds Meeting and more **Riches A.J.V.**, Assis Fernandes V., Schröder C., Ramkissoon N., Bonsall E., Antoschechkina P., Bhatt, M., Chennaoui Aoudjehane H., Valenzuela Picón M., Kokubo E., Fortier A., Crowther S., Triaud A., Truninger M., van Kooten E., Clay P., McKay C., Walsh J., Fischer- Gödde M., Portyankina G., and Vidmar M. *Preprint: <https://osf.io/t4fkn/> Meteoritical Society News: [Link](#) Forthcoming with further sponsor societies.*

- 2024 [65+] Response to community consults for Solar System Advisory Panel, STFC Science Roadmap; UK Space Agency Grant Assessment; and Space Partnership's National Space Sci. & Exploration Roadmap.
- 2024 [64] Engagement & subject area advocacy with Royal Society of Edinburgh and Scottish Funding Council.
- 2024 [63] December Planetary Sci. & Geochemistry Opportunities Update, for Westminster senior politicians.
- 2024 [62] Input to Geol. Soc's response to the UK Gov. Dept. of Education's Curriculum & Assessment Review.
- 2024 [61] Nov. Planetary Science & Geochemistry Opportunities Update, for Westminster senior politicians.
- 2024 [60] Planetary Science & Geochemistry: Opportunities Report Part V, for Westminster senior politicians.
- 2024 [59] Advisory Brief - Planetary Science Opportunities, a follow-up with Westminster senior politicians.
- 2024 [58] Planetary Science & Geochemistry: Opportunities Report Part IV, for Westminster senior politicians.
- 2024 [57] Planetary Science & Geochemistry: Opportunities Report Part III, for Westminster senior politicians.
- 2023 [56] The 2022 Global Geochemistry Community Survey – The Results Are In..... (for report #1)
By the EAG DEI Committee with **Riches A.J.V.** [Published](#).
Associated impact = First [report](#) on findings by experts contracted by the joint societies of EAG and GS.
- 2023 [55] Developing Workforce Talent for Planetary Exploration and the Space Sector.
Evidence brief. For Inquiry: Scotland's Space Sector. Scottish Affairs Committee, UK Gov. [Open access](#)
- 2023 [54] Co-Creation contribution, 'Future of Space Technology' report, Regulatory Horizons Council, UK Gov.
- 2023 [53] Planetary Science and Geochemistry: Opportunities Report Part II
- 2023 [52] Outcomes and Opportunities Report Part I arising from 2022 conference shared with senior politicians of UK and Scottish Parliament who circulated among their colleagues.
- 2022 [51] Evolution of diversity in the editorial boards of *Geochimica et Cosmochimica Acta* and *Chem. Geol.*
†Pourret O, Anand P., Bots P., Cottrell E., Dosseto A., Gunter A., Hedding D.W., Ibarra D.E., Irawan D.E., Johannesson K., Labidi J., Little S.H., Liu H., Makhubela T.V., Marin Carbonne J., Perez-Fodich A., **Riches A.J.V.**, Tartèse R., & Tripathi A. *European Science Editing*, 48: e89470.
<https://doi.org/10.3897/ese.2022.e89470> and [EarthArxiv](#) (Open Access)
- 2022 [50] Co-created E-DIAL project presentation, NERC Knowledge Exchange Event.
- 2022 [49] Taking Pride in Disability and Geochemistry
Riches A.J.V. [E-DIAL project blog](#), OSF: <https://doi.org/10.31219/osf.io/f87jk>
- 2022 [48] Where do geochemistry teams start and end? Professional and technical support is vital to us all!
By the EAG DEI Committee ± E-DIAL Collaborators (intentional team approach avoiding authorship listing order **with Riches A.J.V.**). [Print](#) and [cross-post](#).
- 2022 [47] Report: Progressing Inclusion at the Annual Goldschmidt Conference (Contributed to joint-soc. team)
Directed to Presidents and Leaderships, European Association of Geochemistry and Geochemical Society.
- 2022 [46] Proposal and Realisation: Global Geochemistry Community Survey (Led inclusive joint-society team)
Directed to Presidents and Leaderships, European Association of Geochemistry and Geochemical Society.
- 2022 [45] Earth Day, Joint Geosciences Societies Statement. [Link](#)
- 2022 [44] Input to Royal Astronomical Society's contribution to [CaSE](#) to inform [BEIS](#)'s priorities for an alternative domestic scheme following, and as a response to the 2022 Kwasi Kwarteng 'mini' budget.

- 2021 [43] ****Invited Review**** Tackling Under-Representation and Recognition of Talents in Geochemistry and Cosmochemistry.
 †Pourret O, Anand P., Arndt A., Bots P., Dosseto A., Li Z., Carbonne J.M., Middleton J., Ngwenya B., **Riches A.J.V.**, *Geochimica et Cosmochimica Acta*, [Link](#) and EarthArxiv: <https://doi.org/10.31223/X5J024>
 ► Facilitated change among geochemistry awards and prompted statements by the [EAG](#) and [GS](#) Presidents.
- 2021 [42] Reform of International Awards (Inclusive work written with joint-society team)
Directed to Presidents, Council / Board, and Executive Directors of European Association of Geochemistry and Geochemical Society, who supported the suggested reforms immediately and in the longer-term.
- Further advisory and progress reports, and position statements, have been written at intervals in collaboration with committee, with- or for international society Presidents and Leadership groups ± partnering learned societies.
- 2021 [41] Interview with N. Forrester. '[Reconsidering the role of alcohol in the scientific workplace](#)' in Nature.
- 2021 [40+] Wrote as part of media team EuroPlanet [press releases](#) for a meteorite-dropping fireball and Chang'e-5 lunar sample return mission. World news -> [Spanish](#), [Ukrainian](#), [Indian](#), [Italian](#), & [Brazilian press](#), [phys.org \(2\)](#), [space.com](#), [Mirror](#), [Financial Express](#), [universetoday](#), [livesci](#), [room](#), [FloridaNT](#), [bollyinside](#), [scitechdaily](#), [bigthink insidehook](#), & more
- 2021 [39] [Geoscience for the Future](#). Wrote feature as firstgen at uni, relatable to some among nextgen cohorts.
- 2021 [38+] 'Racial minorities systemically excluded from Geology.....' [Press release](#) and [phys.org](#).
 ► Professor C. Jackson and work presented central, the EAG Press officer also engaged & gained commentary from Dame Chi Onwurah MP, then Shadow Minister for Science, Research & Innovation, alongside my quotes.
- 2021 [37] Discussion contributions & response to survey setting UK Cosmochemical Analysis Network priorities.
- 2021 [36] **Global Geochemistry Community Survey**. [Final as pdf](#)
 By the EAG + GS DEI Committees (inclusive team approach **with Riches A.J.V.**).
Shared globally via GDPR-compliant limesurvey.
- 2021 [35] ****Invited**** Designs on Pandemic and Post-Pandemic Meetings: Learning with the EPSC 2021 Team **Riches A.J.V.** *EuroPlanet Society Magazine*, 2, 19-20. Earlier press releases reworked for 'In Focus' pages 8 & 10. <https://www.europlanet-society.org/europlanet-magazine/issue2/>
- 2021 [34] ****Invited**** Strengthening Geochemistry through Community Action and Wider Influence
 By the **EAG DEI Committee** (inclusive team approach **with Riches A.J.V.**), *Elements*, 17(4), 282-283.
[Publisher's link](#) and EarthArxiv: <https://doi.org/10.31219/osf.io/36n9z>
- 2021 [33] Exploring the Space Economy.
Riches A.J.V. *ChemistryWorld*, magazine of the Royal Society of Chemistry. [Link](#).
- 2021 [32] Professional Culture: Let's Talk Tackling of Inequity, Injustice, and Absent Talent
 By the **EAG DEI Committee** (inclusive team approach **with Riches A.J.V.**), *EAG Blog*.
[Published](#) and OSF: <https://doi.org/10.31219/osf.io/j7qmc>
- 2021 [31] ****Invited**** Diversity among Editorial Boards of Elements and other selected Geochemistry, Cosmochemistry, Mineralogy, and Petrology Journals
 Pourret O., Middleton J., Ibarra D.E., Irawan D.E., Rouff A., Anand P., Tripathi A., **Riches A.J.V.**, and Dosseto A. *Elements*, 17(3), 150-152. DOI: [10.2138/gselements.17.3.150](https://doi.org/10.2138/gselements.17.3.150) and HAL: hal-03321703f.
- 2021 [30] New Schemes! People and Talent
Riches A.J.V., Labidi J., and Little S. *EAG blog*. <https://blog.eag.eu.com/new-schemes-people-and-talent/>
 Launched two of EAG's new DEI initiatives that speak to people behind data.

- 2021 [29] Do We Need Affirmative Action?
Riches A.J.V. *ChemistryWorld*, Royal Society of Chemistry, [Link](#) & OSF: <https://doi.org/10.31219/osf.io/z3pbv>.
 This work among others aims to prompt discussion and influence the UK's **All Party Parliamentary Group on Diversity & Inclusion in STEM** ([Link](#)) and activities among other members of Parliament / Cabinet.
- 2021 [28] Uniting to Advance Diversity, Equity, and Inclusion in a Pandemic and Post-Pandemic World
Riches A.J.V., Pourret O., and Little S. *EAG Blog*, Extended Feature. [Link](#) and OSF: <https://osf.io/d6z72/>.
- 2020 [27] ****Invited**** Writing for Change
Riches A.J.V. *EAG Blog*. [Link](#) and OSF: <https://doi.org/10.31219/osf.io/7tp4e>
- 2020 [26] Profiled by National Geographic as one of their Explorers.
<https://explorers.nationalgeographic.org/directory/amy-j-v-riches>
- 2020 [25] Interviewed by Rebecca Boyle for two [Scientific American](#) magazine articles. Chang'e 4's recent observations and future human presence on and near the Moon. Plus, concepts related to exomoons.
- 2019 [24] *Syneruptive incorporation of Martian surface sulphur in the nakhlite lava flows revealed by S/Os isotopes and highly siderophile elements: implications for their mantle source
 Mari N., **Riches A.J.V.**, Hallis L.J., Marrocchi Y., Villeneuve J., Becker H., Gleissner, P., and Lee M.R..
In the Special Issue honouring Prof. L. A. Taylor (1938-2017). Geochimica et Cosmochimica Acta, 266, 416-434. <https://doi.org/10.1016/j.gca.2019.05.025> (Open Access)
- 2019 [23] Continent stabilisation by lateral accretion of subduction zone-processed depleted mantle residues; insights from Zealandia.
 Scott J.M., Liu, J., Pearson D.G., Harris G.A., Czertowicz T.A., Woodland S.J., **Riches A.J.V.**, Luth R.W.
Earth and Planetary Science Letters, 507, 175-186. <https://doi.org/10.1016/j.epsl.2018.11.039> [Open Access](#)
- 2019 [21] Feature interview, American Astronomical Society's Committee on the Status of Women in Astronomy.
<http://womeninastronomy.blogspot.com/2019/12/career-profiles-geochemist-to-planetary.html#more>
- 2019 [21] 'How the submerged continent of Zealandia took shape'
Feature in the [Research Highlights of Nature](#). Also, [January 15th 2019 edition](#), Geochem. Soc. News.
- 2019 [20] Response to consultation preparing UK Cosmochemical Analysis Network's short-listed bid (£70M).
- 2019 [19] Feature in the [Research Highlights of Nature](#). Also, [January 15th 2019 edition](#), Geochem. Soc. News.
- 2018 [18] *Diamondiferous Paleoproterozoic mantle roots beneath Arctic Canada: A study of mantle xenoliths from Parry Peninsula and Central Victoria Island
 Liu, J., Brin, L.E., Pearson, D.G., Bretschneider, L., Luguët, A., van Acken, D., Kjarsgaard, B., **Riches, A.J.V.**, Mišković, A. *Geochimica et Cosmochimica Acta*, 239, 284-311. <https://doi.org/10.1016/j.gca.2018.08.010>
- 2017 [17] Editorial: Preface to Highly Siderophile Element Constraints on Earth and Planetary Processes
Riches A.J.V., *GCA Special Issue (Vol.216)*. <https://doi.org/10.1016/j.gca.2017.08.029> [Open Access](#)
- 2017 [16] Preservation of an Archaean whole rock Re-Os isochron for the Venetia lithospheric mantle: evidence for rapid crustal recycling and lithosphere stabilisation at 3.3 Ga
 van der Meer Q., Klaver M., Reisberg L., **Riches A.J.V.**, and Davies G.R. *Published in the GCA Special Issue (Vol.216)*. <https://doi.org/10.1016/j.gca.2017.05.004> [Open Access](#)
- 2017 [15] **Highlight** of the GCA Special Issue that I led by the Geochemical Society in the [Geochem. News](#) (03/10/2017) that all global society members receive.
- 2017 [14] **Highlight** by subject international societies of the GCA Special Issue that I led by the Geochemical Society in the *Geochemistry News*, [again](#) in this forum on 07/11/2017.
- 2016 [13] *In situ* oxygen-isotope, major-, and trace element constraints on the metasomatic modification and crustal origin of a diamondiferous eclogite from Roberts Victor, Kaapvaal Craton
Riches A.J.V., Ickert R.B., Pearson D.G., Stern R.A., Jackson S.E., Ishikawa A., Kjarsgaard B.A., Gurney J.J.
Geochimica et Cosmochimica Acta, 174, 345-359. <http://dx.doi.org/10.1016/j.gca.2015.11.028> [Open Access](#)

- 2016 [12] Age and evolution of the deep continental root beneath the central Rae craton, northern Canada
Liu J., **Riches A.J.V.**, Pearson D.G., Luo Y., Kienlen B., Kjarsgaard B.A., Stachel T.S., Armstrong J.P.,
Precambrian Research, 272, 168-184. <http://dx.doi.org/10.1016/j.precamres.2015.11.001>
- 2016 [11] Full Meeting Report: 4th International Highly Siderophile Element Workshop. **Riches A.J.V.** *Elements*,
12(6), p 446. <https://tinyurl.com/3pk7jm28>
- 2016 [10] Feature by the European Association of Geochemistry highlighting the 4th International Highly
Siderophile Element Workshop that I Chaired.
Riches A.J.V. <https://tinyurl.com/5d6c84pz> 09/09/2016
- 2016 [9] Feature of my activities in the Geochemical Society News.
Elements, 12(5), p. 365. <https://tinyurl.com/3z92wn6p>
- 2016 [8] I guided a [ScienceNews article](#) authored by Alexandra Witze exploring emerging themes in planet scale
studies of iron loving elements. Arose from the 4th HSE Workshop that I Chaired.
Alexandra won the 2016 AGU David Perlman award for excellence in science journalism.
- 2012 [7] Rhenium-Osmium Isotope and Highly Siderophile Element Abundance Systematics of Angrites
Riches A.J.V., Day J.M.D. Walker R.J., Simonetti A., Liu Y., Neal C.R., Taylor L.A.. *Earth and Planetary Science
Letters*, 353-354, 208-218. <http://dx.doi.org/10.1016/j.epsl.2012.08.006> [Open Access](#)
- 2012 [6] * Petrologic Origin Of Exsolution Textures In Mantle Minerals: Pyroxenitic Xenoliths From Kimberlites
Of Yakutia. Alifirova T.A., Pokhilenko L.N., Ovchinnikov Y.I., **Riches A.J.V.**, Taylor L.A., *International
Geology Review*, 54(9), 1071-1092. <http://dx.doi.org/10.1080/00206814.2011.623011> [Open Access](#)
- 2011 [5] Mineralogical and Geochemical Constraints on the Shallow Origin, Ancient Veining, and Multi-Stage
Modification of the Lherz Peridotite
Riches A.J.V., Rogers N.W. *Geochimica et Cosmochimica Acta*, 75(20), 6160-6182.
<http://dx.doi.org/10.1016/j.gca.2011.07.036> [Open Access](#)
- 2011 [4] Petrology and Geochemistry of Yamato 984028: A Cumulate Lherzitic Shergottite with Affinities
to Y 000027, Y 000047, and Y 000097
Riches A.J.V., Liu Y., Day J.M.D., Puchtel I.S., Rumble D., McSween H.Y., Walker R.J., Taylor L.A.,
Polar Science, 4(4), 497-514. <http://dx.doi.org/10.1016/j.polar.2010.04.009> (Open Access)
- 2010 [3] Subducted Oceanic Crust As Diamond Hosts Revealed By Garnets Of Mantle Xenoliths From
Nyurbinskaya, Siberia
Riches A.J.V., Liu Y., Day J.M.D., Spetsius Z.V., Taylor L.A., *Lithos*, 120(3-4), 368-378.
<http://dx.doi.org/10.1016/j.lithos.2010.09.006>
- 2007 [2] Origin of CFB Magmatism: Multi-tiered Intracrustal Picrite-Rhyolite Magmatic Plumbing at Spitzkoppe,
Western Namibia, during Early Cretaceous Etendeka Magmatism
Thompson R.N., **Riches A.J.V.**, Antoshechkina P.M., Pearson D.G., Nowell G.M., Ottley C.J., Dicken A.P.,
Hards V.L., Nguno A.-K., Niku-Paavola V., *Journal of Petrology*, 48(6); 1119-1154.
<http://dx.doi.org/10.1093/petrology/egm012> [Open Access](#)
► Undergraduate study: The above work prompted CalTech's Magmasource thermodynamic group to add
isenthalpic assimilation and fractional crystallization to the openly-available alphaMELTS software (then
Adiabat_1ph; Smith and Asimow, 2015).
- 2007 [1] The Lherz spinel lherzolite: Refertilized rather than pristine mantle. Le Roux V., Bodinier J.-L., Tommasi
A., Alard O., Dautria J.-M., Vauchez A., **Riches A.J.V.** *Earth and Planetary Science Letters*, 259; 599-612.
<http://dx.doi.org/10.1016/j.epsl.2007.05.026> [Open Access](#)
► I contributed whilst a Ph.D student.

THEMATIC VOLUMES

2017 [1] As Guest Managing Editor

A Completed Special Issue of *Geochimica et Cosmochimica Acta*, Volume 216.

“Highly Siderophile Element Constraints on Earth and Planetary Processes”

<https://www.sciencedirect.com/journal/geochimica-et-cosmochimica-acta/vol/216>

Supervising AE: Mark Rehkamper. **Guest Editors:** Anat Shahar, Laurie Reisberg, Marc Alban-Millet, Brian Kendall, Al Brandon, James Brennan, Harry Becker, Ian Campbell, Nicolas Dauphas, Raúl Fonseca, Chi Ma, Frédéric Moynier, Iain McDonald, and Holly Stein.

- ▶ Selected twenty two original research articles (from over 30 submissions to this SI) reporting important new findings, novel hypotheses, and original study methods related to a broad range of Earth, Environmental, and Planetary Science topics. This dissemination grew the community and shared insights into useful techniques / capabilities to realise infrastructure upgrades, new laboratories and instrumentation among project contributors in several countries (so far France, Germany, Canada, Austria, Wales and others).
- ▶ The Special Issue (SI) of *Geochimica et Cosmochimica Acta* (the flagship journal of the Meteoritical and Geochemical Societies) that I spearheaded; is one of only ~26 GCA SIs since 1978, all generally led by established Full Professors. Upon completion of this SI, marking regard earned for my scientific intellect, leadership, upholding of rigor, guiding others to improve the scientific quality and clarity of their research articles and wider editorial prowess, I was invited by senior international figures to apply to serve as the Executive Editor in Chief.

Collectively, citation count for this Special Issue’s contents currently approaches a thousand.

Outlook to other agenda-setting thematic volumes and purposeful text book co-developed with colleagues over time (or future monograph) are intended when securely returned to academic role.

In addition to academic works, personal hobbies encompass sharing science through storytelling via development of a book for children ~under 14, planned creative co-creation illustrated book and a range of gamified-STEM projects with children.

CONFERENCE VOLUMES

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| 2024 | [3] Abstract Volume of the International Symposium on Planets and Exoplanets
Link to pdf | Scientific Organising Committee & Programme Team Member |
| 2022 | [2] Programme of the Inaugural Forming and Exploring Habitable Worlds Meeting.
OSF DOI: 10.31219/osf.io/zw2ef | Programme Lead and Chair: Amy J.V. Riches |
| 2016 | [1] Programme of the 4 th International Workshop on Highly Siderophile Element Geochemistry.
OSF DOI: 10.31219/osf.io/n5tds | Programme Lead and Chair: Amy J.V. Riches |

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| 2009 (PhD) | Riches, A.J.V. , A Reappraisal of the Petrology and Origins of the Lherz Peridotite.
<i>The Open University, United Kingdom.</i> <u>Traditional thesis format.</u>
Access at http://amyriches.org/thesis/ Password = Lherz |
| 2004 (MSci) | Riches A.J.V. , Cretaceous-age Continental Flood Basalt Magmatism: Element and Isotopic constraints on the nature and origin of magma plumbing, Parana-Etendeka LIP. <i>Durham University, UK.</i>
First class and highest ranked in cohort. |
| 2003 (3 rd Yr) | Riches A.J.V. , Geological mapping around and interpretation of- the most northerly mainland outcrop of the Moine Thrust, Durness-Faraid Head-Sangobeg. <i>Durham University, UK.</i>
First class dissertation, top 5 in cohort. |

ACADEMIC CONFERENCE PRESENTATIONS

Around 50 abstracts authored in total, where over 50 % address key planetary science research themes [X] of which eight are Lunar and Planetary Science Conference (LPSC) contributions (extended two-page abstracts).

- 2026** Cosmochemistry of Planetary Systems: Do new constraints from siderophile elements require us to rethink?
Riches A.J.V. *Outlook to ~AGU*
- 2026 From Picrite to Rhyolite - Modeling Namibian Magmatism using the Magma Chamber Simulator and easyMelts
Antoshechkina P., **Riches A.J.V.**, Nguno A., Bohrsen W.A., and Spera F. J. *Geol. Soc. America Connects, Denver, USA*.
[Abstract# 19759](#) (poster)
 To also aid GSA theme discussions “Innovations in Exploration from Deep Earth to Deep Space”
- 2025 Career progression opportunities and support for geochemist scholars
Anand P, Bots P, Gagnon J, Appiah F, Chi Fru E, **Riches A.**, Little S, Bhagwat S, Maters E, ...and Ngwenya B.
Goldschmidt Conf., Czech Republic. [Abstract #3144](#) (oral)
- 2023 2022 Global Geochemistry Community Survey - **Special Poster of the Joint Societies**
European Association of Geochemistry and Geochemical Soc. DEI Committees, societies’ Leaderships, with Ivie, R. and Taylor J. (incl. **Riches A.J.V.**) *Goldschmidt Conf., France*. No abstract.
- 2023 Attrition of minority groups in the UK geochemistry workforce across the academic career ladder.
Bots P., Maters E., Appiah F., Gagnon J., Bhagwat S., **Riches A.**, Anand P. *Goldschmidt Conf., France*
[Abstract # 16535](#) (oral)
- 2023 Is the geochemistry academic work environment a potential barrier to inclusion and progression?
Anand P., Lawrence A., Bots P., Little S., Gagnon J., Appiah F., **Riches A.**,..... *Goldschmidt Conf., France*
[Abstract # 16787](#) (oral)
- 2022** ****Invited Talk**** Building Habitable Worlds
Riches A.J.V. *6th NoRCEL Conference, St Andrews, Scotland*.
- 2022 Assessing diversity and inclusion within the UK’s geochemistry academic workforce
Anand P., Appiah F., Lawrence A., Bots P., Gagnon J., Bhagwat S., **Riches A.**.... *EGU Gen. Ass., Vienna*.
[Abstract # 8410](#) (oral)
- 2022 Are diverse geochemists retained and thriving on the UK academic ladder?
Maters E., Appiah F., Lawrence A., Bots P., Gagnon J., **Riches A.** *EGU General Assembly, Vienna*.
[Abstract # 5926](#) (oral)
- 2021 ****Invited Keynote**** Uniting in Activism: The European Association of Geochemistry’s Approaches to Advancing Diversity, Equity, and Inclusion
Riches A.J.V. on behalf of the European Association of Geochemistry’s DEI Committee.
[Abstract link](#) (oral) [Video](#)
- 2021 Modeling Picrite-Rhyolite Magmatism at Spitzkoppe, Western, Namibia Using Alphasim 2 and the Magma Chamber Simulator
Antoshechkina P., **Riches A.**, and Asimow P., *Geol. Soc. of America, Portland, USA*. [Abstract #368861](#) (oral).
- 2021 Under-representation of Talents among Awards in Geochemistry and Cosmochemistry
Riches A.J.V., Pourret O., Ader M., Anand, P., *Goldschmidt Conf., Lyon, France*. [Abstract #7155](#) (oral).
- 2021 Constraining Geochemistry’s Community Demographics
Little S., Labidi J., **Riches A.J.V.**, Bots P., *Goldschmidt Conference, Lyon, France*. [Abstract #7356](#) (oral).
- 2020 Revisiting Namibian magmatism with Rhyolite-MELTS and the Magma Chamber Simulator
Antoshechkina P., **Riches A.**, Popov A., and Asimow P., *Goldschmidt Conference, Hawaii, USA*. [Abstract 073#](#) (oral)
- 2020** ***Investigating Mars’ recent surface habitability via correlative petrology and highly siderophile element systematics in meteorites.** Mari N., and **Riches A.J.V.**, *Goldschmidt Conf., Hawaii, USA*. [Abstract #1723](#) (poster)
- 2018** ***Martian meteorites as a probe for the evolution of Mars.**
Mari N., Hallis L.J., Lee M.R., **Riches A.J.V.**, *Soc. Geol. Italiana, Roma*. [Abstract #X](#) (oral)

- 2018** *Sulphur isotope fractionation in nakhlite lava flows: New insights into Martian volcanic & atmospheric processes
Mari N., **Riches A.J.V.**, Hallis L.J., Marrocchi Y., ... 81st Annual Meeting of Meteorit. Soc., Moscow, Russia. ([poster](#))
- 2018** *Diamondiferous Proterozoic mantle roots beneath Arctic Canada
Liu, J., Brin, L., Pearson, D.G., Bretschneider, L., **Riches, A.**, Goldschmidt Conf., Japan. ([Abstract #1577](#)) ([oral](#))
- 2017** Diogenite Highly Siderophile Element Systematics do not provide a direct record of the Vestan mantle
Riches A.J.V., *et al* Goldschmidt Conference, France. ([Abstract #3345](#)) ([oral](#))
- 2017** *Inferring mantle potential temperature from olivine P-zoning in a Martian lava.
Mari N., Hallis L.J., **Riches A.J.V.**, and Lee M.R. 1st British Planetary Science Congress (BPSC).
([Abstract link](#)) ([poster](#))
- 2017** *Characteristics of martian crustal materials and implications for magmatic assimilation: preliminary Re-Os isotope and highly siderophile element abundance data for nakhlites and Tissint. ([Abstract #6128](#)) ([poster](#))
Mari N., **Riches A.J.V.**, Hallis L.J., and Lee M.R. 80th Annual Meeting of the Meteoritical Society.
- 2017** *Mg-Fe and P-Zoning in Tissint Olivine and Pyroxene: Implications for Martian Magma Chamber Dynamics.
Mari N., Hallis L.J., **Riches A.J.V.**, and Lee M.R. 80th Annual Meeting of the Meteoritical Society.
([Abstract #6012](#)) ([oral](#))
- 2017** *Using wide ranging meteorite ages and Os-isotope compositions to provide new insight into the mantle evolution of Mars. Mari N., Hallis L.J., **Riches A.J.V.**, and Lee M.R. UK Planetary Forum, Glasgow.
([Abstract link](#)) ([poster](#))
- 2017** The challenge of achieving professionalism and respect of diversity in a UK Earth Sciences Department.
Imber J., Taylor M., Callaghan M., Castiello G., ...**Riches, A.** Annual Meeting of the European Geosciences Union.
([Abstract #14214](#)) ([poster](#))
- 2016** The use of 187Re-187Os isotopes in revealing magmatic processes on Mars.
Mari N., Hallis L.J., **Riches A.J.V.**, and Lee M.R. 1st Iapetus Workshop. ([Abstract #X](#)) ([poster](#))
- 2016** Development of Innovative Mineral-Scale Achondrite Os-isotope and PGE Protocols.
Riches, A.J.V., *et al.* Annual UK Geochem. Group Research in Progress Meeting. ([Abstract #X](#)) ([poster](#))
- 2016** Refining Theories of Accretion in the Early Solar System: Petrographic, Major-, Platinum Group Element, and Osmium Isotope Characteristics of Angrite Metals. **Riches, A.J.V.**, *et al.* 47th Lunar and Planetary Science Conference (LPSC). ([Abstract #2858](#)) ([abstract only](#))
- 2016** Reappraising Accretion to Vesta and the Angrite Parent Body through Mineral Scale Platinum Group Element and Osmium Isotope Analyses, 79th Annual Meeting of the Meteoritical Society. **Riches, A.J.V.**, *et al.*
([Abstract #6361](#)) ([oral](#))
- 2015** **Invited Talk** Age and evolution of deep continental roots beneath northern Canada.
Liu, J.-L., **Riches A.J.V.**, Brin L.E., Pearson D.G., Kienlen, B., Kjarsgaard B.A., Stachel T., and Armstrong J.P.
Joint Assembly, GAC-MAC, Montreal. ([Abstract #33501](#)) ([oral](#))
- 2014** Age and evolution of deep continental roots beneath northern Canada.
Liu, J.-L., Riches A.J.V., Brin L.E., Pearson D.G., Kienlen, B., Kjarsgaard B.A., Stachel T., and Armstrong J.P., AGU, San Francisco, USA. ([Abstract #18211](#)) ([oral](#))
- 2013** *The age and origin of lithospheric mantle beneath Nunavut/NWT.
Brin L.E., Pearson D.G., **Riches A.J.V.**, Kjarsgaard B.A., Miskovic A., Kienlen B., and Reford S.W.
GEM-Diamond Workshop. ([Abstract #X](#)) ([oral](#)).....timing = first ~fortnight using newly signed-off, active N-TIMS.
- 2012** Lithospheric mantle characteristics of the Rae Craton.
Riches A.J.V., Pearson D.G., Kjarsgaard B.A., Jackson S.E., Stachel T., and Armstrong J.P., GEM-Diamond workshop, Canada. ([Abstract #X](#)) ([oral](#))
- 2012** Metasomatism of a Roberts Victor Eclogite?
Riches AJ.V., Pearson D.G., Stern R.A., Ickert R.B., Jackson S.E., Ishikawa A., and Kjarsgaard, B.A.,
10th International Kimberlite Conf., Bangalore, India. ([Abstract #207](#)) ([oral](#))

- 2011 Deep lithosphere beneath the Rae Craton: Peridotite Xenoliths from Repulse Bay, Nunavut.
Riches A.J.V., Pearson D.G., Kjarsgaard B.A., Jackson S.E., Stachel T., and Armstrong J.P.
39th Yellowknife Geoscience Forum, Arctic Canada. [Abstract #119](#) (oral)
- 2011 *Evaluating the northerly extent of the Slave Craton in the Canadian Arctic.
Brin L.E., Pearson D.G., **Riches A.J.V.**, Miskovic A., Kjarsgaard B.A., Kienlen B., and Reford S.W.
39th Yellowknife Geoscience Forum, Arctic Canada. [Abstract #68](#) (poster)
- 2011 ****Invited Talk**** [asked by Audrey Bouvier] Isotope Geochemistry Constraints on the Evolution of the Angrite Parent Body
Riches A.J.V., *et al.* 74th Annual Meeting of MetSoc. London, UK. [Declined, sadly, due to calendar conflicts.](#)
- 2011 Highly Siderophile Element and Osmium Isotope Constraints on the Evolution of Angrites.
Riches A.J.V., Day J.M.D., Walker R.J., Liu Y., and Taylor L.A. 42nd LPSC, Houston, USA. [Abstract #2288](#) (oral)
- 2011 Mineralogical and Trace Element Constraints on the Petrogenesis of Angrites.
Riches A.J.V., Day J.M.D., Liu Y., Simonetti A., Neal C.R., and Taylor L.A.
42nd LPSC, Houston, USA. [Abstract #2229](#) (poster)
- 2010 Variable HSE abundances and sub-chondritic 187Os/188Os in the Angrite Parent Body.
Riches A.J.V., Day J.M.D., Walker R.J., Liu Y., and Taylor L.A.
73rd Annual Meeting Meteoritical Society, New York, USA. [Abstract #5218](#) (oral)
- 2010 Evolution of the Siberian Platform; Constraints from Diamondiferous Xenoliths of Nyurbinskaya,
Riches A.J.V., Liu Y., Spetsius Z.V., Day J.M.D., and Taylor L.A.
20th Goldschmidt Conference, Knoxville, TN, USA. [Abstract #869](#) (oral)
- 2010 Highly Siderophile Element Abundances and Re-Os Isotopic Systematics of Yamato 984028.
Riches A.J.V., Liu Y., Day J.M.D., Puchtel I.S., Rumble D., McSween H.Y., Walker R.J., and Taylor L.A.,
41st LPSC, Houston, USA. [Abstract #2618](#) (oral)
- 2010 Description of Newly-Identified CV3 Chondrites; Salient Textural and Mineralogical Characteristics.
Riches A.J.V., Liu Y., and Taylor L.A. 41st LPSC, Houston, USA. [Abstract #2561](#) (poster)
- 2010 *Insights into the Petrogenesis of Apollo 17 High-Ti Mare Basalts.
Singer K., **Riches A.J.V.**, Patchen A., Liu Y., and Taylor L.A. 41st LPSC, Houston, USA. [Abstract #2694](#) (poster)
- 2010 Diversity in High-Titanium Mare Basalts.
Liu Y., Spicuzza J., Valley J.W., Day J.M.D., **Riches A.J.V.**, Singer K., and Taylor L.A.
41st LPSC. [Abstract #1669](#) (poster)
- 2009 Subducted Crustal Signatures in Diamondiferous Xenoliths from the Nyurbinskaya Pipe, Yakutia, Russia; Trace
Element and Oxygen Isotope Composition of Garnets.
Riches A.J.V., Liu Y., Spetsius Z.V., Day J.M.D., and Taylor L.A. AGU, San Francisco, USA. [Abstract #1644](#) (poster)
- 2009 Yamato 984028: A Martian Regolith Breccia.
Riches A.J.V., Liu Y., Rumble D., and Taylor L.A. The 32nd Symposium on Antarctic Meteorites, Japan, [abstract only.](#)
- 2009 The Earth as a Planet: The Re-Os Isotope Evolution of Bulk Silicate Earth.
Riches A.J.V., Rogers N.W., Charlier B.L.A., and Bodinier J-L. 40th LPSC, Houston, USA. [Abstract# 1726](#) (poster)
- 2008 The Nature of Harzburgite-Lherzolite Outcrops; The Lherz Massif.
Riches A.J.V., Rogers N.W., Charlier B.L.A., and Bodinier J-L. Chapman Conference on Shallow Mantle Composition
and Dynamics, Josephine Ophiolite, Oregon, USA. [Abstract #X](#) (oral)
- 2007 A Reappraisal of the Petrology and Origins of the Lherz Peridotite.
Riches A.J.V., Rogers N.W., Charlier B.L.A., and Bodinier J-L.,
17th Goldschmidt Conference, Cologne, Germany. [Abstract #838](#) (poster)
- 2006 A Reappraisal of the Petrology and Origins of the Lherz Peridotite.
Riches A.J.V., Rogers N.W., Charlier B.L.A., Bodinier J-L., and Alard O.
3rd International Workshop on Highly Siderophile Element Geochemistry. [Abstract #X](#) (poster)
- 2005 A Geochemical Study of the Spitzkoppe Dyke Suite from the Etendeka Continental Flood Basalt Province.
Riches A.J.V., Thompson R.N., Nowell G.M., Pearson D.G., and Dickin A.P.
Annual Meeting of the Volc. & Magmatic Studies Group (UK). [Abstract #X](#) (poster)

OTHER EXAMPLE ENGAGEMENT, OUTREACH, AND KNOWLEDGE TRANSFER

Public / Schools / Other

From - To

2025	Feature Presenter. Soapbox Science, Scotland. City centre public engagement event platforming the contributions of women and non-binary scientists.
2024	Invited. Featured guest for Space Month, Edinburgh Royal Hospital for Children and Young People.
2020-2023	Driving collaboration: Planetary materials collections + broad access, selected Scottish museums.
2022	Organised and hosted Public Event of the Nov. 2022 meeting; generated three free talks (recorded).
2022	Schools' Virtual Outreach. STFC-funded Helium Zone , I'm a Scientist Get Me Out of Here!
2021	School Outreach: Skype a Scientist Q & A, John Bramston Primary School, Ilford, Essex.
2021	Invited to National Geographic Society's Explorers Meetup, COP26 UN Climate Change Conference.
2021	Invited to a range of NatGeo. Society's networking and virtual events for Scottish / global Explorers.
2020-now	Applied and pursuing. Ted Fellowship (just 20 awards internationally).

Parliamentary – I adhere to the Nolan Principles

2022-now	Liaise, build networks, and advocate to effect global and domestic policy/culture change with European Commission, other funders, learned societies, in-house at Uni and via parliamentarians, government committees, civil servants at Westminster (UK) and Holyrood (Scottish Parliament), and with international leaders to further coordinated efforts via science diplomacy.
2024	Science in Parliament (Holyrood) - Participant. Future of STEM theme.
2023	Science in Parliament (Holyrood) - Participant. STEM Education theme.
2022	Science in Parliament (Holyrood) – Participant. STEM Innovation.
2022	My Science Inquiry contribution(s) with Royal Astro. Soc. for UK Science and Technology Committee.
2022	Evidence Week. Participant, Holyrood.
2022	Week in Westminster, Royal Society Pairing Scheme. Paired with Ian Murray MP and team.
2022	Talking to Policy Makers. Participant. University Training, Knowledge Exchange and Impact Team.
2021	First Look: Science and Parliament Virtual, convened by the Royal Society of Chemistry (Scotland).
2021	Engaged Chi Onwurah MP, Shadow Minister for Science, Research and Innovation. Press release & phys.org .

At earlier dates, I delivered a range of successful public activities and outreach.