

Simon George  
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School of Natural Sciences  
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## Biography

BSc (Hons), St Andrews, Scotland  
PhD, Newcastle upon Tyne, England

**Professor Emeritus Simon George** is the leader of the organic geochemistry group, School of Natural Sciences, Macquarie University in Sydney, Australia. He was the Interim Head of Department of Earth and Environmental Sciences, Oct2020–Dec2021, Acting Head of the EPS Department from Jan 2014 until 1st February 2015, and was Deputy Head of the EPS Department, 2018-2019. He also was the Director of the Macquarie University Marine Research Centre, 2015–2019. He was the Director of the Bachelor of Marine Science, 2020-2021.

Simon George has more than 35 years experience in organic geochemistry, including 15 years specialising in petroleum geochemistry at CSIRO. Organic geochemistry involves the study of the chemical and isotopic signatures in rocks and sediments, which tell us information about the past. We can reconstruct the nature and timing of important events in the evolution of life. Biomarkers are hydrocarbons that retain the structural information from the original lipids from which they were derived. Biomarkers and other hydrocarbons in oils, rocks and sediments provide us the ability to understand source inputs, subsequent burial and heating history (thermal maturity) and alteration events (such as oil biodegradation). The chemistry of insoluble fractions of organic matter, such as kerogen and asphaltenes, provides further useful information.

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## Biography

### Teaching responsibilities

#### Main Undergraduate teaching

**GEOS1110: The Habitable Planet (GEOS112: The Planet Earth).** I teach the Biosphere (Module 4). 2007-2020. Convened 2010-2012.

**GEOS2042: Life, the Universe and Everything (GEOS204).** Most lectures and many practicals. 2008 (ELS204)-2020. Convened 2008-2013; 2016-2020.

**GEOS2130: Marine Sediments: Records of Past Earth (GEOS206: Marine Depositional Environments).** Lectures, practicals, and teach on the South Coast of NSW fieldtrip to Kioloa in April. 2008-2021.

**ENVS2115: Climate Change, Energy and our Future (GEOS251: Geopolitics- The Science of Climate, Energy and our Future; Minerals, Energy and Environment).** One module of lectures and tutorials, 2012-2021.

**GEOS3130: Earth System History (GEOS309: Marine Sediments and Energy Security).** Most lectures and practicals. Convened 2011, 2013, 2015-2021.

#### Other Undergraduate teaching

**GEOS1120: Dynamic Earth (GEOS125: Earth Dynamics).** One workshop, sometimes fieldwork (Hartley). 2008-2020.

**GEOS1130: Blue Planet: Oceans, Climate and Life (GEOS126: Marine Geoscience).** Some lectures, sometimes fieldwork (Port Hacking boat trip). 2007-2021.

**GEOS211: Field Geology: Mapping and Palaeoenvironments (GEOS226: Introduction to Field Geology) (Keepit fieldtrip).** 2008; 2009-2013. Convened 2012-2013.

**MAR201: Introduction to Marine Science.** 1-2 lectures, 2009-2012.

**GEOS397/GEOS394/BIOL382: Applied Palaeontology and Biogenic Sediments,** lecture and practical, 2007, 2008, 2010, 2012.

#### Postgraduate teaching

**GEOS7710: Palaeoenvironments and Biogeochemistry (GEOS710: Records of palaeoenvironments: life and geochemistry).** Convenor and lectures on organic geochemistry for Master Research students, 2016-2020.

**GEOS8810: Palaeoenvironments and Biogeochemistry (GEOS920: Palaeoenvironments and biogeochemistry).** Convenor and lectures on organic geochemistry for master coursework students (Master Geoscience; Master of Science and Innovation). 2016-2020.

**GEOS7711: Research Topics in Earth and Environmental Sciences (GEOS791: Research Topic in Earth and Planetary Sciences).** Research Experience (in organic geochemistry lab), 2016-2020

**GEOS710: The Organic Geochemistry of Sedimentary Rocks, Oils and Gases.** Lecture and practical organic geochemistry in the research lab for Master Research students. Convenor, 2013-2015.

**GEOS920: Petroleum Geochemistry.** Lecture and practical organic geochemistry in the research lab for master coursework students (Master Geoscience). Convenor, 2013-2015.

**GEOS811:** Advanced Field Techniques in Geoscience. Keepit fieldtrip for master coursework students (Master Geoscience). 2008; 2009-2013. Convened 2012-2013.

**Genes to Geoscience, Postgraduate modules:** Where biology, geology and chemistry meet: Frontiers in Biogeochemistry; What's In Stuff? (with Damian Gore); Geosphere-Biosphere Interactions (With Matthew Kosnik and Craig O'Neill). 2008-2015.

#### **Conferences that I chaired**

Australian Organic Geochemistry Conference: Macquarie University, 2-5th December 2012.

Chairman and co-convenor of the joint Australian Organic Geochemistry Conference (AOGC) and International Humic Substances Society (IHSS) Meeting, Leura, NSW, February 2004.

Chairman of the Australian Organic Geochemistry Conference (AOGC), December 2012, at Macquarie University.

Deputy Chairman of the Australian Organic Geochemistry Conference (AOGC), Lindfield, NSW, December 2022.

## **Employment**

### **Emeritus Professor**

Professor

School of Natural Sciences

Macquarie University

1 Apr 2022 → present

### **Macquarie University Marine Research Centre**

Macquarie University

1 Jan 2015 → present

### **MQ Centre for Energy and Environmental Contaminants**

Macquarie University

1 Jan 2015 → present

## **Research outputs**

### **Correlations between microbial taxonomies and wastewater quality parameters in a full-scale petroleum refinery wastewater treatment plant**

Wu, F., Zhu, Y., Deng, F., Wen, G., Hose, G. C., Xie, W. & George, S. C., Jan 2024, In: Journal of Water Process Engineering. 57, p. 1-12 12 p., 104684.

### **A novel tail: one story from the rare taxa of the coal seam microbiome**

Campbell, B. C., Tran-Dinh, N., Greenfield, P., Gong, S., Midgley, D. J., Paulsen, I. T. & George, S. C., 1 Nov 2023, In: International Journal of Coal Geology. 279, p. 1-9 9 p., 104371.

### **Hydrothermal conversion of hydrocarbons to heterocyclic compounds by geological supercritical CO<sub>2</sub> volatiles**

Liu, Q., Xu, H., Jin, Z., Zhu, D., Meng, Q., Wu, X., Fu, Q. & George, S. C., 30 Aug 2023, In: Science Bulletin. 68, 16, p. 1726-1729 4 p.

### **Co-existing two distinct formation mechanisms of micro-scale ooid-like manganese carbonates hosted in Cryogenian organic-rich black shales in South China**

Ai, J., Siljeström, S., Zhong, N., Chen, J., Wang, T., Qiu, N. & George, S. C., 1 Aug 2023, In: Precambrian Research. 393, p. 1-18 18 p., 107091.

### **The organic geochemistry of Permian high latitude sediments in two boreholes in the southern Sydney Basin, New South Wales, Australia**

Manda, B., Kachira, R., Mohamed, H. & George, S. C., Aug 2023, In: Marine and Petroleum Geology. 154, p. 1-25 25 p., 106316.

### **Volcanic activity drives lacustrine carbon sequestration after Oceanic Anoxic Event 1a**

Li, L., He, W., Liu, Z., Song, Y., Li, Y., Belousova, E., Löhr, S. C. & George, S. C., 1 Jul 2023, In: Palaeogeography, Palaeoclimatology, Palaeoecology. 621, p. 1-12 12 p., 111595.

**Anthropogenic petroleum signatures and biodegradation in subantarctic Macquarie Island soils**

Houlahan, S. B., Errington, I., Hose, G. C., King, C. K. & George, S. C., Jun 2023, In: *Chemosphere*. 325, p. 1-12 12 p., 138395.

**Global sea level changes or local tectonics? Pliocene, Miocene and Oligocene biomarkers in cored sedimentary rocks from IODP Expedition 317, Canterbury Basin, New Zealand**

Aharonovich, S., Lipp, J. S. & George, S. C., Jun 2023, In: *Organic Geochemistry*. 180, p. 1-25 25 p., 104590.

**Millimetre-scale biomarker heterogeneity in lacustrine shale identifies the nature of signal-averaging and demonstrates anaerobic respiration control on organic matter preservation and dolomitization**

Xu, H., Hou, D., Löhr, S. C., Liu, Q., Jin, Z., Shi, J., Liang, X., Niu, C. & George, S. C., 1 May 2023, In: *Geochimica et Cosmochimica Acta*. 348, p. 107-121 15 p.

**From the surface ocean to the seafloor: linking modern and paleo-genetics at the Sabrina Coast, East Antarctica (IN2017\_V01)**

Ambrecht, L., Focardi, A., Lawler, K. A., O'Brien, P., Leventer, A., Noble, T. L., Opdyke, B., Duffy, M., Evangelinos, D., George, S. C., Lieser, J., López-Quirós, A., Post, A., Ostrowski, M., Paulsen, I. & Armand, L., Apr 2023, In: *Journal of geophysical research: Biogeosciences*. 128, 4, p. 1-20 20 p., e2022JG007252.

**Biogeochemistry of recently fossilized siliceous hot spring sinters from Yellowstone, USA**

Teece, B. L., Havig, J. R., George, S. C., Hamilton, T. L., Baumgartner, R. J., Hartz, J. & Van Kranendonk, M. J., 3 Feb 2023, In: *Astrobiology*. 23, 2, p. 155-171 17 p.

**Exceptional molecular preservation in the Late Jurassic Claudia palaeo-geothermal field (Deseado Massif, Patagonia, Argentina)**

Teece, B. L., Guido, D. M., Campbell, K. A., Van Kranendonk, M. J., Galar, A. & George, S. C., Nov 2022, In: *Organic Geochemistry*. 173, p. 1-14 14 p., 104504.

**Methanogenic archaea in subsurface coal seams are biogeographically distinct: an analysis of metagenomically-derived *mcrA* sequences**

Campbell, B. C., Greenfield, P., Gong, S., Barnhart, E. P., Midgley, D. J., Paulsen, I. T. & George, S. C., Sept 2022, In: *Environmental Microbiology*. 24, 9, p. 4065-4078 14 p.

**Bacteria-plant interactions synergistically enhance biodegradation of diesel fuel hydrocarbons**

Eze, M. O., Thiel, V., Hose, G. C., George, S. C. & Daniel, R., 29 Aug 2022, In: *Communications Earth and Environment*. 3, 1, p. 1-10 10 p., 192.

**Aromatic hydrocarbon signatures of the late Miocene-early Pliocene in the Yinggehai Basin, South China Sea: Implications for climate variations**

Ding, W., Hou, D., Gan, J., Zhang, Z. & George, S. C., Aug 2022, In: *Marine and Petroleum Geology*. 142, p. 1-23 23 p., 105733.

**Unusual occurrence of alkylphenanthrenes in upper Eocene to Oligocene sediments from the western margin of Tasmania, Australia**

Li, Z., Huang, H. & George, S. C., Aug 2022, In: *Marine Geology*. 450, p. 1-12 12 p., 106859.

**Occurrence and origin of perylene in Paleogene sediments from the Tasmanian Gateway, Australia**

Li, Z., Huang, H., Yan, G., Xu, Y. & George, S. C., Jun 2022, In: *Organic Geochemistry*. 168, p. 1-11 11 p., 104406.

**Unusual occurrence of alkylnaphthalene isomers in upper Eocene to Oligocene sediments from the western margin of Tasmania, Australia**

Li, Z., Huang, H. & George, S. C., Jun 2022, In: *Organic Geochemistry*. 168, p. 1-12 12 p., 104418.

**Quantitative framework for astrobiology strategies and *in situ* biogenic assessments**

Hartz, J. & George, S. C., 14 Mar 2022, In: *Frontiers in Astronomy and Space Sciences*. 9, p. 1-8 8 p., 769607.

**The potential of oxygenates to increase the risk of exposure to polycyclic aromatic hydrocarbons through groundwater contamination**

Eze, M. O. & George, S. C., 1 Mar 2022, In: *Water*. 14, 5, p. 1-9 9 p., 739.

**Sedimentary geochemical records of late Miocene-early Pliocene palaeovegetation and palaeoclimate evolution in the Ying-Qiong Basin, South China Sea**

Ding, W., Hou, D., Gan, J., Jiang, L., Zhang, Z. & George, S. C., Mar 2022, In: *Marine Geology*. 445, p. 1-26 26 p., 106750.

**A Comparative study of different quality oil shales developed in the Middle Jurassic Shimengou Formation, Yuqia Area, Northern Qaidam Basin, China**

Bai, Y., Liu, Z., George, S. C. & Meng, J., 1 Feb 2022, In: *Energies*. 15, 3, p. 1-23 23 p., 1231.

**Enhancing rhizoremediation of petroleum hydrocarbons through bioaugmentation with a plant growth-promoting bacterial consortium**

Eze, M. O., Thiel, V., Hose, G. C., George, S. C. & Daniel, R., Feb 2022, In: *Chemosphere*. 289, p. 1-8 8 p., 133143.

**Using ToF-SIMS analyses for analysing individual oil inclusions of different fluorescence colours in a single quartz crystal from the Barrandian (Czech Republic)**

Siljeström, S., Volk, H. & George, S. C., Feb 2022, In: *Organic Geochemistry*. 164, p. 1-9 9 p., 104354.

**Biomacromolecules in recent phosphate-shelled brachiopods: identification and characterization of chitin matrix**

Agbaje, O. B. A., Brock, G. A., Zhang, Z., Duru, K. C., Liang, Y., George, S. C. & Holmer, L. E., Dec 2021, In: *Journal of Materials Science*. 56, 36, p. 19884-19898 15 p.

**Using laser micropyrolysis to assess potential relationships between Cambrian tomotiids and organophosphatic brachiopods**

Teece, B. L., Brock, G. A., Paterson, J. R., Skovsted, C. B., Holmer, L. E. & George, S. C., Sept 2021, In: *Journal of Analytical and Applied Pyrolysis*. 158, p. 1-11 11 p., 105277.

**Hydrothermal catalytic conversion and metastable equilibrium of organic compounds in the Jinding Zn/Pb ore deposit**

Xu, H., Liu, Q., Zhu, D., Meng, Q., Jin, Z., Fu, Q. & George, S. C., 15 Aug 2021, In: *Geochimica et Cosmochimica Acta*. 307, p. 133-150 18 p.

**Aromatic compounds in lacustrine sediments from the Lower Cretaceous Jiufotang Formation, Chaoyang Basin (NE China)**

Li, L., Jiang, L., George, S. C. & Liu, Z., Jul 2021, In: *Marine and Petroleum Geology*. 129, p. 1-17 17 p., 105111.

**柴北缘鱼卡地区中侏罗统石门沟组 含煤层段沉积有机相分析**

Bai, Y.-Y., Lü, Q., Liu, Z., George, S. C., Sun, P., Meng, Q., Xie, W., Song, Q., Wang, J. & Xu, C., Jul 2021, In: *Acta Geoscientica Sinica*. 42, 4, p. 501-513 13 p.

**Diversity and metagenome analysis of a hydrocarbon-degrading bacterial consortium from asphalt lakes located in Wietze, Germany**

Eze, M. O., Hose, G., George, S. C. & Daniel, R., 14 Jun 2021, In: *AMB Express*. 11, p. 1-12 12 p., 89.

**Aromatic compound-degrading taxa in an anoxic coal seam microbiome from the Surat Basin, Australia**

Campbell, B. C., Gong, S., Greenfield, P., Midgley, D. J., Paulsen, I. T. & George, S. C., May 2021, In: *FEMS Microbiology Ecology*. 97, 5, p. 1-13 13 p., fiab053.

**Oceanic water chemistry evolution and its implications for post-glacial black shale formation: insights from the Cryogenian Datangpo Formation, South China**

Ai, J., Zhong, N., Zhang, T., Zhang, Y., Wang, T. & George, S. C., 5 Apr 2021, In: *Chemical Geology*. 566, p. 1-15 15 p., 120083.

**Palaeovegetation variation in response to the late Oligocene-early Miocene East Asian summer monsoon in the Ying-Qiong Basin, South China Sea**

Ding, W., Hou, D., Gan, J., Wu, P., Zhang, M. & George, S. C., 1 Apr 2021, In: *Palaeogeography, Palaeoclimatology, Palaeoecology*. 567, p. 1-24 24 p., 110205.

**Evidence for deeply buried, oil-prone source rocks in the Baiyun depression, Pearl River Mouth Basin, northern South China Sea**

Ping, H., Chen, H., Zhai, P., Zhu, J., Xiong, W., Kong, L., Gong, S., Vergara, T. J. & George, S. C., Apr 2021, In: *American Association of Petroleum Geologists Bulletin*. 105, 4, p. 749-783 35 p.

**Organic petrology and geochemistry of Lower Cretaceous lacustrine sediments in the Chaoyang Basin (Liaoning Province, northeast China): influence of volcanic ash on algal productivity and oil shale formation**

Li, L., Liu, Z., Jiang, L. & George, S. C., 1 Jan 2021, In: *International Journal of Coal Geology*. 233, p. 1-22 22 p., 103653.

**Dose-response analysis of diesel fuel phytotoxicity on selected plant species**

Eze, M. O., George, S. C. & Hose, G. C., Jan 2021, In: *Chemosphere*. 263, p. 1-8 8 p., 128382.

**Advanced oil spill modeling and simulation techniques**

Kotzakoulakis, K. & George, S., 2021, *Oil spill occurrence, simulation and behavior*. Riazi, M. R. (ed.). Boca Raton: CRC Press, Taylor & Francis Group, p. 225-264 40 p.

**Geochemical comparison of three oil families from the Gippsland Basin, SE Australia**

Jiang, L. & George, S. C., Nov 2020, In: *Marine and Petroleum Geology*. 121, p. 1-23 23 p., 104575.

**Characterization of organophosphatic brachiopod shells: spectroscopic assessment of collagen matrix and biomineral components**

Agbaje, O. B. A., George, S. C., Zhang, Z., Brock, G. A. & Holmer, L. E., 20 Oct 2020, In: *RSC Advances*. 10, 63, p. 38456-38467 12 p.

**Late Cretaceous–Paleogene palaeoclimate reconstruction of the Gippsland Basin, SE Australia**

Jiang, L., Ding, W. & George, S. C., 15 Oct 2020, In: *Palaeogeography, Palaeoclimatology, Palaeoecology*. 556, p. 1-18 18 p., 109885.

**Evolution of paleo-weathering during the late Neoproterozoic in South China: implications for paleoclimatic conditions and organic carbon burial**

Ai, J., Zhong, N., George, S. C., Zhang, Y., Yao, L. & Wang, T., 1 Oct 2020, In: *Palaeogeography, Palaeoclimatology, Palaeoecology*. 555, p. 1-15 15 p., 109843.

**Geochemical evaluation of aliphatic and aromatic hydrocarbons in Palaeogene source rocks from the Latrobe Group, Gippsland Basin, Australia**

Jiang, L. & George, S. C., Oct 2020, In: *Marine and Petroleum Geology*. 120, p. 1-21 21 p., 104516.

**Assessing the effect of diesel fuel on the seed viability and germination of medicago sativa using the event-time model**

Eze, M. O., Hose, G. C. & George, S. C., Sept 2020, In: *Plants*. 9, 9, p. 1-9 9 p., 1062.

**Comparison of differential diagenesis of two oolites on the Lower Triassic platform margin, NE Sichuan Basin: implications for the co-evolution of rock structure and porosity**

Li, K., George, S. C., Cai, C., Zhang, X. & Tan, X., Sept 2020, In: *Marine and Petroleum Geology*. 119, p. 1-25 25 p., 104485.

**Sedimentary basin evolution, gravity flows, volcanism, and their impacts on the formation of the Lower Cretaceous oil shales in the Chaoyang Basin, northeastern China**

Li, L., Liu, Z., Sun, P., Li, Y. & George, S. C., Sept 2020, In: Marine and Petroleum Geology. 119, p. 1-21 21 p., 104472.

**Quantitatively predicting the thermal maturity of oil trapped in fluid inclusions based on fluorescence and molecular geochemical data of oil inclusions in the Dongying depression, Bohai Bay Basin, China**

Ping, H., Chen, H. & George, S. C., 15 Aug 2020, In: American Association of Petroleum Geologists Bulletin. 104, 8, p. 1751-1791 41 p.

**Overpressure release: fluid inclusion evidence for a new mechanism for the formation of heavy oil**

Ping, H., Li, C., Chen, H., George, S. C. & Gong, S., 1 Aug 2020, In: Geology. 48, 8, p. 803-807 5 p.

**Petroleum sources in the Xihu Depression, East China Sea: evidence from stable carbon isotopic compositions of individual n-alkanes and isoprenoids**

Xu, H., George, S. C., Hou, D., Cao, B. & Chen, X., Jul 2020, In: Journal of Petroleum Science and Engineering. 190, p. 1-16 16 p., 107073.

**Early diagenetic pyrite cementation influences molecular composition of sedimentary organic matter in the Dongying Depression, China**

Xu, H., Hou, D., Löhr, S. C., Liu, Q. & George, S. C., Jun 2020, In: Organic Geochemistry. 144, p. 1-16 16 p., 104019.

**Integrating heavy-mineral, geochemical and biomarker analyses of Plio-Pleistocene sandy and silty turbidites: a novel approach for provenance studies (Indus Fan, IODP Expedition 355)**

Andò, S., Aharonovich, S., Hahn, A., George, S. C., Clift, P. D. & Garzanti, E., Jun 2020, In: Geological Magazine. 157, Special Issue 6, p. 929-938 10 p.

**Surfactin for enhanced removal of aromatic hydrocarbons during biodegradation of crude oil**

Wang, X., Cai, T., Wen, W., Ai, J., Ai, J., Zhang, Z., Zhu, L. & George, S. C., 1 May 2020, In: Fuel. 267, p. 1-16 16 p., 117272.

**Mars rover techniques and lower/middle Cambrian microbialites from South Australia: construction, biofacies, and biogeochemistry**

Teece, B. L., George, S. C., Agbaje, O. B. A., Jacquet, S. M. & Brock, G. A., May 2020, In: Astrobiology. 20, 5, p. 637-657 21 p.

**Biomolecules from fossilized hot spring sinters: implications for the search for life on mars**

Teece, B. L., George, S. C., Djokic, T., Campbell, K. A., Ruff, S. W. & Van Kranendonk, M. J., Apr 2020, In: Astrobiology. 20, 4, p. 537-551 15 p.

**Ethanol-blended petroleum fuels: implications of co-solvency for phytotechnologies**

Eze, M. O. & George, S. C., 11 Feb 2020, In: RSC Advances. 10, 11, p. 6473-6481 9 p.

**Organic geochemical characteristics of highly mature Late Neoproterozoic black shales from South China: reappraisal of syngeneity and indigeneity of hydrocarbon biomarkers**

Ai, J. Y., George, S. C. & Zhong, N. N., Jan 2020, In: Precambrian Research. 336, p. 1-15 15 p., 105508.

**Biomarker signatures of Upper Cretaceous Latrobe Group petroleum source rocks, Gippsland Basin, Australia: distribution and geological significance of aromatic hydrocarbons**

Jiang, L. & George, S. C., Dec 2019, In: Organic Geochemistry. 138, p. 1-20 20 p., 103905.

**Assessing hydrocarbon biomarkers released from Archean rocks after hydrochloric acid treatment (Bitumen II)**

Peters, C. A., Hoshino, Y. & George, S. C., 4 Sept 2019. 2 p.

**Geochemical characteristics of coal seam biodegradation**

Campbell, B. C., Gong, S., George, S. C., Vergara, T. J., Vick, S. H. W., McLeish, A. G., Tran-Dinh, N. & Midgley, D. J., 4 Sept 2019. 2 p.

**Reassessing the syngeneity of biomarkers from South China: Late Neoproterozoic or not?**

Ai, J. Y., George, S. C. & Zhong, N. N., 4 Sept 2019. 2 p.

**Disequilibrium between relative abundances of diahopanes and diasteranes suggests different formation mechanisms**

George, S. C., Baydjanova, S., Jiang, L. & Manda, B. J., 1 Sept 2019. 2 p.

**Ancient DNA from marine sediments: precautions and considerations for seafloor coring, sample handling and data generation**

Ambrecht, L. H., Coolen, M. J. L., Lejzerowicz, F., George, S. C., Negandhi, K., Suzuki, Y., Young, J., Foster, N. R., Armand, L. K., Cooper, A., Ostrowski, M., Focardi, A., Stat, M., Moreau, J. W. & Weyrich, L. S., Sept 2019, In: Earth-Science Reviews. 196, p. 1-13 13 p., 102887.

**Higher-plant evolution during the Cretaceous to Palaeogene in the Gippsland Basin, Australia**

Jiang, L. & George, S. C., Sept 2019. 2 p.

**Petroleum charge history in the Baiyun depression and Panyu lower uplift in the Pearl River Mouth Basin, northern South China Sea: constraints from integration of organic geochemical and fluid inclusion data**

Ping, H., Chen, H., Zhai, P., Zhu, J. & George, S. C., Jun 2019, In: American Association of Petroleum Geologists Bulletin. 103, 6, p. 1401-1442 42 p.

**Depositional environment, organic matter sources, and variable 17 $\alpha$ (H)-diahopane distribution in Early Permian samples, southern Sydney Basin, Australia**

Baydjanova, S. & George, S. C., May 2019, In: Organic Geochemistry. 131, p. 60-75 16 p.

**Relationship between the fluorescence colour of oil inclusions and thermal maturity in the Dongying Depression, Bohai Bay Basin, China: part 2. fluorescence evolution of oil in the context of petroleum generation, expulsion and cracking under geological conditions**

Ping, H., Chen, H., George, S. C., Li, C. & Hu, S., May 2019, In: Marine and Petroleum Geology. 103, p. 306-319 14 p.

**Algal-derived polycyclic aromatic hydrocarbons in Paleogene lacustrine sediments from the Dongying Depression, Bohai Bay Basin, China**

Xu, H., George, S. C. & Hou, D., Apr 2019, In: Marine and Petroleum Geology. 102, p. 402-425 24 p.

**Lake evolution and its influence on the formation of oil shales in the Middle Jurassic Shimengou Formation in the Tuanyushan area, Qaidam Basin, NW China**

Li, L., Liu, Z., George, S. C., Sun, P., Xu, Y., Meng, Q., Wang, K. & Wang, J., Apr 2019, In: Chemie der Erde - Geochemistry. 79, 1, p. 162-177 16 p.

**Using petroleum inclusions to trace petroleum systems – a review**

Volk, H. & George, S. C., Mar 2019, In: Organic Geochemistry. 129, p. 99-123 25 p.

**Fluid inclusion and stable isotopic studies of thermochemical sulfate reduction: Upper permian and lower triassic gasfields, northeast Sichuan Basin, China**

Li, K., George, S. C., Cai, C., Gong, S., Sestak, S., Armand, S. & Zhang, X., 1 Feb 2019, In: Geochimica et Cosmochimica Acta. 246, p. 86-108 23 p.

**Relationship between the fluorescence color of oil inclusions and thermal maturity in the Dongying Depression, Bohai Bay Basin, China: Part 1. Fluorescence evolution of oil in the context of hydrous pyrolysis experiments with increasing maturity**

Ping, H., Chen, H., George, S. C., Li, C. & Hu, S., Feb 2019, In: Marine and Petroleum Geology. 100, p. 1-19 19 p.

**The occurrence of isorenieratane and 24-n-propylcholestanes in Paleogene lacustrine source rocks from the Dongying Depression, Bohai Bay Basin: implications for bacterial sulfate reduction, photic zone euxinia and seawater incursions**

Xu, H., George, S. C. & Hou, D., Jan 2019, In: Organic Geochemistry. 127, p. 59-80 22 p.

**Ethanol-blended fossil fuels: is reduction of atmospheric pollution the only concern?**

Eze, M. & George, S., 2019, *SETAC Europe 29th Annual Meeting abstract book*. Society of Environmental Toxicology and Chemistry Europe (SETAC Europe), p. 166 1 p. MO110

**The potential of *Medicago sativa* for microbial-enhanced phytoremediation of diesel fuel contaminated sites**

Eze, M. O., George, S. C. & Hose, G., 2019.

**Sediment microfabric records mass sedimentation of colonial cyanobacteria and extensive syndepositional metazoan reworking in Pliocene sapropels**

Löhr, S. C., Kennedy, M. J., George, S. C., Williamson, R. J. & Xu, H., Dec 2018, In: *The Depositional Record*. 4, 2, p. 293-317 25 p.

**Origin, source, mixing, and thermal maturity of natural gases in the Panyu lower uplift and the Baiyun depression, Pearl river Mouth basin, northern South China sea**

Ping, H., Chen, H., Zhu, J., George, S. C., Mi, L., Pang, X. & Zhai, P., 1 Nov 2018, In: *AAPG Bulletin*. 102, 11, p. 2171-2200 30 p.

**Hydrocarbon biomarkers preserved in carbonate veins of potentially Paleoproterozoic age, and implications for the early biosphere**

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#### **Novel tricyclic terpenoids from Tasmanite facies**

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George, S. C., Greenwood, P. F., Logan, G. A., Quezada, R. A., Pang, L. S. K., Lisk, M., Krieger, F. W. & Eadington, P. J., 1997, In: *The APPEA Journal*. 37, 1, p. 490-504 15 p.

Describing the oil charge history of the South Pepper oilfield from the analysis of oil-bearing fluid inclusions

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George, S. C., Quezada, R. A., Lisk, M., Greenwood, P. F., Logan, G. A., Eadington, P. J., Krieger, F. W. & Wilson, M. A., 1996.

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Laser microprobe gas chromatography mass spectrometry (a new tool!) for petrographical chemistry (a new discipline!)

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George, S. C., Lisk, M. & Quezada, R. A., 1996.

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**Implications of variations in petrography on the aliphatic hydrocarbon composition within the Barrett coal member, upper Permian Wittingham coal measures, Northern Sydney basin, New South Wales (NSW), Australia**

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George, S. C., Sherwood, N., Gu, Y., Greenwood, P. F., Cheng, K. & Zhao, C., 1995, p. 40. 1 p.

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The analysis of oil trapped in fluid inclusions in quartz grains

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Aromatic hydrocarbon distributions in the Greta seam, Sydney Basin

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**Ketones in a Proterozoic dolerite sill**

George, S. C. & Jardine, D. R., 1994, In: *Organic Geochemistry*. 21, 8-9, p. 829-839 11 p.

**Pyrolysis of aromatic compounds as a guide to synthetic reactions in sediments**

Smith, J. W., George, S. C. & Batts, B. D., 1994, In: *Australian Petroleum Exploration Association Journal*. 34, 1, p. 231-240 10 p.

**Vitrinite reflectance suppression in coal due to a marine transgression: case study of the organic geochemistry of the Greta Seam, Sydney Basin**

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#### **The organic and isotope geochemistry of the Permian Greta coal, Australia**

George, S. C., Smith, J. W., Jardine, D. & Hamilton, P. J., 1993, In: American Association of Petroleum Geologists Bulletin. 77

CSIRO Australia: research and development for the exploration industry

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Analytical approaches for determining the origin of solid bitumens: an integrated review

George, S. C., Llorca, S. M. & Hamilton, P. J., 1992.

An integrated analytical approach for determining the origin of solid bitumens

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Effect of igneous intrusion on the organic geochemistry of a siltstone and an oil shale horizon in the Midland Valley of Scotland

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The organic geochemistry of some heat-affected samples from the Midland Valley of Scotland

George, S. C., 1989.

Diagenesis of a Carboniferous sandstone from the Midland Valley of Scotland

George, S. C., 1988.

## **Activities**

### **Australian National University**

Simon George (Visiting researcher)

14 Oct 2018 → 14 Dec 2018

### **Deputy Head of Department, EPS**

Simon George (Participant)

Mar 2018 → ...

### **Reviewer of grant submitted to Petroleum Research Fund**

Simon George (Participant)

Mar 2018

### **China University of Petroleum - Beijing**

Simon George (Visiting researcher)

Nov 2017

### **Jilin University**

Simon George (Visiting researcher)

Nov 2017

**Australian Geoscience Council Convention 2018**

Simon George (Participant)  
Aug 2017 → Oct 2018

**Invited keynote plenary speaker for the Asian Current Research On Fluid Inclusions (ACROFI-VI), Indian Institute of Technology Bombay, 25th to 27th November, 2016.**

Simon George (Speaker)  
Nov 2016

**Zhaojun Liu**

Simon George (Host)  
Nov 2016

**China University of Geoscience Beijing**

Simon George (Visiting researcher)  
Jun 2016

**Invited keynote speaker for the Geofluids conference, Wuhan, China, June 2016.**

Simon George (Speaker)  
Jun 2016

**Jilin University**

Simon George (Visiting researcher)  
Jun 2016

**Jilin University**

Simon George (Visiting researcher)  
2016 → 2021

**Oral presentation at the Big History Anthropocene Conference, Macquarie University, December 2015. "Geology of the Anthropocene"**

Simon George (Speaker)  
Dec 2015

**CAS - Guangzhou Institute of Geochemistry**

Simon George (Visiting researcher)  
Jul 2015

**Yangtze University**

Simon George (Visiting researcher)  
Jul 2015

**Member of the EPS Learning and Teaching committee**

Simon George (Participant)  
2015 → ...

**Macquarie University Marine Research Centre (Organisational unit)**

Simon George (Chair)  
2014 → 2018

**Projects**

**AR app for physical campus exploration of evolution / biology / Big History, while walking down Wally's Walk**

Gillings, M., Christian, D., George, S., Steel, M., Downey, G., O'Neill, C. J., Brock, G., Staas, L., Rampe, M. & Ens, E.  
11/09/17 → 31/12/17

**A reality check for learning approaches; a bank of mobile Virtual Reality (VR) stations for campus wide applications**

Westaway, K., Ralph, T., Hesse, P., George, S., Bulbert, M., Allen, D., Power, R. & Rampe, M.  
1/04/18 → 31/12/18

**Australian Drilling Program: Biomarkers, Oxygen and Geobiology**

George, S.  
7/09/11 → 31/12/16

**Australian Membership of the International Ocean Discovery Program**

George, S., Arculus, R., Cohen, D., Gallagher, S., Vasconcelos, P., Elders, C., Foden, J., Coffin, M., Nebel, O., McGregor, H., Sloss, C., Webster, J. & Kemp, A.  
29/06/16 → ...

**Australian Membership of the International Ocean Discovery Program (2014-2015)**

George, S., Arculus, R., Rohling, E., Roberts, A., Exon, N., O'Reilly, S., Aitchison, J. C., Webster, J. C. U., Coffin, M., Vasconcelos, P., Welsh, K., McCuaig, T., George, A., Skilbeck, C., Baxter, A., Hergt, J., Gallagher, S., Fergusson, C., Sloss, C., Heap, A., Schellart, W., Stilwell, J., Foden, J., Kershaw, A., Clennell, M. & Müller, D.  
9/07/14 → 31/12/15

**Biodegradation and ecotoxicology of spilled fuel oils in polar soils**

George, S.  
5/03/07 → 4/03/08

**CL Monochromator for Scanning Electron Microscopy**

Zakoshanski, I., O'Reilly, S., Griffin, B., Pearson, N., Belousova, E., Jacob, D., Piazzolo, S., Clark, S., Daczko, N., Foley, S., George, S., Rushmer, T., Turner, S., Dadd, K., Schaefer, B., Handley, H., Downes, J., Lang, C. & Brock, G.  
1/01/15 → 31/12/15

**Constraining the impact of benthic meiofaunal activity on organic carbon burial in ancient oxygen-depleted sedimentary environments**

Loehr, S., Kennedy, M., George, S. & Schaefer, B.  
1/01/16 → ...

**Deciphering the organic geochemical record of metazoans during the 'Cambrian Explosion' bioevent**

George, S.  
1/07/07 → 30/06/09

**Diatom lipids: the key to past sea-ice history in remote Antarctic regions**

Armand, L., George, S., Belt, S., Heraud, P., Bowler, C., Beardall, J. & MQRES, M.  
28/02/17 → 23/08/17

**Ecological Risks from Oil Products used in Antarctica: Characterising hydrocarbon behaviour and assessing toxicity on sensitive early life stages of Antarctic marine invertebrates**

George, S.  
5/12/11 → 30/06/12

**Facility for large lipid analysis of geological and environmental samples, including new ability to derive important palaeothermometers**

George, S., Goodwin, I., Lolas, A., Jacob, D., Westaway, K. & Leefmann, T.  
1/01/14 → 31/12/14

**Facility for long term preservation and storage of biological, chemical, environmental and geological samples**

Nevalainen, H., Packer, N., Karuso, P., Jamie, J., Molloy, M., Brown, L., Liu, F., Herbert, B., George, S. & Vemulapad, S.  
1/01/11 → 31/12/11

**Femtosecond laser micropyrolysis gas chromatograph-mass spectrometer**

George, S., Paterson, J., Van Kranendonk, M., Brocks, J., Sherwood, N., Jacob, D., Fuerbach, A., Brock, G., Loehr, S. & Sestak, S.  
1/01/18 → 31/12/18

**Fossils, fuels and ancient molecules: a multidisciplinary study investigating early animal and hydrocarbon evolution in the Cambrian of central Australia**

Brock, G. & George, S.  
1/01/10 → 31/12/10

**Funds to aid with start-up if Produced Water Research Centre, Faculty of Science**

George, S.  
22/05/12 → 31/12/12

**Geochemical changes during coal biodegradation to methane**

George, S., Campbell, B. & Loehr, S.  
5/03/18 → 5/03/21

**Geochemistry Lab - ASE 300 Accelerated Solvent Extractor**

George, S., Walter, M., Brock, G., Jamie, J., Gore, D. & McRae, C.  
1/01/07 → 31/12/07

**Hybrid fourier transform dispersive raman micro-spectrometer**

George, S., Kannangara, G., Kennedy, E., McNevin, D., Chen, Y. & Wilson, M.  
1/01/09 → 31/12/09

**LECO comprehensive two-dimensional gas chromatography (GCxGC) with flame ionization deflection system**

George, S., Nelson, P., Brock, G. & Jamie, J.  
1/01/08 → 31/12/08

**Luminescence dating facility - dosimetry and detection**

Westaway, K., Goodwin, I., Fryirs, K., Hesse, P., George, S., Choat, M., Fanning, P. & Cohen, T.  
1/01/10 → 31/12/10

**Macquarie University Energy and Environmental Contaminants Research Centre**

Taylor, M., Gore, D., Strezov, V., Nelson, P., Edwards, G., Davies, P., Kennedy, M., Loehr, S., Handley, H., George, S., Jiang, Y. & Hose, G.  
1/01/16 → ...

**Macquarie University Planetary Research Centre**

O'Neill, C. J., Schaefer, B., Rushmer, T., Foley, S., Turner, S., Clark, S., George, S., Kennedy, M., Piazzolo, S., Afonso, J. C., De Marco, O., Wardle, M., Schwab, C., Heimlich, M., Inglis, D. & Chang, M.  
1/07/15 → ...

**Mass balancing of generation and escape of methane on the North West Shelf of Australia in the Cenozoic**

George, S. & Abbassi, S.  
21/09/11 → 26/09/12

**Models of local and global climate changes through organic inputs and biomarker geochemistry in deep water core sediments in the Indus fan, Arabian Sea**

George, S. & Aharonovich, S.  
1/01/16 → ...

**Molecular fossils, environmental genomics & the natural history of an Australian salt lake**

George, S. & Brocks, J.

1/01/07 → 31/12/09

**MQ Marine Research Centre**

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**MQ SAFETY NET Biogeochemical evolution of animal exoskeletons throughout the Phanerozoic**

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**Purge and trap concentrator with autosampler for analysis of volatile organic compounds in water and soil samples**

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**Pyrolysis equipment for chemical analysis of large organic molecules**

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**Rates of depletion of lubricant and fuel contaminants during natural attenuation from Antarctic marine environments, and ecosystem response to exposure to complex mixtures**

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**Reassessing the rise and phylogeny of Cambrian organophosphatic shelly lophotrochozoans using molecular fossils**

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**Residual toxicity and risk assessment of petroleum hydrocarbons in Antarctic and sub-Antarctic soils**

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**Sediment Hydrocarbon Pyrolysis Analyzer**

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**Start-up grant for Simon George**

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**Stromatolite Construction, Biofacies and Biomarkers in Lower Cambrian Carbonates of the Hawker Group, Arrowie Basin, South Australia**

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**Thermal Desorption Capability for Molecular Analysis**

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**Time-of-flight mass spectrometer for analysis of complex mixtures in oils, ancient rocks, recent sediments, natural products and atmospheric aerosols**

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**Toxicity of chemically and physically dispersed fuels on Antarctic marine biota - applicability of dispersant use for fuel spill response planning**

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**Tracing life's beginnings: molecular fossils from single oil inclusions**

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**Using ancient phytoplankton communities and genes to illuminate future ocean responses**

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