

AESC 2008  
The Evolution of Life and the Solar System Theme

| <b>Sunday 20 July 2008</b> |  |
|----------------------------|--|
| 0900–1700                  | <b>PRE- CONFERENCE WORKSHOPS [TBA]</b>   |
| 1500–1900                  | <b>Registration</b>  |
| 1730–1900                  | <b>Trade Display Opens</b>   |
| 1730–1900                  | <b>Ice Breaker</b>   |
| <b>Monday 21 July 2008</b> |  |
| 0800–1700                  | <b>Registration</b>  |
| 0900–0930                  | <b>Conference Opening</b>  |
|                            | <b>Prof. Lyn Beazley, University of Western Australia</b>  |
| 0930–1030                  | <b>Plenary Session 1</b>   |
|                            | <b>Mawson Lecture</b>  |
|                            | Making Mountains: Geological drivers and environmental consequences<br><b>Prof. Peter Cawood, University of Western Australia</b>  |
| 1030–1100                  | <b>Morning Tea</b>   |
| 1100–1245                  | <b>Concurrent Session 1</b>  |
|                            | <b>A2</b>  |
|                            | <b>EVOLUTION OF LIFE &amp; SOLAR SYSTEM (1) - Evidence for Early Life</b>  |
| 1105–1125                  | <b>KEYNOTE</b>   |
|                            | The Quest for Perfection – Biogenicity and the Early Fossil Record<br><b>Prof. Stanley Awramik, University of California</b>   |
| 1145–1205                  | The Palaeontology and Palaeoecology of the 2.7Ga Tumbiana Formation, Pilbara Craton, Western Australia.<br><b>Jessica Coffey, Macquarie University</b>   |
| 1205–1225                  | Microbially induced sedimentary structures – signs of life in Archean to modern sandy marine settings<br><b>Dr. Nora Noffke , Old Dominion University</b>  |
| 1225–1245                  | Highly elaborate putative microfossils from >2.97 Ga chert, Pilbara Craton: indications of cell division?<br><b>Dr. Kenichiro Sugitani, Nagoya University</b>                                    |
| 1245–1345                  | <b>Lunch &amp; Poster Presentations</b>  |
| 1345–1530                  | <b>Concurrent Session 2</b>  |
|                            | <b>B2</b>  |
|                            | <b>EVOLUTION OF LIFE &amp; SOLAR SYSTEM (1) - Evidence for Early Life</b>  |
| 1350–1410                  | The ~3.43Ga Strelley Pool sandstone as an environment for early life<br><b>Mr Cris Stoakes, C.A. Stoakes Associates Consultant Geologists</b>  |
| 1410–1430                  | Direct dating of Archean microbial ichnofossils<br><b>Dr. Martin Van Kranendonk, Geological Survey of Western Australia</b>  |
| 1430–1450                  | Morphological complexity and diversity in the c.3.40 Ga Strelley Pool Chert, Pilbara Craton — evidence for a biogenic origin<br><b>Dr. Kathleen Grey, Geological Survey of Western Australia</b> |

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| 1450–1510                   | Environments of life at 3.5–3.3 Ga; evidence from the East Pilbara Terrane, Western Australia.<br><b>Dr. Martin Van Kranendonk, Geological Survey of Western Australia</b>                    |
| 1510–1530                   |   |
| <b>1530–1600</b>            | <b>Afternoon Tea &amp; Poster Presentations</b>   |
| <b>1600–1745</b>            | <b>Concurrent Session 3</b>   |
|                             | <b>C2</b>   |
|                             | <b>EVOLUTION OF LIFE &amp; SOLAR SYSTEM (1) - Evidence for Early Life</b>   |
| 1605–1625                   | A reassessment of the evidence for sulphur-based microbial metabolic activity in the early Archean at North Pole, Western Australia<br><b>Prof. Bruce Runnegar, University of California</b>  |
| 1625–1645                   | Early Archaean Microorganisms Preferred Elemental Sulfur, Not Sulfate<br><b>Pascal Philippot, Institut De Physique Du Globe De Paris</b>  |
| 1645–1705                   | Unravelling biogenicity of Archaean organic matter in the Pilbara Craton, Western Australia<br><b>Craig Marshall, The University of Sydney</b>  |
| 1705–1725                   | Distinguishing microbial carbonates using in situ LA-ICP-MS vital trace element geochemistry: implications for biogenicity<br><b>Dr. Gregory E. Webb, Queensland University of Technology</b> |
| 1725–1745                   | Isotopic evidence for redox heterogeneity in the late Archean and early Paleoproterozoic Hamersley Basin, Western Australia<br><b>Sue Golding, University of Queensland</b>                   |
| <b>1745–1845</b>            | <b>Happy Hour (Expo Area)</b>   |
| <b>18.00 - 20.00</b>        | <b>SEG Mentor Event (venue tba)</b>   |
| <b>Tuesday 22 July 2008</b> |   |
| <b>0800–1700</b>            | <b>Registration</b>   |
| <b>0900–1030</b>            | <b>Plenary Session 2 - International Year of Planet Earth</b>   |
| 0900-0945                   | Australia's Energy Future (IYPE Theme: Resources - towards Sustainable Use)<br><b>Peter McCabe</b>  |
| 0945-1030                   | The Geological History of Climate Change<br><b>Prof. Malcolm Walter, University of New South Wales</b>  |
| <b>1030–1100</b>            | <b>Morning Tea</b>  |
| <b>1100–1245</b>            | <b>Concurrent Session 4</b>   |
|                             | <b>D2</b>   |
|                             | <b>EVOLUTION OF LIFE &amp; SOLAR SYSTEM (2) - The Pilbara Archean Drilling Project</b>  |
| 1105–1125                   | An overview of four international geoscientific drilling projects, Pilbara Craton, Western Australia, 2003 -2007<br><b>Dr. Arthur Hickman, Geological Survey of Western Australia</b>         |

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| 1125–1145        | <p><b>KEYNOTE</b><br/>Geochemical evidence for the development of a fully-oxygenated atmosphere-oceans and modern-style ecosystems by ~3.5 Ga<br/><b>Prof. Hiroshi Ohmoto, The Pennsylvania State University</b></p>                        |
| 1205–1225        | <p>Bio-activity in the 3.46 Ga ferruginous Marble Bar Chert, Pilbara, Western Australia<br/><b>Dr. Munetomo Nedachi, Kagoshima University</b></p>   |
| 1225–1245        | <p>Possible generation of MIF-S during hydrothermal alteration of organic rich  sediments<br/><b>Prof. Hiroshi Ohmoto, The Pennsylvania State University</b></p>  |
| <b>1245–1345</b> | <b>Lunch &amp; Poster Presentations</b>   |
| <b>1345–1530</b> | <b>Concurrent Session 5</b>   |
|                  | <b>E2</b>   |
|                  | <b>EVOLUTION OF LIFE &amp; SOLAR SYSTEM (2) - The Pilbara Archean Drilling Project</b>  |
| 1350–1410        | <p>Geochemical evidence for oxygenated oceans 3.46 Ga ago: REE geochemistry of the Marble Bar Chert recovered by the Archean Biosphere Drilling Project (ABDP)<br/><b>Dr. Kosei Yamaguchi, Precambrian Ecosystem Lab., XBR, JAMSTEC</b></p> |
| 1410–1430        | <p>Shallower Submarine Ecosystem at 2.7-2.8 Ga, Pilbara, Western Australia<br/><b>Dr. Munetomo Nedachi, Kagoshima University</b></p>  |
| 1430–1450        | <p>A volcanic caldera habitat for Earth's oldest stromatolites (c. 3.5 Ga) from the North Pole Dome, Western Australia<br/><b>Dr. Martin Van Kranendonk, Geological Survey of Western Ausatralia</b></p>                                    |
| 1450–1510        | <p>3.2 Ga island arc oceanic sedimentary sequence: Preliminary result of the Dixon Island-Cleaverville drilling (DXCL-dri) Project<br/><b>Dr. Shoichi Kiyokawa, Kyushu University</b></p>   |
| 1510–1530        | <p>Photosynthesis in a 3.5 Ga old shallow marine depositional environment; clues from carbon and iron isotope systematics<br/><b>Mark van Zuilen, Laboratoire Geobiosphere Actuelle et Primitive Institute</b></p>                          |
| <b>1530–1600</b> | <b>Afternoon Tea &amp; Poster Presentations</b>   |
| <b>1600–1745</b> | <b>Concurrent Session 6</b>   |
|                  | <b>F2</b>   |
|                  | <b>EVOLUTION OF LIFE &amp; SOLAR SYSTEM (2) - The Pilbara Archean Drilling Project</b>  |
| 1605–1625        | <p><b>KEYNOTE</b><br/>The Pilbara Drilling Project: Results and Perspectives<br/><b>Pascal Philippot, Institut De Physique Du Globe De Paris</b></p>  |
| 1645–1705        | <p>Nano-aragonite associated with organic globules supports a biogenic origin of 2.7 Gyr old stromatolites<br/><b>Dr. Kevin Lepot, Institut De Physique Du Globe De Paris</b></p>   |

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| 1705–1725                     | Multiple Sulfur and Carbon isotopic chemostratigraphy of the 2.73 Ga carbonated Tumbiana Formation, new insights for the Fortescue excursion<br><b>Pascal Philippot, Institut De Physique Du Globe De Paris</b> |   |
| 1725–1745                     | Modern Deep Biosphere in 2,724 Myr-old stromatolites of the Tumbiana Formation, Pilbara Craton, Australia<br><b>Emmanuelle Gérard, Institut De Physique Du Globe De Paris</b>                                   |   |
| 1745–1845                     | <b>Happy Hour (Expo Area)</b>   |   |
| 1830-2030                     | <b>Student Careers Night (Expo Area)</b>  |   |
| 1900–2200                     | <b>GeoTrivia Night [Meeting Room 5]</b>   |   |
| <b>Wednesday 23 July 2008</b> |   |   |
| 0800–1700                     | <b>Registration</b>   |   |
| 0900–1030                     | <b>Plenary Session 3 - International year of Planet Earth</b>   |   |
| 0900-0945                     | The Yarragadee Aquifer (IYPE Theme: Groundwater - towards sustainable use)<br><b>Philip Commander, International Association of Hydrogeologists</b>   |   |
| 0945-1030                     | The Tsunami Risk to Australia and what is being done to mitigate it (IYPE Theme: Hazards - minimizing risk, maximising awareness)<br><b>Dr. Barry Drummond, Geoscience Australia</b>                            |   |
| 1030-1105                     | <b>Mixed Awards (35 mins)</b>   |   |
| 1105-1130                     | <b>Morning Tea</b>  |   |
| 1130-1315                     | <b>Concurrent Session 7</b>   |   |
|                               | <b>G2</b>   | <b>G8</b>   |
|                               | <b>EVOLUTION OF LIFE &amp; SOLAR SYSTEM (3) - Evolution of Life in the Proterozoic and Phanerozoic</b>  | <b>EVOLUTION OF LIFE &amp; SOLAR SYSTEM (4) - Formation of the Solar System</b>   |
| 1135–1155                     | Palaeoproterozoic hydrocarbons associated with uranium and gold deposits<br><b>Dr. Adriana Dutkiewicz, The University of Sydney</b>   | <b>KEYNOTE</b><br>The formation and early evolution of the solar system<br><b>Dr. Raquel Salmeron, Mt Stromlo Observatory</b>                     |
| 1155–1215                     | Trace element geochemistry of Neoproterozoic stromatolites: a tool for interpreting accretionary processes<br><b>Dr. Gregory E. Webb, Queensland University of Technology</b>                                   |   |
| 1215-1235                     | Emergence and evolution of metazoa and the relation to algal and fungal co-evolutionary events<br><b>Christian Hallmann, Curtin University</b>  | Formation of the Inner Solar System: new insights revealed by spacecraft data<br><b>Andrew Prentice, Monash University</b>                        |
| 1235-1255                     | Perylene: a molecular marker for lignin degradation and a signal for the rise of vascular plants<br><b>Prof. Kliti Grice, Curtin University of Technology</b>   | Dust to Planets - what have we learned from Genesis and Stardust Samples?<br><b>Judith Allton, NASA Johnson Space Center</b>                      |
|                               |   | Dating Fractionation of Refractory and Volatile Elements in the Protoplanetary Disk<br><b>Dr. Yuri Amelin, The Australian National University</b> |
| 1315-1415                     | <b>Lunch &amp; Poster Presentations</b>   |   |

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| 1415-1600   |  | Concurrent Session 8   |  |
|---|--|--|--|
| H2  |  | H8   |  |
| EVOLUTION OF LIFE & SOLAR SYSTEM (3) - Evolution of Life in the Proterozoic and Phanerozoic |  | EVOLUTION OF LIFE & SOLAR SYSTEM (5) - Early Planetary Differentiation   |  |
| 1420-1440   | Discovery of Paleodictyon in brackish water environment from the Permian of the Carnarvon Basin, Western Australia<br><b>Zhongwu Lan, University of Western Australia</b>  | Chronology of the Early Solar System through Short-lived and Long-lived Chronometers<br><b>Dr. Trevor Ireland, Australian National University</b>  |  |
| 1440-1500   | Restoration of marine ecosystems following the Permian-Triassic mass extinction in Gondwanan interior sea<br><b>Dr. Zhong Qiang Chen, University of Western Australia</b>  | Extremes of Igneous Fractionation in the Moon<br><b>Dr Jeffrey Taylor, Hawaii Institute of Geophysics and Planetology</b>                          |  |
| 1500-1520   | Molecular and isotopic evidence for a microbial response to the Triassic–Jurassic mass extinction<br><b>Dr. Kenneth Williford, Curtin University of Technology</b>   | Early evolution of Earth and Moon<br><b>Dr. Alexander Nemchin, Curtin University of Technology</b>   |  |
| 1520-1540   | Position of the end-Permian mass extinction level and Permian Triassic boundary in Australia<br><b>Prof. Ian Metcalfe, University of New England</b>   | A New Type of Basaltic Eucrite: Clues to Early Differentiation of Igneous Asteroids<br><b>Katherine Bermingham, Australian National University</b> |  |
| 1540-1600   | Global significance of stable carbon, sulfur and hydrogen isotope signals together with higher plant derived components of sedimentary organic material from the Permian/Triassic boundary<br><b>Brigit Nabbefeld, Curtin University of Technology</b> | A spectrum of Hadean geodynamics from diamond stability constraints<br><b>Dr. Craig O'Neill, Macquarie University</b>                              |  |
| 1600-1630   |  | Afternoon Tea & Poster Presentations   |  |
| 1630-1815   |  | Concurrent Session 9   |  |
|   |  | I8   |  |
|   |  | EVOLUTION OF LIFE & SOLAR SYSTEM (6) - Mars - Water and Rocks  |  |
| 1635-1655   | KEYNOTE<br>Mineral Precipitation in Porous Media: Laboratory Diffusion Experiments as Analogues for Concretion Formation in Utah and on Mars<br><b>Laura Barge, University of Southern California</b>  |  |  |
| 1715-1735   | The Dalhousie Mound Spring Complex as a guide to Martian Landforms and Processes<br><b>Dr. Jonathan Clarke, Mars Society Australia</b>   |  |  |
| 1735-1755   | Layered units at the Martian dichotomy and their geological significance<br><b>Dr. Graziella Caprarelli, Sydney University of Technology</b>   |  |  |
| 1755-1815   | Higher Order Neighbour Statistics of Martian North Polar Crescentic Dune Fields<br><b>Andrew Wheeler, University of South Australia</b>  |  |  |
| 1930–2300   |  | Dinner (Bellevue Room 1)   |  |

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| <b>Thursday 24 July 2008</b> |   |
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| 0830-1700                    | <b>Registration</b>   |
| 0900-1030                    | <b>Plenary Session 4 - International Year of Planet Earth</b>   |
| 0900-0945                    | The dynamic earth - the new perspective from deep seismic imaging (IYPE Theme: Deep Earth - from crust to core)<br><b>Prof. Michael Gurnis, California Institute of Technology, USA</b>                           |
| 0945-1030                    | New Views of the Chemistry and Geology of the Crust of Mars<br><b>Dr. Jeffrey Taylor, Hawaii Institute of Geophysics and Planetology, USA</b>   |
| 1030-1100                    | <b>AIG / GSA Awards (30 mins)</b>   |
| 1100-1130                    | <b>Morning Tea</b>  |
| 1130-1315                    | <b>Concurrent Session 10</b>  |
|                              | <b>J8</b>   |
|                              | <b>EVOLUTION OF LIFE &amp; SOLAR SYSTEM (7): The Impact of Impacts</b>  |
| 1135-1155                    | <b>KEYNOTE</b><br>The impact of impacts: impact as a geological process and significance in economic geology<br><b>Dr. Peter Haines, Geological Survey of Western Australia</b>                                   |
| 1215-1235                    | The geophysical signatures of Australia's meteorite impact structures<br><b>Dr. Phil Hawke, University of Western Australia</b>   |
| 1235-1255                    | A newly discovered meteorite impact crater, Ophalmia Range, Western Australia<br><b>Dr. Arthur Hickman, Geological Survey of Western Australia</b>  |
| 1255-1315                    | Sedimentary and Petrologic Evidence of a Tookoonooka Impact Event Ejecta Layer, Australia<br><b>Katherine Bron, University of Adelaide</b>  |
| 1315-1415                    | <b>Lunch &amp; Poster Presentations</b>   |
| 1415-1600                    | <b>Concurrent Session 11</b>  |
|                              | <b>K8</b>   |
|                              | <b>EVOLUTION OF LIFE &amp; SOLAR SYSTEM (7): The Impact of Impacts</b>  |
| 1420-1440                    | Confirmed LL chondritic meteorite within the melt sheet of the giant Morokweng impact crater, South Africa<br><b>Dr. Wolfgang Maier, University of Western Australia</b>  |
| 1440-1500                    | Timing of the Lawn Hill Impact Crater and Relationship to the Century Zn-Pb Deposit, Northwest Queensland<br><b>Jess Salisbury, Monash University</b>   |
| 1500-1520                    | Direct field evidence for Archaean and early Proterozoic Eros-scale asteroid impacts and major geodynamic consequences, Kaapvaal and Pilbara Cratons<br><b>Dr. Andrew Glikson, Australian National University</b> |
| 1520-1540                    | Hydrothermal systems associated with meteorite impacts<br><b>Dr. Franco Piranjo, Geological Survey of Western Australia</b>   |
| 1540-1600                    | New Perspective on the Lunar Cataclysm from Crater Density Populations<br><b>Dr. Marc Norman, Australian National University</b>  |
| 1600-1630                    | <b>Afternoon Tea &amp; Poster Presentations</b>   |
| 1630-1730                    | <b>Plenary Session 5</b>  |
|                              | <b>Best Paper and Poster Awards</b>   |