

Conference Programme

Wednesday 8th July 2015

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| 7:30 – 8:45 | Registration / Refreshments | |
| 8:45 – 9:00 | Housekeeping and Introduction: Dr Suzanne Hollins | |
| 9:00 – 9:15 | Welcome to Country and Opening Speech: Dr Adi Paterson, CEO ANSTO | |
| 09:15 – 10:00 | Plenary address: Dr Kerrylee Rogers – “Integrating Isotopic techniques to understand the response of coastal wetlands to sea-level rise” | |
| | Session 1 – Natural Resource Management : Chair – Neil Saintilan | |
| 10:05 – 10:25 | Tsuyoshi Kobayashi - Stable Isotopes to understand trophic interactions in floodplain wetlands of semi-arid Australia | |
| 10:25 – 10:45 | Troy Gaston -The spatial influence of treated effluent in Tilligerry creek, NSW: 15N & 13C stable isotopes in estuarine bioindicators | |
| 10:45– 11:15 | MORNING TEA | |
| | Session 2 – Natural Resource Management (cont.) : Chair – Neil Saintilan | |
| 11:15 – 11:35 | Mark Keppel - The use of isotope hydrochemistry in the hydrogeological characterisation of the Arckaringa basin, South Australia | |
| 11:35 – 11:55 | Catherine Chagué-Goff - Insights from stable isotopes for evaluating weed invasion in urban bushland | |
| 11:55 – 12:15 | Andrew Revill - Short term bottom-up driven trophic variability in fish species within a marine warming hotspot indicated by compound specific amino acid nitrogen isotopes | |
| 12:15 – 12:35 | Debashish Mazumder - Isotopic tools for better management of aquatic environment and resources | |
| 12:35 – 12:55 | Discussion - “Delivering our research to resource managers.” (Facilitator Neil Saintilan) | |
| 12:55 – 13:55 | LUNCH | |
| 13:55 – 14:40 | Plenary address: Professor Brian Fry – “Going global with isotopes in the dawning era of big data” | |
| | Session 3 – Isotopes for Ecological Processes: Chair – Andrew Revill | Session 4 – Isotopes Used to Understand Catchment Processes and Residence Times: Chair – Axel Suckow |
| 14:45 – 15:05 | Roxane Francis - Do environmental flows affect turtle condition? | Ursula Salmon - Using 14C reactive transport modelling to investigate causes of uncertainty in groundwater flow model “AGE” |
| 15:05 – 15:25 | Mark Farrell - Using radio-isotopes and CE-MS to further unravel the complex world of dissolved organic nitrogen in soils | Sarah Taylor - Stable isotopes in Western Sydney groundwater: what do they tell us? |
| 15:25 – 15:45 | Xinhua He - Host-species dependent ecophysiological characteristics and two-way transfer of nitrogen between <i>dalbergia odorifera</i> and its hemiparasite <i>santalum album</i> | Vincent Post - The problem of dating coastal groundwater. |
| 15:45 – 16:15 | AFTERNOON TEA | |
| | Session 5 – Isotopes for Ecological Processes: Chair – Troy Gaston | Session 6 – Isotopes Used to Understand Catchment Processes and Residence Times: Chair – Wendy Timms |
| 16:15 – 16:35 | Kate Brandis - Understanding waterbird diets: using stable isotope analysis of feathers and scats | Karina Meredith - Tracing carbon dynamics of groundwater in an evaporative environment. |
| 16:35 – 16:55 | Andrew Revill - Key primary producers and trophic position of an elasmobranch in a seagrass dominated system elucidated by compound specific amino acid nitrogen isotopes | Stacey Priestley - Inter-aquifer leakage and groundwater flow inferred from Isotopes and noble gases. |
| 16:55 – 17:15 | Tom Cresswell - Radioisotope techniques and aquatic ecotoxicology: importance of understanding kinetics and internal location of metals in organisms | Rob van der Raaij - Variation in groundwater chemistry and age along a transect across the Central Plains, Canterbury, New Zealand. |
| 17:15 – 17:35 | Karen Armstrong - Can natal origins of biosecurity pests be determined using natural abundance isotopes? | Megan Hancock – Characterising ephemeral river recharge in arid Australia. |
| 17:35 – 19:35 | POSTER SESSION THOMAS KENEALLY ROOM (INCLUDING DRINKS & CANAPES) | |

Thursday 9th July 2015

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| 8:45 – 9:00 | Housekeeping: Dr Suzanne Hollins | |
| 09:00 – 09:45 | Plenary address: Professor Andy Baker – “Caves: Observatories of Australia’s groundwater isotope history” | |
| | Session 7 – Isotopes Used to Understand Catchment Processes and Residence Times: Chair – Ursula Salmon | Session 8 – Contamination: Environmental Studies: Chair – Mat Johansen |
| 09:50 – 10:10 | Eliza Wells - Seasonal change in the groundwater isotopic composition of a freshwater lens, Rottneest Island, Western Australia. | Troy Gaston - Stable isotope evidence of nutrient and energy sources in the Brisbane water estuary, NSW. |
| 10:10 – 10:30 | Eddie Banks - Constraining residence times and recharge rates using carbon-14 and helium-4. | Simon Haberle - History of sediment geochemical signals in an area of oil reserve development in Lake Kutubu, PNG. |
| 10:30 – 11:00 | MORNING TEA | |
| | Session 9 – Isotopes Used to Understand Catchment Processes and Residence Times: Chair – Vincent Post | Session 10 – Atmospheric Processes: Chair – Andrew Smith |

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| 11:00 – 11:20 | Ian Cartwright - Understanding residence times of water contributing to headwater streams using tritium. | Scott Chambers - Benchmarks for chemical transport models based on radon-derived stability assessment of urban air pollution. |
| 11:20 – 11:40 | Rory Williams - The geomorphic and hydrological structure and function of a chain-of-ponds river system: A unique Australian river type. | Huade Guan - Rain isotopic composition in Adelaide and Mount Lofty ranges and selected hydrological and ecohydrological applications. |
| 11:40 – 12:00 | William Howcroft - Young water and old solutes in rivers and in groundwater. | Alastair Williams - ANSTO radon measurements at Cape Grim and other global atmospheric monitoring sites. |
| 12:00 – 12:20 | Cath Hughes - $\delta^2\text{H}$ and $\delta^{18}\text{O}$ used to link flooding to groundwater recharge along the Darling River. | Alan Griffiths - Using radon-222 to distinguish between vertical transport processes affecting trace gas measurements at Jungfrauoch in the Swiss Alps. |
| 12:20 – 13:20 | LUNCH | |
| 13:20 – 14:05 | Plenary address: Dr Andrew Smith – “Cosmic Secrets in the Ice” | |
| | Session 11 – Climate Variability: Chair – Stewart Fallon | Session 12 – Isotopes in Aquatic Systems: Chair – Brian Fry |
| 14:10 – 14:30 | Henk Heijnis - Bog burst in the Eastern Netherlands triggered by the 2.8 kyr BP climate event. | Michael Corry - To fish or not to fish: stable isotopes uncover the functional role of soft coral in temperate estuaries |
| 14:30 – 14:50 | Stephanie Kermode - Debris flow dominated alluvial fans in the Victorian high country indicate that landscape denudation through the Holocene has been dominated by post-bushfire runoff events. | Vincent Raoult - Co-occurring species of sawshark avoid competition through trophic plasticity both within and between species |
| 14:50 – 15:10 | Melissa Fedrigo - Tree fern growth rates as drivers of stand dynamics in Southeastern Australian temperate forests | Jialin Lei - An stable isotope approach to determine herbivory diets of wintering geese at Dongting lake, China |
| 15:10 – 15:30 | Sonam Tashi - The effect of altitude on C and N dynamics in biomass and soil in the eastern Himalayas. | Philip Riekenberg - Utilizing dual isotope tracers for comparison of uptake and fates of dissolved organic matter and inorganic nitrogen and carbon in mudflat sediments |
| 15:30 – 16:00 | AFTERNOON TEA | |
| | Session 13 – Climate Archives: Chair – Andy Baker | Session 14 – Carbon Sequestration: Chair – Kerry Lee Rogers |
| 16:00 – 16:20 | Quan Hua - Reconstruction of reliable radiocarbon chronologies for recent terrestrial archives. | Neil Saintilan - Stable isotopes and blue carbon: Lessons from SE Australia. |
| 16:20 – 16:40 | Alison Blyth - Low abundance compound specific radiocarbon dating of particulate organic matter preserved in speleothems. | Damien Maher - Are mangrove carbon exports old or modern? A multiple radio- and stable isotope analysis. |
| 16:40 – 17:00 | Monika Markowska - Cave monitoring to constrain the paleoclimate interpretation of $\delta^{18}\text{O}$ proxy in speleothems from semi-arid areas. | Jane Curran - Establishing carbon retention and sequestration in a submerged mangrove using isotopic analysis. |
| 17:00 – 17:20 | Bronwyn Dixon - Investigation of controls on daily rainfall event $\delta^{18}\text{O}$ at Kangaroo Island, South Australia. | Eleanor Hobley - Relationship between land-use, soil organic carbon depth distribution and radiocarbon age New South Wales, Australia. |
| 17:20 – 17:40 | Matt Fischer - Predictable components in global ^{18}O data. | |
| 18:30 – 22:30 | CONFERENCE DINNER @ “Waterfront”, The Rocks | |

| Friday 10 th July 2015 | | |
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| 8:45 – 9:00 | Housekeeping: Dr Suzanne Hollins | |
| 09:00 – 09:45 | Plenary address: Dr John Hellstrom – “The environmental isotopic geochemistry of uranium” | |
| | Session 15 – New Dating Methods/Applications: Chair – Quan Hua | Session 16 – Isotope Chemistry of Pore Waters in Aquitards: Chair – Ian Cartwright |
| 09:50 – 10:10 | Ashley Martin - Uranium comminution dating in tropical northern Australia. | Wendy Timms - ^{14}C activity of DIC and DOC within a clayey-silt aquitard |
| 10:10 – 10:30 | David Child - Fallout plutonium and uranium isotope ratio signatures using accelerator mass spectrometry for environmental chronometry in eastern Australia. | Stanley Smith - Determining inter-aquifer leakage across a thin aquitard in a metropolitan basin: Adelaide Plains. |
| 10:30 – 10:50 | Alex Suckow - New tracers: Noble gases and radioactive noble gas isotopes. | Katarina David - Off-axis ICOS pore water stable isotope analysis of pore water in drill core - characterisation of groundwater processes, Sydney Basin. |
| 10:50 – 11:20 | MORNING TEA | |
| | Session 17 – New Isotopic Methods: Chair – Suzanne Hollins | Session 18 – Environmental Management: Chair – Henk Heijnis |
| 11:20 – 11:40 | Mathew Johansen - N and P uptake by plants: overview of isotope ratio mass spectrometry, radioisotopic, and synchrotron methods. | Brett Rowling - Bennelong To Gubba Gubba |
| 11:40 – 12:00 | Scott Wilson - You are what you eat. Examination of isotopes in determining plastic ingestion by fish. | Cath Hughes - Environmental isotopes to study radionuclide migration mechanisms at the Little Forest legacy site. |
| 12:00 – 12:20 | Kyle Taylor - New advances in IRMS | Richard Cresswell - Isotopes: the keys to understanding |

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| | instrumentation for environmental based applications from Isoprime Ltd. | connectivity above coal seam gas operations. |
| 12:20 – 12:40 | Nabil Saad - Carbon isotope analysis of dissolved organic carbon in fresh and saline (NaCl) water via continuous flow cavity ring-down spectroscopy following wet chemical oxidation. | Charlotte Iverach - Detecting hydraulic connection between fresh water aquifers and coal seam gas production using the isotopes of carbon in methane. |
| 12:40 – 13:40 | LUNCH | |
| 13:40 – 14:25 | Plenary address: Dr Janice Lough – “Perspectives on environmental and growth records from coral skeletons” | |
| | Session 19 – Isotopes in Marine Environments: Chair – Geraldine Jacobsen | |
| 14:25 – 14:45 | Stewart Fallon - Reconstructing seawater pH from radiocarbon measurements in porites corals from a volcanic CO ₂ seep, Papua New Guinea. | |
| 14:45 – 15:05 | Pascale Eisenmann - Using radiocarbon to study southern hemisphere humpback whale feeding ecology and migration. | |
| 15:05 – 15:25 | Amy Hirons - Paleoceanographic productivity reconstructions using marine mammal bone collagen. | |
| 15:25 – 15:55 | AFTERNOON TEA/CLOSING REMARKS AND PRIZES | |

POSTER SESSION – THOMAS KENEALLY ROOM

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| Poster 1 | Charlotte M. Allen - Biogeochemical markers for provenance determination of invasive insect pests: the case of fruit flies |
| Poster 2 | Ruth Bajo - Using $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ stable isotopes to determine foraging habitat of insectivorous bats |
| Poster 3 | Dominic Banfield - Using isotopes to better understand dissolved gas hydrogeochemistry and the risk of unconventional gas development in the Gippsland and Otway basins |
| Poster 4 | Kate Brandis - A new frontier in tracking waterbirds and wetland condition |
| Poster 5 | David Child - Uranium and Plutonium profiling at an Australian nuclear test site using Accelerator Mass Spectrometry |
| Poster 6 | Jagoda Crawford - Stable isotopes in precipitation at the Macquarie Marshes |
| Poster 7 | Jagoda Crawford - The use of radon in the analysis of a decade of Asian outflow of PM10 and TSP to Gosan, Korea |
| Poster 8 | Jessica Ernakovich – The role of soil biodiversity in soil carbon stabilization |
| Poster 9 | Georgina Falster - Climate variability in south-eastern Australia during the last glacial-interglacial transition: toward new insights from lake sediments using conventional and clumped isotope geochemistry |
| Poster 10 | Paul Gorjan - Field deployable isotope ratio infrared spectrometer for simultaneous measurements of carbon and oxygen isotopologues of CO_2 |
| Poster 11 | Kuan Huang - Continuous water sampler - a cavity ring-down spectroscopy-based system for high-frequency, real-time measurements of water isotopes |
| Poster 12 | Kuan Huang - An ultra-high precision, high-frequency dissolved inorganic carbon analyzer based on dual isotope dilution and cavity ring-down spectroscopy |
| Poster 13 | Tamara Hunjak - Deuterium excess in daily and hourly precipitation samples from Kastav, Croatia |
| Poster 14 | Rachel Murray - Nitrous oxide isotopomers in the water column: A potential window into bacterial processes |
| Poster 15 | Emily Prentice - The use of stable isotope techniques for long-term monitoring of Australian freshwater wetlands |
| Poster 16 | Liqin Wu - The recycling of industrial heavy metal sources during bushfire events around Australia's major cities (Sydney, Adelaide, and Hobart) |

