



## SPERA Newsletter April 2019

### **Welcome from the SPERA 2018 Committee.**

During the 2018 SPERA BGM (7<sup>th</sup> November, Perth) a new Committee and Officer were elected by the membership:

#### *SPERA 2018 Committee*

**President:** Pere Masque

**Vice-President:** Michael Lechermann

**Secretary:** Tom Cresswell

**Treasurer:** Stephen Long

**Members:** Jennifer Harrison and Michaela Froehlich

#### *SPERA 2018 Officers*

**Communication Officer:** Andrew Yule



*SPERA 2018 Committee (left to right): Jennifer Harrison, Andrew Yule, Tom Cresswell, Pere Masque, Michaela Froehlich, Stephen Long, and Michael Lechermann*

## Report from the SPERA 2018 conference in Perth, Western Australia (Pere Masque; [p.masque@ecu.edu.au](mailto:p.masque@ecu.edu.au))

The 15th biennial conference of the South Pacific Environmental Radioactivity Association (SPERA) was held in Perth (Western Australia) on 7-9 November 2018. The meeting was preceded by a one-day workshop on 6th November co-organised by SPERA and the RACI Radiochemistry Division, which was devoted to the exploration and discussion of radioactive isotopes as tracers of environmental processes. The workshop was very well attended, and consisted on 4 keynote talks on Ocean and Groundwater studies, accompanied by 8 presentations on specific case studies and led to interesting discussions amongst the participants.

After the warm-up we inaugurated the SPERA 2018 Conference at the Indian Ocean Marine Research Centre, located at the campus of the University of Western Australia (<http://www.promaco.com.au/events/spera2018/index.php>). The conference was attended by 84 delegates from numerous countries, including some from Europe and America, that contributed 43 oral communications and 17 posters, in addition to 4 invited talks delivered by Drs Stephen Tims (Australia), Keiko Tagami (Japan), Mike Wood (UK) and Andreas Böllhofer (Austria).

The papers were organised according to several themes: i) *Instruments and Methods development*; ii) *Contaminated sites – Impact assessment and Emergency preparedness*; iii) *Radioecology*; and iv) *Radiotracers of Environmental processes*. The combination of the exciting contributions and the opportunities to discuss the presentations during tea breaks, lunches and dinners left everyone with the impression of having achieved the goals of exchanging knowledge amongst those that work on environmental radioactivity and discuss new studies to be conducted in the near future. It was decided that New Zealand will host SPERA 2020, so most of us are already thinking about ideas to develop and present there!

Everyone that attended SPERA 2018 is welcome to contribute with a paper for a special issue in Journal of Environmental Radioactivity. Submissions will be accepted until 30 June 2019 via <https://www.evise.com/profile/#/JENVRAD/login>. Please contact the Guest editors if you need assistance. At the time of preparing this newsletter 3 papers have already been accepted and several are being reviewed, while many of the attendees had expressed their intention to submit their works.

The Organising Committee wishes to thank everyone that made it possible to SPERA 2018 being a success, including the generous support of a large number of sponsors:



**Indonesia Centre Technology for Radiation Safety and Metrology, National Nuclear Energy Agency, Indonesia  
(Heny Suseno; [henis@batan.go.id](mailto:henis@batan.go.id))**

Marine Radioecological research conducted in Indonesia during 2014 – 2019 relating to:

1. Marine Monitoring at Indonesia offshore concerning  $^{137}\text{Cs}$  status related to Fukushima Accident.
2. Base line data for  $^{137}\text{Cs}$  in Indonesia Coastal from Sumatra to Papua for National maritime development program.
3. Bioaccumulation  $^{137}\text{Cs}$  in 10 species of marine biota for ecosystem risk assessment.

Some recent publications:

1. A. Alkatiri, H. Suseno, S. Hudyono et al., The distribution of radiocesium in the Indian ocean and its relation to the exit passage of the Indonesian Throughflow. *Regional Studies in Marine Science* (2018), <https://doi.org/10.1016/j.rsma.2018.100496>
2. Heny Suseno, Ikhsan Budi Wahono. Present status of  $^{137}\text{Cs}$  in seawaters of the Lombok Strait and the Flores Sea at the Indonesia Through Flow (ITF) following the Fukushima accident. *Marine Pollution Bulletin* 127 (2018) 458–462. Elsevier Ltd
3. Heny Suseno, Ikhsan Budi Wahono, Muslim Muslim, Mohammad Nur Yahya. Status of  $^{137}\text{Cs}$  concentrations in sea water at the inlets of the Indonesian Through Flow (ITF). *Regional Studies in Marine Science* 10 (2017) 81–85. Elsevier Ltd
4. Wahyu Retno Prihatiningsih, Heny Suseno, Neviaty P. Zamani, Dedy Soedharma. Bioaccumulation and retention kinetics of cesium in the Milkfish *Chanos chanos* from Jakarta Bay. *Marine Pollution Bulletin* 110 (2016) 647–653. Elsevier Ltd
5. Heny Suseno, Ikhsan Budi Wahono, Muslim. Radiocesium monitoring in Indonesian waters of the Indian Ocean after the Fukushima nuclear accident. *Marine Pollution Bulletin* 97 (2015) 539–54. Elsevier Ltd
6. Heny Suseno, Wahyu Retno Prihatiningsih. Monitoring  $^{137}\text{Cs}$  and  $^{134}\text{Cs}$  at marine coasts in Indonesia between 2011 and 2013. *Marine Pollution Bulletin* 88 (2014) 319–324. Elsevier Ltd
7. W.R. Prihatiningsih, H. Suseno, N.P. Zamani and D. Soedharma. Temperature and Salinity Effects on Bioaccumulation, Gill Structure, and Radiation Dose Estimation in the Milkfish *Chanos chanos* Exposed to  $^{137}\text{Cs}$ . *Atom Indonesia* Vol. 42 No. 3 (2016) 129 – 135. Elsevier Ltd
8. H. Suseno, Budiawan, Muslim, M. Makmur and M.N. Yahya. Present Status of Marine Radioecology in Jakarta Bay. *Atom Indonesia* Vol. 44 No. 2 (2018) 63 - 67

PhD students who were involved in this project are: Wahyu Retno Prihatiningsih (Bogor Agricultural University) and Ali Alkatiri (University of Indonesia) and BSc students from Faculty of Fishery and Marine Sciences Diponegoro University.

During 2018 we started a study on the bioaccumulation of  $^{65}\text{Zn}$  and  $^{137}\text{Cs}$  by [\*Penaeus merguensis\*](#).

In 2019 we will start to study the influences of ocean acidification related to bioaccumulation of Zn by (*Solen vaginalis*). This study will collaborate with the chemistry department of the University of Indonesia.

### ANSTO Aquatic Ecosystems Research (Tom Cresswell; [Tom.Cresswell@ansto.gov.au](mailto:Tom.Cresswell@ansto.gov.au))

ANSTO is continuing to supervise a **PhD top up scholarship** (\$7,500 cash per annum) in Sydney for a PhD student affiliated with a partner university to better understand the ecotoxicological and radiological **effects of NORM scale on aquatic organisms**. Naturally occurring radioactive materials (NORM) scale residues frequently accumulate on the interior surfaces of subsea oil and gas pipes and other structures, and may persist long after extraction operations have ceased. Within such scale materials are a range of metal contaminants, as well as NORM dominated by the U-238 and Th-232 decay series. The project will provide for a more valid assessment of the risk posed by sub sea oil and gas scale to aquatic organisms as compared with current methods which rely on default/reference parameters which may greatly misinterpret the risk. Please see the [project outline](#) for more details of the research. For further information, please contact **Dr. Tom Cresswell** ([tom.cresswell@ansto.gov.au](mailto:tom.cresswell@ansto.gov.au)); (02) 9717 9412.



*Two scenarios of pipeline assessment (routine operation left and degraded pipeline right) that will be undertaken in the research and an example of the build-up of (predominantly) barium sulphate NORM scale in pipelines*

**Tom Cresswell** recently attended a consultant's meeting at the IAEA Environment Laboratories in Monaco to discuss a new Coordinated Research Project (CRP) on [Applied Radioecological Tracers to Assess Coastal and Marine Ecosystem Health](#). Tom is coordinating a proposal for a Research Agreement from Australia that will include research into NORM scale (above), the tracing of mercury and methyl mercury by marine organisms and the consequences of enhancing sea surface temperatures on increases in  $^{210}\text{Po}$  bioaccumulation in zooplankton under oligotrophic conditions.

### 4-year PhD position available at the University of Adelaide, with \$40k p.a. scholarship: Managing groundwater in complex mining landscapes using advanced dating techniques (Philip Light; [philip.light@adelaide.edu.au](mailto:philip.light@adelaide.edu.au))

The voids created by large-scale mining across Australia will require extensive management in perpetuity in the post-mining landscape. However, the ability to predict future water levels and salinity in mining voids is often constrained by the poor conceptual understanding of the surrounding groundwater systems. This study will use state-of-the-art environmental tracer measurements to characterise groundwater systems in the Pilbara region of Western Australia, where extensive mining is currently occurring. The tracers will include radiogenic noble gases and radioactive noble gases ( $^{85}\text{Kr}$ ,  $^{39}\text{Ar}$  and  $^{81}\text{Kr}$ ) which together can 'age' groundwater at almost any timescale, years to billions of years, without many of the limitations of traditional tracer techniques. The measurements will be made using the new facilities currently being built for radiogenic noble gases at CSIRO (Helix mass-spectrometer) and radioactive noble gases at the UofA (Atom Trap Trace Analysis – ATTA).

This project is in partnership with our industry partner Rio-Tinto and will include a placements and fieldwork in Perth and the Pilbara, Western Australia.



### **The Adelaide-CSIRO iPhD Program**

The 4-year Adelaide-CSIRO Industry PhD Program includes a minimum six-month industry placement offering you an enhanced opportunity to work in an industry-defined research area with support and supervision through a partnership between the University of Adelaide, CSIRO, and an Industry Partner.

You will have the opportunity, along with your supervisory team, to engage in training and professional development activities. By building your abilities, skills, understanding, and encouraging professional growth, the iPhD will prepare you to hit the ground running after completion.

More details on the scheme are available at: <https://www.adelaide.edu.au/research/connect/partner-with-us/industry-engagement/adelaide-csiro-iphd-program/>

#### **Ideal candidate**

- A geologist, chemist or physicist with a sound understanding of the theory behind noble gas measurements to help with the completion of the new facilities.
- A pragmatic individual able to adapt new techniques to the challenging conditions associated with groundwater investigations in remote regions of Australia.
- Good interpersonal skills will be required because planning groundwater investigations in remote areas requires extensive consultations with aboriginal communities, pastoralists, various levels of government as well as the private sector.

#### **Applications**

This position is open to Australian citizens, New Zealand citizens, and Australian permanent residents. Further details and online application are available at: <https://www.adelaide.edu.au/research/connect/partner-with-us/industry-engagement/adelaide-csiro-iphd-program/rio-tinto/>

For any queries please contact Dr. Philip Light, [philip.light@adelaide.edu.au](mailto:philip.light@adelaide.edu.au), +61 8 8313 2321.

**Attachment 1. Letter from the ICRP Chair to SPERA for the Association's contribution to the ICRP 'Free the Annals' campaign.**



ICRP Ref 4835-8529-2903

7 February 2019

Stephen Long  
SPERA  
[Stephen.Long@arpansa.gov.au](mailto:Stephen.Long@arpansa.gov.au)

Dear Stephen,

I wanted to take a moment to wish you and your organisation a healthy and prosperous 2019. Your support, partnership, and contributions to ICRP allowed us to complete one of the most significant years in our now over 90 year history. As we worked over the last year to free all but the most recent rolling two years of Annals of the ICRP, we were touched by the support and feedback we received from all across the world.

Thanks to your direct support, I am happy to report that ICRP Scientific Secretary Christopher Clement has begun discussions with our publisher to transition to the free-after-two-years model. However, € 70 000 is still needed to reach the Free the Annals goal of € 500 000. We are optimistic that this is possible in the next few months, allowing us to make all issues up to 2017 free around the end of this year. We wanted to change how the world accesses Annals of the ICRP, and are confident that is exactly what will happen.

I can assure this does not mean we are going to slow our efforts. In an increasingly expensive world, we will turn our sights to building financial support for our programme of work, a task that continues to be increasingly necessary. As we succeed at making access to our publications free, we need to continue our efforts to secure the resources needed to sustain our core business of developing recommendations to protect the public, patients, workers, and the environment.

Our Main Commission, Scientific Secretariat, Committees, and Task Groups will continue to guide our body of work and develop the system of radiological protection. There is no bigger stage this year for this than ICRP 2019, taking place in November in Adelaide, Australia ([www.icrp2019.com](http://www.icrp2019.com)). I am looking forward to personally welcoming you there.

Through financial and in-kind contributions, partnerships, and collaborations, you are the champions of our work. Thank you for allowing us to do what we do, and thank you for continuing to support us heading towards our 100<sup>th</sup> anniversary.

Should you ever need anything from ICRP, please do not hesitate to contact me.

Kind regards.

Yours Sincerely,

Claire Cousins  
ICRP Chair  
[chair@icrp.org](mailto:chair@icrp.org)