Sunday 15 September 2024
Half Day Workshops

Time: 9:00 AM – 12:30 PM
Venue: Adelaide Convention Centre
Registration Fees: $345 inclusive GST

Delegates are requested to bring their laptop to do the exercises and access the resources during the workshop.

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Workshop - 4

Data and PFAS Analytics – AI Approach and Case Studies

About this workshop

This half-day workshop will guide participants through the data science and analytics workflow, tailored for characterising complex environmental remediation projects. Starting with the foundations of establishing a robust data framework and constructing high-resolution conceptual site models (CSMs), participants will show the value of creating centralised, curated, and efficient data libraries and pipelines for more seamless data management.

Through real-world case studies, including major defence facilities impacted by PFAS, we will show how to select and implement the most appropriate data analytics techniques. Participants will be shown how datasets can be evaluated into actionable insights using intuitive dashboards and interactive visualization tools. We will also explore the power of AI in enabling data-driven, traceable, and transparent decision-making.

By the end of this learning lab, participants will have a comprehensive insight into key concepts, principles, tools, and techniques in applied data science, empowering cutting-edge practices to enhance site characterization and remediation efforts more confidently. Seek firsthand insights on how these applications change our approach to environmental studies with diverse and complex media, enabling better insights, interpretation, visualization, and communication of data-rich solutions to stakeholders.

Who to attend:

This workshop is designed for environmental professionals and researchers, early career data analysts, and engineers involved in site characterization, remediation, and risk assessment of complex contaminated sites. Prior knowledge data analytics is not required, but a basic understanding of environmental science, PFAS and data management principles will be valuable

Why Attend?

- **Solve Complex Problems**: Learn how organised data workflows and an advanced data analytics framework can help tackle complex environmental challenges, such as PFAS contamination, with greater efficiency and accuracy.

- **Gain a Competitive Edge**: Stay ahead of the curve by understanding how to define and set up a data framework that is transforming environmental data management and analysis to facilitate machine learning and AI applications.

- **Make Informed Decisions**: Develop the skills to interpret complex data sets and make informed decisions about site characterization and remediation.

- **Enhance Communication**: Learn to communicate your findings clearly and effectively through impactful visualizations and dashboards.

- **Network with Experts**: Connect with fellow professionals and industry leaders in the field of environmental science and data analytics.

Workshop attendees will receive:

- ➢ 3.0 hrs of CPD point
- ➢ Link to the workshop paper
- ➢ Presentation slides (in secured PDF)
- ➢ a downloadable online resource folder link

Program

9:00 – 9:10 AM	Introduction and Objectives
9:10 – 9:30 AM	Data Analytics Framework and Building Conceptual Site Model
9:30 – 10:00 AM	Creating a Data Library and Data Management Pipelines
10:00- 10:30 AM	**Morning Tea Break**
10:30 – 10:45 AM	Selecting and implement the data analytics
10:45 – 11:00 AM	Dashboard and Visualization
11:00 – 11:15 AM	Decision-Making and the role of AI
11:15 – 11:45 AM	Case Studies and Demonstrations
11:45 – 12:15 PM	AI-Powered Insights: The Cutting Edge of PFAS Monitoring
12:15 – 12:30 PM	Q&A and Open Discussions

Key topics of the workshop are -

- ➢ Unveiling Advanced Data Analytics and Forensics Framework: A comprehensive introduction to the Advanced Data Analytics and Forensics, delving into its core principles, three-pronged approach (data sourcing, management, and reinterpretation), and vast potential applications in environmental investigations.

- ➢ High-Resolution Site Characterization: Uncover Advanced Data Analytics and Forensics Framework pivotal role in identifying and resolving critical data gaps within high-resolution site characterization, leading to more accurate assessments and targeted remediation efforts.

- ➢ Case studies: Including applications of ADAFF to PFAS-contaminated sites, showcasing the step-by-step process and results.

Presenters

Dr. Tamzen W. Macbeth
Global Remediation Lead
CDM Smith

Dr. Tamzen Macbeth is the Global Remediation Lead with CDM Smith with over two decades of experience, with the last seven spent specializing in PFAS site characterization and treatment. She has designed and implemented investigation and remediation programs for over 100 complex contaminated sites. She has in-depth knowledge of the science of PFAS sampling and analysis, fate and transport, and treatment in multiple media. She leads multi-disciplinary project teams executing investigation programs to understand site conditions, evaluate unacceptable impacts, and select effective remedial actions. She is also a published author with over 100 publications, including technical papers, presentations, training manuals and guidance documents, seminars, and short courses on remediation topics.

Dr Claudia Pelizaro
Lead Data Scientist
CDM Smith

Dr. Claudia Pelizaro is a Lead Data Scientist at CDM Smith with 15+ years of expertise in predictive analytics, GIS and data-driven solutions across environmental, utility, water, transportation, and urban planning sectors. Experienced in leading digital transformation initiatives with a solid foundation in spatial data and data pipelines, remote sensing, and predictive data analytics. Claudia is skilled at translating complex technical concepts for diverse audiences, ensuring buy-in from non-technical stakeholders and cross-functional teams. She is an expert in end-to-end (spatial) data science processes, with a collaborative approach to mentorship and knowledge sharing. She proactively adopts new tools with a pragmatic perspective to deliver tailored solutions to clients.

Alvin Lal
Research Director
crcCARE

Alvin Lal has over 7 years of research and academic teaching experience. Alvin completed in PhD from James Cook University (QLD, Australia) in 2020. Dr Lal has expertise in 3D groundwater numerical modelling (finite element and finite difference), groundwater quality monitoring and assessment, groundwater monitoring network design, multi-objective optimization, and predictive data analytics. Dr Lal was one of the recipients of the prestigious James Cook University Dean's Award for Research Excellence in 2020.