

TIES 2024 - Full Programme

Monday, 2 December 2024

08:00–09:00	Registration	Registration Foyer
09:00–09:30	Opening	Opening Ceremony F1-24 Lecture Theatre
Participants: Chair: Belinda Chiera		
Short Description		
Welcome from John Boland		
Welcome from Country		
Deputy Premier and Minister for the Environment of South Australia		
09:30–10:30	Key-note Plenary 1 - President's Invited Lecture	Plenary F1-24 Lecture Theatre
Prediction and Projection of weather and climate extremes Author: Sarah Perkins-Kirkpatrick		
Participants: Chair: John Boland Presenter/Speaker: Sarah Perkins-Kirkpatrick		
Short Description		
President's Invited Lecture		
10:30–11:00	Morning Tea	Coffee break Foyer

11:00–12:30

**Invited Session 1A - Change-Point, Mean Reverting Process
Estimation and Inference for Environmental Assessment**

IPS
F1-24 Lecture
Theatre

Estimation and Inference in a Tensor Regression Model with Change-points with environmental application

Author: [Mai Ghannam](#)

On Generalized Mean Reverting Processes with Real Data Application

Author: [Yunhong Lyu](#)

Robust Change Point Analysis for Functional Data

Author: [Shojaeddin Chenouri](#)

Participants:

Chair: [Abdel H. El-Shaarawi](#)

Presenter/Speaker: [Shojaeddin Chenouri](#)

Presenter/Speaker: [Mai Ghannam](#)

Presenter/Speaker: [Yunhong Lyu](#)

11:00–12:30

**Invited Session 1B - Statistics for Securing Antarctica's
Environmental Future**

IPS
F1-25 Lecture
Theatre

Calibration of ice sheet models using neural Bayes estimators

Author: [Bao Anh Vu](#)

Climate downscaling for inferring bryophyte diversity in East Antarctica

Author: [Noel Cressie](#)

Model-based inference for spatial biological-dissimilarity indices

Author: [Xiaotian Zheng](#)

Participants:

Presenter/Speaker: [Noel Cressie](#)

Chair: [Josh Jacobson](#)

Presenter/Speaker: [Bao Anh Vu](#)

Presenter/Speaker: [Xiaotian Zheng](#)

12:30–13:30

Lunch

Lunch
Foyer

A standardised sky-condition classification method for multiple timescales and its applications in renewable energy industry

Author: [Shukla Poddar](#)

Characterising Renewable Generation in the Grid

Author: [Luigi Cirocco](#)

Finding Dunkelflaute - estimating the probability of successive days of low Variable Renewable Energy (VRE)

Author: [John Boland](#)

Measuring the performance of distributed rooftop photovoltaic generation estimates in the absence of counterfactuals

Author: [Adrian Grantham](#)

Participants:

Presenter/Speaker: [John Boland](#)

Presenter/Speaker: [Adrian Grantham](#)

Presenter/Speaker: [Shukla Poddar](#)

Presenter/Speaker: [Luigi Cirocco](#)

Application of topological data analysis to multi-resolution matching of aerosol optical depth maps

Author: [Dorcas Ofori-Boateng](#)

Leveraging Topological and Geometric Deep Learning for Wildfire Risk Analytics

Author: [Yulia Gel](#)

On a topological data analysis approach for detecting clusters

Author: [Ansu Chatterjee](#)

Participants:

Chair: [Snigdhasu Chatterjee](#)

Presenter/Speaker: [Yulia Gel](#)

Presenter/Speaker: [Dorcas Ofori-Boateng](#)

Discussant: [Auroop Ganguly](#)

Presenter/Speaker: [Ansu Chatterjee](#)

Statistical challenges in air quality data sets

Author: [Alessandro Fasso](#)

Tessellation stratified sampling for assessing and monitoring natural resources and biodiversity

Author: [Caterina Pisani](#)

Declining Collections and 'Collecting Smarter': Data-Driven Approaches to Sampling Design and Research Prioritisation in Ecology

Author: [Owen Forbes](#)

Regularized Dirichlet-Tree Regression for Modelling Benthic Macroinvertebrate Counts in Canada's Oil Sands Region

Author: [Alysha Cooper](#)

Participants:

Presenter/Speaker: [Alessandro Fasso](#)

Chair: [Raphael Huser](#)

Presenter/Speaker: [Caterina Pisani](#)

Presenter/Speaker: [Alysha Cooper](#)

Presenter/Speaker: [Owen Forbes](#)

CO₂, Surface Radiation, and Meteorological Outcomes in the Polar Regions

Author: [Kevin Forbes](#)

Quantifying Spatial and Temporal Variation in Injury-Related Bloodstream Infections across Queensland, 2000-2019

Author: [Binuri Perera](#)

Lies, Damn Lies, and an Illusionary Measure of Renewable Energy Predictability: The Case of Wind Energy Generation Forecasting in Ireland

Author: [Dr Kevin Forbes](#)

Leveraging Big Data and AI for Disaster Resilience and Recovery: A Step towards a Safer Future

Author: [Mr Md Shariful Islam](#)

Participants:

Presenter/Speaker: [Mr Md Shariful Islam](#)

Presenter/Speaker: [Dr Kevin Forbes](#)

Chair: [Hsin-Cheng Huang](#)

Presenter/Speaker: [Kevin Forbes](#)

Presenter/Speaker: [Binuri Perera](#)

Tuesday, 3 December 2024

09:30–11:00

**Invited Session 4A - Environmetrics and the Preservation of
Aboriginal Rock Art**

IPS
F1-24 Lecture
Theatre

Estimation of porosity profiles for indigenous petroglyphs

Author: [Stephanie Hogg](#)

Spatial smoothing of elemental composition with extremely high outliers

Author: [Mohomed Abraj](#)

Using spectral colour measurements to monitor conditions of indigenous rock art

Author: [Rebecca O'Leary](#)

Participants:

Chair: [Noel Cressie](#)

Presenter/Speaker: [Rebecca O'Leary](#)

Presenter/Speaker: [Stephanie Hogg](#)

Presenter/Speaker: [Mohomed Abraj](#)

09:30–11:00

**Invited Session 4B - Statistical Methods for Understanding Human
and Environment Interactions: Building on Latent Processes**

IPS
F1-25 Lecture
Theatre

A Bayesian Multisource Fusion Model for Spatiotemporal PM2.5 and NO2 Concentrations: For
Exposure Health Assessment in an Urban Setting

Author: [Abi Riley](#)

Estimating sources of particle matter: A functional data modelling approach

Author: [Israel Martinez Hernandez](#)

GEOBEx a Statistical Method for Air Quality Level Predictions

Author: [Carolina Euan Campos](#)

Monitoring and predicting food insecurity from population non-representative survey and satellite
imagery

Author: [Sahoko Ishida](#)

Participants:

Presenter/Speaker: [Carolina Euan Campos](#)

Presenter/Speaker: [Israel Martinez Hernandez](#)

Chair: [Hanlin Shang](#)

Presenter/Speaker: [Abi Riley](#)

Presenter/Speaker: [Sahoko Ishida](#)

11:00–11:30

Morning Tea

Coffee break
Foyer

11:30–12:15 **AEEI 2024 Award Plenary**

Plenary
F1-24 Lecture
Theatre

Scaling individual movement to population dynamics for joint inference on animal telemetry and abundance data.

Author: [Ephraim Hanks](#)

Participants:

Chair: [Abdel H. El-Shaarawi](#)

Chair: [Claire Ann Miller](#)

Presenter/Speaker: [Ephraim Hanks](#)

Short Description

Abdel El-Shaarawi Early Investigator Award Lecture

12:15–13:00 **Lunch**

Lunch
Foyer

13:00–14:30 **Contributed Session 5A**

CPS
F1-24 Lecture
Theatre

A Bayesian hierarchical model for CO2 flux estimation with multivariate satellite data

Author: [Josh Jacobson](#)

A Bayesian hierarchical spatio-temporal model with physical barriers to model extreme sea-level data in Ireland

Author: [Fernando Mayer](#)

Modeling an introduction of invasive alien species through container cargo considering the logistics network

Author: [Shota Homma](#)

Improving Crop Variety Recommendations for Farmers: An Integrated Approach using Machine Learning, Genetics, and Climate Data

Author: [Patrick McMillan](#)

Participants:

Chair: [Nathaniel Newlands](#)

Presenter/Speaker: [Fernando Mayer](#)

Presenter/Speaker: [Shota Homma](#)

Presenter/Speaker: [Josh Jacobson](#)

Presenter/Speaker: [Patrick McMillan](#)

Agriculture Land Suitability Modelling with Deep Learning and Remote Sensing Data

Author: [Aman Bhullar](#)

Climate Control with Vegetation in a Domestic Setting

Author: [John Boland](#)

Statistical modelling with climate change in relation to rainfall and temperature changes in Murray Mallee and Upper Eyre Peninsula

Author: [Sachinda Ekanayake](#)

Statistical Analysis of Hydroclimatic Trends and Variability in an Urbanising Catchment

Author: [Tesfa Gebrie Andualem](#)

Participants:

Chair: [Carolina Euan Campos](#)

Presenter/Speaker: [John Boland](#)

Presenter/Speaker: [Tesfa Gebrie Andualem](#)

Presenter/Speaker: [Aman Bhullar](#)

Presenter/Speaker: [John Boland](#)

Presenter/Speaker: [Sachinda Ekanayake](#)

Adapting communities & the planet to global change with novel physics-AI-Human systems

Author: [Auroop Ganguly](#)

Advancing High Mountain Precipitation Reconstruction through Merging of Multiple Data Sources

Author: [Ashish Sharma](#)

Predictions of damages from Atlantic Tropical Cyclones: a Hierarchical Bayesian study on extremes

Author: [Sakshi Arya](#)

Participants:

Chair: [Snigdhasu Chatterjee](#)

Discussant: [Yulia Gel](#)

Presenter/Speaker: [Auroop Ganguly](#)

Presenter/Speaker: [Ashish Sharma](#)

Presenter/Speaker: [Sakshi Arya](#)

Presenter/Speaker: [Auroop Ganguly](#)

ReefCloud: AI to classify ecological communities

Author: [Julie Vercelloni](#)

The GALLANT project: Deep learning pipelines for urban environmental data integration

Author: [LUIGI CAO PINNA](#)

The dual benefits of community-centred air pollution modelling

Author: [Craig Anderson](#)

Participants:

Chair: [Claire Ann Miller](#)

Presenter/Speaker: [Craig Anderson](#)

Presenter/Speaker: [LUIGI CAO PINNA](#)

Presenter/Speaker: [Julie Vercelloni](#)

08:30–09:30 TIES AGM

General Assembly
F1-24 Lecture
Theatre

Short Description

Annual General Meeting of The International Environmetrics Society

09:30–11:00 Invited Session 7A - Wildland Fire Management and Research

IPS
F1-24 Lecture
Theatre

A Markov Chain Modulated Random Coefficient Minification Time Series Model for the Fire Weather Index

Author: [Lengyi Han](#)

Use of Time Series Clustering for Intermediate-Term Fire Activity Forecasting

Author: [Simon Marcus](#)

Operational use of wildfire growth modelling and real-time risk assessment in Yukon, Canada

Author: [Jaclyn Semple](#)

Participants:

Chair: [Sylvia Esterby](#)

Presenter/Speaker: [Lengyi Han](#)

Presenter/Speaker: [Jaclyn Semple](#)

Presenter/Speaker: [Simon Marcus](#)

09:30–11:00

Invited Session 7B - Advanced Statistical Approaches to Coral Reef Modelling and Monitoring

IPS
F1-25 Lecture
Theatre

How Bayesian Inference can support mechanistic models of coral reef health

Author: [Matthew Adams](#)

Mathematical modelling and uncertainty quantification for analysis of biphasic coral reef recovery patterns

Author: [David Warne](#)

Optimal Bayesian Designs for Detecting Temporal and Spatio-temporal Changes in Ecological Systems Using Mean Field Variational Bayes

Author: [Dilishiya De Silva](#)

Scale in coral reef surveying, a case study in Timor-Leste

Author: [Catherine Kim](#)

Participants:

Chair: [Helen Thompson](#)

Presenter/Speaker: [Dilishiya De Silva](#)

Presenter/Speaker: [Catherine Kim](#)

Presenter/Speaker: [David Warne](#)

Presenter/Speaker: [Matthew Adams](#)

11:00–11:30

Morning Tea

Coffee break
Foyer

11:30–12:15

Wiley-TIES Best Paper 2023 plenary

Plenary
F1-24 Lecture
Theatre

Bayesian geostatistical modeling for discrete-valued processes

Author: [Xiaotian Zheng](#)

Participants:

Chair: [Alessandro Fasso](#)

Presenter/Speaker: [Xiaotian Zheng](#)

12:15–13:00

Lunch

Lunch
Foyer

CQUESST: A Bayesian Framework for Soil-Carbon Sequestration

Author: [Dan Pagendam](#)

GeoWarp: Warped spatial processes for inferring subsea sediment properties

Author: [Michael Bertolacci](#)

Neural Bayes Estimators for Censored Inference with Peaks-over-threshold Models

Author: [Raphael Huser](#)

Neural conditional simulation for complex spatial processes

Author: [Julia Walchessen](#)

Participants:

Presenter/Speaker: [Raphael Huser](#)

Chair: [Andrew Zammit Mangion](#)

Presenter/Speaker: [Dan Pagendam](#)

Presenter/Speaker: [Julia Walchessen](#)

Presenter/Speaker: [Michael Bertolacci](#)

A Case Study on Fuel Treatment Effects in Southwestern British Columbia: Surprises found in a Scenario Analysis

Author: [Willard Braun](#)

Challenges calibrating machine learning models when predicting rare events, with applications to wildfire occurrence prediction

Author: [Nathan Phelps](#)

Common challenges limit applications of landscape-fire-succession models to understand fire-vegetation feedbacks

Author: [Jen Baron](#)

Participants:

Presenter/Speaker: [Willard Braun](#)

Chair: [Khurram Nadeem](#)

Presenter/Speaker: [Jen Baron](#)

Presenter/Speaker: [Nathan Phelps](#)

Thursday, 5 December 2024

09:30–11:00 **Invited Session 9A - Recent Advancements in Spatial and Spatiotemporal Statistics**

IPS
F1-24 Lecture
Theatre

Exploring Multivariate Spatiotemporal Data with Geographically-constrained Spectral Clustering

Author: [ShengLi Tzeng](#)

Multi-Resolution Spatial Methods on the Sphere

Author: [Hao-Yun Huang](#)

Residual Tree Gaussian Processes

Author: [Pulong Ma](#)

Tail Estimation of the Spectral Density under Fixed Domain Asymptotics

Author: [Wei-Ying Wu](#)

Participants:

Presenter/Speaker: [Pulong Ma](#)

Chair: [Hsin-Cheng Huang](#)

Presenter/Speaker: [ShengLi Tzeng](#)

Presenter/Speaker: [Wei-Ying Wu](#)

Presenter/Speaker: [Hao-Yun Huang](#)

09:30–11:00 **Invited Session 9B - Modern Approaches for Scientific Inference and Uncertainty Quantification**

IPS
F1-25 Lecture
Theatre

Bayesian Melding for Agent Based Stochastic Models

Author: [Anton Westveld](#)

Deciphering changes in biodiversity: towards a unified approach

Author: [Hideyasu Shimadzu](#)

Developments in Scalable Posterior Sampling through Random Weighting

Author: [Santiago Marin](#)

Elegance or Complexity in Spatial Models?

Author: [Edward Boone](#)

Participants:

Chair: [Grace Chiu](#)

Presenter/Speaker: [Edward Boone](#)

Presenter/Speaker: [Anton Westveld](#)

Presenter/Speaker: [Hideyasu Shimadzu](#)

Presenter/Speaker: [Santiago Marin](#)

11:00–11:30 **Morning Tea**

Coffee break
Foyer

11:30–12:30 **Key-note Plenary 2 - J.S. Hunter Invited Lecture**

Plenary
F1-24 Lecture
Theatre

Neural Methods for Amortised Inference in Environmental Applications

Author: Andrew Zammit Mangion

Participants:

Presenter/Speaker: Andrew Zammit Mangion

Chair: Belinda Chiera

12:30–13:30 **Lunch**

Lunch
Foyer

13:30–15:00 **Invited Session 10A - Size Estimation and Impact Assessment in
Biological Populations**

IPS
F1-24 Lecture
Theatre

Modelling Count Data in the Presence of Intervention

Author: Abdel H. El-Shaarawi

Quantifying linked rare events in fish and environmental Chesapeake Bay time series

Author: Vyacheslav Lyubchich

Participants:

Presenter/Speaker: Abdel H. El-Shaarawi

Chair: Sylvia Esterby

Presenter/Speaker: Vyacheslav Lyubchich

13:30–15:00

Invited Session 10B - Modern applied and theoretical approaches to environmental statistics

IPS
F1-25 Lecture
Theatre

Functional time series forecasting with dynamic updating: An application to intraday particulate matter concentration

Author: [Hanlin Shang](#)

Ice sea the future: statistical machine learning to predict Antarctic sea ice with quantified uncertainty

Author: [Jacinta Holloway-Brown](#)

SAR – Multispectral data fusion with higher order singular value decomposition

Author: [Srinivas Koduri](#)

Skewed multivariate distributions for spatial data and their extreme-value limits

Author: [Mr Pavel Krupskiy](#)

Participants:

Presenter/Speaker: [Mr Pavel Krupskiy](#)

Chair: [Israel Martinez Hernandez](#)

Presenter/Speaker: [Hanlin Shang](#)

Presenter/Speaker: [Jacinta Holloway-Brown](#)

Presenter/Speaker: [Srinivas Koduri](#)

15:00–15:30

Break

Coffee break
Foyer

15:30–17:00

Invited Session 11A - Advanced Statistical Methods for Climate Data Analysis

IPS
F1-24 Lecture
Theatre

A spatial hierarchical model with temporal effects for analyzing extreme rainfall in Taiwan

Author: [Chun-Shu Chen](#)

Integrating Historical Records and Climate Models for Temperature Reconstruction in East Asia (1403-1911)

Author: [Hsin-Cheng Huang](#)

The use of foundation models for Local Climate Zone Mapping and Urban Heat Island Studies

Author: [Zhengyuan Zhu](#)

Participants:

Chair: [Pulong Ma](#)

Presenter/Speaker: [Zhengyuan Zhu](#)

Presenter/Speaker: [Hsin-Cheng Huang](#)

Presenter/Speaker: [Chun-Shu Chen](#)

15:30–17:00

Invited Session 11B - Predictive Modeling of Complex Environmental Data in Agriculture and Ecology

IPS
F1-25 Lecture
Theatre

Dimension Reduction for Multivariate Spatial Data

Author: [Hossein Moradi Rekabdarkolaee](#)

Modeling high and low extremes with a novel dynamic spatio-temporal model

Author: [Likun Zhang](#)

Robustness of point process species distribution models to misspecified temporal support

Author: [Narmadha Meenu Mohankumar](#)

Temporal Embeddings for Animal Movement Trajectory Interpolation

Author: [Toryn Schafer](#)

Participants:

Presenter/Speaker: [Toryn Schafer](#)

Chair: [Hossein Moradi Rekabdarkolaee](#)

Presenter/Speaker: [Narmadha Meenu Mohankumar](#)

Presenter/Speaker: [Likun Zhang](#)

Presenter/Speaker: [Hossein Moradi Rekabdarkolaee](#)

17:00–18:00

Conference close and student prizes

Closing Ceremony
F1-24 Lecture
Theatre