



30 NOV – 4 DEC 2025

SUNDAY PLENARY SPEAKER

Professor Craig T Simmons FAA FTSE

Chief Scientist of South Australia

Modelling Tomorrow: Bridging Science, Society, and Innovation for a Resilient South Australia

Modelling and simulation are pivotal in addressing complex challenges across South Australia's environment, energy, defence, and space sectors. By uniting scientific expertise with societal engagement, and by embracing diversity, including Indigenous knowledge systems, these tools enable innovative solutions and foster inclusion within STEMM fields. Groundwater modelling exemplifies the transformative potential of integrating data, theory, and technology for sustainable water management and ecosystem protection. The ongoing battle against the harmful algal bloom in South Australia showcases collaboration among marine biology, environmental chemistry, and advanced data modelling, harnessing satellite data, sensors, and machine learning to improve risk prediction and support public health and aquaculture. Furthermore, modelling underpins the shift towards a circular economy by simulating resource flows, identifying inefficiencies, and testing business models that minimise waste and regenerate natural systems. Crucially, modelling extends beyond technical calculations, encompassing the psychosocial dynamics of science, how information is disseminated, trusted, or distorted, and how biases influence decisions. As artificial intelligence and big data reshape research, we must address ethical, legal, and social considerations. Trust remains foundational: transparent, explainable, and accountable models are essential for scientific progress to translate into societal benefit.