International Symposium on Environmental Software Systems, ISESS 2015
(http://www.isess2015.org)
Melbourne, Australia from March 25-27, 2015

Workshop co-organised by NCI and ISESS

Workshop Session	Computational and data-intensive methods in environmental and earth system science
General Information	The workshop aims to provide a venue for environmental and earth system science managers, scientists and software developers to discuss software and hardware advances to meet their respective challenges in today's high performance computing environment. Scientists and developers will present their achievements in the development of techniques and algorithms for today's platforms and can exchange ideas on the use of computing in future research and services. Computer scientists can give an update on their efforts in providing tools, which will help users to exploit the power of new computing architectures.
Description	Computational simulation and the analysis and generation of (large scale) data using advanced computational methods lies at the heart of modern science and the technological advances that underpin current and future generation of services and industries, and, in turn, economic competitiveness. The thrust of this session is directed towards increasing the effectiveness and efficiency of codes and methods that run on the high-performance infrastructure, with these enabling services to provide richer information to decision makers, and enabling scientist to probe deeper science questions, using more advanced and realistic models, in turn resulting in outcomes of higher impact and timeliness. There are two facets to this, involving (a) advances in the scaling characteristics of applications codes, particularly those associated with the earth system modelling and environmental software systems, and (b) naturally accompanying advances in data-intensive science within the next generation of petascale computing facilities. To overcome current limitations in hardware and software architectures, new innovations and advances in computational and data-intensive methods and hardware are needed to improve computational efficiency and scalability as well as managing the growing terabytes-to-petabytes

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	of data from instruments, observations, analyses, modelling and inter-comparison experiments.
	New high performance techniques and algorithms for today's multi-core and many-core processors and distributed computing paradigms are explored in preparation for the next generation of scientific applications and prediction services.
Who Should Attend	Technical leaders and specialist in computational and high performance data technology and software development to report on experiences, achievements and methodologies to overcome current challenges, and the work planned for the coming years to meet longer-term challenges yet to materialize and in planning. Hands-on application development of high performance, parallel programming and data processing codes for environmental and earth system modelling software and supporting codes. High performance computing suppliers, technologists and architects who can provide information on current and future products supporting environmental and earth system science, and how they can meet our scientific challenges today and tomorrow.
Background	ISESS brings together researchers dealing with environmental challenges and trying to provide solutions using forward-looking and leading-edge IT technology. The conference glues together researchers and users to overcome a manifold of technology changes and dynamics by using their best knowledge to improve our environment, respectively the wellbeing of our society.