BACKGROUND AND AIMS
In today’s autonomous Big Data era, applications of machine learning in agriculture, atmospheric and environmental modeling are becoming prominent especially for predictive modeling at local scales where ground-based information is useful for decision-making in environmental systems. Machine learning for predictive modeling can be used for predicting climate extreme parameters such as drought, heatwaves, flood events and other disaster events. These hazards are economically costly to both developed and developing nations, and may manifest detrimental impacts on human populations, trigger reduced flow in dams, irrigations or rivers and cause loss of biodiversity, ecological imbalance, health issues and foster food insecurity. Therefore, high-precision predictive models are of great relevance. Dynamic physical models (e.g. Global Climate Models - GCMs) have challenges in representing adequately the local-scale climatic features or their perturbations, thus failing to feed critical information on relevant features contained in meteorological datasets that can be used for downscaling rainfall, heat or drought properties. GCMs may not disseminate accurate projections of rainfall on a wide range of spatial or temporal scales, thus impeding our understanding of drought or heatwave impacts on agricultural productivity. Machine learning models, such as artificial neural networks, are being used to develop local-scale projections using various downscaling techniques, in order to assist with climate risk assessments. This special session aims to accommodate cutting-edge research to bring scientists with interdisciplinary expertise in mathematics, computing, environmental, climate sciences, hydrology and fluid engineering to a single platform and investigate the applications of machine learning in agriculture, atmospheric and environmental areas. Interesting contributions in the form of original research papers, review papers with current state-of-knowledge, advanced or preliminary results and exhibitions and presentations of applications of machine learning algorithms are welcome.

Papers are sought on a range of topics that include, but are not limited to:

- Downscaling of Global Climate Model outputs using machine learning (data-driven) algorithms
- Modeling of rainfall, drought, heatwaves, flood and other natural disasters using machine learning
- Application of machine learning to agriculture, hydrology and atmospheric modeling
- Applications of extreme learning machines, support vector regressions and neural networks
- Comparison of dynamic (physical) models versus other machine learning models for predictive modeling
- Training, testing and error assessment issues in predictive modeling

IMPORTANT DATES

**Paper submission deadline for this session:** August 31st, 2015
**Notification of Acceptance:** September 20, 2015
**Camera-ready Papers & Pre-registration:** October 1, 2015
**The ICMLA Conference:** December 9-11, 2015

All papers submitted by August 31, 2015, at the regular paper submission website (http://www.icmla-conference.org/icmla15/) will undergo the usual blind peer review process. For detailed instructions please see the guidelines on the conference website. Accepted papers will be published in the conference proceedings, as a hardcopy. All accepted papers must be presented by one of the authors in order to be published in the conference proceedings. A selected number of accepted papers will be invited for possible inclusion, in an expanded and revised form, in a journal special issue (Springer), or as a book chapter.

CHAIR OF THE SESSION
• Dr Ravinesh Deo (Organizer), School of Agricultural, Computational and Environmental Sciences, International Centre for Applied Climate Sciences, The University of Southern Queensland, Springfield, QLD, Australia: email ravinesh.deo@usq.edu.au

SCIENTIFIC COMMITTEE
• Associate Professor Yan Li, School of Agricultural, Computational and Environmental Science, The University of Southern Queensland, AUSTRALIA
• Dr Tai Nguyen, Vice-Chancellor's Research Fellow, The University of Southern Queensland, AUSTRALIA
• Associate Professor Jan Adamowski, Brace Centre for Water Resources Management, Department of Bioresource Engineering, Faculty of Agricultural and Environmental Sciences, McGill University, CANADA
• Associate Professor Sancho Salcedo-Sanz, Dept of Engineering, Universidad de Alcalá, Madrid, SPAIN
• Dr Mehmet Sahin, Department of Electrical and Electronics Engineering, Siirt University, TURKEY
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• Assistant Professor, Dr Mukesh Tiwari, Anand Agricultural University, Gujrat, INDIA
• Professor Pijush Samui, Centre for Disaster Mitigation and Management, VIT University, Vellore-632014, INDIA
• Professor Feng Qi, Cold and Arid Regions Environmental and Engineering Research Institute, Chinese Academy of Sciences (CAS), CHINA

BIOGRAPHY – SESSION CHAIR

Dr Ravinesh Deo (BSc; MSc; PhD; GCertTT&L), a graduate of The University of Adelaide (PhD), The University of Canterbury (Masters) and University of the South Pacific (BSc), is a Research Academic and Environmental Modeler in School of Agricultural, Computational and Environmental Sciences (University of Southern Queensland, Australia). Dr Deo is also Australian Government funded, Endeavor Executive Research Fellow at McGill University (Canada). He has published over 40 peer-reviewed papers in international journals and conference proceedings with cumulative citations of exceeding 660 times. Dr Deo has completed his postdoctoral research at The University of Queensland on modeling impacts of deforestation on climate extremes and drought. He has also developed expertise in local-scale predictive modeling using machine learning algorithms. Dr Deo was the Principal Research Scientist (Climate System Modeling) at the Queensland Climate Change Centre of Excellence where he researched climatic impacts of modifying the land cover using IPCC Global Climate Models. His research demonstrated that widespread loss of native forest can contribute to detrimental impacts on drought. Dr Deo has published collaborative research in top quartile journals, such as Atmospheric Research, Journal of Hydrology, Water Resource Management, Geophysical Research Letters, Global Change Biology, Bulletin of American Meteorological Society with research highlight in Nature (2009). Dr Deo collaborates with several leading environmental scientists from Australia, Spain, Canada, Turkey, India, China and Republic of Korea. His has presented widely in national and international conferences, chaired conference events, received research awards, grants and reviewed top quality journal papers. Dr Deo has been teaching undergraduate and postgraduate programs in Australia, New Zealand and Fiji and is currently supervising a number of PhD and masters research students.