



Center for Western Weather
and Water Extremes
SCRIPPS INSTITUTION OF OCEANOGRAPHY
AT UC SAN DIEGO



Big Data and the Earth Sciences: Grand Challenges Workshop **May 31 to June 2, 2017 Atkinson Hall Auditorium at Calit2/Qualcomm Institute, UCSD**

Hosted by Calit2's Pacific Research Platform and Scripps Institution of Oceanography's Center for Western Weather and Water Extremes (CW3E) May 31 to June 2, 2017.

Call for Papers: Abstracts Due: April 15, 2017

We invite you to submit abstracts or papers to be presented and Join us on May 31 to June 2 in La Jolla, California for the *Big Data and Earth Sciences: Grand Challenges Workshop 2017*.

Scientists and researchers from earth sciences to computer science; and related communities to Big Data, the *Big Data and Earth Science: Grand Challenges Workshop 2017* will gather for a 3-day intensive workshop. They will learn, network together, and collaborate, focusing on the challenges faced in tapping and using Big Data captured in the earth sciences.

The goal of the *Big Data and Earth Sciences: Grand Challenges Workshop* is to advance the understanding and the predictability of the Earth systems and to highlight key technological advances and methods that are readily available (or will be soon) to assist this advancement. The workshop will build on UCSD's *Understanding and Protecting the Planet* Initiative, which seeks to explain and effectively communicate environmental change, engineer economically viable solutions that will enhance the resilience of society, recommend necessary policy changes and assess their economic impact.

With the ever-growing quantity and quality of hyper-dimensional earth science data (satellite and ground based observations and cutting-edge Numerical Weather Prediction (NWP) models), the advancements in machine learning (e.g. supervised, unsupervised and semi-supervised learning techniques), and the progress made in the application of Graphical Processing Units (GPUs) and GPU clusters, we now have an unprecedented opportunity and challenge to engage these computational advances to improve our understanding of the complex nature of the interactions between various earth science events, their variables and their impacts on society including floods, drought, and agriculture.

With 4 Grand Challenges lectures, 2 panels, 8 sessions, and a poster session there will be content suitable for every researcher and level of expertise, including:

Grand Challenges Lectures (CONFIRMED):

Dr. Larry Smarr, Founding Director of the California Institute for Telecommunications and Information Technology (Calit2), a UC San Diego/UC Irvine partnership, holds the Harry E. Gruber professorship in Computer Science and Engineering (CSE) at UC San Diego's Jacobs School.

Dr. Vipin Kumar, Regents Professor at the University of Minnesota, holds the William Norris Endowed Chair in the Department of Computer Science and Engineering, University of Minnesota.

Dr. Padhraic Smyth, Professor, Director, UCI Data Science Initiative and Associate Director, Center for Machine Learning and Intelligent Systems, UC Irvine.

Dr. Michael Wehner, Senior Staff Scientists, Computational Research Division at the Lawrence Berkeley National Laboratory.

We are looking for research papers on all areas of research; colleges and universities; laboratories; workplaces; and special programs. We are most interested in papers that assess the effectiveness of application of computer science, Big Data organization, management and utilization techniques in the ever-expanding earth sciences arenas. Faculty members and researchers in computer sciences, machine learning, atmospheric sciences, hydrometeorology, civil engineering, oceanography, and related fields are encouraged to submit abstracts. We also welcome submissions from graduate students.

Sessions will include:

- Big Data collaborations
- Big Data research platforms, networks, technologies and visualization
- Big Data and Predictability Challenges in Earth Science Data
- Pattern Detection, Segmentation and Object Recognition for Earth Sciences
- Structuring Unstructured Data in the Earth Sciences
- Data mining and discovery, machine learning and predictive modeling.

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Please send abstracts to scottsellars@ucsd.edu

Please register here: [Workshop Registration Form](#)

Workshop website: [Big Data and the Earth Sciences Workshop](#)

Limited travel support for students, graduate students and postdocs is available. Please apply here.

Please contact Dr. Scott L. Sellars (scottsellars@ucsd.edu) for more information.