

Special Issue

Big Data and Machine Learning in Earth Sciences

Message from the Guest Editors

If big data challenges can be summed up as “to cost-effectively scale computation and storage in the face of ever-increasing data volumes and varieties with an ever-escalating demand for velocity”, we posit that these challenges have been present since the dawn of digital computing for Earth science. Our desire for better fidelity from predictions urges us to incorporate into numerical models evermore comprehensive physical interactions with evermore refined intricacy, which compels evermore extensive and expansive observations with evermore detailed focus, further intensifying the challenge. As a result, another type of challenge arises, i.e., the wish to realize the full value from the deluge of data generated by models and observations. Unfortunately, until recently, we have had to rely mostly on human beings’ cognitive faculty.

Guest Editors

Dr. Kwo-Sen Kuo

1. BAYESICS, LLC, Bowie, MD, USA
2. Department Atmospheric & Oceanic Science, University of Maryland, College Park, MD, USA
3. The Information Technology and Systems Center, University of Alabama, Huntsville, AL, USA
4. Goddard Space Flight Center, NASA, Greenbelt, MD, USA

Dr. Rahul Ramachandran

Goddard Space Flight Center, NASA, Greenbelt, MD, USA

Prof. Dr. Morris Riedel

Full Professor, University of Iceland, Reykjavik, Iceland & Research Group Leader, Juelich Supercomputing Centre, Forschungszentrum Juelich, Juelich, Germany

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Applied Sciences
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
appls@mdpi.com

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Editor-in-Chief

Prof. Dr. Giulio Nicola Cerullo
Dipartimento di Fisica, Politecnico di Milano, Piazza L. da Vinci 32,
20133 Milano, Italy

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