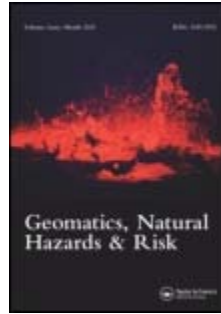


# *Geomatics, Natural Hazards and Risk*



Special Issue on

## **Observation and Prediction of Environmental Change in the Era of ‘COLLABORATORIES’**

Guest Editors:

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### **Important Dates**

Deadline for Submissions: **April 15, 2011**

Reviews Due: June 1, 2011

Author Notification: June 30, 2011

Revised Version Due: September 30, 2011

Special Issue Published: TBD

*Geomatics, Natural Hazards and Risk* invites authors to submit papers for the Special Issue on “*Observation and Prediction of Environmental Change in the Era of ‘COLLABORATORIES’*”. This Special Issue will include papers to be presented at the 8th International Conference on Information Systems for Crisis Response and Management – ISCRAM 2011. Authors interested in submitting their papers on related topics are also welcome.

### **Introduction**

Changes in the Earth’s geophysical and ecological systems – from climate to oceans and watersheds – and their implications for environmental and human health pose major challenges for society. The need to *anticipate and steer* rather than just *react to* those changes is increasingly recognized in the context of mitigation strategies for environmental risk and hazards. Addressing this need requires novel scientific paradigms that transcend traditional disciplines and space/time scales.

Increasingly, these novel paradigms are enabled by structured integrations of information, methods and people, anchored on modern observation and prediction systems. We think of these integrations as “*collaboratories*”, in recognition of their inherently collaborative nature and outcomes. Regardless of the specific issue and geography, observation and prediction of environmental change in the era of collaboratories offer opportunities and present challenges that we are only starting to realize, address and explore.

Of increasing interest is the development of “*environmental sentinels*” that timely forewarn of an impending risk or hazard, thus allowing effective mitigation, preparedness or response. Because of their multi-purpose nature, and their combination of real-time and long-term observations and predictions, collaboratories offer novel opportunities to define environmental sentinels and develop sentinel-based warning systems.

## Topics

The main objective of this Special Issue is to showcase, discuss and advance the role of observation and prediction of environmental change (and associated risk or hazards) in modern collaboratories for complex geophysical and ecological systems.

Within the applied framework of the ability of modern collaboratories to help anticipate and steer environmental risk and hazards, we welcome contributions in (but are not limited to):

- Collaboratories as end-to-end systems, linking data and knowledge to users and applications.
- Collaboratory sub-components: observation networks, modeling systems, and cyber-infrastructure.
- Value added by improvements in modeling, simulation, and data assimilation techniques.
- Uncertainty and its consequences for risk and hazards detection and prediction.
- Value added by improvements in observation technologies and in data integration in predictions.
- Exploratory data analysis and predictive data mining in the era of collaboratories.
- Value added by improvements in cyberinfrastructure and information flow.
- Integration of products and knowledge outcomes from collaboratories into practical policies and programs for mitigation, preparedness for and response to environmental risk and hazards
- Risk management systems in the era of collaboratories
- Collaboratories as training and education tools.
- Future technology needs, accessibility, availability and affordability of collaboratories for risk prevention and mitigation.