

Call for Papers
Special Issue of *Natural Hazards*
**“Big Data Analysis and Management: Climate Economics, Meteorological Hazards
and Environmental Risk”**

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In order to reduce the losses to weather-related disasters and to achieve the sustainable development goals and broader human development objectives, social science researchers are more interested in studying the practical issues of climate change and meteorological disaster management (the urgency of technological innovation) from the economics and management science framework. The climate and meteorological data contain a wealth of applications and research value, and big data analysis provides a deep technical means for the above research.

The special collection seeks contributions from a wide range of scholars and practitioners from various disciplines including but not limited to decision science, economics, management science, operations research applied meteorology, and applied statistics), on a variety of applications. Methodological cross-innovation, empirical applications in the context of climate change economics, decision methods and techniques, meteorological disaster management and emergency management are particularly welcome.

Suggested scopes include: Climate change economics and management science, Disaster damage assessment, Reduce weather related economic damages, Meteorological sensor networks, Big data and smart weather, Meteorological financial engineering, Disaster emergency management among others.

(1) Climate change economics and management science: Explore how to integrate economic, energy, environmental, climate change and other factors and utilize economics and management science framework to analyze the impact of climate change on the economic system and explain/deal with meteorological disaster risk assessment theory; meteorological disasters affecting public safety assessment theory; meteorological service benefit assessment theory and technology.

(2) Disaster management and reduce weather-related economic damages: Analyze the impact of climatic and meteorological disaster on the infrastructure, production process, social life, and ecological system, reveal the external influencing elements and internal laws, seek for the qualitative/quantitative models and tools to evaluate and reduce the economic damages and risk, and provide suitable and effective measurements and suggestions.

(3) Meteorological sensor networks, big data and smart weather applications: Climatic and meteorological big data-driven management and decision-making paradigm may shift the mechanism and theory, resource governance, mechanism design and collaborative management, analysis methods and

supporting technologies, synergistic development mechanism for meteorological big data and smart weather. Meteorological applications of sensor networks may include: providing data relevant to meteorological studies; monitoring environmental conditions that affect crops and livestock; irrigation; combining isolated climate stations into coarse-scale, terrestrial sensor networks.

(4) Meteorological financial engineering: Research may focus on weather index insurance basis risks, weather index insurance operation mode, and meteorological financial product pricing to promote theoretical and practical innovations of meteorological risk management with financial innovation, focusing on the fields of agriculture, energy and tourism, and analyzing the dependent structural relationship between weather variables and output or economic loss through statistical modeling, aiming at weather financial products.

(5) Emergency management of meteorological disasters: Analyze the occurrence and evolution of various kinds of meteorological disasters process, and explore and discusses the working process, critical links, methods and measures of disaster emergency management. Examine especially the rescue path optimization, emergency decision-making and the post-disaster rapid recovery and reconstruction.

Potential topics include but are not limited to:

- Big data analysis in climate economics and management science
- Cross-innovation modeling of climate change and management science and economics
- Integrating climate factors into modeling in economics and management science
- Meteorological disaster and environmental management
- Assessment models for climatic and meteorological disaster
- Emergency management of meteorological disasters

Keywords:

1. Meteorological disaster management
2. Decision making model and econometric model
3. Disaster risk analysis and assessment theory
4. Climate economics
5. Emergency decision-making
6. Big data and sensor networks applications
7. Meteorological financial engineering

Submissions:

Manuscripts should be prepared according to the “Submission guidelines” section of the journal found at <https://www.springer.com/journal/11069/submission-guidelines> and submissions should be made through the journal submission website: <https://www.editorialmanager.com/nhaz/default.aspx> by selecting the corresponding special issue.