

### The IGU Commission on Geography for Future Earth:

### Coupled Human-Earth Systems for Sustainability

### **Annual Report for 2021-2022**

The report includes membership, meetings, publication and other important information for the IGU Commission on *Geography for Future Earth: Coupled Human-Earth Systems for* Sustainability (IGU-GFE).

#### 1. Steering Committee

The IGU Commission on Geography of Future Earth: Coupled Human Earth Systems for Sustainability (IGU-GFE) has been formally established in October 2017 and its second term started in 2020. IGU-GFE focuses on human-land systems and their interfaces with the coast, the ocean, and the atmosphere. It aims to promote a wider analysis and innovative thinking about global land sustainability through the bridging and synthesis of physical geography, human geography, ecology, hydrology, atmospheric, climate, and social sciences. It provides a platform for communication among geographers globally to promote research and innovation about sustainability. The steering committee structure of IGU-GFE is as follows:

#### **Initiator and Honorary Chair**

Prof. Dr. Bojie Fu

Dean and Distinguished Professor of Faculty of Geographical Science, Beijing Normal University

Distinguished Professor of Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences

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Email: bfu@rcees.ac.cn; Phone: +86 10 62923557

#### Chair

Prof. Dr. Wenwu Zhao

IGU-GFE Annual Report 2021-2022

Director and Professor of Institute of Land Surface System and Sustainable Development, Faculty

of Geographical Science, Beijing Normal University

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#### Vice-Chair

Prof. Dr. Mark Stafford Smith

Chief Coordinating Scientist in Institute of Land and Water, CSIRO, Australia; Chair of Science

Committee, Future Earth

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#### **Members**

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Professor, Earth and Environmental Sciences Dept. Boston College

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Prof. Dr. Peter Verburg

Institute for Environmental Studies, Faculty of Science

VU University Amsterdam, Netherlands

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Prof. Dr. Soroosh Sorooshian

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Distinguished Professor of Civil and Environmental Engineering, Distinguished Professor (Joint Appointment) of Earth System Science, Director of Center for Hydrometeorology and Remote Sensing;

University of California, Irvine

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Prof. Dr. Sandra S. Luque

Director of Research at IRSTEA, National Research Institute of Science and Technology for Environment and Agriculture

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Prof. Dr. Toshiya Okuro

Laboratory of Landscape Ecology and Planning Department of Ecosystem Studies

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Prof. Dr. Francesco Cherubini

Professor, Industrial Ecology Programme

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Professor Principal at Department of Humanities - Geography Section, Pontifical Catholic

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Prof. Dr. Walter Musakwa

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University of Johannesburg, South Africa

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Prof. Dr. Paulo Alexandre da Silva Pereira

Professor and Head of Environmental Management Laboratory

Mykolas Romeris University, Lithuania

Email: Paulo@mruni.eu

#### **Secretary**

AP. Dr. Yan Li

Associate Professor at the Institute of Land Surface System and Sustainable Development, Faculty of Geographical Science, Beijing Normal University

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#### 2. Workshops and Meetings held in 2022

#### The Environmental Governance and Social Network II

This year, 2022, marks the IGU 100th anniversary. To dedicate to the IGU centenary celebration, "the Environmental Governance and Social Network Workshop II" was delivered online via Zoom from March 14th to 25th 2022. The workshop was co-organized by IGU-GFE, the journal Geography and Sustainability, Faculty of Geographical Science, Beijing Normal University, and College of Economics and Management, Northwest Agriculture and Forestry University. Dr. Örjan Bodin, who served as an Associate Professor and Principal Investigator for the theme "Resilience thinking and complex adaptive systems" at the Stockholm Resilience Center of Stockholm University, was the lecturer of the workshop. He combined and integrated methods and theories from several scientific disciplines to develop a better understanding of social-ecological systems. He shared his expertise on environmental governance and provided systematic training on social network analysis and its application to environmental governance. The workshop was freely open to all participants worldwide through live streaming and attracted more than 150 experts, scholars, and students.



Flyer of the Environmental Governance and Social Network Workshop II

# If/when/why is collaboration leading to desirable outcomes? – A *network perspective*

- Focus on the actors and their relations
- · An analytical vehicle to study
  - Actors, their attributes, with whom they choose to collaborate, why, and in what venues?
  - Group-level characteristics (network cohesion, heterogeneity, centralization, etc.) and collective "performance"



Screenshot of the Environmental Governance and Social Network Workshop II

### <u>Session on Soil Functions and Ecosystem Services in a Changing Environemt in the EGU</u> <u>General Assembly 2022</u>

Session on Soil Functions and Ecosystem Services in a Changing Environment in the EGU General Assembly was successfully held on May 25<sup>th</sup> 2022. Prof. Paulo Pereira was the convener of the session. Prof. Wenwu Zhao and Prof. Yang Yu were the co-conveners of the session. Nineteen speakers from China, USA, Italy, Lithuania, and so on presented in the session. Topics include: (1) Impacts of soil degradation on soil function and ecosystem services and (2) Soil conservation and restoration actions for maintaining ecosystem services (including research, management, education and policy).



ABOUT ▼ PROGRAMME ▼ EXHIBITION ▼ MEDIA ▼ ➪ ▼

[Programme]

SSS8.5

SSS8 EDI\*

Soil functions and ecosystem services in a changing environment

Convener: Paulo Pereira Q | Co-conveners: Wenwu Zhao Q, Yang Yu<sup>ECS</sup> Q, Miriam Muñoz-Rojas Q

▶ Presentations | Wed, 25 May, 13:20–15:55 (CEST) ■ Room D3

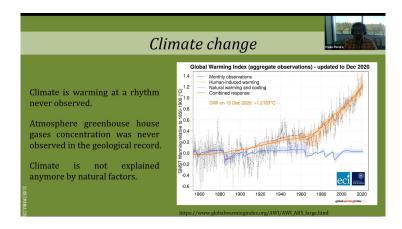
#### The Nature-Based Solutions and Ecosystem Services for a Sustainable Future Workshop

To dedicate to the IGU centenary celebration, the Nature-Based Solutions and Ecosystem Services for a Sustainable Future Workshop was held by IGU-GFE and the journal *Geography and Sustainability* via Zoom from June 6<sup>th</sup> to 9<sup>th</sup>, 2022. Dr. Paulo Pereira (member of our commission), Dr. Katarzyna Bogdzevič, Dr. Miguel Inácio, and Dr. Eduardo Jonas from Mykolas Romeris University were the lecturers of the workshop. The workshop was freely open to all

participants worldwide through live streaming and attracted more than 190 experts, scholars, and students. The participants had discussions on nature-based solutions and land degradation neutrality, nature-based solutions and extreme events, fires impact on ecosystem services, agriculture areas ecosystem services, basic principles of ecosystem services mapping of urban, cultural, freshwater, future ecosystem services, and how to draft a good paper.



Flyer of the Nature-Based Solutions and Ecosystem Services for a Sustainable Future Workshop



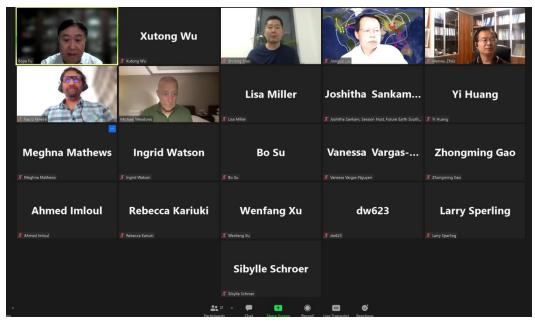
Screenshot of the Nature-Based Solutions and Ecosystem Services for a Sustainable Future Workshop

# <u>Session on Coupling Human and Natural System for Sustainable Development: Evolutions, Mechanisms, and Approaches in the Sustainability Research & Innovation Congress 2022</u>

A session on Coupling Human and Natural System for Sustainable Development: Evolutions, Mechanisms, and Approaches was successfully held on June 21<sup>st</sup>, 2022. Prof. Bojie Fu and Prof. Michael Meadows were the conveners of the session. The session aims to further our understanding of human-natural system coupling, with particular interest in regional and global

sustainable development implications, and to advance our knowledge of evolutions, mechanisms, and approaches of human-natural system coupling. Six scientists including Prof. Bojie Fu (Beijing Normal University, China), Prof. Michael Meadows (University of Cape Town, South Africa), Prof. Wenwu Zhao (Beijing Normal University, China), Prof. Jianguo Liu (Michigan State University, USA), Prof. Shilong Piao (Peking University, China), and Prof. Paulo Pereira (Mykolas Romeris University, Lithuania) presented in the session and shared their thoughts and experiences with the key cutting-edge scientific issues of coupling human-natural system for sustainable development. The key topics are as follows: (1) Dynamic change of human-natural system; (2) Metacoupling mechanism of human-natural system; (3) Sustainable cascades of ecosystem structure, functions, services, and human well-being; (4) Modelling and simulation of human-natural system; (5) Sustainable development transformation.





Screenshot of the Session on Coupling Human and Natural System for Sustainable Development: Evolutions, Mechanisms, and Approaches



Sustainability Research & Innovation Congress 2022

Coupling Human and natural system for sustainable development: evolutions, mechanisms, and approaches

#### Introduction

Increased exploitation of the earth's resources has led to significant and rapid environmental changes which adversely hindered the regional sustainable development. The human-natural system coupling serves as an important strategy for improving eco-environment status and regional sustainable development. This session aims to further our understanding of human-natural system coupling, with particular interest in regional and global sustainable development implications, and to advance our knowledge of evolutions, mechanisms, and approaches of human-natural system coupling. We welcome studies exploring different aspects of human-natural system coupling, including: dynamic changes of both human system and natural system as well as their interactions, scale effects on human-natural system coupling, coupling methods, regional adaptive management and decision-making modelling. Case studies in terms of human-natural system coupling and regional/global sustainable development are particularly encouraged.

#### Information

Hosts: Prof. Bojie Fu, Prof. Michael Meadows

Time: 9:00 PM - 10:30 PM on Tuesday, 21 June (Beijing Time)

Category: Online dialogue

Join the session: https://attend.sri2022.org/meetings/virtual/sF6cnxNow3A2WgS8M

#### Presentation



Speaker: Prof. Bojie Fu, Chinese Academy of Sciences/ Beijing Normal University Title: Coupling human-natural system for sustainable development



Speaker: Prof. Michael Meadows, University of Cape Town Title: Geography and Sustainable Development in the Anthropocene



Speaker: Prof. Jianguo Liu, Michigan State University Title: Complexity of coupled human and natural systems



Speaker: Prof. Shilong Piao, **Peking University** Title: The carbon balance of terrestrial ecosystems in China



Speaker: Prof. Paulo Pereira, Mykolas Romeris University Title: Nature-Based Solutions for Sustainable Development



Speaker: Prof. Wenwu Zhao, Beijing Normal University Title: Integrate ecosystem services into sustainable development

Flyer of the Session on Coupling Human and Natural System for Sustainable Development: Evolutions, Mechanisms, and Approaches

#### **General Courses: Geography and Sustainability**

From June 27th to 30th 2022, the General Courses: Geography and Sustainability was successfully held via Zoom with more than 300 participants. It was hosted by Beijing Normal University and IGU-GFE. Six invited speakers including Prof. Bojie Fu (Beijing Normal University, China), Prof. Michael Meadows (University of Cape Town, South Africa), Prof. David John Eldridge (University of New South Wale, Australia), Prof. Paulo Alexandre da Silva Pereira (Mykolas Romeris University, Lithuania), Prof. Adam Wei (University of British Columbia, Canada), and Prof. Paolo Tarolli (University of Padova, Italy) shared their knowledge with participants. The speakers discussed many aspects of geography and sustainability, including promoting geography for sustainability in the era of Anthropocene, Anthropogeomorphology: the nature and scale of human impact on landforms and landscapes, coastal and estuarine wetland environments in the Anthropocene, geographies of climate change, disasters and sustainable development in the Anthropocene, ecosystem services degradation in a changing environment, war impacts on ecosystem degradation, ecosystem services in mountain environments, grazing and animal disturbance, modelling the coupled human and natural systems, sustainable agriculture in steep-slope landscapes under climate change scenarios, the nexus of forest-water-service under a changing environment, and land-atmosphere coupling and climate change.



Screenshot of the General Courses: Geography and Sustainability

# IGU YECG-GeoSus Session on Sustainable Water Management in the 2022 Paris IGU Centennial Congress

The IGU YECG-GeoSus Session on Sustainable Water Management was successfully held on July 22<sup>nd</sup>, 2022, during the 2022 Paris IGU Centennial Congress. This session was moderated by Dr. Gabriela Adina Morosanu, the chair of the IGU Young and Early Career Geographers

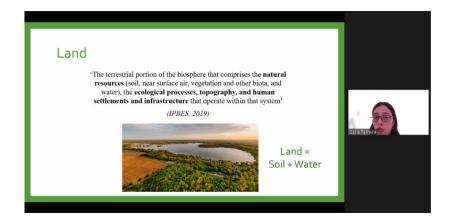
Working Group on Geography and Sustainability, and Dr. Komali Yenneti, the chair of the IGU Young and Early Career Geographers Task Force. Seventeen young and early career geographers from China, Romania, Italy, France, Morocco, Mexico, and Peru presented in this session and shared their thoughts and experiences with the management, investigation, reflection in the sustainable management of water resources. The topics of their presentation covered the impact of human activities and climate change on rivers, river basin sustainable management in the Anthropocene, hydrological education and civic involvement for the protection of surface and underground water resources, and big data and models for water resources management.



Flyer of the 2022 Paris IGU Centennial Congress

#### Land Degradation and Pathways for Sustainability

To dedicate to the IGU centenary celebration, "Land Degradation and Pathways for Sustainability" was delivered online via Zoom from July 18th to 29th 2022. The workshop was co-organized by the Faculty of Geographical Science, Beijing Normal University, and IGU-GFE. Dr. Carla Sofia Santos Ferreira (Stockholm University, Sweden) was the lecturer of the workshop. She shared her expertise on different forms of soil degradation, degradation through soil sealing and compaction, soil degradation through erosion, loss of soil organic matter, causes of water resources degradation, approaches to assessing land degradation, actions on the ground to address land degradation, land degradation and sustainable development goals, policy responses to land degradation, and need for partnership to reverse land degradation. The workshop was freely open to all participants worldwide through live streaming and attracted more than 180 experts, scholars, and students.



Screenshot of the Land Degradation and Pathways for Sustainability

#### Climate Change Workshop

To dedicate to the IGU centenary celebration, Climate Change Workshop was successfully held via Zoom from November 14<sup>th</sup> to 15<sup>th</sup> and December 8<sup>th</sup> to 9<sup>th</sup> 2022. The workshop was organized by IGU-GFE and the journal *Geography and Sustainability*. The workshop was freely open to all international audiences through live streaming and attracted more than 130 attendants. Prof. Francesco Cherubini (Norwegian University of Science and Technology) was the lecturer of the workshop. The participants had discussions on the introduction to climate change: drivers, impacts and mitigation options and land-based climate change mitigation and sustainability: potentials, challenges, and opportunities.



Flyer of the Climate Change Workshop



Screenshot of the Climate Change Workshop

#### 3. Publication

#### 3.1 Special Issue

To dedicate to the IGU centenary celebration, three special issues were organized in the journal *Geography and Sustainability* in 2022.

### 3.1.1 A special issue on Geography in the Anthropocene: transforming our world for sustainable development

Prof. Bojie Fu (State Key Laboratory of Earth Surface Processes and Resource Ecology, Beijing Normal University, China), Prof. Michael E. Meadows (Department of Environmental & Geographical Science, University of Cape Town, South Africa), and Prof. Wenwu Zhao (Institute of Land Surface System and Sustainable Development, Faculty of Geographical Science, Beijing Normal University, China) will organize a special issue on *Geography in the Anthropocene:* transforming our world for sustainable development in 2022.

Sustainable development has been the common development strategy of the global and covers dimensions of society, environment, culture and economy. As a transdisciplinary discipline studying the coupled human and natural systems and their interactions, Geography has natural advantages to promote sustainable development. Geographers have made important contributions to exploring the nexus between the natural and social sciences, and delivered knowledge and experiences that are needed to support transformation towards sustainability.

In this special issue, all article types dealing with concepts, methods and practices of diverse geographical research topics related to sustainable development across different scales (e.g., local, regional, continental, global) are welcomed. To address the significance of geography for promoting sustainable development, reviewing the current state of knowledge, summarizing existing issues and challenges, and providing perspectives for future development in a certain field of geographical science for sustainable development are particularly encouraged.

Submission Deadline: December 31, 2022

IGU-GFE Annual Report 2021-2022

Link: https://www.sciencedirect.com/journal/geography-and-sustainability/about/call-for-papers

3.1.2 A special issue on Global Sustainable Agriculture and Land Management Systems

Prof. Guy M. Robinson (University of Adelaide, Australia) is organizing a special issue on

Global Sustainable Agriculture and Land Management Systems in Geography and Sustainability

in 2022.

The Special Issue aims to stimulate debate on sustainable agriculture and the various land

management systems contributing to sustainable agri-food systems. The Special Issue will feature

some of the presentations made to sessions organized by the IGU Commission on Agricultural

Geography & Land Engineering (AGLE) at the IGU Congress in Paris, July 2022. Beyond those

directly associated with the IGU sessions, all submissions from different perspectives on the

spectrum from the ecocentric to the technocentric approaches for sustainability of agriculture are

warmly welcomed.

Submission Deadline: Mar 31, 2023

Link: https://www.sciencedirect.com/journal/geography-and-sustainability/about/call-for-papers

3.1.3 A special issue on the role of Geography in a changing environment

Prof. Nunes Adélia (University of Coimbra, Portugal), Prof. Bento-Gonçalves António

(University of Minho, Portugal), Prof. Chamusca Pedro (University of Minho, Portugal), and Prof.

Pereira Paulo (Mykolas Romeris University, Lithuania) are organizing a special issue on the role

of Geography in a changing environment in 2022.

In this Special Issue, guest editors will invite geographers and other social and physical

researchers to submit original research that contributes to a better understanding of the changes

taking place and solutions that enhance ecological and socio-economic sustainability, showing the

different perspectives and challenges we face in the 21st century.

Submission Deadline: Mar 31, 2023

Link: https://www.sciencedirect.com/journal/geography-and-sustainability/about/call-for-papers

3.1.4 Profs. Bojie Fu and Mark Stafford Smith organized a special issue on the dryland

social-ecological systems in changing environments in Current Opinion in Environmental

Sustainability in 2021.

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# 3.1.5 Prof. Paulo Alexandre da Silva Pereira organized a special issue on *Nature-Based Solutions for Global Environmental Challenges* in Science of The Total Environment in 2022.



#### 3.2 Geography and Sustainability—the official journal of IGU-GFE

Geography and Sustainability (GeoSus), an international journal sponsored by Beijing Normal University and IGU-GFE, is jointly published by Beijing Normal University Press and Elsevier. Prof. Bojie Fu, honor dean of the Faculty of Geographical Science of Beijing Normal University and vice president of IGU, serves as the chief editor of the journal.

The first issue of *Geography and Sustainability* was published in March 2020. At present, 109 papers have been published in *GeoSus* with an average publishing time of 3 months. *GeoSus* has been indexed by the Scopus database, the High-quality journal catalog in the field of geography and resources in China, and Directory of Open Access Journals in 2020, Emerging Sources Citation Index, Norwegian Register for Scientific Journals, Series, and Publishers, and Superstar Journals Database in 2021, Wanfang Data, China National Knowledge Infrastructure, Engineering Village-GEOBASE, and Chinses Science Citation Database in 2022.

[Scopus] The CiteScore 2021 is 7.4. The CiteScoreTracker 2022 is 11.4 (by November 5<sup>th</sup>, 2022).



[Web of Science] GeoSus is ranked Q1 according to Journal Citation Reports (JCR™) 2021. GeoSus has a Journal Citation Indicator (JCI) 2021 of 2.33. The Journal Citation Indicator represents the average category-normalized citation impact for papers published in the prior three-year period. All journals in the JCR are eligible to receive this metric as of 2021. *GeoSus* was officially indexed by Emerging Sources Citation Index (ESCI) in 2021 and was classified into two categories: GEOGRAPHY, PHYSICAL and GREEN & SUSTAINABLE SCIENCE & TECHNOLOGY. According to JCI 2021, GeoSus is ranked 2/61 and 2/74 in two categories, respectively.

GEOGRAPHY, PHYSICAL 2/61				GREE TECH	CATEGORY GREEN & SUSTAINABLE SCIENCE & TECHNOLOGY 2/74				
JCR YEAR	JCI RANK	QUART ILE	JCI PERCENTILE	JCR	JCI RANK	QUART	JCI PER	CENTILE	
2021	2/61	Q1	97.54	YEAR		ILE			
2020	N/A	N/A	N/A	2021	2/74	Q1	97.97		
2019	N/A	N/A	N/A	2020	N/A	N/A	N/A		
2018	N/A	N/A	N/A	2019	N/A	N/A	N/A		
2017	N/A	N/A	N/A	2018	N/A	N/A	N/A		
	5.5%.5.15)			2017	N/A	N/A	N/A		

GREEN & SUSTAINABLE SCIENCE & TECHNOLOGY								
Journal name	Category	2021 JIF	JIF Quartile	2021 JCI	JCI Percentile			
Nature Sustainability	SSCI	27.157	Q1	3.88	99.32			
Geography and Sustainability	ESCI	N/A	N/A	2.33	97.97			
IEEE Transactions on Sustainable Energy	SCIE	8.310	Q2	1.75	96.62			
Journal of Sustainable Tourism	SSCI	9.470	Q1	1.74	95.27			
One Earth	SCIE	14.944	Q1	1.71	93.92			
SUSTAINABLE DEVELOPMENT	SSCI	8.562	Q2	1.70	92.57			
Sustainable Cities and Society	SCIE	10.696	Q1	1.60	91.22			
GREEN CHEMISTRY	SCIE	11.034	Q1	1.53	89.86			
Journal of Cleaner Production	SCIE	11.072	Q1	1.51	88.51			
ACS Sustainable Chemistry & Engineering	SCIE	9.224	Q1	1.45	87.16			

GEOGRAPHY, PHYSICAL								
Journal name	Category	2021 JIF	JIF Quartile	2021 JCI	JCI Percentile			
ISPRS JOURNAL OF PHOTOGRAMMETRY AND REMOTE SENSING	SCIE	11.774	Q1	2.47	98.18			
Geography and Sustainability	ESCI	N/A	N/A	2.33	97.54			
LANDSCAPE AND URBAN PLANNING	SCIE	8.119	Q1	2.10	95.9			
GLOBAL ECOLOGY AND BIOGEOGRAPHY	SCIE	6.909	Q1	1.80	94.26			
Cryosphere	SCIE	5.805	Q1	1.62	92.62			
GIScience & Remote Sensing	SCIE	6.397	Q1	1.52	90.98			
INTERNATIONAL JOURNAL OF GEOGRAPHICAL INFORMATION SCIENCE	SCIE	5.152	Q1	1.37	89.34			
GLOBAL AND PLANETARY CHANGE	SCIE	4.956	Q1	1.30	87.7			
GEOMORPHOLOGY	SCIE	4.406	Q2	1.18	86.07			
JOURNAL OF BIOGEOGRAPHY	SCIE	4.810	Q1	1.16	84.43			
QUATERNARY SCIENCE REVIEWS	SCIE	4.456	Q1	1.16	84.43			

The journal is open to submission. The scope of the journal includes:

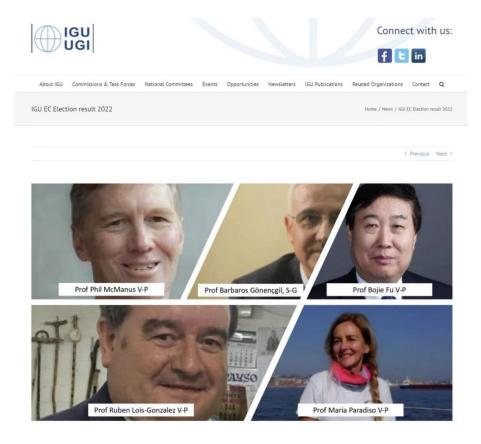
- Geographical processes
- Human-Environmental Systems
- Ecosystem services and human wellbeing
- Sustainable development
- Geo-data and model for Sustainability.

For inquiry and paper submission issues, please contact the editorial office: geosus@bnu.edu.cn. (https://www.journals.elsevier.com/geography-and-sustainability/)

#### 4. Important information

# 4.1 Prof. Bojie Fu was re-elected as the vice-president of the International Geographical Union (IGU)

Prof. Bojie Fu was re-elected as the vice-president of the International Geographical Union (IGU) for 2022-2026.



#### 4.2 Prof. Bojie Fu won 2022 TWAS-Lenovo Science Award

Prof. Bojie Fu won the 2022 TWAS-Lenovo Science Award for his seminal contribution to the understanding of interactions between human beings and the environment, and their implications for sustainability.



### 4.3 Prof. Hanqin Tian was elected as the Fellow of Ecological Society of America (ESA) in 2022.

Prof. Hanqin Tian was elected as the Fellow of Ecological Society of America (ESA) for

groundbreaking research on ecosystem patterns and processes at multiple scales that provides a predictive understanding of how anthropogenic disturbances alter global carbon and nitrogen cycles in 2022.



4.4 Prof. Soroosh Sorooshian Awarded American Meteorological Society's Hydrologic Sciences Medal in 2021.

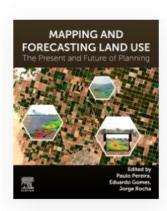
The American Meteorological Society recognize outstanding individuals and organizations of the weather, water, and climate community through its Awards and Honors program at the 101st AMS Annual Meeting. The Hydrologic Sciences Medal was awarded to Soroosh Sorooshian for ingenious, groundbreaking work on surface hydrology and the remote sensing of precipitation that has profoundly impacted the field of hydrometeorology.



THE HYDROLOGIC SCIENCES MEDAL Awarded to Soroosh Sorooshian

#### 5. Books

### 5.1 Mapping and Forecasting Land Use The Present and Future of Planning (Elsevier)



### Mapping and Forecasting Land Use

The Present and Future of Planning 1st Edition - August 18, 2022

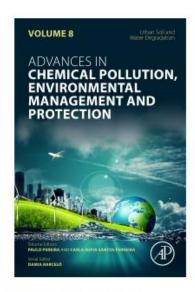
Editors: Paulo Pereira, Eduardo Gomes, Jorge Rocha

eBook ISBN: 9780323909488 | Paperback ISBN: 9780323909471

Mapping and Forecasting Land Use: The Present and Future of Planning is a comprehensive reference on the use of technologies to map land use, focusing on GIS and remote sensing... Read more ↓

Mapping and Forecasting Land Use: The Present and Future of Planning is a comprehensive reference on the use of technologies to map land use, focusing on GIS and remote sensing applications and methodologies for land use monitoring. This book addresses transversal topics such as urbanisation, biodiversity loss, climate change, ecosystem services and participatory planning, with the pros and cons of various aerial technologies in mapping and land use. It follows a multidisciplinary approach and provides opinions and evidence from leading researchers working in academic institutions across the globe. The book's second half moves from theory and research advancement into case studies, compiling global examples to provide real-world context and evidence of the techniques and applications. Mapping and Forecasting Land Use is a valuable guide for graduates, academics and researchers in the fields of geography, geographic information science and land use science who want to effectively apply GIS and remote sensing capabilities to mapping or wider land studies. Researchers in geosciences, environmental science and agriculture will also find this of value in utilising 21st-century technologies their field. (https://shop.elsevier.com/books/mapping-and-forecasting-land-use/pereira/978-0-323-90947-1)

#### 5.2 Urban Soil and Water Degradation



### Urban Soil and Water Degradation

1st Edition - November 17, 2022

☆☆☆☆ Write a review

Editors: Paulo Pereira, Carla Ferreira

Hardcover ISBN: 9780128201800

eBook ISBN: 9780128202159

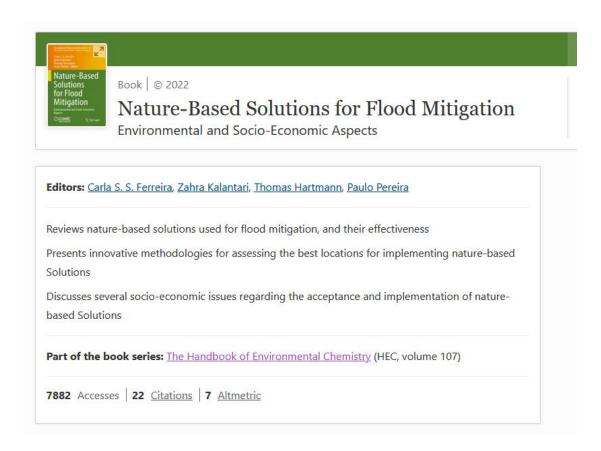
View series: Advances in Chemical Pollution, Environmental

Management and Protection

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Urban Soil and Water Degradation, Volume Seven explores a wide breadth of emerging and state-of-the-art technologies, including comprehensive coverage of topics such as Urban sprawl, Soil degradation, Hydrological challenges in urban areas, Soil and water quality – pollutant sources and pathways, Ecosystem services in urban areas, Freshwater-related nature-based solutions in cities, Property Rights and Climate Change - land use under changing environmental conditions, Municipal planning to prevent soil and water degradation: The case of Vilnius, In between water and fires: soil degradation in a new Mediterranean peri-urban landscape, and more. Additional chapters in this release include Groundwater in Venetian area, Soil protection and hydrogeological risk assessment. A strategic planning experience in Franciacorta, Data driven approach for assessing surface runoff in separated sewage systems: Israeli Case Study, Ecological status of urban streams and riparian habitats in the Czech Republic, Soil and water degradation in urban areas from western Romania, Mapping water ecosystem services: supply and demand in Stockholm, Land degradation and water availability in Ethiopia, and The study of land use and land cover changes in the Bekéscsaba area, Hungary. (https://www.elsevier.com/books/urban-soil-and-water-degradation/pereira/978-0-12-820180-0)

# 5.3 Nature-Based Solutions for Flood Mitigation Environmental and Socio-Economic Aspects



https://link.springer.com/book/10.1007/978-3-030-77505-6