

SpringerBriefs in Geoethics

Editor-in-Chief

Silvia Peppoloni, National Institute of Geophysics and Volcanology (INVG),
Rome, Italy

Series Editors

Nic Bilham, University of Exeter, Penryn, UK

Peter T. Bobrowsky, Geological Survey of Canada, Sidney, Canada

Vincent S. Cronin, Baylor University, Waco, USA

Giuseppe Di Capua , National Institute of Geophysics and Volcanology (INVG),
Rome, Italy

Iain Stewart, University of Plymouth, Plymouth, UK

Artur Sá, University of Trás-os-Montes and Alto Douro, Vila Real, Portugal

Rika Preiser, Stellenbosch University, Stellenbosch, South Africa



SpringerBriefs in Geoethics envisions a series of short publications that aim to discuss ethical, social, and cultural implications of geosciences knowledge, education, research, practice and communication. The series SpringerBriefs in Geoethics is sponsored by the IAPG – International Association for Promoting Geoethics (<http://www.geoethics.org>).

The intention is to present concise summaries of cutting-edge theoretical aspects, research, practical applications, as well as case-studies across a wide spectrum.

SpringerBriefs in Geoethics are seen as complementing monographs and journal articles, or developing innovative perspectives with compact volumes of 50 to 125 pages, covering a wide range of contents comprising philosophy of geosciences and history of geosciences thinking; research integrity and professionalism in geosciences; working climate issues and related aspects; geoethics in georisks and disaster risk reduction; responsible georesources management; ethical and social aspects in geoeducation and geosciences communication; geoethics applied to different geoscience fields including economic geology, paleontology, forensic geology and medical geology; ethical and societal relevance of geoheritage and geodiversity; sociological aspects in geosciences and geosciences-society-policy interface; geosciences for sustainable and responsible development; geoethical implications in global and local changes of socio-ecological systems; ethics in geoen지니어ing; ethical issues in climate change and ocean science studies; ethical implications in geosciences data life cycle and big data; ethical and social matters in the international geoscience cooperation.

Typical topics might include:

- Presentations of core concepts
- Timely reports on state-of-the art
- Bridges between new research results and contextual literature reviews
- Innovative and original perspectives
- Snapshots of hot or emerging topics
- In-depth case studies or examples

All projects will be submitted to the series-editor for consideration and editorial review.

Each volume is copyrighted in the name of the authors. The authors and IAPG retain the right to post a pre-publication version on their respective websites.

The Series in Geoethics is initiated and supervised by Silvia Peppoloni and an editorial board formed by Nic Bilham, Peter T. Bobrowsky, Vincent S. Cronin, Giuseppe Di Capua, Rika Preiser, Artur Agostinho de Abreu e Sá, Iain Stewart.

Silvia Peppoloni · Giuseppe Di Capua

Geoethics and Geosciences Serving Society

Reflections from the 37th International
Geological Congress

Silvia Peppoloni 
Istituto Nazionale di Geofisica e
Vulcanologia
Rome, Italy

International Association for Promoting
Geoethics (IAPG)
Rome, Italy

Chair on Geoethics of the International
Council for Philosophy and Human
Sciences (CIPSH-CG)
Rome, Italy

Commission on Geoethics
of the International Union of Geological
Sciences (IUGS-CG)
Rome, Italy

Giuseppe Di Capua 
Istituto Nazionale di Geofisica e
Vulcanologia
Rome, Italy

International Association for Promoting
Geoethics (IAPG)
Rome, Italy

Chair on Geoethics of the International
Council for Philosophy and Human
Sciences (CIPSH-CG)
Rome, Italy

Commission on Geoethics
of the International Union of Geological
Sciences (IUGS-CG)
Rome, Italy

ISSN 2662-6780
SpringerBriefs in Geoethics

ISBN 978-3-032-03753-4

<https://doi.org/10.1007/978-3-032-03754-1>

ISSN 2662-6799 (electronic)

ISBN 978-3-032-03754-1 (eBook)

© The Editor(s) (if applicable) and The Author(s), under exclusive license to Springer Nature
Switzerland AG 2025

This work is subject to copyright. All rights are solely and exclusively licensed by the Publisher, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, reuse of illustrations, recitation, broadcasting, reproduction on microfilms or in any other physical way, and transmission or information storage and retrieval, electronic adaptation, computer software, or by similar or dissimilar methodology now known or hereafter developed.

The use of general descriptive names, registered names, trademarks, service marks, etc. in this publication does not imply, even in the absence of a specific statement, that such names are exempt from the relevant protective laws and regulations and therefore free for general use.

The publisher, the authors and the editors are safe to assume that the advice and information in this book are believed to be true and accurate at the date of publication. Neither the publisher nor the authors or the editors give a warranty, expressed or implied, with respect to the material contained herein or for any errors or omissions that may have been made. The publisher remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

This Springer imprint is published by the registered company Springer Nature Switzerland AG
The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

If disposing of this product, please recycle the paper.

Contents

Introduction	1
Silvia Peppoloni and Giuseppe Di Capua	
The Future Challenges of Geoethics: Navigating Technology, Sustainability, and Social and Professional Responsibility	7
Silvia Peppoloni, Giuseppe Di Capua, and Nic Bilham	
Valuing Diversity in Geological Interpretation: A Warning from History	27
Robert W. H. Butler, Clare E. Bond, and Mark A. Cooper	
Towards Integrating Indigeneity and Geoethical Practice in Aotearoa New Zealand	39
Matthew W. Hughes and Norm Kereikepa	
Operational Ethics for Researching Geohazards	51
Ilan Kelman	
Geoheritage, Geotourism, and Geoethics as Support for Rural Development: A Case Study from Sundarbans Wetlands—A Ramsar Site of West Bengal, India	61
Sayani Khan, Amit Mandal, and Tarak Nath Khan	
The Anthropocene Event as a Holistic Foundation for Earth Governance	75
Emlyn H. Koster, Philip L. Gibbard, and Mark A. Maslin	
Red Planet, Green Ethics: Navigating the Moral Terrain of Terraforming Mars	93
Dov Greenbaum	
Geoscience Diplomacy at the Edge of the Continental Shelf	111
Munira Raji and Larry Awosika	