1. Record Nr. UNINA9911019885303321

| | |
|---|---|
| Autore | Beech Martin |
| Titolo | Geoengineering and Climate Change : Methods, Risks, and Governance |
| Pubbl/distr/stampa | Newark : , : John Wiley & Sons, Incorporated, , 2025<br>©2025 |
| ISBN | 9781394204847<br>1394204841<br>9781394204823<br>1394204825<br>9781394204830<br>1394204833 |
| Edizione | [1st ed.] |
| Descrizione fisica | 1 online resource (477 pages) |
| Collana | Astrobiology Perspectives on Life in the Universe Series |
| Disciplina | 628.532 |
| Soggetti | Climate change mitigation<br>Environmental ethics |
| Lingua di pubblicazione | Inglese |
| Formato | Materiale a stampa |
| Livello bibliografico | Monografia |
| Nota di contenuto | Cover -- Series Page -- Title Page -- Copyright Page -- Contents -- Preface -- Acknowledgments -- Chapter 1 Prolegomenon: A Geoengineering Primer -- 1.1 Introduction -- 1.2 The Paris Agreement -- 1.3 Tipping Points – Where Are We? -- 1.4 The Size of the Problem -- 1.5 Geoengineering – Where, When, and How? -- 1.6 Moving Forward -- 1.7 The Role of Industry -- 1.8 What Now? -- References -- Chapter 2 Two Generations of Ethical Debate on Geoengineering -- 2.1 Introduction -- 2.2 Ambiguities in Defining Geoengineering -- 2.3 Geoengineering Technological Schemes -- 2.4 History of Geoengineering -- 2.5 Two Generations of Ethical Debate -- 2.5.1 First Generation of Ethical Arguments -- 2.5.1.1 The Climate Emergency Arguments -- 2.5.1.2 Feasibility Framing -- 2.5.1.3 Lesser Evil and Moral Hazard -- 2.5.1.4 Intergenerational Responsibility or Path Dependency? -- 2.5.1.5 The Ecological Spectrum of Discourses -- 2.5.2 Second Generation of Ethical Arguments |

Sommario/riassunto

This important and timely book assembles expert scientists from both sides of the debate to discuss Earth-based and space-based climate intervention technologies including the scale, deployment, risk management, and moral philosophy behind these technologies. The role that geoengineering might play, within the context of global warming amelioration, has long been contentious. For all this, geoengineering is about getting down and dirty with respect to the issue of climate intervention. Often dismissed as an option of last resort, geoengineering is now emerging as a key component in humanity's drive to bring the impacts of global warming under some form of mitigation and control. While geoengineering does not solve the fundamental problem of continued anthropomorphic carbon dioxide emissions, the root cause of global warming, it is an option that can effectively buy humanity some much-needed time. Time, that is, to act positively, and time to introduce meaningful emission reductions, and deploy large-scale sequestration technologies. Indeed, the failure to meaningfully corral greenhouse gas emission levels, and the slow development of large-scale carbon capture technologies, will, by the close of the 21st century, likely see global temperatures increase by at least 2 or 3 degrees above pre-industrial levels. What geoengineering can potentially do for us is to offset the more extreme climate change scenarios that are presently projected to come about. An integrated geoengineering program to cool Earth's atmosphere, running in parallel with the development of sequestration technologies, and substantial emission reductions, can work to limit the worst effects of climate change that will, without geoengineering, surely come about. Geoengineering is not a neutral or benign action, however, and if it is to be deployed, then much more research, and field testing of ideas and technologies is urgently needed. The authors in this book present a cross-section of philosophies, engineering approaches, and reactions to the idea of geoengineering. Through their words, the reader is introduced to the historical and contemporary debate concerning the potential deployment of geoengineering actions. Indeed, there are many ways in which geoengineering, as a grand worldwide initiative, or as a combined set of independent actions, might proceed in both the near, and the deep future, and here the reader is introduced to these topics by experts in their field. Audience This book will be of interest to engineers, chemists, geologists, physicists, biologists, environmentalists, meteorologists, philosophers, mathematicians, computer modelers, and policy managers. General readers interested in geoengineering will find the book very readable and scientifically reliable.