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Sommario/riassunto

For centuries, scientists have been fascinated by the role of the Sun in the Earth's climate system. Recent discoveries, outlined in this book, have gradually unveiled a complex picture, in which our variable Sun affects the climate variability via a number of subtle pathways, the implications of which are only now becoming clear. This handbook provides the scientifically curious, from undergraduate students to policy makers with a complete and accessible panorama of our present understanding of the Sun-climate connection. 61 experts from different communities have contributed to it, which reflects the highly multidisciplinary nature of this topic. The handbook is organised as a mosaic of short chapters, each of which addresses a specific aspect, and can be read independently. The reader will learn about the assumptions, the data, the models, and the unknowns behind each mechanism by which solar variability may impact climate variability. None of these mechanisms can adequately explain global warming observed since the 1950s. However, several of them do impact climate variability, in particular on a regional level. This handbook aims at addressing these issues in a factual way, and thereby challenge the reader to sharpen his/her critical thinking in a debate that is frequently distorted by unfounded claims.