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PREFACE

Personal UV exposure is due to sunlight received as direct radiation, scattered radiation and filtered radiation. The definitions of scattered and filtered UV as used in this book are that scattered UV refers to the UV that has been scattered and reflected by the atmosphere, for example clouds, and physical environment, for example snow, and filtered UV refers to the UV that is present after passing through a material, for example glass, or shade material. There is very little information available about the scattered and filtered solar UV environment and the resulting UV exposures to humans. The incidence of skin cancer and sun-related eye disorders can be reduced by the minimization of exposures to UV radiation. For this to occur, a greater understanding of the solar UV exposure to humans for varying conditions and in different environments is necessary. Furthermore, the impact of UV absorption and its effects must be understood as one component of the complex interactions between human systems and climate, in the changing context. Accordingly, this book aims to quantify, understand and provide information on the filtered and scattered solar UV.

The initial chapter will provide information on the solar UV and the factors influencing solar UV on the earth. This is followed by chapters on the diffuse ambient solar UV in different settings and the resulting personal solar UV exposures. These chapters also provide details of the technical aspects of the instrumentation and techniques required for the UV measurements in these settings. As clouds have the greatest range of effects on UV compared to all other parameters, the next two chapters consider in detail the interaction of cloud on solar UV, including the possibility that on some occasions, particular configurations of cloud can produce greater than clear sky UV irradiances. Finally, the last two chapters provide information on filtered solar UV and the associated measuring techniques.

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