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Preface

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The Reuven Ramaty High Energy Solar Spectroscopic Imager (*RHESSI*) was launched on February 5, 2002. During the years after launch, we organized a series of workshops to share ideas and results from the analysis of the new *RHESSI* observations, and to facilitate those analyses. The workshops sought to integrate the unique high-energy perspective of *RHESSI* with data from observations at many wavelengths. At the same time we wanted the workshops to spur modeling and the development of basic theory. Some of the workshops also provided training and familiarization with the analysis of *RHESSI* data using the project's software. This volume summarizes all of this work through 2010. Broadly speaking, each paper in this volume represents the work of a topical group within the workshop series, with the authors comprising the contributors to the work of that group. To this we have added an introductory chapter and a concluding summary article.

To ensure accuracy, we have tried to restrict the references to articles that, at the time of writing, had actually been published or accepted for publication prior to our cutoff date in 2010 (but some 2011 items slipped in anyway). The work presented essentially covers solar activity from Cycle 23 and should serve as reference material from the current Cycle 24, during which *RHESSI* continues to operate well.

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To the extent possible, we have used a consistent notation throughout, invoking the new IAU naming convention for solar targets whereby a flare is uniquely referenced by its date and *GOES* peak time (e.g., SOL2002-07-23T00:35). A glossary of acronyms is in the introductory chapter, separate bibliographies are provided for each chapter, and a detailed book-wide subject index is at the end.

The intended audience for this volume includes active workers in the field of high-energy solar physics, scientists working in other areas who may be surprised by how much can be gained from a more careful study of the Sun, and graduate students entering (or considering entry) into this field. The goal, therefore, is to provide both quality of scientific content and pedagogical value. To this end, each paper was reviewed by both one senior member of the community and one younger scientist.

We thank the group leaders for their tireless efforts. We are grateful to the referees of these papers, and also to Amir Caspi for editorial help with the entire volume. Finally we thank UC Berkeley, NASA's Goddard Space Flight Center, and the Paul Scherrer Institute in Switzerland for the development of the spacecraft, its instrumentation, and the software. The international team of *RHESSI* Co-Investigators continues to play a fundamental role in the interpretation of the data, as do the many participants from outside the core team itself. As *RHESSI* enters its second solar maximum with unique hard X-ray and γ-ray observational capabilities, we hope that this volume can help lead to a better understanding of many discoveries yet to come.

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