
Preface

J. L. Culhane and C. Jordan

Phil. Trans. R. Soc. Lond. A 1991 **336**, 323

doi: 10.1098/rsta.1991.0083

Email alerting service

Receive free email alerts when new articles cite this article - sign up in the box at the top right-hand corner of the article or click [here](#)

To subscribe to *Phil. Trans. R. Soc. Lond. A* go to:

<http://rsta.royalsocietypublishing.org/subscriptions>

PREFACE

During the period of the 1980 solar maximum three space missions (*P78-1*, *Solar Maximum Mission* and *Hinotori*) carried out extensive studies of solar flares. In their different ways all of these missions contributed significant new information to our understanding of the solar flare phenomenon.

In this volume the contribution made by these three spacecraft to the study of the energy release and the related creation of high-temperature plasma, the transport of energy from the primary release site, the production of gamma-rays at energies up to 10 MeV and the ejection of solar matter into interplanetary space are reviewed.

Discussions of the current theoretical basis of magnetic energy conversion, the role of magnetic loops in solar flares and the acceleration of electrons and protons in the impulsive phase are presented. In addition, the relation between ground-based optical observations of solar flares and aspects of the X-ray data is assessed. All three spacecraft included high-resolution X-ray crystal spectrometers. The use of these instruments in establishing the properties of the high-temperature plasma is described and the status of the atomic data required for the interpretation of the spectra is evaluated.

For the 1991 solar maximum the Japanese *Solar-A* satellite will carry four major instruments that will allow observations to be undertaken with a unique combination of high spatial and spectral resolution over a wide range of X-ray and gamma-ray energies. The nature of this mission is described and its role in advancing our understanding of the solar flare problem is discussed.

July 1991

J. L. Culhane
C. Jordan