Contents

Executive Summary 1

1 **Policy and Findings 5**
The Future of Satellite Data and Information 8
The Management and Analysis of Data and lnformation 13
NASA's Earth Observing System Data and Information System 18
Public and Private Roles in a Developing Market 22
International Cooperation 26
Underutilization of Remotely Sensed Data 29
Environmental Monitoring 30
lnternational Development 30

2 Managing Remotely Sensed Data and Information 33
The Information Industry 34
Collection and Processing of Remotely Sensed Data 38
Data Archives 42
Technology for Archiving Data 46
Navigating the Archives 50
Geographic Infotmation Systems 53
New Ways of Visualizing Data 57

3 NASA's Earth Observing System Data and Information System 61
EOSDIS Overview 61
Data Management Technology (Organization and Access) 74
EOSDIS Program Challenges 75
CIESIN Issues 79
EOSDIS Scientific Involvement 84
Data Fomats/Standards 90

4 Government and Private Sector Roles in a Developing Market for Geospatial Data 93
Remote Sensing as a Public Good 94
Commercial Provision and Use of Remotely Sensed Data 96
Elements of Risk and the Role of Government 101
Growth of Data Markets 105
International Competition in Data Services 111

5 International Issues in Data Management and Cooperation 113
Reasons for Cooperation 114
Challenges of Cooperation 114
National and Regional Activities 116
International Treaties and Legal Principles 120
International Cooperation 121
Operational Environmental Applications 124
Weather Forecasting 125
Operational Data Exchange Issues 132
International Cooperation on Global Change Research 134
International Coordination of Data Policies 140
Remote Sensing and International Development 143

APPENDIXES

A Operational and Planned Earth Observing Satellite Systems 147

B Selected Remote Sensing Applications 150

C Applications of Remotely Sensed Data for Forestry 168

D Quantitative Products from Satellite Observations 176

E Acknowledgements 180

F Acronyms and Abbreviations 182

INDEX 187