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Silicon technology today forms the basis of a world-wide, multi-billion dollar component industry. The reason for this expansion can be found not only in the physical properties of silicon but also in the unique properties of the silicon-silicon dioxide interface. However, silicon devices are still subject to undesired electrical phenomena called "instabilities". These are due mostly to the imperfect nature of the insulators used, to the not-so-perfect silicon-insulator interface and to the generation of defects and ionization phenomena caused by radiation. The problem of instabilities is addressed in this volume, the third of this book series. Vol.3 updates and supplements the material presented in the previous two volumes, and devotes five chapters to the problems of radiation-matter and radiation-device interactions. The volume will aid circuit manufacturers and circuit users alike to relate unstable electrical parameters and characteristics to the presence of physical defects and impurities or to the radiation environment which caused them. An annual book providing overviews of the world's space

programmes and organizations. Coverage includes past, current and future programmes, details of individual companies and their activities, military space programmes such as SDI, and Soviet activities. Available on CD-ROM and EIS.

The objective of this book is to assist scientists and engineers select the ideal material or manufacturing process for particular applications; these could cover a wide range of fields, from light-weight structures to electronic hardware. The book will help in problem solving as it also presents more than 100 case studies and failure investigations from the space sector that can, by analogy, be applied to other industries. Difficult-to-find material data is included for reference. The sciences of metallic (primarily) and organic materials presented throughout the book demonstrate how they can be applied as an integral part of spacecraft product assurance schemes, which involve quality, material and processes evaluations, and the selection of mechanical and component parts. In this successor edition, which has been revised and updated, engineering problems associated with critical spacecraft hardware and the space environment are highlighted by over 500 illustrations including micrographs and fractographs. Space hardware captured

by astronauts and returned to Earth from long durations in space are examined. Information detailed in the Handbook is applicable to general terrestrial applications including consumer electronics as well as high reliability systems associated with aeronautics, medical equipment and ground transportation. This Handbook is also directed to those involved in maximizing the reliability of new materials and processes for space technology and space engineering. It will be invaluable to engineers concerned with the construction of advanced structures or mechanical and electronic sub-systems.

***Updating Estimation of the Social Cost of Carbon Dioxide
Valuing Climate Damages***

New Insulators Devices and Radiation Effects

1995 protocol for equipment leak emission estimates

Materials and Processes

This SpringerBrief discusses the determination and classification of the ambient temperature corrosion and stress corrosion properties of aerospace structural alloys, with emphasis on (1) aluminium alloys, modern (3rd generation) aluminium-lithium alloys, stainless steels and titanium alloys and (2) some of the issues involved. Standard /reference data on environmental properties, including corrosion and

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stress corrosion, are mandatory for the qualification and certification of materials for aerospace vehicles, and also for the design of actual structures and components. Recommendations for further testing and evaluation are given at appropriate points in the text. The book concludes with a summary of the main topics.

We live on a dynamic Earth shaped by both natural processes and the impacts of humans on their environment. It is in our collective interest to observe and understand our planet, and to predict future behavior to the extent possible, in order to effectively manage resources, successfully respond to threats from natural and human-induced environmental change, and capitalize on the opportunities "social, economic, security, and more" that such knowledge can bring. By continuously monitoring and exploring Earth, developing a deep understanding of its evolving behavior, and characterizing the processes that shape and reshape the environment in which we live, we not only advance knowledge and basic discovery about our planet, but we further develop the foundation upon which benefits to society are built. Thriving on Our Changing Planet presents prioritized science, applications, and observations, along with related strategic and programmatic guidance, to support the U.S. civil space Earth observation program over the coming decade.

Scientific and Technical Aerospace Reports Materials and Processes for

Spacecraft and High Reliability Applications Springer

A Decadal Strategy for Earth Observation from Space

Contamination Control Handbook

Microwave Journal

Selected Contributions

Government Reports Announcements & Index

Physics Briefs

Climate and other environmental changes are drawing unprecedented concern and attention from national governments, international organizations and local communities. Global warming has left noticeable impacts on the environment and the ecosystems it supports (including humans), and has important implications for sustainable economic and social development in the future. Satellite observations of climate and environmental change have become an increasingly important tool in recent years in helping to shape the response of international communities to this critical global challenge. The book presents the latest advances in satellite-based remote sensing of the Earth's environment - ranging from applications in climate and atmospheric science to hydrology, oceanography, hydrology, geomorphology, ecology and fire studies. Introductory chapters also cover key technical aspects such as instrumentation, calibration, data analysis, and GIS tools for decision-making.

This textbook covers the fundamentals of fouling and scaling in reverse osmosis systems. It includes theory and practice of pre-treatment, fouling and scaling in reverse osmosis

applied for drinking and industrial water production. The impact of the water source – seawater, river water, brackish groundwater and (treated domestic) waste water – will be discussed in depth. The book presents the knowledge and experience gained at IHE Delft over the last 25 years during the implementation of the master programme in Water Supply Engineering and during the implementation of state-of-the-art research in understanding and solving operational problems in full scale desalination plants. It presents the expert knowledge of IHE Delft in the areas of pre-treatment for reverse osmosis systems, assessment of water quality with respect to fouling potential, development of methods for quality assessment, modified fouling index ultrafiltration at constant flux, transparent exopolymer particles, antiscalant dose optimization, biological growth potential), algal blooms, scaling control. The book will be used in the annual master programme at IHE Delft and it will be of interest for students, academics, engineers and managers in drinking water facilities all over the world.

This comprehensive manual of water supply practices explains the design, selection, specification, installation, transportation, and pressure testing of concrete pressure pipes in potable water service.

Operating an Outpost in the New Frontier

NASA SP.

Physikalische Berichte

Fish Passage Through Culverts

Assessment & Pre-treatment of Fouling and Scaling

Small Satellites for Earth Observation

The success of fish migration through culverts is dependent on the swimming ability of the fish and the hydraulic conditions of the culvert. Properly designed and constructed culverts can minimize the impact on fish passage. Because culverts are typically more economical than bridges, it is appropriate to evaluate when to use culverts and to predict the effects of such culvert installations. During the consideration of alternatives for structures for fish passage, culverts should not be automatically eliminated. This publication has tried to examine the aspects of culvert design and operation relative to the existing information that has been published in previous studies. Ideally, a culvert installation should not change the conditions that existed prior to that installation. This means that the cross-sectional area should not be restricted by the culvert, the slope should not change, and the roughness coefficients should remain the same. Any change in these conditions will result in a velocity change which could alter the sediment transportation capacity of the stream. A truly

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successful culvert design would include matching the velocities of the fish's swimming zone in the culvert to the swimming capacity of the design fish. Unfortunately, not enough research has been completed to make this an acceptable criterion of culvert design. This approach is preferred because it is easier to reduce the velocities in the swimming zone by increasing the boundary roughness than it is to reduce the mean velocity of the entire culvert. This publication contains some relatively simple guidelines which can reduce the installation problems of culverts in streams containing migrating fish when combined with the expertise of an experience fish biologist, engineer, and hydrologist.

This book covers the numerous, paradigm changing scientific discoveries in exoplanets and other areas of astrophysics made possible by the NASA Kepler and K2 Missions. It is suitable for the interested layperson, pupils of science and space missions, and advanced science students and researchers.

Fully updated edition of the comprehensive, single-source reference on satellite technology and its applications Covering both the technology and its applications, Satellite Technology

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is a concise reference on satellites for commercial, scientific and military purposes. The book explains satellite technology fully, beginning by offering an introduction to the fundamentals, before covering orbits and trajectories, launch and in-orbit operations, hardware, communication techniques, multiple access techniques, and link design fundamentals. This new edition also includes comprehensive chapters on Satellite Networks and Satellite Technology – Emerging Trends. Providing a complete survey of applications, from remote sensing and military uses, to navigational and scientific applications, the authors also present an inclusive compendium on satellites and satellite launch vehicles. Filled with diagrams and illustrations, this book serves as an ideal introduction for those new to the topic, as well as a reference point for professionals. Fully updated edition of the comprehensive, single-source reference on satellite technology and its applications - remote sensing, weather, navigation, scientific, and military - including new chapters on Satellite Networks and Satellite Technology – Emerging Trends Covers the full range of satellite applications in remote sensing, meteorology, the

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military, navigation and science, and communications, including satellite-to-under sea communication, satellite cell-phones, and global Xpress system of INMARSAT The cross-disciplinary coverage makes the book an essential reference book for professionals, R&D scientists and students at post graduate level Companion website provides a complete compendium on satellites and satellite launch vehicles An ideal introduction for Professionals and R&D scientists in the field. Engineering Students. Cross disciplinary information for engineers and technical managers.

The NASA Kepler Mission

Recent Advances in Quantitative Remote Sensing

Principles and Applications

Acronyms Abbreviations & Terms - A Capability Assurance Job Aid

Energy Research Abstracts

Nfpa 58 Liquefied Petroleum Gas Code

Tropical forests are an undervalued asset in meeting the greatest global challenges of our time—averting climate change and promoting development. Despite their importance, tropical forests and their ecosystems are being destroyed at a high and even increasing rate in most

forest-rich countries. The good news is that the science, economics, and politics are aligned to support a major international effort over the next five years to reverse tropical deforestation. Why Forests? Why Now? synthesizes the latest evidence on the importance of tropical forests in a way that is accessible to anyone interested in climate change and development and to readers already familiar with the problem of deforestation. It makes the case to decisionmakers in rich countries that rewarding developing countries for protecting their forests is urgent, affordable, and achievable.

The social cost of carbon (SC-CO₂) is an economic metric intended to provide a comprehensive estimate of the net damages - that is, the monetized value of the net impacts, both negative and positive - from the global climate change that results from a small (1-metric ton) increase in carbon-dioxide (CO₂) emissions. Under Executive Orders regarding regulatory impact analysis and as required by a court ruling, the U.S. government has since 2008 used estimates of the SC-CO₂ in federal rulemakings to value the costs and benefits associated with changes in CO₂ emissions. In 2010, the Interagency Working Group on the Social Cost of Greenhouse Gases (IWG) developed a methodology for estimating the

SC-CO2 across a range of assumptions about future socioeconomic and physical earth systems. Valuing Climate Changes examines potential approaches, along with their relative merits and challenges, for a comprehensive update to the current methodology. This publication also recommends near- and longer-term research priorities to ensure that the SC- CO2 estimates reflect the best available science.

Descriptions are presented of orbital debris source, distribution, size, lifetime, and mitigation measures.

Why Forests? Why Now?

Concrete Pressure Pipe, 3rd Ed.

for Spacecraft and High Reliability Applications

Corrosion and Stress Corrosion Testing of Aerospace Vehicle Structural Alloys

Jane's Space Directory

The Science, Economics, and Politics of Tropical Forests and Climate Change

The FAAT List is not designed to be an authoritative source, merely a handy reference.

Inclusion recognizes terminology existence, not legitimacy. Entries known to be obsolete are included because they may still appear in extant publications and correspondence.

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The 6th IAA Symposium on Small Satellites for Earth Observation, initiated by the International Academy of Astronautics (IAA), was again hosted by DLR, the German Aerospace Center. The participation of scientists, engineers, and managers from 24 countries reflected the high interest in the use of small satellites for dedicated missions applied to Earth observation. The contributions showed that dedicated Earth observation missions cover a wide range of very different tasks.

This volume is a complete review and reference work for scientists, engineers, and students concerned with coral reefs in the Red Sea. It provides an up-to-date review on the geology, ecology, and physiology of coral reef ecosystems in the Red Sea, including data from most recent molecular studies. The Red Sea harbours a set of unique ecological characteristics, such as high temperature, high alkalinity, and high salinity, in a quasi-isolated environment. This makes it a perfect laboratory to study and understand adaptation in regard to the impact of climate change on marine ecosystems. This book can be used as a general reference, guide, or textbook.

Fifth recent advances in quantitative remote sensing

Satellite Technology

May 5-7, 1986, Westin Hotel, Seattle, Washington

Scientific and Technical Aerospace Reports

Index Medicus

Effects on Spacecraft

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In this book, we explore an eclectic mix of articles that highlight some new potential applications of SiC and different ways to achieve specific properties. Some articles describe well-established processing methods, while others highlight phase equilibria or machining methods. A resurgence of interest in the structural arena is evident, while new ways to utilize the interesting electromagnetic properties of SiC continue to increase.

Looks at the operations of the International Space Station from the perspective of the Houston flight control team, under the leadership of NASA's flight directors, who authored the book. The book provides insight into the vast amount of time and energy that these teams devote to the development, planning and integration of a mission before it is executed. The passion and attention to detail of the flight control team members, who are always ready to step up when things do not go well, is a hallmark of NASA human spaceflight operations. With tremendous support from the ISS program office and engineering community, the flight control team has made the International Space Station and the programs before it a success.

The Fifth International Symposium on Recent Advances in Quantitative Remote Sensing was held in Torrent, Spain from 18 to 22 September 2018. It was sponsored and organized by the Global Change Unit (GCU) from the Image Processing Laboratory (IPL), University of Valencia (UVEG), Spain. This Symposium addressed the scientific advances in quantitative remote sensing in connection with real applications. Its main goal was to assess the state of the art of both theory and applications in the analysis of remote sensing data, as well as to provide a forum for researcher in this subject area to exchange views and report their latest results. In this book 89 of the 262 contributions presented in both plenary and poster sessions are arranged according to the scientific topics selected. The papers are ranked in the same order as the final programme.

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Satellite-based Applications on Climate Change

Thriving on Our Changing Planet

Extreme Environment Electronics

Properties and Applications of Silicon Carbide

M9

Coral Reefs of the Red Sea

A selection of annotated references to unclassified reports and journal articles that were introduced into the NASA scientific and technical information system and announced in Scientific and technical aerospace reports (STAR) and International aerospace abstracts (IAA). Unfriendly to conventional electronic devices, circuits, and systems, extreme environments represent a serious challenge to designers and mission architects. The first truly comprehensive guide to this specialized field, Extreme Environment Electronics explains the essential aspects of designing and using devices, circuits, and electronic systems intended to operate in extreme environments, including across wide temperature ranges and in radiation-intensive scenarios such as space. The Definitive Guide to Extreme Environment Electronics Featuring contributions by some of the world's foremost experts in extreme environment electronics, the book provides in-depth information on a wide array of topics. It begins by describing the extreme conditions and then delves into a description of suitable semiconductor technologies and the modeling of devices within those technologies. It also discusses reliability issues and failure mechanisms that readers need to be aware of, as well as best practices for the design of these electronics. Continuing beyond just the "paper design" of building blocks, the book rounds out coverage of the design realization process with verification techniques and

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chapters on electronic packaging for extreme environments. The final set of chapters describes actual chip-level designs for applications in energy and space exploration. Requiring only a basic background in electronics, the book combines theoretical and practical aspects in each self-contained chapter. Appendices supply additional background material. With its broad coverage and depth, and the expertise of the contributing authors, this is an invaluable reference for engineers, scientists, and technical managers, as well as researchers and graduate students. A hands-on resource, it explores what is required to successfully operate electronics in the most demanding conditions.

Corrosion Abstracts

Arson Prevention and Control

International Aerospace Abstracts

Meteoroids and Orbital Debris

Seawater Reverse Osmosis Desalination

U.S. WOCE Implementation Report