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YI4IAC - BALLARD SOSA

Long before Galileo published his discoveries about Jupiter, lunar craters, and the Milky Way in the Starry Messenger in 1610, people were fascinated with the planets and stars around them. That interest continues today, and scientists are making new discoveries at an astounding rate. Ancient lake beds on Mars, robotic spacecraft missions, and new definitions of planets now dominate the news. How can you take it all in? Start with the new Encyclopedia of the Solar System, Second Edition. This self-contained reference follows the trail blazed by the bestselling first edition. It provides a framework for understanding the origin and evolution of the solar system, historical discoveries, and details about planetary bodies and how they interact—and has jumped light years ahead in terms of new information and visual impact. Offering more than 50% new material, the Encyclopedia includes the latest explorations and observations, hundreds of new color digital images and illustrations, and more than 1,000 pages. It stands alone as the definitive work in this field, and will serve as a modern messenger of scientific discovery and provide a look into the future of our solar system. · Forty-seven chapters from 75+ eminent authors review fundamental topics as well as new models, theories, and discussions · Each entry is detailed and scientifically rigorous, yet accessible to undergraduate students and amateur astronomers · More than 700 full-color digital images and diagrams from current space missions and observatories amplify the chapters · Thematic chapters provide up-to-date coverage, including a discussion on the new International Astronomical Union (IAU) vote on the definition of a planet · Information is easily accessible with numerous cross-references and a full glossary and index

Students will discover amazing facts about Mars in this completely revised and updated resource exploring our solar system.They will find out the answers to questions like:How big is Mars and what is it made from?How far is Mars from the sun?How many earth days does it take for Mars to orbit the sun?What are day and night like on Mars?What future missions are planned to explore this planet?It is part of a series making astronomy accessible to students. It contains up-to-date scientific

Although most people have some knowledge of the essential structure of the Solar System, few are familiar with the large and varied array of objects that travel with and between the planets in their journeys around the Sun. Imaging techniques from Earth continue to improve, while missions such as Voyager, Galileo and the Hubble Space Telescope have yielded many excellent images. Most significantly of all, several missions in recent years have shown a huge diversity of objects in close-up for the first time. The book will take advantage of the rich pool of images that is available, to tell a story of the Solar System that has not been told before. Smaller Bodies will be a collection of approximately 72 stunning images, all from the public domain but not hitherto gathered into a coherent collection, with supporting text and graphics. Each main image will be accompanied by a graphic showing the location in the Solar System of the featured object. All of these graphics will be based in a simple template providing a simple representation of the Solar System. Text will not be extensive, allowing page design to have a high priority, and will be of three kinds. 'Main text' (approximately 200 words) will provide stimulating introduction and some key ideas. Text headed 'The object(s)' (25-75 words) will provide a brief description of featured objects. Text headed 'The image' (25-75 words) will provide information on the source of the image and some brief technical information where required (such as in describing use of false color). The book is intended for anybody who lives in solar orbit and takes a general interest in the solar neighborhood.

What happens with something becomes someone? In the aftermath of an asteroid impact, Earth's power grid is damaged nearly beyond recovery. The survival of our world may well depend on energy sources collected from an abandoned undersea settlement beneath the icy surface of Enceladus. Earth-raised Colonel Carter Rhodes, in charge of Earth's recovery efforts, calls upon Gwen Baré, a Venusian engineer, to regain control of the deserted moon outpost and collect fuel for Earth's collapsing power grids. However, what Gwen discovers churning in Enceladus's subsurface waters brings her and Colonel Rhodes' straightforward plans to a crashing halt. Soon, Gwen finds herself in the middle of an interplanetary standoff. Win, and give the last humans on Earth a chance to survive. Lose, and risk the permanent dismantling of human society across the Solar System. Forced to take sides in this war for power, resources, and species survival, Gwen must make choices that not only affect her own life, but also force her to question what "life" itself might really mean. Will the promise of Enceladus energy be enough to salvage what is left of Earth's society? Are these humans worthy of salvation?.

By the Numbers infographic readers, accessible nonfiction packed with full-color cut--paper illustrations from Caldecott honor-winning Steve Jenkins. Solar Systems focuses on ever-astonishing outer space. Through infographics and illustrations readers will learn about the unfathomably huge and fascinating topic of solar systems. Explore the galaxy that surrounds our planet through astounding numbers, facts, and figures. With Steve Jenkins's signature art style, his By the Numbers reader series explores the most fascinating fields of nature and natural science. These readers are fact-packed and run the gamut from dinosaurs to dwarf planets, detailing the astonishing phenomena that make our universe such an incredible place to live and learn. Each title uses engaging graphics and visual literacy to convey scientific facts and concepts, making them accessible for all kinds of new readers.

A tour of the ice dwarfs from Pluto and beyond. Learn how amazing space really is.

Explores the contrasts and similarities be-

tween Earth and its planetary neighbors, tracing the history of the solar system and the natural forces and processes that have shaped nearby planets and moons.

“A thrilling ride in the new era of well-written space adventure”(The Denver Post) from the author of the Revelation Space series. 2057. Bella Lind and the crew of her nuclear-powered ship, the Rockhopper, push ice. They mine comets. But when Janus, one of Saturn’s ice moons, inexplicably leaves its natural orbit and heads out of the solar system at high speed, Bella is ordered to shadow it for the few vital days before it falls forever out of reach. In accepting this mission she sets her ship and her crew on a collision course with destiny—for Janus has many surprises in store, and not all of them are welcome...

Richly illustrated with full-color images, this book is a comprehensive, up-to-date description of the planets, their moons, and recent exoplanet discoveries. This second edition of a now classic reference is brought up to date with fascinating new discoveries from 12 recent Solar System missions. Examples include water on the Moon, volcanism on Mercury's previously unseen half, vast buried glaciers on Mars, geysers on Saturn's moon Enceladus, lakes of hydrocarbons on Titan, encounter with asteroid Itokawa, and sample return from comet Wild 2. The book is further enhanced by hundreds of striking new images of the planets and moons. Written at an introductory level appropriate for undergraduate and high-school students, it provides fresh insights that appeal to anyone with an interest in planetary science. A website hosted by the author contains all the images in the book with an overview of their importance. A link to this can be found at www.cambridge.org/solarsystem.

As NASA celebrates fifty years, this reader-friendly book with 160 full-color illustrations explores the new technologies and discoveries that are showing us an ever more detailed vision of the solar system, in a resource that also includes diagrams, maps, essays, sidebars, and fact boxes.

Discusses the interplanetary explorations of the last quarter century, revealing the new discoveries and findings due to the technological advancements which have enabled man to visit all the planets except Pluto

The IceCube Observatory has been called the “weirdest” of the seven wonders of modern astronomy by Scientific American. In The Telescope in the Ice, Mark Bowen tells the amazing story of the people who built the instrument and the science involved. Located near the U. S. Amundsen-Scott Research Station at the geographic South Pole, IceCube is unlike most telescopes in that it is not designed to detect light. It employs a cubic kilometer of diamond-clear ice, more than a mile beneath the surface, to detect an elementary particle known as the neutrino. In 2010, it detected the first extraterrestrial high-energy neutrinos and thus gave birth to a new field of astronomy. IceCube is also the largest particle physics detector ever built. Its scientific goals span not only astrophysics and cosmology but also pure particle physics. And since the neutrino is one of the strangest and least understood of the known elementary particles, this is fertile ground. Neutrino physics is perhaps the most active field in particle physics today, and IceCube is at the forefront. The Telescope in the Ice is, ultimately, a book about people and the thrill of the chase: the struggle to understand the neutrino and the pioneers and inventors of neutrino astronomy. It is a success story.

The Our Solar System series takes readers on an exciting journey through space to discover the unique characteristics of each planet. This compelling series explores each planets orbit, life forms, name origin, and physical features, along with a map showing its location in space, a timeline of observation, and comparisons to Earth and the other planets. From rocky planets to dwarf planets and ice giants to gas giants, each book in the series is filled with exciting facts that are sure to keep readers turning the pages. Our Solar System is a series of AV2 media enhanced books. A unique book code printed on page 2 unlocks multimedia content. These books come alive with video, audio, weblinks, slide shows, activities, hands-on experiments, and much more.

Ever since the serendipitous discovery of planet Uranus in 1871, astronomers have been hunting for new worlds in the outer regions of our solar system. This exciting and ongoing quest culminated recently in the discovery of hundreds of ice dwarfs in the Kuiper belt, robbed Pluto from its ‘planet’ status, and led to a better understanding of the origin of the solar system. This timely book reads like a scientific ‘who done it’, going from the heights of discovery to the depths of disappointment in the hunt for ‘Planet X’. Based on many personal interviews with astronomers, the well--known science writer Govert Schilling introduces the heroes in the race to be the first in finding another world, bigger than Pluto.

In response to the new information gained about the Solar System from recent space probes and space telescopes, the experienced science author Dr. John Wilkinson presents the state-of-the art knowledge on the Sun, solar system planets and small solar system objects like comets and asteroids. He also describes space missions like the New Horizon’s space probe that provided never seen before pictures of the Pluto system; the Dawn space probe, having just visited the asteroid Vesta, and the dwarf planet Ceres; and the Rosetta probe inorbit around comet 67P/Churyumov–Gerasimenko that has sent extraordinary and most exciting pictures. Those and a number of other probes are also changing our understanding of the solar system and providing a wealth of new up close photos. This book will cover all these missions and discuss observed surface features of planets and moons like their compositions, geisers, aurorae, lightning phenomena etc.Presenting the fascinating aspects of solar system astronomy this book is a complete guide to the Solar System for amateur astronomers, students, science educators and interested members of the public.

Publisher Description

Thanks to NASA's Dawn mission, the last half-decade has witnessed a significant advance in our understanding of Ceres. The largest object between the orbits of Mars and Jupiter, Ceres is the most water-rich body in the inner solar system after Earth which shows evidence of brine-driven activity in its recent history, and even possibly at the present. The potential existence of a subsurface ocean or regional seas in Ceres and its salt- and organic-rich composition underscore its astro-biological significance. After signaling the discovery of the asteroid belt more than two centuries ago, Ceres once again reveals new insights for us to understand the formation, evolution, and habitability of this large icy body in our solar system.This book reviews the current state of knowledge about Ceres after the extensive scientific exploration by the Dawn mission. Starting from the introduction of the discovery of Ceres and what we know about this enigmatic world before Dawn's arrival, each chapter focuses on one aspect of Ceres, including its surface composition, its geology, the role of water ice in shaping Ceres's surface, its interior structure, and expressions of cryovolcanic or brine activity at the surface. Following this framework, the book addresses the astro-biological significance of Ceres. The last chapter summarizes the new questions opened by the Dawn mission and the next step to exploring the dwarf planet closest to Earth.

Combining the latest astronomical results with a historical perspective, Solar System: Between Fire and Ice takes you on a fabulous tour of our intriguing Solar Sys-

tem. Not content with a conventional discourse restricted to the major and minor bodies, astronomers Hockey, Bartlett, and Boice venture beyond the limits of our system to look at exoplanets and to consider future trends in space exploration and tourism. They discuss not only what scientists know about planets, asteroids, and comets but how the discoveries were made. With extensive teaching experience, their accessible prose clearly explains essential physical concepts. Lavishly illustrated as well as carefully researched, Solar System: Between Fire and Ice delights the eyes as well as feeding the mind. Detailed appendices provide additional technical data and resources for your own on-line voyage of discovery. Whether you are an educated layperson, student, teacher, amateur astronomer, or merely curious, you will come away having learned the most up-to-date knowledge and enjoyed the process. The authors bring a unique perspective to this subject, combining their years of experience in research, teaching, and history of planetary science. Prof. Thomas Hockey is a professor of astronomy, specializing in planetary science and the history of science. Dr. Jennifer Bartlett is an astronomer with a forte in dynamical motions of asteroids with liberal arts teaching experience. Dr. Daniel Boice is an active research astronomer in planetary science, especially comets, with considerable teaching experience. "In the 1980s and 90s the Viking and Voyager missions provided droves of exciting information, generating a new level of public interest. Textbooks were rewritten and scientists worked to understand the data during mission poor period that followed. In recent times, however, we have entered a new era. There has been a multinational effort to expand our knowledge of the Solar System. Data from these missions has been freely shared and has again raised the level of public interest. Within this era of renewed interest, it is appropriate, as is done in this book, to provide the public with an effort to present an integrated view of our Solar System and questions that the discovery of extrasolar planets have raised with regard to the Solar System as a whole." Professor Reta Beebe, recipient of NASA’s Exceptional Public Service Medal "I understand this book to be aimed at a general audience, but I can also see its use as a text in astronomy classes, especially in a community school or situations where students typically resist reading the textbook. The writing is light and entertaining, and will engage students, yet it thoroughly covers all the basic concepts of a typical Astro 101 class." - Dr. Katy Garmany, winner of the American Astronomical Society’s Annie J. Cannon Award.

Recounts the earliest search for Pluto, its discovery in 1930, and what has been learned about it since then through space missions and the Hubble Space Telescope

'A promising debut.' New Scientist Icy, rocky, sometimes dusty, always mysterious – comets and asteroids are among the Solar System's very oldest inhabitants, formed within a swirling cloud of gas and dust in the area of space that eventually hosted the Sun and its planets. Locked within each of these extra-terrestrial objects is the 4.6-billion-year wisdom of Solar System events, and by studying them at close quarters using spacecraft we can coerce them into revealing their closely--guarded secrets. This offers us the chance to answer some fundamental questions about our planet and its inhabitants. Exploring comets and asteroids also allows us to shape the story of Earth's future, enabling us to protect our precious planet from the threat of a catastrophic impact from space, and maybe to even recover valuable raw materials from them. This cosmic bounty could be as useful in space as it is on Earth, providing the necessary fuel and supplies for humans as they voyage into deep space to explore more distant locations within the Solar System. Catching Stardust tells the story of these enigmatic celestial objects, revealing how scientists are using them to help understand a crucial time in our history – the birth of the Solar System, and everything contained within it.

Takes the reader on a journey through the solar system, describing comets, asteroids, and the planets, including their average temperature, length of day, distance from the sun, and other facts.

Inside the epic quest to find life on the water-rich moons at the outer reaches of the solar system Where is the best place to find life beyond Earth? We often look to Mars as the most promising site in our solar system, but recent scientific missions have revealed that some of the most habitable real estate may actually lie farther away. Beneath the frozen crusts of several of the small, ice-covered moons of Jupiter and Saturn lurk vast oceans that may have existed for as long as Earth, and together may contain more than fifty times its total volume of liquid water. Could there be organisms living in their depths? Alien Oceans reveals the science behind the thrilling quest to find out. Kevin Peter Hand is one of today's leading NASA scientists, and his pioneering research has taken him on expeditions around the world. In this captivating account of scientific discovery, he brings together insights from planetary science, biology, and the adventures of scientists like himself to explain how we know that oceans exist within moons of the outer solar system, like Europa, Titan, and Enceladus. He shows how the exploration of Earth's oceans is informing our understanding of the potential habitability of these icy moons, and draws lessons from what we have learned about the origins of life on our own planet to consider how life could arise on these distant worlds. Alien Oceans describes what lies ahead in our search for life in our solar system and beyond, setting the stage for the transformative discoveries that may await us.

Profiles each of the planets in Earth's solar system, including Pluto, Ceres, Eris, Haumea, MakeMake, the sun, the Oort cloud, comets, and more.

Join award-winning science writer Seymour Simon in this completely updated edition of Our Solar System, as he takes young readers on a fascinating tour through space! With beautiful full-color photographs and spacecraft images, including many taken by the Mars rovers and Hubble Space Telescope, this nonfiction picture book teaches young readers all about the solar system, including the sun, the eight planets, and their moons. Covering all the latest discoveries in space, young astronomers will be over the moon about the fun facts, fascinating science, and incredible photographs. A must-have for every child interested in outer space! This book includes an author's note, a glossary, an index, and further reading suggestions. An excellent choice for classrooms and homeschooling, Our Solar System supports the Common Core State Standards. Check out these other Seymour Simon books about the universe and space: Comets, Meteors, and Asteroids Destination: Jupiter Destination: Mars Destination: Space Exoplanets Galaxies Stars The Sun The Universe

An introduction to planets that are actually smaller than planets and found throughout the solar system.

Explores the new technologies and discoveries that are showing us an ever more detailed vision of the solar system, in a resource that also includes diagrams, maps, essays, sidebars, and fact boxes.

Although there is a chance that certain planets may be habitable for life, the moons of planets might have even more to offer. The icy moons of Jupiter, Saturn, Uranus and Neptune have taught us important lessons about new volcanic forms—cryovolcanism—and the bizarre landscapes sculpted by those erupting geysers. Glaciers, ice mountains, and vast canyons

mold the faces of these worlds of ice and thunder. Yet, many ice moons and dwarf planets, including Ceres and Pluto, are in fact sea worlds, hiding deep oceans beneath their ice crusts. This book explores the frozen worlds beyond Mars, delving into the interior forces of migrating ice diapirs, seafloor volcanism and tidal friction, which help form the landscapes found above and biologically friendly environs buried below. It covers the latest research in the field and includes interviews with today’s foremost authorities, including astrobiologists Chris McKay (NASA Ames), Ralph Lorenz (Johns Hopkins Applied Physics Laboratory) and Karl Mitchell (Jet Propulsion Laboratory). Original art by the author enhances the concepts explored in the text, recreating some of the most remarkable landscapes on icy planets and moons.

Sirolic World of Ice Book 1 the Open Road of Adventurers is a fantasy novel about four common people becoming adventurers. Book one takes place on the frozen planet Sirolic in a solar system of five planets called Rudan Solar. The one inhabitable region of the frozen world is a collection of continents in what is called the Ring Ocean completely surrounded by the Ice of the world. the story begins in the southwest region of the Ring Ocean on the continent of Hraefinburg in the small town of Krakenridege where a murder has taken place.

Blast off on an exploration of our solar system--a fun space book for kids 3 to 5 Get even the smallest astronomer excited for the big universe of space, from the bright and burning sun to our own blue Earth to ice-capped Pluto and every planet in between. With this book, kids will explore the entire solar system through incredible photos and fascinating facts on what makes each planet so special--like their size, distance from the sun, what the surface is like, how many moons they have, and more! This planets for kids book includes: Big, beautiful images—Vibrant photos will take kids deep into space and onto each planet—no telescope required. Astronomy for kids—Learn all about the eight planets in our solar system, plus dwarf planets Ceres, Pluto, Eris, Haumea, and Makemake. Fun space facts—Did you know the bubbles in soda are the same gas that's on Venus? Out of this world facts will keep kids glued to the page and excited to explore the sky. Show kids the amazing universe that surrounds them with this fun and engaging astronomy book.

This volume reveals the latest knowledge of the composition and nature of our solar family. Here you'll discover what lies beyond the orbit of Pluto, which solar body is the most volcanically active, and which solar system bodies have atmospheres and may harbour primitive life.

The ultimate insider's account of astronomy's fantastic voyage in search of brave new worlds in faraway galaxies "Highly recommended." -Science and Technology "Full of humor, heartbreak, and a deep understanding of the ardor and luck that compose years of research. . . . The reader becomes not merely a receiver of Boss's vision, but a fellow explorer." -Astronomy "A rewarding account." -Scientific American Are we alone in the universe . . . or are there other planets generating and sustaining life? The question may be as old as civilization, but in the twilight of a century marked by countless frustrated quests to find other solar systems, several teams of pioneering astronomers have at last discovered a rich crop of mammoth, Jupiter--sized gas planets -the first compelling evidence that there may indeed be life in other galaxies. In Looking for Earths, a prominent planetary scientist takes us along on this thrilling hunt for new life, revealing the behind-the-scenes stories of scientific determination, frustration, and triumph. Ushering us to the mountaintop observatories that house the world's most powerful telescopes, and into the tension-filled scientific meetings where new results are announced and old results overturned, Alan Boss brings the process of exploration vividly alive. Experience the roller-coaster ride as intricate observations of minuscule stellar wobbles raise hopes that at last a true planet has been found, only to be almost immediately shattered by more powerful observations. Boss also introduces the principal players whose dreams defied all odds and made the first major discovery possible. Like no other book, Looking for Earths captures the lively tension between theory and observation that defines cutting-edge astronomical discovery, along with the heated battles that will determine the direction of big-ticket American astronomy for years to come. "You will find no better introduction to one of the truly revolutionary developments in modern astronomy."-Natural History

The New Frontiers Program was created by NASA in 2002 at the recommendation of the NRC's decadal survey for solar system research. In order to optimize solar system research, the NRC recommended a series of principal-investigator missions that encourage innovation and accomplish the main scientific objectives presented in the survey. Two of the five recommended missions have been selected and, as was also recommended in the survey, the NRC was asked in 2007 to provide criteria and guiding principles to NASA for determining the list of candidate missions. This book presents a review of eight missions: the three remaining from the original list of five from the survey plus five missions considered by the survey committee but which were not recommended. Included in the review of each mission is a discussion of relevant science and technology developments since the survey and set of recommended science goals.

The exploration of the ninth planet, Pluto, its moon, Charon, and their relationship to the newly discovered Kuiper Belt, is a tale of perseverance, ingenuity and dedication on the part of the planetary scientists who have been lured by the fascination of these far-flung miniature worlds. In Pluto and Charon, Alan Stern and Jacqueline Mitton turn that story into an entertaining adventure, starting with the discovery of Pluto by Clyde Tombaugh in 1930. In a highly accessible narrative, they bring to life the many 'Plutophiles', who with skill and resourcefulness have pieced together over several decades an amazingly detailed picture of the nature of Pluto and Charon. The book also documents vividly the struggle by Plutophiles and the public to persuade NASA to fund a mission to Pluto, the only planet not yet explored from close proximity by a spacecraft. Hopes were alternately raised and dashed before eventual victory. At last, New Horizons (led by author Stern as Principal Investigator) is due to be launched in early 2006 on a 9-year journey to Pluto, Charon and beyond. For this second edition, Stern and Mitton have brought their 1998 book fully up to date, including the latest discoveries about Pluto's ancient relationship with the members of the Kuiper Belt of icy bodies and dwarf planets beyond Neptune. They have also added a completely new chapter on the New Horizons mission.

The volcano – among the most familiar and perhaps the most terrifying of all geological phenomena. However, Earth isn't the only planet to harbour volcanoes. In fact, the Solar System, and probably the entire Universe, is littered with them. Our own Moon, which is now a dormant piece of rock, had lava flowing across its surface billions of years ago, while Mars can be credited with the largest volcano in the Solar System, Olympus Mons, which stands 25km high. While Mars's volcanoes are long dead, volcanic activity continues in almost every other corner of the Solar System, in the most unexpected of locations. We tend to think of Earth volcanoes as erupting hot, molten lava and emitting huge, billowing clouds of incandescent ash. However, it isn't necessarily the same across the rest of the Solar System. For a

start, some volcanoes aren't even particularly hot. Those on Pluto, for example, erupt an icy slush of substances such as water, methane, nitrogen or ammonia, that freeze to form ice mountains as hard as rock. While others, like the volcanoes on one of Jupiter's moons, Io, erupt the hottest lavas in the Solar System onto a surface covered in a frosty coating of sulphur. Whether they are formed of fire or ice, volcanoes are of huge importance for scientists trying to picture the inner workings of a planet or moon. Volcanoes dredge up materials from the otherwise inaccessible depths and helpfully deliver them to the surface. The way in which they erupt, and the products they generate, can even help scientists ponder bigger questions on the possibility of life elsewhere in the Solar System. Fire and Ice is an exploration of the Solar System's volcanoes, from the highest peaks of Mars to the intensely inhospitable surface of Venus and the red-hot summits of Io, to the coldest, seemingly dormant icy carapaces of Enceladus and Europa, an unusual look at how these cosmic features are made, and whether such active planetary systems might host life.

In the last 25 years, planetary science experienced a revolution, as vast oceans of liquid water have been discovered within the heart of the icy moons of our Solar System. These subsurface oceans lie hidden under thick layers of ice. We call them ocean worlds. Some of these icy moons, such as Ganymede, may hold two to three times more liquid water than all the water present on Earth, while others, such as Enceladus and Europa, are thought by astrobiologists to be our best hope of finding extraterrestrial life. In this book, we will explore and compare a variety of Solar System ocean worlds, meeting in the process 22 of the most intriguing objects, from the giant asteroid Ceres to the enigmatic, distant Sedna. In doing so, we will also encounter the multiple spacecraft that brought back most of what we know of these worlds (Pioneers, Voyagers, Cassini-Huygens, etc.), as well as the latest scientific research on this new topic. We will also entertain the possibility of life on each of these ocean worlds by assessing their habitability, as ultimately, these ocean worlds might hold the key to answering the fundamental questions in life: How did life appear? Where do we come from? Is there life out there? With the contributions of leading planetary scientists from NASA, ESA, and other institutions, this book aims to be the go-to reference for anyone wanting to know more about this fascinating topic.

This book serves as a fascinating progress report on the outer solar system, offering a way to better appreciate the newest findings. It unlocks some of the mysteries surrounding Uranus, Neptune, and Pluto — from the drama of their discoveries to the startling results of Voyager 2’s historic 1989 encounter with Neptune.

Probing the New Solar System discusses the latest findings that have contributed to a changed understanding of the solar system - and how the revised definition of a planet in 2006 by the International Astronomical Union affected this understanding. The role of laboratory research and simulations in advancing our understanding of solar system ices (including satellites, KBOs, comets, and giant planets) is becoming increasingly important. Understanding ice surface radiation processing, particle and radiation penetration depths, surface and subsurface chemistry, morphology, phases, density, conductivity, etc., are only a few examples of the inventory of issues that are being addressed by Earth-based laboratory research. As a response to the growing need for cross-disciplinary dialog and communication in the Planetary Ices science community, this book aims to achieve direct dialog and foster focused collaborations among the observational, modeling, and laboratory research communities.

Provides an introduction to the planets of the solar system, including the two new dwarf planets, Ceres and Eris.