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Titolo	The Cassini-Huygens Visit to Saturn : An Historic Mission to the Ringed Planet / / by Michael Meltzer
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Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Part I: Creating a New Expedition to Saturn -- Conceiving and Funding the Mission -- Building an International Partnership and Preventing Mission Cancellation -- Part II: Designing, Fabricating, and Integrating the Cassini-Huygens Space Vessel -- Constructing the Cassini Orbiter -- The Titan Huygens Probe -- Integrating the Cassini Orbiter, Huygens Probe, and Titan/Centaur Launch Vehicle -- Using Plutonium to Run a Spacecraft -- Part III: From Earth to Saturn -- The Interplanetary Journey -- How a Few People Can Make a Big Difference: The Doppler Shift Problem That Nearly Ended the Huygens Mission -- The Huygens Titan Probe Mission -- The Saturn Tour: Decision-Making

Processes, Trajectory Design, and Changes of Management -- Part IV: A Great Natural Laboratory -- The Mother Planet and its Magnetosphere -- The Ring System -- The Icy Moons -- Titan Observations by the Cassini Orbiter -- Conclusions -- Appendix: Breakdown of Mission Costs.

Sommario/riassunto

Cassini-Huygens was the most ambitious and successful space journey ever launched to the outer Solar System. This book examines all aspects of the journey: its conception and planning; the lengthy political processes needed to make it a reality; the engineering and development required to build the spacecraft; its 2.2-billion mile journey from Earth to the Ringed Planet; and the amazing discoveries from the mission. The author traces how the visions of a few brilliant scientists matured, gained popularity, and eventually became a reality. Innovative technical leaps were necessary to assemble such a multifaceted spacecraft and reliably operate it while it orbited a planet so far from our own. The Cassini-Huygens spacecraft design evolved from other deep space efforts, most notably the Galileo mission to Jupiter, enabling the voluminous, paradigm-shifting scientific data collected by the spacecraft. Some of these discoveries are absolute gems. A small satellite that scientists once thought of as a dead piece of rock turned out to contain a warm underground sea that could conceivably harbor life. And we now know that hiding under the mist of Saturn's largest moon, Titan, is a world with lakes, fluvial channels, and dunes hauntingly reminiscent of those on our own planet, except that on Titan, it's not water that fills those lakes but hydrocarbons. These and other breakthroughs illustrate why the Cassini-Huygens mission will be remembered as one of greatest voyages of discovery ever made.
