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Nota di contenuto	Intro -- SPACE SCIENCE RESEARCH DEVELOPMENTS -- SPACE SCIENCE RESEARCH DEVELOPMENTS -- LIBRARY OF CONGRESS CATALOGING-IN-PUBLICATION DATA -- CONTENTS -- PREFACE -- Chapter 1 RESEARCH ON AERODYNAMICS OF LARGE BOLIDES -- ABSTRACT -- INTRODUCTION -- CRUSHING OF METEORIC BODIES -- BOLIDES WITH THE MODERATE VALUES OF MASS LOSS PARAMETER -- ENTRANCE INTO ATMOSPHERE OF THE TUNGUSKA SPACE BODY -- CONCLUSION -- REFERENCES -- Chapter 2 SOLAR DYNAMICS AND SOLAR-TERRESTRIAL INFLUENCES -- ABSTRACT -- INTRODUCTION -- A BRIEF HISTORICAL OVERVIEW -- Sunspots and Solar Rotation -- Sunspot Cycle -- Sunspots and Geomagnetic Storms -- Sunspots and Climate -- SOLAR ACTIVITY AND TEMPERATURE IN THE 11-YEAR SUNSPOT CYCLE -- Historical Compilation -- Data -- Results -- Secular Cycle of North-South Solar Activity Asymmetry -- ATMOSPHERIC CIRCULATION -- Atmospheric Circulation and Earth's Rotation -- SOLAR ROTATION AND EARTH'S ROTATION -- Solar Rotation -- SOLAR WIND AS A MEDIATOR BETWEEN THE SOLAR ROTATION AND THE EARTH'S ROTATION -- Solar Rotation in Positive and Negative Polarity Cycles -- Earth's Rotation in Positive and Negative Polarity Cycles -- Solar Wind in Positive and Negative Polarity Cycles -- SOLAR WIND AND THE SOLAR MAGNETIC FIELD -- Interplanetary Magnetic Field and Solar Photospheric Field -- Solar Photospheric Field and the Earth's Rotation -- Interplanetary Magnetic Field and Solar Equatorial Rotation -- Interplanetary Magnetic

Field and the Latitudinal Gradient of Solar Rotation -- DIFFERENTIAL ROTATION AND GEOMAGNETIC DISTURBANCES -- Geoeffectiveness of Different Solar Drivers -- Solar Differential Rotation and Magnetic Clouds -- Differential Rotation and Helicity -- Reversed (Anti-solar) Differential Rotation -- CONCLUSION -- REFERENCES -- Chapter 3 GEOLOGY OF THE TERRESTRIAL PLANETS WITH IMPLICATIONS TO ASTROBIOLOGY AND MISSION DESIGN. ABSTRACT -- INTRODUCTION -- SPACECRAFT RECONNAISSANCE OF THE TERRESTRIAL PLANETS -- GEOLOGY AND ENVIRONMENTAL CONDITIONS OF THE TERRESTRIAL PLANETS -- Mercury -- Venus -- Earth -- The Moon -- Mars -- ASTROBIOLOGICAL IMPLICATIONS -- Mercury -- Venus -- Earth -- Moon -- Mars -- PROPOSED MISSION DESIGNS AND SCENARIOS -- CONCLUSIONS -- REFERENCES -- Chapter 4 THE ORIGIN OF THE MAGNETIC FIELD OF PULSARS AND THE GRAVITOMAGNETIC THEORY -- ABSTRACT -- INTRODUCTION -- EMISSION MODELS OF PULSARS -- MAGNETIC FIELD DEPENDENCE OF BRAKING INDICES -- MAGNETIC FIELD FROM GRAVITO-ELECTROMAGNETIC ORIGIN -- OBSERVATIONAL DATA -- BRAKING INDICES FOR SOME YOUNG PULSARS -- CONCLUSION -- ACKNOWLEDGMENT -- REFERENCES -- Chapter 5 PALEOSHORELINES AND THE EVOLUTION OF THE LITHOSPHERE OF MARS -- ABSTRACT -- INTRODUCTION -- PALEOSHORELINES -- Elevations Range along Deuteronilus, Arabia, and Meridiani Shorelines -- Water Volumes in the Ancient Oceans -- Re-evaluation of Paleoshorelines -- Elevation Ranges along Paleoshorelines and Vertical Movements of the Lithosphere -- THERMAL ISOSTASY AND THERMAL EVOLUTION OF THE LITHOSPHERE -- Thermal Isostasy -- Temperature Profiles -- Parameter Values -- Deformation of Paleoshorelines -- Ancient Heat Flow Variations -- CONCLUSION -- ACKNOWLEDGMENTS -- REFERENCES -- Chapter 6 DEALING WITH POTENTIALLY HAZARDOUS ASTEROIDS -- ABSTRACT -- INTRODUCTION -- 1. THE END OF ASTEROID DISCOVERY? -- 2: ASTEROID FAMILIES AND COMPLETENESS OF SEARCHES -- 3. HAZARDOUS ASTEROIDS -- 4. CONSEQUENCES OF AN IMPACT OF A CELESTIAL BODY WITH EARTH -- 5. SOURCES OF THE PHAS -- 6. A STRANGE OBJECT: COMET/ASTEROID ELST-PIZARRO. -- 7. RESONANCE OBJECTS (ALINDA ASTEROIDS) -- 8. HUNGARIA- AND PHOCAEA ASTEROIDS -- 9. CONCLUSIONS -- ANNEX 1 -- ANNEX 2 -- Provisional Designations -- REFERENCES. Chapter 7 THERMAL PROPERTIES AND TEMPERATURE VARIATIONS IN MARTIAN SOIL ANALOGUES -- ABSTRACT -- INTRODUCTION -- I. CHARACTERIZATION OF MARTIAN SOILS -- 1. Martian Soil Compositions and Stratifications -- 2. Site 1 Sediments and Lava Flows: Area in the Mouth of Ares Vallis (lat 19.33 N -- Long 33.55 W) -- 3. Site 2 Hesperian Volcanic Plains: Lunae Planum(lat 10-20 N, long 70-60 W), Sinai Planum, Solis Planum, Syrtis Major Planitia and Hesperia Planitia -- II. THERMAL PROPERTIES OF MARTIAN SOIL ANALOGUES -- 1. Theoretical Prediction of Thermal Conductivity and Diffusivity -- 1.1. Two Phase Martian Soil Analogue (Solid and Gas) -- 1.2. Three phase Martian Soil Analogues (Solid, Gas and Ice) -- 2. Martian Analogues -- 3. Numerical Evaluation of Two Phase Martian Soil Analogue -- 4. Numerical Evaluation of Three Phase Partially Frozen Martian Soil Analogue -- III. TEMPERATURE VARIATION IN MARTIAN SOIL ANALOGUES -- 1. Temperature Variation -- 1.1. Martian Soil Analogues, Type A -- 1.1.1. Dry Martian Soil Analogue, Type AD -- 1.1.2. Frozen Martian Soil Analogues, Type AF -- 1.2. Martian Soil Analogue, Type B -- 1.2.1. Dry Martian Soil Analogue, Type BD -- 1.2.2. Frozen Martian Soil Analogue, Type BF -- 2. Relation between Temperature Distribution and Physical Properties -- 3. CONCLUSIONS

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Sommario/riassunto

This book presents current research in the field of space science. Topics discussed include research on the aerodynamics of large bolides; solar dynamics and solar-terrestrial influences; the geology of terrestrial planets; the origin of the magnetic field of pulsars; paleoshorelines and the evolution of the lithosphere of Mars; thermal properties and temperature variations in Martian soil and the origin of the Saturn rings.