Record Nr. UNINA9910583073603321

Autore Cabrol Nathalie A.

Titolo From habitability to life on mars // edited by Nathalie A. Cabrol,

Edmond A. Grin

Pubbl/distr/stampa Amsterdam, Netherlands;; Oxford, England;; Cambridge,

Massachusetts:,: Elsevier,, [2018]

ISBN 0-12-809936-4

Descrizione fisica 1 online resource (392 pages)

Disciplina 523.43

Soggetti Life on other planets

> Habitable planets Mars (Planet)

Lingua di pubblicazione Inglese

Formato Materiale a stampa

Livello bibliografico Monografia

Nota di bibliografia Includes bibliographical references and index.

Nota di contenuto Habitability as a tool in astrobiological exploration -- An origin of life

on Mars? -- Remote detection of phyllosilicates on Mars and implications for climate and habitability -- Martian habitability as inferred from landed mission observations -- Archean lakes as analogues for habitable Martian paleoenvironments -- Evolution of altiplanic lakes at the Pleistocene/Holocene transition: a window into early Mars declining habitability, changing habitats, and biosignatures -- Siliceous hot spring deposits: why they remain key astrobiological targets -- Habitability and biomarker preservation in the Martian nearsurface radiation environment -- UV and life adaptation potential on early Mars: lessons from extreme terrestrial analogs -- Are recurring slope lineae habitable? -- The NASA Mars 2020 Rover Mission and the search for extraterrestrial life -- Searching for traces of life with the ExoMars Rover -- Concluding remarks: bridging strategic knowledge gaps in the search for biosignatures on Mars - a blueprint.

Sommario/riassunto From Habitability to Life on Mars explores the current state of

> knowledge and questions on the past habitability of Mars and the role that rapid environmental changes may have played in the ability of prebiotic chemistry to transition to life. It investigates the role that such changes may have played in the preservation of biosignatures in the geological record and what this means for exploration strategies.

Throughout the book, the authors show how the investigation of terrestrial analogs to early Martian habitats under various climates and environmental extremes provide critical clues to understand where, what and how to search for biosignatures on Mars. The authors present an introduction to the newest developments and state-of-the-art remote and in situ detection strategies and technologies that are being currently developed to support the upcoming ExoMars and Mars 2020 missions. They show how the current orbital and ground exploration is guiding the selection for future landing sites. Finally, the book concludes by discussing the critical question of the implications and ethics of finding life on Mars.--