Record Nr. UNINA9910131630403321 The early earth: accretion and differentiation / / James Badro, Michael **Titolo** Walter, editors Pubbl/distr/stampa Washington, District of Columbia;; Hoboken, New Jersey:,: American Geophysical Union: .: Wiley, . 2015 ©2015 **ISBN** 1-118-86036-5 1-118-86035-7 1-118-86019-5 Descrizione fisica 1 online resource (196 p.) Collana Geophysical Monograph; ; 212 Disciplina 551.11 Soggetti Earth (Planet) Internal structure Earth (Planet) Geology Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia "This Work is a co-publication between the American Geophysical Note generali Union and John Wiley and Sons, Inc"--Cover. Nota di bibliografia Includes bibliographical references and index. Nota di contenuto Title Page; Copyright Page; Contents; Contributors; Preface; Acknowledgments; Chapter 1 Timing of Nebula Processes That Shaped the Precursors of the Terrestrial Planets; 1.1. Introduction; 1.2. Young Stellar Objects and Their Disks: Analogs of the Early Solar System: 1.2.1. From the Interstellar Medium to a Protostellar Core; 1.2.2. From a Protostar to a Pre-main Sequence Star; 1.2.3. Duration of Protostellar and Pre-main Sequence Stages; 1.3. The Samples of the Solar Protoplanetary Disk; 1.3.1. Chondrites and Their Putative Parent Bodies 1.3.2. The Major High-Temperature Components of Chondrites 1.4. Chronology of the First Few Million Years: The Period of the Disk; 1.4.1. Short-Lived Radionuclides Present in the Accretion Disk; 1.4.2. The Dual Origin of SLRs: Presolar Stellar Sources and Solar System Irradiation: 1.4.3. Timing of Irradiation Processes in the Early Solar System; 1.4.4. A Chronology for the Formation of the First Solar System Minerals and Rocks Based on 26Al; Acknowledgments; References; Chapter 2 The Earth's Building Blocks; 2.1. Introduction; 2.2.

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Sommario/riassunto

The Early Earth: Accretion and Differentiation provides a multidisciplinary overview of the state of the art in understanding the formation and primordial evolution of the Earth. The fundamental structure of the Earth as we know it today was inherited from the initial conditions 4.56 billion years ago as a consequence of planetesimal accretion, large impacts among planetary objects, and planetary-scale differentiation. The evolution of the Earth from a molten ball of metal and magma to the tectonically active, dynamic, habitable planet that we know today is unique among the terrestrial plane