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Soggetti	Environmental sciences - Mathematics Earth sciences Climatology Mathematical physics Mathematical Applications in Environmental Science Earth Sciences Climate Sciences Mathematical Methods in Physics
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Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references at the end of each chapters.
Nota di contenuto	1 Christiane Rousseau: "Mathematics of Planet Earth" -- 2 Laure Saint-Raymond: "The role of boundary layers in the large-scale ocean circulation" -- 3 Paolo Dai Pra: "Noise-induced periodicity: some stochastic models for complex biological systems" -- 4 Andrea Tosin: "Kinetic equations and stochastic game theory for social systems" -- 5 Luigi Preziosi: "Using mathematical modelling as a virtual microscope to support biomedical research" -- 6 Adriano Barra: "Ferromagnetic models for cooperative behavior: Revisiting Universality in complex phenomena" -- 7 Ettore Perozzi: "The Near Earth Asteroid Hazard and Mitigation" -- 8 Mirko Degli Esposti: "Mathematical models of textual data: a short review" -- 9 Anne Lemaitre: "Space debris long term dynamics" -- 10 Maria Letizia Bertotti: "Mathematical models for socio-economic problems" -- 11 Antonello Provenzale: "Climate as a complex dynamical system" -- 12 Giovanni Federico Gronchi: "Periodic orbits of

the N -body problem with the symmetry of Platonic polyhedra” -- 13
Laura Sacerdote: “Superprocesses as models for information
dissemination in the Future Internet” -- Appendix: Pictures INdAM
Workshop.

Sommario/riassunto

In 2013 several scientific activities have been devoted to mathematical researches for the study of planet Earth. The current volume presents a selection of the highly topical issues presented at the workshop “Mathematical Models and Methods for Planet Earth”, held in Roma (Italy), in May 2013. The fields of interest span from impacts of dangerous asteroids to the safeguard from space debris, from climatic changes to monitoring geological events, from the study of tumor growth to sociological problems. In all these fields the mathematical studies play a relevant role as a tool for the analysis of specific topics and as an ingredient of multidisciplinary problems. To investigate these problems we will see many different mathematical tools at work: just to mention some, stochastic processes, PDE, normal forms, chaos theory.
