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   Titolo               Modelling critical and catastrophic phenomena in geoscience : a
                        statistical physics approach / / Pratip Bhattacharyya, Bikas K.
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   Descrizione fisica   1 online resource (529 p.)

   Collana              Lecture notes in physics ; ; 705

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   Soggetti             Seismology - Statistical methods
                        Earthquakes - Mathematical models

   Lingua di pubblicazione   Inglese

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   Note generali        Papers originally presented at a workshop on "Models of Earthquakes:
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   Nota di bibliografia   Includes bibliographical references and index.

   Nota di contenuto    Tutorial: Introductory Material -- Statistical Physics of Fracture and
                        Earthquake -- Rupture Processes in Fibre Bundle Models -- Extensions
                        of Fibre Bundle Models -- Survey of Scaling Surfaces -- Physics Models
                        of Earthquake -- Some Early Earthquake Source Models -- Geometric
                        Models of Earthquakes -- Friction, Stick-Slip Motion and Earthquake --
                        Statistical Features of Earthquake Temporal Occurrence --
                        Spatiotemporal Correlations of Earthquakes -- Space-time Combined
                        Correlation Between Earthquakes and a New, Self-Consistent Definition
                        of Aftershocks -- Short-Term Prediction of Mediumand Large-Size
                        Earthquakes Based on Markov and Extended Self-Similarity Analysis of
                        Seismic Data -- Why Does Theoretical Physics Fail to Explain and
                        Predict Earthquake Occurrence? -- Modelling Related Phenomena --
                        Aeolian Transport and Dune Formation -- Avalanches and Ripples in
                        Sandpiles -- Dynamics of Stick-Slip: Some Universal and Not So
                        Universal Features -- Search for Precursors in Some Models of
                        Catastrophic Failures -- Miscellaneous Short Notes -- Nonlinear
                        Analysis of Radon Time Series Related to Earthquake -- A

Thermomechanical Model of Earthquakes -- Fractal Dimension of the 2001 El Salvador Earthquake Time Series -- Approach in Time to Breakdown in the RRTN Model -- Critical Behaviour of Mixed Fibres with Uniform Distribution.

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|---|---|
| Sommario/riassunto | This book presents a broad survey of models for critical and catastrophic phenomena in the geosciences, with strong emphasis on earthquakes. It assumes the perspective of statistical physics, which provides the theoretical frame for dealing with complex systems in general. This volume addresses graduate students wishing to specialize in the field and researchers working or interested in the field having a background in the physics, geosciences or applied mathematics. |