1. Record Nr.	UNINA9910299985803321
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Titolo	Geomathematics: Theoretical Foundations, Applications and Future Developments / / by Frits Agterberg
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2014
ISBN	3-319-06874-1
Edizione	[1st ed. 2014.]
Descrizione fisica	1 online resource (569 p.)
Collana	Quantitative Geology and Geostatistics, , 0924-1973 ; ; 18
Disciplina	550/.1/51 551.8
Soggetti	Geology—Statistical methods Mines and mineral resources Geochemistry Geology, Structural Paleontology Quantitative Geology Mineral Resources Structural Geology
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and indexes.
Nota di contenuto	Foreword -- Preface -- 1. Complexity of the Geological Framework and Use of Mathematics -- 2. Probability and Statistics -- 3. Maximum Likelihood, Lognormality and Compound Distributions -- 4. Correlation, Method of Least Squares, Linear Regression and the General Linear Model -- 5. Prediction of Occurrence of Discrete Events -- 6. Autocorrelation and Geostatistics -- 7. 2D and 3D Trend Analysis -- 8. Statistical Analysis of Directional Features -- 9. Automated Stratigraphic Correlation, Splining and Geological Timescales -- 10. Fractals -- 11. Multifractals and Singularity Analysis -- 12. Selected Topics for Further Research -- Index.
Sommario/riassunto	This book provides a wealth of geomathematical case history studies performed by the author during his career at the Ministry of Natural Resources Canada, Geological Survey of Canada (NRCan-GSC). Several of the techniques newly developed by the author and colleagues that

are described in this book have become widely adopted, not only for further research by geomathematical colleagues, but by government organizations and industry worldwide. These include Weights-of-Evidence modelling, mineral resource estimation technology, trend surface analysis, automatic stratigraphic correlation and nonlinear geochemical exploration methods. The author has developed maximum likelihood methodology and spline-fitting techniques for the construction of the international numerical geologic timescale. He has introduced the application of new theory of fractals and multifractals in the geostatistical evaluation of regional mineral resources and ore reserves and to study the spatial distribution of metals in rocks. The book also contains sections deemed important by the author but that have not been widely adopted because they require further research. These include the geometry of preferred orientations of contours and edge effects on maps, time series analysis of Quaternary retreating ice sheet related sedimentary data, estimation of first and last appearances of fossil taxa from frequency distributions of their observed first and last occurrences, tectonic reactivation along pre-existing schistosity planes in fold belts, use of the grouped jackknife method for bias reduction in geometrical extrapolations, and new applications of the theory of permanent, volume-independent frequency distributions.