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Nota di contenuto	Environmental Statistics; Contents; Preface; Chapter 1 Introduction; 1.1 Tomorrow is too Late!; 1.2 Environmental Statistics; 1.3 Some Examples; 1.3.1 'Getting it all together'; 1.3.2 'In time and space'; 1.3.3 'Keep it simple'; 1.3.4 'How much can we take?'; 1.3.5 'Over the top'; 1.4 Fundamentals; 1.5 Bibliography; PART I EXTREMAL STRESSES: EXTREMES, OUTLIERS, ROBUSTNESS; Chapter 2 Ordering and Extremes: Applications, models, inference; 2.1 Ordering the Sample; 2.1.1 Order statistics; 2.2 Order-based Inference; 2.3 Extremes and Extremal Processes; 2.3.1 Practical study and empirical models generalized extreme-value distributions2.4 Peaks over Thresholds and the Generalized Pareto Distribution; Chapter 3 Outliers and Robustness; 3.1 What is an Outlier?; 3.2 Outlier Aims and Objectives; 3.3 Outlier-Generating Models; 3.3.1 Discordancy and models for outlier generation; 3.3.2 Tests of discordancy for specific distributions; 3.4 Multiple Outliers: Masking and Swamping; 3.5 Accommodation: Outlier-Robust Methods; 3.6 A Possible New Approach to Outliers; 3.7 Multivariate Outliers; 3.8 Detecting Multivariate Outliers; 3.8.1 Principles; 3.8.2 Informal methods; 3.9 Tests of Discordancy 3.10 Accommodation3.11 Outliers in linear models; 3.12 Robustness in General; PART II COLLECTING ENVIRONMENTAL DATA: SAMPLING AND

MONITORING; Chapter 4 Finite-Population Sampling; 4.1 A Probabilistic Sampling Scheme; 4.2 Simple Random Sampling; 4.2.1 Estimating the mean, \bar{X} ; 4.2.2 Estimating the variance, S^2 ; 4.2.3 Choice of sample size, n ; 4.2.4 Estimating the population total, $X(T)$; 4.2.5 Estimating a proportion, P ; 4.3 Ratios and Ratio Estimators; 4.3.1 The estimation of a ratio; 4.3.2 Ratio estimator of a population total or mean; 4.4 Stratified (simple) Random Sampling
4.4.1 Comparing the simple random sample mean and the stratified sample mean
4.4.2 Choice of sample sizes; 4.4.3 Comparison of proportional allocation and optimum allocation; 4.4.4 Optimum allocation for estimating proportions; 4.5 Developments of Survey Sampling; Chapter 5 Inaccessible and Sensitive Data; 5.1 Encountered Data; 5.2 Length-Biased or Size-Biased Sampling and Weighted Distributions; 5.2.1 Weighted distribution methods; 5.3 Composite Sampling; 5.3.1 Attribute Sampling; 5.3.2 Continuous variables; 5.3.3 Estimating mean and variance; 5.4 Ranked-Set Sampling
5.4.1 The ranked-set sample mean
5.4.2 Optimal estimation; 5.4.3 Ranked-set sampling for normal and exponential distributions; 5.4.4 Imperfect ordering; Chapter 6 Sampling in the Wild; 6.1 Quadrat Sampling; 6.2 Recapture Sampling; 6.2.1 The Petersen and Chapman estimators; 6.2.2 Capture-recapture methods in open populations; 6.3 Transect Sampling; 6.3.1 The simplest case: strip transects; 6.3.2 Using a detectability function; 6.3.3 Estimating $f(y)$; 6.3.4 Modifications of approach; 6.3.5 Point transects or variable circular plots; 6.4 Adaptive Sampling
6.4.1 Simple models for adaptive sampling

Sommario/riassunto

In modern society, we are ever more aware of the environmental issues we face, whether these relate to global warming, depletion of rivers and oceans, despoliation of forests, pollution of land, poor air quality, environmental health issues, etc. At the most fundamental level it is necessary to monitor what is happening in the environment - collecting data to describe the changing scene. More importantly, it is crucial to formally describe the environment with sound and validated models, and to analyse and interpret the data we obtain in order to take action.

Environmental Statistics
