

Contents

| | |
|---|-----|
| Ch. 1. <i>Introduction</i> | 7 |
| 1.1. Preliminary remarks | 7 |
| 1.2. Survey of the contents..... | 8 |
| 1.3. Notation..... | 9 |
| Ch. 2. <i>Stationary stochastic processes in R_n</i> | 10 |
| 2.1. General concepts..... | 10 |
| 2.2. Stationary processes..... | 11 |
| 2.3. Isotropic processes..... | 13 |
| 2.4. Examples of correlation functions..... | 17 |
| 2.5. Integration of stationary processes..... | 19 |
| 2.6. Stationary stochastic set functions..... | 25 |
| Ch. 3. <i>Some particular models</i> | 27 |
| 3.1. Preliminaries | 27 |
| 3.2. Moving average model with constant weight function | 28 |
| 3.3. Moving average model with stochastic weight function..... | 31 |
| 3.4. Distance models..... | 37 |
| 3.5. Models of random sets..... | 39 |
| 3.6. Models of randomly located points..... | 46 |
| 3.7. Numerical examples..... | 49 |
| Ch. 4. <i>Some remarks on the topographic variation</i> | 51 |
| 4.1. Local and "long-distance" variation..... | 51 |
| 4.2. Some data on the spatial variation..... | 52 |
| 4.3. Errors of observation..... | 55 |
| 4.4. Local integration..... | 59 |
| 4.5. Effect of competition..... | 62 |
| 4.6. The occurrence of periodicities in the topographic variation..... | 63 |
| Ch. 5. <i>On the efficiency of some methods of locating sample points in R_2</i> | 68 |
| 5.1. Introduction | 68 |
| 5.2. Size and shape of strata in stratified random sampling..... | 72 |
| 5.3. Sampling by a latin square design..... | 78 |
| 5.4. Some cases of systematic sampling | 80 |
| 5.5. Some remarks about the case of small samples..... | 83 |
| 5.6. Empirical examples..... | 88 |
| 5.7. Average travel distance between sample points | 92 |
| 5.8. Comparison between some cases of stratified and systematic sampling..... | 95 |
| Ch. 6. <i>Various problems in sample surveys</i> | 100 |
| 6.1. Introduction | 100 |
| 6.2. Point sampling in R_1 | 103 |

CONTENTS

| | | |
|-------|--|------------|
| 6.3. | Estimating the sampling error from the data of a stratified sample with one sampling unit per stratum | 106 |
| 6.4. | A digression on two-phase sampling..... | 107 |
| 6.5. | Estimating the sampling error from the data of a systematic sample in R_1 | 110 |
| 6.6. | Estimating the sampling error from the data of a systematic sample of points in R_2 | 115 |
| 6.7. | Allowance for border effects in estimating the sampling error..... | 120 |
| 6.8. | Linear sampling units ("tracts") in R_2 | 122 |
| 6.9. | Locating sample plots on the periphery of a tract..... | 125 |
| 6.10. | The size of a tract..... | 127 |
| 6.11. | A comparison between strip surveys and plot surveys..... | 129 |
| 6.12. | The size and shape of sample plots..... | 132 |
| | Sammanfattning | 135 |
| | References | 140 |
| | Author Index | 145 |
| | Subject Index | 147 |
| | Postscript | 149 |