

INFORMAČNÍ STŘEDISKO
 Přírodovědecké fakulty
 UNIVERZITY PALACKÉHO V OLMOUCI

Přir. č. 3134023098

Sign. 641289

Knihovna katedry P77

CONTENTS

1059/2007

Foreword by Matt Ballvii

Preface ix

Introduction 1

 Early GIS Technology and Its Expressions 1

 Contemporary GIS and Future Directions 5

Topic 1. Data Structure Implications 11

 1 Grids and Lattices Build Visualizations 13

 2 Maps Are Numbers First, Pictures Later 17

 3 Normalize Maps for Data Analysis 21

Topic 2. Fundamental Map Analysis Approaches 27

 4 Moving Mapping to Analysis of Mapped Data 29

 5 Bending Our Understanding of Distance 33

 6 Use Spatial Statistics to Map Abnormal Averages 37

 7 Making Space for Mapped Data 41

Topic 3. Basic Techniques in Spatial Analysis 47

 8 Use a Map-mathematical Framework for GIS Modeling 49

 9 Options Seem Endless When Reclassifying Maps 53

 10 Overlay Operations Feature a Variety of Options 57

 11 Computers Quickly Characterize Spatial Coincidence 61

Topic 4. Calculating Effective Distance 67

 12 Extending GIS Procedures with Variable-Width Buffers 69

 13 Create Effective Distance Buffers to Improve Map Accuracy 73

 14 Measuring Distance Is Neither Here nor There 77

 15 Extend Simple Proximity to Effective Movement 81

Topic 5. Calculating Visual Exposure 87

 16 Line-of-Sight Buffers Add Intelligence to Maps 89

 17 Identify and Use Visual Exposure to Create Viewshed Maps 93

 18 Visual Exposure Is in the Eye of the Beholder 97

 19 Use Exposure Maps and Fat Buttons to Assess Visual Impact 101

Topic 6. Summarizing Neighbors	107
20 Computer Processing Aids Spatial Neighborhood Analysis	109
21 Milking Spatial Context Information	113
22 Spatially Aggregated Reporting: The Probability Is Good	117
Topic 7. Basic Spatial Modeling Approaches	123
23 Suitability Models Find the Good, the Bad and the Hugag	125
24 Mapping Techniques Rate Hugag Habitat Suitability	129
25 Logic and Extent Elevate Suitability Models to New Levels	133
Topic 8. Spatial Modeling Example	139
26 A Three-Step Process Identifies Preferred Routes	141
27 Consider Multiple Criteria when Routing	145
28 A Recipe for Calibrating and Weighting GIS Model Criteria	149
29 Think with Maps to Evaluate Alternative Routes	153
Topic 9. Basic Techniques in Spatial Statistics	157
30 GIS Data Are Rarely Normal	159
31 The Average is Hard to Find	163
32 Under the Hood of Spatial Interpolation	167
33 Justifiable Interpolation	171
Topic 10. Spatial Data Mining	175
34 Statistically Compare Discrete Maps	177
35 Comparing Continuous Map Surfaces	181
36 Geographic Software Removes Guesswork from Map Comparisons	185
37 Use Similarity to Identify Data Zones	189
38 Use Statistics to Map Data Clusters	193
39 Spatial Data Mining “Down on the Farm”	197
Epilog	203
A Variety of Pathways Lead to GIS	205
A Multifaceted GIS Community	209
Appendix/Resources	215
Companion CD-ROM Overview	216
Additional Online Materials	217
Instructor Materials	218
Index	221