# Contents

1 Research Objects, Tasks and Historical Development of Tourism Earth-science ............................................. 1
  1.1 Research Objects of Tourism Earth-science. ................. 1
    1.1.1 Definition of Tourism Earth-science .................. 1
    1.1.2 Definition of Tourism Geology ....................... 4
    1.1.3 Definition of Tourism Geography ..................... 6
  1.2 Research Tasks of Tourism Earth-science .................. 8
    1.2.1 Survey and Evaluation of Tourism Resources .......... 8
    1.2.2 Selection, Layout, Planning and Construction of Tourist Areas (Spots) ........................................ 8
    1.2.3 Rules of Geographic Distribution and Spatial Movement of Travellers ........................................ 9
    1.2.4 Impacts of Tourism Development on Regional Economic Complexes ............................................. 10
    1.2.5 Tourism Zoning ........................................... 10
    1.2.6 Tourist Transportation and Other Relevant Means .... 10
    1.2.7 Tourism Resources and Environmental Protection .... 11
    1.2.8 Basic Theories and Methods of Tourism Earth-science .. 11
  1.3 Historical Development of Research on Tourism Earth-science ...................................................... 12
    1.3.1 Research History of Tourism Earth-Science Abroad .. 13
    1.3.2 China’s Research History of Tourism Earth-science .. 16
References ........................................................................ 24

2 Role of Tourism Earth-science in Tourism Development ........ 25
  2.1 Tourism Earth-science and Tourism System .................. 25
    2.1.1 Tourism System ............................................. 25
    2.1.2 Earthscientific Background of Tourism System ....... 27
  2.2 Effects of Tourism Earth-science in Tourism Development .. 31
    2.2.1 Survey and Evaluation of Tourism Resources .......... 32
    2.2.2 Discovery and Selection of Scenic Development Zones ............................................. 33
### 2.2.3 Precise and Rough Measurements of the Area and Quantity of Elements of Natural and Cultural Landscapes in Scenic Areas

Page: 34

### 2.2.4 Positioning, Qualitative and Quantitative Analyses of Intrinsic Attributes of Tourism Resources

Page: 35

### 2.2.5 Supervision and Protection of Tourism Resources and Their Ecological Environments

Page: 36

### 2.2.6 Preparation of Tourism Development Plans

Page: 37

### 3 Basic Formation Conditions of Natural Tourism Resources

Page: 39

#### 3.1 Significance of Research on Formation Conditions of Natural Tourism Resources

Page: 39

##### 3.1.1 Research Contents of Formation Conditions

Page: 39

##### 3.1.2 Significance of Research on Formation Conditions

Page: 40

#### 3.2 Basic Formation Conditions of Natural Tourism Resources

Page: 40

##### 3.2.1 Spheres of the Earth and Natural Tourism Resources

Page: 40

##### 3.2.2 Regional Integrated Natural Geographical Environments (Kalesnik 1947)

Page: 41

##### 3.2.3 Geological Structures and Crustal Structures (Geography Department of Nanjing University 1963)

Page: 41

##### 3.2.4 Strata and Rocks (Zhengzhou Geology University 1979)

Page: 42

##### 3.2.5 Geological Dynamic Process

Page: 43

##### 3.2.6 Land Hydrological Characteristics and Ocean

Page: 44

##### 3.2.7 Latitudinal Zonation and Regional Factors of Climate

Page: 45

##### 3.2.8 Biogeographical Characteristics

Page: 45

#### 3.3 Classification of Causes of Formation of Natural Tourism Resources

Page: 46

##### 3.3.1 Brief Introduction to Classification Schemes of Natural Tourism Resources

Page: 46

##### 3.3.2 Classification of Causes of Formation of Natural Tourism Resources

Page: 47

#### 3.4 Tourism Resources of Lithosphere

Page: 48

##### 3.4.1 Concept of Tourism Resources of Lithosphere

Page: 48

##### 3.4.2 Geological Tourism Resources

Page: 48

##### 3.4.3 Geomorphic Tourism Resources

Page: 59

##### 3.4.4 Cave Tourism Resources

Page: 61

#### 3.5 Tourism Resources of Hydrosphere

Page: 62

##### 3.5.1 Concept of Tourism Resources of Hydrosphere (Wang 1985)

Page: 62

##### 3.5.2 Marine Tourism Resources

Page: 63

##### 3.5.3 River Tourism Resources

Page: 64

##### 3.5.4 Lake Tourism Resources

Page: 65

##### 3.5.5 Glacier Tourism Resources

Page: 66

##### 3.5.6 Groundwater Tourism Resources

Page: 67
3.6 Tourism Resources of Biosphere ................................. 68
  3.6.1 Concept of Tourism Resources of Biosphere .......... 68
  3.6.2 Botanical Tourism Resources ........................... 69
  3.6.3 Zoological Tourism Resources .......................... 71
3.7 Tourism Resources of Atmosphere ............................ 72
  3.7.1 Concept of Tourism Resources of Atmosphere ........ 72
  3.7.2 Meteorological Tourism Resources .................... 73
  3.7.3 Climatological Tourism Resources ................. 74
  3.7.4 Clean Air Tourism Resources .......................... 75
3.8 Universe Tourism Resources ................................. 76
  3.8.1 Concept of Universe Tourism Resources ............ 76
  3.8.2 Outer Space Tourism Resources ...................... 76
  3.8.3 Star Tourism Resources .................................. 77
  3.8.4 Astronomical Observation Tourism Resources ...... 77
  3.8.5 Meteorite Tourism Resources .......................... 77

References .......................................................... 78

4 Earthscientific Formation Conditions of Cultural Tourism Resources ........................................ 79
  4.1 Earthscientific Characteristics of Historical and Cultural Tourism Resources .................. 79
    4.1.1 Locality of Historical Cultures ....................... 79
    4.1.2 Earthscientific Characteristics of Cultural Sites of the Stone Age ..................... 80
    4.1.3 Earthscientific Characteristics of Cultures in China’s History ......................... 83
  4.2 Earthscientific Characteristics of Ancient Architectures and Projects .................................. 86
    4.2.1 Wood and Stone Architectures ....................... 86
    4.2.2 Garden Architectures .................................. 90
    4.2.3 Ancient Mausoleums .................................. 92
    4.2.4 Ancient Architectural Works ......................... 95
  4.3 Earthscientific Characteristics of Religious Culture Landscapes .................................. 100
    4.3.1 Regional Features of Distribution of Religions .... 101
    4.3.2 Regional Features of Religious Activities ......... 101
    4.3.3 Regional Features of Religious Cultures .......... 102
  4.4 Earthscientific Characteristics of Ethnic Customs .................................................. 104
    4.4.1 Analysis of Earthscientific Factors of Ethnic Customs as Tourism Resources .......... 104
    4.4.2 Earthscientific Characteristics of Civilian Houses .................................. 105
    4.4.3 Earthscientific Characteristics of Other Ethnic Customs .................................. 107

References .......................................................... 109
5 Earthscientific Characteristics of Tourism Resources ................. 111
  5.1 Research Value of Earthscientific Characteristics of Tourism Resources ........................................ 111
  5.2 General Earthscientific Characteristics of Tourism Resources .. 112
    5.2.1 Regional Differentiation Characteristic .................. 112
    5.2.2 Scenic Combination Characteristic ...................... 116
    5.2.3 Similar Appearance Characteristic ....................... 118
    5.2.4 Potential Resource Characteristic ....................... 119
    5.2.5 Seasonal Variation Characteristic ....................... 120
    5.2.6 Resource Nature Variation Characteristic ............... 121
  5.3 Independent Earthscientific Characteristics of Natural Tourism Resources ........................................ 121
    5.3.1 Immovability ............................................. 121
    5.3.2 Periodical Variation Characteristic .................... 122
    5.3.3 Random Variation ........................................ 123
  5.4 Independent Earthscientific Characteristics of Cultural Tourism Resources ..................................... 123
    5.4.1 Movability ................................................. 123
    5.4.2 Antiquity .................................................. 124
    5.4.3 Spiritual Culture Characteristic ....................... 124
    5.4.4 Continuity ............................................... 125
    5.4.5 Times Characteristic ...................................... 125
  5.5 Earthscientific Characteristics of China’s Tourism Resources . 126
    5.5.1 Regional Distribution of Mixed Banded and Blocky Tourism Resources Which Are Sparse in the West but Dense in the East ......................... 126
    5.5.2 Scenic Combination of Natural and Cultural Tourism Resources .............................................. 127
    5.5.3 Long-Distance Combination and Feeling and Scenery Blended Group Combination Characteristics of Famous Mountains and Gardens ............ 128
    5.5.4 Characteristic of Gathering of Numerous World Wonderful Tourism Resources .......................... 128
    5.5.5 Characteristic of Significant but Adjustable Seasonal Variations ..................................... 129

References .............................................................. 129

6 Principles of Aesthetic Appreciation of Sceneries ................. 131
  6.1 Definition of Scenic Beauty and Course of Aesthetic Appreciation of Sceneries ............................... 131
    6.1.1 Aesthetic Appreciation Generated from Nature Worship (Xie 1987) .................................. 132
    6.1.2 Formation of Aesthetic Appreciation of Sceneries ........ 133
<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.1.3</td>
<td>Development of Aesthetic Appreciation of Sceneries</td>
<td>135</td>
</tr>
<tr>
<td>6.1.4</td>
<td>Deepening of Aesthetic Appreciation of Sceneries</td>
<td>138</td>
</tr>
<tr>
<td>6.2</td>
<td>Characteristics and Structures of Natural Beauty of Sceneries</td>
<td>139</td>
</tr>
<tr>
<td>6.2.1</td>
<td>Characteristics of Natural Beauty of Sceneries</td>
<td>139</td>
</tr>
<tr>
<td>6.2.2</td>
<td>Structure of Natural Beauty of Sceneries</td>
<td>140</td>
</tr>
<tr>
<td>6.3</td>
<td>Cultural Landscapes Blended into Natural Landscapes</td>
<td>146</td>
</tr>
<tr>
<td>6.3.1</td>
<td>Cultural Landscapes Compatible with Natural Landscapes</td>
<td>146</td>
</tr>
<tr>
<td>6.3.2</td>
<td>Myths, Legends and Local Customs Adding Extraordinary Splendour to Sceneries</td>
<td>149</td>
</tr>
</tbody>
</table>

References ................................. 150

7 Survey and Evaluation of Tourism Resources ................. 151
| 7.1    | Survey of Tourism Resources | 151 |
| 7.1.1  | Survey Objectives | 151 |
| 7.1.2  | Survey Guidelines | 151 |
| 7.1.3  | Survey Emphasises | 153 |
| 7.1.4  | Survey Contents | 155 |
| 7.1.5  | Survey Phases | 155 |
| 7.1.6  | Professional Survey | 156 |
| 7.2    | Objectives and Contents of Evaluation of Tourism Resources | 157 |
| 7.2.1  | Objectives of Evaluation of Tourism Resources | 157 |
| 7.2.2  | Contents of Evaluation of Tourism Resources | 157 |
| 7.3    | Evaluation Methods of Tourism Resources | 163 |
| 7.3.1  | Qualitative Evaluation Method | 163 |
| 7.3.2  | Quantitative Evaluation Method | 164 |

References ................................ 183

8 Tourism Development Planning .......................... 185
| 8.1    | Theoretical Bases of Tourism Planning | 185 |
| 8.1.1  | Essence of Tourism Planning | 185 |
| 8.1.2  | Objectives of Tourism Planning | 186 |
| 8.1.3  | Characteristics of Tourism Planning | 187 |
| 8.1.4  | Principles of Tourism Planning | 189 |
| 8.2    | Contents and Types of Tourism Planning | 191 |
| 8.2.1  | Contents of Tourism Planning | 191 |
| 8.2.2  | Types of Tourism Planning | 198 |
| 8.3    | Method of Tourism Planning | 204 |
| 8.3.1  | Finding Out Constraints and Setting Planning Objectives | 205 |
| 8.3.2  | Information Survey | 206 |
| 8.3.3  | Determining Planning Principles and Establishing an Evaluation Index System | 207 |
9 Protection of Tourism Resources and Tourism Environments

9.1 Tourism and Tourism Environments

9.2 Factors Damaging Tourism Resources and Deteriorating Tourism Environments

9.2.1 Damage of Tourism Environments Resulting from Undue Emphasis on Production

9.2.2 Environmental Problems Resulting from Tourist Activities

9.2.3 Destructive Behaviours During Tourism Development and Urban Construction

9.3 Protection of Tourism Resources and Tourism Environments

9.3.1 Strengthen Theoretical Research and Universal Education on Protection of Tourism Environments

9.3.2 Value Pre-evaluation of Environmental Impact During Planning and Construction of Tourist Areas

9.3.3 Strengthen Assessment of Protection Scope and Environmental Capacity of Existing Tourist Areas

9.3.4 Improve Legislation on Tourism Environment

9.3.5 Improve Systems of National Parks and Reserves

References

10 Geoparks

10.1 Historical Evolution of China’s National Geoparks

10.1.1 The Birth of Geoparks

10.1.2 The Definition of a National Geopark

10.1.3 The Mission and Purpose of China’s National Geoparks

10.2 China’s National Geoparks

10.2.1 The Emblem of China’s National Geopark

10.2.2 Categorization of China’s National Geoparks

10.3 The Nomination of China’s National Geoparks

10.3.1 Criteria to Nominate a Geopark

10.3.2 Nominator of a Proposed National Geopark in China

10.3.3 Nominating Date and Limits of Proposed Parks

10.3.4 Nominating Material and Documentation

10.4 The Evaluation and Approval of a National Geopark
10.4.2 The Proposed New Evaluation Criteria for a National Geopark ............................................. 233
10.4.3 Approval Procedures for National Geoparks ........................................................................... 233
10.5 Working Criteria for Building National Geoparks ................................................................... 234
10.5.1 Geopark Planning and GeoSite Conservation (30 Points) ......................................................... 234
10.5.2 Scientific Interpretation System Building in Geoparks (40 Points) ............................................. 235
10.5.3 Research and Science Promotion Activities in Geoparks (15 Points) ....................................... 236
10.5.4 Administration and Digitalisation of Geoparks (15 Points) ....................................................... 236
10.6 Developmental Stages of Chinese National Geopark ................................................................. 236
10.7 Future Prospects for Chinese National Geoparks ..................................................................... 244
10.7.1 Rapid Development of China’s Tourism Increases the Demand for Geoparks ....................... 244
10.7.2 Preserving GeoHeritage Demands Geoparks ......................................................................... 245
10.7.3 Resources to Develop Geoparks in China ............................................................................. 245
10.7.4 Prospects for Chinese Geoparks ............................................................................................. 245
10.8 European and Global Geoparks ................................................................................................. 246
10.8.1 A Brief History and the Present Situation of European Geopark Development .................. 246
10.8.2 Brief History and Present State of Global Geopark Development ........................................... 246
10.8.3 Development History and Present State of Global Geoparks in China ................................. 250
10.8.4 The Future Prospects of Global Geoparks .............................................................................. 251
References ........................................................................................................................................ 251

11 Prospects for Tourism Earth-science and Geotourism ................................................................. 253
11.1 Increase in Social Demand for Tourism Earth-science and Geotourism .................................. 253
11.1.1 A New Phase of Tourism Development .................................................................................. 254
11.1.2 The Urgent Need for Compiling Course Books on Tourism Earth-science ......................... 255
11.1.3 The Need to Increase the Earth-science Knowledge of Tourist Guides ................................ 255
11.2 Evaluation of Tourism Resources Will Become a Key Research Topic .................................. 256
11.3 Research Teams in Tourism Earth-science Will Continue Expanding ...................................... 256
11.4 Strategic Conception of Tourism Earth-science and Geotourism Over the Next Ten Years (2015–2025) 257

11.4.1 Organizational Mission of Tourism Earth-science 257

11.4.2 The Targeting Systems Building in Tourism Earth-science 258

11.4.3 The Development Strategy for Tourism Earth-science and Geotourism 259

11.4.4 The Implementation Schemes of Tourism Earth-science Development 260

References 261

Postscript 263
The Principles of Geotourism
Chen, A.; Lu, Y.; Ng, Y.C.Y.
2015, XXIII, 264 p. 7 illus. in color., Hardcover
ISBN: 978-3-662-46696-4