Contents

Part I Satellite Navigation Signal System, Compatibility and Interoperability

1 Optimization Selection of the HRC Correlator Spacing for Different Navigation Signals ........................................ 3
Song Li, Jing Lv, Jiang Chang, Xiang Tian and Kaixiang Tong

2 The Key Questions Discussing of the Inter-Satellite Link (ISL) Signal Design Based on Earth-Moon System ............ 15
Jianjun Fan, Yang Yang and Min Li

3 Application Study of a Phase-Optimized Constant-Envelope Transmission (POCET) Optimization Algorithm for BDS B1 Signal ................................................................. 27
Minggui Cai, Jun Xie and Gang Wang

Chengkai Tang, Baowang Lian and Yi Zhang

5 GCE-BOC Modulation: A Generalized Multiplexing Technology for Modern GNSS Dual-Frequency Signals ............ 47
Xinming Huang, Xiangwei Zhu, Xiaomei Tang, Hang Gong and Gang Ou

6 Research of Novel BCC Signal Structure ........................................ 57
Ying Xu, Zhili He, Maoshu Zeng, Hong Yuan and Weina Hao
Part II  Satellite Navigation Augmentation and Integrity Monitoring

7  Research on Multi Satellite Failure Detection and Recognition Method of Satellite Navigation RAIM .......................... 77
    Zhixin Deng, Jun Li and Mengjiang Liu

8  Ionospheric Threat Model Methodology for China Area ....... 91
    Dun Liu, Li Chen, Liang Chen and Weimin Zhen

9  Real-Time Cycle Slip Detection and Repair Algorithm for SBAS Airborne Receiver ........................................ 101
    Jie Chen, Zhigang Huang and Rui Li

10 Study on Space-Based All Source Navigation Technology .... 113
    Ying Wang, Yansong Meng, Zhe Su and Xiaoxia Tao

11 Carrier-Phase RAIM Algorithm Based on a Vector Autoregressive Model ..................................................... 125
    Qianqian Zhang and Qingming Gui

12 A Beidou Based Multiple-GNSS Positioning Algorithm for Mission Critical Applications ................................. 143
    Shaojun Feng, Shenghai Wang, Jianye Liu, Qinghua Zeng and Washington Ochieng

13 A Novel RAIM Algorithm for Single-Frequency GNSS Receiver Based on Virtual Triple-Frequency Techniques .... 157
    Leijin Han, Hu Lu, Yan Xie and Chen Chen

14 Evaluation Method Research on GNSS Signal-in-Space Continuity ............................................................... 173
    Yang Tang and Rui Li

15 A New Method of Ionospheric Grid Correction Based on Improved Kriging .................................................. 183
    Qidong Zhang and Rui Li

16 A RAIM Method of Pseudo-range Residual Based on Positioning Result of Proportion of Visible Satellites ....... 195
    Jie Wu, Ao Peng and Jianghong Shi
<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
<td>Zenith Tropospheric Delay Modeling Method for Sparse Reference Station Network Considering Height Difference</td>
<td>209</td>
</tr>
<tr>
<td></td>
<td>Yang Yang, Guorong Yu, Shuguo Pan, Wang Gao and Weirong Chen</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Performance Monitoring of BeiDou Navigation Satellite System Ionospheric Grid</td>
<td>221</td>
</tr>
<tr>
<td></td>
<td>Hui Zhang, Daliang Gong, Mo Wu, He Zhao and Long Bai</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Analysis and Improvement to Ionosphere Grads Integrity Monitoring Algorithm in Ground Based Augmentation System</td>
<td>237</td>
</tr>
<tr>
<td></td>
<td>Zhaodong Xing, Jingbo Zhao, Zhenhua Wang and Chunyang Zhi</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Calibration Method of the IGSO Satellites Ascending Node Longitude</td>
<td>249</td>
</tr>
<tr>
<td></td>
<td>Quan-jun Li, Da-li Wang, Yong Yuan and Ni Kang</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>Ionosphere Integrity Monitoring Based on the Combined System of GPS and BDS</td>
<td>259</td>
</tr>
<tr>
<td></td>
<td>Chuanhua Zhao, Jinzhong Bei, Shan Pan and Hongying Zhang</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Localizability Analysis of Cooperative Positioning with Range Measurement</td>
<td>269</td>
</tr>
<tr>
<td></td>
<td>Yaning Liu, Guangxia Li, Jing Lv, Jiang Chang and Shiwei Tian</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>Code-Carrier Divergence Monitoring for BeiDou Ground-Based Augmentation System</td>
<td>281</td>
</tr>
<tr>
<td></td>
<td>Lin Zhao, Weixin Yang, Liang Li and Fuxin Yang</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>Threshold Determination for Integrity Monitoring in Local Area Augmentation System</td>
<td>293</td>
</tr>
<tr>
<td></td>
<td>Shuai Xiong</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>Multi-constellation Receiver Autonomous Integrity Monitoring with BDS/GPS/Galileo</td>
<td>301</td>
</tr>
<tr>
<td></td>
<td>Yuan Sun, Yanbo Zhu and Rui Xue</td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>The Service Performance Evaluation of Different Satellite Based Augmentation Systems</td>
<td>311</td>
</tr>
<tr>
<td></td>
<td>Yuechen Wang, Biao Jin and Shanshan Chen</td>
<td></td>
</tr>
</tbody>
</table>
27 An Analysis of the QZSS Signal Based on the Data of IGS .......................... 325
Xin Nie, Fu Zheng, Yidong Lou, Jinjun Zheng and Zuhong Li

28 Research on GPS Receiver Autonomous Integrity Monitoring Based on Auxiliary Particle Filter ............................................. 337
Ershen Wang, Tao Pang, Pingping Qu and Yongming Yang

29 Ranging Bias of COMPASS Satellite Signals ............................. 347
Jiancheng Liu, Jianjun Fan, Xiaochao Feng and Huaisheng Sang

30 Research on the Dynamic Configuration of Air-Based Pseudolite Network .................................................. 357
Da-peng Li, Ping-ke Deng, Bing Liu, Yi Qu, Ling-chuan Zeng and Ting Liu

Part III Satellite Navigation Models and Methods

31 An Improved GNSS Global Ionospheric Model ...................... 371
Dun Liu, Xiao Yu, Liang Chen and Weimin Zhen

32 A New Method for Direct Calculation of Ionospheric Delay ...... 381
Yadong Bao, Changjian Liu, Hongzhou Chai and Chen Liu

33 Precision Analysis of Wide-Area Ionospheric Correction Triangular Partition Method in Low Latitudes ...................... 389
Chao Xi, Chenglin Cai and Zhaochuan Wei

34 Analysis of Positioning Performance on Combined BDS/GPS/GLONASS .......................................................... 399
Xiaosan Man, Fuping Sun, Shuai Liu, Haifeng Li and He Ding

35 A Real-Time Prediction Algorithm of BDS Satellite Clock Offset Considering Phase Jumps .............................. 411
Wenju Fu, Qin Zhang, Meng Ao, Guanwen Huang and Hairong Guo

36 The Orbit and Clock Combination of iGMAS Analysis Centers and the Analysis of Their Precision ................... 421
Kangkang Chen, Tianhe Xu, Guo Chen, Jiajing Li and Sumei Yu
37 Regional Modeling of Atmosphere Delay in Network RTK Based on Multiple Reference Station and Precision Analysis
Bo Wu, Chengfa Gao, Shuguo Pan, Jiadong Deng and Wang Gao

38 Reliable RTK Positioning Method Based on Partial Wide-Lane Ambiguity Resolution from GPS/GLONASS/BDS Combination
Wang Gao, Chengfa Gao, Shuguo Pan, Yang Yang and Denghui Wang

39 Optimal Kalman Filtering in the Presence of Time-Correlated Process Noise
Zebo Zhou, Yunlong Wu and Hua Chai

40 Prediction and Analysis of Chinese Earth Rotation Parameters Based on Robust Least-Squares and Autoregressive Model
Zhangzhen Sun, Tianhe Xu, Bing He and Gang Ren

41 Research on the Selection Method of Triple Frequency Combination Based on the Beidou Satellite Navigation System
Rui Xue, Qingming Cao, Qiang Wei and Yanbo Sun

42 A Baseline Ambiguity Resolution Using Un-combined and Un-differenced Model with Equality Constraint
Denghui Wang, Chengfa Gao, Shuguo Pan and Wang Gao

43 Using IGMAS/MGEX Ground Tracking Station Data to Solve the Global Beidou Satellite DCB Products
Junqiang Han, Qin Zhang, Guanwen Huang and Jin Wang

44 BeiDou Satellite Navigation System (BDS) Real-Time Orbit Determination and Accuracy Analysis
Le Wang, Qin Zhang, Guanwen Huang, Rui Zhang and Xingyuan Yan

45 Periodic Oscillation Analysis of Gps Height Time Series Based on HHT
Xiaolei Wang, Qin Zhang, Lidu Zhao and Shuangcheng Zhang
46 Analysis of Ionosphere Modeling Accuracy Based on Multi-GNSS Data. ................................. 545
   Yongxing Zhu, Xiaolin Jia, Laiping Feng and Rengui Ruan

47 Precision Assessment of Broadcast Ionospheric Model of GNSS Based on Real Data of Base Station. ............... 553
   Na Cheng, Xiao-lin Jia and Da-wei Sun

48 The Characteristics Investigation of Ground-Based GPS/PWV During the “7.21” Extreme Rainfall Event in Beijing ......................................................... 563
   Binyan Wang, Linna Zhao and Xuemei Bai

49 Instantaneous and Controllable GNSS Integer Aperture Ambiguity Resolution with Difference Test. .................. 575
   Jingyu Zhang, Meiping Wu and Kaidong Zhang

50 Can BDS Improve Tsunami Early Warning in South China Sea? ..................................................... 593
   Kejie Chen, Natalia Zamora, Andrey Babeyko and Maorong Ge

51 GTm_X: A New Version Global Weighted Mean Temperature Model .................................................. 605
   Peng Chen and Wanqiang Yao

52 Multi-GNSS PPP and PPP-RTK: Some GPS+BDS Results in Australia ............................................ 613
   Dennis Odijk, Baocheng Zhang and Peter J.G. Teunissen
China Satellite Navigation Conference (CSNC) 2015
Proceedings: Volume II
Sun, J.; Liu, J.; Fan, S.; Lu, X. (Eds.)
2015, XVIII, 623 p. 336 illus., Hardcover
ISBN: 978-3-662-46634-6