

Contents

Part I Satellite Navigation Technology

Theoretical Study for Bare Soil Freeze/Thaw Process Detection Using GNSS-R/MR	3
Xuerui Wu, Shuanggen Jin, Yuanting Li and Yanfang Dong	
The Application of BDS/GPS/GLONASS Data Fusion in FAST Measurement	13
Benning Song, Lichun Zhu, Dongjun Yu and Hui Yuan	
Research on BDS/GPS Combined Single-Epoch Attitude Determination Performance	23
Kang Zhang and Jinming Hao	
Calculating High Frequency Earth Rotation Parameters Using GPS Observations and Precision Analysis	33
Xuexi Liu, Erhu Wei and Lingxuan Wang	
A Comparative Analysis of Relative Positioning Methods for BDS/GPS in Three Different Fields of Combination	45
Lingchuan Wan, Guanwen Huang, Rui Tu, Juqing Zhang and Junqiang Han	
Deformation Monitoring and Precision Analysis Based on BDS/GPS Dual System Combination	59
Lei Ren, Tianhe Xu, Qingsong Ai and Yuguo Yang	
The Research on Nonlinear Attitude Determination Method of GNSS Multi-antenna Attitude Measurement	73
Yuan Tian, Lifen Sui, Bing Wang, Qing Dai, Yijun Tian and Tian Zeng	
Estimation and Evaluation of the Precipitable Water Vapor from GNSS PPP in Asia Region	85
Zhimin Liu, Yangyang Li, Fei Li and Jinyun Guo	

Correlation Analysis Among GPS-SNR, Precipitation and GPS-PWV	97
Min Mao, Li Wang, Shuangcheng Zhang, Xiaolei Wang and Peng Hu	
The Determination of Plumb-Line Deviation by Adopting GNSS/ Leveling Method in Super Long Tunnel Break-Through Measurement	107
Ji Ma, Zhiqiang Yang and Guofeng Ji	
BDS/GPS High Precision Railway Deformation Monitoring Software Design and Verification	127
Rongpan Xu, Zhaoying Liu, Zhao Feng Gao, Daquan Tang and Yingying Zhang	
Application Performance Analysis of Three GNSS Precise Positioning Technology in Landslide Monitoring	139
Guanwu Huang, Yuan Du, Lumin Meng, Guanwen Huang, Jin Wang and Junqiang Han	
GPS Signal to Noise Ratio Analysis and Using for Real-Time Tide Monitoring	151
Kai Liu, Shuang-cheng Zhang, Qianyi Wang, Qin Zhang, Jing-jiang Zhang and Yang Nan	
Ship Detection and Data Processing by Using Shore-Based GNSS-R	163
Chaoqun Gao, Dongkai Yang, Yunlong Zhu, Xuejing Qiu and Lei Yang	
Characteristic of GPS SNR and It's Application for Snow Depth Monitoring Analysis	175
Ning Zhang, Shuangcheng Zhang, Yuefan He, Qin Zhang, Xiaojuan Zhang and Tianhe Wan	
A Fast Algorithm of GNSS-R Signal Processing Based on DBZP	187
Lin Han, Yansong Meng, Yanguang Wang and Xingyuan Han	
Model Establishment and Analysis of Weighted Mean Temperature in the Region of Guilin	199
Zixin Chen, Junyu Li, Lilong Liu, Guiren Luo and Xuqi Mo	
GNSS-R Ocean Altitude Detection Technology Based on Carrier Phase Assistant	209
Liang Kan, Meng Li, Junbo Han, Juanjuan Dong, Linfei He, Kangning Zhang, Yingna Liu and Dingcheng Tang	
Characteristics of Coordinate Time Series of Shenzhen Continuously Operating Reference Stations	219
Shuguang Wu, Guigen Nie and Haiyang Li	

Voxel Nodes Model Parameterization for GPS Water Vapor Tomography	233
Nan Ding, Shubi Zhang, Xin Liu and Yili Xia	
The Spatial Deformation Characteristic Analysis of CORS Stations: A Case Study of Tianjin CORS	243
Wei Wang, Zhong Jie Sheng, Qi Zhang, Yong Huang and Bastiaan van Loenen	
Wide Area Beidou Foundation Enhanced Grid Space-Time Interlinked Science and Education Collaborative Experimental Service	255
Jianping Xing, Zedong Wang, Zidong Wang, Zhao Wang, Shengli Wang and Tao Yang	
Single-Antenna Attitude Determination Using GNSS for Low-Dynamic Carrier	267
Wen Chen, Chao Yu, Miaomiao Cai and Yaxuan Dong	
Differenced Measurements Between Satellites Applied on RTK PPP for Structure Monitoring	277
Xu Tang and XingXing Li	
Research on Retrieval of PWV Based on PPP and NCEP/NCAR Global Reanalysis 1 Data	285
Zhilu Wu, Yanxiong Liu, Xiufeng He, Kai Guo, Lina He and Menghao Li	
Determining the Reasonable Time Resolution of the Precise Satellite Clock Bias Products	297
Zhiping Liu, Dantong Zhu, Qianxin Wang and Jian Wang	
Part II Navigation and Location Service	
Pseudolite Cellular Network in Urban and Its High Precision Positioning Technology	313
Xingli Gan, Baoguo yu, Zhang Heng, Zhu Ruihui and Li Yaning	
Performance Analysis for AP Selection Strategy	325
Xianghong Hua, Wei Zhang, Kegen Yu, Weining Qiu, Shoujian Zhang and Xin Chang	
Definition of Conversion and Allocation Model for GNSS Index Basing Navigation Performances	335
Mengli Wang, Jinping Chen, Yang Yang, Yuan Hong and Junyi Xu	
Analysis of GPS for Monitoring Rain and Snow Weather	347
Xiaowei Hou, Shuangcheng Zhang, Zhengxun He, Qin Zang, Tianhe Wan and Xiaojuan Zhang	

Evolutionary Particle Filter for Indoor Navigation and Location	357
Jian Chen, Gang Ou, Ao Peng, Lingyu Chen, Lingxiang Zheng and Jianghong Shi	
An Indoor Three Dimensional Positioning Algorithm Based on Attitude Identification and Visible Light Propagation Model.	367
Qu Wang, Haiyong Luo, Xile Gao, Jie Wei and Fang Zhao	
An Indoor Positioning and Navigation Technique Based on Wi-Fi Fingerprint and Environment Information	381
Boxiong Han and Long Zhao	
Identification of LBS Deception for Smart Phone Based on the Speed Consistency	395
Da-peng Li, Ting Liu, Wei-na Hao, Bing Liu, Ling-chuan Zeng and Yan-kun Li	
iBeacon/WiFi Signal Characteristics Analysis for Indoor Positioning Using Mobile Phone.	405
Ling Yang, Bofeng Li, Haojun Li and Yunzhong Shen	
Research on Signal Design Method of Pseudolite “Near-Far Effect” Based on TDMA Technique.	417
Xu Liu	
Precision Analysis of CNAV Broadcast Ephemeris and Its Impact on the User Positioning.	431
Ahao Wang, Junping Chen and Jiexian Wang	
Research on Path Loss and Multipath Propagation of Indoor Pseudolite Signal.	441
Yaning Li, Baoguo Yu and Xingli Gan	
The GNSS/Inertial Navigation Based Private Car Incentive Travel Information Platform	453
Zhao Wang, Jianping Xing, Qianli Yang, Shengli Wang and Zedong Wang	
Research on the Next Generation of Emergency Positioning Signal Design and Ground Stations Receive Processing Based on GNSS.	465
Henglin Chu, Tianqiao Zhang, Jiemin Shen, Hongbing Wang and Jingyuan Li	
Obstacle Avoidance Path Planning of Rotor UAV	473
Xiaodong Zhang, Xiangyang Hao, Guopeng Sun and Yali Xu	
Orbit Analysis for Tiangong-2 Space Lab Under Different Perturbation Forces	485
Lina He, Wenli Wang and Zhilu Wu	

Research on Topological Map Building Based on Crowdsourcing Data	495
Xinzheng Lan, Ying Xu, Dongyan Wei and Hong Yuan	
Part III Test and Assessment Technology	
High Precision Broadband Direct-Spread Signal Delay Control Based on Phase Controlled Waveform Hermite Interpolation	515
Xin Zhang, Ziqing Ye and Fenghua Mei	
The Evaluation of Improvement of GPS Performance Combined with Quasi-Zenith Satellite System in Japan Area	525
Xuying Ma, Xiaping Ma, Chengpan Tang and Xingyu Wang	
Study on Test Consistency Which Based on the Record and Playback Instrument	533
Tian Wang, Wenbin Yang, Ming Peng, Shufeng Zhang, Qiang Chen and Weitao Wang	
Multipath Effect Analysis of Beidou Satellite Pseudorange and Its Correction	547
Shengchao Wang, Xiaolin Jia, Guofeng Ji, Qingsong Ai, Meiqian Guan and Teng Peng	
The Research on Time Series Modeling of ARMA and Medium/Long-Term Forecasting Method Using Global Ionospheric Harmonic Coefficient	561
Xiude Chen, Xiaolin Jia, Yongxing Zhu, Na Cheng, Shengyang Gao and Meiqian Guan	
Comparison and Evaluation of Satellite Performance Based on Different Clock Products	577
Jie Zheng, Meijun Guo, Chao Xiong and Yun Xiao	
Research on Monitoring and Evaluating Method of Beidou Monitoring Receiver Inter-frequency Bias	591
Gang Wang, Weigang Zhu and He Zhao	
BDS Multipath Real-Time Estimation Based on Generalized Regression Neural Network	599
Zongpeng Pan, Hongzhou Chai, Yang Chong, Yulong Kong and Rui Wang	
Ephemeris Type B Fault Detection for BDS	609
Guanlong Wang, Xiaowei Cui, Yun Zhang and Liu He	
Radiation Pattern Measurement for Earth Station Antenna Based on UAV	619
Zheng Wang and Chunjie Qiao	

Research on Performance Evaluation of Beidou Be Enhanced by Pseudolites	629
Jingyang Fu, Guangyun Li, Tingsong Tang, Li Wang and Yanglin Zhou	
Civil Avionic EMI Surrounding Impact Assessment and Testing on the Performance of Beidou BII Signal	645
Pengfei Wang, Xiaofeng Shi, Taosheng Wang and Zhipeng Wang	
Research on Design and Implementation of the Test Support System Architecture for GNSS Ground Control Segment	659
Zhixue Zhang, Jinshi Xie, Na Zhao, Dongxia Wang and Xin Jie	
Analysis of Signal Quality and Navigation Performance for Beidou System	671
Shaohua Dou, Cuilin Kuang, Yaozong Zhou and Zhonghai Yi	
Influence of Space Environment on the Beidou Satellite and Its Countermeasures	683
Ailing Zhang, Xingyu Wang, Ting Wang, Wenjie Liang and Ni Kang	
VPL Optimization Method with Multi-objective Program	701
Xueen Zheng, Chengdong Xu, Fei Niu and Anjin Li	
Multi-station Combined Evaluation Method for Navigation Signal Tracking Error Based on Optimization Weight	713
Jianlei Yang, Qinan Zhi, Song Xie and Xiaonan Li	
Test and Evaluation on Timing Performance of BeiDou IGSO-6 Satellite	723
Dan-dan Li, Feng Zhu, Long-xia Xu, Bo Li and Xiao-hui Li	
Research of Navigation Terminal Test Method Based on Real Playback Signal	739
Xiaoxi Jin, Yuze Wang and Rendong Ying	
Part IV User Terminal Technology	
Space-borne BDS and GPS Receiver of LING QIAO: Results over Two Years In-orbit Operation	753
Sihao Zhao, Xi Chen, Sen Yuan, Linling Kuang and Mingquan Lu	
Modeling and Simulation of Receiver-Spoofing Attacking Process in Tracking Stage	763
Meng Zhou, Hong Li, Peng Liu and Mingquan Lu	
Low Power Consumption Control Method for Navigation Receiver with Multi-stage Bandwidth	777
Daowei Chen, Hong Lei Lin and De-hui Xu	

A Vector and Scalar Hybrid Tracking Loop for New Generation Composite GNSS Signal 791
Honglei Lin, Shengqiang Lou, Xiaomei Tang, Bo Xu and Gang Ou

A Kinematic GNSS Positioning Method Based on Unscented Kalman Filter 807
Chunhua Li, Guofu Pan, Chenglin Cai, Chenggang Li and Xiaoyu Shi

Analysis of Cross-Correlation Peak Distortion Caused by Antenna Array Space-Time Adaptive Processing 821
Xinzhi Dai, Junwei Nie, Baiyu Li, Zukun Lu and Gang Ou

Joint Implementation of Interference Suppression and Signal Acquisition for GNSS Antenna Array Receivers 833
Feiqiang Chen, Junwei Nie, Guozhu Zhang, Zhengrong Li and Feixue Wang

GNSS Spoofing Detection Based on Power Monitoring of Two-Antenna 843
Fei Wang, Hong Li and Mingquan Lu

Application Strategy and Receiver Verification for the New Generation of BeiDou Navigation Satellites 853
Bin Tang, Jinlong Li, Qian Wang and Jiazheng Fu

A Polarization Anti-jamming Algorithm Based on Space-Frequency Constraints 861
Yongxiang Zheng, Chao Ren and Gang Hu

Navigation Terminal Test Decision Scheme Design and Verification 869
Zhiheng Zhang, Weiwei Qiu and Zi Wang

Study on Identification Parameters and Updating Mechanism of Beidou Navigation Message 877
Hailing Wu, Hui Liu, Rufeizhang, Cheng Liu, Hang Ruan and Jun Mo

Research on Multipath Interference Suppression Algorithm Based on Blind Equalization 889
Dengao Li, Chong Han, Jumin Zhao, Xiaofang Zhao and Doudou Deng

A Fundamental Architecture of Anti-spoofing GNSS Receiver 899
Li He, Hong Li and Mingquan Lu

Performance Analysis on High Dynamic Signal Acquisition of INS-Aided BDS Receiver 911
Xiaqing Tang, Shulei Chen, Xuwei Cheng, Junqiang Gao and Zepeng Sun

The Real-Time Realization and Performance Analysis of BDS Vector Receiver 923
Cailun Wu, Song Xie, Jianwei Zhang and Yachuan Li

Parameters Design Method of Kalman Filter-Based Tracking Loop in GNSS/INS Deep Integration. 933
Bing Li, Wenfei Guo, Xiaoji Niu, Nesreen I. Ziedan and Jingnan Liu

Optimal Carrier Tracking PLL in the Presence of Phase Noise in GNSS Receiver 945
Shenhui Xue, Xinming Huang, Zengjun Liu, Xiangwei Zhu and Guangfu Sun

A GNSS Spoofing Detection Technique Based on Signal Spatial Correlation 959
Zhenglin Geng, Junwei Nie, Zhibin Xiao, Xiangwei Zhu and Feixue Wang

A Multi-mode Multi-channel C Band CAPS Terminal Transceiver Chip Design. 971
Siyuan He, Wei Liu, Xiangwei Wang, Chaoxian Zhu, Gong Zhang, Sijing Hu, Changhong Zhang, Fangfang Zhang, Yu Zheng, Dongchun Wang, Qiangyu Hao, Weifeng Zhang, Mingzhao Wang, Hongyin He, Xiaolan Wang and Guanyi Ma

Parameters Estimation Method for LFM Interference to GNSS Uplink Injection. 985
Shuren Guo, Hang Ruan and Hailing Wu

Analysis of Threshold Setting for Eigenvalue Ratio Based Interference Detection Under Constant Missed Detection Probability 997
Gangqiang Guan, Deyong Xian, Liu Shi, Jia Mu and Xinshu Zhao

Ranging Performance Analysis and Discriminator Parameters Optimization for Double Estimator Technology 1009
Yang Gao, Henglin Chu, Zheng Yao and Xiaowei Cui

China Satellite Navigation Conference (CSNC) 2017

Proceedings: Volume I

Sun, J.; Liu, J.; Yang, Y.; Fan, S.; Yu, W. (Eds.)

2017, XXII, 1019 p. 555 illus., Hardcover

ISBN: 978-981-10-4587-5