ON SITE PROGRAM

Pacific PNT 2013 Conference Hours

Registration Only
Sunday, April 21......................4:00 p.m. – 7:00 p.m.

Tutorials
Monday, April 22...............  9:00 a.m. – 12:30 p.m. and
.........................................  1:30 p.m. – 5:00 p.m.

Technical Sessions
Tuesday, April 23 ..........  9:00 a.m. – 12:30 p.m. and
.........................................  1:30 p.m. – 5:00 p.m.
Wednesday, April 24 .......  9:00 a.m. – 12:30 p.m. and
.........................................  1:30 p.m. – 5:00 p.m.
Thursday, April 25 ..........  9:00 a.m. – 12:30 p.m. and
.........................................  1:30 p.m. – 5:00 p.m.

Pacific PNT 2013 Program Committee

General Chair:
Dr. Mikel M. Miller,
Air Force Research Laboratory

Program Co-Chair:
Prof. Frank van Graas,
Ohio University

Program Co-Chair:
Prof. Yu “Jade” Morton,
Miami University (Ohio)

Tutorials Chair:
Prof. John Raquet,
Air Force Institute of Technology

International Advisory Board

Prof. Chris Rizos
The University of New South Wales, Australia

Dr. Xianchen Ding
China Electronics Technology Group, People’s Republic of China

Prof. Yuanxi Yang
China National Administration of GNSS and Applications, People’s Republic of China

Prof. Shau-Shiun Jan and
Prof. Jyh-ching Juang
National Cheng Kung University, Taiwan (ROC)

Prof. Xiaoli Ding
The Hong Kong Polytechnic University, Hong Kong (PRC)

Prof. Changdon Kee
Seoul National University, South Korea

Prof. Eng kee Poh
DSO National Laboratories, Nanyang Technological University, Singapore

Prof. Akio Yasuda
The Institute of Positioning, Navigation and Timing of Japan, Graduate School of Tokyo University of Marine Science and Technology, Japan

Prof. Patricia Doherty
Institute for Scientific Research, Boston College
SPECIAL EVENTS:

Tuesday, April 23
Informal Luncheon
12:30 p.m. – 1:30 p.m., Waikiki Ballroom
This event is included in the price of a Full Registration. Tickets may be purchased for student registrants and guests for $70 each.

Wednesday, April 24
Informal Luncheon
12:30 p.m. – 1:30 p.m., Waikiki Ballroom
This event is included in the price of a Full Registration. Tickets may be purchased for student registrants and guests for $70 each.

Thursday, April 25
Informal Luncheon
12:30 p.m. – 1:30 p.m., Waikiki Ballroom
This event is included in the price of a Full Registration. Tickets may be purchased for student registrants and guests for $70 each.

ION PACIFIC PNT MOBILE APP
Direct your browser to m.ion.org for Pacific PNT meeting information in the palm of your hand!

- Sign up for real-time program updates
- Review technical session schedule
- Locate a meeting room
- Review local area and hotel information
- Find a local restaurant

CRUISE WAIKIKI WITH THE WAIKIKI TROLLEY
Waikiki Trolley is an easy, fun and affordable way to experience Waikiki and Honolulu. Discover the best in scenic, historical and cultural attractions as well as dining and shopping on the Trolley! A four-day adult pass can be purchased for $49 online and $52 in person, which includes unlimited riding privileges on all three lines (red, pink, and green) for four days. For more information visit the Waikiki Trolley website at http://www.waikikitrolley.com
### Tutorials April 22

<table>
<thead>
<tr>
<th>Mon. Morning</th>
<th>Mon. Afternoon</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00 a.m.–12:30 p.m.</td>
<td>1:30 p.m. – 5:00 p.m.</td>
</tr>
</tbody>
</table>

- **Fundamentals of GNSS: Signals and Systems**  
  Dr. Chris Bartone  
  Kona Moku A

- **Inertial Navigation**  
  Dr. Wouter Pelgrum and Dr. James L. Farrell  
  Kona Moku B

- **RTK GNSS Positioning**  
  Dr. Mark Petovello  
  Kona Moku B

### Technical Session Overview

<table>
<thead>
<tr>
<th>Mon. Morning</th>
<th>Mon. Afternoon</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00 a.m.–12:30 p.m.</td>
<td></td>
</tr>
</tbody>
</table>

- **A1: Earthquake, Tsunami Prediction and Monitoring with GNSS**  
  Kona Moku A

- **B1: GNSS Signal Structures**  
  Kona Moku B

- **C1: Agricultural and Land Vehicle Applications**  
  Kona Moku C

<table>
<thead>
<tr>
<th>Tues. Morning</th>
<th>Tues. Afternoon</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00 a.m.–12:30 p.m.</td>
<td>1:30 p.m. – 5:00 p.m.</td>
</tr>
</tbody>
</table>

- **A2: GNSS Policy/Status Updates**  
  Kona Moku A

- **B2: GNSS Correction and Monitoring Networks**  
  Kona Moku B

- **C2: Image Aided and Terrain-Referenced Navigation**  
  Kona Moku C

<table>
<thead>
<tr>
<th>Wed. Morning</th>
<th>Wed. Afternoon</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00 a.m.–12:30 p.m.</td>
<td>1:30 p.m. – 5:00 p.m.</td>
</tr>
</tbody>
</table>

- **A3: Spectrum, Interference and Authentication**  
  Kona Moku A

- **B3: Terrestrial and Maritime Navigation Technologies**  
  Kona Moku B

- **C3: First Responder, Indoor/Urban Navigation**  
  Kona Moku C

<table>
<thead>
<tr>
<th>Thurs. Morning</th>
<th>Thurs. Afternoon</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00 a.m.–12:30 p.m.</td>
<td>1:30 p.m. – 5:00 p.m.</td>
</tr>
</tbody>
</table>

- **A4: Time and Frequency Distribution**  
  Kona Moku A

- **B4: Signals of Opportunity and Augmentations**  
  Kona Moku B

- **C4: Algorithms and Methods**  
  Kona Moku C

- **A5: Ionosphere Monitoring with GNSS**  
  Kona Moku A

- **B5: Collaborative Navigation Topics**  
  Kona Moku B

- **C5: Air Vehicle Navigation and Surveillance**  
  Kona Moku C

- **A6: Aviation Applications of GNSS**  
  Kona Moku A

<table>
<thead>
<tr>
<th>Thurs. Afternoon</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:30 p.m. – 5:00 p.m.</td>
</tr>
</tbody>
</table>

- **B6: Inertial Navigation Technology and Applications**  
  Kona Moku B

- **C6: Challenging Navigation Topics**  
  Kona Moku C

### Informal Luncheon

- **Mon. Afternoon**: 12:30 p.m. – 1:30 p.m.  
  Waikiki Ballroom

- **Tues. Afternoon**: 12:30 p.m. – 1:30 p.m.  
  Waikiki Ballroom

- **Thurs. Afternoon**: 12:30 p.m. – 1:30 p.m.  
  Waikiki Ballroom

---

Note that the photographing of sessions/presentations and/or the audio or video recording of sessions/presentations is prohibited. As a courtesy to others, please set all cell phones to vibrate.
Session A1: Earthquake, Tsunami Prediction and Monitoring with GNSS
Room: Kona Moku A

9:05  1. A Seismogeodetic Earthquake and Tsunami Early Warning System for Western North America: Y. Bock, J. Geng, D. Melgar, B. Crowell, J. Haase, Scripps Institution of Oceanography

9:35  2. Assessment of GPS Ionosphere Observation and Earthquake: A-L. Tao, S-S. Jan, National Cheng Kung University, Taiwan


Break 10:35 a.m. – 10:55 a.m.

9:05  4. Assessment of Regional Satellite Navigation Systems in GNSS Reflection Experiments: J-C. Juang, National Cheng Kung University, Taiwan

11:00  5. Advantages and Drawbacks of the Precise Point Positioning (PPP) Technique for Earthquake, Tsunami Prediction and Monitoring: M.D. Laínez Samper, M.M. Romay Merino, GMV, Spain

12:00  6. On Detecting Underground Nuclear Explosions with GNSS and Radio Astronomical Observations: J. Park, The Ohio State University; J. Helmboldt, U.S. Naval Research Laboratory; D.A. Grejn-Brzezinska, R.R.B. von Frese, The Ohio State University; T. Wilson, U.S. Naval Research Laboratory

Alternates

1. Earthquake Analysis by 3-D Affine Deformations: J.L. Farrell, VIGIL, Inc.

2. Processing of GPS Station Data for Prediction Algorithm Analysis of the 2011 Tohoku Earthquake: F. van Graas, R. Kollar, Ohio University, Avionics Engineering Center

Session B1: GNSS Signal Structures
Room: Kona Moku B


9:35  2. An Analysis of Combined COMPASS/BeiDou-2 and GPS Single- and Multiple-frequency RTK Positioning: R. Odolinski, Curtin University, Australia; P.J.G Teunissen, Curtin University, Australia and Delft University of Technology, The Netherlands; D. Odijk, Curtin University, Australia

10:05  3. Interoperability and Compatibility Analysis of GNSS L1/B1/E1 Open Signals: Z. Liu, Beijing Satellite Navigation Center, China; J. Tang, China National Administration of GNSS and Applications, China; J. Shen, R. Wen, Beijing Satellite Navigation Center, China

Break 10:35 a.m. – 10:55 a.m.

11:00  4. Semi-Coherent and Differentially Coherent Integration for GPS L1C Acquisition: K.C. Seals, United States Coast Guard Academy; W.R. Michalson, Worcester Polytechnic Institute

11:30  5. Real-Time Validation of BeiDou Observations in a Stand-alone Mode: A. El-Mowafy, Curtin University, Australia.

12:00  6. Research on GNSS Interoperable Parameters: T. Han, National Time Service Center, Chinese Academy of Sciences (CAS), China; W. Hao, Academy of Opto-electronics, CAS, China; X. Lu, National Time Service Center, CAS, China

Alternates

1. Quasi-coherent Joint Processing Technique of Modernized GNSS Multiplexing Signals: Z. Yao, M. Lu, Tsinghua University, China

2. The Concept of PNT Engine: H. Wu, X. Lu, D. Zou, T. Han Tao, Chinese Academy of Sciences, China

3. The Design of BOC Family Modulation Signal Parameters Optimization in Compass: C. Xiaoqiu, C. Yonggang, Harbin Institute of Technology, China

continued on page 5
4. Advantages of POCET Modulation for GPS L1 Signals: P. Dafesh, The Aerospace Corporation; C.R. Cahn, Consultant to The Aerospace Corporation
5. Effect of GPS NAV Message Truncation Error on UERE and UNE: Y. Liu, Beijing Institute of Tracking and Telecommunication Technology, China

Session C1: Agricultural and Land Vehicle Applications
Room: Kona Moku C


9:35 2. In-The-Field Trials for Real-Time Precise Positioning and Integrity in Advanced Applications: M.D. Laínez Samper, M.M. Romay Merino, GMV, Spain

10:05 3. A Method to Produce Network Configuration of GNSS Receiving Station for Optimizing Performance of Precise Positioning: M-H. Son, G-H. Kim, E. Lee, S. Im, G.W. Nam, M-B. Heo, Korea Aerospace Research Institute, Republic of Korea

Break 10:35 a.m. – 10:55 a.m.

11:00 4. Ambiguity Level Adjustment Among Networks of Compact Network RTK for Land Vehicle Users: J. Song, B. Park, Seoul National University, Republic of Korea; Sejong University, Republic of Korea; C. Kee, Seoul National University, Republic of Korea

11:30 5. New Indicator of Signal Blocking Degree to Describe GNSS Signal Receiving Environment in Land Road: W. Hong, E. Lee, K. Choi, S. Im, G.W. Nam, M. Heo, Korea Aerospace Research Institute, Republic of Korea

12:00 6. Low-cost Single-frequency GPS/GLONASS RTK for Road Users: S. Carcanague, ENAC/M3SYSTEMS, France; O. Julien, ENAC, France; W. Vigneau, M3SYSTEMS, France; C. Macabiau, ENAC, France

Alternates
1. Particle Filters Using Position Samples and GNSS Carrier-Phase for Attitude Determination of Ground Vehicle: S.S. Hwang, Novariant
3. Performance Analysis of Collaborative Agricultural Robot for Greenhouse Crop Production: C-L. Chang, C. Yang, Y-C. Huang, National Pingtung University of Science and Technology, Taiwan
Session A2: GNSS Policy/Status Updates

Room: Kona Moku A

1:35  1. GNSS Policy and Program Update (Keynote): David A. Turner, U.S. Department of State
1:57  2. Adoption of GNSS Technologies in Singapore: Considerations and Concerns: P.E. Kee, Nanyang Technological University, Singapore
2:20  3. Basic Service Performance of BeiDou/COMPASS II: Y. Yang, China National Key Laboratory of Geo-Information Engineering/China National Administration of GNSS and Applications (CNAGA), China; J. Li, Institute of Surveying and Mapping of Information Engineering University, China; J. Xu, Institute of Surveying and Mapping of Information Engineering University/Xian Institute of Surveying and Mapping Information, China; H. He, H. Guo, Beijing Global Information Center of Application and Exploitation, China; J. Tang, CNAGA, China
2:42  4. Beidou System Update and Region Service in Asia and Pacific: X. Ding, Senior Adviser China Satellite Navigation Office, China

Break 3:05 p.m. – 3:25 p.m.

3:30  5. FAA’s Navigation Program Status: D. Lawrence, Federal Aviation Administration
3:52  6. GNSS Activities in Taiwan: J-C. Juang, National Cheng Kung University, Taiwan
4:15  7. Korean SBAS Development Status and Plan: C. Kee, H. Yun, Seoul National University, South Korea
4:37  8. QZSS Present Status and the Future PLAN (TBC): H. Noda, Office of National Space Policy, Japan
5:00  9. The IGS MGEX Experiment as a Milestone for a Comprehensive Multi-GNSS Service: C. Rizos, University of New South Wales, Australia; O. Montenbruck, German Aerospace Center DLR/GSOC, Germany; R. Weber, Vienna University of Technology, Austria; G. Weber, BKG, Germany; R. Neilan, IGS, USA; U. Hugentobler, TUM/IAPG, Germany

Session B2: GNSS Correction and Monitoring Networks

Room: Kona Moku B

1:35  1. Mitigation Model and Method of Ionospheric Time Delay for Compass/GNSS: Y. Yuan, Z. Li, X. Huo, N. Wang, Institute of Geodesy and Geophysics, CAS, China
2:05  2. Eliminating Obliquity Error from the Estimation of Ionospheric Delay in a Satellite-based Augmentation System: L. Sparks, Jet Propulsion Laboratory, California Institute of Technology
2:35  3. Constructing Ionospheric Irregularity Threat Model for Korean SBAS: E. Bang, J. Lee, J. Lee, Korea Advanced Institute of Science and Technology, Republic of Korea; J. Seo, Yonsei University, Republic of Korea; T. Walter, Stanford University, USA

Break 3:05 p.m. – 3:25 p.m.

3:30  4. Prediction of Regional Ionospheric Delays with Spherical Cap Harmonic Analysis and Regression Model: M. Ohashi, K. Nishimoto, Y. Kubo, S. Sugimoto, Ritsumeikan University, Japan
4:00  5. Integrity Monitoring Technology on Reference Stations for the Network RTK: M.Y. Shin, D.J. Cho, S.H. Park, Korea Institute of Ocean Science and Technology, Republic of Korea
4:30  6. The Global Characteristic of Tropospheric Delay and Modelling: S. Song, J. Zhao, W. Zhu, Q. Chen, SHAO, China

Alternates

1. Fixed Ambiguity Precise Point Positioning (PPP) Using Tropospheric Corrections Based on Numeric Weather Modeling (NWM): A. Jokinen, S. Feng, W. Schuster, W. Ochieng, Imperial College London, UK; L. Yang, C. Hide, T. Moore, C. Hill, University of Nottingham, UK
2. Preliminary Accuracy Assessment of PWV Derived with CNES Real-time Orbit and Clock Product: M. Wang, H. Chai, Zhengzhou Institute of Surveying and Mapping, China
3. Progress on International GNSS Monitoring and Assessment System: D. Xurong, J. Wenhai, H. Xiaorui, S. Xiaoli, Test & Assessment Research Center, CSNO, China
Session C2: Image Aided and Terrain-Referenced Navigation
Room: Kona Moku C

1:35 1. Seeing is Believing: Vision Based Navigation: M. Miller, Air Force Research Laboratory

2:05 2. DOP Controlled GNSS/Vision/INS Integrated Navigation under GNSS Degraded Environments: D.H. Won, J. Ahn, S. Sung, Y.J. Lee, Konkuk University, Republic of Korea

2:35 3. Comparing Traditional and Motion Constraint Methods for EKF-Based SLAM: K. Brink, E. Doucette, AFRL/RW

Break 3:05 p.m. – 3:25 p.m.


4:00 5. Design of Mode Switching Logic for EKF/Batch Processing TRN: W. Lee, Y.M. Yoo, Seoul National University, Republic of Korea; C.G. Park, ASRI/Seoul National University, Republic of Korea

4:30 6. Inter-frame Registration using Kalman Filter for Vision Based Navigation: J.C. Yao, DSO National Laboratories, Singapore; E.K. Poh, Nanyang Technological University, Singapore

Alternates


2. New Terrain Roughness Index for Update of Profile Based TRN: Y.M. Yoo, S.M. Lee, C.G. Park, Seoul National University, Republic of Korea
Session A3: Spectrum, Interference and Authentication

Room: Kona Moku A

9:05 1. Radio Navigation Satellite Service (RNSS) and the ITU Radio Regulations: A. Matas, International Telecommunication Union (ITU), Switzerland


10:05 3. Transform Domain Interference Suppression in GNSS Receiver Based on FrFT: H. Wu, Y-X. Zhang, Y-Z. Zheng, Y-G. Sun, MXTronics Corporation, China

Break 10:35 a.m. – 10:55 a.m.

11:00 4. Pushing the Boundary of GNSS Inertial Systems into Interference and Jamming Environments: G. Gao, M. Bobye, NovAtel Inc., Canada

11:30 5. Implementation of a Jammer Localization System Based on TDOA/AOA Algorithm: D.W. Lim, H.W. Kang, Korea Aerospace Research Institute, Republic of Korea; H.H. Choi, S.J. Lee, Chungnam National University, Republic of Korea; M.B. Heo, Korea Aerospace Research Institute, Republic of Korea

12:00 6. High Latitude and Equatorial Ionosphere Scintillation Spectrum Analysis: J. Wang, Y. Morton, Miami University; W. Pelgrum, Ohio University

Alternate

1. A Time-Frequency Based GNSS Interference Detection and Mitigation Method for GNSS Receivers: K. Sun, Hefei University of Technology, China

Session B3: Terrestrial and Maritime Navigation Technologies

Room: Kona Moku B

9:05 1. DME/N Error Budget Allocation and DME-Next Proof-of-Concept Flight Test and Performance Evaluation: K. Li, W. Pelgrum, Ohio University

9:35 2. eLoran in the UK - Leading the Way: P. Williams, D. Last, N. Ward, General Lighthouse Authorities, UK


Break 10:35 a.m. – 10:55 a.m.

11:00 4. Resilient PNT for e-Navigation: P. Williams, M. Bransby, N. Ward, D. Last, General Lighthouse Authorities, UK

11:30 5. Mine Machinery Automation Using Locata-Augmented GNSS: C. Rizos, University of New South Wales, Australia; N. Gambale, Locata Corporation, Australia; B. Lilly, Leica Geosystems, Australia

12:00 6. The Secluded Navigational Spatial Modeling of Underwater Vehicles: G. Yuan, X. Du, G. Li, Y. Gao, Harbin Engineering University, China
Session C3: First Responder, Indoor/Urban Navigation
Room: Kona Moku C


10:05  3. Indoor Localization Through the Integration of RGB and Depth Data from Microsoft Kinect Sensor: L. Magasweran, J. Huang, California State University Fullerton

Break 10:35 a.m. – 10:55 a.m.

11:00  4. Integration of Floor Plan, Vision and Inertial Sensors for Pedestrian Navigation in Indoor Environments: S. Du, B. Huang, Y. Gao, University of Calgary, Canada

11:30  5. Assessment of the Multipath Mitigation Effect of Vector Tracking in an Urban Environment: L-T. Hsu, National Cheng Kung University, Taiwan; P.D. Groves, University College London, UK; S-S. Jan, National Cheng Kung University, Taiwan

12:00  6. Using Doppler Measurements for Static Indoor Positioning: M.G. Petovello, University of Calgary, Canada

Alternates


2. An Indoor Robotic Platform for Human Servicing using Inverted Pendulum Design with Laser Ranging Aided Odometer: M. Yeh, J. Huang, California State University Fullerton


4. 3D-Map Aided Multipath Mitigation for Urban GNSS Positioning: I-W. Chu, J-C. Juang, National Cheng Kung University, Taiwan

5. Research of Signal-processing Algorithm in Indoor Positioning using IMES: Y. Yamada, A. Yasuda, Tokyo University of Marine Science and Technology, Japan
Session A4: Time and Frequency Distribution
Room: Kona Moku A

Wednesday, April 24
1:30 p.m. – 5:00 p.m.

2:05  2. In-Flight Measurements and Correction Model for Rubidium Oscillator Gravity Sensitivity and Magnetic Field Susceptibility: S. Craig, F. van Graas, Ohio University
2:35  3. Development of an Experimental Software GPS Receiver for Time and Frequency Transfer: T. Gotoh, J. Amagai, T. Hobiger, H-B. Li, NICT, Japan

Break 3:05 p.m. – 3:25 p.m.

4:00  5. Sub-nanosecond Timing with RTK Receivers: J. Fischer, P. Myers, Spectracom
4:30  6. Synchronization and Syntonization of Formation Flying Cubesats Using the Namuru V3.2 Spaceborne GPS Receiver: E. Glennon, J. Gauthier, M. Choudhury, A. Dempster, University of New South Wales, Australia

Alternate

Session B4: Signals of Opportunity and Augmentations
Room: Kona Moku B

1:35  1. Using Combined IMU / Stereo Vision / Cooperative GNSS System for Positioning of UxV Swarms within Catastrophic Urban Scenarios: S. Batzdorfer, U. Bestmann, M. Becker, A. Schwithal, J. Schattenberg, T. Lang, Technische Universität Braunschweig, Germany; F. Andert, J. Dittrich, German Aerospace Center (DLR), Germany
2:05  2. WARP-P: Wireless Signal Acquisition with Reference Point by using Simplified PDR – System Concept and Performance Assessment: Y. Cho, M. Ji, Y. Lee, S. Park, Electronics and Telecommunications Research Institute, Republic of Korea; B. Shin, T. Lee, Korea Institute of Science and Technology, Republic of Korea

Break 3:05 p.m. – 3:25 p.m.

3:30  4. Preliminary Test Results of Pseudolite-Based Augmentation System (PBAS): H. Yun, D. Han, C. Kee, Seoul National University, Republic of Korea
4:00  5. A Optimization Model for the Additional AP Placement in the Existing Wi-Fi Indoor Positioning System: Y. Du, D. Yang, C. Xu, Z. Huang, Beihang University, China
4:30  6. Improved ZigBee Fingerprint Method for Indoor Positioning: X.K. Liu, H. Guo, Nanchang University, China; M. Yu, Jiangxi Normal University, China; Y. Li, Nanchang University, China

Alternates
2. Indoor Positioning using Femtocell: C.E. Lin, J-S. Shie, S-C. Liu, S. Ke, National Cheng Kung University, Taiwan; J. Chang, Askey Computer Corp., Taiwan
Session C4: Algorithms and Methods

Room: Kona Moku C

1:35  1. GNSS Integer Ambiguity Validation: Overview of Theory and Methods: P.J.G. Teunissen, Curtin University of Technology, Australia and Delft University of Technology, The Netherlands

2:05  2. FFT Based two Dimensional Compressed Correlator for Fast Acquisition in GNSS: B. Kim, S-H. Kong, KAIST, Republic of Korea


Break 3:05 p.m. – 3:25 p.m.

3:30  4. Design and Performance Evaluation of Model-Based Multipath Estimation Technique for GNSS Receivers: D.W. Lim, Korea Aerospace Research Institute, Republic of Korea; H.H. Choi, S.J. Lee, Chungnam National University, Republic of Korea; M.B. Heo, Korea Aerospace Research Institute, Republic of Korea

4:00  5. Carrier-Smoothing (Hatch) Filter Performance Analysis and Algorithm Enhancement on Ionosphere-Free Carrier-Smoothed Pseudo-Range Estimation in Multiple Frequencies Context: J. Qiu, Seekon Microwave, China Electronics Technology Group Corporation; G. Mao, Unicore Communications Incorporation, China; Y. Li, Seekon Microwave, China Electronics Technology Group Corporation

4:30  6. Enhanced RAIM Based on Weighted and Subset Schemes for GNSS Receiver: L. Yang, Y. Zhang, Beijing Microelectronics Technology Institute, China Y. Gao, University of Calgary, Canada

Alternates

1. Ionosphere TEC Correction for Single Frequency GNSS Receivers: H. Bourne, Y. Morton, Miami University


3. A New GEO Broadcast Ephemeris Based on the Second Class of Nonsingular Elements: L. Du, Z. Zhang, I. Song, X. Zhang, Zhengzhou Institute of Surveying and Mapping, China; L. Liu, C. Zhang, R. Guo, F. He, Beijing Global Information Application and Development Center, China


5. An Approach to Increase Positioning Accuracy of Single Frequency GPS Receiver: L. Kozienko, C. Konstantin, Irkutsk State Transport University, Russia

6. Analysis on Integrity Risk of Compass Users Based on Non-Least-Square Estimator: F. Niu, J. Chen, L. Yang, Beijing Satellite Navigation Center, China
Session A5: Ionosphere Monitoring with GNSS
Room: Kona Moku A

9:05 1. Ionosphere Scintillation Receivers Performances Based on High Latitude Experiments: S. Taylor, Y. Morton, R. Marcus, H. Bourne, Miami University; W. Pelgrum, Ohio University; A.J. Van Dierendonck, AJ Systems


10:05 3. First Results of Phase Scintillation from a Longitudinal Chain of ASTRA’s SM-211 GPS TEC and Scintillation Receivers in Alaska: I. Azeem, G. Crowley, A. Reynolds, J. Santana, ASTRA LLC.; D. Hampton, University of Alaska, Fairbanks

Break 10:35 a.m. – 10:55 a.m.

11:00 4. A Comparison of GNSS-based Ionospheric Scintillation Observations in North and South Hong Kong: Z. Liu, R. Xu, The Hong Kong Polytechnic University, Hong Kong; J. Morton, Miami University, USA; J. Xu, Wuhan University, China; W. Pelgrum, Ohio University, USA; S. Taylor, Miami University; W. Chen, X. Ding, The Hong Kong Polytechnic University, Hong Kong

11:30 5. Determination of the Parameters of a Japanese-Regional Klobuchar Ionospheric Model Based on GR Models and SCH Analysis by GEONET Data: K. Nishimoto, M. Ohashi, Y. Kubo, S. Sugimoto, Ritsumeikan University, Japan

12:00 6. Automated Processing of Global Ionospheric Map Based on SHPTS in WHIGG: Z. Li, Y. Yuan, X. Huo, N. Wang, H. Li, Institute of Geodesy and Geophysics, CAS, China

Alternates

1. Analysis of Ionospheric Depletion Over the Indian Region: P. Joshi, P.R. Mahapatra, Indian Institute of Science, India; A.S. Ganeshan, S. Nirmala, ISAAC, India

2. Assessment of CODE GIM Over China: J. Xue, S. Song, W. Zhu, Shanghai Astronomical Observatory, China


4. Ground and Space Based GPS Measurements of Ionospheric Behavior During the 1st August 2010 Solar Storm Over the Earth: H. Wang, Chinese Academy of Surveying and Mapping, China; Q. Wang, Chinese Academy of Surveying and Mapping and State Key Laboratory of Geo-Information Engineering, China; Y. Chen, Chinese Academy of Surveying and Mapping, China; J. Wang, Tongji University, China

Session B5: Collaborative Navigation Topics
Room: Kona Moku B

9:05 1. The Future Satellite Navigation Systems: M.M. Romay Merino, M.D. Laínez Samper, GMV, Spain


Break 10:35 a.m. – 10:55 a.m.

11:00 4. Cooperative Positioning using GPS, Low-cost INS and Dedicated Short Range Communications: A. Kealy, A.H. Rabia, The University of Melbourne, Australia; N. Alam, The University of New South Wales, Australia; C. Toth, D. Brzezinska, Ohio State University; V. Gikas, C. Daneizis, Athens University, Greece; G. Retscher, Vienna University of Technology, Austria

continued on page 13
Session C5: Air Vehicle Navigation and Surveillance

Room: Kona Moku C

9:05  1. Application of Beacon Navigation and Angle-Only Artillery Surveying Methods for INS Aiding on Aerial Platforms in GNSS Denied Environments: D.R. Levent Guner, Aselsan Inc., Turkey; M.K. Ozgoren, B.E. Platin, Middle East Technical University, Turkey

9:35  2. Guidance, Navigation, and Separation Assurance for Local-Area UAV Networks: Putting the Pieces Together: S. Pullen, Stanford University, USA; J. Lee, Korea Advanced Institute of Science and Technology, Republic of Korea


Break 10:35 a.m. – 10:55 a.m.


11:30  5. Development of a Navigation Solution for an Image Aided Automatic Landing System: C. Eitner, F. Holzapfel, Technical University Munich, Germany

12:00  6. Integrating Electro-Optical Grid Reference System (EOGRS) and Other Sensors of Opportunity into GPS-Based Precision Applications: G. Johnson, J. Waid, S. Dogra, S. Toussaint, CTSi

Alternates


2. Cockpit Visualization of Curved Approaches Based on GBAS: R. Geister, T. Kapol, German Aerospace Centre, Institute of Flight Guidance, Germany

3. Protected Sense and Avoid System for Multiple GNSS Constellations: V. Contarino, R. Cubed Inc., USA; I. Borschchova, Memorial University of Newfoundland, Canada; P. Molchanov, AMPAC Inc., USA; S.O. Young, Memorial University of Newfoundland, Canada
Session A6: Aviation Applications of GNSS
Room: Kona Moku A

1:35  1. GPS Orbit and Clock Error Distributions, 2005 to 2012: C. Cohenour, F. van Graas, Ohio University

Break 3:05 p.m. – 3:25 p.m.

3:30  4. Performance of Civil Aviation Receivers During Maximum Solar Activity Events: L. Deambrogi, C. Macabiau, Ecole Nationale de l’Aviation Civile (ENAC), Toulouse, France; W. Vigneau, M3SYSTEMS, France; J-J. Valette, Collecte Localisation Satellites (CLS), France; M. Mabileau, Egis Avia, France; E. Robert, EUROCONTROL, Belgium

4:00  5. New Generation SBAS Systems and Monitoring Tools for Aeronautical Applications: M.M. Romay Merino, M.D. Laínez Samper, A. Madrazo Fernández, A.J. Gavín Alarcón, GMV, Spain

Alternates
2. Sensitivity Analysis of the Airborne CCD Monitor for GAST-D: Y. Yun, J. Cho, M-B. Heo, Korea Aerospace Research Institute, Republic of Korea

Session B6: Inertial Navigation Technology and Applications
Room: Kona Moku B

1:35  1. Precision Navigation and Timing Enabled by Microtechnology: Are We There Yet?: A. Shkel, DARPA
2:05  2. A CMOS Based Current-to-Frequency Converter Design for Current Output Analog Accelerometers: O.L. Nuzumlali, M. Eren, Aselsan Inc., Turkey; H. Kulah, Middle East Technical University, Turkey
2:35  3. INS Aided GPS Integer Ambiguity Resolution and Real Time Vehicle Attitude Determination: T. Li, G. Yuan, D.D. Wang, L. Zhang, Harbin Engineering University, China

Break 3:05 p.m. – 3:25 p.m.

3:30  4. A Novel Federated Prefilter Design for Ultra-Tightly Coupled GPS/INS Integration: D-J. Jwo, National Taiwan Ocean University, Taiwan; C-F. Yang, Chung-Shan Institute of Science and Technology, Taiwan
4:30  6. The SLAM Algorithm Based on PNN in the Application for Autonomous Underwater Vehicle: G. Yuan, D. Wang, T. Li, L. Zhang, Harbin Engineering University, China

Alternates
1. An Adaptive Algorithm of Rotation Vector Estimation Suitable for the High-speed Circumgyrating Carrier: Y. Tian, J. Sun, J. Li, J. Li, Y. Yan, Institute of Microelectronics of Chinese Academy of Sciences, China
2. Nuclear Magnetic Resonance Gyroscope: M. Larsen, M. Bulatowicz, Northrop Grumman

continued on page 15
3. Parameter Identification of Ship Vertical Motions using Light Ray Optimization Algorithm: G-N. Yuan, L-N. Zhang, D-D. Wang, T. Li, Harbin Engineering University, China

4. Risk Assessment Techniques for Small-sized Sea Floater by Comparing Dynamic Motions Measured by MEMS-based Sensor with Probability-based Criteria: J-B. Yim, Mokpo National Maritime University, South Korea

Session C6: Challenging Navigation Topics
Room: Kona Moku C

1:35 1. Tracking of Direct and Reflected GNSS Signals in Hubble Servicing Mission 4: B. W. Ashman, J. L. Garrison, Purdue University

2:05 2. Optimal Parameters for the Combination of Coherent and Non-coherent Acquisition of Weak GNSS Signals: R. Yang, K.V. Ling, E.K. Poh, Nan Yang Technology University, Singapore

2:35 3. Implementation of Software GPS Receiver Algorithm for GEO Satellites: C. Kim, G. Kim, D. Han, C. Kee, Seoul National University, South Korea

Break 3:05 p.m. – 3:25 p.m.

3:30 4. Instantaneous GPS/BeiDou/Galileo Attitude Determination: A Single-Frequency Robustness Analysis under Constrained Environments: N. Nadarajah, Curtin University, Australia; P.J.G. Teunissen, Curtin University, Australia and Delft University of Technology, The Netherlands

4:00 5. A Decentralized Scheme to Generate High Resolution Ionospheric Map in Real-Time: K.H. Choi, H.S. Kim, J.Y. Lee, J.H. Lim, H.K. Lee, Korea Aerospace University, Republic of Korea


Alternates

1. Development of Software Based GPS L1 IF Signal Simulator for GEO Satellite Environments: G. Kim, D. Han, C. Kim, C. Kee, Seoul National University, Republic of Korea

2. A Software-Defined Real-Time GNSS Signal Quality Monitoring Receiver using GPU(Graphic Processing Unit): S-H. Im, Korea Aerospace Research Institute, Republic of Korea; J-H. Im, G-I. Lee, Konkuk University, Republic of Korea; E. Lee, M-B. Heo, Korea Aerospace Research Institute, Republic of Korea

3. Design Considerations of Direct RF Sampling Front End for GNSS Test Receiver in Strong Signal Conditions: H. Zhang, Beihang University, China; Y. Liu, Beijing Institute of Tracking and Telecommunication Technology, China; Z. Zhang, Beihang University, China

4. A Simple Model to Mitigate Higher Order Effects on GNSS Positioning Using Triple Frequency: J. Taramona, Corpac S.A, Peru; J. Galera Monico, H. Marques, Sao Paulo State University, Brazil; E. Rodrigues de Paula, INPE, Brazil

continued from page 14
Technical Paper Copies Online
Registered attendees may download copies of technical papers online for FREE. Papers can be accessed through the ION website www.ion.org by clicking on the ION PNT 2013 icon. You will need to submit your registration ID (located on the back of your conference badge) and your last name. Only papers provided to the ION by the presenting author will be available. If a desired paper is not available, we recommend you contact the author directly.

Conference Proceedings
Electronic download for conference proceedings are scheduled for distribution in June to all eligible conference participants.

Passcodes for Wireless Internet
To access free wireless internet in public hotel areas:
Network: Marriott_Public
To access free wireless internet in hotel meeting rooms:
Network: Marriott_Conference
Bypass email address request and use password “meeting3”