

# The Second ENRI International Workshop on ATM/CNS (EIWAC2010)

- For Safety , Efficiency , and Environment -

*Program*  
**ENRI**

## 【Venue】

Akihabara Convention Hall , Tokyo , Japan

## 【Schedule】

|       |  |             |
|-------|--|-------------|
| 11/10 | Plenary Session                        | 10:00~17:45 |
| 11/11 | Technical Session                      | 09:30~16:30 |
| 11/12 | Plenary Session<br>& Technical Session | 09:30~16:30 |



**Program of the Second  
ENRI International Workshop on ATM/CNS  
(EIWAC2010)  
For Safety , Efficiency, and Environment**

November 10-12 , 2010  
Akihabara Convention Hall , Tokyo, JAPAN

**Wednesday, 10th November**

Plenary Session 1 -Chair K. Yamamoto, ENRI

- [EN-P1] Update of SESAR project  
+P. Hecker,  
*Single European Sky ATM Research (SESAR) Joint Undertaking, Germany*
- [EN-P2] CNS/ATM R&D Activities in Korea  
+D. M. Kim,  
*Korea Aerospace Research Institute (KARI), Korea*
- [EN-P3] Paving the Way for Future Air Traffic Management  
+F. S. Nieto,  
*Spanish Aviation Authority, Spain*

Plenary Session 2 -Chair K. Nakatsubo, ENRI

- [EN-P4] Update of the ENRI Long Term R&D Vision  
+K. Yamamoto,  
*Electronic Navigation Research Institute (ENRI), Japan*
- [EN-P5] CARATS : Long-Term Vision of Future Air Traffic Systems in Japan  
+T. Nakada,  
*Civil Aviation Bureau of Japan (JCAB), Japan*
- [EN-P6] Boeing Air Traffic Management Overview and Status  
+M. Harris,  
*Boeing Commercial Airplanes, USA*

Panel Discussion -Chair K. Yamamoto, ENRI

Panelists

F. S. Nieto, *Spanish Aviation Authority*  
K. Ito, *Civil Aviation Bureau of Japan*  
P. Hecker, *University of Braunschweig*  
S. Suzuki, *University of Tokyo*  
T. Inagaki, *University of Tsukuba*  
Y. Hirao, *Nagaoka University of Technology*

**Thursday 11th November**

Technical Session Navigation (GNSS) -Chair K.Ito, ENRI

- [EN-033] Diurnal and Seasonal Variation of Total Electron Content (TEC) at Chumphon and Bangkok, Thailand  
S. Rungraengwajjake, +P. Supnithi,  
*King Mongkut's Institute of Technology Ladkrabang, Thailand*  
T. Tsugawa,  
*National Institute of Information and Communications Technology (NICT), Japan*
- [EN-042] Development of GBAS Ionosphere Anomaly Monitor Standards to Support Category III Operations  
+M. Harris,  
*Boeing Commercial Airplanes, USA*
- [EN-047] Estimation of GPS Receiver Inter-Frequency Bias for Operational Ionosphere Monitoring in GBAS  
+J. Lee, S. Jung, E. Bang,  
*Korea Advanced Institute of Science & Technology (KAIST), Korea*
- [EN-046] Study of INS-Aided GPS Tracking Performance under Simulated Ionospheric Scintillation Associated with Plasma Bubbles  
+T. Tsuji, T. Fujiwara, Y. Sugauma,  
*Japan Aerospace Exploration Agency (JAXA), Japan*  
K. Matsunaga,  
*Electronic Navigation Research Institute (ENRI), Japan*

Technical Session Surveillance 1 -Chair T.Koga, ENRI

- [EN-105] Evaluation Results of Airport Surface Multilateration  
+H. Miyazaki, T. Koga, E. Ueda, Y. Kakubari, S. Nihei,  
*Electronic Navigation Research Institute (ENRI), Japan*
- [EN-113] Development of TIS-B system for situation awareness enhancement  
+T. Otsuyama, S.Ozeki, M. Shioji,  
*Electronic Navigation Research Institute (ENRI), Japan*
- [EN-015] Global surveillance system based on 1090ES ADS-B and satellite-transmitters  
+V. Lavrov, A. Usoltsev,  
*Reshetnev ISS, Russia*  
A. Shilov,  
*Roscosmos, Russia*  
S. Trofimov,  
*Monitor Soft, Russia*

Technical Session Surveillance 2 -Chair H.Miyazaki, ENRI

- [EN-008] Improved radar coverage in Algeria, for a better integration of CNS / ATM concept  
+A. Boudani, A. Zabot, M. Lagha, S. Bergheul, H. Saci,  
*Saad Dahlab University of Blida, Algeria*
- [EN-048] Enhancing Wake Vortex Surveillance Capability Using Innovative Fusion Approaches  
+S. Schoenhals, M. Steen, P. Hecker,  
*Technische Universitaet Braunschweig, Germany*

## Thursday 11th November

### Technical Session Trajectory Management -Chair S.Ozeki, ENRI

- [EN-023] **Aircraft Conflict Resolution by Genetic Algorithm and B-Spline Approximation**  
+D. Delahaye, C. Peyronne, S. Puechmorel,  
*École Nationale de l'Aviation Civile (ENAC), France*  
M. Mongeau,  
*Universite Toulouse, France*
- [EN-039] **Facilitation of Continuous Descent Arrivals with Improved Efficiency and Predictability by the Use of Tailored Descent Wind Forecasts**  
+G. N. McDonald, J. Bronsvort,  
*Airservices Australia, Australia*  
R. Potts,  
*Australian Government Bureau of Meteorology, Australia*  
E. Gutt,  
*(formerly with) Emirates Airlines, UAE*
- [EN-024] **Clustering radar tracks to evaluate efficiency indicators**  
+R. Winkler, A. Temme, C. Boesel,  
*German Aerospace Center (DLR), Germany*  
R. Kruse,  
*Otto-von-Guericke University, Germany*
- [EN-103] **Development of Trajectory Prediction Model**  
+Y. Fukuda, M. Shirakawa, A. Senoguchi,  
*Electronic Navigation Research Institute (ENRI), Japan*

### Technical Session Traffic Capacity & Congestion Management -Chair K.Kageyama, ENRI

- [EN-012] **Validation of En Route Capacity Model with Peak Counts from the US National Airspace System**  
+J. Welch, J. Andrews,  
*MIT Lincoln Laboratory, USA*  
J. Post,  
*Federal Aviation Administration (FAA), USA*
- [EN-011] **Airspace Design using a Workload Node-based GA**  
+X. Ruiz-Hernández, J. M. Rísquez, V.F. Gómez,  
*Ingeniería y Economía del Transporte S.A., (INECO), Spain*
- [EN-002] **Designing 3D ATC Sectors by using a "Genetic Algorithm"-based methodology**  
+J.M. Rísquez, V.M. Bustos, V.F. Gómez,  
*Ingeniería y Economía del Transporte S.A., (INECO), Spain*

### Technical Session ATM Modeling -Chair Y.Fukuda, ENRI

- [EN-037] **Airborne Conflict Modeling and Resolution for UAS Insertion in Civil Non-Segregated Airspace**  
C. A. Persiani, +S. Bagassi,  
*University of Bologna, Italy*
- [EN-020] **A Queuing Model with Scheduled Arrivals under 4D Trajectory-Based Operations**  
+T. Nikoleris, M. Hansen,  
*University of California, USA*
- [EN-029] **Fluctuation Scaling in the Air Traffic Controller Communication Activities**  
+Y. Wang, M. Hu,  
*Nanjing University of Aeronautics & Astronautics, China*  
V. Duong,  
*EUROCONTROL, France*
- [EN-102] **Study of Traffic Synchronization**  
+C. Gwiggner,  
*Electronic Navigation Research Institute (ENRI), Japan*

## Thursday 11th November

### Technical Session Safety Research -Chair S.Nagaoka, ENRI

- [EN-044] **Safety nets performance assessment: the encounter-model methodology as a cornerstone to provide quantified results for ACAS and STCA**  
+J. M. Loscos, C. Aveneau,  
*Direction des Services de la Navigation Aérienne (DSNA), France*
- [EN-032] **High Density en Route Airspace Safety Level and Collision Risk Estimation Based on Stored Aircraft Tracks**  
+E. Garcia, F. Saez, R. Arnaldo,  
*Universidad Politécnica de Madrid (UPM), Spain*
- [EN-049] **Risk Compensation in General Aviation: The Effect of Ballistic Parachute Systems**  
+C. Hartman, I. Dabipi, J. Doodoo, J. Burrows-McElwain,  
*University of Maryland Eastern Shore, USA*
- [EN-110] **Safety Analysis for Reduction of Longitudinal Time Separation Minima on Oceanic Routes**  
+R. Mori,  
*Electronic Navigation Research Institute (ENRI), Japan*

### Technical Session Human factors 1 -Chair C.Gwiggner, ENRI

- [EN-019] **Understanding the effect of alcohol consumption by Airline Passengers in Safety Sensitive Aisles**  
+J.B. Burrows-McElwain, I.K. Dabipi, C.E. Hartman, J. Doodoo,  
*University of Maryland Eastern Shore, USA*
- [EN-111] **Development of "cereameter"**  
+K. Shiomi,  
*Electronic Navigation Research Institute (ENRI), Japan*
- [EN-114] **Introduction to the SESAR WPE Research Network : HALA! (Higher Automation Levels in ATM)**  
F. Saez, +E. Garcia,  
*Universidad Politécnica de Madrid (UPM), Spain*  
D. Schaefer,  
*EUROCONTROL, France*

### Technical Session Human factors 2 -Chair T.Tsuchiya, Univ. of Tokyo

- [EN-034] **A Controller-in-the-Loop Simulation of Ground-Based Automated Separation Assurance in a NextGen Environment**  
+J. Homola, T. Prevot, J. Mercer, C. Brasil, L. Martin, C. Cabrall,  
*San Jose State University / NASA Ames Research Center, USA*
- [EN-031] **Human Factors in General Aviation: FAA and ASF efforts to mitigate accidents and Fatalities**  
+J. N. D. Doodoo, I. K. Dabipi, C. Hartman, J. B. Burrows-McElwain,  
*University of Maryland Eastern Shore, USA*
- [EN-022] **An integrated Wake Vortex Visualization Concept for existing Cockpit Display Systems**  
S. Kocks, S. Bode, +T. Feuerle, C. Paetzold, S. Schoenhals, P. Hecker,  
*Technische Universitaet Braunschweig, Germany*
- [EN-018] **Human factors in general aviation flight instruction authenticity: A measure of student's perceived satisfaction**  
+J. B. Burrows-McElwain, I.K. Dabipi, C.E. Hartman, J. Doodoo,  
*University of Maryland Eastern Shore, USA*

## Friday 12th November

### Technical Session Communication & Information Sharing 1 -Chair J.Kitaori, ENRI

- [EN-009] **Flight Object – A Component of Global Air Traffic Management**  
R. Jehlen, <sup>+</sup>M. Tanino,  
*Federal Aviation Administration (FAA), USA*
- [EN-014] **The ESA Iris Programme – a new satellite communication system for Air Traffic Management ATM**  
<sup>+</sup>N. Ricard, C. Morlet, A. Santovincenzo,  
*European Space Agency (ESA), Netherland*

### Technical Session Navigation (GNSS) -Chair M.Kudo, ENRI

- [EN-005] **GBAS CAT II/III concepts for flexible approach procedures**  
<sup>+</sup>T. Feuerle, M. Bitter, P. Hecker, R. Geister,  
*Technische Universitaet Braunschweig, Germany*
- [EN-107] **Impact of the low latitude ionosphere disturbances on GNSS studied with a three-dimensional ionosphere model**  
<sup>+</sup>S. Saito, N. Fujii,  
*Electronic Navigation Research Institute (ENRI), Japan*
- [EN-030] **Using SBAS to Enhance GBAS User Availability: Results and Extensions to Enhance Air Traffic Management**  
<sup>+</sup>S. Pullen, M. Luo, T. Walter, P. Enge,  
*Stanford University, USA*
- [EN-108] **Highly-Accurate Positioning Experiment System Using QZSS at ENRI**  
<sup>+</sup>K. Ito, T. Sakai, S. Fukushima,  
*Electronic Navigation Research Institute (ENRI), Japan*

### Technical Session Communication & Information Sharing 2 -Chair Y.Sumiya, ENRI

- [EN-027] **Aeronautical satellite propagation channel characteristics using multiple antennas**  
<sup>+</sup>T. A. Myrvoll, J.E Hakegard, B. Holter,  
*SINTEF ICT, Norway*
- [EN-028] **On the use of MIMO in aeronautical communications**  
<sup>+</sup>B. Holter, J.E. Hakegard, T.A. Myroll,  
*SINTEF ICT, Norway*
- [EN-109] **Autonomous Decentralized Coordination Technology for Secondary Surveillance Radar (SSR) Mode S**  
<sup>+</sup>T. Koga,  
*Electronic Navigation Research Institute (ENRI), Japan*

## Friday 12th November

### Plenary Session 3 -Chair K.Yamamoto, ENRI

- [EN-P6] **Update of NextGen project**  
<sup>+</sup>J. Merkle,  
*Federal Aviation Administration (FAA), USA*

### Technical Session Airport Management 1 -Chair N.Yonemoto, ENRI

- [EN-001] **Potential Impact of Data Variance on the Prediction of Key Performance Indicators (KPI) as a Decision Variable for Airport Pretactical Decision Making within a Total Airport Management (TAM) Airport Operations Center (APOC)**  
<sup>+</sup>F. Piekert,  
*German Aerospace Center (DLR), Germany*  
M. Strasser,  
*ATRiCS - Advanced Traffic Solutions, Germany*
- [EN-026] **Field Observations During Aircraft Turn-Round Process: Applying a Qualitative Cognitive Model**  
<sup>+</sup>M. Groppé, R. Pagliari, D. Harris,  
*Cranfield University, UK*

### Technical Session Traffic Capacity & Congestion Management -Chair M.Harigae, JAXA

- [EN-007] **A Prototype of an pre-tactical Airport Centered Flow Management**  
<sup>+</sup>S. Marx, K. Nachtigall,  
*Technische Universität Dresden, Germany*  
E. Rehwald, P. Hecker,  
*Technische Universitaet Braunschweig, Germany*  
K. Schwentek,  
*DFS GmbH – German Air Navigation Services, Germany*
- [EN-010] **Facilitating Free Flight Conflict Resolution using Nautical Minute Discretisation**  
<sup>+</sup>P. Simon, C. Bil,  
*Royal Melbourne Institute of Technology, Australia*
- [EN-106] **Runway Capacity Estimation for Haneda Airport with 4<sup>th</sup> Runway**  
<sup>+</sup>T. Hirata, A. Shimizu,  
*Institution for Transport Policy Studies (ITPS), Japan*  
T. Yai,  
*Tokyo Institute of Technology (Tokyo Tech), Japan*

### Technical Session Airport Management 2 -Chair S.Fukushima, ENRI

- [EN-004] **Analyzing the Impact of the European Gates Concept on En-route Congestion**  
<sup>+</sup>H. Fakhil,  
*University of Žilina, Slovakia*
- [EN-025] **Analyzing airlines potential cost savings when reducing delays in international air traffic**  
<sup>+</sup>M. Kreuz,  
*AT-One, Germany*
- [EN-104] **An Analysis of Surface Traffic of a Large Airport – Characteristics of Departure Aircraft Congestion –**  
<sup>+</sup>I. Yamada, H. Aoyama, Y. Fukuda, R. Mori,  
*Electronic Navigation Research Institute (ENRI), Japan*