



ICRAT '14

International Conference
on Research
in Air Transportation

6th International Conference on Research in Air Transportation

May 26 -30, 2014
Istanbul Technical University, Turkey

CONFERENCE PROGRAM

www.icrat.org



Monday, May 26, 2014

6:30 PM | Wine & Cheese: Welcome reception - Meeting at Istanbul Technical University, Suleyman Demirel Cultural Center (SDKM) and bus ride from here to ITU Ari Teknopark Building 3, 11th Floor for the reception

Tuesday, May 27, 2014

8:00 AM Sign-in and Breakfast 8:00 - 8:45

8:45 AM **Keynote talk 8:45 - 9:45 - Conference Hall #1**

8:45 AM Introduction to the conference - Eric Niederman (U.S. Federal Aviation Administration), Dave Young (Eurocontrol), Prof. Dr. Gökhan İnalhan (Istanbul Technical University)
8:55 AM Welcome address - Prof. Dr. Mehmet Karaca, Rector, Istanbul Technical University
9:00 AM Dr. Temel Kotil, CEO, Turkish Airlines - "Widen Your World - We are Ready to Take You There!"

9:45 AM Coffee break 9:45 - 10:00

10:00 AM **Tutorial Session(s) 10:00 - 12:00**

SESAR ComplexWorld Tutorial
Adverse Weather & ATM Performance (Thomas Hauf, LHU) (Conference Hall #1)
Evolutionary Computation in Air Traffic Management Research (Sameer Alam, UNSW) (Conference Hall #2)

12:00 PM Lunch 12:00 - 1:00

1:00 PM **Paper sessions 1:00 - 3:00**

Track 1 - Automation - Conference Hall #1

1:00 PM 553 Enriquez - Classification of Air Traffic Controller Utterance Transcripts via Warm-Start Non-Negative Matrix Factorization
1:40 PM 581 Machado - Automatic Collision Avoidance System based on Geometric Approach applied to Multiple Aircraft

2:20 PM 638 Mund - LiDAR Performance Requirements and Optimized Sensor Positioning for Point Cloud-based Risk Mitigation at Airport Aprons

Track 2 - Decision Support 1 - Conference Hall #2

1:00 PM 559 Hossli - Why Controllers Seldom Stick to the Book and How Their Commands are Predictable Nevertheless

1:40 PM 595 Teuwen - Agent-based Safety Risk Analysis of Trajectory Based Operation in the Terminal Manoeuvring Area

2:20 PM 597 Pappenfuss - Feasibility of Traffic Prognosis for an Airport Operation Centre

Track 3 - Complexity and Information - Conference Hall #3

1:00 PM 576 Wandelt - SO6C: Compressed Trajectories in Air Traffic Management

1:40 PM 591 Geister - Total System Error Performance During Precision Approaches

2:20 PM 644 Mark - Evaluating the Efficiency of Functional Airspace Blocks

3:00 PM Tea break 3:00 - 3:30

3:30 PM Paper sessions 3:30 - 5:30

Track 1 - System Performance 1 - Conference Hall #1

3:30 PM 586 Rodríguez Uclés - Relationship between Workload and Duration of ATC Voice Communications

4:10 PM 594 Sun - Topological Properties of the Air Navigation Route System using Complex Network Theory

4:50 PM 615 Etxebarria - Data-driven Modelling of the Tree of Reactionary Delays

Track 2 - Decision Support 2 - Conference Hall #2

3:30 PM 639 Koyuncu - Integrated Flight Deck Testbed with Next Generation Visual Decision Support Tools

4:10 PM 636 Bayram - Flight Crew Assistance Functionality Concept for Commercial Aircraft

4:50 PM 635 de Boer - The Automatic Identification of Unstable Approaches from Flight Data
Track 3 - Economics and Policy / Airline Operations - Conference Hall #3

3:30 PM 646 Ryerson - The Potential of Turboprops to Reduce Fuel Consumption in the Chinese Aviation System

4:10 PM 648 Michel - Exchanging Values of Unsold Seats with Airline Alliance Partners in a Competitive Environment

4:50 PM 645 Hao - The Impact of Block Time Reliability on Scheduled Block Time Setting

5:30 PM Break

6:30 PM ICRAT Dinner: Istanbul University Baltalimani Facilities

ICRAT Committee Dinner: Yildiz Rumelihisar Facilities
There will be free buses to dinner locations from SDKM (i.e. conference facility) 30 minutes before the dinner time.

Wednesday, May 28, 2014

8:00 AM Sign-in and Breakfast 8:00 - 8:45

8:45 AM **Keynote talk 8:45 - 9:45 - Conference Hall #1**

Mr. Christoph Schneider from Munich Airport Airside Master Planning
- "Airports - challenges for research and innovation"

9:45 AM Coffee break 9:45 - 10:00

10:00 AM **Tutorial Session(s) 10:00 - 12:00**

Acquiring Quantitative Knowledge for ATM R&D (Jose-Miguel de Pablo Guerrero, CRIDA) (Conference Hall #1)

TPAS - Test-Bed Platform for ATM Studies (Sergio Ruiz, UAB) (Conference Hall #2)
Using complexity science in analyzing safety/capacity of ATM designs (Henk Blom, Delft UT & NLR) (Conference Hall #3)

12:00 PM Lunch 12:00 - 1:00

1:00 PM Paper sessions 1:00 - 3:00

Track 1 - System Performance 2 / Trajectory Optimization 1 - Conference Hall #1

1:00 PM 592 Shigetomi - Evaluation Analysis of Seasonal GPV Meteorological Data with SSR Mode S Surveillance Data

1:40 PM 550 Bittner - Optimization of ATM Scenarios Considering Overall and Single Costs

2:20 PM 580 Rivas - Analysis of Wind-Shear Effects on Optimal Aircraft Cruise

Track 2 - Decision Support 3 - Conference Hall #2

- 1:00 PM 621 Casado - Analysis of the Impact of Intent Uncertainty on the Accuracy of Predicted Trajectories for Arrival Management Automation
- 1:40 PM 618 Hilburn - Strategic Conformance: An Important Concept In Future Automation Design?
- 2:20 PM 640 Ruiz - TPAS: Test-bed Platform for ATM Studies

Track 3 - Environment 1 - Conference Hall #3

- 1:00 PM 625 Günther - Impact of Trajectory Restrictions onto Fuel and Time-related Cost Efficiency
- 1:40 PM 601 Codina - How Much Fuel can be Saved in a Perfect Flight?
- 2:20 PM 641 Chati - Analysis of Aircraft Fuel Burn and Emissions in the Landing and Take Off Cycle using Operational Data

3:00 PM Tea break 3:00 - 3:30**Paper sessions 3:30 - 5:30****Track 1 - Trajectory Optimization 2 - Conference Hall #1**

- 3:30 PM 590 Verstraeten - Predicting the Future Location of a General Aviation Aircraft
- 4:10 PM 598 Vilardaga - Conflict Free Trajectory Optimisation for Complex Departure Procedures
- 4:50 PM 605 Soler - A Numerical Framework and Benchmark Case study for Multi-modal Fuel Efficient Aircraft Conflict Avoidance

Track 2 - Decision Support 4 / Advanced Modeling 1 - Conference Hall #2

- 3:30 PM 652 Arenius - Evaluation of a Display for Airborne Separation in Safety-critical Situations
- 4:10 PM 603 Alligier - Comparison of Two Ground-based Mass Estimation Methods on Real Data
- 4:50 PM 604 Alam - Airspace Network Characterization for Effect of Intermediate Waypoints on Collision Risk Assessment

Track 3 - Environment 2 / Network Management 1 - Conference Hall #3

- 3:30 PM 633 Koudis - Method for the Improvement of Aircraft Trajectory Simulation using Analysis of Variability
- 4:10 PM 554 Irvine - Relating Occupancy Count Distribution and Sector Capacity to Entry Time Variance
- 4:50 PM 572 Corolli - Tradable Mobility Permits for the Strategic Allocation of Air Traffic

5:30 PM Break

- 6:30 PM ICRAT Committee Dinner: Yildiz Rumelihisar Facilities
- There will be free buses to dinner locations from SDKM (i.e. conference facility) 30 minutes before the dinner time.

Thursday, May 29, 2014**8:00 AM Sign-in and Breakfast 8:00 - 8:45****8:45 AM Keynote talk 8:45 - 9:45 - Conference Hall #1**

- Henk Blom, National Aerospace Laboratory (the Netherlands) and TU Delft,
"In search of positive emergent behaviour of air traffic"

9:45 AM Coffee break 9:45 - 10:00**10:00 AM Tutorial Session(s) 10:00 - 12:00**

- SESAR HALA! Tutorial
- ATM & Automation (Rosa Maria Araldo Valdes, Nicolas Suarez (UPM, Spain) & Philippe Palanque)(Conference Hall #1)

SESAR ComplexWorld Tutorial

- Data Science in Aviation: Stationarity and Metrics (Massimiliano Zanin & Samuel Cristobal, Innaxis)(Conference Hall #2)
- Grand Design Process for Ground Delay Program (Yi Liu, UCB) (Conference Hall #3)

12:00 PM Lunch 12:00 - 1:00**1:00 PM Paper sessions 1:00 - 3:00****Track 1 - Safety, Security, and Human Performance - Conference Hall #1**

- 1:00 PM 577 Wang - Quantification of Incident Probabilities Using Physical and Statistical Approaches
- 1:40 PM 600 Rocha - The DORATHEA Methodology for ATM Security Risk Assessment
- 2:20 PM 602 Gouldey - Determining the Risk of Experiencing Severe Turbulence when Flying through an Exhaust Plume

Track 2 - Advanced Modeling 2 / Airport Design 1 - Conference Hall #2

- 1:00 PM 619 Ranieri - Assessing ATM Performance Interdependencies through Bayesian Networks
- 1:40 PM 650 Liu - Assessing Terminal Weather Forecast Similarity for Strategic Air Traffic Management
- 2:20 PM 552 Mirkovic - Airport Apron Roundabout Intersection - Operational Concept and Capacity Evaluation

Track 3 - Network Management 2 - Conference Hall #3

- 1:00 PM 573 Lehoullie - Interactions between Operations and Planning in Air Traffic Control
- 1:40 PM 647 Jones - An Equitable Approach for Transferring Terminal Delay with En Route Speed Control
- 2:20 PM 649 Zhang - Real-Time Integrated Airport Surface Operations Management

3:00 PM Tea break 3:00 - 3:30**3:30 PM Paper sessions 3:30 - 5:30****Track 1 - Safety, Security, and Human Performance - Conference Hall #1**

- 3:30 PM 612 Moehlenbrink - Eye-data Metrics to Characterize Tower Controllers' Visual Attention in a Multiple Remote Tower Exercise
- 4:10 PM 631 Psyllou - Incident Analysis of Airspace Infringements in the European Airspace
- 4:50 PM 630 Bienert - Case study: Analyzing Influences on Traffic Scenario Difficulties for Human-in-the-loop Simulations

Track 2 - Airport Design 2 - Conference Hall #2

- 3:30 PM 614 Garcia Vasco - Agent-based Simulation Framework for Airport Collaborative Decision Making
- 4:10 PM 617 Krstic Simic - Influence of Airport Operations Management on Traffic Complexity and Efficiency
- 4:50 PM 637 Oreschko - Turnaround Prediction and Controlling with Microscopic Process Modelling

Track 3 - Network Management 3 - Conference Hall #3

- 3:30 PM 585 Walter - Quantifying Trajectory Uncertainty Using a Sensitivity-Based Complexity Metric Component
- 4:10 PM 629 Pien - A Linear Programming Approach to Maximum Flow Estimation on the European Air Traffic Network

Friday, May 30, 2014

8:00 AM Sign in, Breakfast 8:00 - 8:30

Doctoral paper sessions 8:30 - 9:50

Track 1 - Conference Hall #2

- 8:30 PM 575 Bretschneider - A traceable automatic flight state evaluation
- 9:10 PM 596 Aybek - An Algorithm for TMA Entrance Point Multiplicity

Track 2 - Conference Hall #3

- 8:30 PM 622 Baspinar - Hybrid Modelling and Automation of Air Traffic Controller Decision Process : Separation Assurance
- 9:10 PM 626 White - Principles for Increased Resilience in Critical Networked Infrastructures

9:50 AM Coffee break 9:50 - 10:20

Doctoral paper sessions 10:20 - 12:20

Track 1 - Conference Hall #2

- 10:20 PM 599 Zhou - Optimization of Arrival and Departure Routes in Terminal Maneuvering Area
- 11:00 PM 608 Aydoğan - Analysis of Transferring Air Traffic from Radar to Non-Radar Airspaces
- 11:40 PM 611 Chen - Optimal Metering Policies for Optimized Profile Descent Operations at Airports

Track 2 - Conference Hall #3

- 10:20 PM 549 Mileva - Evaluating the efficiency of market liberalisation in the field of air navigation support services
- 11:00 PM 571 Rigonat - Pricing techniques for the European airspace
- 11:40 PM 628 Kaya - A Dynamic Bayesian Belief Network Approach for Modelling the ATM Network Delays

12:20 PM Lunch 12:20 - 1:30

Doctoral paper sessions 1:30 - 3:30

Track 1 - Conference Hall #2

- 1:30 PM 588 Güllüç - Analysis of Time and Cost Benefits of Hybrid Dynamic Gate Assignment for Aircraft Taxi Movements and Gate allocation
- 2:10 PM 593 Zillies - RPAS Swarms in Disaster Management Missions
- 2:50 PM 613 Frau - Display of Trajectory Predictions Using Uncertainty Visualization Methods

Track 2 - Conference Hall #3

- 1:30 PM 558 Hrastovec - Machine Learning Model for Aircraft Performances
- 2:10 PM 587 Toratani - A Study on Trajectory Optimization for the Terminal Area
- 2:50 PM 623 Schwital - Uncertainty Assessment for ETA prediction towards 4D Trajectory Operation

3:30 PM Tea break 3:30 - 4:00

Closing Remarks

4:00 PM Closing Remarks

Break

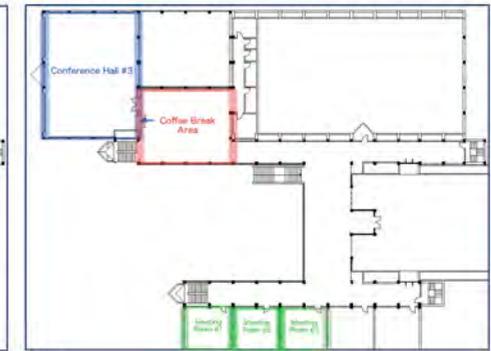
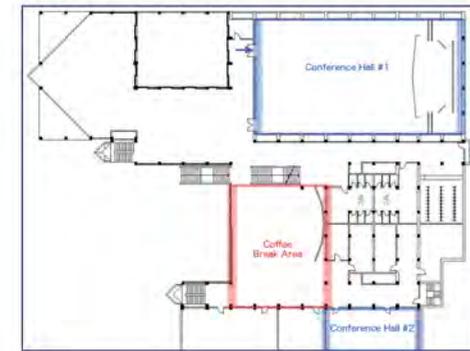
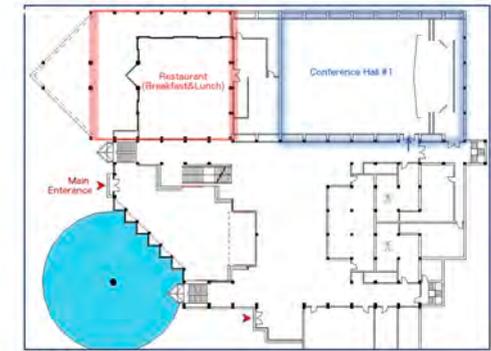
4:30 PM Break

6:30 PM ICRAT Gala Dinner: Bosphorous Boat Tour Dinner starting from Istinye Harbor

There will be free buses to dinner locations from SDKM (i.e. conference facility) 30 minutes before the dinner time.

Conference Building Plan

Istanbul Technical University, SDKM (Suleyman Demirel Kultur Merkezi)



YATIRILAN ENSTİTÜLER VE BÖLÜM BİNALARI	TÜNEL ENSTİTÜLERİ	ULUSLARARASI SPOR VE SAĞLIK BİNALARI	
Rektörlük	1	SÖM	37
İşletme Fakültesi	2	Marmara Spor Salonu	38
Elektrik Elektronik Fakültesi	3	KSB	39
Bilgisayar ve Bilgi İşlem Fakültesi	3	Öğrenci Yurdu	40
Maden Fakültesi	4	Yeni Kurum Yürütme Binası	41
Aerodinamik ve Havacılık Enstitüsü	4	Yeni Kurum Spor Salonu	42
Kemik Anatomisi Fakültesi	5	Diğer Kurum ve Enstitülerin Müdürlükleri	43
Genel Tıp ve İç Hastalıkları Fakültesi	6	Bilgi İşlem Genel Binası	44
Fen Bilimleri Fakültesi	7	İTÜ Binası	44
Uçak ve Uzay Bilimleri Fakültesi	8	Yeni Kurum	45
Mechanics	9	Öğrenci Genel Merkezi - AUM	46
Mechanics	10	Servis Kurumu	47
Mechanics	11	Servis Kurumu (Cade)	48
Mechanics	12	Servis Kurumu	49
Mechanics	13	Halk Salonu	50
Mechanics	14	Altın Kurum ve Enstitülerin Binaları	51
Mechanics	15	Altın Kurum ve Enstitülerin Binaları	52
Mechanics	16	Altın Kurum ve Enstitülerin Binaları	53
Mechanics	17	Altın Kurum ve Enstitülerin Binaları	54
Mechanics	18	Altın Kurum ve Enstitülerin Binaları	55
Mechanics	19	Altın Kurum ve Enstitülerin Binaları	56
Mechanics	20	Altın Kurum ve Enstitülerin Binaları	57
Mechanics	21	Altın Kurum ve Enstitülerin Binaları	58
Mechanics	22	Altın Kurum ve Enstitülerin Binaları	59
Mechanics	23	Altın Kurum ve Enstitülerin Binaları	60
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Mechanics	30	Altın Kurum ve Enstitülerin Binaları	67
Mechanics	31	Altın Kurum ve Enstitülerin Binaları	68
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Mechanics	61	Altın Kurum ve Enstitülerin Binaları	98
Mechanics	62	Altın Kurum ve Enstitülerin Binaları	99
Mechanics	63	Altın Kurum ve Enstitülerin Binaları	100

ITÜ

without barriers and eco-friendly campus

bicycle stations and bicycle lane all over the campus

walking trails closed to traffic

550,000 m² forest

40,000 m² green area

500,000 m² pool

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