Crowded Beijing gets a second airport

“New York did it. China’s financial centre Shanghai did it. Now the Chinese capital Beijing has just about done it: added a second airport to absorb an increasingly cramped overload of passengers at the original one. Ralph Jennings updates on the progress.”

Source: Asian Aviation Magazine

Sustainable Airports

“From solar installations to food composting, airports in Asia are rapidly trying to boost their green credentials. Editor Matt Driskill looks at some of the initiatives.”

Source: Asian Aviation Magazine

Top airports still growing

“Biggest is not always best although it is an indicator of where passenger numbers are growing but in the Airports Council International (ACI) 2018 preliminary figures no new entrant has made it into the top 20 world’s busiest airports. Michael Doran looks at the data.”

Source: Asian Aviation Magazine

Breaking down the criteria for the world’s top airports

“AirHelp’s global airport ranking for 2019 recently crowned Hamad International Airport, Tokyo International Airport, and Athens

Assessing the Capacity of Air Traffic Control Secondary Surveillance Radar System

“To assess the capacity of air traffic control (ATC) secondary surveillance radar (SSR) system in the first principle, using queuing theory model M/D/1/0, the paper constructed an analytical model for analyzing the relationship between the capacity and reply efficiency, rotation speed of antenna, beam width, time of signal processing, PRF or operation mode.”

Source: 2019 Cross Strait Quad-Regional Radio Science and Wireless Technology Conference (CSQRWC)

Synchronization-Free GPS Spoofing Detection with Crowdsourced Air Traffic Control Data

“In this paper, we propose GPS-Probe, a GPS spoofing detection algorithm that leverages the air traffic control (ATC) messages that are periodically broadcasted by aerial vehicles.”

Source: 2019 20th IEEE International Conference on Mobile Data Management (MDM)

An Airborne Approach for Conflict Detection and Resolution Applied to Civil Aviation Aircraft based on ORCA

World Air Transport Statistics

“To successfully do business in the highly interdependent and constantly changing air transport industry, you need in-depth understanding of its overall performance, and how its individual players measure up against each other. With WATS, you have all the contextual information you need to identify and analyze opportunities and risks, and evaluate the impact of your strategic decisions. See full infographic in the preview of WATS+ 2019.”

Source: International Air Transport Association

Regional Economic Briefing: Asia-Pacific (July 2019)

“A holistic overview of the economic, market, and industry performance of the aviation sector in Asia-Pacific regions in July 2019.”

Source: International Air Transport Association

IATA Economics’ Chart of the Week (26 July 2019)

“Outlook for growth appears to be stabilizing.”

Source: International Air Transport Association

JUN 2019: Air Transport Monthly Monitor

ICAO produces an Air Transport Monthly Monitor that provides a snapshot and analysis of economic...
International Airport as the world’s best hubs. But what makes a top airport, and what does an airport have to achieve to land the coveted top spot?”

Source: Airport Technology

**TECHNOLOGY & INNOVATION**

**ADS-B airborne equipage trend accelerating: SESAR DM**

“According to the most recent planning data, the airborne equipage reached 40 per cent in April 2019, an increase of 22 per cent since October 2018 when the first data collection campaign was concluded ... The latest figures feature on a website focused on ADS-B implementation which will provide frequent update on deployment in Europe.”

Source: Air Traffic Management

**AIR TRAFFIC MANAGEMENT**

**Global; Technology Innovation Award - Air Traffic Management**

“Frost & Sullivan research has shown that the trend of adopting interconnected solutions and new communication methods has widened the attackable surface of air traffic control systems.1 Within this context, there is a need for global aircraft surveillance that increases the overall safety of the aircraft and enables air traffic controllers to gain visibility.”

Source: Frost & Sullivan

**JUL 2019: Air Transport Monthly Monitor**

ICAO produces an Air Transport Monthly Monitor that provides a snapshot and analysis of economic and aviation indicators, including passenger traffic, capacity, freight traffic, top airports and airline groups.

Source: International Civil Aviation Organization

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**An Alternative Path Modelling Method for Air Traffic Flow Problem in Near Terminal Control Area**

“In order to reduce the adverse effect of getting air traffic delay or airport congestion, an alternative path modelling is proposed to resolve the traffic flow network problem by path coordination and aeronautical holding methods. This research considers the air traffic flow problem near the terminal control area to resolve the delay problem and conflict detection by using computational intelligence.”

Source: IE2019 2nd International Conference on Intelligent Autonomous Systems (ICoIAS)

**Air Traffic Surveillance Using IP-Based Space Information Network**

“In the recent decade, Automatic Dependent Surveillance-Broadcast (ADS-B) technology is considered for deployment by international aviation authorities as an advance alternate ... However, we have highlighted that even space-based ADS-B have some limitations that will prevent it from becoming a single surveillance system for ATC, and restricts it to be only additional support for the existing surveillance system.”

Source: 2019 28th Wireless and Optical Communications Conference (WOCC)

**OnlineAirTrajClus: An Online Aircraft Trajectory Clustering for Tarmac Situation Awareness**

“Recently, a large dataset of GPS-derived aircraft at airports, available from the Federal Aviation Administration (FAA), provides researchers with an opportunity to monitoring on-ground aircraft trajectory. In this paper, we present a framework to incrementally cluster airport aircraft trajectories based on the GPS data.”

Source: 2019 IEEE International Conference on Pervasive Computing and Communications

**Data Analytics and Machine Learning in Wide Area Surveillance Systems**

“New technologies include activity-based intelligence and the determination of patterns of life. An approach for these technologies can be found in the advanced analysis of and aviation indicators, including passenger traffic, capacity, freight traffic, top airports and airline groups.”

Source: International Civil Aviation Organization
those trajectories, which are extracted by the mentioned surveillance systems...

Arrival air traffic separations assessment using Maximum Likelihood Estimation and Fisher Information Matrix

“This article presents a method for analysis of selected aspects of arrival air traffic by fitting past arrival air traffic data to one of known continuous probability distributions, with use of maximum likelihood estimation method and Fisher Information Matrix.”

A Medium-Term Conflict Detection and Resolution Method for Open Low-Altitude City Airspace Based on Temporally and Spatially Integrated Strategies

“The balancing of civil airspace capacities with customer demands is achieved through air traffic management (ATM), which uses decision support tools in ATM systems that are ensured by advanced communications and contemporary navigation technologies ... This paper introduces background information and a literature review about conflict detection and resolution (CD&R) for open low-altitude airspace ...”

Can Holistic Optimization Improve Airport Air Traffic Management Performance?

“There is a need to cope with the expected growth in air traffic while simultaneously meeting demands for increased safety, predictability, and efficiency in air traffic management (ATM) systems. This paper explores the potential effects of a holistic optimization approach on performance of ATM systems.”

Multi-criteria decision making methods: Application in the aviation industry

“The purpose of this paper is to identify and classify the problems in the aviation industry that are solved by using multi-criteria decision making. In this research, 166 papers published in the period from 2000 to 2018 are reviewed. The papers are divided according to the application area in four groups: airlines, airports, air traffic management, and others..."
Optimization of the waiting time and makespan in aircraft departures: A real time non-iterative sequencing model

“This work aims to minimize the waiting time in the runway queue, by proposing a non-iterative real-time model, which can assist air traffic controllers in decision making in times of congestion on the ground at any airport.”

Source: Journal of Air Transport Management

Planning efficient 4D trajectories in Air Traffic Flow Management

“In this paper, we focus on designing efficient 4D trajectories for the planning phase of Air Traffic Flow Management (ATFM). A key feature of the proposed approach is the inclusion of stakeholders’ preferences and priorities. In particular, we have implemented two priority mechanisms recently developed by Eurocontrol, namely the Fleet Delay Reordering and the Margins.”

Source: European Journal of Operational Research

Visualizing aviation impacts: Modeling current and future flight trajectories with publicly available flight data

“We propose a methodology to visualize terminal airspace trajectories leveraging publicly available data and commonly-used software ... Final visualizations are rendered in ArcGIS, a geographic information system used by many Metropolitan Planning Organizations.”

Source: Transportation Research Part D: Transport and Environment

Safety intelligence: Incremental proactive risk management for holistic aviation safety performance

“... In this context, EUROCONTROL
developed a reporting framework harmonized with EU and ICAO regulations, the Toolkit for ATM Occurrence Investigation (TOKAI), which allows a structured and unified reporting for Air Navigation Service Providers (ANSPs). This paper, starting from the theoretical benefits of a structured strategy for learning from events, and the operational application of TOKAI in line with EU and ICAO regulations, provides examples on how an incremental proactive risk assessment strategy can be structured, starting from reporting of adverse events.”
Source: Safety Science

POLICIES & GUIDELINES

Air transport connectivity of remote regions: the impacts of public policies
“This paper examines the impact of different public policies on air connectivity in remote regions. In particular, it estimates price and supply equations using route-level data for several countries around the world that have implemented route-based policies (public service obligations, traffic distribution rules), airline-based policies (state-owned airline) or passenger-based policies (discounts to residents).”
Source: Regional Studies

Applied economics and understanding trends in air transportation policy
“This paper examines some of the important trends in economics that influenced the liberalization of aviation markets from the late 1970s, the role that economics has played in the subsequent assessment of the implications of these reforms and more recent policy ‘tweaking’, and at the possible importance of more recent trends in economic thinking in influencing future policy developments.”
Source: Transport Policy

SUSTAINABILITY

Innovation towards sustainable technologies: A socio-technical perspective
on accelerating transition to aviation biofuel

"This paper investigates the key barriers and opportunities for biofuels transition from a comprehensive socio-technical standpoint. A multi-level perspective (MLP) system dynamics model of aviation biofuel industry is developed to investigate the adoption process."
Source: Technological Forecasting and Social Change

What impacts sustainability reporting in the global aviation industry? An institutional perspective

"The objective of this study is to test the link between sustainability performance and sustainability reporting over the period 2011 and 2016 in the global aviation industry. The data for three sustainability performance metrics were derived from three different sources such as Worldwide Governance Indicators, Social Progress Imperative, and Environmental Performance Index."
Source: Transport Policy