An Airway Traffic Jam A Plastic Traffic Cone Masquerading

Field Hearing Before the Committee on Commerce, Science, and Transportation, United States Senate, One Hundred Seventh Congress, First Session, June 15, 2001
Time Relevance of Convective Weather Forecast for Air Traffic Automation
European Air Traffic Congestion
Future Flight
Airport Problems
The Problems of Air Traffic Congestion Around a Metropolitan Airport
Proceedings of the 1993 Summer Computer Simulation Conference
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July 19-21, 1993, Lafayette Hotel, Boston, Massachusetts

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Selected Readings
A Review of the Small Aircraft Transportation System Concept
Career as an Air Traffic Controller
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Breaking the Air Traffic Jam
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Airport and air traffic control system.
Part 1. Federal Aviation Administration Study of Air Traffic Congestion

Air Traffic Congestion at LaGuardia Airport
National Technical Information Service
Traffic Congestion
Air Traffic and Airport Congestion
Access and Air Traffic Congestion; Selected Readings
Air Traffic Congestion and Capacity in the Chicago, Illinois Region and Its Effects on the National Air Traffic System
AIR TRAFFIC CONGESTION AND CAPACITY IN THE CHICAGO..., FIELD HEARING... S. HRG. 107-1083... COMMITTEE ON COMMERCE, SCIENCE, & TRANSPORTATION
Rationalization of Landing Fees to Reduce Air Traffic Congestion
Air Traffic Congestion and Capacity
Environmental Impact Statement
Airline Deregulation and Air Traffic Congestion at Large Airports
Air Traffic Congestion and Capacity in The Chicago, Illinois Region and Its Effect on The National Air Traffic System, S. Hrg. 107-1083, June 15, 2001, 107-1 Field Hearing, *

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Field Hearing Before the Committee

on Commerce, Science, and Transportation, United States Senate, One Hundred Seventh Congress, First Session, June 15, 2001 Createspace Independent Publishing Platform
The document contains a selected, partially annotated listing of journal articles, reports and papers on the subjects of airport access and air traffic delays. It updates bibliographic lists published by the former FAA Headquarters Library in 1966, 1967, and 1969. The time covered is 1968 to 1970.
Time Relevance of Convective Weather Forecast for Air Traffic Automation Springer Science & Business Media
The combination of air traffic growth and airport capacity limitations has resulted in significant congestion throughout the US National Airspace System, which imposes large costs on the airlines, passengers and society. Absent opportunities for capacity expansion, the mitigation of air traffic congestion requires improvements in (i) the utilization of airport capacity to enhance operating efficiency at the tactical level (i.e., over each day of operations), and/or (ii) the allocation of airport capacity to the airlines to limit over-capacity scheduling at the strategic level (i.e., months in advance of the day of operations). This thesis develops an integrated approach to airport congestion mitigation that jointly optimizes the utilization of airport capacity and the design of airport capacity allocation mechanisms. First, we focus on airport capacity utilization.

We formulate an original Dynamic Programming model that optimizes, at the tactical level, the selection of runway configurations and the balancing of arrival and departure service rates to minimize congestion costs, for any given schedule of flights. The model integrates the stochasticity of airport operations into a dynamic decision-making framework. We implement exact and approximate Dynamic Programming algorithms that, in combination, enable the real-time implementation of the model. Results show that optimal policies are path-dependent, i.e., depend on prior decisions and on the stochastic evolution of the system, and that the model can reduce congestion costs, compared to advanced heuristics aimed to replicate typical decisions made in practice and to existing approaches based on deterministic queue dynamics. Second, we integrate the model of airport capacity utilization into a macroscopic queuing model of airport congestion. The resulting model quantifies the relationships between flight schedules, airport capacity and flight delays at the strategic level, while accounting for the way airport capacity utilization procedures can vary tactically to maximize operating efficiency. Results suggest that the model estimates the average departure queue lengths, the variability of departure queue lengths and the average arrival and departure delays at the three major airports in the New York Metroplex relatively well. The application of the model shows that the strong nonlinearities between flight

schedules and flight delays observed in practice are captured by the model. Third, we develop an Integrated Capacity Utilization and Scheduling Model (ICUSM) that jointly optimizes scheduling interventions for airport capacity allocation at the strategic level and airport capacity utilization at the tactical level. Scheduling interventions start with a schedule of flights provided by the airlines, and reschedule a selected set of flights to reduce imbalances between demand and capacity, while minimizing interference with airline competitive scheduling. The ICUSM optimizes such interventions, while accounting for the impact of changes in flight schedules on airport operations. It relies on an original modeling architecture that integrates a Stochastic Queuing Model of airport congestion, our Dynamic Programming model of capacity utilization, and an Integer Programming model of scheduling interventions. We develop an iterative solution algorithm that converges in reasonable computational times. Results suggest that substantial delay reductions can be achieved at busy airports through limited changes in airline schedules. It is also shown that the proposed integrated approach to airport congestion mitigation performs significantly better than a typical sequential approach where scheduling and operating decisions are made separately. Last, we build upon the ICUSM to design, optimize and assess non-monetary mechanisms for scheduling interventions that ensure inter-airline equity and enable airline

collaboration. Under the proposed mechanism, the airlines would provide their preferred schedules of flights, their network connections, and the relative scheduling flexibility of their flights to a central decision-maker, who may then consider scheduling adjustments to reduce anticipated delays. We develop a lexicographic architecture that optimizes such interventions based on efficiency (i.e., meeting airline scheduling preferences), equity (i.e., balancing scheduling adjustments fairly among the airlines), and on-time performance (i.e., mitigating airport congestion) objectives. Theoretical and computational results suggest that inter-airline equity can be achieved at no, or small, losses in efficiency, and that accounting for airline scheduling preferences can significantly improve the outcome of scheduling interventions.

European Air Traffic Congestion Policy Press

As air traffic congestion grows, air traffic flow management (ATFM) is becoming a great concern. ATFM deals with air traffic and the efficient utilization of the airport and airspace. Air traffic efficiency is heavily influenced by unanticipated factors, or uncertainties, which can come from several sources such as mechanical breakdown; however, weather is the main unavoidable cause of uncertainty. Because weather is unpredictable, it poses a critical challenge for ATFM in current airport and airspace operations. Convective weather results in congestion at airports as well as in airspace sectors. During times of congestion, the decision

as how and when to send aircraft toward an airspace sector in the presence of weather is difficult. To approach this problem, we first propose a two-stage stochastic integer program by emphasizing a given single sector. By considering ground delay, cancellation, and cruise speed for each flight on the ground in the first stage, as well as air holding and diversion recourse actions for each flight in the air in the second stage, our model determines how aircraft are sent toward a sector under the uncertainty of weather. However, due to the large number of weather scenarios, the model is intractable in practice. To overcome the intractability, we suggest a rolling horizon method to solve the problem to near optimal. Lagrangian relaxation and subgradient method are used to justify the rolling horizon method. Since the rolling horizon method can be solved in real time, we can apply it to actual aircraft schedules to reduce the costs incurred on the ground as well as in airspace. We then extend our two-stage model to a multistage stochastic program, which increases the number of possible weather realizations and results a more efficient schedule in terms of costs. The rolling horizon method as well as Lagrangian relaxation and subgradient method are applied to this multistage model. An overall comparison among the previously described methodologies are presented.

Future Flight Independently Published This report presents an integrated set of models that forecasts air carriers' future

operations when delays due to limited terminal-area capacity are considered. This report models the industry as a whole, avoiding unnecessary details of competition among the carriers. To develop the schedule outputs, we first present a model to forecast the unconstrained flight schedules in the future, based on the assumption of rational behavior of the carriers. Then we develop a method to modify the unconstrained schedules, accounting for effects of congestion due to limited NAS capacities. Our underlying assumption is that carriers will modify their operations to keep mean delays within certain limits. We estimate values for those limits from changes in planned block times reflected in the OAG. Our method for modifying schedules takes many means of reducing the delays into considerations, albeit some of them indirectly. The direct actions include depeaking, operating in off-hours, and reducing hub airports'operations. Indirect actions include using secondary airports, using larger aircraft, and selecting new hub airports, which, we assume, have already been modeled in the FAA's TAF. Users of our suite of models can substitute an alternative forecast for the TAF.Long, Dou and Lee, David and Gaier, Eric and Johnson, Jesse and Kostiuk, PeterAmes Research Center; Langley Research CenterAIR TRANSPORTATION; SCHEDULES; FORECASTING; AIR TRAFFIC; CONGESTION; INDUSTRIES; MODELS; AIRPORTS

Airport Problems DIANE Publishing

The Federal Aviation Administration (FAA) is handling nearly 120,000 flights a day through its Air Traffic Management (ATM) system and air traffic congestion is expected to increse substantially over the next 20 years. Weather-induced impacts to throughput and efficiency are the leading cause of flight delays accounting for 70% of all delays with convective weather accounting for 60% of all weather related delays. To support the Next Generation Air Traffic System goal of operating at 3X current capacity in the NAS, ATC decision support tools are being developed to create advisories to assist controllers in all weather constraints. Initial development of these decision support tools did not integrate information regarding weather constraints such as thunderstorms and relied on an additional system to provide that information. Future Decision Support Tools should move towards an integrated system where weather constraints are factored into the advisory of a Decision Support Tool (DST). Several groups such at NASA-Ames, Lincoln Laboratories, and MITRE are integrating convective weather data with DSTs. A survey of current convective weather forecast and observation data show they span a wide range of temporal and spatial resolutions. Short range convective observations can be obtained every 5 mins with longer range forecasts out to several days updated every 6 hrs. Today, the short range forecasts of less than 2 hours have a temporal resolution of 5 mins. Beyond 2 hours, forecasts

have much lower temporal. resolution of typically 1 hour. Spatial resolutions vary from 1km for short range to 40km for longer range forecasts. Improving the accuracy of long range convective forecasts is a major challenge. A report published by the National Research Council states improvements for convective forecasts for the 2 to 6 hour time frame will only be achieved for a limited set of convective phenomena in the next 5 to 10 years. Improved longer range forecasts will be probabilistic a

The Problems of Air Traffic Congestion Around a Metropolitan Airport DIANE Publishing

National Airspace System: Observations on American Airlines' 1997 Study of Future Air Traffic Congestion

Proceedings of the 1993 Summer Computer Simulation Conference Independently Published

Air traffic congestion and capacity in the Chicago, Illinois region and its effects on the national air traffic system: field hearing before the Committee on Commerce, Science, and Transportation, United States Senate, One Hundred Seventh Congress, first session, June 15, 2001.

Hearing Before the Subcommittee on Aviation of the Committee on Transportation and Infrastructure, House of Representatives, One Hundred Seventh Congress, First Session, July 16, 2001 (World Trade Center, New York, NY). Air Traffic and Airport CongestionSelected ReferencesAir Traffic Congestion at LaGuardia AirportHearing Before the Subcommittee on Aviation of

the Committee on Transportation and Infrastructure, House of Representatives, One Hundred Seventh Congress, First Session, July 16, 2001 (World Trade Center, New York, NY).Airport Problems: Access and Air Traffic CongestionSelected ReadingsTomorrow's Solution to Today's Air Traffic JamBreaking the Air Traffic JamTraffic Control and Navigation in the Jet AgeAir Traffic Congestion and Capacity in the Chicago, Illinois Region and Its Effects on the National Air Traffic SystemField Hearing Before the Committee on Commerce, Science, and Transportation, United States Senate, One Hundred Seventh Congress, First Session, June 15, 2001Air Traffic Congestion and Capacity in the Chicago, Illinois Region and Its Effects on the National Air Traffic SystemAir traffic congestion and capacity in the Chicago, Illinois region and its effects on the national air traffic system: field hearing before the Committee on Commerce, Science, and Transportation, United States Senate, One Hundred Seventh Congress, first session, June 15, 2001.Career as an Air Traffic Controller

ANYBODY WHO HAS EVER WILED away an hour or two in an airport has spent at least a few minutes wondering how it all works. Enormous aircraft pick up and drop off thousands of passengers all day long, taxiing across runways and aprons on a rigid schedule and doing it so safely that collisions are vanishingly rare. The same aircraft take off and land within minutes of each other, crowding the skies above airports with airborne traffic

jams that somehow always manage to keep moving. When they fly thousands of miles to their destinations, pilots almost never make wrong turns. Earthbound highways do not even come close to this level of safety and efficiency. Air traffic control is one of the professions that keeps the modern world in motion. No longer the province of the wealthy, air travel is now the preferred means to cover long distances, and a vital part of conducting business. The number of passenger miles flown has increased steadily for decades, with more people spending more time in the air every year. Demand for pilots, flight attendants, mechanics and other air travel professionals has increased along with the demand for their services. Demand for air traffic controllers has been especially strong.Demand goes both ways in the air traffic control career. With a median salary of about $125,000 per year and enviable fringe benefits, many people are competing for jobs as air traffic controllers. About 25,000 people work as air traffic controllers today. Most of them work for the Federal Aviation Administration, or FAA. By federal law, all of them were trained by the FAA even if they went on to work somewhere else. Every year thousands of people take the test to get into the FAA training program, and most of them end up on a list so the FAA can call them when a position opens up in a class. The list is so long that a number of these people find other jobs while they are waiting and never become air traffic controllers. Take careful note of the

information contained in this report. In it you will find sections covering everything from how to prepare for your career as an air traffic controller and what kind of education and training you will need, to what you may like and dislike about the career. If you like what you read here be sure to check out the list of additional resources on the last page of this report. There, you will find even more information to help you learn all you can about a career as an air traffic controller.

Hearing Before the Subcommittee on Aviation of the Committee on Transportation and Infrastructure, House of Representatives, One Hundred Seventh Congress, First Session, July 16, 2001 (World Trade Center, New York, NY). Society for Computer Simulation

The General Accounting Office (GAO) investigated the strengths and weaknesses of federal transportation system management (TSM) planning efforts by conducting a nationwide survey of 119 metropolitan planning organizations (MPOs), using a stratified random sample of metropolitan statistical areas. The response rate was 100%. Additionally, GAO conducted site visits in Minneapolis, San Francisco, and Tampa and interviewed key decisionmakers involved in TSM implementation and local air quality planning.

July 19-21, 1993, Lafayette Hotel, Boston, Massachusetts Springer

This informed and lively book offers a timely analysis of the UK government's sustainable - or subsequently

'integrated' - transport policy 10 years after the publication of A New Deal for Transport: Better for Everyone. Written by prominent transport experts and with a foreword by Christian Wolmar, the book identifies the modest successes and, sadly, the far more significant failures in government policy over the last decade. The authors also uncover why it has proved so difficult to adopt a more sustainable approach to transport and break Britain's love-affair with the car. The book reviews the links between the idea of sustainability and transport policy, and provides an up-to-the-minute analysis of the political realities surrounding the delivery of a sustainable transport agenda in the UK. It picks up on the principal components of A New Deal for Transport and evaluates to what extent these have, or haven't, been delivered in England, Scotland, Wales and Northern Ireland. The contributors analyse why delivering sustainable transport policies seems to present particular difficulties to ministers across the UK, and considers the UK's experience in an international perspective. The book draws lessons from the last 10 years in order to better inform future policy development. Traffic Jam is an indispensable analysis of the difficulties involved in turning policy ideals into practical reality, and as such will be of interest to scholars, students, planners, policy analysts and policy makers.

Tomorrow's Solution to Today's Air Traffic Jam Createspace Independent Publishing Platform

This volume is a compendium of papers presented during the International Workshop on Air Traffic Management, which took place in Capri, Italy, on September 26-30, 1999. The workshop was organized by Italian National Research Council in co-operation with the University of Rome "Tor Vergata", and the Massachusetts Institute of Technology (MIT). This was the fifth in a series of meetings held periodically over a ten-year span for the purpose of encouraging an exchange of views and fmdings by scientists in the field of Air Traffic Management (A TM). The papers presented at the workshop dealt with a wide range of topics and covered different aspects that are currently important in Air Traffic Control and Air Traffic Management. This volume contains only a subset of the papers presented, namely the ones that addressed the main area emphasis in the workshop, new concepts and methods. The subject of the first two papers is Collaborative Decision Making (CDM), a concept which embodies, to a large extent, the new philosophy of partial decentralization and increased delegation of responsibilities to users in A TM operations. In the first of these papers Wambsganss describes the original CDM project and its initial implementation in the form of the Ground Delay Program Enhancements. He also provides a brief description of some of the tools that have been developed as part of the CDM effort and identifies future research and development requirements.

Traffic Congestion Transportation Research Board
Reviewed federal efforts to promote more efficient management of America's roadway systems through transportation systems management (TSM) techniques. Also examines the extent to which air quality concerns affected the inclusion of TSM activities in the local transportation planning process. Charts & tables.

A Method for Forecasting the Commercial Air Traffic Schedule in the Future
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This book on road traffic congestion in cities and suburbs describes congestion

problems and shows how they can be relieved. The first part (Chapters 1 - 3) shows how congestion reflects transportation technologies and settlement patterns. The second part (Chapters 4 - 13) describes the causes, characteristics, and consequences of congestion. The third part (Chapters 14 - 23) presents various relief strategies - including supply adaptation and demand mitigation - for nonrecurring and recurring congestion. The last part (Chapter 24) gives general guidelines for congestion relief and provides a general outlook for the future. The book will be useful for a wide audience - including students, practitioners and researchers in a variety of professional endeavors: traffic engineers, transportation planners, public transport specialists, city planners, public administrators, and private enterprises that depend on transportation for their activities.

Air Traffic Congestion Delay Optimization

Air Traffic Congestion At Laguardia Airport... Hearing... 107-33... Committee On Transportation & Infrastructure, House Of Representatives... 107th Congress, 1st Session

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Best Sellers - Books :

- To Kill A Mockingbird By Harper Lee
- The Housemaid By Freida Mcfadden
- Think And Grow Rich: The Landmark Bestseller Now Revised And Updated For The 21st Century (think And Grow Rich Series)
- Hunting Adeline (cat And Mouse Duet) By H. D. Carlton
- Iron Flame (the Empyrean, 2)
- Haunting Adeline (cat And Mouse Duet)
- The Summer I Turned Pretty (summer I Turned Pretty, The) By Jenny Han
- Brown Bear, Brown Bear, What Do You See? By Bill Martin Jr.
- We'll Always Have Summer (the Summer I Turned Pretty)
- If Animals Kissed Good Night By Ann Whitford Paul