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KAIA Official Sponsors Airport Show 2011

Add

Dr. Faisal H. Al-Sugair *

Summer : A Season of Opportunities

With the release of this issue, many of the residents in this country and citizens alike will be in their way to capture the last chance to travel, seeking pleasure in the first place. Only few weeks are remaining before the arrival of the Holy Month of Ramadan when travelers fly back, and millions of Muslims from all over the world pour into the kingdom performing Omra and asking forgiveness from Allah.

Despite this fact, international statistical figures forecast a modest growth in the number of world-wide Air travelers this summer. In USA for example, 206 million passengers will be expected to travel during the three summer months (June, July and August) equivalent to 2.24 million passengers daily with only 1.5% increase for the same period last year.

Mr. Nicholas Calio, President and CEO of the Air Transport Association (ATA) in USA said "it is encouraging that more people will be flying this summer, despite higher energy prices taxing the entire economy. The trends are pointing in the right direction."

It seems the aviation industry never enjoys stability over extended periods of time. Since September 11th crisis, the state of the industry keeps fluctuating, producing instability in the long run.

The 2009 world-wide economic crisis is a good example of such a trend. The year 2010 observed a modest economic recovery. However, that didn't last long. The beginning of 2011 witnessed a different status quo in parts of the Arab region coupled with the speculations of global oil traders that added to a sharp increase in oil prices. The end result would be a higher travel cost, and that would prevent many people from traveling on a global scale.

On the domestic level, business should be different. This summer holiday season as well as the next five ones will include the holy fasting month of Ramadan. This translates to a significant increase in the number of visitors to Saudi Arabia performing Omra and enjoying prayers in the two holy cities of Makkah and Madina.

This is a moment to seize for our national carriers. It is the time to mobilize their resources to transport a larger number of visitors of the two holy cities.

At the same time, the current season represents to us in GACA another challenge of being up to the level of expectations by passengers and visitors at our airports. It is the responsibility of every member of GACA, particularly those working in our regional and international airports.

This feeling of responsibility comes from the fact that our government is offering us all the right resources and elements of success. We at GACA are obliged to do our best in every aspect, good management, high readiness and excellent coordination with all other departments involved in the Kingdom's airports.

We wish our wise leadership a good year to come, and so to all people of our country as well as all Arab, Islamic and friendly states.

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KAIA Official Sponsors Airport Show 2011

Dubai Airports has announced plans to invest Dhs 22 bn towards expansion of Dubai and Al Maktoum Airport by 2020.

Khalifa Al Zaffin, Executive Chairman of Dubai World Central had mentioned on the sidelines of the exhibition that the new expansion plans will increase the capacity of Dubai Airport to 90 million passengers annually.

The number will increase upon the completion of all expansion designs that comprise the construction of the Concourse 4, the expansion of Terminal 2 at Dubai airport, and the improvement of services at Dubai Airport. Zaffin had also mentioned that Dhs 4 bn will be invested in the development of the aviation city and the residential city at Al Maktoum Airport at Dubai World Central. Engineer Mohamed Ahmed Abed, Director General of King Abdulaziz International Airport, and General Supervisor of the new airport project, with a total investment cost of approximately SAR 27 bn, said, "Our participation at the Airport Show 2011 as a sponsor provided great business opportunities. This year's Airport Show witnessed participants from across the world and this indicates the establishment of this exhibition as an international event.

The event brings together large number of veterans in the airport industry around the world and undoubtedly, this platform provides great opportunity for all participants to exchange ideas and keep abreast to latest developments in modern airports." "His Highness Sheikh Ahmed Al Maktoum President of Dubai Civil Aviation and Chairman of Dubai Airports Company and Chairman of Emirates Group, had visited our stand on the first day of the show and had expressed interest in knowing the latest updates on King Abdulaziz New Airport in Jeddah.

His Highness has also mentioned Dubai Airports' willingness to exchange information and efforts to help this new project succeed," he added. Commenting about the Airport Show 2011, Vikram Sodha, Project Director at the Civil Aviation Authority of Pakistan, said, "This is our fourth consecutive participation in the Airport Show.

This year, the Civil Aviation Authority of Pakistan utilized this platform to meet with suppliers

who offer energy efficient, environment and user friendly equipment. On-going discussions have been taking place with other exhibitors such as Siemens, Cavotec, DBA and ADPi on possibilities for expanding cooperation in projects to develop the Benazir Bhutto Airport in Pakistan." Jacob Avis, Electronic Engineer and IT Manager at Ras Al Khaimah International Airport, said, "We have already announced a 10 year development plan at Ras Al Khaimah International Airport worth Dhs 2.5 bn.

We have benefited from our participation in the Airport Show 2011 greatly by conducting numerous discussions and conversations with the exhibitors participating in the exhibition and especially suppliers of baggage handling material, automated weather observation systems, and general IT solutions for Airport Operations." The Fujairah International Airport allocated Dhs 50 m towards the expansion and development of the airport this year.

It is expected that an additional Dhs100 m would be allocated for further expansion in 2012. The announcement was made by Dr. Khalid Al-Mazrui, Director General, Fujairah International Airport, at a press conference that was organized on the sidelines of Airport Show 2011. Fujairah International Airport also announced the selection of ALES for the supply of Air Traffic Control System and ERA for the Wide Area Multilateration radar.

The Dhs 10 m deal will include a full automation of the Air Control Center and an advanced surveillance solution based on the proven Multilateration and ADS-B technology. The Airport Show in its 11th edition, organised by Reed Exhibitions Middle East, continued to generate interest amongst several experts and stakeholders from the aviation industry.

His Highness Sheikh Ahmed Bin Saeed Al Maktoum having a talking to Engr. Mohamed Ahmed Abid during his visit to KAIA stand.

Participants include 160 exhibitors as well as 63 members of the Hosted Buyers Programme, reinforcing the significance of the exhibition as a global platform which engages senior experts specializing in aviation, technology, security and airport equipment and services, all under one umbrella. Highlighting the importance of opportunities available at the Airport Show, all exhibitors and buyers have confirmed their participation in the 12th edition of Airport Show next year.

The 'Airport Leaders Summit' was also held on the sidelines of the exhibition and focused on security, sustainable expansion and current economic concerns. It was also a platform to discuss solutions to strategic issues the industry faces in the wake of the global economic uncertainty, rigid credit markets, high fuel prices and changing regulatory norms. Airport Show 2011 focuses on the huge investments involved in the building of new airports and the expansion of existing ones in the region, which is expected to be worth $90bn (Dhs 331 bn) in the next few years.

The exhibition has succeeded in attracting projects which are still in the process of study and research worth $29.16 bn (Dhs 106 bn). The Airport Show 2011 is sponsored by King Abdulaziz International Airport, Thales and Tiger Profiles.

It is also supported by leading aviation authorities and trade bodies including Dubai Airports, Dubai Civil Aviation Authority, Abu Dhabi Airports Company (ADAC), UAE Contractors Association, British Aviation Group, British Airport Services & Equipment Association (BASEA), Danish Airport Group, UBIFRANCE (the French Agency for international business development), and the Netherlands Airport Technology Group.

Source: Reed Exhibitions

China sets new aviation energy efficiency reduction target

Civil Aviation Authority China (CAAC) has issued guidance to airlines urging them to speed up energy efficiency and emissions reduction measures on domestic and international operations. It is aiming to reduce carbon intensity by 22 per cent by the end of 2020 from 2005 levels. The CAAC says the country's aviation industry should focus on fuel-saving technology and other new technologies such as alternative fuels, as well as promote greater awareness of the importance of energy savings and emissions reductions. It also calls on Air Traffic Control departments to optimise available airspace to shorten flight distances through better coordination with the military and implementing new air navigation procedures. Under an earlier five-year plan, from 2006 to 2010, CAAC had aimed for a reduction of 9% in energy intensity by the Chinese aviation industry. CAAC foresees a three-phased approach to achieving the new 22% goal – measured in terms of reductions in energy consumption and carbon emissions per revenue tonne kilometre – and says new aircraft technology,

research programs and cooperation on international initiatives should be implemented to keep pace with energy saving and emissions reduction measures being undertaken in the major developed countries.

Source: Greenaironline

Embraer Orders and Deliveries

During the first quarter of 2011 (1Q11), Embraer delivered 20 jets to the commercial aviation market and eight to executive aviation. On March 31, 2011, the firm order backlog totaled US$ 16 billion, an increase of US$ 400 million over December 31, 2010.

Embraer and China's Hebei Airlines Co., Ltd. inked an order for ten EMBRAER 190 at a signing ceremony held in Beijing, P.R. China. The first delivery of these ten jets is scheduled for September 2012

ILFC orders 100 A320neo Family aircraft

International lease Finance Corporation has signed a firm contract for the purchase of 100 A320neo Family aircraft. This follows the signing of a memorandum of understanding for the deal which was announced on March 8th 2011. ILFC confirms its selection of Pratt & Whitney engines for powering at least 60 of the aircraft. The agreement between Airbus and ILFC provides for model flexibility which initially includes both A320neo and A321neo types.

The A320neo is offered as an option for the A320 Family and incorporates new more efficient engines and large "Sharklet" wing tip devices, which together will deliver up to 15 percent in fuel savings. This will represent some 3,600 tonnes less CO2 per aircraft per year. In addition, the A320neo will provide a double-digit reduction in NOx emissions and reduced engine noise.

"The new A320neo will allow ILFC to offer a single-aisle aircraft that provides significant reduction in fuel consumption," ILFC Chief Executive Officer Henri Courpron stated. "We have already seen significant market interest and are looking forward to seeing the aircraft enter service with our first customers from 2015."

"We are fully commited to providing our customers with the latest in fuel saving technologies as soon as they become available," said John Leahy, Airbus Chief Operating Officer, Customers. "ILFC is the first major lessor to order the A320neo and these early delivery positions will help secure its leading position in a very competitive single-aisle market."

Source: AACO

Boeing Celebrates Opening of New Factory in China

Boeing and Aviation Industries Corporation of China (AVIC) today celebrated the opening of a new factory that doubles the footprint of their joint venture, Boeing Tianjin Composites Co., Ltd.

The new facility will increase Boeing Tianjin Composites' production capacity by 60 percent and company employment is expected to rise from 700 to more than 1,000 by 2013, the target date for full production.

Boeing Tianjin Composites produces components for all of Boeing's in-production programs including the 737, 747-8, 767, 777 and 787. Boeing invested $21 million to develop the new factory, which was built next to the existing factory in the New Binhai Area of Tianjin.

US major Airlines lose $1.01 billion in first quarter

The US's eight largest airline companies (counting United Airlines and Continental Airlines as one and Southwest Airlines and Air Tran Airways separately) incurred a collective 2011 first-quarter net loss of $1.01 billion, ATW calculated. The deficit was slightly widened from a net loss of $985.7 million in the 2010 March quarter as rising fuel costs offset strong revenue gains.

Aggregate first-quarter revenues jumped 12.2% year-over-year to $30.19 billion but expenses increased 12.3% to $30.26 billion, producing an operating loss of $73 million, widened from an operating deficit of $56 million in the year-ago period. Combined traffic grew 2.9% to 162.87 billion RPMs on a 4% lift in capacity to 208.62 billion ASMs, producing a load factor of 78.1%, down 0.8 point.

First-quarter average yield heightened 7.6% to 14.06 cents as RASM increased 7.2% to 11.53 cents and CASM rose 9.5% to 12.7 cents. CASM ex-fuel was up just 1% to 8.22 cents.

Alaska Airlines' $74 million first-quarter net profit was the best performance among US majors. Southwest Airlines and JetBlue Airlines were also in the black for the quarter but the other five companies posted losses. American Airlines had the quarter's worst performance with a $436 million net loss.

Source: ATW online

Chinese Airlines Enjoy 58% profit Growth

Chinese carriers posted aggregate net income of $489 million in April, 57.9% increase from a net profit of $310 million in the past period, according to CAAC. Total operating revenue climbed 20.4% to $4.37 billion while expenses increased 15.5% to $3.82 billion.

April passenger boardings on domestic routes increased 13% to 24.4 million and international boardings rose 0.9% to 1.6 million. Passenger boardings climbed 27.3% to 254,700 on routes across the Taiwan Strait. CAAC noted that passenger boardings plummeted 32.2% on routes to Japan, reflecting the impact of the earthquake, tsunami and nuclear crisis. Average load factor was 83.2%, up 4 points over the yearago period. April cargo traffic volume rose 2.6% to 478,300 tonnes.

In April, the country's carriers took delivery of 12 aircraft comprising six Airbus A320s, two Embraer E-145s, one A330-300, two Boeing B737-800 and one 737 freighter. They phased out one MD-90. At month's end they operated a fleet of 1,633 aircraft.

Source: ATWonline

Air Arabia Q! Profit Hit $ 12m.

Air Arabia (PJSC) announced its financial results for the three months ending March 31, 2011, demonstrating continued profitability and meeting expectations during a quarter characterised by continuous challenges. Air Arabia's net profit for the three months ending March 31, 2011 stood at USD 12 million, a drop of 12% compared to USD 13.6 million in the corresponding period in 2010. In the first quarter of this year, Air Arabia posted a turnover of USD 139.6 million, an increase of 6% compared to USD 131.2 million in the same period of 2010.

The airline served 1.2 million passengers in the first quarter of 2011, an increase of 11% compared to 1.03 million passengers in the same period last year. In the three months ending March 31, 2011, Air Arabia's average seat load factor stood at an impressive 85%, and increase of 6% compared 80% in same period of 2010.

Source: AACO

Emirates Group Achieves Record profit in 2010-11

The Emirates Group has marked its 23rd consecutive year of profit with a record performance of USD 1.6 billion net profit, despite a challenging business climate.

In the face of many challenges, both political and environmental, the Group's revenue increased by 26.4% reaching a remarkable new level at $ 15.6 billion. Strong revenue has been the main driver for the Group's record financial performance. The Group's cash balance rose substantially to hit a record high at $ 4.4 billion.

31.4 million passengers flew with Emirates throughout the financial year, an increase of 14.5% or 4 million passengers on last year. Emirates Airline's revenues grew by an outstanding 25% from last year to reach $ 14.8 billion. Airline profits of USD 1.5 billion marked an increase of 51.9% over 2009-10's profits of $ 964 million.

Passenger Seat Factor, at 80.0%, indicates the airline's highest ever, a remarkable achievement given a substantial increase in seat capacity (Available Seat Kilometres – ASKMs) of 13%. Overall capacity, measured in ATKM (Available Tonne Kilometres), rose 12.4% to 32,057 million tonne-kilometres. Operating costs, at $ 13.3 billion, were 22.7% higher than the 2009-10 financial year. This increase correlates with the rise in fuel prices and increased activity levels in addition to an overall growth in staff numbers and a rise in direct operating costs such as handling, in-flight costs and aircraft maintenance.

A sharp increase of 41.2% in the cost of fuel during 2010-11 at $ 4.6 billion, accounted for a sizeable 34.4% of the airline's total operating costs, close to the record highs witnessed in 2008-09. This increase is a direct result of the 26.5% hike in average fuel costs per US gallon, as well as higher overall consumption due to increased capacity.

Passenger yield increased by 8.5% to 28.3 fils per RPKM (Revenue Passenger Kilometre), up from 26.1 fils (7 US cents) in 2009-10. Emirates SkyCargo saw a strong increase in revenue up 27.6% to a record $ 2.4 billion thanks to a worldwide rebound in cargo traffic. Cargo tonnage increased by 11.8% over the previous year to 1,767 thousand tonnes. Additionally freight yield per FTKM (Freight Tonne Kilometre) increased by 11.3%.

Cargo revenue contributed 17.4% to the airline's total transport revenue.

Source: AACO

Helios Airline Doomed Flight ZU522

The Boeing 737 is the most popular medium range commercial passenger jet in the world. More than 6,638 delivered and another 2100 on order easily make it the most produced commercial jet of all time. Unfortunately for the owners, manufacturers, passengers and crew, it is also becoming known as the most likely craft to be involved in a fatal crash. According to Airsafe.com the Boeing 737 series has been involved in 70 fatal crashes since 1972. Number 55 on the list occurred in 2005 when Helios Airline Flight ZU522 departed at 6:07 GMT with 115 passengers and 6 crew members aboard from Larnaca, Cyprus in route to Athens with a final destination in Prague.

By Mohamed Eltaher *

Shortly after take off, as the aircraft reached about 3,000 m, a warning horn sounded. The crew began to troubleshoot the several indications for this horn and reported a Take-off Configuration Warning and an Equipment Cooling system problem to the control tower. After a few minutes of consultation with the crew the control tower suggested the warning may have been a false alarm likely due to moisture in the wiring harness. These several minutes of discussion appeared to have been hampered by a lack of common language between the flight crew and ground engineers. The aircrew asked for and received instructions on how to disable the alarm. Soon after the alarm was disabled the crew lost consciousness. It would later be discovered that this warning indictor was in fact related to a serious loss of cabin pressure. It is believed that the cabin pressurization lever was set to manual during a maintenance check. The crew missed the opportunity to reset the lever to automatic when completing their pre-flight checklist. Having received reassurance from the tower, now with an important alarm disabled the plane climbed higher and the oxygen levels dropped in the unpressurized cabin. The oxygen masks fell in the passenger cabin but unfortunately the pilots are expected to recognize the need for oxygen based on the now disabled alarm and actually reach behind

Human error or a fatal engineering and design flaw?

Boeing 737 the most popular produced aircraft crashes the most!

their seats to access emergency oxygen. It appears that the crew lost consciousness before ever realizing the extent or true nature of the problem.

Cypriot officials noted the lack of communication from the flight and repeatedly attempted and failed to communicate with the plane's crew. At 6:37 GMT, 30 minutes after takeoff, the Greek authorities were notified of the loss of contact with flight ZU522. The ill fated flight entered Greek air space without the customary communication with the ground control tower. Per their protocol the Greek officials sent two F-16 fighter jets to establish visual contact with the plane. The F-16 pilots noted the aircraft was not under the pilot's control. In an attempt to assess the situation further one of the F-16s flew within 90 meters of the B-737 and reported seeing the pilot slumped over and no movement from his first officer. They also noted some of the passengers in the cabin could be seen wearing emergency oxygen masks. Shortly after the F-16 pilot noted a male flight attendant later identified as Andreas Prodromou enter the cockpit and attempt to regain control of the plane. Prodromou, coincidentally a pilot in training, was seen trying to steer the yoke in an attempt to control the plane but was unable to level the ill fated aircraft. He can be heard on the cockpit voice recording screaming "MAYDAY" several times. The B737 began to descend from a reported lack of fuel, hit the ground and slid for a while before it broke apart and exploded, killing everyone aboard and becoming the worst disaster in Cypriot aviation history.

The official report issued in October of 2006 indicated the direct causes of this crash were:

1. Non-recognition that the cabin pressurization mode selector was in the MAN (manual) position during the performance of the Preflight procedure, the Before Start checklist and the After Takeoff checklist
2. Non-identification of the warnings and the reasons for the activation of the warnings (Cabin Altitude Warning Horn, Passenger Oxygen Masks Deployment indication, Master Caution).
3. Incapacitation of the flight crew due to hypoxia, resulting in the continuation of the flight via the flight management computer and the autopilot, depletion of the fuel, engine flameout, and the impact of the aircraft with the ground."

The report also acknowledges the "omission of returning the cabin pressurization mode selector to the AUTO position after non-scheduled maintenance on the aircraft" as a contributory cause.

This same aircraft experienced a similar loss cabin pressure on 20 December 2004 in flight from Warsaw to Larnaca requiring it to descend swiftly from 34,000 feet to 11,000. This does call into question whether this incident was truly the result of human error or perhaps a design or system failure. Was the crew negligent in their failure to recognize the warning or was the configuration of the indicators and multiple warnings for the same indicator just too confusing? Perhaps inadequate or poorly enforced maintenance and preflight procedures which lead to leaving the mode selector on manual were really to blame.

Families who lost loved ones on flight ZU522 hoped to shed some light on this mystery when they filed a lawsuit in a United States court. Unfortunately they had to pursue their claims in Greece and Cyprus after they lost motion on forum non convenience filed by Boeing due to the lack of jurisdiction under Montreal treaty. Boeing confirmed that they will voluntarily submit themselves to the Greek or the Cypriot jurisdiction. The law suits were then settled by the makers and operators of the aircraft in an amount close to $75 million to avoid further legal proceedings. The Cypriot judicial system holds criminal proceedings for those who might be reasonable for air crashes along with pursuing the civil procedures. Therefore a number of Helios executives faced 1190 charges including manslaughter and causing the death of 121 people. Manslaughter carries a maximum penalty of life imprisonment.

* Lawyer and aviation consultant

Air navigation

By Dr. Mohamed Elfatih Elamin*

The basic principles of air navigation includes the process of planning, recording, and controlling the movement of a craft from one place to another

Successful air navigation involves piloting an aircraft from place to place without getting lost, breaking the laws applying to aircraft, or endangering the safety of those on board or on the ground. Air navigation differs from the navigation of surface craft in several ways: Aircraft travel at relatively high speeds, leaving less time to calculate their position en route. Aircraft normally cannot stop in mid-air to ascertain their position at leisure. Aircraft are safety-limited by the amount of fuel they can carry; a surface vehicle can usually get lost, run out of fuel, then simply await rescue. There is no in-flight rescue for most aircraft. And collisions with obstructions are usually fatal. Therefore, constant awareness of position is critical for aircraft pilots.

The techniques used for navigation in the air will depend on whether the aircraft is flying under the visual flight rules (VFR) or the instrument flight rules (IFR). In the latter case, the pilot will navigate exclusively using instruments and radio navigation aids such as beacons, or as directed under radar control by air traffic control. In the VFR case, a pilot will largely navigate using visual observations with reference to appropriate maps. This may be supplemented using radio navigation aids.

VFR Route planning

The first step in navigation is deciding where one wishes to go. A private pilot planning a flight under VFR will usually use an aeronautical chart of the area which is published specifically for the use of pilots. This map will depict controlled airspace, radio navigation aids and airfields prominently, as well as hazards to flying such as mountains, tall radio masts, etc. It also includes sufficient ground detail - towns, roads, etc .Generally Civil Aviation Authorities publish a series of maps covering the whole of the airspace under control at various scales, updated annually. The information is also updated in the notices to airmen, or NOTAMs.

The pilot will choose a route, taking care to avoid controlled airspace that is not permitted for the flight, restricted areas, danger areas and so on. The chosen route is plotted on the map, and the lines drawn are called the track. The aim of all subsequent navigation is to follow the chosen track as accurately as possible. Occasionally, the pilot may elect on one leg to follow a clearly visible feature on the ground such as a railway track, river, highway, or coast.

When an aircraft is in flight, it is moving relative to the body of air through which it is flying; therefore maintaining an accurate ground track is not as easy as it might appear, unless there is no wind at all – a very rare occurrence. The pilot must adjust heading to compensate for the wind, in order to follow the ground track. Initially the pilot will calculate headings to fly for each leg

of the trip prior to departure, using the forecast wind directions and speeds supplied by the meteorological authorities for the purpose. These figures are generally accurate and updated several times per day, but the unpredictable nature of the weather means that the pilot must be prepared to make further adjustments in flight.

Flight time

The flight time depends on both the desired cruising speed of the aircraft, and the wind - a tailwind will shorten flight times, a headwind will increase them. The onboard computer has scales to help pilots compute these easily.

The point of no return, sometimes referred to as the PNR, is the point on a flight at which a plane has just enough fuel, plus any mandatory reserve, to return to the airfield from which it departed. Beyond this point that option is closed, and the plane must proceed to some other destination. Alternatively, with respect to a large region without airfields, e.g. an ocean, it can mean the point before which it is closer to turn around and after which it is closer to continue. Similarly, the Equal time point, referred to as the ETP (also Critical point (CP)), is the point in the flight where it would take the same time to continue flying straight, or track back to the departure aerodrome. The ETP is not dependant on fuel, but wind, giving a change in ground speed out from, and back to the departure aerodrome. In Nil wind conditions, the ETP is located halfway between the two aerodromes, but in reality it is shifted depending on the wind speed and direction.

The aircraft that is flying across the ocean for example would be required to calculate ETPs for one engine inoperative, depressurization, and a normal ETP; all of which could actually be different points along the route. For example, in one engine inoperative and depressurization situations the aircraft would be forced to lower operational altitudes, which would affect its fuel consumption, cruise speed and ground speed. Each situation therefore would have a different ETP.

Commercial aircraft are not allowed to operate along a route that is out of range of a suitable place to land if an emergency such as an engine failure occurs. The ETP calculations serve as a planning strategy, so flight crews always have an 'out' in an emergency event, allowing a safe diversion to their chosen alternate.

The final stage is to note which areas the route will pass through or over, and to make a note of all of the things to be done - which ATC units to contact, the appropriate frequencies, visual reporting points, and so on. It is also important to note which pressure setting regions will be entered, so that the pilot can ask for the QNH (air pressure) of those regions. Finally, the pilot should have in mind some alternative plans in case the route cannot be flown for some reason - unexpected weather conditions being the most common. At times the pilot may be required to file a flight plan for an alternate destination and to carry adequate fuel for this. The more work a pilot can do on the ground prior to departure, the easier it will be in the air.

IFR planning

In many respects this is similar to VFR flight planning except that the task is generally made simpler by the use of special charts that show IFR routes from beacon to beacon with the lowest safe altitude (LSALT), bearings (in both directions) and distance marked for each route. IFR pilots may fly on other routes but they then have to do all of these calculations themselves with the LSALT calculation being the most difficult. The pilot then needs to look at the weather and minimum specifications for landing at the destination airport and the alternate requirements. The pilot must also comply with all the rules including their legal ability to use a particular instrument approach depending on how recently they last performed one.

In recent years, strict beacon-to-beacon flight paths have started to be replaced by routes derived through Performance Based Navigation (PBN) techniques. When operators are developing flight plans for their aircraft, the PBN approach encourages them to assess the overall accuracy, integrity, availability, continuity and functionality of the aggregate navigation aids present within the applicable airspace. Once these determinations have been made, the operator develops a route that is the most time and fuel efficient while respecting all applicable safety concerns – thereby maximizing both the aircraft's and the airspace's overall performance capabilities.

Under the PBN approach, technologies are able to evolve over time (ground beacons become satellites become...) without requiring the underlying aircraft operation to be recalculated. As well, navigation specifications used to assess the sensors and equipment that are available in airspace can be cataloged and shared to inform equipment upgrade decisions and the ongoing harmonization of the world's various air navigation systems ■

* Technical Advisor of GACA Civil Aviation's Communications Air Navigation Services

Forthcoming Aviation Conferences, Exhibitions & Seminars

1 July – 30 August 2011

3 - 5 July
Routes Africa
Bamako, Mali
routesonline.com/events/141/routes-africa-2011/

5 - 7 July
Customer Loyalty Seminar
Beirut, Lebanon
aaco.org/CourseDetails.aspx?ID=126&PageID=2087

6 - 7 July
Aviation Outlook China 2011
Shanghai, China
terrapinn.com/2011/aviation-outlook-china/

7 - 8 July
China General Aviation Summit
Xi'an, China
noppen.com.cn/events/General_Aviation/General_Aviation.asp

9 - 13 July
65th Annual Southwest Chapter AAAE Annual Conference and Exposition
Reno, NV, USA
aaae.org/meetings/meetings_calendar/

11 - 13 July
Aviation Outlook Africa 2011
Johannesburg, South Africa
terrapinn.com/2011/aviationza/

12 July
Isle of Man: The International Aviation Centre
Douglas, UK
aeropodium.com/conferenceprojects/isleofman.html

12 - 13 July
Airport Leaders Forum
Singapore, Singapore
airportleaders.com/Event.aspx?id=453624&MAC=OAC

New Commercial Aircraft Delivery & Modification
Brussels, Belgium
aircraftdeliveryevent.com/Event.aspx?id=470206

12 - 15 July
Leadership Skills in Aviation Course (in French)
Tunis, Tunis
aaco.org/CourseDetails.aspx?ID=127&PageID=2087

13 - 14 July
Airline & Aerospace MRO & Operations IT Conference - EMEA
Frankfurt, Germany
aircraft-commerce.com/conferences/Darmstadt2011/default.asp

14 July
Business Aviation Regional Forum
San Jose, CA, USA
nbaa.org/events/forums/20110714/

14 - 17 July
Expo Aero Brazil 2011
Sao Paulo, Brazil
expoaerobrasil.com.br/2011/the-event/?lang=en

16 - 18 July
Air Transport Management for Executives Course
Jeddah, KSA
aaco.org/CourseDetails.aspx?ID=169&PageID=2088

17 - 19 July
AAAE/SC Chapter AAAE Airports Conference of the Americas
Grand Cayman, Cayman Islands
events.aaae.org/sites/110709/index.cfm

17 - 20 July
Annual Florida Airports Council (FAC) Conference and Exposition
Hollywood, FL, USA
floridaairports.org/meetings/meetings.asp?id=44

17 - 21 July
International Conference on Environmental Systems 2011
Portland, OR, USA
aiaa.org/content.cfm?pageid=230&lumeetingid=2450

18 - 19 July
2011 AAAE/ALA Summer Legislative Issues Conference
Washington, DC, USA
events.aaae.org/sites/110704/

19 July
AAAE Transportation Security Clearinghouse Workshop
Washington, DC, USA
events.aaae.org/sites/110710/index.cfm

19 - 21 July
Managing Distribution Channels & Costs Course
Jeddah, KSA
aaco.org/CourseDetails.aspx?ID=170&PageID=2088

20 - 21 July
AAAE Employee Credentialing and Access Control Conference
Washington, DC, USA
events.aaae.org/sites/110711/index.cfm

20 - 22 July
Aviation Outlook Australia 2011
Sydney, Australia
terrapinn.com/2011/aviation-outlook-australia/

24 - 26 July
AAAE/Great Lakes Chapter AAAE National Aviation Environmental Management Conf.
Portland, OR, USA
events.aaae.org/sites/110702/index.cfm

ASQ Americas Forum
Cancun, Mexico
aci.aero/aci/aci/file/2011%20Events/

25 - 27 July
AAAE/USCTA/FAA Contract Tower Program Workshop
Washington, DC, USA
events.aaae.org/sites/110708/

25 - 31 July
EAA Airventure
Oshkosh, WI, USA
airventure.org/

26 July
Latin America Sustainable Aviation Workshop
Río de Janeiro, Brazil
aci.aero/aci/aci/file/2011%20Events/

26 - 27 July
7th Annual AAAE Aviation Air Quality Conference
Portland, OR, USA
events.aaae.org/sites/110703/index.cfm

26 - 28 July
9th National Motor Vehicle and Aviation Exposition
Orlando, FL, USA
fedfleet.org/

31 July - 3 August
47th AIAA/ASME/SAE/ASEE Joint Propulsion Conference & Exhibit
San Diego, CA, USA
aiaa.org/content.cfm?pageid=1

3 - 4 August
Air Traffic Control Asia 2011
Kuala Lumpur, Malaysia
allconferences.com/conferences/2011/20110411205622/

4 - 7 August
Great Lakes Chapter AAAE Annual Conference & Exposition
Alexandria, MN, USA
glcaaae.org/index.php

8 - 11 August
AIAA Atmospheric Flight Mechanics Conference
Portland, OR, USA
aiaa.org/content.cfm?pageid=230&lumeetingid=2375

10 - 12 August
AAAE/NW Chapter AAAE Airport Facilities Management Conference (AFMC)
Salt Lake City, UT, USA
events.aaae.org/sites/110805/index.cfm

11 - 13 August
8th Business Aviation in Latin America
Sao Paulo, Brazil
abag.org.br/labace2011/labace2011.htm

12 - 14 August
Abbotsford International Airshow
Abbotsford, Canada
abbotsfordairshow.com/

13 - 17 August
Northeast Chapter AAAE Annual Conference and Exposition
Atlantic City, NJ, USA
necaaae.org/cfiles/home.php

14 August
India Airport & Airline Expo 2011
New Delhi, India
tradeshow.free-press-release.com/exhibition,6863,aa-india-civil-aviation-week-airport-and-airline-expo-2011/

16 - 21 August
Airportex – International Specialized Exhibition
Moscow, Russia
mirexpo.ru/eng/exhibitions/airportex11.shtml

MAKS-2011
Zhukovsky, Russia
aviationbusinessindex.com/event_full.asp?id=137

20 - 23 August
Air Carriers Purchasing Conference (ACPC)
Atlanta, GA, USA
acpc.com/

23 August
2011 Commercial Operators Tax Seminar
Fort Lauderdale, FL, USA
nata.aero/Event.aspx

28 - 30 August
AAAE/Unison Consulting, Inc. CIP Finance Workshop
Reno, NV, USA
events.aaae.org/sites/110806/

17th Aviation & Allied Business Leadership Conference
Dar AL-Salaam, Tanzania
aviationbusinessjournal.aero/conference-2011.aspx

16th Annual International Aviation Forecast Summit
Albuquerque, New Mexico
aviationforecastsummit.com/

29 August
2011 Public Safety & Security Fall Conference
Arlington, VA, USA
aci-na.org/2011/pss-fall/welcome.html

30 August
Fatigue Risk Management Systems Symposium 2011
Montréal, Canada
icao.int/en/FRMS2011/default.aspx

Top 30 North America Airports Statisties

Rank	City-Airport code	Total Passengers	% Change
1	ATLANTA, GA (ATL)	89331622	▲1.5
2	CHICAGO, IL (ORD)	66774738	▲4.1
3	LOS ANGELES, CA (LAX)	59070127	▲4.5
4	DALLAS/FORT WORTH, TX (DFW)	56906610	▲1.6
5	DENVER, CO (DEN)	52209377	▲4.1
6	NEW YORK, NY (JFK)	46514154	▲1.4
7	HOUSTON, TX (IAH)	40479569	▲1.2
8	LAS VEGAS, NV (LAS)	39757359	▼1.8
9	SAN FRANCISCO, CA (SFO)	39253999	▲5.1
10	PHOENIX, AZ (PHX)	38554215	▲1.9
11	CHARLOTTE, NC (CLT)	38254207	▲10.8
12	MIAMI, FL (MIA)	35698025	▲5.4
13	ORLANDO, FL (MCO)	34877899	▲3.5
14	NEWARK, NJ (EWR)	33107041	▼ 1.0
15	MINNEAPOLIS, MN (MSP)	32839441	▲1.4
16	DETROIT, MI (DTW)	32377064	▲3.3
17	TORONTO, ON (YYZ)	31934395	▲5.2
18	SEATTLE, WA (SEA)	31553166	▲1.0
19	PHILADELPHIA, PA (PHL)	30775961	▲0.4
20	BOSTON, MA (BOS)	27428962	▲7.5
21	NEW YORK, NY (LGA)	23983082	▲8.3
22	WASHINGTON, DC (IAD)	23591554	▲2.2
23	FORT LAUDERDALE, FL (FLL)	22412627	▲6.4
24	BALTIMORE, MD (BWI)	21949902	▲4.7
25	SALT LAKE CITY, UT (SLC)	21016686	▲2.9
26	WASHINGTON DC (DCA)	18105802	▲3.1
27	CHICAGO IL (MDW)	17566281	▲3.4
28	VANCOUVER, BC (YVR)	16940970	▲3.6
29	SAN DIEGO, CA (SAN)	16889622	▼0.5
30	TAMPA, FL (TPA)	16645765	▼ 1.9

Total passengers enplaned and deplaned, passengers in transit counted once.

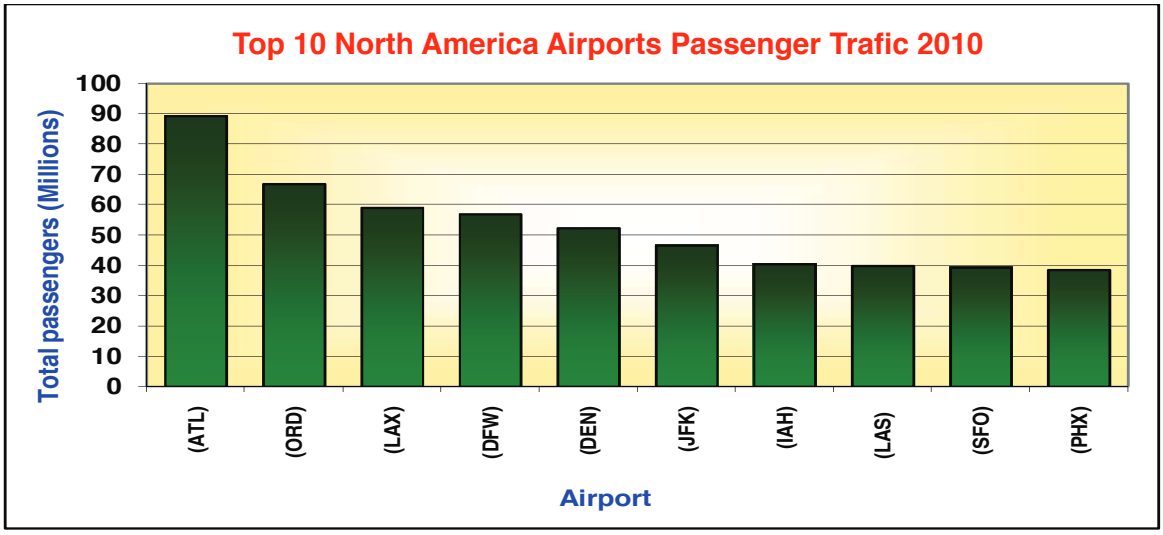
Rank	City-Airport code	Total Cargo	% Change
1	MEMPHIS TN (MEM)	3 916 811	▲5.9
2	ANCHORAGE AK (ANC)	2 646 695	▲36.6
3	LOUISVILLE KY (SDF)	2 166 656	▲11.2
4	MIAMI FL (MIA)	1 835 797	▲17.9
5	LOS ANGELES CA (LAX)	1 747 629	▲15.8
6	CHICAGO IL (ORD)	1 376 552	▲31.4
7	NEW YORK NY (JFK)	1 344 126	▲17.5
8	INDIANAPOLIS IN (IND)	1 012 589	▲7.2
9	NEWARK NJ (EWR)	855 594	▲9.8
10	ATLANTA GA (ATL)	659 129	▲17.1
11	DALLAS/FORT WORTH TX (DFW)	645 426	▲12.1
12	OAKLAND CA (OAK)	510 947	▲4.0
13	TORONTO ON (YYZ)	482 486	▲11.8
14	SAN FRANCISCO CA (SFO)	426 725	▲4.6
15	HOUSTON TX (IAH)	423 483	▲13.6
16	PHILADELPHIA PA (PHL)	419 702	▼ 3.2
17	CINCINNATI OH (CVG)	371 297	▲178.9
18	ONTARIO CA (ONT)	355 932	▲0.4
19	WASHINGTON, DC (IAD)	332 275	▲13.5
20	SEATTLE WA (SEA)	283 425	▲4.9
21	BOSTON MA (BOS)	259 539	▲4.7
22	TOLEDO OH (TOL)	254 794	▲5.5
23	DENVER CO (DEN)	251 777	▲12.2
24	PHOENIX AZ (PHX)	250 704	▲12.1
25	VANCOUVER BC (YVR)	228 387	▲15.3
26	MINNEAPOLIS MN (MSP)	211 691	▲11.6
27	DETROIT MI (DTW)	193 344	▲19.4
28	PORTLAND OR (PDX)	190 117	▲6.4
29	WINNIPEG MB (YWG)	173 034	▲7.5
30	SALT LAKE CITY UT (SLC)	145 412	▲7.3

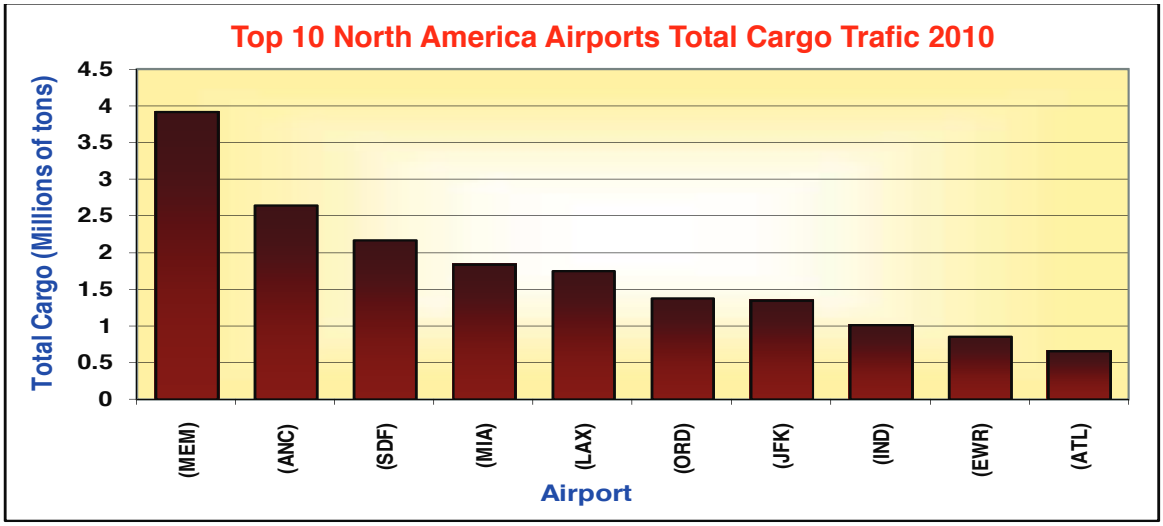
Total Cargo: loaded and unloaded freight and mail in metric tones.

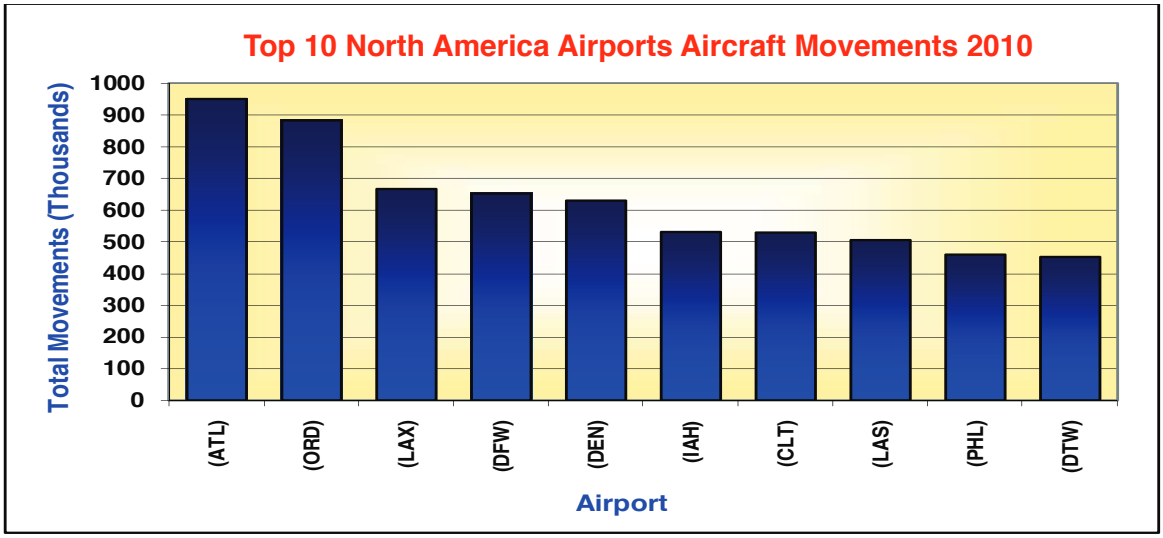
Rank	City-Airport code	Total Movements	% Change
1	ATLANTA GA (ATL)	950 119	▼ 2.1
2	CHICAGO IL (ORD)	882 617	▲ 6.6
3	LOS ANGELES CA (LAX)	666 938	▲ 4.8
4	DALLAS/FORT WORTH TX (DFW)	652 261	▲ 2.1
5	DENVER CO (DEN)	630 063	▲ 3.8
6	HOUSTON TX (IAH)	531 347	▼ 1.3
7	CHARLOTTE NC (CLT)	529 101	▲ 3.9
8	LAS VEGAS NV (LAS)	505 591	▼ 1.1
9	PHILADELPHIA PA (PHL)	460 779	▼ 2.5
10	DETROIT MI (DTW)	452 616	▲ 4.6
11	PHOENIX AZ (PHX)	449 351	▼1.7
12	MINNEAPOLIS MN (MSP)	436 625	▲ 1.0
13	TORONTO ON (YYZ)	418 298	▲ 2.6
14	NEWARK NJ (EWR)	403 880	▼2.1
15	NEW YORK NY (JFK)	399 626	▼4.2

Rank	City-Airport code	Total Movements	% Change
16	SAN FRANCISCO CA (SFO)	387 248	▲ 2.0
17	MIAMI FL (MIA)	376 208	▲ 7.1
18	PHOENIX AZ (DVT)	368 747	▼8.4
19	SALT LAKE CITY UT (SLC)	362 654	▼ 2.6
20	NEW YORK NY (LGA)	362 137	▲ 2.0
21	BOSTON MA (BOS)	352 643	▲ 2.1
22	WASHINGTON, DC (IAD)	336 531	▼1.1
23	MEMPHIS TN (MEM)	336 016	▼0.9
24	LOS ANGELES CA (VNY)	316 575	▼11.5
25	SEATTLE WA (SEA)	313 954	▼1.2
26	ORLANDO FL (MCO)	307 784	▲ 2.5
27	LONG BEACH CA (LGB)	306 171	▲ 3.1
28	VANCOUVER BC (YVR)	296 476	▼5.6
29	ANCHORAGE AK (ANC)	290 385	▲ 6.7
30	BALTIMORE MD (BWI)	276 457	▲3.2

Total Movements: landing + take off of an aircraft.


Top 10 North America Airports Passenger Trafic 2010
Total passengers (Millions)
100
90
80
70
60
50
40
30
20
10
0
(ATL)
(ORD)
(LAX)
(DFW)
(DEN)
(JFK)
(IAH)
(LAS)
(SFO)
(PHX)
Airport


Top 10 North America Airports Total Cargo Trafic 2010
Total Cargo (Millions of tons)
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
(MEM)
(ANC)
(SDF)
(MIA)
(LAX)
(ORD)
(JFK)
(IND)
(EWR)
(ATL)
Airport


Top 10 North America Airports Aircraft Movements 2010
Total Movements (Thousands)
1000
900
800
700
600
500
400
300
200
100
0
(ATL)
(ORD)
(LAX)
(DFW)
(DEN)
(IAH)
(CLT)
(LAS)
(PHL)
(DTW)
Airport

Source: ACI