In its second year, World ATM Congress climbed to a record-breaking registration number of 6,265 attendees — maintaining its position as the largest global ATM event. Professionals of all levels of the aviation community were there — helping to exceed last year’s attendance by more than 1,000. Those numbers reinforce World ATM Congress’ status of being the largest global platform discussing the future of air traffic management (ATM). YOU — the aviation professional — were an integral part of making it happen.

“This year’s World ATM Congress was a tremendous success. We have demonstrated that the strong ATCA and CANSO partnership is responsive to the needs of the global ATM community,” said Peter F. Dumont, President & CEO of the ATCA, and a co-organiser of the event. “This was further evidenced by the wide variety of attendees from around the world and from all aspects of the industry.”

“Once again, World ATM Congress has successfully provided an important and truly global forum for the air traffic management industry and its partners not just in terms of the numbers but also in quality,” said Jeff Poole, Director General CANSO, and co-organiser.

Business deals were negotiated and signed on the Exhibit Hall floor, and free education sessions were in such high demand that a fourth theater — the Congress Classroom — was added to the Exhibition. In addition, Eurocontrol and SESAR Joint Undertaking – two significant stakeholders in World ATM Congress since its inception – held free workshops and seminars throughout the week.

**Featured Decision-Makers of the Industry**

In the Conference Programme, partners came together to discuss the key strategic issues and agree the best way forward.

“We were honored to host Ana María Pastor Julián, Spain’s Minister of Transportation and Public Works; The Honorable Michael Huerta, Administrator, Federal Aviation Administration, and David McMillan of the Flight Safety Foundation, among other respected key figures.”

World ATM Congress Thanks Our Sponsors

| **Platinum Sponsors** |
| **Gold Sponsors** |
| **Bronze Sponsors** |
| **Additional Sponsors** |

**See You Next Year!**

**10-12 March**

**Madrid, Spain**

**IFEMA, Feria de Madrid**
Executive Perspective

It’s Time for Commercial Business Between ANSPs

World ATM Congress approached executives of several leading companies in the industry to ask them their perspective on the industry – challenges, solutions, and what’s to come. Over the next few days, this section will feature the voice of those with influence.

Stefan Lentz, Director of Aeronautical Solutions at DFS

As an ANSP that can draw on more than 60 years of experience in providing air navigation services at the heart of Europe, our consultancy services have a clear focus on operations. This includes the holistic evaluation of air traffic services, restructuring of airspace and air traffic management tools planning and design. One of our current customers is Novosibirsk Tolmachevo Airport in Russia, where DFS is supporting the implementation of its newly developed operational concept including satellite-based approach and departure routes. But our services also comprise special areas like consultancy for infrastructure projects, safety management and the integration of unmanned aircraft systems outside segregated airspace. Every operational setting of an ANSP is unique and is shaped as much by cultural or national influences as it is by the complexity of the aviation industry. It may thus be beneficial to expand services for some customers to a strategic level.

DFS has, for example, developed master plans or supported the establishment of a national regulatory authority for air navigation services.

The commercial business unit of DFS has the benefit of being able to draw on internal resources and expertise, such as its academy and the R&D and system development units. Systems or tools have to be carefully considered: Is it really necessary to invest in something new or can the new challenges be met with the capabilities of the existing infrastructure? We support our customers in solving their capacity issues by enhancing their efficiency.

ANSPs have more to offer besides their operational know-how, and their business can benefit from a strong customer orientation. In the future, business between ANSPs will be influenced by economic regulation and market forces. This may seem like a great challenge, but it could well prove to be a great opportunity.

Panelists Imagine a Perfect Regulatory World

With 28 member states and more than 60 air traffic control centers in Europe, effective, cost-effective regulation is a challenge. Or, to put it more bluntly, “currently, ladies and gentlemen, regulation is a bloodbath,” said Matthew Baldwin during the Wednesday morning session “Delivering Efficient Regulation.”

Baldwin, director of air aviation and international transport policy in DG Transport and Mobility (MOVE) for the European Commission, and other European and American panelists discussed regulatory challenges and delivered a wish list of what they’re looking for from a regulator.

Teri Bristol, acting chief operating officer for the Federal Aviation Administration’s Air Traffic Organization, said the U.S. has its own regulatory challenges. Dealing with Congress is an issue, along with working more collaboratively with labor unions and airline personnel. “One of the biggest challenges is having the manpower to meet the different needs we have,” she said.

In the U.S., “when it comes to regulation, it’s not about piling on more,” Bristol said. “We’re going to challenge our regulator to review safety protocols and standards and be as adaptable and flexible as we are in providing services. Regulators have to be open to pushing the envelope.”

For Klaus-Dieter Scheurle, chairman and CEO of DFS Deutsche Flugsicherung GmbH, cost is a paramount issue. German legislation requires that his organisation make profits. “We’re regulated on 95 percent of revenues, which could potentially lead to bankruptcy,” he said, “so it’s important to stay cost-efficient even during periods of growth.”

To accomplish this, Scheurle said there needs to be the “right kind of performance regulation. We need a competitive environment to incentivize customers, but that’s not the case in our industry. The second-best option is a regulatory environment that allows fair assessments and competency.”

Baldwin said there are three reasons to regulate: to promote competition or to protect consumers in the absence of that competition, to promote safety, and to drive policy.

“Sometimes regulation is very absolute or glorified targetry—keeping an eye on things, looking over the shoulders of operators,” he said. “We have an aviation industry that’s crying out for consistency of regulation.”

But that said, “I’d like to argue that our regulatory systems have gotten better” in terms of issues like transparency and cost-efficiency, Baldwin said.

From a cost perspective, “regulation has to be light of foot in the way it addresses things,” he said. “We have to remember it’s a global industry. It is not hairdressing and yet we in Europe and across the world try to regulate aviation as if it were hairdressing, with a focus on local regulations.”
Solar Plane is Latest Aviation Innovation

Think of André Borschberg and Niklaus Gerber as 21st century versions of Orville and Wilbur Wright.

Like the Wright brothers, Borschberg and Gerber overcame skeptics who said their vision of air travel couldn’t be accomplished. Using solar technology, the Swiss duo has created the world’s first airplane with unlimited endurance. The plane already has flown coast-to-coast across the United States, and is slated to undergo a round-the-world journey in March 2015.

“At this point, the pilot is actually the weak link. We have to make the pilot sustainable.” He and Gerber are currently undergoing 72-hour stints in the simulator to train for the journey.

The plane’s average rate of climb is 70 feet per minute, and the average rate of descent is 90 feet per minute. The plane is equipped with standard COM/NAV equipment, including one datalink and two GPS.

Borschberg said the longest leg on the round-the-world flight will be five days and five nights. “At this point, the pilot is actually the weak link. We have to make the pilot sustainable.”

Solar Impulse’s first plane has a 64-metre wingspan lined with 2,000 square feet of solar panels that produce enough energy to power one scooter. The wingspan is equivalent to that of a 1.5 scooters. The climb speed is 25 knots, cruise speed is 24 to 35 knots and approach speed is 30 knots. “It flies slowly, so integration with air traffic control is a challenge,” Gerber said.

The plane collects enough solar energy during the day to power it through the night. However, certain adaptations must be made for night flying. Gerber said.

The plane also must avoid turbulence and bad weather. After years of analysis, Solar Impulse’s weather specialists have identified an optimal worldwide weather corridor about the width of the United States.

After months of simulator training, Borschberg’s first flight in the plane was only 1 kilometer long at a half-meter elevation. “We learned the plane has to be flown differently—everything happens extremely slowly and the pilot has to not overreact or overcontrol,” he said.

In 2010, the plane underwent its first day and night flight. In 2012, it crossed the Strait of Gibraltar to Morocco, and in 2013 it flew from San Francisco to New York.

To fly around the world next year, the Solar Impulse team has developed a new, slightly bigger aircraft with a 72.3 meter wingspan—a little less than an Airbus 380. This certified experimental plane is 22.4 meters long and 6.3 meters high.

It carries four electric motors with a maximum power of 52 kilowatts or 70 horsepower, or the equivalent of 1.5 scooters. The climb speed is 25 knots, cruise speed is 24 to 35 knots and approach speed is 30 knots. "It flies slowly, so integration with air traffic control is a challenge," Gerber said.

The plane’s average rate of climb is 70 feet per minute, and the average rate of descent is 90 feet per minute. The plane is equipped with standard COM/NAV equipment, including one datalink and two GPS.

Borschberg said the longest leg on the round-the-world flight will be five days and five nights. “At this point, the pilot is actually the weak link. We have to make the pilot sustainable.” He and Gerber are currently undergoing 72-hour stints in the simulator to train for the journey.

Simulators: The Future of ATC Training?

Think about how you learned to ride a bike. Maybe your parents showed you the initial fundamentals, but you probably mastered the skill by practicing on your own.

The same concept applies to air traffic control training, said Klaus Fischer during the Thursday morning AriaTM Innovation in ATC Training session “The Functionalities of the ATC Training Simulator of the Future.”

Fischer is owner and developer of ROSE ATC Simulators, which can be loaded directly onto a student’s computer. These simulators offer a new level of learning, he said.

“Children learn without parent input, meaning students should be able to do simulations without being accompanied by a professional coach,” Fischer said. “ROSE allows them to do simulations as often as they like, including during their leisure time.”

This type of simulator taps into Edgar Dale’s Cone of Experience, which states that people only remember 10 percent of what they read, 20 percent of what they hear, 30 percent of what they see and 50 percent of what they do. But they remember 90 percent of what they do, which makes hands-on workshops, collaborative lessons and simulation models the most effective learning tools.

Simulator-based learning also expands the boundaries of the classroom, Fischer said. PowerPoint-based teaching can’t answer student questions like “What happens if I turn the aircraft too late?” or “What would be the impact of northern winds?” but a simulator can.

Simulators also provide better briefing and debriefing information, including conclusions about the context, tools to visualize the situation and measure/prove the facts, and a result to hand over to the trainee.

“You can write down the minute when the trainee sees a problem, which is more effective than note taking for a debriefing,” Fischer said. “A simulator also lets you concentrate on your trainee rather than your notes, and review the situation rather than explain it. You can analyze the problem, identify the wrong decision and review the correct procedure.”

World ATM NOW

Madrid

March 2014
Societal Change Rather Than Technological Advances Will Drive the Future of ATM

World ATM Congress 2014 closed with a look ahead.

During the Wednesday afternoon session “Delivering the Future,” six of the industry’s deepest thinkers discussed their visions of the future of worldwide air traffic management. Their consensus: The technology is ready, but the people who will actually use that technology are lagging behind.

Eamonn Brennan, chief executive of the Irish Aviation Authority, kicked off the session with a look at what he calls the European Conundrum: the desire to keep everyone happy.

“I’ve always admired what the aircraft industry does—they get a product to market that people want. European ANSPs can’t seem to do that,” he said. “If you’re trying to do something innovative, you can’t do it to keep people happy. You have to do it to solve a problem. But the only way you can get anything done in Europe is by consensus, which is why we don’t get anything done.”

And yet, said Charles Keegan, vice president of civil aviation solutions for Raytheon, the technology that will spur this change already exists. For instance, datacomm and automatic dependent surveillance-broadcast (ADS-B) were both developed in the 1980s. “So the question is not what needs to be done, but how do we get there?” he said.

Patrick Ky, executive director of the European Aviation Safety Agency, pointed out that despite technological shifts, “the situation 20 years ago is similar to today: air traffic control centers with radio, and airport towers that allow a visual look. This is basically the baggage we still bring with us, whereas technology today enables us to put an ATC center anywhere in the world. It doesn’t have to be physically present in the airport.”

But the leap between theory and action is problematic, Ky said. “De-materialization of air traffic control services creates challenges. How do we ensure an equal level of safety and efficiency? How do we deal with the national boundaries—do they really make sense anymore? What is the size of an ATC center and how do the controllers work together as a team? How can we make everybody happy?”

Panelists agreed that these questions might have to be answered by future generations. “Look at who carries their boarding pass on their phone versus on paper. Who no longer has landlines. It’s the younger generations,” said Edward L. Bolton Jr., assistant administrator for NextGen at the Federal Aviation Administration. “The real question is: Is the older generation going to have to die off before we can implement these new technologies? Technology is not the problem, implementing the capabilities is the problem.”

Daniel Weder, CEO of skyguide, said one compromise option may be the Virtual Centre Model, which keeps Europe’s existing ATC centres but centralizes data operation into six data centres. Ky pointed out that an airplane is a closed system but an ATC system on the ground is an open loop. “This puts a lot of uncertainty in the system that makes it impossible to automate,” he said. “Once we close the loop through datacomm we will be able to start to automate because we will have an enclosed system.”

Ky and Weder also believe that giving European ANSPs reasons to make changes may be effective. “We haven’t done things because our business model doesn’t provide incentives,” Ky said. “Would a low-cost ANSP change the behaviors of other ANSPs?”

UPCOMING CANSO AND ATCA EVENTS

Spring 2014
FAA Budget Briefing
www.atca.org/budgetbriefing
5 - 7 May 2014
CANSO Asia-Pacific Conference
www.canso.org/Asiapacificconference2014
13 - 15 May 2014
ATCA 2014 Technical Symposium
www.atca.org/techsymposium
28 June - 1 July 2014
CANSO Global ATM Summit & 18th AGM
www.canso.org/Agm2014
28 September - 1 October 2014
ATCA 59th Annual Conference & Exposition
www.atca.org/59annual
6 - 8 October 2014
CANSO Africa Conference
www.canso.org/africaconference2014
26 - 30 October 2014
CANSO Global ATM Safety Conference
www.canso.org/safetyconference2014
13 November 2014
ATCA Aviation Cyber Security Day
www.atca.org/cyber
1 - 3 December 2014
CANSO Latin America & Caribbean Conference
www.canso.org/laconference2014

World ATM Congress Future Dates
10 - 12 March 2015
Madrid, Spain
8 - 10 March 2016
Madrid, Spain
7 - 9 March 2017
Madrid, Spain

IHS Jane’s Holds ATM Awards Ceremony

IHS Inc., a leading global source of critical information and insight, recently held the IHS Jane’s 14th annual ATC Awards ceremony.

The Winners

- Environment Award: Eurocontrol and Thomas Cook Airlines – Network Manager Flight Efficiency Initiative
- Enabling Technology Award: SESAR JU and partners – SESAR SWIM Outreach
- Service Provision Award: ASIOACG – Arabian Sea-Indian Ocean UPR Geographic Zone
- Technology Award: Harris Corporation – SWIM solutions powered by Data Exchange (DEX)
- Innovation Award: delair Air Traffic Systems – arosa PMS/de-icing
- Runway Award: Midwest ATC – Kandahar runway efficiency
High Ice Water Content – a New Aviation Weather Hazard?

By Julie A. Haggerty, National Center for Atmospheric Research

Ingest of ice particles by jet engines, known as ice particle icing, appears to be the culprit in over 150 multiple engine power-loss and damage events during the past two decades. Although the heat within an engine would presumably prevent any ice build-up, wind tunnel tests have confirmed that significant amounts of ice can accrete inside sensitive parts of an aircraft engine. The details of how this accreted ice affects engines in flight are still being pursued; in the meantime meteorologists are working on means to identify conditions conducive to ice particle icing and keep aircraft from encountering these areas. These conditions are referred to as High Ice Water Content – HIWC – Conditions.

Although there are high amounts of ice in these regions, the ice crystals are small enough (likely less than 1/10th of a millimeter diameter) that they are not well detected by onboard radars. A pilot flying an airplane with an onboard radar, avoiding a high-reflectivity storm core, may thus inadvertently fly into a HIWC-prone region. How then to keep airplanes safely away from these conditions?

By matching the time and location of previous engine power-loss events to routinely available meteorological data from satellites, numerical weather prediction models, and ground-based weather radar, clues to the existence of HIWC conditions have been revealed. Even though the conditions span a wide range of temperatures and flight altitudes, there are enough common attributes to suggest that development of a warning tool to avoid these conditions is feasible. For instance, events tend to occur near (but not within) cores of deep convection with high, cold cloud tops, above areas of heavy precipitation. Satellite imagery is useful for identifying these types of clouds and temperatures at their tops; numerical weather prediction models provide information about the vertical structure of the atmosphere and whether ice crystals or water drops are present; ground-based radar data, where available, indicates where heavy rain is occurring.

A Warning Tool for HIWC Conditions

Scientists and engineers at the National Center for Atmospheric Research (NCAR) are developing a system that will identify areas where HIWC conditions are likely. A prototype warning tool – Algorithm for Prediction of HIWC Areas (ALPHA) -- provides guidance for avoiding encounters with high concentrations of ice crystals. The algorithm focuses on a set of critical meteorological predictors of HIWC extracted from routinely-available data sets. The real-time weather information is blended to yield an estimate of the likelihood of HIWC conditions at a given location and altitude. (can include a picture of the output here)

ALPHA estimates the likelihood of HIWC conditions within a large mesoscale convective cell west of Darwin, Australia on 23 January 2014.

While the phenomenon of ice crystal icing within jet engines has been documented and is now generally accepted by the aviation industry, the meteorological processes that produce dangerously high numbers of ice crystals remain a mystery, as are details on the effects on jet engines. Field experiments using instrumented research aircraft are being conducted by international teams to collect measurements to explore the science of engine icing events. At this time, a three-month field campaign, based in Darwin, Australia, is being conducted to collect a unique data set for advancing the understanding of this phenomenon, evaluating proposed certification envelopes, and verifying the ALPHA warning tool.
Making connections at

World ATM Congress attendees worked hard and added value.

View the people and companies that made the difference.
the hub of the industry

Advanced the cause of global air traffic management. That made the week so successful.

View more photos at www.flickr.com/worldatmcongress
Record-breaker  
» from page 1

decision-makers in the industry,” said Poole. “The success of World ATM Congress reaffirms the strong need and support for a single global ATM forum by the industry for the industry.”

Who Was in Madrid?

“Not only was the event larger this year — it was better,” said Dumont. “With 190 exhibitors and visitors from 128 countries, the exhibition floor was rich for business. There was clearly a demand for access to the ATM community in an environment that encourages innovation, and we have provided it.”

All sectors of the air traffic community were in attendance — from senior executives, controllers, aviation manufacturers and suppliers, airline executives, military and government, young aviation professionals, and aviation trade associations — conducting real business and commercial and strategic discussions. Students from Madrid universities supported the conference and made their own presentations sharing a new generation’s perspectives on the industry. All 128 visiting countries are listed at www.worldatmcongress.org/2014-Visiting-Countries.

Moving Forward

The event will continue to serve as a meeting hub for the industry for the foreseeable future. While at IFEMA Feria de Madrid, World ATM Congress officials signed an agreement to extend the event’s contract for three additional years, citing satisfied attendees, the hospitality of the city of Madrid, and the accommodating nature of IFEMA. The next World ATM Congress will take place 10 – 12 March 2015. See you again in Madrid!

Angola’s ANSP partners with SITA for safer skies

The Luanda flight information region (FIR) over Angola is set to support aircraft using future air navigation system (FANS) data link avionics with the deployment of the SITA FANS system communicating via the SITA AIRCOM data link service. The technology is being implemented by Empresa Nacional de Exploração de Aéroportos e Navegação Aérea E.P. (ENANA), the company that controls civil air traffic in Angola.

The announcement, made today at World ATM Congress 2014 in Madrid, marks a new era of air traffic management in the region in line with ICAO recommendations for improving communication, navigation, and surveillance in the Luanda oceanic FIR. Aircraft using FANS controller-pilot datalink communications (CPDLC) will provide a more accurate way for air traffic controllers and pilots in this region to communicate during flight. In addition, automatic dependence surveillance contract (ADS-C) tracking will send aircraft positions to be displayed on the ground system with greater precision, in particular when radar coverage is unavailable. Both pilots and controllers will benefit from a reduced workload and greater confidence in the accuracy of information being transmitted between them.

Philip Clinch, SITA Vice President, Aircraft Solutions, said: “This move to FANS by ENANA brings Angola in line with other countries in the AFI (Africa Indian Ocean Region). SITA’s systems enabling datalink will allow for the improvement in the overall accuracy and reliability of information exchanged between the aircraft and the controllers on the ground. It will allow ENANA to provide more flexible routes to airline users, increasing Angolan Air space capacity and improving safety in oceanic airspace. Read more at www.sita.aero.

STR-SpeechTech develops D-ATIS Response Monitor

STR-SpeechTech has completed the development of a D-ATIS Response Monitor that will provide the ability to monitor and log datalink requests made by aircraft.

ATIS (Automatic Terminal Information Service) broadcasts information including runways in use and conditions, notices to airmen, and weather information. The Digital ATIS (D-ATIS) is received digitally in text form, on ACARS-equipped aircraft. This means that controllers and pilots do not have to rely strictly on voice frequencies, particularly when they are congested. “STR is excited to announce the successful development of the D-ATIS Response Monitor,” said Steve Eady, Project Manager of STR. “The new functionality will provide detailed information to air traffic control managers and will ultimately improve aviation safety and efficiency.”

The technology was developed for the new air traffic control facility at the Aeroporto Internacional de Rio Grande do Norte / São Gonçalo do Amarante in Natal, Brazil. STR is supplying a bilingual English/Portuguese StarCaster ATIS system. The D-ATIS Response Monitor will be installed on the StarCaster servers that receive reports from a hosted D-ATIS server. The reports contain all requests for D-ATIS messages made by arriving and departing aircraft, and also include:

• the aircraft identifier and/or name of the airline
• the time of the request
• the contents of each D-ATIS message
• an indication that the message was successfully delivered or failed to deliver

The hosted D-ATIS Server collects the required data and makes it available to be accessed by the D-ATIS Response Monitor on the StarCaster ATIS computers. Using secure HTTP over the public internet, it accesses the information from the server, and creates a log of the received data for record-keeping purposes.

A separate application that resides on the StarCaster ATIS Operator Workstation (in the control tower Cab) accesses the most recently collected D-ATIS request data from the data collection utility on the servers, making the data available for the air traffic controller to view.
Transforming the air traffic management (ATM) system is essential for improving safety, efficiency and the environment around the globe.

Boeing is fully committed and uniquely qualified to help make ATM transformation a reality. It’s the right time and Boeing is the right partner.
Boeing, Bermuda Department of Airport Operations to Study Airspace Modernization

Boeing [NYSE: BA] and the Bermuda Department of Airport Operations (DAO) have agreed to study the modernization of airspace and air traffic management in Bermuda. Engineers from Boeing Digital Aviation, a business unit of Commercial Aviation Services, will work with DAO to identify the steps required to develop a fully optimized air traffic management system for Bermuda, including an increase in the country’s ability to handle arriving and departing traffic. The announcement came during the first day of the World ATM Conference in Madrid.

“In teaming with Boeing Digital Aviation, Bermuda hopes to develop some of the most modern and efficient airspace in the world,” said Aaron Ad- derley, general manager of Bermuda’s L.F.Wade International Airport. “Airport operators, passengers and the public at large will all benefit from the efficiencies attained.”

The team will evaluate establishing an expanded air traffic control facility with responsibility for traffic operating within the terminal airspace centered around L. F. Wade International Airport.

Your mission: Providing space in airspace

As a Traffic Control requires permanent concentration. A user-friendly environment that promotes concentration cannot be created while using noisy, distracting computers.

We provide solutions that allow operators and computers to be separated, moving the computers from towers and flight control centres into dedicated areas.

Increase the efficiency of both, man and machine. Access the remote computers in real-time over existing cables without any loss in quality and performance.

As safety is paramount our systems are equipped with preventive monitoring and event reporting functions as well as redundancy of components.

In addition to the established monitoring and screen freeze function, the revised DL-Vision system bridges distances of 10,000 meters making it our superior ATC solution.

Selex ES awarded logistic support contract for ATC radars installed in Portugal

Selex ES, a Finmeccanica company, has signed a contract worth around 5m with NAV Portugal, the Portuguese Air Navigation Service Provider, to deliver logistic support and maintenance for air traffic control radars. The radars were installed in Portugal by Selex ES starting in 1997.

Announced during the World ATM congress today, the agreement will be active for ten years, during which the company will provide technical assistance as well as innovative and advanced maintenance services. The latter were developed by Selex ES to ensure effective and prompt responses to customer needs during the life cycle of complex systems.

The contract also includes the creation of a centralised depot in Lisbon under NAV Portugal responsibility to speed up the management of spare parts.

Selex ES will also supply on-call repair services, assistance and the supply of spare parts.

Since 1997, Selex ES has supplied eight ATC radars systems to NAV Portugal. The radar systems, which are installed in Porto Santo, Porto, Lisbon (2), Montejunto, Foia, Faro and Santa Maria, are in line with the latest international safety standards and have monitored Portugal’s airspace, including the archipelagos of Madeira (Porto Santo) and the Azores (Santa Maria), for over 15 years.
See You Next Year.

10-12 March 2015
Madrid, Spain
IFEMA, Feria de Madrid

www.worldatmcongress.org
World ATM Congress
Future Dates
2015: 10-12 March
2016: 8-10 March
2017: 7-9 March
Madrid, Spain
www.WorldATMCongress.org