

# Jetstream

2016 AND BEYOND



GLOBAL AEROSPACE



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## LETTER FROM THE CEO

# The Digital Age, Drones, Climate Change & Terrorism: The New World of Aviation Insurance

Welcome to the latest issue of Jetstream, our annual publication which brings you articles on a range of topics of interest in our world of aviation and aerospace insurance.

In this edition we look at how insurance is finally entering the digital age, and how this might change the future of our industry. We bring you an update on the UAS or drone market as it continues to grow and evolve, and ask the question why baggage claims in Brazil have become such an expensive problem for airlines and their insurers.

Amidst the global political turmoil of the past year we saw the unwelcome return of terrorism targeted specifically at aviation. We therefore asked a security expert, Professor Norman Shanks, for his comments on what could be done to protect against future attacks.

On a brighter note we saw a number of new generation aircraft enter into commercial service during 2016, such as the Airbus A350 and A320neo, and the Bombardier C-series. These aircraft are significantly quieter and more fuel efficient than the previous generation and they are also testament to the industry's "green" credentials. The A320neo, for example, produces up to 3,500 less tonnes of CO<sub>2</sub> per annum than the A320ceo and cuts emissions of NO<sub>x</sub> by up to 50%.

As CO<sub>2</sub> levels in the atmosphere exceed 400 parts per million for the first time, we take a look at the impact of climate change on aviation—rather than the other way a round. Meteorologist Dr. Paul Williams believes that there could be considerable implications.

Finally, for a little light relief we consider the concept of the circular runway.

I hope that you enjoy reading Jetstream and look forward to working with you in 2017. ▼



**Nick Brown**

*CEO, Group Chief Executive*



# New Technology: Driving Insurance of the Future

Imagine you are taking a vacation. As you drive to the airport, your insurance company is monitoring you: the distance you cover, your speed, how safely you are cornering. Your auto insurance premium will be adjusted accordingly.

At the airport a ping from your phone alerts you to an offer of travel insurance, which you buy with a few taps on the screen. Unfortunately when you return home you find that your apartment has been robbed. You submit a claim using the app on your phone and five minutes later you have been reimbursed via your PayPal account.

There is no denying that the insurance world is finally waking up to the digital revolution, but why has it taken so long, and where will it take us next? Mark Chapman, CIO at Global Aerospace offers this opinion: “For many years insurers viewed their investment in technology as a tool to increase efficiency and speed. However these were internal projects and customer opinion was rarely sought. We have recently seen much more innovation, as insurers have recognised the opportunity that smartphones offer to interact with the customer, but to date it has mainly been in consumer lines and the industry has been slow to apply new ideas to commercial and specialty lines.”

At Global, we launched our “FlightDeck” phone/tablet app in February 2011. It was a first for our sector and it gave general aviation customers the opportunity to generate certificates and file claims from their iPhone. We increased this functionality in 2014 with our “Global on the Move” app which was custom designed for a group of European airport operators. Ultimately, however, we found that end users preferred to use the web portals that accompanied these apps. For the time being, it looks like web portals have the most appeal for our customers.

“We have been developing portal technology for a number of years now. We introduced our first customer portal in 2001 to give our customers and producers a view into claims documents and reports.

In 2013 we introduced technology to help expedite vendor invoice payments through our claims system,” said Thomas Assenza, SVP of IT Services at Global US. “Today we are developing portals to help transact business in a quick and efficient manner.”

In our sector, apps do have potential to provide something really different. In 2016 we partnered with Verifly to launch their innovative pay-per-use insurance app for drone operators. What is particularly exciting about Verifly is the way it uses geodata and weather data. By identifying the exact location of the user’s phone the app can tell if the drone is too close to an airport, for example, or if the wind speed is too high. It therefore alerts the user to potential problems as well as evaluating the precise nature of the risk for underwriting purposes.

So where will technology take us next? One trending topic amongst insurance entrepreneurs is “peer-to-peer” insurance whereby customers form teams and pool their claims. Examples include Friendsurance in Germany, auto insurer Hey Guevara in the UK and New York property insurer Lemonade. It’s basically insurance meets social media.

These companies all like to style themselves as disrupters, but underneath you will still find a producer and an insurance company. Not so with Teambrella, a Bitcoin-based peer-to-peer platform that aims to take the insurer and the broker out of the equation. Team members will not pay a set premium but will instead deposit funds into a special Bitcoin wallet. The claim process is interesting. Funds from the wallet can only be spent if both the insured member and three out of eight semi-randomly selected teammates sign for it. Could this be the future? ▼

# Winds of Change: Effect on Aviation

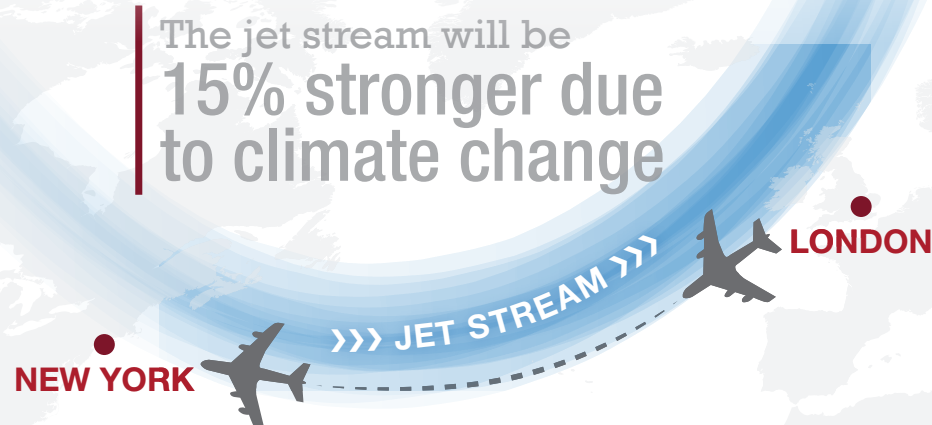
Flights from Europe to the U.S. could take longer and be more expensive in the future as a result of climate change. Speaking at our May 2016 London Client seminar, “What’s on the Horizon?,” Dr. Paul Williams from the University of Reading warned that a doubling of the amount of carbon dioxide in the atmosphere would accelerate jet streams.

“The bad news for passengers is that westbound flights will be battling against stronger headwinds. The good news is that eastbound flights will be boosted by stronger tailwinds, but not enough to compensate for the longer westbound journeys,” Dr. Williams said. “The net result is that round-trip journeys will significantly lengthen.”

The average winds along the flight route between London and New York are predicted to become 15% faster, making it twice as likely for a flight travelling from London Heathrow to John F. Kennedy International Airport to take more than seven hours. Meanwhile, flights travelling the other way will be

twice as likely to reach their destination in under 5 hours and 20 minutes. It is interesting to note that the fastest ever non-Concorde flight time from JFK to LHR—5 hours and 16 minutes—was recorded in 2015 on a day when the jet stream was blowing at 250 mph.

To study the effects of climate change on transatlantic flights, Dr. Williams’s team used computer models to map how atmospheric winds will be affected if the amount of carbon dioxide in the atmosphere reaches double pre-industrial levels. They then fed the results of this simulation into a routing algorithm of the type commonly used by flight planners.



Chance of westbound flights taking  
**more than 7 hours**  
increases by 80%



“The jet stream encircles the globe, and there is one in the southern hemisphere, too. It is possible that flights elsewhere in the world will also suffer from a similar jet stream effect.” Airlines may have to alter schedules to reflect the greater differences in outbound and inbound flight times.

But there is another potential impact of climate change on air transport and that is the frequency with which aircraft encounter clear-air turbulence (CAT). FAA data seem to indicate that the number of incidents per flight has been increasing, and as insurers we regularly have to deal with injury claims caused by severe CAT events, so this could be a worrying trend.

In order to try to predict the effect if CO<sub>2</sub> is doubled, Dr. Williams’s team have run simulations on multiple different models and compared them to determine the most likely outcomes. They found that for cruise altitudes in winter over the North Atlantic, most measures show a 10–40% increase in the average CAT strength and a 40–170% increase in the volume of airspace containing moderate CAT.

“In summary, climate change will lead to bumpier transatlantic flights by the middle of this century. We anticipate flight paths becoming more

convoluted to avoid strong, frequent patches of turbulence, resulting in longer flight times and increased jet fuel consumption. The more carbon dioxide pumped into the atmosphere, the more turbulence will disrupt flights.” ▼

Contact details for Dr. Paul Williams, e-mail: [p.d.williams@reading.ac.uk](mailto:p.d.williams@reading.ac.uk) or Twitter: @DrPaulDWilliams

*When predicting the effect if CO<sub>2</sub> is doubled in simulated models, measures show a 10–40% increase in the average CAT strength and a 40–170% increase in the volume of airspace containing moderate CAT.*



# UAS/Drone Update: Steep Learning Curve for UAS Market

The recent rise of the global commercial drone industry is remarkable. The case for using drones across a broad spectrum of commerce is increasingly compelling. With the reassurance of greater regulatory certainty this buoyant industry is advancing at a staggering pace.

As a leading provider of insurance for the sector, Global Aerospace has a unique insight into the reality of today's Unmanned Aircraft Systems (UAS) market. Our customers' use of drones is rapidly increasing. Global Aerospace has been insuring small UAS (<55lbs/25kgs) for well over three years. That is a brief moment in terms of traditional aviation but a lifetime of experience in the world of small drones.

Regulators around the world are struggling to keep up. While there are no international standards currently in place, there are certain elements that are present in most national rules:

- Differentiating recreational and commercial operations
- Establishing minimum standards for operators
- Using weight to differentiate risk potential
- Imposing minimal aircraft certification or none at all
- Restricting operations to visual line of sight and daylight hours only
- Restricting operations based on population density and airspace

Comprehensive insurance is generally available for all operators, all equipment and all uses so long as an acceptable safety standard can be demonstrated.

Global's UAS clients now number in the thousands. With this success we have also seen claims, and we are constantly learning from our clients' experiences. The industry is truly in its infancy and the learning curve will be steep. Even the best manufacturers will be unable to tell you the mean time between failure (MTBF) of their systems.

Companies all over the world are assessing how their organizations could perhaps benefit from the use of drones. But they are also considering whether it is better to develop



their own program or call in an established operator to perform the flights for their company.

With the industry developing and changing so quickly, many questions could be considered:

- What is the complexity of the flight profile and data you are looking for?
- Does your corporate infrastructure and size support something as specialized as drones?
- Would the use of drones replace others on your workforce who could train to be operators?
- Rather than trial and error investment, would an expert be able to accelerate the project?
- Would a contractor really understand your specific needs and be able to deliver in a way that sufficiently mitigates risk?

Maybe the right path forward is to find a blend between internal and external. Whether you are involved in operating drones or providing insurance for them, the pace of change in this sector means that there are new things to learn almost every day. We look forward to reporting back in twelve months. One thing for certain is that the landscape will continue to rapidly evolve. ▀



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The expanding UAS market creates challenges and opportunities for Global Aerospace. To understand these risks, we work with OEMs and other stakeholders, take a risk-based approach in the absence of regulation, and partner with training companies to support safe operations.

## Regulations around the world:

The growth of the commercial drone industry has taken regulators by surprise.



The operator and the flight profile is being certified and regulated, not the drone itself



Distinction is drawn between recreational and commercial use



Commercial demand is outpacing regulatory action

There are few standards, making it confusing to operators

The European Aviation Safety Agency (EASA) only regulates drones over 150kg; the others are left to individual countries

Training addresses Beyond Visual Line of Sight (BVLOS) yet





## The Endless Runway: Bizarre Ideas of Our Age #342

Not coming to a municipality near you (at least any time soon), this simple but brilliant idea briefly received EU funding as part of its Seventh Framework Programme to foster research and innovation.

The team behind it had identified that lack of capacity at airports is the major constraint to growth in air transport. A conventional runway design is limited by physical constraints, such as wake vortex separation minima, and cross and tail winds.

The solution: make the runway circular so that you can shift the lift-off and touchdown points of individual aircraft. With changing wind, the aircraft sequence can move with the wind direction with no break in sequence, avoiding delays.

Sounds great, but there are quite a number of hurdles in the development of such an airport—cost for one, and what about having to retrain pilots and ATC personnel, not to mention safety concerns?

Martin Cox, Underwriting Executive at Global Aerospace commented, “The project seems to be going round in circles; I don’t think they will ever come to a landing on its feasibility. I doubt it will ever take off.” ▼

*Photo credit: Circular Runways. Digital image. <http://www.endlessrunway-project.eu/>. N.p., 9 Mar. 2015. Web. 2016.*

*The circular runway becomes independent of the wind, whatever its strength and direction.*



# Airport Security: What's Next, Post Brussels Attack?

Thanks to 24-hour global news we are instantly aware of any terrorist attack on civil aviation. The attack at Zaventem Airport in Brussels on 22nd March 2016, followed just an hour later at the downtown Maelbeek metro station, is one recent example of terrorist attacks on the so-called soft parts of airports.

This event and the similar June Istanbul Ataturk airport attack focuses the attention on airport security gaps. So what changes to international aviation security can we expect in future?

The interim solution in Brussels was to close the airport until a temporary measure could be implemented where passengers and their baggage, separated from friends and family, are processed at a forward security checkpoint. Given that the terrorists were posing as passengers and may have had boarding passes, this would not prevent a future attack, but simply move the location—often to a less well-protected area. This can only be a short-term solution.

Technology, often considered the answer to aviation security problems, is not the only answer to this type of attack. A more practical solution is through increased monitoring of people in public areas. This can be achieved by covert Video Analytic and Human CCTV monitoring supported by highly visible patrols of security staff and armed police, and the military acting as a deterrent.

However, for these solutions to be fully effective, all staff employed for monitoring must be trained in Behavioral Analysis Detection techniques to



enable identification of relevant behavioural indicators used to identify anyone who may pose a threat to aviation security. ▀

*Professor Norman E L Shanks FSyl. Norman Shanks is Founder and Principal Partner of NSAI, a consultancy company specializing in Aviation Security and Airport Management services. He is a Visiting Professor in Aviation Security at Coventry University and a Fellow of the Security Institute. Shanks is recognised internationally as one of the world's foremost experts in aviation security. His aviation career spans over 40 years and covers a wide range of airport activities and latterly consultancy for the aviation industry.*



## The Challenge Continues: Brazil Baggage Claims

As the country that hosted the World Cup in 2014 and the Olympics in 2016, Brazil is very familiar with the need to facilitate international travel as well as domestic service in such a large nation.

For the airlines and their insurers, however, the handling of baggage claims in Brazil can be extraordinarily challenging. This issue has become particularly problematic due to Brazilian judicial disregard of what should be the governing law applicable to international air travel, and to conflicts between local laws and international treaties.

*Change is needed  
for Brazil to support  
a healthy aviation  
industry.*

Rules promulgated under international treaties, such as the Montreal Convention, are routinely ignored by Brazilian courts even though the Federal Constitution of Brazil states that compliance with these treaties is mandatory. This leads to a number of conflicts between local Brazilian law and the Montreal Convention. As an example, the statute of limitations under the Montreal Convention is two years; Brazilian law affords five years. To make matters worse, the Courts also apply the Brazilian Consumer Defense Code, which allows recovery of “moral damages” even though such damages are not recoverable under the Montreal Convention. As a result, awards by the Brazilian courts can be far in excess of the liability limits under the Montreal Convention (1131 SDRs/\$1,575), making informal resolution of these claims extremely difficult.

Unfortunately, lengthy legal proceedings related to baggage claims are not at all uncommon in Brazil. Typically, lawsuits are initially filed in the civil and small claims courts followed by appeals to the Supreme Court. Thereafter, lawsuits often rise to the Superior Court of Justice of the Court of Appeals. Regrettably, none of these courts is quick to rule and the entire process often results in costly and protracted litigation.

The aviation industry is hoping for improvement in two areas. On the judicial front, there are two cases on appeal before The Supreme Court of Brazil seeking to apply the time limitation of two years to file suit under the Montreal Convention and seeking to hold courts to the monetary limits for baggage loss under the Warsaw Convention. Also, in March 2016, there was a favorable amendment to the Civil Procedure Code that expands the circumstances under which appellate decisions from both the Courts of Second Instance and Supreme Courts are binding on the lower courts when the decisions involve important, repetitive issues. There also is a provision for staying litigation in lower court cases that involve issues that are the subject of binding appeals.

While there remains the risk that lower courts will continue to flout binding law, the hope is that the amendments to the code will increase the likelihood that lower courts will follow the applicable law which will provide greater certainty for appeals and should also lower costs for cases involving issues that are the subject of appeals. The amended civil code also provides that Brazilian procedural rules are subject to international treaties, giving hope that the courts will enforce the Warsaw/Montreal Convention over the local Consumer Defense Code (CDC) in aviation matters, which historically has not happened. Airlines and underwriters are awaiting the final outcome on the pending appeals, and to see how courts respond to the amendment to the Civil Procedure Code. ▼



## Professionalism. Experience. Commitment.

Global Aerospace is actively involved in a wide range of aviation and insurance professional organizations. Many of our 300+ employees dedicate their time through active membership as well as serving on boards and committees.

member since  
**1934**

International Union of  
Aerospace Insurers  
(IUAI)

member since  
**1951**

National Business  
Aviation Association  
(NBAA)  
  
Air Transportation  
Association of  
Canada (ATAC)

member since  
**1969**

Helicopter Association  
International (HAI)

member since  
**1988**

International Aviation  
Womens Association  
(IAWA)  
  
Quebec Air Transport  
Association (AQTA)

member since  
**1990**

Experimental Aircraft  
Association (EAA)

member since  
**1996**

Aviation Insurance  
Association (AIA)

member since  
**1998**

International  
Underwriting Association  
of London (IUA)

member since  
**2010**

Canadian Business  
Aviation Association  
(CBAA)

member since  
**2014**

Unmanned Vehicle  
Systems (UVS)  
International

member since  
**2016**

Unmanned Aerial  
Systems Insurance  
Association (UASIA)

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