

# WORLD AIR NEWS

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# MALTA LIVERY 9H-NEE

Air Malta has simplified its colours - adopting a Eurowhite livery. This is the fifth Airbus A320neo to join the fleet and the first to wear the latest colour scheme. The delivery flight was also the last flight for Captain Patrick Calleja who has spent almost 33 years with the Maltese national carrier. Ex- KM Airbus Technical Pilot Mark Attard was First Officer. Photo credit - Mario Caruana / MAviO News



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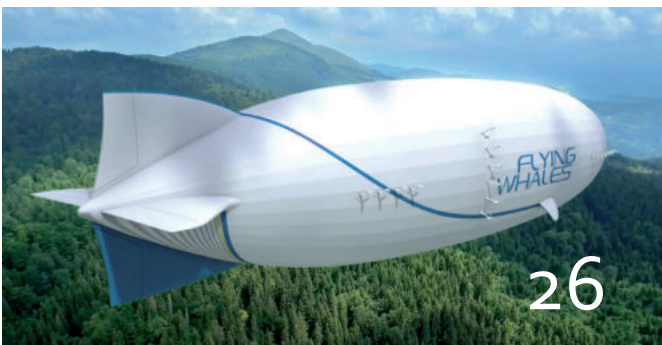
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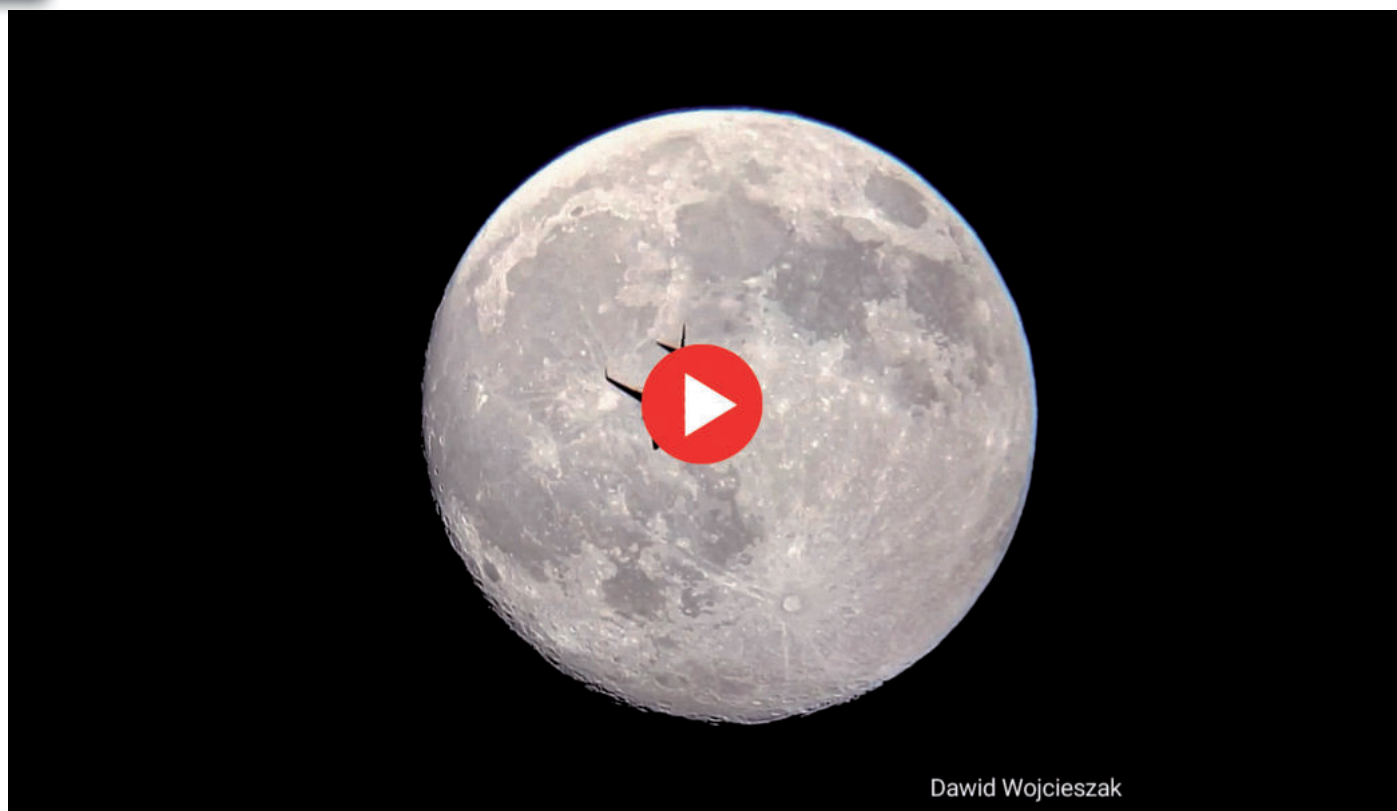
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Dawid Wojcieszak

# TO THE MOON AND BACK

By Heidi Gibson

**This incredible shot of a Boeing 737 Ryanair Flight (FR6749) from Gothenburg to Budapest against the moon was taken by Dawid Wojcieszak near Wroclaw, Poland. He took it using a Xiaomi Redmi Note 8 Pro smartphone on April 4 and filmed the transit at 23.48pm.**

It's absolutely a brilliant shot. This, he assures me, is no high-quality DSLR photo but rather a single frame with a smartphone camera through a telescope. Well done Dawid. If anyone wants to get in touch with him his email address is; mrwojcieszak@gmail.com.

This month we turn to the exciting world of electric vertical take-off and land or eVTOL vehicles. According to <https://www.airtrafficmanagement.net/> a new survey amongst private equity and venture capital professionals has revealed that 82% expect public confidence in the eVTOL sector to increase over the next three years with 18% expecting a dramatic increase. The survey was conducted by Horizon Aircraft, an innovative leader in eVTOL vehicles.

When asked for the reasons why they believe there is increasing public confidence, 80% cited the fact that there is a growing acceptance that the first eVTOL flights will have qualified pilots, and this is followed by 69% who said major developments around regulation of the sector. Other factors

include more high-profile media coverage of successes in the sector, more successful passenger and cargo VTOL trials, and a growing number of larger companies becoming involved in the sector.

"Our research shows 63% of private equity and venture capital professionals expect there to be over 430,000 air taxis in operation by 2040, and 88% anticipate the sector will generate at least (US) \$30.7 billion by 2030. It is not surprising that our research shows 54% of professional investors expect over (US) \$30 billion will be invested in the market by 2030, compared to (US) \$7 billion in 2021," said Brandon Robinson CEO of Horizon Aircraft.

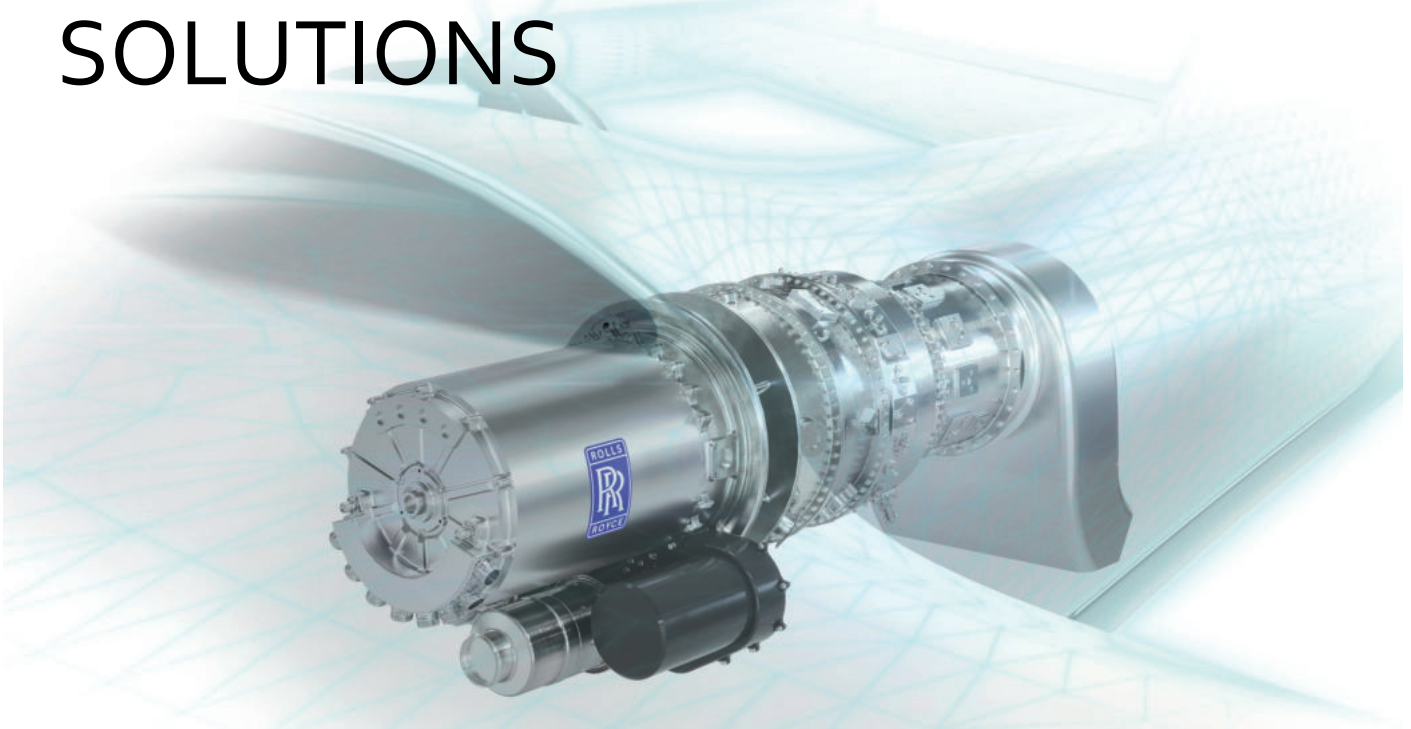
We carry an article about the wind tunnel tests recently undergone by Horizon Aircraft's Cavorite X5 four-passenger hybrid-electric aircraft. Turn now to page 12 to read more.

In the meantime, AI continues to make airwaves across various other sectors of life. I heard how an AI-generated song that cloned the voices of well-known R&B, hip-hop and rap artists Drake and The Weekend – that started garnering millions of likes – had to be removed from the Spotify music platform when it was revealed that it was not a 'proper' song.

Then, there is also AI software that can produce copies of Art masters. Think of those paintings painted hundreds of years ago, famous for their brushwork, choice of colour. Will experts be able to tell the difference? Never mind ChatGBT and the possibilities of plagiarism.

I leave you with Sir Isaac Newton's famous third law of physics that states that for every action (force) in nature there is an equal and opposite reaction. What will be the opposite and equal reaction to the force of AI and how will we temper this?

# POWERING SUSTAINABLE SOLUTIONS



Estimates are that nearly 15,000 electric vertical take-off and landing vehicles (eVTOL) will be needed across 30 major cities by 2035 to support the demand for intracity travel alone. Whether this will be used to transport light cargo or to connect passengers, it is clear that the increase in air mobility will require infrastructure, vertiports where aircraft can charge at speed and at high wattage.

A leading provider of power and propulsion, Rolls Royce is working hard to bring to market solutions that will service this market in a smart, sustainable and cost-effective way. *World Airnews* editor Heidi Gibson spoke to Rolls Royce Electrical customer director Matheu Parr.



**WAN: Rolls Royce has committed itself to finding solutions to make aviation cleaner and greener – all to reach Net Zero. It seems RR is way ahead of others in this sector. When did it all start and why?**

MP: With over a century of expertise and innovation behind us, Rolls-Royce is well-equipped to become the leading provider of power and propulsion for Advanced Air Mobility and support our growing and ever-mobilising populations. Using our technological expertise in energy storage, electrical systems and battery management, we've already developed a modular and scalable portfolio of components to power all-electric and hybrid-electric applications across our three business units: power systems, civil aerospace and defence - all delivering fuel savings of between 15% and 50%. We are now applying that innovation and capability to the Advanced Air Mobility Market.

**WAN: What are you developing for the Advanced Air Mobility market?**

MP: In 2021, we proved our technology through demonstrator programmes such as the Spirit of Innovation, the world's fastest all-electric aircraft which was propelled on its record-breaking runs by a 400kW (500+hp) electric powertrain and the most power-dense propulsion battery pack ever assembled in aerospace.

In the same year, we also worked alongside airframer Tecnam and manufacturer Rotax, to complete the flight-testing of a hybrid-electric aircraft, powered by a parallel-hybrid propulsion system. This introduced advanced technology for a smaller power class and is potentially scalable to larger aircraft.

Further, we provided the propulsion system to Airbus for the world's heaviest Urban Air Mobility demonstrator, which completed its flight test programme in 2021.

These are three demonstrations of incredible technical achievements, but crucially also provided important data and capabilities that we will be applying to products that will be powering aircraft shortly for example the characteristics that Urban Air Mobility requires from batteries are very similar to what was developed for the 'Spirit of Innovation' record runs.

We are now actively working with customers and partners, in the Urban Air Mobility market, our electric propulsion unit has been selected by Vertical Aerospace for their all-electric VX4 aircraft, which is aiming for certification in 2025.

We are also a strategic partner of EVE, an urban air mobility spin-out from Embraer and Rolls-Royce and Hyundai Motor Group are collaborating on bringing all-electric propulsion and hydrogen fuel cell technology to the Advanced Air Mobility (AAM) Market.

Rolls-Royce and Hyundai Motor Group are looking to lead the way in the AAM market delivering battery-electric and fuel-cell electric solutions to the Urban Air Mobility (UAM) and Regional Air Mobility (RAM) markets and advancing sustainable aviation.







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Additionally in the commuter market, we are working with Widerøe, the Norwegian regional airline, which will be the launch customer for the P-Volt, an all-electric powered nine-passenger fixed-wing Tecnam aircraft ready to enter service in the late-2020s. This will be using all-electric technology to power short flights where the geography lends itself to such zero-emission flights.

As the battery technology develops the range, the markets in which these aircraft can operate will open up. This is why we are also developing new turbogenerator technology specifically for the Advanced Air Mobility market. It will be designed for hybrid-electric applications and will have scalable power offerings. As an onboard power source, it will complement the Rolls-Royce electrical propulsion portfolio, enabling an extended range of sustainable aviation fuels and later as it comes available through hydrogen combustion.

### **WAN: What about charging infrastructure or services in the sector?**

MP: We are looking at the services that these aircraft will need and how we can offer the digital and services capability that will support these aircraft.

We are committed across the sectors we operate within to advance sustainable solutions and we are working with customers, industry partners, regulatory authorities, and governments to do this.

Through this wide response and by advancing the technology including the development of all-electrical and hybrid-electric aviation propulsion systems, we can accelerate the technological breakthroughs that could help deliver net zero carbon by 2050 and transform the way that we travel.

### **WAN: Now let us move to the all-electric 'Spirit of Innovation' aircraft that holds the record as the "fastest" aircraft. Congratulations. Can you tell me how far the aircraft can travel (range) using its 400kW electric powertrain?**

Our all-electric 'Spirit of Innovation' aircraft is officially the world's fastest all-electric aircraft, having set two new world records, now been independently confirmed. At 15.45 (GMT) on 16 November 2021, the aircraft reached a top speed of 555.9 km/h (345.4 mph) over 3 kilometres, smashing the existing record by 213.04 km/h (132mph). Working with our partners the aim of this project was to go incredibly fast and understand the capabilities of the technology rather than looking to achieve a range. The characteristics that 'air-taxis' require from batteries are very similar to what developed for the 'Spirit of Innovation' so that it can reach record-breaking speeds. Rolls-Royce is now using that technology and capability and applying it to products for the market.

### **WAN: RR solutions seem to focus on the short-range general aviation sector - but what about long-range commercial flights? Do you think we are any closer to designing an electrical solution to this problem? When do you think this may be brought to market?**

MP: There is no one single solution to decarbonising aviation and technologies will mature at different times. Electrification is one solution, particularly for intracity and city-to-city flights. However, for medium-to-long-haul travel, for several reasons, it makes sense to look at the compatibility of our large engines with 100% Sustainable Aviation Fuels, and continuing research into hydrogen as a potential future fuel to advance the decarbonisation of long-haul flights.

We are already advanced in our sustainable aviation fuels programme, with both ground and flight tests completed on widebody and business jet engines. We are also at the forefront of research that seeks to understand if hydrogen can become an aviation zero-carbon fuel of the future. In aviation it will take a combination of different solutions, maturing over different timelines including SAFs, electric, hybrid, hydrogen, and more efficient gas turbines, powering different missions and complementing one another, to help the economy reach its decarbonisation goals.



# SAF TURBOPROPS



*Piper's single engine turbine powered aircraft M600 can now use SAF.*

**Sustainable Aviation Fuel can now be used in all Piper aircraft or PA-46 based, Piper single-engine turbine-powered aircraft, including the M600/SLS, M500, and Meridian.**

SAF is not only FAA approved via SAIB NE-11-56R4, but is available for use in every country that turbine M-Class aircraft operate.

All jet fuel that meets the requirements of the American Society for Testing and Materials (ASTM) D7566 Standard Specification for Aviation Turbine Fuel Containing Synthesized

Hydrocarbons can be utilised in Piper turbine-powered aircraft. Typically, this fuel is made from fatty acids or other synthetic components, and is acceptable for use on aircraft and engines certified for use with D1655 fuel, more commonly known as traditional Jet A and Jet A-1 fuel.

Therefore, the new SAF includes the designation as Jet A and Jet A-1. The introduction of SAF to the Piper turboprop line will not require a change in aircraft placarding or Pilot's Operating Handbooks.

This comes at the heels of another recent commitment from Piper to promote sustainability in general aviation, first revealed at EAA AirVenture 2022.

Piper Aircraft and CAE are collaborating on an electrically powered conversion kit via a Supplemental Type Certificate (STC) for in-service Archer TX aircraft.

Upon certification, CAE plans to convert two-thirds of their existing Piper Archer TX training fleet, and will be the first to develop a curriculum for new pilots to conduct training in an electric airplane. These Archer TX advancements will significantly reduce carbon emissions, while preparing pilots to operate greener, electric aircraft.

"We are pleased with the continuous improvements made to our products, especially in regards to environmental consciousness," said Ron Gunnarson, vice president of sales, marketing and customer support. "Prioritising sustainability in our aircraft as technological advancements allow is important to Piper Aircraft, first seen in our electric Archer TX/CAE partnership and now with Sustainable Aviation Fuel compatibility in our turboprops. We are committed to a safer, greener aviation industry."



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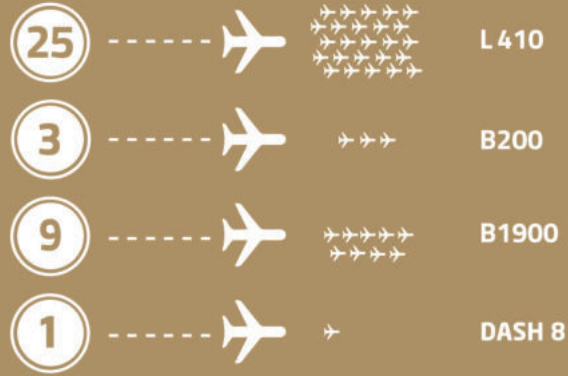
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- Pilot & Engineer Training





## WIND TUNNEL TESTING

**Horizon Aircraft, a leader in hybrid electric Vertical Take-off and Landing (VTOL) aerial vehicles, announced that it has successfully completed initial transition flight testing of its Cavorite X5 a 50% scale eVTOL prototype in the ACE Climatic Wind Tunnel.**

“Our aircraft’s performance exceeded our expectations. We explored forward speeds of up to almost 100 km/h, measuring aerodynamic forces, control authority, and mechanical system function with the wings open at varying fan speeds.

“We were particularly happy with pitch and roll stability and control throughout the entire transition envelope, as well as the embedded fan performance. Having real-world test results match our detailed predictions was a further endorsement of our world-class engineering. We can now use these results to refine our CFD modeling and further de-risk the outdoor transition flight test programme that is beginning soon,” said Brandon Robinson, CEO of Horizon Aircraft.

Horizon hybrid eVTOL concept allows the aircraft to fly 98% of its mission in a very low-drag configuration like a traditional aircraft and is one of the only eVTOL aircraft currently able to do so. Flying most of the mission as a

*Horizon designed its Cavorite X5 as a piloted, four-passenger hybrid-electric aircraft, with top speeds of 450 kilometres an hour (250 knots) and a range of 500 kilometres (270 nautical miles). Image supplied: Horizon Aircraft*

normal aircraft is safer, more efficient, and will be easier to certify than radical new eVTOL designs.

The unique aircraft can also operate in Short Take-off and Landing or Conventional Take-off and Landing modes. The full-scale aircraft will be powered by a hybrid electric architecture that can recharge the battery array in-flight while providing additional system redundancy and flexibility.

Horizon Aircraft will move to outdoor transition flight testing shortly as they continue the detailed design of their full-scale aircraft, anticipating final assembly for flight testing in 2025.

### **MORE ABOUT HORIZON AIRCRAFT INC.**

Horizon Aircraft is an advanced aerospace engineering company that has developed the world’s first eVTOL that can fly most of its mission exactly like a normal aircraft while offering industry-leading speed, range, and operational utility.

The unique designs put the mission first and prioritise safety, performance, and utility. The Cavorite X5 eVTOL is designed to enter the market quickly and service a broad spectrum of early use cases.

# ESWATINI AIR URGED TO PARTNER



*Durban, King Shaka International Airport is the latest destination that Eswatini Air has added to its schedule. The new African carrier makes use of Embraer's ERJ 145 jets with registrations 3DC-EAA and 3DC-EAB.*

*By World Airnews correspondent Wallace Mawire*

**Eswatini Air, which resumed flights into Harare, Zimbabwe, has been urged to consider entering into collaborative partnerships with local operators in the country to enhance viability.**

The airline previously operated between Harare and Manzini, eSwatini (1978 – 1999) and resumed operations into Harare last month.

The calls to enter into partnership were made by Eswatini minister of public works and transport, Ndlaluhlaza

Ndwandwe and by Civil Aviation Authority of Zimbabwe (CAAZ), director-general Elijah Chingosho.

Chingosho said that there are huge opportunities for Eswatini Air to enter into partnership with local operators to facilitate the development of tourism, trade, business and cultural linkages.

Zimbabwe minister of transport and Infrastructural development, Felix Mhona said that he has always supported an 'Open Skies' policy as it enhances competition among airlines.

Meanwhile Eswatini Air is due to launch its route from Durban, King Shaka airport this month. The flight schedules are unknown at the time of going to press.



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ATRNEWS VOLUME 51 | ISSUE 3

# ALL-ELECTRIC SEAGLIDER PROTOTYPE

By Jessica Reed

**Regent is developing a new kind of electric maritime vehicle called a sea glider and recently revealed a full-scale mock-up of its prototype.**

The company also announced plans to expand its global headquarters for new manufacturing and test facilities.

The expansion could fulfill the (US) \$8 billion in commercial orders by 2025 at the headquarters in Rhode Island.

In September last year, the company announced that its quarter-scale sea glider technology demonstrator completed its first flight.

According to REGENT, its sea glider is the first vehicle to take off from a controlled hydrofoil to wingborne flight. In an interview with Avionics, Regent co-founder and CEO Billy Thalheimer, shared additional information.

**AV: What considerations related to safety and regulation are taken into account in the development of the sea glider?**

REGENT Our first vehicle is projected to operate under Coast Guard jurisdiction, and we have been working closely with the agency to establish regulations for our vessels including design approval, inspection, construction and crewing. Our design basis agreement with the Coast Guard is in process, and we maintain a close line of communication with both the Coast Guard (Office of Engineering Standards) and FAA (Emerging Concepts & Innovation group).

**AV: How would you describe the current state of the industry and how REGENT's sea gliders fit into the competitive landscape?**

REGENT: Forty percent of the world's population live in coastal communities, and are in dire need of a fundamentally new method of transportation to efficiently move people and cargo through coastal routes. Through our seagliders, we aim to revolutionise sustainable, maritime transportation in these regions by offering a fast, efficient, and emission-free solution.

We see sea gliders as a complementary addition, rather than a replacement, to traditional modes of maritime and airline transportation, which can be seamlessly integrated into our customers' existing fleets. Our studies, based on publicly validated data, show that our sea gliders serve an (US) \$11 billion market that we project to swell to as much as (US) \$25 billion as battery technology advances.

With the electrification of ferries, aircraft, rail, and other modes of transportation, we envision our all-electric sea gliders as an integral part of the future of sustainable, multi-modal mobility.

**AV: Could you describe how you envision the commercialisation and deployment of the sea gliders?**

REGENT: We envision our vehicles to act as a bridge between coastal city centres, facilitating multi-modal transportation through coastal airports. We have established a loyal customer base of major airlines and ferry operators such as FRS in Germany, Ocean Flyer in New Zealand, and Southern Airways/Mokulele Airlines - who we plan to deliver our first commercial passenger sea gliders, to once they hit the market. Our vehicles will comprise the best features of both maritime and aviation transport, combining the speed and comfort of an airplane with the cost efficiency of a boat.



The full-scale sea glider is designed with multiple redundancies in its all-electric distributed power system and automated flight software and sensor systems to provide operators with full situational awareness for navigation, object detection, and flight conditions.\*

This will enable us to service coastal communities such as New York City, the Hawaiian Islands, and the Pacific island nations.

\*article shortened

*REGENT's technical demonstrator, a 1/4-scale sea glider prototype (Photo: REGENT)*



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# SITA IN AFRICA



SITA for Aircraft CEO, Yann Cabaret

SITA is the world's leading specialist in air transport communications and information technology. In this exclusive, *World Airnews* editor, Heidi Gibson, asked SITA for Aircraft CEO, Yann Cabaret, about the shift towards digital flight operations and on-board connectivity by African operators.



Air Traffic Control will benefit from SITA's Skyguide solution

## WAN. Tell us about your background, your role at SITA and the portfolio you are responsible for.

YC. I was appointed CEO of SITA FOR AIRCRAFT last April, prior to which I was vice president of strategy, product & marketing in the business unit. I helped to establish SITA FOR AIRCRAFT in 2015. The product portfolio includes, cockpit and crew applications, mobile and wi-fi passenger connectivity, safety communications and aircraft data management.

I am also responsible for the Air Traffic Control domain that helps to deliver a reliable and innovative outlook in this field. In a world where sustainability is high on the agenda, I make sure that this is carried through by introducing and implementing sustainable measures and policies into the products and services that are being offered.

My background is in telecommunication engineering and I hold an MSc from Telecom Paris Sud and EURECOM. I worked on various mobile networks engineering projects while at Orange Mobile Switzerland, before joining OnAir, an Airbus-SITA joint venture. I was held management positions in engineering, customer project delivery, and customer service.

## WAN. What is SITA's Africa footprint – what countries and solutions are most popular and why?

YC. Since 1955, when Ethiopian Airlines became SITA's first African member, our presence on the continent has grown

continually. Today we have 196 customers and 39 members in 27 African countries.

SITA's main hubs are in Johannesburg and Cairo, with satellite offices in Ethiopia, Kenya, Nigeria, Ghana and Angola. SITA aims to be the technology partner for Africa's air transport community. We look for ways to drive industry collaboration, provide operational excellence, deliver a seamless passenger journey, and achieve profitable growth.

SITA has been recognised by the African Airlines Association (AFRAA) as the Aviation IT Service Provider of the Year for two consecutive years. The award recognises SITA's broad portfolio of industry solutions, its collaboration with customers to pilot emerging technologies, and its R&D investments in innovative solutions.

SITA is a member of and works closely with the Airlines Association of Southern Africa (AASA), Airports Council International -Africa (ACI), the African Airlines Association (AFRAA) and the Board of Airline Representatives South Africa (BARSA).

SITA FOR AIRCRAFT's objective in Africa is to promote and accelerate the digital shift that is reinventing aircraft operations, flight management, cabin connectivity, unified air-to-ground communications and aircraft data management and ensure the continent's operators are not left behind.

**WAN: In a continent where operators are managing ageing fleets such as the older Boeing 737s – some 20 to 30 years old – is the outlay on**

## equipping these aircraft with your new solutions worthwhile for the owners & operators? What kind of savings and return on investment should they expect?

YC: It is important to operate any aircraft of any age in the most efficient way possible. It does not matter if the aircraft is 20 or 30 years old, it applies regardless and efficient fleet management is one of the pillars of sustainability.

A second consideration is the availability of Sustainable Aviation Fuel and the ability to purchase this type of fuel.

But without doubt, there are benefits to be had by operating fleets as efficiently as possible. Studies have shown that SITA solutions yield savings on the ground and while flying.

One part of our portfolio relates to the cockpit. Using an i-Pad app pilots have access to pre-flight briefings, information while taxiing, during take-off, cruise, descent and approach.

Today, there is more Information about weather patterns than ever before. Using this information we are able to provide pilots with predicted and accurate weather patterns and better – shorter routes to take to avoid this. This results in better optimisation of flights which, in turn, provides better comfort for passengers. At the same time, safety is enhanced as storms are avoided. And from a cost and sustainability perspective, it delivers fuel efficiencies and savings.

## FLIGHT OPTIMISATION

### WAN. What other benefits would operators gain by installing and using SITA for Aircraft solutions?

YC. OPTI Flight sends recommendations to the pilot regarding every step in the flight process. In the climb phase, it will suggest ways to save fuel, for example by reducing speed at different altitudes. While there are standard recommendations the manufacturers suggest, other factors come into play during the actual flight. Weather is one of the most important.

This SITA solution also provides shortcut routes, which are based on machine learning and provide pilots with better flight-paths – aimed at reducing time, fuel and carbon emissions. The information is aggregated and provided to the pilots and managers. A five percent saving on each flight can equate to a 150 kilogramme fuel saving on an Airbus A350. Over time, small savings on large fleets add up to massive savings in time, fuel and carbon footprint.

### WAN. Can you provide an example of such a solution that would benefit a typical African operator and some facts and figures that best illustrate the problems and how SITA's offering will solve them?

YC. Ethiopian Airlines is already trialling our OPTI-Flight solution that provides accurate information on climb, cruise and descent across their entire fleet. They are looking at the EWAS despatch SITA solution that allows Operations Control Centre flight-tracking and weather information

Turkish Airlines, which, although not an African carrier, is prominent on the continent, is also trialling OPTI-Flight and has adopted the EWAS despatch solution.

### WAN. Are SITA's solutions geared specifically for commercial airline operators, or are they also applicable in the non-scheduled sectors, e.g. cargo, business/VVIP, G.A and the emerging Urban Mobility aviation industry?

YC: Yes definitely. For a start, some of the first-tier global cargo operators like UPS and FedEx are also using the OPTI-Flight solution. We have had talks with Bombardier and Gulfstream in the business aviation sector about the benefits these same solutions could



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*SITA for Aircraft has a solution for the cockpit that provides pilots with real time data*

have for their aircraft. No matter what aircraft you operate, in today's world fuel saving is an imperative across the board.

Interestingly enough we are also having talks with an operator in Europe and Africa. I can't mention the name but the company is from the petrol-based sector and uses a lot of helicopters to go between off-shore rigs. Here the OPTI-flight can be used for climb and cruise and wind and air pressure. In the eVTOL sector, we are in partnership with Volocopter to look at innovative ways to save fuel.

**WAN.** Recently we had an instance regarding airspace; Johannesburg Oceanic had to be re-categorised to a Class G because of the failure of the long-range HF radio and the breakdown in digital data comms. Can you explain and give us an example of how SITA's airspace solutions would have averted this and ensured adequate communications coverage in what is an extensive and busy area?

YC: At present the local Air Traffic Control uses a HF radio system that provides voice communication between the pilot and the ground. This is the main - and in some cases the only - form of air traffic control communication available.

The way ATC operators do their job today is the same as they have been for the past 30 years. Not much has changed.

The challenges they face come from automation. In other words how to provide Air Traffic Controllers with the tools they need so that they are able to see only the data that they need to - in order to be able to make an informed decision. This new system will reduce their workload.

SITA is addressing this by providing what is essentially a VHF network that allows for the exchange of data using a link. This is a highly reliable system but does not provide a voice layer.

There is such a system in place in Europe. SITA worked with an IT service provider called SkySoft to produce a solution called Skyguide. The prototype system is in place across Swiss airspace and provides pilots in the cockpit with optimised

routes or shortcuts as well as accurately predicted weather patterns - the same information as the ATC would provide.

The system only shows ATC what they need to see. We are equipping people with the right tools to do their job better.

I prefer to take the 'glass half full' viewpoint no matter what region of the world we are talking about. Climate change and the impact this is going to have on flying needs to be taken into account.

This change will come to Africa as the big players implement new systems. I don't see why Africa will be left behind here. It is the same across the world.

We are seeing in pockets of North Africa, some ANSPs are getting together and discussing how they can implement the changes they see in Europe, to best optimise air space. It is clear change will come.

## SUSTAINABILITY

**WAN.** Although the focus right now is on the current jet turbine powered aircraft, what is SITA looking at that would be applicable to future energy technologies, eg. electric- or hydrogen-powered aircraft?

YC: We are already having discussions with some of the eVTOL start-up companies, looking at ways to optimise these types of aircraft. It is definitely the next step. Whether you are talking about an aircraft that is powered by batteries or a fleet of air taxis, the challenges remain the same - how to use these aircraft in the best, most optimised way, which includes the shortest route, fleet planning.

SITA is also looking at how pilots and Air Traffic Control communicate and exchange information and better ways of doing this. At present it very outdated. The way we manage the sky in the next two decades is going to be of vital importance. Whether you are flying an electric vertical take-off and lift or an Unmanned Aerial Vehicle - the communication system between pilots and Air Traffic Control is going to undergo its own revolution.

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# SCALING UP SUPPLY

By Heidi Gibson



*Air bp's global aviation sustainability director Andreea Moyes*

Air bp is one of the world's largest suppliers of aviation fuels and services with a network of operations at around 600 locations in over 45 countries. The company sells over seven billion gallons of fuel a year, including 65 locations in sub-Saharan Africa.

*World Airnews* editor Heidi Gibson got a chance to interview Air bp's global aviation sustainability director Andreea Moyes about the company's strides in this sector.

**WAN:** Thank you for agreeing to be our focus feature for the month of May. So could you start off and tell our readers a bit about yourself and your role at bp?

**AM:** After 18 years with Bp and six with Air bp, I was appointed head of global aviation sustainability, Air bp in January 2021. My remit includes creating access to sustainable aviation fuel supply and developing solutions for airlines in their sustainability journey.

**WAN:** Aircraft use JET 1A fuel but as a direct result of climate change, airlines are being encouraged to change over to Sustainable Aviation Fuel. So what is Sustainable Aviation Fuel, how is it made and how does it reduce carbon emissions?



AM: Sustainable Aviation Fuel (SAF) is jet fuel produced from sustainable feedstocks and its chemistry features hydrocarbon molecules from those sustainable feedstocks rather than from traditional crude oil. The final product is the same, fully approved jet fuel. Using SAF results in a reduction in carbon emissions compared to the traditional jet fuel it replaces over the lifecycle of the fuel.

Some typical feedstocks used are cooking oil and other waste oils from animals or plants; solid waste from homes and businesses, such as packaging, paper, textiles, and food scraps that would otherwise go to landfill or incineration. Other potential sources include forestry waste, such as waste wood, and energy crops, including fast-growing plants and algae. Air bp supplied SAF is made from waste-based sustainable feedstocks such as used cooking oils, and future household wastes.

SAF today can have a blend of up to 50% sustainable feedstocks. For the SAF that Air bp supplies this sustainable element provides a lifecycle carbon reduction of around 80% compared to the traditional jet fuel it replaces, depending on the sustainable feedstock used, production method, and the supply chain to the airport. SAF will play a really important role in meeting the aviation industry's carbon reduction targets.

**WAN: How many refineries does Air bp have, which ones produce SAF and where are they based in the world?**

AM: Air bp plays a number of important roles to help scale up the supply of SAF including investing in our own refineries and facilities.

In March, Air bp announced its first sale of ISCC EU SAF produced through co-processing at bp's Castellon refinery in Spain, and in 2022, the bp plant in Lingen was the first industrial production facility in Germany to use co-processing to produce SAF from waste and residues. (Also, see my responses to questions on co-processing and on biofuel projects).

**WAN. Does Air BP have any refineries in Africa or have plans to build any on the continent?**

AM: No, we don't have any refineries in Africa. Readers and interested customers can go to the AirBp website to read more: [Click here: Production & operations | What we do | Home \(bp.com\)](#)

**WAN: Can you tell us more about the process of converting a refinery - in basic detail - what is required, estimated costs and possible supply limits?**

AM: Co-processing is a method where vegetable oils, waste oils and fats, or similar sustainable feedstocks are processed along with crude oil feedstocks in existing refineries. Using an existing refinery can offer benefits in terms of cost savings and carbon reduction as it removes the need to build dedicated processing units. The fuel can also enter the

standard distribution infrastructure to airports, again reducing transport and complexity.

In 2018, Air bp, working with Chevron and Phillips 66, gained approval for a co-processing pathway featuring vegetable oils or waste oils and fats for SAF production. This was a ground-breaking move as it opened the door for traditional refineries across the globe to enter SAF supply.

Thoughts then turned to potential approval for co-processing Fischer-Tropsch syn-crude, an intermediate product featured in a municipal waste to SAF route. In July 2020 ASTM approval was gained.

**WAN. Last year when I interviewed you, you said Air bp planned to invest in three stand-alone bio plants and convert two refineries to bio-refineries. Can you tell us where these three bio-plants are? Have you managed to convert the other two refineries and can you give us a bit of detail about these projects?**

AM: Earlier this year, bp announced that it is aiming to materially increase biofuel production (focused on SAF) to around 100,000 barrels per day by 2030. To achieve these volumes bp recently announced plans to deliver five biofuel projects focused on SAF across the globe.

These are Kwinana in Australia, Rotterdam in the Netherlands, Castellón in Spain, Lingen in Germany and Cherry Point in the US. By 2030 we expect these plants to produce around 50,000 barrels per day.

In addition, our joint venture in Brazil, bp Bunge Bioenergia - one of the largest bio-ethanol producers in Brazil - aims to produce around 30,000 barrels per day by 2030 net to bp.

**WAN. Can you explain the book and claim system that Air bp is implementing? Is this system open to African carriers?**

AM: Book and Claim is an option available to customers wanting to benefit from SAF which can help remove barriers to accessing the fuel from a logistics perspective. This method enables customers to access SAF carbon reductions without being physically connected to the supply site. In short, the programme enables bp to deliver the SAF into the supply chain at one airport location and 'book' the carbon reduction associated with it into a registry. Then the customer at another location can 'claim' those carbon reductions by purchasing their traditional jet fuel along with the benefit of the lifecycle carbon reductions that have been registered in that registry.

The Air bp book and claim registry is independently managed by a registry to ensure sales are credible, traceable, and appropriately registered. Book and Claim helps provide wider market access and build demand for the product which, in turn, will help reduce the cost of SAF.

As part of our launch, we are set-up for sales in France, Germany, Spain, Switzerland, the UK and the USA. However, we are always looking at additional countries to add and if you are interested in purchasing outside of these countries - customers can contact their account manager.



**WAN:** Last year you mentioned blending mandates and the positive role this can play in the supply of SAF. However, you also mentioned Air bp's call for mass balancing centres. This sounds like a brilliant idea that will simplify the logistics for the supply of SAF. If I understand you correctly are you saying - better to incorporate SAF into the existing infrastructure than having to build a separate supply line? Could you explain more?

**AM:** Blending mandates as a way of stimulating demand are welcomed. But we are calling for the complexities of SAF supply and delivery to be considered.

For example, rather than mandating that SAF should be segregated and available at all airports, Air bp is calling for the implementation of mass balancing centres within a country from which SAF can be delivered into select air transport hubs, to decrease the regulatory cost burden and simplify logistics.

Segregating fuels so they can be transferred to dedicated airport refuelling tanks or trucks and delivering SAF to every airport as some mandates require are neither practical nor environmentally friendly solutions.

Ultimately it should come down to how much SAF is replacing conventional fossil fuel overall and ensuring SAF is delivered as efficiently as possible and with minimal carbon emissions.

The aim should be to get SAF delivered, ideally via pipeline, in large volumes to primary hubs with better and more flexible infrastructure and higher aircraft movements. Mass balancing enables fuel suppliers to meet SAF targets within a country or region by delivering the necessary SAF quota to a particular airport or several larger locations rather than physically moving small volumes to every single airport.

**WAN:** Do you agree that Africa will lag behind their North American and European counterparts in terms of the production and use of SAF

because we simply do not have the infrastructure and means to production? What is your opinion about the situation in Africa and SAF?

**AM:** Two elements drive our supply of SAF. The first is policy such as mandates. The second is voluntary supply where we work closely with customers to identify SAF demand. Air bp can supply SAF across Europe including Sweden, Norway, France, Netherlands, Germany, and the UK. We are working with existing customers to expand our footprint in other parts of Europe and the USA.

We expect the production capacity of SAF to be distributed globally, though most of the incentives to use SAF today and in the near-term future will be in Europe and North America.

We continue to work with stakeholders across the globe who are at various stages in their SAF policy development, as policy will be key to driving SAF demand and availability elsewhere.

**WAN:** I understand that global transport company DHL is now being supplied by SAF through the creation of a collaboration between DHL Express and Air bp and Neste. Please tell me more about this fantastic achievement.

**AM:** Last year, Air bp's parent company, bp announced that it is to supply DHL Express with sustainable aviation fuel until 2026 as part of a new strategic collaboration with the global logistics company. The bp agreement is one of two deals comprising the largest sustainable aviation fuel (SAF) deals in aviation to date, with a combined volume of more than 800 million litres of SAF.

In its Sustainability Roadmap, Deutsche Post DHL Group has committed to using 30 per cent of SAF blending for all air transport by 2030. bp will provide SAF produced from waste oils. Such SAF from wastes and residues can provide greenhouse gas emission reductions of up to 80 per cent over its lifecycle compared with the conventional jet fuel it replaces, thereby reducing DHL's carbon footprint.



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# BLOCKED FUNDS

By World Airnews correspondent Roy Ezze

**As the amount of blocked funds in Nigeria continues to rise, travel and tour agencies in the country are adding their voices to ongoing attempts to find a lasting solution to this challenge.**

Blocked funds in Nigeria rose to over (US) \$743m in March. This, from, (US) \$626m in January and (US) \$549m in December 2022, according to the International Air Transport Association (IATA).

Susan Akporiaye, the National Association of Nigerian Travel Agencies (NANTA) president is worried about the slow rate of releasing these funds and said the matter will be addressed at the association's upcoming AGM in Abuja. NANTA is also planning to hold regular joint summits with travel and tourism associations from Ghana, South Africa, Zimbabwe, and Cameroun to find common solutions to this challenge.

Akporie also referred to the fact that foreign airlines had lowered airfares, after months of high prices – in an effort to manage this crisis.

IATA, led by area manager, of West, and Central Africa, Samson Fatokun, recently visited the Nigerian minister of aviation, Hadi Sirika to solicit the release of the trapped

June this year in Addis Ababa will discuss various other industry challenges.

Meanwhile, a Lagos-based aviation analyst Olu Ohunayo believes 'financial malfeasance' is a challenge facing the repatriation of airlines' funds. Recently, aviation unions started a court challenge related to the ongoing concession of Nigeria's major airports in Kano, Lagos, Port Harcourt, and Abuja which account for over 80 percent of Nigeria's air traffic.

A possible solution to the challenge of blocked funds, said AM Sidi, a former acting director general of the Nigerian Civil Aviation Authority (NCAA), could be for tickets to be paid in US dollars. Other suggestions are that affected airlines could be granted tax waivers, while the Nigerian government explores realistic repayment plans. Many analysts believe that addressing the curse of corruption could enable Nigeria to easily pay off these

funds in Nigeria - the highest globally.

Fatokun said that holding back airlines' funds not only violates the country's bilateral air services agreements (BASA) but would discourage direct foreign investment into the economy and cause job losses. Previous calls by IATA to the Nigerian government yielded limited results when the Central Bank released (US) \$265m in 2022.

Earlier in April 2023, IATA launched a "Focus Africa" initiative to strengthen aviation's contribution to Africa's economic development. The "Focus Africa" conference in

blocked funds and the country's foreign debt.

The indicators are that the blocked funds will just continue to increase. Nigeria needs to raise local production and value-added exports to increase the country's foreign exchange earnings and put in place measures to curtail excessive imports.

The high cost of borrowing, multiple taxes, bureaucracy, and corruption are all factors that continue to stifle Nigeria's production and export sectors all of which contribute to the scarcity of forex in Nigeria.



# AFRAA AVIATION CONVENTION



**In light of Africa's vast landmass, which is home to 16% of the world population, but with a low share of global trade, the continent provides an excellent opportunity to develop air transport.**

Africa's share over several decades has remained stagnant at less than 3% of the world market.

This topic will be tackled in earnest at the AFRAA 11th Aviation Stakeholders Convention due to take place this month in Ethiopia.

Hosted by Ethiopian Airlines under the patronage of the country's government, the event is due to be held under the theme "Changing the African Aviation Narrative".

More than 400 delegates from Africa and across the globe are due to attend. The forum also provides a platform for air transport industry stakeholders to hold talks, and exchange knowledge and experiences for the development of the travel ecosystem.

Speaking in Addis Ababa about the event, AFRAA secretary general Abdérahmane Berthé said the importance of dialogue among stakeholders and collaborative initiatives could not be over-emphasised.

Mesfin Bekele, Group CEO of Ethiopian Airlines said that the airline was delighted to host the AFRAA 11th Aviation Stakeholders' Convention as a forum for stakeholders in the industry that would allow the captains of industry the chance to put their heads together and discuss the opportunities and pressing issues in Africa's aviation sector.

"The forum would showcase the 'Africa Rising' mantra manifested in the growing opportunities for all stakeholders in the continent's aviation industry," he said.

The Convention will take place at the Skylight Hotel in Addis Ababa Ethiopia with a robust and comprehensive programme that will facilitate discussions on various salient topics, masterclasses, networking opportunities at social events, and B2B sessions through a conferencing application.

The day before the event a corporate social responsibility activity aimed at empowering the next generation of aviators at the Ethiopian University will take place. It will be sponsored by Collins Aerospace.

Other sponsors include ASECNA, ATNS, Boeing, and Embraer.

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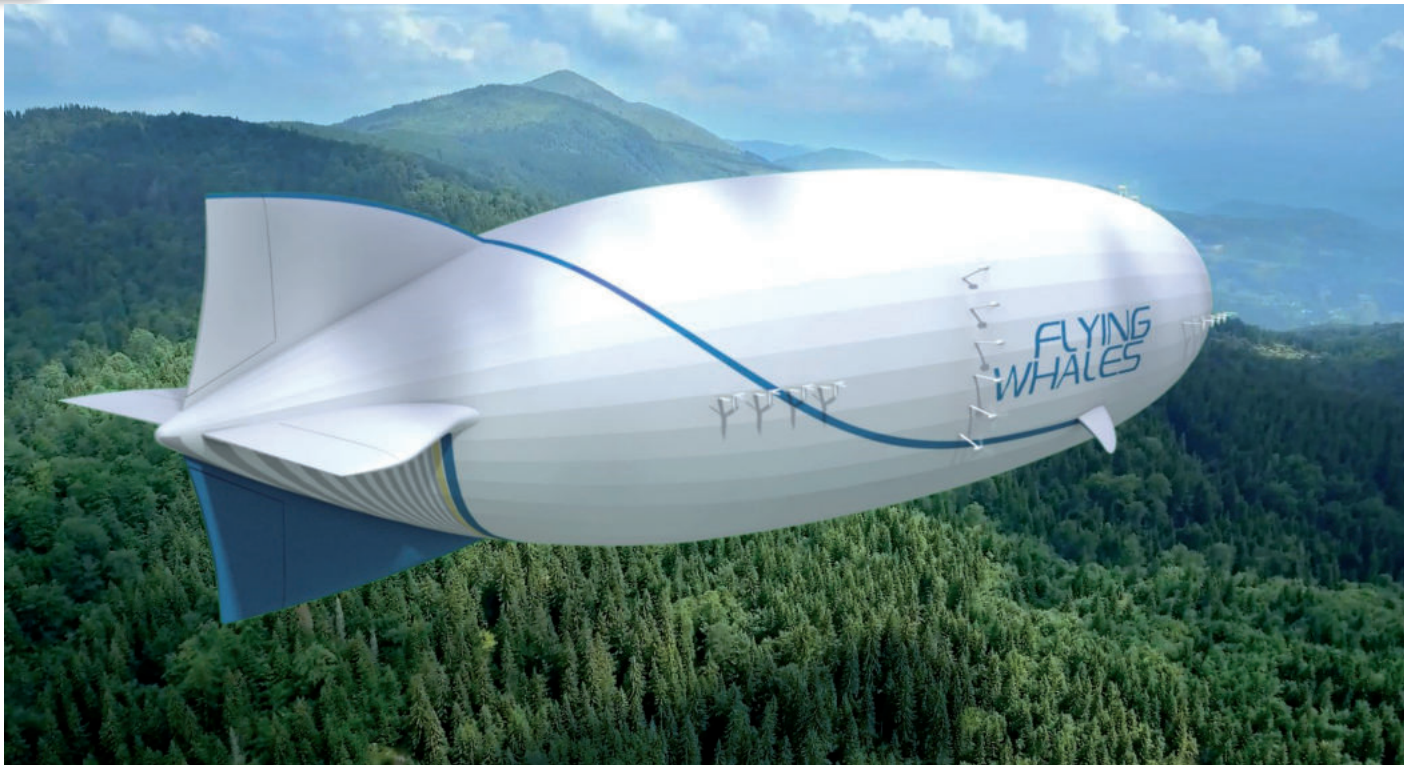
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# AIRSHIP DEVELOPER PICKS HONEYWELL

**French-Canadian airship developer Flying Whales intends to power its conceptual cargo-hauling hybrid-electric dirigible using Honeywell's 1MW generator.**

The companies said recently that they intend to mate the generator to a gearbox and a jet-fuel-burning turbine to create a hybrid-propulsion package for Flying Whales' LCA60T airship.

"The Honeywell generator will supply electrical power to the electric engines, thereby creating a more efficient and sustainable form of travel - similar to the way hybrid-electric automobiles function," said Flying Whales and Honeywell.

Flying Whales has operations in France and Quebec, Canada, and said the deal with Honeywell comes via its Canadian subsidiary, Flying Whales Quebec. That subsidiary is partly owned by Investissement Quebec, an investment arm of Quebec's government.

The in-development of the LCA60T will be a 200m (656ft)-long 'heavy-duty rigid airship' designed to carry up to 60t of cargo.

Ten 'non-pressurised helium cells' - containing a total of 180,000cb m (6.3 million cb ft) of helium - will provide lift, while thrust will come from a 4MW hybrid-electric propulsion system, Flying Whales said. The aircraft will have a 54kt (100km/h) maximum speed and be capable of flying up to 10,000ft.

"Honeywell's 1MW generator will be integrated within the turbo-generator of the hybrid-electric propulsion system," said Flying Whales chief executive Vincent Guibout.

"Equipping the LCA60T with the best technical solution for high-power onboard requirements, we are paving the way for a revolution in air transport."

The company started developing the airship specifically to transport 'renewable wood resources' from remote locations. But Flying Whales said the LCA60T's 'unique stationary hovering design' will make it suitable for other cargo missions, including those involving construction and energy-industry projects. Flying Whales plans to operate its airships via a subsidiary.

"This solution overcomes all ground constraints to transport large and heavy loads, at a low cost," it said.

Flying Whales aims to achieve the first flight of its LCA60T in 2025, followed by certification and service entry in 2026.

It estimates demand exists to support the production of 150 airships over 10 years.

Meanwhile, in 2021 Honeywell said it was developing its 1MW turbo-generator. At the time it said that the machine would be suitable for air taxis, cargo drones, and hybrid-electric commercial aircraft.

Honeywell said its 1MW generator will be suitable for a range of next-generation, in-development aircraft. Weighing 127kg (280lb), the 1MW generator will be about two-and-a-half times more powerful than a turbo-generator Honeywell unveiled in 2019.

"The proven high-power density and efficiency of Honeywell's 1MW generator system allows it to integrate smoothly with propulsion and operational systems for piloted or autonomous aircraft," Honeywell said.

"It can also be used as a 1MW motor without modifications for electric propulsion engines."

# AERO IS A TRAILBLAZER

**With more than 670 exhibitors in Friedrichshafen, Germany- the 29th international aviation trade show AERO took place last month from April 19 - 22, 2023.**

Due to the timing of the event, World Airnews is unable to bring you an up-to-date feature in this edition – but, will instead, provide one in our June edition.

The event is considered one of the most important for General Aviation and has shown significant growth from last year especially in the sustainable aviation sector.

Alone, the AERO Sustainable Aviation Trail featured around 126 exhibitors.

The role played by general and business aviation in the transportation of goods and people is often underestimated.

Consider that there are significantly more general aviation aircraft than commercial worldwide, and that this sector registers more take-offs and landings than commercial.

In Germany, there are about 800 commercial aircraft registered, but about 6,600 single-engine aircraft, 3,800 powered gliders, more than 5,000 ultralights and more than 7,700 gliders.



General Aviation and air sports are also important drivers of innovation, as new engines, new materials and new technologies in general aviation aircraft can be certified more quickly and with less effort, and thus later find their way into commercial aviation as well.

This year's event showcased many products and services, aircraft, propulsion concepts, manned and unmanned aerial cabs, accessories and software – too many to be captured in any one article.

Sustainability was also reflected in projects that extend the service life of existing aircraft and accessories. Many suppliers showed how they are modernising and re-engineering existing aircraft to meet current and future requirements.

Unmanned aviation was also showcased at a special AERO Drones trade show in Hall A2 where important topics such as the design of airspaces in which manned and unmanned aircraft fly were discussed.

## TOWARDS A VISA FREE REGIME

*By World Airnews correspondent Romuald Nguayep*

**Kenya and Egypt have committed to finalise discussions towards a free visa regime for ordinary passport holders this year**

From 1 October 2023, ordinary Kenyans and Egyptians passport holders should be able to enter either country without paying a visa fee.

The information was released by Kenyan Minister of Foreign Affairs and Diaspora, Alfred N. Mutua at the end of his meeting with his Egyptian counterpart, Sameh Shoukry earlier this year during an official visit to Cairo.

Pending the finalisation of these negotiations, the two countries have already agreed on free visas for the holders of diplomatic and official passports from both the countries from April 1.

According to Dr. Mutua, his country's approach aims to comply with the vision of the African Continental Free Trade Area (AfCFTA).

Article 3 (General Objectives) of the agreement, signed in Kigali (Rwanda) on 21 March 2018, states that the AfCFTA "aims to create a single market for goods and services facilitated by the movement of persons in order to deepen the economic integration of the African continent and in line with the pan-African vision of an "integrated, prosperous and peaceful Africa" as set out in Agenda 2063 (of the African Union).



*Mozambique FlyM. With its lighter structure, optimised speed and an engine designed for short sectors, the ATR 72-600 is, by far, the most fuel-efficient regional aircraft. FlyM targeted this aircraft type for their fleet*

# FLYM SUSPENDED

By World Airnews correspondent Romuald Nguéyap

**The Mozambican start-up FlyM Airlines will no longer see the light of day, at least not this year as initially planned.**

“Due to problems with the initial investor, I have suspended this project,” founder, Sam Issac said in an interview with our editorial team.

FlyM Airlines planned to start operations earlier this year 2023.

Interviewed last year, Sam Issac, the former CEO of Regent Airways, said he had begun the regulatory procedures for the registration of the company. It had also begun the second phase of seeking funding (US) \$10 million to ensure the viability of the project.

The start-up, which had chosen Maputo as its operational base, planned to introduce “three to four ATR-72 turboprops in the first year and then two to three narrow-body aircraft in the second year.”

FlyM Airlines is a long-term project of Issac - who was also CFO of SpiceJet - with the support of his colleagues from Eco Aviation India.

Beyond participating in the development of domestic connectivity, the company in the making also intended to position itself as a provider of jobs.

Its initial plan called for the hiring of 150 jobs in the first year of operations.

So, when will the project be relaunched? No one can predict this, especially since the promoter has embarked on a new adventure.

Since November 2022, Sam Issac has served as Chief Financial Officer of Air Niugini, the flag carrier of Papua New Guinea. A position he had already held at Saudi Gulf Airlines.

At present, the Mozambican domestic market is currently dominated by LAM and its local subsidiary Moçambique Expresso.

In May 2021, Ethiopian Mozambique Airlines, launched in December 2018, suspended its operations, citing the drastic drop in demand in the domestic market in the midst of the health crisis.



# 6-8 JULY 2023

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# WWF WORK ON SAF

**According to the wwf website, aviation has a very high impact on the planet, accounting for over two percent of global CO<sup>2</sup> emissions. A research study conducted by this organisation has shown that South Africa has the immediate technical potential to produce 3,2 to 4.5 billion litres of SAF annually, following the strictest sustainability requirements.**

## WHAT IS THE ISSUE?

The wwf. website states that aviation has by far the greatest impact per kilometre travelled of all transport options.

With the sector projected to continue its fast growth, questions arise about the reduction in emissions from air travel.

While some emissions can be reduced by improving operational and technical efficiency, the immense energy requirements of flying means that airplanes will rely on energy-dense liquid fuels for a long time.

Sustainable aviation fuels (SAF) are low-carbon fuel alternatives for the industry.

These non-petroleum-based fuels are generally produced from bio-based feedstocks such as energy crops, waste, residues, and end-of-life products (in which case they may be synonymous with aviation biofuels or bio-jet-fuels), or fossil waste such as industrial off-gases like carbon monoxide.

Biomass-based fuels and other alternative fuels are key to the transition to a lower carbon future, but they are not without risks.

Crop-based alternative fuels will compete with other land uses, with the displacement of food crops a primary concern. It is important that ways to produce bio-based fuels sustainably with minimal harm to people and the planet must be found if this is to be a viable alternative

## WHAT HAS THE WWF DONE?

WWF has undertaken comprehensive research on the potential of producing SAF within sub-Saharan Africa. Based on this work, WWF continues to engage policymakers and industry leaders to lay out a roadmap for SAF production in South Africa, ensuring that this growing market has firm sustainability principles embedded from the outset.

To establish the potential for SAF production, the WWF embarked on a two-year research study that estimated the quantity of SAF that can be produced in sub-Saharan Africa, subject to the strictest sustainability criteria. Population growth and food demand within the region were factored in, as has the need to protect critical ecosystems, areas of high biodiversity value, and essential water sources.

With energy crops able to provide only a limited amount of SAF in South Africa, the WWF also evaluated the potential of producing SAF from biomass waste such as clearing invasive

alien plants and industrial off-gas as feedstocks. The study lays the foundation from which a roadmap for SAF production in South Africa could be developed. This could, in turn, lead to the continuous production of waste-based SAF in South Africa, making the country the first SAF producer in Africa, and one of only a handful of states producing alternative fuels globally.

This is enough to replace the use of conventional jet fuel domestically up to a maximum blending threshold of 1,2 billion litres per annum, while also providing 2 to 3,3 billion litres for export.

## WHOM DOES THE WWF WORK WITH?

The WWF worked closely with the Roundtable on Sustainable Biomaterials (RSB). The research into SAF potential was carried out on behalf of WWF by the International Institute for Applied Systems Analysis.

The pre-feasibility study of a waste biomass-based bio-jet value chain was funded by the European Union through its Switch Africa Green programme (the Waste to Wing project) where the WWF partnered with the Fetola Foundation and SkyNRG.

The assessment of potential SAF supply chains in South Africa was led by Stellenbosch University, with the Council for Scientific and Industrial Research, South African Environmental Observation Network, and Imperial Logistics playing key roles.

The WWF also partnered with the Western Cape government on work funded by the United Nations Industrial Development Organisation for a pre-feasibility study of biomass waste utilisation for the production of SAF by PetroSA.

The WWF research into the potential for sustainable biofuels provides a clear picture of the most promising energy crops and their geographic distribution across sub-Saharan Africa. This has the potential to shape policies and direct investments to deliver environmental and developmental gains without risking food security or environmental integrity.

The WWF has contributed to raising the profile of the RSB as the preferred sustainability partner in the region.

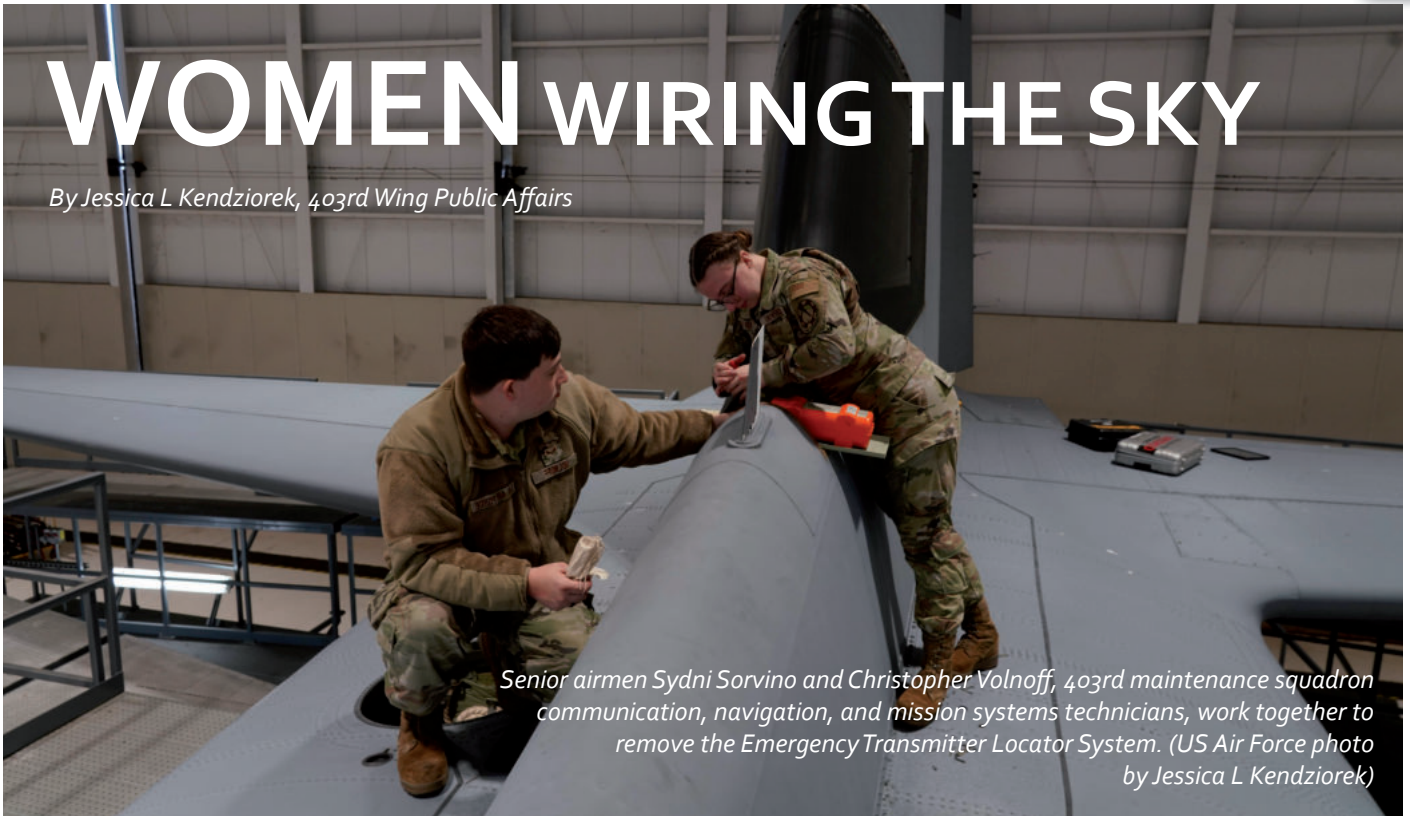


*South Africa has the immediate technical potential to produce between 3.2 to 4.5 billion litres of SAF.  
Photo by Vitor Paladini on Unsplash*



# WOMEN WIRING THE SKY

By Jessica L Kendziorek, 403rd Wing Public Affairs



Senior airmen Sydney Sorvino and Christopher Volnoff, 403rd maintenance squadron communication, navigation, and mission systems technicians, work together to remove the Emergency Transmitter Locator System. (US Air Force photo by Jessica L Kendziorek)

**In a technology career field, working on an aircraft isn't normally the first thing that comes to mind. "The C-130Js are just really big computers that fly," said the master sergeant.**

Katie Williams, 403rd maintenance group avionics quality assurance inspector. "It has all the necessary pieces, wires, and communication lines that it needs to use to fly."

Before becoming an avionics quality assurance inspector, Williams worked as an instrumentation and flight control systems technician working on both the WC-130J and C-130J Super Hercules.

"I always say IFCS is the best," she said laughing. "It uses all the instruments to tell the pilots where they are, how fast they are going, and even how high they are."

Williams explained how the aircraft mission computer is like the "brain" of the plane, it takes in a bunch of raw data: airspeed, altitude, etc., computes that data, and sends it out to the necessary instruments that it needs to go through to keep the aircraft flying.

There is a lot that goes into getting a plane in the air, but avionics technicians are largely responsible for the maintenance of the electronic systems.

"As an avionics tech, you have to learn how each piece works individually and how they work together to get the plane where it needs to go," she said.

Williams said that this career field has been very rewarding and is important, even though she didn't know what she was getting into when she enlisted.

Her recruiter recommended the avionics career field based on her high scores on the electrical and mechanical sections of the Armed Services Vocational Aptitude Battery test. "My recruiter was from an IFCS background and gave me some

direction. I took a few electrical college classes before I left for basic to prepare myself, and it helped a lot having that baseline of knowledge," said Williams.

"I am thankful for having one of the better recruiters because it has opened a lot of doors, from traditional reservist to air reserve technician, now to active guard reserve and I am moving up to headquarters."

While Williams knew that the career she was getting into was maintenance on the avionics systems, senior airman Sydney Sorvino, 403rd maintenance squadron communication, navigation, and mission systems technician did not have that same knowledge.

Sorvino, a 20-year-old fresh out of technical school, who is still in upgrade training said she was terrified when she first arrived at the 403rd Wing.

"It is a lot like working on a car, but it is this huge plane," she said. "I am afraid to mess up because I am still in training, but we follow the technical order and repeat the procedures over and over until we know them."

While still a job in avionics, Sorvino's job in COMNAV focuses on the electronic warfare sections of the aircraft which are the defensive equipment on the plane, the radios for communications, and the navigation systems to provide directions for the pilots and navigators.

Sorvino, being on the smaller side as a female, said being in this career sometimes proves challenging when it comes to the physical aspect of the job, the use of tools, the lifting, because some parts already require a two-person lift.

"The hardest part for me is the physical parts of the job and being able to put what I learned from school together with actually doing it hands-on," said Sorvino.

"The book learning in technical school wasn't as hard for me because I was always good in school."

Sorvino recommends knowing about your career field of choice before you make up your mind.

# GREATER COLLABORATION



## Embraer SA and Saab will collaborate more in several different areas related to business development and engineering.

This was announced at the LAAD International Defence and Security Tradeshow held in Rio de Janeiro where the two aviation companies signed a Memorandum of Understanding.

The partnership will see the C-390 Millennium aircraft positioned as the preferred solution to meet the Swedish Air Force tactical air transport requirements and will evaluate the integration of Saab equipment and systems into the same aircraft.

Other business developments could develop around the Gripen, in Brazil and Latin America, considering the use of the Gripen Design and Development Network (GDDN), the Gripen Flight Test Centre (GFTC) and the final assembly line at Embraer, in Gavião Peixoto.

By doing so, Embraer and Saab will increase Embraer's participation in future Gripen contracts.

Then on the engineering and technical side, the two companies will co-operate on the studies of the future fighters consolidating the transfer of technology carried out by Saab for the Brazilian defence industry within the current Gripen programme for the Brazilian Air Force (FAB).

This work can support the future growth of Gripen E out to 2060 and other future fighter needs as they arise.

"Saab and Embraer are two world leaders in the aerospace segment, recognised for the excellence of their engineering and products. I view this MoU with extreme optimism, as I am sure that the two companies together can further grow their business in various markets around the world," said Bosco da Costa Junior, president and CEO Embraer defence and security.

"Our two companies have worked together to deliver an outstanding capability for Brazil that will last for decades. This MoU is an important and gratifying step toward

growing that co-operation into new areas between Saab and Embraer that goes beyond Brazil, while maximising our existing achievements," said Saab president and CEO Micael Johansson.

Gripen E/F is a multi-role fighter aircraft system designed to defeat any adversary. Made for forward-thinking air forces, Gripen incorporates cutting-edge technologies, the latest systems, sensors, weapons, and pods to ensure combat advantage, delivering air superiority in highly contested environments.

In 2014 Saab and the Brazilian Government signed a contract to supply the Brazilian Air Force with 36 Gripen aircraft, which included logistical support, weapons, support systems, simulators, training, and development.

The Gripen programme is the most extensive technology transfer ever done by Saab and is one of the main drivers of the development of Brazil's defence industry through local companies, such as Embraer.

The C-390 Millennium – which recently achieved Full Operational Capacity - is the most modern military tactical transport aircraft of the new generation. Its multi-mission platform offers incomparable mobility, combining high productivity and operating flexibility with low operating costs, which is an unbeatable combination.

The C-390 Millennium can carry more payload (26 tons) compared to other medium-sized military cargo aircraft and flies faster (470 knots) and farther, being capable of performing a wide range of missions such as transporting and dropping cargo and troops, medical evacuation, search and rescue, firefighting and humanitarian missions, operating on temporary or unpaved runways (i.e. including packed earth, soil and gravel).

In its refuelling version, the aircraft has already proven its aerial refuelling capacity, as well as an aircraft receiving fuel from another KC-390 using pods installed under the wings, being the only aircraft in the world in the segment to carry out such an operation.



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# UAS AIRCRAFT SYSTEMS CERTIFICATE

**ASL Airlines Ireland subsidiary - ASL Future Flight has been awarded a light UAS aircraft systems operator certificate or LUC by the Irish Aviation Authority.**

The LUC is an optional operational certificate which guarantees some privileges to its holder, up to the possibility to start commercial drone operations without an operational authorisation from the IAA.

This could be for a light cargo drone over a short range. It will be used by ASL Future Flight to train and gain experience in drone operations before moving on to heavier and longer-range operations.

ASL Airlines Ireland (ASLI) is one of seven airlines in the Dublin-based ASL Aviation Holdings group operating cargo flights globally for the express parcel and e-commerce markets.

ASLI has a fleet of 40 aircraft and customers include FedEx, DHL and Amazon.

ASL Future Flight's LUC allows for operations under PDRA-So1, which is a Pre-defined Risk Assessment scenario published by the European Union Aviation Safety Agency (EASA) and adopted by the IAA.

It authorises flights by a drone less than three metres in diameter with a maximum take-off weight (MTOW) of 25kg.

Operations under PDRA-So1 include short-range cargo operations which would typically allow the delivery of small packages of up to about 5Kgs.

This is a first step in future-proofing ASL's capabilities to meet the operational requirements of new unmanned flight technologies and licencing.

ASL Future Flight will begin training and flight testing while considering plans for an unmanned flight using larger

drones. These will require a certified category authorisation - very similar to an airline air operators certificate.

"Cargo will play a key role in the development of new flight technologies", said ASL Airlines Ireland managing director John Rawl.

"This LUC shows ASL's commitment to be ready, willing and able as unmanned aircraft become larger and capable of operating over wider networks delivering cargo up to 500kgs or more."

UAS manager for the IAA, Enda Walsh said, "ASL Future Flight are only the third operator to obtain a Light UAS Operator Certificate from the IAA. It is a reflection of ASL's strong organisational structure, safety management system and staff competencies. We look forward to working with ASL as they continue to grow and develop."

Dublin-based Avtrain worked closely with ASL Future Flight and developed the manual suite for the LUC including the operations manual.

"The future of flight is here and to see such a significant player as ASL Airlines being awarded a LUC is a huge stepping stone to full-scale eVTOL operations," said Avtrain CEO, Julie Garland.

ASL is exploring new flight technologies through ASL CargoVision, a forum of fifteen companies involved in unmanned flight, large drone or unmanned aircraft and sustainable flight using hybrid electric and hydrogen fuels.

John Rawl continued, "Through ASL CargoVision, ASL Future Flight will be at the forefront of new aircraft development and operations to create new capabilities for local and regional cargo transportation using clean, zero-emissions unmanned flights."

ASL Future Flight will begin an initial test flight programme in the coming weeks and plans for commercial activities will be announced later this year.



# A STRATEGIC PARTNERSHIP

**De Havilland Canada has entered into an agreement with Fokker Services, extending the existing De Havilland Component Solutions arrangement for an additional five-year term through to December 2027.**



De Havilland Canada Limited announced that Fokker Services is providing third-party logistical (3PL) services to support De Havilland Canada's aftermarket business.

Under the terms of the agreement, Fokker Services provides a 2,550 metre<sup>2</sup> warehouse in Amsterdam and 3PL operations to support De Havilland Canada's hub and spoke parts distribution model.

The warehousing services provided by Fokker Services include inbound receiving, put away, picking, packaging and shipping, as well as quality control.

"This agreement with Fokker Services further demonstrates De Havilland Canada's commitment to bring distribution network solutions close to our customers to achieve better lead times and reduced freight costs.

While some of our peers are pulling back from their global distribution network, De Havilland Canada is showing additional commitment to ours," said Leighton Storsley, vice president, of aftermarket and business development. Menzo van der Beek, CEO of Fokker Services, said, "Fokker Services has supported the De Havilland Canada's Dash 8 Component Solutions programme and its customers

around the world for many years, so we're delighted to not only continue this support agreement but also becoming De Havilland Canada's partner of choice for their spares distribution warehouse in EMEA.

"Thanks to our global presence, the engineering skills of our employees, and a vast array of in-house capabilities, we're uniquely positioned to face any component repair challenge, shortening turnaround times, and guaranteeing De Havilland Canada's stringent standards of quality," he said.

"These partnerships ensure the delivery of enhanced services to our operators. Combining the Distribution Centre and Component Solutions in a single location will enable us to deliver a more efficient and effective customer service experience.

"We are encouraged to see De Havilland Canada's ongoing support to their European operations. We look forward to ongoing and solid service to our fleet in the years to come," said Morten Skoglund, COO/senior vice president accountable manager, Widerøes Flyveselskap AS.

De Havilland Canada has established four distribution centres to support the global fleet of more than 1,100 Dash 8 aircraft. In addition to the depot in Amsterdam, distribution centres are located in Calgary, Singapore and Sydney.

## CODESHARE AGREEMENT

RwandAir has signed a major new codeshare agreement with Turkish Airlines as it continues to expand its global reach.

A statement by the media consultant to the airline in Nigeria said that the new codeshare partnership would offer the African airline's customers greater travel choices and seamless connection opportunities in both Kigali and Istanbul.

The statement hinted that RwandAir customers traveling from Africa could now enjoy easy access to Turkish Airlines' extensive network of over 300 worldwide destinations, giving Africa even greater global connectivity.

Those traveling with Turkish Airlines it said could also benefit from this codeshare agreement, with customers arriving in Kigali now being able to enjoy smooth onward connection across RwandAir's African network.

Yvonne Makolo, Chief Executive Officer RwandAir, said, "We are incredibly excited to have signed this new codeshare agreement with one of the world's largest and leading carriers, Turkish Airlines.

"This landmark move will not only allow our customers to access the 124 countries served by Turkish Airlines but will improve connections for inbound travellers to Africa via our extensive continental network.

"RwandAir is always exploring new commercial opportunities to expand its reach into markets which can deliver financial return and benefit our growing customer base."

Currently, Turkish Airlines offers daily flights between RwandAir's Kigali base and the carrier's home hub in Istanbul.



Photo by Claudio Schwarz on Unsplash

# NSIGHT FLIGHT DATA ANALYSIS

**NAVBLUE has launched Nsight, a new single platform to collect, decode and analyze flight data, monitor trends, create safety analyses and dashboards.**

Nsight was designed and developed by the company's expanded team of flight ops, training and safety experts.

More than 30 airlines have already signed for Nsight including Air Senegal, Berniq Airways, Congo Airways, Libyan Airlines, Nouvelair (Africa), Jetair Caribbean (Americas), AirSial, Bamboo Airways, Bhutan Airlines, FitsAir, Himalaya Airlines, Nepal Airlines, Vietravel Airlines (Asia), Air Malta, Czech Airlines and others.

Nsight relies on a brand-new flight data analysis (FDA) core, a measurement-based engine connected to multiple data sources. Through the combination of measurements, airport and weather information, Nsight is more powerful at providing quantified elements that allow airlines to enhance their risk assessment.

Nsight is a cloud-based solution, compatible with multiple aircraft types, not limited to Airbus.

Benefits include:

- **Flexibility:** Nsight enables multiple workflows for the Flight Data Analysts' daily work;
- **Integration:** data collection, decoding and analysis in the same place, with the possibility to create analyses and dashboards;

- **Accuracy:** powerful measurement and event algorithms for a more precise evaluation of the risk exposure;
- **Capability:** high-speed flight data processing capability;
- **Expertise:** support of the development of aircraft related algorithms, wide portfolio of trainings, unique and dedicated FDA Management Service.

"I am delighted to use the Nsight tool for our FDM programme. The dashboard is very useful in providing us with a clear overview of our performance and the ability to change dates and view the flights through the system is of great assistance," said captain Nicolaos Nicolaou, flight safety officer at TUS Airways.

"Safety is one of our key guiding principles, Himalaya Airlines strives to continually monitor, evaluate and improve the effectiveness of its safety performance, to achieve the highest safety standards. Adopting NAVBLUE's Nsight Flight Data Monitoring Software is a significant step towards this commitment. With this new tool for Flight Data Analysis, we are sure that we shall be better equipped to enhance our operational efficiency as well as a safe travel experience for our passengers", said Vijay Shrestha, vice-president at Himalaya Airlines.

"Jetair is fortunate to have found NAVBLUE among the many providers worldwide able to deliver quality and precision. Professionalism at its best!", said Ruben Welvaart, manager of safety/security and emergency response of Jetair Caribbean.

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# THE NATO VERSION OF THE SUPER TUCANO



**Embraer has announced the launch of the A-29 Super Tucano aircraft, light attack aircraft, armed reconnaissance, and advanced training, in the NATO configuration.**

The new version of the aircraft, the A-29N, will include equipment and features to fulfill NATO's operational requirements, such as a new datalink and single-pilot operation.

These features will further increase the aircraft's employment possibilities such as its use in Joint Terminal Attack Controller or JTAC training missions.

Training devices will also be upgraded to the world's most demanding standards, including virtual, augmented and mixed reality.

"This is a new stage in the operational life of the A-29 Super Tucano," said Bosco da Costa Junior, president and CEO of Embraer Defence and Security.

"We see many application possibilities for the A-29N at the moment. Several European countries have shown interest in specific aircraft capabilities that we have now introduced with this version."

With more than 260 units delivered worldwide, the aircraft has been selected by more than 15 air forces worldwide, including the United States Air Force (USAF).

Developed as a highly versatile aircraft, the A-29 Super Tucano can perform a broad range of missions, including light attack, aerial surveillance and interception, and counterinsurgency.

The A-29 is rugged and versatile, operating from remote and unpaved runways on forward-deployed operational bases with little support, all with low operating costs and high availability (above 90%).

In addition to combat roles, the aircraft is widely used as an advanced trainer. Its ability to simulate combat missions and upload and download flight data has made it a highly effective training platform.

As a real multi-mission aircraft, the A-29 has the flexibility to provide air forces with a single platform for light attack, armed reconnaissance, close air support, and advanced training, thus optimizing their fleets.

It is equipped with various state-of-the-art sensors and weapons, including an electro-optical/infrared system with laser designator, night vision goggles, secure voice communications, and a data-link package.

The A-29 Super Tucano represents the gold standard in its field, combining superior aircraft performance with 21st-century weapons, integrated sensors, and surveillance systems to create a highly influential air power component.

## ONE STEP CLOSER

**Nigeria's Ibom Air has achieved the global industry safety standard - its Operational Safety Audit Certificate from IATA.**

This brings the airline one step closer to full IATA membership. The airline began operations about three years ago.

The IATA Operational Safety Audit (IOSA) is a global industry standard for safety auditing, and certification is an excellent achievement for any airline.

The Ibom Air management team, led by CEO Mfon Udom, received the certificate at the airline's headquarters in Uyo, Akwa-Ibom state, Nigeria.

Also present was Ibom Air's chief operating officer, George Uriesi. Samson Fatokun, area manager, West and Central Africa, and Jennifer Aisha Yeates, assistant director of operations safety and security, West and Central Africa, represented IATA.

George Uriesi commended the Ibom team for the landmark achievement. He expressed the management's appreciation for the essential work of the staff to make the carrier a world-class regional airline, one of its most important goals.

"Ibom Air's achievement of the IOSA Certification at this time is very much in line with our continental aspirations as we move to position our airline strongly on the African continent. Our strategy to spread our wings across Africa includes establishing multiple interline agreements and excellent cooperation with partner airlines. Being IOSA certified is a pre-requisite for this," said Uriesi.

The audit of Ibom Air was conducted in the second half of 2022. The safety achievement was credited to the quality and safety team led by Engineer Edem Essien.

The Akwa Ibom State Government wholly owns Ibom Air, which is focused on delivering quality services in the West African region. With its fleet of five Bombardier CRJ 900s and two Airbus A320-300s, it operates flights to seven destinations on nine routes. With schedule reliability, on-time.



# GULFSTREAM EXPANSION

Gulfstream Aerospace Corp have announced the continued expansion of its Gulfstream Customer Support Savannah-based maintenance, repair and overhaul (MRO) footprint at Savannah/Hilton Head International Airport.

The latest expansion will create 250 new jobs and adds to the two existing Savannah-based service centres, the most recent of which opened in 2019.

This second phase of the new Savannah service centre expansion represents a (US) \$98.5 million investment and an additional 200,000 feet<sup>2</sup>/ or 18,580 metres<sup>2</sup> and continues Gulfstream Customer Support's strategic network growth around the world.

Like all new Gulfstream facilities, the new Savannah service centre is being designed and built for sustainable operations.

"We are excited to announce the latest development in Gulfstream's support of the growing demand for our fleet around the world," said Mark Burns, president, Gulfstream. "Continued investments in state-of-the-art products,



modern customer support facilities and our communities set Gulfstream apart in our industry, and we are grateful to our partners at Savannah/Hilton Head airport, the Savannah economic development authority and the Georgia department of economic development, among others, for their support for our growth in the region."

Once completed, the new Gulfstream Customer Support MRO facility will add more resources in a wide range of services, including scheduled routine inspections, avionics installations, interior refurbishments and aircraft on ground services.

The facility is expected to open in early 2024.

The announcement follows recent expansions in progress or completed in Mesa, Arizona; Fort Worth, Texas; Farnborough, England; Palm Beach, Florida; Appleton, Wisconsin; and Van Nuys, California.

## LOVELY LIVERY

By Stuart Haigh



*This photo of an Emirates A380 landing at Glasgow in the new livery was sent to us by a regular reader and freelance photographer Stuart Haigh.*

# EUROPEAN SHORT-HAUL TRAVEL WILL BECOME MORE EXPENSIVE

**Analysts at Bernstein became the latest industry observers to suggest that European airlines will need to charge more for short-haul air travel as the decade progresses, in response to European Union measures aimed at reducing carbon emissions.**

Last year a provisional agreement on the reform of the European Union's Emissions Trading System (ETS) about aviation prompted a mixed reaction from airlines.

Notably, the deal announced that the ETS would apply only to intra-European flights through to 2026 when the EU would then assess whether ICAO's global CORSIA offsetting scheme - which will cover international flights into and out of the bloc - is sufficient to meet the targets of the Paris Agreement.

The proposal stated that should the EU deem CORSIA unfit for purpose in 2026, the ETS will be extended to cover all flights departing the bloc.

The ETS reforms proposed that free carbon allowances for the aviation sector will be phased out by 2026, in line with the blocs' polluter pays' principle.

At present, this means low-cost carriers and the budget units of the big airline groups are among those most exposed to the changes, given the high proportion of their revenue that comes from such flights.

Around half of airline carbon allowances are free today. Bernstein noted the carbon costing of €80-€100 or (US) \$88-\$110 per tonne in recent months versus €25 per tonne in 2019, which would have a significant balance-sheet impact for some carriers.

Bernstein estimated airlines will need to raise an additional 7-8% revenue per passenger to offset the extra costs, based on 2019 data, even taking into account efficiency gains from operating newer aircraft. It warned that would likely mean 'demand destruction', which would 'reduce capacity growth at less-profitable airlines'.

Indeed, carriers with higher margins today are naturally better placed to adapt to the new cost dynamic, analysts said, citing Ryanair as being in a stronger position than most in that regard.

Interestingly enough, given that free allowances were handed out based on 2010 traffic, their ending could level the playing field among operators focused on intra-European travel.



*Image by Orna Wachman from Pixabay*

Wizz Air, for example, benefits far less from free allowances than EasyJet, Bernstein explained, meaning the extra costs would not be felt as keenly by the former.

For its part, the European Union is waiting until 2026 to make a call on whether the ETS should be extended to all flights departing the bloc and not just intra-European services.

Its decision will depend on its assessment of the success or otherwise of ICAO's CORSIA offsetting scheme for international aviation, which is rolling out in the coming years. Alongside rising ETS costs, airlines also face rising jet fuel costs, the impact of which these developments will have on balance sheets is difficult to calculate, particularly given the natural fluctuations in jet fuel pricing and the sustainable aviation fuel incentives that might be rolled out at the same time.

All of this takes place against the EU's aim to cut emissions by 55% by 2030.

Sebastian Mikosz, IATA senior vice president, of environment and sustainability, said that more thought is needed to make the EU's Fit for 55 proposals effective.

He said if the Fit for 55 proposals is adopted in their current form, it will likely represent a missed opportunity.

Instead of promoting green technologies and operational efficiency improvements, making flying sustainable for all, the package aims to reduce flying by raising economic barriers and making it significantly less affordable.

The Fit for 55 proposals has – for aviation - three distinct proposals: A mandate for the use of SAF, a reform of the EU Emissions Trading Scheme (EU ETS), and a proposed fuel tax.

"Taken together, we estimate that by 2035 Fit for 55 could add €38 per ticket on an average flight in Europe, and €205 on the average transatlantic flight. This would mark the end of low-cost air travel in Europe as we know it and reverse decades of the democratisation of flying."



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