Aviation Human Factors Industry News

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Hello all,

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In this weeks edition of *Aviation Human Factors Industry News* you will read the following stories:

Chile issues report on Airbus A319 loss of engine cowlings incident

The Chile DGCA concluded their investigation into an incident involving the loss of both engine cowlings on the engine of an Airbus A319.

On October 20, 2015 an Airbus A319 of Sky Airline departed Santiago-Arturo Merino Benitez Airport in Chile on a domestic flight to Copiapó-Chamonate Airport. During takeoff from from runway 35R at 07:39 hours local time both cowlings on the no.1 CFMI CFM56-5B5/P engine broke away. The aircraft circled back and landed safely on runway 35L at 08:04 hours. The investigation showed that prior to departure, the No.1 engine cowlings were opened by maintenance crew to check the oil levels of the Integral Drive Generator (IDG) and the filter differential pressure indicator. After this was completed, the cowlings were closed but not locked. The captain performed the walk around check but did not notice this.

Aerodynamic forces during takeoff caused the cowlings to separate from the engine. The report did not detail the reasons why the cowlings were not locked or the reasons why the aircraft was released for service this way.

This incident is (at least) the 39th event of the loss of an engine cowl door on an Airbus A320-family aircraft. The U.K. AAIB issued several safety recommendations in their July 2015 report of an accident involving Airbus A319 G-EUOE that lost the cowling doors on both engine on departure from London-Heathrow.

FAA: Providing the Safest Aerospace System in the World

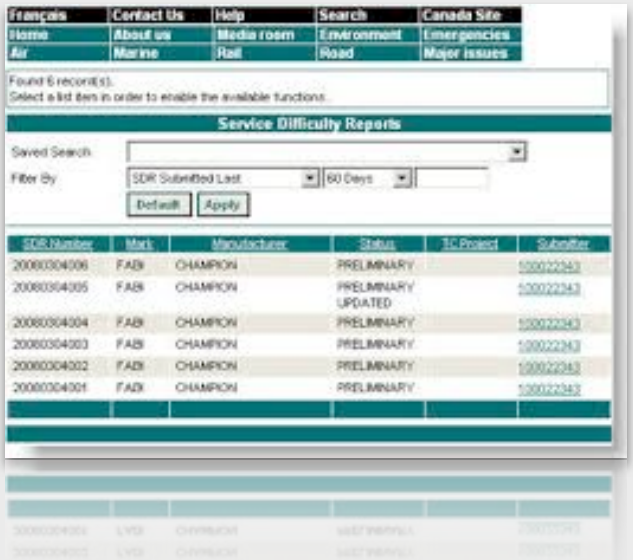
The mission of the Federal Aviation Administration (FAA) is to provide the safest, most efficient aerospace system in the world. There are many ways in which the FAA seeks to accomplish its mission. Many people are aware that the FAA develops safety regulations which set the minimum safety requirements for aviation. However, many people are not aware that the FAA also conducts research and development to help it achieve its mission. There are many offices within the FAA, each with their own set of duties and responsibilities.The Airports Organization (ARP) provides leadership in planning and developing a safe and efficient national airport system; The Air Traffic Organization (ATO) is the arm of the FAA and is responsible for safe and efficient air navigation services to approximately 30 million square miles of airspace; and Aviation Safety (AVS) is the organization responsible for the certification, production approval, and continued airworthiness of aircraft; certification of pilots, mechanics, and others in safety-related positions. AVS is also responsible for certification of all operational and maintenance enterprises in domestic civil aviation, certification and safety oversight of approximately 7,300 U.S. commercial airlines and air operators, civil flight operations, and developing regulations.The William J. Hughes Technical Center in Atlantic City, New Jersey is one of the nation's premier aviation research, development, test and evaluation facilities. Its world-class laboratories and engineering place the Technical Center at the forefront of the FAA's challenge to modernize the U.S. air transportation system. The Technical Center serves as the FAA's national scientific test base for research and development, test and evaluation, verification and validation in air traffic control, communications, navigation, airports, aircraft safety, and security. The Technical Center is the primary facility supporting the nation's Next Generation Air Transportation System, called NextGen.

Within the Aviation Research Division, one of several divisions at the William J. Hughes Technical Center, there are five branches: Fire Safety, Human Factors, Airport Technology, Software and Digital Systems, and Structures and Propulsions. The Fire Safety Branch conducts long-range research to develop a totally fire resistant passenger aircraft cabin with the goal of eliminating cabin fire as a cause of fatalities in aviation. The Human Factors Branch employs scientific methods and advanced technology in the conduct of research and development to ensure that systems that include human operators and maintainers perform as effectively and safely as possible.

The Airport Technology Branch conducts the necessary research and development required to enhance the safety of operations at our nation's airports and to ensure the adequacy of engineering specifications and standards in all areas of the airport systems and, where necessary, develop data to support new standards. The Structures and Propulsions Branch's work includes research on structures and materials, propulsion and aircraft icing, and fuels and energy.

Incomplete Service Reports Could Increase FAA Inspections

Some air carriers have been improperly reporting negative trends in vendors, manufacturer equipment, training and procedural problems to the Federal Aviation Administration (FAA)'s Service Difficulty Report (SDR), leading to "poor data integrity," the FAA said in a release. The FAA released an Information for Operators (InFO) to remind air carriers to input this data into the Service Difficulty Report (SDR) in a format up the standards of the FAA, as outlined in Title 14 of the Code of Federal Regulations.



The reports should include, among other information, detailed identification of the aircraft, operator, and the failure, malfunction or defect.

Currently, all SDR reports undergo an inspection by the FAA every two years before being reported to the Safety Assurance System database where it can be used to detect trends "necessary to proactively mitigate risk."

If there continues to be improper reporting the FAA, as noted in an InFo, may need to carry out inspections more frequently to "ensure proper air carrier reporting."

FAA Proposes Rulemaking to Further Enhance Airport Safety

Recently, the FAA published a Supplemental Notice of Proposed Rulemaking (SNPRM) for safety management systems (SMS) in the airport area. SMS is a formal approach to managing an organization's safety through four key components – safety policy, safety risk management, safety assurance, and safety promotion. Through the SNPRM, the FAA proposes to integrate proactive hazard identification and risk-management based principles into the day-to-day operations at airports.
The supplemental proposal amends the number of airports that would be required to implement the program. The SNPRM proposes SMS at any Part 139 certificated airport that is:

- Classified as a small, medium, or large hub airport in the National Plan of Integrated Airport Systems;

AND

- Identified by the U.S. Customs and Border Protection as a port of entry, designated international airport, landing rights airport, or user fee airport;

- OR
- Identified as having more than 100,000 total annual operations which includes takeoffs and landings.

The original NPRM required all Part 139 airports to participate in SMS. Based on the numerous industry comments received, the FAA decided to amend the original proposal to instead apply it to certificated airports receiving the vast majority of passenger enplanements, operations, and international service. The original proposal would have applied to more than 500 certificated airports. The revised proposal would apply to approximately 260 airports. The industry will have 60 days to comment on the revised changes and other requirements proposed in the SNPRM. The comment period ends on September 12, 2016.

Read more about SMS in the FAA Fact Sheet.

http://links.govdelivery.com/track?type=click&enid=ZWFzPTEmbXNpZD0mYXVpZD0mbWFpbGluZ2lkPTIwMTYwNzEyLjYxNDQxNDkxJm1lc3NhZ2VpZD1NREItUFJELUJVTC0yMDE2MDcxMi42MTQ0MTQ5MSZkYXRhYmFzZWlkPTEwMDEmc2VyaWFsPTE2ODgzMjE2JmVtYWlsaWQ9cmh1Z2hlc0BodW1hbmZhY3RvcnNlZHUuY29tJnVzZXJpZD1yaHVnaGVzQGh1bWFuZmFjdG9yc2VkdS5jb20mdGFyZ2V0aWQ9JmZsPSZtdmlkPSZleHRyYT0mJiY=&&&101&&&https://www.federalregister.gov/articles/2016/07/14/2016-16596/safety-management-system-for-certificated-airports

PIREPs: Potentially a Matter of Life and Death

"For pilots, the difference between life and death can come down to one question: weather…or not? We cannot control the weather, but we certainly can plan for it when we receive reports about conditions experienced by others along our intended route," said NTSB member Robert Sumwalt, who presided over a recent forum on pilot reports (PIREPs).

"PIREPs done right have enormous untapped potential to make aviation safer for pilots, passengers and people on the ground," he added. Sumwalt said the NTSB has investigated numerous accidents that indicate that the PIREP system is failing, which led the board to place the topic on its 2014 Most Wanted List of Transportation Safety Improvements.

"I don't think any of us think our PIREP system is functioning optimally," said Sumwalt. The NTSB has investigated 20 accidents or incidents since 2012, in which they found issues with the dissemination of weather information.

John Kosak, NBAA's project manager for weather and a symposium presenter, said one concern is that pilot weather reports are not being utilized as they once were. Another is that PIREPs are often submitted with incorrect information, usually regarding the time, location and weather intensity.

The PIREPs system is still largely paper-based, and many reports don't get passed along by controllers in a timely manner to pilots who could use the information. Consequently, many pilots don't file reports.

Properly done, PIREPs can improve the efficiency of operations in the national airspace system, since they are used by various stakeholders. ATC uses the reports for traffic control management and real-time advisories; National Weather Service meteorologists use them to create pilot weather briefings, enhanced models, and more accurate forecasts; dispatchers use PIREPs to create inflight advisories, route changes and amendments.

"The reporting of unforecasted conditions remains an important and relevant tool for every pilot," said Jim Lara, principal of Gray Stone Advisors. "We need to support the 'culture' of reporting what you see, especially if it's a surprise."

Symposium participants also brainstormed possible ways to automate the PIREPs process, or make it easier both to file reports and to publish them in a timely manner.

NTSB is developing an investigative report on PIREPs and asks those interested to send their comments to **PIREP.Forum@NTSB.gov**.

EASA Reports Dip in GA Accident Fatalities

According to the just-released EASA annual safety review for 2015, general aviation accidents killed 65 people last year, which is 17 percent less than the five-year annual average of 79. The report also shows that there were no fatalities or serious injuries in offshore helicopter operations in 2014 or 2015, with the average 10-year fatality count at just three.

The EASA's annual review of accidents that happened in EU member states does not compare data from one year to another. Instead, the most recent year's accident figures are compared to a 10-year annual average for airlines and a five-year annual average for general aviation piston and turbine airplanes.Also included in the report are depictions and analyses of the accidents within each commercial and non-commercial category in terms of key risk areas; human factors; operational safety organization and culture; phase of flight; and related accidents over a five- or 10-year period. Besides commercial and non-commercial airplane and helicopter mishaps, the report also details crashes involving balloons and gliders.

The EASA report combines piston and turbine airplane personal, business and training flights into a single category. Research by **AIN** indicates no business jet fatal accidents in Europe last year versus two (both in Germany) in 2014.

http://ea.ecn5.com/Clicks/Z2NuT2NVLzVXTFo5N1RZMSthUDYxYnZuVG9TeVpiOFA0dG04OUVtVVRsd0k4S2xzN0JEUlozWUNWRXJQTXMzVg%3d%3d

Enthusiasm is Contagious

I was considering what our award winners have in common as the Ground Support Worldwide annual awards issues wrap up with Jonathan Bluth's feature in this month's magazine.

Bluth and Dick Cloud, our Lifetime Achievement honoree from United Airlines, seem to have one major factor in both their favors: They absolutely, genuinely love what they do.Genuine enthusiasm spreads throughout your team, and eventually the entire company. It's a delightful endemic. Be excited about your job. Inauthenticity, however, is a repellant for both workforce enthusiasm and team chemistry.

Brice Allen, general manager at Atlantic Aviation's Austin FBO, says the days that he and Bluth get the opportunity to go out on the ramp and help out are times they cherish. Being out among the aircraft is almost certainly the reason most of us have stayed in this industry. The time in, on and around the aircraft is the best part.

"That's where the rubber meets the road anyway, and that's where we feel passionate about what we do," Allen says. "Just seeing how important it is to instill the right frame of mind in the safety aspect is paramount in our industry, because we're dealing with very fragile aircraft."

The business is serious. Every moment of the day shouldn't be. They call it the "Atlantic Attitude" at Atlantic Aviation.

"And that's exactly what it is, that's what it's known within the company, it's the Atlantic attitude," Bluth says. "And I want [my team] to embrace it, I want you to love what you do, I want you to love the people you're with."

At the same time, you can't fake it until you make it. To paraphrase Holden Caulfield, I don't know anyone who wants to work with, or for, a phony.

And people will suss it out. You don't have to love your job, but it's better to be neutral than to demand from yourself that every employee interaction lack a genuine human component. Really, that's the whole point: being genuine with your team will always instill trust and enthusiasm.

"I don't want you to be here and not enjoying yourself," Bluth says from Atlantic. "I want you to be here and appreciate it, I want you to be a part of the team and I want you to have a blast."

Navy: Human error to blame for March cable break aboard USS Eisenhower flight deck

Navy investigators blamed human error and an improperly programmed valve for a March incident in which eight sailors were injured when a cable used to catch a landing E-2C Hawkeye snapped on the flight deck of the USS Dwight D. Eisenhower.According to a Navy report obtained by The Virginian-Pilot through a Freedom of Information Act request, maintenance personnel missed at least one and possibly two “critical steps” while working on an engine that helps operate the carrier flight deck’s cables, which are called cross deck pendants, after a previous landing. As a result, the engine failed to slow the aircraft, instead causing the pendant to break “at or near” the Hawkeye’s tailhook.

The Navy did not find evidence of willful dereliction of duty or negligence by the maintenance workers. The report said that while there was a “lack of procedural compliance” while troubleshooting an error code from a previous arrested landing, “the sailors involved reasonably believed they had properly and conscientiously completed the complicated procedure.”

The Eisenhower Strike Group could not be reached for additional comment Friday. The strike group left Norfolk Naval Station on June 1 for a seven-month deployment and on June 28 began flying combat sorties in support of Operation Inherent Resolve from the eastern Mediterranean Sea, the Navy has said.

Cross deck pendants are 1½-inch-thick steel wires that stretch across a carrier flight deck and are used to catch a landing aircraft's tailhook. The four pendants that cross an aircraft carrier's flight deck are placed at 20-foot intervals and can be used for up to 125 landings, or "traps."

The other system of cables is attached to the steam engines underneath the flight deck; they are called purchase cables.

Those cables pull a movable part of the engine that travels along greased skids and pushes a giant piston into a cylinder full of pressurized hydraulic fluid. The piston compresses the fluid, bringing the wire on the flight deck, and the aircraft, to a stop.

In the March 18 incident, personnel that were troubleshooting a fault code from a previous arrested landing with the Eisenhower's No. 4 arresting gear engine were using an approved Navy procedure when they missed steps that led them to mis-program a valve that controls the gear engine's pressure and energy absorption, according to the report.

But that procedure lacked warnings, other notations and wasn't "user friendly," Navy investigators found. As a result, while those personnel failed to comply with a "technically correct written procedure," the Navy found their error understandable because the procedure didn't explain the basis for its steps, lacked supervisory controls and "failed to warn users of the critical nature" of the valve's realignment.

As the Hawkeye snagged the No. 4 wire, its three-person crew first sensed normal deceleration followed by a loud bang. They "heard the tailhook re-contact the flight deck, and felt a shudder," the report said. They realized "something had happened" when the Hawkeye continued toward the end of the flight deck.

Video of the incident released by the Navy on Friday shows a harrowing few moments in which the aircraft disappears off the flight deck and reappears several seconds later. Crew members aboard the flight deck can be seen running. Two sections of the broken No. 4 pendant and purchase cable "recoiled sharply and backlashed," the report says.

Eight sailors suffered a variety of injuries, including a fractured ankle, wrist, pelvis and legs. One sailor received skull and facial fractures while another suffered a possible traumatic brain injury.

A C-2A Greyhound and an MH-60S Seahawk also received about $82,000 in damage, according to the report. At the time of the incident, the No. 4 cable had been trapped 16 times.

The report credits the "phenomenal airmanship" by the Hawkeye's crew. The plane landed safely at Norfolk Naval Station, where it is part of the Carrier Airborne Early Warning Squadron 123, or "Screwtops."

A command investigation into the incident included recommendations for the development of additional controls for troubleshooting the carrier's aircraft recovery system as well as a review of the system's procedures to add necessary warnings, cautions and quality assurance.

It also included recommendations that Capt. Paul Spedero, commanding officer of the Ike, consider formal counseling, fitness evaluations, qualification removal, requalification or administrative actions for three others whose names were redacted.

https://youtu.be/r-EHwYOfY94

5 Tips for a Top-Notch Maintenance Team

Providing outstanding aircraft maintenance that meets and exceeds both safety standards and clients' expectations comes down to training and experience — but most of all, it depends on a solid, well-functioning team.

After 40 years in the corporate aviation business, I've learned the hallmarks of excellent maintenance teams and what makes them tick. Follow these five tips to help your maintenance team members get into the right frame of mind to do excellent work, and take your maintenance team to the next level:1: Treat every aircraft as if it was your own

Mediocre teams look at every aircraft as a job — or worse, they look at every repair simply as a "problem," and a source of revenue.

The best team members treat each aircraft as though it belonged to them. A good way to get into this habit is to encourage team members to ask, "What would I want done if it were my aircraft?"

That might mean going one step beyond fixing an issue to find out what's causing the need for a repair. Or it may mean being proactive about preventive maintenance. In our shop, it always includes making financial decisions in a responsible way. For example, we always get no less than three price quotes for every part needed in any particular situation.

Wouldn't you shop around for the best service value if you were fixing your own jet? Wouldn't you want every piece of a job to be done to the highest standards possible, with safety being paramount if your family were on board?

Thinking like an owner, and taking care of jets accordingly, helps teams do the right thing in each situation and the right thing for each client.

2: Get repairs done quickly to get jets back in the air

As we all know, aircraft don't make any money sitting on the ground. In thinking like an aircraft owner, it becomes my maintenance team's goal to get aircraft being worked on flying again as soon as safely possible.

That means being up front about how long service will take, and always being mindful that every moment spent in the shop equals time the aircraft can't be earning money in the air.

Getting an aircraft back in service quickly shows that we understand our clients' needs and want to be part of getting them flying again, as soon as possible, and playing an important role in making them successful.

3: Make communication a priority

Communicating clearly and often is key, both for our internal team and with our clients.

Sometimes maintenance folks can be very good at the technical aspects of their job, but not so strong on "people skills" or communication. We make it our job to be good at both.

It's our policy to provide daily status reports on all jet repairs. Since clients' earning potential is grounded for as long as their jets are grounded for maintenance, that extra step lets them know that we're working as quickly as possible to get the service done so they're flying again as quickly as possible.

Make sure your teams understand the importance of communication, and if you don't currently have a standard or system for touching base with clients (such as the daily updates) it might be time to put that into place.

4: Recognize talent and promote “potential”

Your strong performers of today will be your team leaders and role models of tomorrow.

“Promoting potential” means seeing when a team member is ready for more responsibility — even before they’d volunteer for the job. For example, I took two “line guys” and promoted them to supervisors. I think they surprised themselves at how well they handled the bigger jobs.

Technicians are much savvier today than they were 20 to 30 years ago, when it comes to knowing what their personal and professional goals are. Whether it is a raise or promotion, they know they must continually move their career forward, making them more prepared to move from a line technician to a supervisory position. It is critical to continually support them to make these transitions/promotions successful and to give them the tools they need to achieve their potential.

Keep an eye out for promising talent and team members who show potential. Giving them that next opportunity keeps them engaged and feeling valued on your team — which means over time they’ll choose to keep their experience and expertise in your shop, rather than joining a competitor’s outfit just to get to that “next level.”

5: Run an efficient operation

Being good at what you do is one thing — but running an efficient operation requires another level of focus and a commitment to ongoing improvement.

Examine each aspect of your operation to see where bottlenecks are and what causes headaches. Often, inefficiencies can result in unnecessarily increased expenses or slower repair times.

Be proactive about finding ways to increase efficiency in your shop. Ask your team members for input — they're definitely the ones who know what the problem areas are, and likely have ideas for how to solve them. Be sure to check in with customers from time to time as well, whether it's through a customer satisfaction survey or simply asking if there's any aspect of your service that could be improved.

What you'll learn will help you reduce inefficiencies — and that will ultimately result in a more smoothly running, cost-effective shop that delivers higher-quality service (and in which maintenance team members are happier to work).

All of these points can be achieved if you have full buy-in from your team. Once that is achieved, and everyone is pulling in the same direction, five tips become easy to achieve.

I hope these tips, learned through decades of hands-on experience, will help you turn your team into a top-notch maintenance organization. A team that's functioning optimally not only makes your shop a better place to work — it means you can all work together to deliver better results to your clients.

Ralph Michielli, vice president and director of maintenance, Hawthorne Global Aviation, brings more than three decades of experience in business jet aviation to Hawthorne, and helped launch ExcelAire in 1993. He oversees all maintenance operations at Hawthorne Global Aviation and also serves as technical liaison between Hawthorne and its aircraft owners and is a FAA-licensed Airframe and Powerplant technician specializing in jet aircraft.

Plane travel: Which is the safest seat on an airplane and why?

By Kate Whiting

Flying is one of the safest ways to travel, and news of plane disasters can put even frequent flyers on edge. But where you sit can improve your survival rates - here's why....

Last year was the safest year to fly in the history of aviation, according to the Aviation Safety Network (ASN), with 16 fatal crashes worldwide resulting in 560 deaths.

That sounds like a lot of casualties, but with almost 40 million flights taking off each year, you're statistically much more likely to die crossing the road or even be killed by lightning than you are to die in a plane crash.

Nevertheless, many of us still have panic attacks at the thought of stepping on an aircraft.If you're in the 10% of the population who is afraid of flying, it might help you to know that some parts of the plane are deemed safer than others.

In 2012, Channel 4 made a documentary called The Plane Crash, which simulated an accident by using remote control to crash land an actual Boeing 727 into the desert in Mexico. Crash test dummies were strapped into various seats in the plane and onboard cameras revealed what happened to each one as the jet hit the ground.

Should you 'turn left'?

First class seats may seem like the height of sophistication, but those who sit at the front of the plane are more likely to die in a crash as the nose impacts into the ground first, the Channel 4 program found.

Here, a force of 12G was recorded, compared to 6G towards the back of the plane.

However, a Time magazine study of data from the US Federal Aviation Administration over a 35-year period found that the front seats were marginally safer than the middle ones, with a 38% fatality rate in the front third compared to 39% in the middle and 32% in the back third.

Sit near an exit

Once the plane has crashed, it's best to get off as soon as possible to boost your chances of survival. Those sitting within five rows of an emergency exit have the best chance of getting out alive in a fire, according to a 2008 study by the University of Greenwich, commissioned by the Civil Aviation Authority (CAA).

However, according to the CAA, there are some passengers, including children and those who have difficulty moving quickly, who may not be permitted to sit in a seat row next to an emergency exit, because they might delay the exit doors being opened and the evacuation of the plane.

Aisle or window?

The window seat might get you views and a flight undisturbed by weak-bladdered neighbors, but in the aisle, you are 'marginally' better off in the event of a crash. According to the Greenwich study, aisle seats carried a 65% chance of survival compared to 58% for window seats.

However, the Time magazine study found that fewest people perished in the middle seats in the rear of the aircraft (a 28% fatality rate). The seats which fared the worst were those on the aisle in the middle third of the cabin, with a 44% fatality rate.

So which is the safest seat?

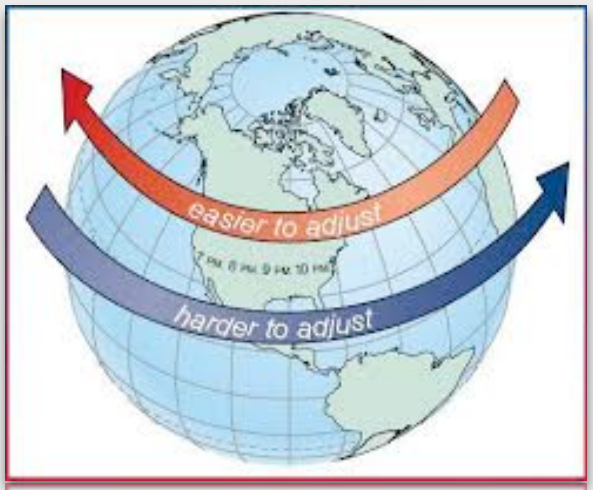
If you weight up the evidence we've presented, a middle-of-the-row seat at the rear of the airplane within five rows of an emergency exit is probably the safest seat on the plane.

However, it depends entirely on which end of the plane takes most of the impact.

Just make sure to wear your seatbelt

Mathematical Models Explain East-West Asymmetry of Jet Lag Recovery

Travelers frequently report experiencing a significantly slower jet lag recovery after an eastward versus a westward flight. While some are quick to dismiss this complaint as being "all in their head," new research suggests it may be caused by the oscillation of a certain type of brain cells.



Circadian rhythms, which govern jet lag recovery, are controlled by the synchronization of many neuronal oscillators within the brain. Brain cells within the hypothalamus—the region of the brain that governs circadian rhythms—undergo daily cycles of activity.But after a rapid time zone shift, the brain's oscillatory circadian pacemaker cells are incapable of instantly adjusting to a rhythm appropriate to the new time zone.

So a team of University of Maryland researchers decided to explore whether the east-west asymmetry of jet lag could be understood via mathematical models of these oscillations of cells within the brain, and made some interesting discoveries about the dynamics involved, which they report in the journal *Chaos*, from AIP Publishing.

Akin to cars racing around a circular track, some of the brain's "circadian pacemaker cells" could complete the circuit faster on their own than others.

But due to their mutual interactions sharing the track, these cells tend to form a traffic clump and travel around the track as a group.

“In the absence of a controlling influence, say ‘a man with a yellow flag,’ the clump of cells completes the circuit within a period of time that may not correspond exactly to one day,” says Michelle Girvan, an associate professor of physics at the University of Maryland’s Institute for Physical Science and Technology, in a release.

Studies have shown that without daily variations of sunlight acting as that “man with the yellow flag,” or traffic controller, the brain’s circadian pacemaker cells complete their cycle in a time slightly longer than a day.

“Our mathematical model is based on this type of picture,” Girvan says. “We start by explicitly modeling the dynamics of a large number of cells, and then use a novel method for simplifying this very large system to a single equation that can be easily analyzed.”

What did they discover? While an average person’s natural circadian rhythm is believed to slightly exceed 24 hours, the team’s model indicated that this small amount of time—on the order of 30 minutes—is significant and can explain the rather large east-west asymmetry for jet lag recovery, which can equate to days when traveling across several times zones.

Their model also explains how individuals can experience a differing severity in response to rapid cross-time-zone travel. Since the neuronal oscillator cells of different individuals may have different properties, in the absence of regulation by the diurnal pattern of sunlight, “some people may have a natural circadian rhythm with a period of 24.5 hours, while others may have longer or shorter natural rhythms,” Girvan says. “Our model suggests that the difference between a person’s natural period and 24 hours controls how they experience jet lag.”

The team hopes that the mechanistic insights provided by their simplified model “can serve as a guide for developing more in-depth qualitative approaches, as well as strategies to combat circadian rhythm disruptions due to rapid cross-time-zone travel, shift work, or blindness,” Girvan says.

http://scitation.aip.org/content/aip/journal/chaos/26/9/10.1063/1.4954275

TED: Ideas Worth Spreading

A Call to Men!

At TEDWomen, Tony Porter makes a call to men everywhere: Don't "act like a man." Telling powerful stories from his own life, he shows how this mentality, drummed into so many men and boys, can lead men to disrespect, mistreat and abuse women and each other. His solution: Break free of the "man box."

https://www.ted.com/talks/tony_porter_a_call_to_men