

Aviation Human Factors Industry News

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From the sands of Kitty Hawk, the tradition lives on.

Hello all,

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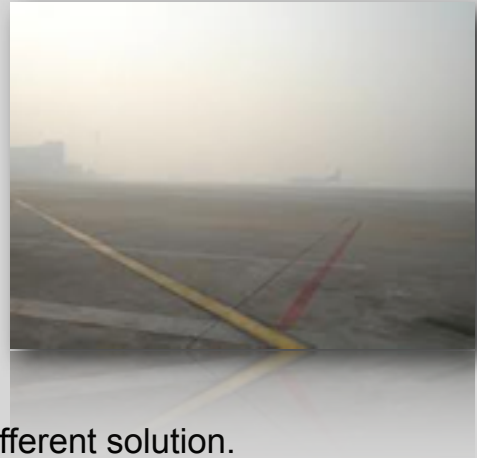
★Tales of Mishaps Beyond Aviation

★Drink Up

★FAA Proposes \$206,550 Civil Penalty Against Martinaire Aviation

Rising Temperatures = Rising Threats

As summer arrives in earnest, the threats from heat and humidity are growing. In the article “H2-Oh!: How Water and Heat Create Haze, Humidity, and Hurricanes,” author James Williams examines some of the potential threats that the higher temperatures and humidity levels of summer can bring. From the insidious dangers of haze and the invisible dangers of humidity to the massive and horrific dangers of hurricanes, the article explains **not only threats but also some strategies to deal with them**. Each presents a different challenge and can require a different solution.



To read more visit: www.faa.gov/news/safety_briefing/2012/media/MayJun2012H2OH.pdf

An Awakening to MX Personnel Fatigue

Maintenance professionals often work long hours and, combined with other factors, become fatigued. How large of problem does it pose? **Scientific study** sheds light on the subject. **By David Jensen**

A **human factor** too long overlooked in aircraft maintenance has become a growing concern in the industry—fatigue. It has prompted scientific study and fatigue risk management system (FRMS) guidelines from regulatory agencies. One agency even is issuing FRMS requirements impacting maintenance, repair and overhaul (MRO) organizations. Also becoming prevalent are training aids to recast a culture that resides in an often-stressful environment, frequently demanding long, unconventional working hours.

Symptoms and Examples

The International Civil Aviation Organization (ICAO) defines fatigue as “the temporary inability or decrease in ability or strong disinclination to respond to a situation because of previous over-activity, either mental, emotional or physical.” [Some symptoms of fatigue include the following:](#)

- [Physical](#), revealing lack of energy, slowed reaction time and possible nausea, headache or upset stomach;

- [Mental](#), involving difficulty concentrating, lapses in attention, forgetfulness, failure to communicate important information and poor decision making; and
- [Emotional](#), evident when one is withdrawn, irritable, lacking motivation, displaying low morale and expressing heightened emotional sensitivity.



The issues of fatigue and befitting crew duty schedules are not new in aviation. Flight crews are universally required to have suitable rest between work shifts. However, [fatigue in the maintenance hangar has been largely overlooked](#)—or at least it has by many in the aviation industry.

[Not so](#), the U.S. National Transportation Safety Board (NTSB). “We’ve been making recommendations in this area since 1997, after the ValuJet accident in the Florida Everglades,” says Dr. Mark Rosekind, one of the NTSB’s five board members. He references the infamous Flight 592, in which mishandled, hazardous materials in a DC-9’s cargo hold caused a fire and crash that took 109 lives in May 1996. In fact, across all means of transportation, the NTSB has made more than 200 recommendations regarding fatigue, according to Rosekind.

[READ THE FULL ARTICLE >>>>](#)

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Planes, Trains, and Automobiles: How Sleepy Are Our Nation's Transportation Workers?

The National Sleep Foundation 2012 poll looks at how sleepiness is affecting those charged with getting us from place to place.

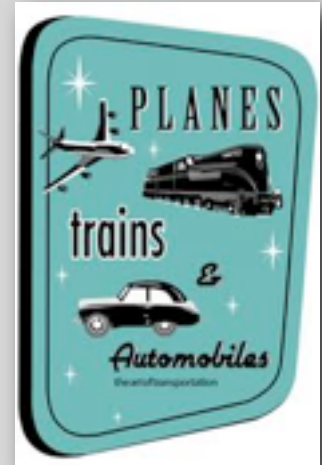
Roughly one in 10 Americans say they are likely to fall asleep at an inappropriate time and place, [including on the job](#). It's one thing if their job finds them at a desk all day, where a short lapse in attention may be fairly minor—resulting only in an irate boss perhaps. For a transportation worker, [however](#), it may mean a major accident with multiple fatalities.

Every day we trust transportation workers with our lives—whether they are [pilots](#), train operators, and bus drivers getting us from point A to point B, or truck drivers sharing the road with us to deliver goods. We depend on their alertness. That is why the National Sleep Foundation 2012 poll focused on just how sleepy America's transportation workers are and how that sleepiness [is affecting their work performance](#), especially in terms of public safety.

As Sanjay R. Patel, MD, MS, lecturer in medicine at the Harvard Medical School and member of the poll task force, points out, "Because only a few seconds of inattention or delay in response times can cause major accidents in the transportation industry, sleep is a particular concern in this field. Add to this the increasing demand placed on the industry to provide services 24/7, and workers in this field face pressures to work extended hours and varying schedules, both of which impede the ability to obtain sufficient sleep on a regular basis."

[ON THE CLOCK](#)

The study of 1,087 respondents (completed via the Web) finds that 11% of pilots, train operators, and bus, taxi, and limo drivers and 8% of truck drivers as well as non transportation workers are "sleepy." And that [sleepiness translates into job performance problems](#) about three times more often and 45 minutes less sleep per night than their non sleepy peers. About one-fourth of train operators (26%) and pilots (23%) admit that sleepiness has affected their job performance at least once a week, compared to about one in six non transportation workers (17%) (Figure 1). Not surprising, among all workers surveyed, train operators and pilots report the most workday sleep dissatisfaction.



Almost two-thirds of train operators (57%) and one-half of pilots (50%) say they rarely or never get a good night's sleep on work nights, compared to 44% of truck drivers and 42% of non transportation workers. Bus, taxi, and limo drivers, however, report the best workday sleep satisfaction, with 29% saying they rarely or never get a good night's sleep on work nights.

Read the rest of the article:

http://www.sleepreviewmag.com/issues/articles/2012-06_03.asp

Storm researcher calls for new air safety guidelines

Aircraft turbulence guidelines should be completely rewritten after new research by Centre of Excellence chief investigator Dr. Todd Lane revealed thunderstorms could produce unexpected turbulence more than 100km away from storm cells.

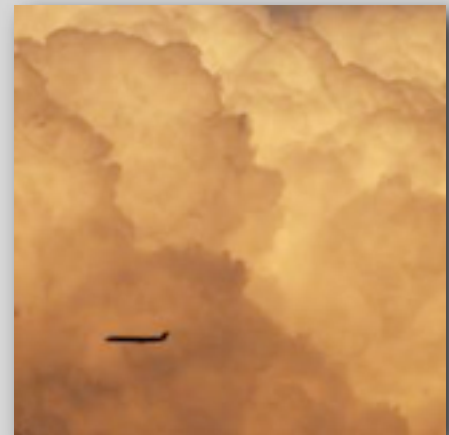
The research by Centre of Excellence for Climate System Science and The University of Melbourne researcher Dr Todd Lane has highlighted the impact of atmospheric [gravity waves](#) caused by [thunderstorms](#) and how air safety guidelines [have not](#) taken them into account.

"It is likely that many reports of encounters with turbulence are caused by thunderstorm generated gravity waves, making them far more important for turbulence than had previously been recognized," Dr. Lane said.

"Previously it was thought turbulence outside of clouds was mostly caused by jet streams and changes in wind speed at differing altitudes, known as wind shear, but this research reveals thunderstorms play a more critical role," he said.

Dr. Lane said it is now recognized that thunderstorms [have far reaching effects](#), modifying airflow, strengthening the jet stream and enhancing wind shear at a significant distance from the storm cell itself.

Flights along domestic Australian routes and international routes across the tropics towards Asia and between Australia and the US regularly detour around storm cells. However, this research indicates they may still be close enough to encounter gravity waves and clear-air turbulence.



This unexpected turbulence mid-flight can lead to passenger injuries with around 97% of injuries caused by turbulence during flight occurring because people are not wearing seatbelts. On average, around 15 people are injured every year due to turbulence.

Beyond the immediate safety concerns, it has been estimated that turbulence [costs the aviation industry](#) more than \$100M a year globally due to associated rerouting and service checks.

Despite this, little research is being done worldwide on near-cloud turbulence according to Dr. Lane, even though improvements in high-resolution atmospheric modeling could generate important advances.

“Ten years ago, we didn’t have the computing power and atmospheric models to answer some of the important questions around turbulence,” Dr. Lane said.

“Now we can answer some crucial questions but there are only a few groups working on this problem. [We need more researchers](#) to become engaged to improve the guidelines and passenger safety.”

Currently, many of the world’s guidelines for flying around thunderstorms – including Australia’s - are similar to those produced by the US Federal Aviation Administration (FAA). However, these guidelines [do not include](#) information about atmospheric wave processes.

“We are working hard to develop new guidelines to recommend to the FAA that include a proper representation of the physics.”

“We now know a lot more about how thunderstorms cause turbulence than we did when the guidelines were originally introduced,” Dr. Lane said.

“It is time to alter air turbulence guidelines in light of this knowledge and employ new technologies to forecast where it is likely to occur to improve air safety for all air travelers.”



"Never Again"

Inspired by a sobering encounter with airframe icing, this C172 pilot's list of actions that "should have" been taken is a good lesson plan on how to avoid the pitfalls of "get-home-itis."

■ We decided to take off VFR and see if we could make it through in VFR conditions. Once airborne, were able to see that the weather was deteriorating so we started to file an IFR flight plan.

It was not completed however, before I flew the aircraft into IMC....

Approximately two minutes after receiving the IFR clearance, I noticed that ice was beginning to form on our leading edges and our windshield as well. We informed Center that we had ice building and needed to change our destination to the closest airport. We were cleared to [a nearby airport], but upon hearing from Center that the weather there was misting, I...deviated without clearance from the assigned heading and altitude to get out of the clouds and precipitation. The report of mist made me think that the safest alternative was to fly back the way that we had come and to descend out of the clouds immediately. Once we had turned around we were out of IMC and landed safely at [another airport]. We stayed the rest of that evening as well as the next day and night, waiting for the weather to improve.

I did many things wrong: I should have planned better to avoid getting into this situation. I should have turned around immediately before entering IMC. My biggest problem was my eagerness to get home. Also, we knew that behind this poor weather the ceilings were much higher and there was no precipitation. This made me think that *if we could just break through* we could make it the rest of the way VFR. In retrospect, I also should have informed ATC of my intentions, however at the time I thought it more important to get out of the poor situation that we were in.

My [lack of experience](#) in icing conditions contributed to my poor decisions, I was not sure how quickly it was forming or just how much was enough to put us into a situation that would make it impossible to maintain altitude. I am very thankful to have made it out of this situation safely. One of the worst attitudes to have in these situations is "[get-there-itis](#)," something I have been taught from the beginning of my flight training. I experienced first-hand why operational pitfalls are preached to flight students. I learned a lot from this experience and I will never again get into a situation like this with such a [poor plan](#).

<http://www.gpo.gov/fdsys/pkg/FR-2012-05-16/pdf/2012-11592.pdf>

NTSB Makes ATR-42 Stick-Pusher Recommendations To FAA, EASA

[Move Tied To An Accident Which Occurred In 2009](#)

Following the investigation into an accident which occurred on January 27th, 2009, in which an ATR 42 went down on final approach to Lubbock, TX in icing conditions, the NTSB determined that the stall-prevention system on the airplane [was a contributing factor](#) to the accident. The board also cited [poor airspeed management](#) on the part of the pilots of the cargo flight, both of whom survived the accident. Flight Global reports that the letter sent by the NTSB to both regulatory agencies points out that the stall prevention system in the ATR-42 did not require a stick pusher function for certification of the airplane, the board "has long recognized that the certification standards [do not capture](#) real-world icing conditions."

The Board has recommended to both the FAA and EASA that they require that Avions de Transport Régional (ATR) 42-series airplanes operating in the United States incorporate a revised stickpusher activation angle of attack (AOA), such that the stick pusher activates before the stall AOA in the presence of airframe ice accretions.



It goes on to recommend that all U.S.- and European-certificated transport-category airplanes equipped with stick pushers be evaluated to ensure that the stick pusher activates at an angle of attack that will provide adequate stall protection in the presence of airframe ice accretions.

What Your Employees Really Want (It Might Not Be What You Think)

Forget more money and better benefits.

We think that is what people need, to which most managers and leaders say – “I can’t give them more” or “That’s out of my hands.” The [good news](#) is those aren’t the things that will move the needle. A recent (February and March of 2012) Career Builder survey of 5,772 full-time workers in many industries, found that 28 percent said the success benchmark would be earning \$50,000 to \$70,000. And 23 percent put that mark at less than \$50,000. For a tenth, success equals \$150,000 or more.



And even if you think your people are different, consider this... After you get a raise, even if it is what you really want (like a new car), pretty soon that new wage (or car) is no longer a motivator – [it is the new normal](#).

If you want to raise commitment, productivity and increase people’s “work ethic” (that is worth a post on it’s own), think about [these factors](#) instead.

A Reason Why. [People want to do work that matters](#). Help people see the big picture in their work. Connect their work (or help them connect it) to the larger, aspirational mission of your team or organization. This bigger picture will make a big difference.

[Clear expectations](#). We all want to know what is expected – what a target for success is. If expectations change, let people know – and engage them in that conversation. How can people meet your expectations if they don’t know what they are? Do they know?

[Relationship](#). People don’t want to work for a paycheck, they want to work for and with people. That goes for you as their boss and their co-workers. How often do you share a kind word, give specific encouragement, or check in to see what they need? These mean more than you will ever know – unless you realize how much they matter from your boss.

Targets. Human beings are goal oriented beings. Give people something to shoot for. When these targets are connected to the big “why,” magic occurs.

Freedom. Even in the most process-oriented and procedurally-focused jobs, there is room for personal approaches. Give people some latitude within the framework. You will get higher levels of commitment, and likely process improvements too!

Input. Ask questions. Shut up. And listen. People have valuable perspectives. They want to share it. So ask for their input and value it.

Future. Help people see themselves in a future they desire – and help them get there. That future may or may not be the one you see them in, so you must ask. Then do what you can to support and encourage them to reach that future.

The best news about all of these? **You have lots of influence over these**, whether you are in the C-suite or a first line supervisor. How can you put more of these things into your employees daily experiences? **Ask yourself that question everyday – and take action on your answers.** You will be amazed at the changes in attitude, performance, and outcomes.

Tales of Mishaps Beyond Aviation

Feds say Metro safety culture to blame for worker deaths

Metro **could have done more** to protect two workers who were killed when a track vehicle hit them in 2010, according to federal safety investigators.

The National Transportation Safety Board has released reports on its investigations into three accidents that occurred at Metro in 2010 and 2009: the accident killing track workers Jeffrey Garrard and Sung Oh, a derailment that stranded 345 riders underground and a slow-speed crash in a rail yard that seriously damaged four rail cars. The safety board did not issue any to Metro, though, saying the transit agency was already addressing **the failures** that led to the accidents.



And it said the [train operators were largely to blame](#) in the derailment and rail yard crash. The NTSB did urge other transit agencies and a [trade group](#) to learn from the accidents, though.

But the reports came just three days after Metro got another reminder about safety, when a Metro worker was struck by a train in a rail yard. The mechanic remained hospitalized in critical condition, [having lost a foot](#), among other injuries.

“Any transit agency must ensure the safety of its employees as well as its passengers,” NTSB Chairman Deborah Hersman said in a written statement.

“These reports underscore the need for [an effective safety management system](#): it must be the central part of an organization’s operating plan and it must be understood and embraced by all employees, at all times.”

The NTSB had pledged to complete the reports by the end of last July, according to a letter that Hersman sent to Sen. Barbara Mikulski, D-Md., last June.

“Sometimes it takes a little longer than anticipated,” spokesman Terry Williams said of the delay.

The reports confirmed the train operator in the derailment had been on the job for only a few weeks after returning from nine years of leave for an on-the-job ankle injury, as first reported by The Washington Examiner. [She was fired for not following procedures.](#)

The rail yard crash was a reminder that the agency’s oldest rail cars are not safe if involved in a crash, as the NTSB had warned before. The train was traveling only 16 mph when it struck the stopped train, but it caused major damage to four rail 1000-series cars in the middle of the train, the report shows.

Metro has been putting the 1000-series cars in the middle of trains since the deadly 2009 Fort Totten train crash as a protective measure, but the NTSB has said it does not make a difference. Metro has said it cannot get rid of the trains as they make up about a quarter of the fleet, but the agency has ordered replacement cars, which should all arrive by 2017.

THE ACCIDENTS:

Nov. 28, 2009: West Falls Church Yard

A train rear-ended a stopped train in a rail yard, causing minor injuries to two Metro maintenance car cleaners on the stopped train and the operator of the moving train. The NTSB blamed the train operator, [possibly because of fatigue](#). He also had a [series of minor safety violations](#) in the past.

Damages: \$9 million in damage to four 1000-series rail cars

Jan. 26, 2010: Rockville

Two veteran track workers, Jeffrey Garrard and Sung Oh, were killed when a special truck running backwards on the tracks outside the Rockville station hit them. The truck was traveling at about 13 mph when it hit the two men, but the alarm that was supposed to sound when backing up [was deactivated](#). The NTSB blamed multiple communication problems and inadequate safeguards to protect track workers.

Feb. 12, 2010: Farragut North

A Red Line train derailed on a sidetrack outside the station, stranding 345 riders underground. The NTSB blamed the operator, [who was fired](#).
Damages: \$174,000

Drink Up!

[Dehydration can drain your mind and mood](#)

Feeling out of sorts but not sure why? You might be dehydrated. Two new studies found even mild dehydration comes with [big consequences](#): altered mood, memory, trouble concentrating, fatigue, headaches, anxiety. While the reasons for these symptoms are unclear, researchers at the University of Human Performance Laboratory noted that dehydration cause changes in electrolyte balances in the blood as well as serotonin levels in the brain, which can affect memory and mood. [How to tell if you're hydrated?](#) Check the color of your urine. "Anything darker than a pale, straw hue means you need to drink more," says study author Lawrence Armstrong, Ph.D.



FAA Proposes \$206,550 Civil Penalty Against Martinaire Aviation

The Federal Aviation Administration (FAA) is proposing a \$206,550 civil penalty against Martinaire Aviation, of Addison, Texas, for violating U.S. Department of Transportation Hazardous Materials Regulations.

The FAA conducted [a comprehensive hazardous materials inspection](#) at the company's headquarters on July 8, 2011. As a result of that inspection, the FAA alleges the airline [routinely failed](#) to complete documents properly and comply with the requirements for notifying pilots in command about hazardous materials transported as cargo. The allegations involve 17 shipments of hazardous materials Martinaire accepted for transportation by air on 12 flights between April 1 and June 22, 2011. Martinaire is a scheduled air cargo and cargo charter company. The flights operated between various cities across the country.



Martinaire has 30 days from the receipt of the FAA's enforcement letter to respond to the Agency.