

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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Investigators Point to Defective Speed Readings in An-148 Crash

MAK investigator reviews aircraft recorder data from Saratov Airlines crash.

Russian aviation accident investigators have [released preliminary analysis](#) of the possible cause of the fatal Saratov Airlines Antonov An-148 flight that crashed outside of Moscow Sunday. After reviewing data retrieved from the aircraft's flight data and cockpit voice recorders, Russia's International Aviation Committee (MAK) [believes icing on the pitot tubes](#) caused a difference in airspeed readings between primary and standby air parameter modules.



Saratov Airlines Flight 703 crashed near the village of Stepanovskoe, minutes after taking off from Domodedovo Airport headed to the city of Orsk in Russia's Orenburg region. The 65 passengers and six crew members onboard were killed, according to a report from the Russian Emergency Situations Ministry. The regional jet also disappeared from radar and radio connection with the crew was lost, according to the Emergency Situations Ministry.

MAK's preliminary analysis of flight data recorder (FDR) indicated that there was either a problem with the [aircraft pitot tube heating system](#), or the flight crew failed to [activate the system](#), which led the tubes to provide erroneous speed readings to the digital flight control system.

When the aircraft reached an altitude of more than 4,200 feet, a "dangerous situation" started to occur with the airspeed indicator reading between 251 and 254 kt, according to MAK.

At approximately 4,265 feet, there was a disagreement in speed readings indicated by the air data module on the left pilot's station and the standby air data module. There was also a disagreement in height readings from the same sources, although MAK said that disagreement was not "significant."

Less than a minute later, the disagreement in the speed readings increased significantly and a “MATCH IAS” warning was generated to the flight crew for some 10 seconds before disappearing, indicating a [faulty speed reading was occurring](#).

Nearly a minute later, at 6,561 feet, the same warning message was generated by speed received from the standby air data module continuing to increase, while the speed reading received from the air data module at the left pilot’s station continued to decrease.

The same annunciation was generated again, and the flight crew disengaged the autopilot, continuing the rest of the flight in manual mode.

After disengaging the autopilot, the speed reading at the left pilot station continued to decrease, eventually reaching zero, while the speed received from the standby air data module showed a speed reading of between 291-311 kt.

MAK investigators have cross-referenced analysis of the Antonov regional jet’s FDR data with studies of “similar accidents in the past” and determined preliminarily that the “in-flight emergency situation might have been caused by the incorrect speed readings shown on the cockpit instrument panel, which in their turn could be related to the [Pitot probes’ iced condition with the heating system set to OFF](#).”

As the investigation continues, MAK investigators are focused on studying the cockpit voice recorder data to determine what actions the pilots took in responding to the cockpit airspeed warnings. They will also study [standard operating procedures](#) related to the aircraft’s pitot probes heating systems.

Aircraft fragments are still being recovered for further examination.

<http://mak-iac.org/en/rassledovaniya/an-148-100b-ra-61704-11-02-2018/#116666>

BEA issues report on October 2013 Fokker F-27 loss of propeller and partial engine separation

A Fokker F-27 cargo plane was damaged in an accident near Paris-Charles de Gaulle Airport (CDG), France.

Europe Airpost flight FPO5921 departed Paris-Charles de Gaulle Airport (CDG), France at 01:22 hours local time on a regular night time mail flight to Dole-Jura Airport (DLE), France.

While climbing through an altitude of 1300 feet, the flight crew heard the sound of an explosion from the cargo hold. Visual and aural alarms warned the crew about an issue with the left hand (no. 1) Rolls-Royce Dart 532-7 engine.

They declared an emergency and attempted to activate the fire extinguisher on the no.1 engine. However, this switch was blocked. The captain looked out the window and observed that the fire had stopped and the left engine was **partially missing**. The plane remained controllable and the crew turned back and landed without any further problems at Paris-Charles de Gaulle Airport. The forward portion of the left engine and the multi-split propeller were found in a field beneath the initial climb centerline of runway 09R.

Probable Cause:

Fatigue failure of the blade root

The no. 2 propeller blade root on the left engine failed due to fatigue, resulting in separation from the propeller hub and then interaction with the no. 1 blade and its disconnection from the propeller hub. The imbalance created by the loss of these two blades led to the front part of the engine being torn off.

The cause of the fatigue cracking **could not be determined with certainty**.



The following **may have contributed to the fatigue fracture** of the propeller blade root:

- insufficient preloading of the propeller, increasing the stress exerted on it. **The lack of maintenance documentation made it impossible** to determine the preload values of the bearings during the last general overhaul;
- the presence of manganese sulphide in a heavily charged area of the propeller. The presence of this sulphide may have generated a significant stress concentration factor, raising the local stress level.

The tests and research carried out as part of this investigation show that the propeller blade root is made of a steel whose microstructure and composition are **not optimal for fatigue resistance**. However, the uniqueness of the rupture more than 50 years after commissioning makes it unlikely that the rate of inclusions, their distribution, size, or sulphur content of the propeller is a contributing factor in the accident.

NTSB Docket: Copilot Flew Accident Leg, Against SOPs

The captain of the Trans-Pacific Jets Learjet 35A that crashed during a circling approach to Runway 1 at Teterboro Airport on May 15, 2017, **violated company policy** by allowing the copilot to be the pilot flying (PF) on the accident leg, according to a newly opened NTSB docket file. Both pilots were killed when the twinjet broke apart and burst into flames on impact in a crowded warehouse area in Carlstadt, New Jersey. No passengers were on board and no one on the ground was injured. Trans-Pacific had a policy of designating new or low-time pilots with an SIC status—ranked from zero to four—that restricted the type of flying they were authorized to conduct for the company. The copilot—whom the 60-page cockpit voice transcript in the docket identifies as the PF for all but the last 15 seconds of the accident flight from Philadelphia International Airport to Teterboro—was rated as **SIC-0**, meaning “may only perform SIC duties as pilot not flying (PNF).”



In addition, [the human factors report](#) raises questions about both pilots' abilities and adherence to company procedures, and previous colleagues with whom the captain had flown as first officer questioned his readiness to upgrade. The docket does not state the cause of the accident, but contains 48 individual records comprising more than 800 total pages documenting factual details established during the investigation. Witness statements, detailed training and employment records for both crewmembers, aircraft checklists, weight-and-balance calculations, and a detailed meteorological analysis are also among the materials collected.

<https://dms.nts.gov/pubdms/search/hitlist.cfm?docketID=60373&CFID=1479093&CFTOKEN=1ee3edc132deacc4-6FEBBE90-9B6B-FFF6-4BB1D7E1A8C1647A>

Pilots Let Corporate Jet Slow Too Much Before Fiery Crash

Two pilots flying a corporate jet that crashed last year near Teterboro Airport in New Jersey [were too slow on their approach](#) to the airport, according to investigation reports released on Wednesday.

The Learjet 35A, a twin-engine jet often used for business or personal travel, plunged out of the sky on May 15 as the pilots were trying to land at Teterboro near New York City, according to the National Transportation Safety Board. The crash killed both pilots. No one else was on the flight.

The pilots allowed the plane to become too slow on the approach, causing an [aerodynamic stall](#) that left the wings unable to keep the plane aloft, according to the NTSB's preliminary data.



"Airspeed, airspeed," the copilot said seconds before the crash as the captain uttered an [unspecified curse](#). The NTSB transcribes cockpit recordings and notes where expletives were used, but does not identify the specific words.

While the NTSB hasn't concluded the cause of the accident, the preliminary reports raise numerous questions about the pilots and their actions.

They violated speed restrictions at least once on the short flight from Philadelphia to Teterboro, according to the reports. Both had also failed skills tests previously in their careers, according to NTSB.

A recording of the cockpit [conversations were laced with salty language](#), according to the NTSB transcript.

Early in the flight, after an air-traffic controller asked the pilots how fast they were going and they had to slow the plane from 299 miles per hour to the legal limit of 288 miles per hour, the captain used two expletives when he said that he had "violated" airspace.

The NTSB will issue its final report after analyzing the 829 pages of preliminary data released Wednesday.

<http://go.usa.gov/xnsUu>

Baggage mix-up put flight safety at risk

Aer Lingus put new procedures in place after the incident in 2015

The incorrect loading of baggage at Dublin airport led to an Aer Lingus flight taking off with its centre of gravity [outside recommended safety limits](#).

The mistake, which occurred on an ATR-72 Aer Lingus aircraft on a scheduled flight to Rennes on July 23, 2015, was classified as a “serious incident” by officials from the Air Accident Investigation Unit (AAIU).



AAIU inspectors said that the operation of an aircraft outside its loading limits could seriously affect its handling during flight and could lead to a loss of control by a pilot. The loading error was only discovered after the flight, which had 61 passengers and crew on board, landed safely. An AAIU report into the incident, which has just been published, found that the passenger baggage was placed in the rear baggage hold instead of the forward baggage hold.

Documents completed by ground handling crews incorrectly recorded that the luggage, 32 items totaling 421kg, had been placed in the forward hold. The Aer Lingus captain told inspectors that the aircraft felt “tail heavy” on take-off.

The agent working for the baggage-handling company responsible for loading the Rennes flight said he believed a dispatcher had instructed him to load all baggage in the rear hold. He admitted he had not checked a loadsheet that would have indicated all items should have been placed in the forward hold. The dispatcher who completed the loadsheet accepted that he did not confirm with the agent where the baggage had been placed or check the holds himself.

After the incident Aer Lingus put in place new operating procedures to ensure the loading was visually checked against the loadsheet before aircraft doors were closed.

Aer Lingus informed the AAIU that it had documented **16 other occurrences** up to September 2017 at various airports where baggage was placed in the wrong hold during loading. The mistake occurred on four occasions at one unnamed airport and more than once at five airports. However, the AAIU said the errors had been identified in all but one case by the pilot before take-off. "In no case did an aircraft depart incorrectly loaded," the AAIU said.

The AAIU said the Rennes flight was **completed under time pressure** due to the late towing of the aircraft onto its stand.

Airbus stops A320neo deliveries on safety fears

Airbus has halted all deliveries of its Pratt & Whitney-powered A320neo after the latest disclosure of **flaws with the next-generation engine**, according to the company's biggest customer for the aircraft.

IndiGo, India's biggest carrier, said on Saturday that it had withdrawn three affected aircraft from service and cancelled some flights after the European Aviation Safety Agency warned of a new issue on the troubled engine program that may be connected to several in-flight shutdowns. The investigation to determine the root cause continued, the agency said.

The product safety boards of Pratt & Whitney and Airbus had decided that "all neo deliveries are postponed till further notice", IndiGo spokesman Ajay Jasra said. "Airbus and Pratt are working in close co-operation and will be communicating on the way forward to regain normal operations and resume aircraft deliveries."

The disclosure is a blow to efforts by Pratt, a unit of United Technologies, to restore confidence in its most important product after a series of glitches on the engine.



It comes after Airbus CEO Tom Enders had started to signal his confidence that the turbine's troubles had been coming to a close.

The European regulator said operators with aircraft using two affected engines must stop flying them within three flight cycles. Aircraft with one affected engine are restricted from certain extended-range flights.

As many as 11 of the 113 delivered Pratt-powered aircraft had been grounded, said informed source, with 43 in-service engines affected in total, all from the most recent batches to come off the engine maker's production line.

More turbines at both Airbus and Pratt facilities were affected, they said. A spokesman for Airbus was not immediately able to comment when contacted.

Airbus [has suffered missteps](#) with its latest aircraft, ranging from delays for the A350 stemming from seat glitches to engine issues afflicting its upgraded A320neo and A330neo models.

Its customers have also become less forgiving about performance standards as schedules tighten and airlines squeeze more flight hours out of their aircraft.

FAA Releases Guidance On Assessing English Proficiency

The assessment is based on a person's English proficiency across six skill areas of linguistic performance.

In an effort to better define what it means to "[read, write, speak and understand the English language](#)"—for purposes of airman qualification standards—the FAA recently adopted international language proficiency standards.

In response to an increased focus on [human factors](#), the International Civil Aviation Organization (ICAO) published a grading system for assessing English language proficiency in certificated airmen in 2014. The ICAO language scale defines six > levels of proficiency ranging from pre-elementary (Level 1) to expert (Level 6).

The assessment is based on a person's English proficiency **across six skill areas** of linguistic performance: pronunciation, structure, vocabulary, fluency, comprehension and interactions.



ICAO has deemed **Level 4 as the minimum level acceptable** to ensure safe operations, so the FAA Aviation English Language Standard (AELS) adopted the same level as the minimum English language proficiency standard for those holding an FAA certificate.

In 2017, the agency revised Advisory Circular (AC) 60-28, English Language Skill Standards Required by 14 Code of Federal Regulations (CFR) Parts 61, 63 and 65 and more recently added a dedicated section to its inspector guidance. The AC introduces the AELS and reproduces ICAO Level 4 proficiency requirement descriptors. The order adds in assessment and testing examples, as well as a process for evaluating currently certificated individuals when English proficiency qualifications are called into question.

If an inspector **has a reasonable question** as to whether a mechanic or repairman meets the language standard, the order suggests issuing a letter of reexamination, which may include a request that the individual's certificate be temporarily deposited with the local office pending reexamination. The certificate holder may then take corrective action (i.e., an ICAO-recognized English course) before reapplying for his or her certificate.

The new inspector guidance can be found in the Flight Standards Information System, Vol. 5, Chapter 14.

What is the Best SMS Tool? – YOU ARE!

Do you remember the old U.S. Army recruiting posters depicting “Uncle Sam” and the slogan, “I Want You”? It might be a throwback to a challenging time when our nation was in the perils of war, but I think it is loosely relevant today when we [consider what more can be done](#) to benefit aviation safety. Certainly, if you consider that aviation was just in its infancy when those Uncle Sam posters were being circulated, we have made enormous progress with improving reliability and performance with these awesome flying machines. However, I challenge that we still have far to go to achieve even [higher levels of positive safety outcomes](#) in our flight and ground operations – and it involves **YOU!**



For almost 20 years, much work has been accomplished in the aviation industry to promote the implementation of the [Safety Management System \(SMS\)](#). Its understanding and acceptance has been slow to take hold among general aviation, but it has clearly been [a meaningful contributor](#) to the improved safety record of air carriers worldwide. Within the FAA’s SMS framework, systems are described as “integrated networks of people and other resources performing activities that accomplish some mission or goal in a prescribed environment.” This cohesive unit of people is intended to comprise all levels of the organization, not just a select few charged with sustaining their SMS. Having worked with numerous operators, I often see a weakness with how an organization’s people effectively interact with one another as well as a deficiency in how active those participants are in their safety initiatives. SMS compels organizations to examine how they conduct their operations and the decisions made involving those activities. Without everyone’s genuine involvement and commitment this effort frequently falls short of the intended goals and allows for vulnerabilities in their process. These potential gaps can enable the organization to have [a false sense of security](#) and thus expose itself to unnecessary risk.

So, what can YOU do about it? A lot! It includes several key attributes that everyone from the top-down and bottom-up need to fully embrace in their SMS process:

- Engagement
- Attitude
- Decision making
- Accountability

Engagement

When our workforce is actively engaged and motivated, our business (and SMS) benefits tremendously. Our people and their ability to contribute are one of the principal assets an organization has. The author Jim Collins said in his book *Good to Great*, “There’s a huge difference between the opportunity to ‘have your say’ and the opportunity to be heard.” He further adds that by creating a culture wherein people can be heard, ultimately the truth will be heard. This is very powerful and becomes critical for enabling effective collaboration with continuous improvement activities, identifying root causes, and implementing corrective actions. Having a positive work environment facilitates an organization’s employees to want to be involved and seek out proactive ways to manage risk in a systematic approach. Sidney Dekker once stated, “The question that drives safety work in a just culture is not who is responsible for failure, rather, it asks what is responsible for things going wrong.”

Attitude

No one likes to work with someone who has a bad attitude. That situation can be stressful and frustrating, and can negatively affect other people or even an entire organization’s performance. Successful companies work very hard to foster positive attitudes among their workers. They emphasize that learning opportunities are valued and are an important element to future success. The Federal Aviation Administration (FAA) identifies five hazardous attitudes: anti-authority, impulsivity, invulnerability, macho, and resignation. There are several others to consider such as complacency and lack of empathy.

It is important for individuals, co-workers and leadership to recognize these mindsets and help to take measures to prevent their intensification. Individuals with hazardous attitudes are more willing to reject constructive feedback, take shortcuts, be less aware of others’ negative habits, push the limits, and be more susceptible to external pressures. Each of us is responsible for taking a positive approach to how we perform. We also need to collectively help one another to motivate and sustain healthy safety attitudes.

Decision Making

Wilbur Wright once wrote, “In flying I have learned that carelessness and overconfidence are usually far more dangerous than deliberately accepted risks.” This viewpoint is quite profound considering when he made his remarks – long before SMS and proactive risk management were ever envisioned. He instinctively makes reference to decisions surrounding the assessment of hazards we may encounter (as well as negative attitudes). In AC 60-22, the FAA defines aeronautical decision making as a “systematic approach to the mental process of evaluating a given set of circumstances and determining the best course of action.” This course of action can be challenging, especially when under pressure or overwhelmed with excessive information and/or tasks.

Individuals need to prepare themselves as much as possible ahead of time to diagnose potential hazards and enable a smoother transition as new information is received or issues develop. The active decision making process can be broken down into three basic steps: anticipate what could go wrong; recognize when something has gone wrong; and act by evaluating your options and choosing one (from AOPA Safety Advisors). Simply put by AOPA “good decision making is about avoiding the circumstances that lead to really tough choices.” The more effective organizations and their personnel can be at evaluating the severity and probability of hazards, the better they will be at making risk-tolerant decisions.

Accountability

In an effective SMS, all levels of the organization are equally accountable for the proactive approach to risk management and safety assurance. It certainly starts with quality leadership that inspires employees to do their best and empowers them to openly question abnormalities or nonconformities. Accountable executives need to demonstrate their commitment to a successful SMS through established policy, effective communication, clear vision, and modeled behavior.

Accountability also involves the enlistment of stakeholders or stewards that share in the company’s core values and will champion the right causes. Companies need individuals who have strong character traits and innate capabilities that result in them “...doing the right thing even when no one is watching.” (C.S. Lewis). Sidney Dekker also stated, “But accountability is about looking ahead. Not only should accountability acknowledge the mistake and the harm resulting from it, it should lay out the opportunities (and responsibilities!) for making changes so that the probability of such harm happening again goes down.”

Recognizing an institutional crisis due to 18 Class A mishaps that year, the leadership of the Marine Corps enacted a number of changes to policies and procedures aimed at turning the tide of a completely unsustainable mishap trend. The effort worked in that 2009 and 2010 were the **safest years on record for Marine Corps Aviation with only four Class A mishaps during each of those years**. Since then, however, the Class A mishap rate **has slowly crept back up** to its current level. The commercial airline industry experienced its **own period of institution safety crisis**. In the 1970s, 101 people died aboard Eastern Airlines Flight 401 after it slowly descended in darkness and crashed into the Everglades while the aircrew attempted to troubleshoot a problem; 10 people died when United Airlines Flight 173 ran out of fuel and crashed in Portland, Oregon while the crew also attempted to troubleshoot a problem; and 583 people died when two Boeing 747s collided on a fog-shrouded runway at Tenerife Airport in the Canary Islands. Recognizing the problem, the airlines enforced change, and in the decades following, have been continuously improving their risk-management tools. These landmark accidents gave rise to the most notable **aviation risk management tool: Crew Resource Management, or CRM**. In essence, CRM's goal is to train the aircrew to work as a team, communicate effectively, and utilize all available resources to address problems in the cockpit. In 2017, commercial airlines in the United States marked their eighth consecutive year with no fatal accidents.

By contrast, the Marine Corps' aviation risk-management tools **have become stale and lack the energy** to stop mishap rates from rising. For example, the substance of CRM in the Navy and Marine Corps — the seven critical skills of decision-making, assertiveness, mission analysis, communication, leadership, adaptability/flexibility, and situational awareness — has remained unchanged over decades. Even in the record-setting years of 2009 and 2010, three-fourths of the Class A mishaps were due to **aircrew error that could have been mitigated by effective CRM**. CRM within the commercial aviation industry has **evolved** with time and technology trends. In this regard, the Navy and Marine Corps should follow the airlines' example of effective risk management.

First, scrap all current models for training and evaluating aviation risk management. The current mishap trend presents a needed opportunity to fuse best risk-management practices and innovative ideas from across all services, the airline industry, the cargo aviation industry, air traffic control centers, and senior or retired aviators of all backgrounds to determine what is effective, >

what is intellectually challenging, and what pushes aviators and aviation support activities out of “comfort zones” that facilitate numerous incidents. If flight time is still going to be scarce and budget environments constrained for aviation support activities, aviators need the risk-management substance that challenges their fundamental risk management skills for today’s environment.

Second, the tools of teaching risk management have to evolve with the substance evolution of risk management. Risk mitigation cannot be relegated to checklists and score cards alone. Risk management is a “living and breathing” decision tool; it is perpetual, it has to be mentally challenging, and it needs to be taught that way. The difficulty in implementing risk-management teaching and training is that the concept of risk mitigation can sometimes feel counter to the offensive mindset that is a source of pride for Marines, but the current situation demands wholesale change.

Finally, challenging risk-management training has to extend to every stakeholder in aviation. This includes aircraft maintenance crews, air traffic controllers, airfield operations crews, airfield maintenance crews, and crash and rescue units. One example of a program that can help mitigate the current mishap trend is Maintenance Resource Management, or MRM. MRM, like CRM, is a program designed to facilitate communication, teamwork, and problem resolution among airplane maintenance crews. Both the Coast Guard and the Air Force have instituted these types of programs to address maintenance safety issues. Effective risk-management instruction cannot be the private property of aircrew alone. Instead, it must extend to every element of aviation that has an impact on the safe operations of airplanes.

With the fielding of the Joint Strike Fighter, the transition of almost every airframe, a challenging budget environment, and the same operational commitments, 2017 should serve as **a massive call to action** for decision-makers to provide the right mechanisms for aviators and support staffs functioning in this environment to be safe in accomplishing missions. Especially since this appears to be the “new normal” for the foreseeable future, an energetic response is critical to address all of what occurred in 2017. If the response is anything less than that of the offensive mindset that is the pride of Marines everywhere, this same conversation will occur at this time next year.

https://taskandpurpose.com/neller-aviation-mishap-flying-hours/?bsft_eid=6bf83495-323c-4e87-a849-2a6f864fd212&utm_campaign=tp_daily_thursday_pm&utm_source=blueshift&utm_medium=mail&utm_content=tp_daily_pm_ricks&bsft_pid=8c8a0994-93d2-4eb6-8c96-e4d840660163&bsft_clkid=348c81c1-d408-4bc3-a484-682afd729f49&bsft_uid=2f2a37cb-cb90-4ac6-af87-666f67fbc621&bsft_mid=f1607e6d-3d84-493e-95d6-46615576cf3a&bsft_pp=1

http://www.narcap.org/Associated_Research_docs/Pub235.pdf

Safety Tip

Better The Devil You Know Than The Devil You Don't

What's at Stake

Our sly, unknown devil here **is noise** because it causes a host of health problems, with painless symptoms that help them **progress unnoticed** until it is too late. Even more disturbing is that the ears become accustomed to noise and the brain accepts it as normal, after a short while. **Do not be fooled**, noise-induced hearing loss cannot be reversed!



Damage from **long-term exposure** to excessive noise includes deafness, tinnitus (ringing in the ears), anxiety, depression, stress, and headaches.

How Workers Can Prevent Hearing Loss

- Wearing and maintaining all hearing protection provided by your employer.
- Using the right hearing protection for the job, task, or area.
- Participating in your employer's audiometric program and understanding the results of your hearing tests.

- Asking questions about noise levels, hearing protection, and other noise and hearing related issues, as soon as you have a concern.
- Staying informed and watching for warning signs, such as ringing or humming in your ears and temporary loss of hearing when you leave work.

Final Word

Hearing loss is permanent. Once your hearing is gone the damage can't be reversed. Prevention is your only option; protect your hearing while you still

Maintenance Placards

The General Aviation Joint Steering Committee (GAJSC) has identified that attempting to fly in an aircraft **currently undergoing maintenance**, and not yet returned to service, is **a causal factor** in a number of fatal GA accidents. This month's #FlySafe topic suggests adopting informal lock out/tag out procedures to ensure pilots are aware of un-airworthy aircraft conditions.



See the fact sheet here: <https://go.usa.gov/xnsPN>.

Drowsy Drivers Responsible for almost 10 Percent of Crashes

Drowsy drivers are a bigger risk factor in vehicle accidents than previously thought, reports *ABC 7 Chicago*.

And the problem gets worse when darkness falls. The research, carried out by the AAA Foundation for Traffic Safety, found that the “proportion of crashes in which > drowsiness was evident **was over three times as great** during the nighttime hours,” according to Brian Tefft, a senior researcher at the foundation.



The researchers continuously monitored more than 3,500 people from six locations across the US for several months between October 2010 and December 2013, using in-vehicle cameras and other equipment. Of 701 crashes the researchers studied, drowsiness was a factor in 8.8 percent to 9.5 percent.

[Get the full story at abc7chicago.com](http://abc7chicago.com)

TED: Ideas Worth Spreading

George Steinmetz's spectacular photos show Africa from the air, taken from the world's **slowest, lightest aircraft**. Join Steinmetz to discover the surprising historical, ecological and sociopolitical patterns that emerge when you **go low and slow** in a flying lawn chair.



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