AIR RESCUE REPORT

International Commission for Alpine Rescue

Kommission für Luftrettung • Commission pour le Sauvetage Aérien • Commission for Air Rescue

IKAR-CISA

October 9 - 12, 2008 - Chamonix - France

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INTRODUCTION:

This year's congress was hosted by the Société Chamoniarde de Secours en Montagne The Air-Rescue Sub-commission met with members representing 16 countries. They were Austria, Canada, Croatia, Czech Republic, France, Greece, Italy, Norway, Poland, Slovak Republic, Slovenia, South Africa, Spain, Sweden, Switzerland, and United States of America.

ACCIDENTS & INCIDENT REVIEWS FROM MEMBER COUNTRIES:

France – Accident, Rotor Strike. While on a high angle rescue on the Swiss Route of the Grand Capucin in the Mont Blanc Massif, an Alouette III of the Securite Civile experienced a main rotor strike. A climber had experienced a 40 metre leader fall and sustained serious injuries. Two rescuers were hoisted onto the accident site separately. Given the steepness of the terrain, all available 40 metres of hoist cable were used. Given the severity of the injuries, the rescuers requested that the doctor attend the scene. While the crew was hoisting the doctor towards the ledge, the main blades of the helicopter struck the granite wall. The doctor was down 30

metres. The pilot struggled to maintain control of the aircraft and pulled away from the wall. The hoist operator told the pilot he would take care of getting the doctor back on board while the pilot performed an emergency landing. The pilot headed immediately for the glacier below and was able to land the aircraft safely after running it on over 50 metres horizontally. The hoist operator was able to get the doctor back inside before the helicopter hit the ground. During the debrief, the crews commented that with additional cable length, they would have had a larger margin of safety. The victim was a trained mountain guide rescuer known to the rescue crew. To complicate the operation, there were other climbers above the helicopter during the hoisting operation.

France, accident, crash

An AS350B3 crashed on take-off in the Chamonix area. The helicopter lost power while it was climbing and crashed on a glacier. There were two important factors that allowed the pilot to escape with minor injuries. His helmet prevented him from sustaining head injuries and the crash absorbing seats minimized back injuries.

United States- INCIDENT UPDATE

The U.S. Coast Guard released their “final report” on the February 11, 2006 helicopter rescue accident, which took place along the Humboldt Coast of California. The accident involved a USCG HH-65 Dauphin, which responded from Air Station Humboldt Bay with crew of four to an 18-foot boat capsized in the surf with four persons in water. Finding an 82 year-old female in cardiac arrest, the rescue swimmer was deployed from the helicopter. The rescue swimmer moved the victim to the beach and conducted CPR. As the helicopter re-positioned over the remaining victims, the number one engine suddenly shut

down resulting in a *"rapid power loss".* The helicopter crashed from a 25 foot hover into shallow water 40 yards from shore, where all three crew members exited uninjured and reached the beach. Two of the four original rescue victims died.

The USCG Report has identified that the co-pilot was in the process of moving from the cockpit to the aft cabin, in order to be hoisted into the surf. During this movement, his flight helmet accidentally snagged the engine fuel flow control lever overhead. *"The copilot was focused on not making contact with the primary flight controls and failed to adequately judge clearance to the overhead console."* A lack of policy was in place for this acknowledged procedure. For years the in-flight movement from the cockpit to the cabin was an "unofficial practice" used to carry out missions. The USCG has now validated the need for this procedure and will develop a formal policy with associated training.

United States- Accident

On December 30, 2007 AIR EVAC LIFETEAM Bell 206 L3 crashed near Cherokee, AL, in the Freedom Hills Wildlife Management Area, while assisting in the search for a missing hunter. According to the NTSB, *"the flight was a voluntary mission, as the operator would not receive payment for the flight unless the hunter required air transport to a hospital."* The helicopter crewmembers had located the missing hunter with a spotlight and intended to illuminate him till ground rescuers reached him. The helicopter was about 100-150 feet above the trees, and in a hover or very slow flight, when the witnesses heard a decrease in engine noise, followed by an increase in engine noise. They then observed the helicopter spinning right, with a "fireball" near the engine exhaust, as it descended vertically into wooded terrain. The pilot, paramedic and nurse were all killed in the crash at 0306 hours.

United States- 2008 HEMS Accidents

During 2008, as of December 1, there were tragically 12 HEMS accidents (8 involved fatalities), which included 29 fatalities. According to the NTSB, the most previously killed in HEMS accidents during a single year, was 18 in 2004. This tragic year included the following accidents; (red text denotes fatal accident)

Feb. 5- Valley Air Care AS350 B2 crashed at 2054 hours in a bay near South Padre Island, TX. The Pilot, flight nurse and paramedic were killed.

May 10- University of Wisconsin Med Flight EC135 crashed at 2245 hours near La Crosse, WI, following transfer of patient with intracranial hemorrhage. The pilot, a physician and a nurse died.

Aero Med Accident in Grand Rapids. MI

May 29- Aero Med S-76A crashed at 1101 hours on Spectrum Hospital roof in Grand Rapids, MI. FAA observer and pilot aboard sustained injuries, but exited aircraft before it was consumed by fire.

May 30- Air Methods EC135 P2+ crashed at 2050 hours in a freight yard in Pottsville, PA, while en route to a motorcycle accident. Minor injuries only.

June 8- Bell 407 helicopter crashed at 0248 hours in the Sam Houston National Forest on its way to Herman Memorial Hospital, Houston, TX, killing four people.

June 27- Air Evac AS350 B3 helicopter crashed at 0341 hrs near Ash Fork, AZ., while landing adjacent to highway accident scene in a field where rotor wash created dust cloud. Paramedic on board was injured.

June 29: Classic Lifeguard and Guardian Air Bell 407 helicopters collide in mid-air at 1547 hours near Flagstaff Medical Center in Arizona, killing seven people in clear weather. Both aircraft were in-bound to the hospital with patients aboard.

HEMS Mid-Air Collision, Flagstaff, AZ

July 11- Agusta A109E, operated by AirMed suffered forced landing after a partial loss of engine power on takeoff from Doctors Hospital Heliport, Augusta, Georgia at 1050 hours. No injuries.

Aug. 31- An Air Evac Bell 206L-1 crashed at 1320 hours near Greensburg, IN a farm field shortly after takeoff, killing three crew members aboard.

Sept. 27- Maryland State Police AS365N1 Dauphin crashed at 2358 hours near Forestville, MD in IFR conditions, while transporting two patients. Four of the five persons on board were killed.

Wreckage of Maryland State Police AS365 Dauphin

Oct 13- Arizona DPS Air Rescue Paramedic was killed, when he suffered fatal strike from main rotor of Bell 407 at 1518 hours. Accident occurred during mountain rescue of two uninjured hikers near Sedona, AZ.

Oct 15: Air Angel Bell 222 struck a radio tower wire and crashed at 2358 hours in Aurora, IL. The 1 year-old patient and three crew members were killed.

(Ed Note- The reporting of helicopter rescue accidents typically entails distant locations and circumstances. However the accidents in Flagstaff, AZ and Sedona, AZ caused us to reflect on how small the worldwide helicopter rescue community truly is. Several of these victims were known personally by us. Our deepest sympathies go out to the victims' families of all the tragic accidents listed in this report.)

United States- Near-Miss Incident

One month prior to the Flagstaff, AZ mid-air collision, a hauntingly similar accident nearly occurred in Sacramento, CA. On May 27, 2008 a HEMS CALSTAR BO105T was on approach to Sutter Roseville Medical Center landing pad with patient aboard in clear weather. The aircraft had to take evasive action to avoid a public agency Bell 205 on collision course. The Sacramento Metro Fire Department Bell 205 helicopter never changed course. It was assumed the CALSTAR aircraft was never seen by them. As a result of this incident, CALSTAR officials are working to develop an assigned statewide HEMS radio frequency.

United States- Accident
On September 4, 2008 a U.S. Coast Guard HH-65 Dauphin crashed at about 8:15 pm near Honolulu, Hawaii, off the coast of Oahu, killing the four crew members on board. The aircraft was conducting night-time small boat hoisting drills with a 47-foot motor lifeboat at the time of the accident.

According to media reports, "a distress signal was received from the Coast Guard vessel participating in training two minutes before the accident." Rear Adm. Manson Brown, Coast Guard Sector Honolulu Commander, has stated, *"the line used to lower a rescue basket to the sea apparently malfunctioned."* A USCG official confirmed *"Snagging of the hoist cable was involved. Don't know at this time if it was a factor."* The chopper's fuselage and data and voice recorder were later recovered and are being examined.

United States- Accident
On October 13, 2008 a 36 year-old Arizona Department of Public Safety (DPS) Air Rescue paramedic was killed during a helicopter rescue near Sedona, AZ.

Bruce Harrolle, a 9-year veteran of the rescue unit, was fatally struck by the main rotor blades of the Bell 407 helicopter. The rescue helicopter with pilot and paramedic had responded from their Flagstaff base, at the request of the Sedona Fire Department, to provide assistance in locating two uninjured "stranded hikers" in the Bear Mountain area. While the helicopter responded, Sedona FD personnel visually spotted a male and female couple matching the description and DPS was asked to verify location and identity of the hikers. The DPS crew landed near the hikers on Bear Mountain in a rugged drainage. The helicopter, which is equipped with high skids, landed with both skids on the ground, however the uneven terrain forced the pilot to maintain a "power-on landing" for stability of the aircraft. Bruce escorted the male subject to the aircraft and was in the process of the loading the female hiker, when the accident occurred. As he escorted her to the helicopter, they momentarily became physically separated on either side of a cactus. When they reconnected Bruce stood upright facing the helicopter from the twelve o'clock position and he was struck by the rotor blades.

Hurricane Response, Aviation Lessons Learned, Ken Phillips, Grand Canyon National Park, USA

Hurricane Ike, the third most destructive hurricane ever to hit the United States, made landfall on September 13. The disaster response was managed under unified command with the State of Texas. The response involved approximately 60 helicopters conducting 603 sorties within 72 hours of landfall. A critical resource was the deployment of four USAF Combat Ground Controllers, who provided a link to the military AWAC overhead coordinating the airspace once the hurricane passed. They performed air attack supervision from the ground with a computer linked to radar data onboard the AWAC overhead. Advance planning for the hurricane highlighted pre-established communications and having a temporary flight restriction (TFR) in place. The bulk of the aviation tasking was accomplished efficiently in Houston by the Air Boss, who supervised the "*Joint Air-Ground Coordination Team".* This team was comprised of personnel from all agencies with aviation assets involved in the operational response. This included Customs & Border Protection, TX DPS Aviation Unit, TX Department of Parks & Wildlife, US Coast Guard, TX Military Forces (National Guard), US Air Force and Civil Air Patrol. In review it was felt that having all these aviation managers working face-to-face in one room was the key to facilitating efficient coordination.

Greece- Accident

A Robinson Helicopter crashed during an October 5th rescue attempt on Mount Olympus. This non-fatal crash occurred in windy conditions as the aircraft attempted to evacuate a casualty from the 2,200 meter elevation on the mountain. The light helicopter had lifted off with a limited fuel load on board to increase the allowable weight and the flight crew weight was 140 kg. The aircraft experienced a "downwash" over a ridgeline" and suffered a sudden five meter drop to the ground. The aircraft impacted and rolled on its side. The only injury was sustained during breaking the Plexiglas to exit the aircraft.

Greece- Training Incident

On April 12th an entanglement incident occurred during a heli-rappel training session. As a trainee rappelled from a rented Eurocopter AS 350 helicopter, his shoelace became entangled in an exposed mounting bracket on the aircraft skid. The entanglement was brief as the rappeller was able to free himself and reach the ground. The actual incident was captured on film. The involved rescuer was new and performing their initial helicopter rappel, although they had previous rappelling experience. Following the incident, a rappeller safety check is now conducted by an instructor and prior to rappelling from a helicopter training rappels are conducted from a bridge. It is worth noting that entanglement has been pointed out as a recurring problem in previous IKAR/CISA reports.

Greece- Training Incident

A second rappel training incident occurred when an aircraft seat cushion came loose and was ejected from the helicopter during a hover. The seat cushion became entangled with the heli-rappel rope as the rappeller prepared to initiate their rappel. The seat cushion came loose from the Velcro attachment points in the aircraft and fell directly to the ground without further incident. The aircraft was rented from a commercial helicopter vendor. The post Incident review developed the following corrective actions; provide safety briefing to involved personnel and request pilot remove seats prior to any exercise. Removal of cushions is a manufacturer requirement on AS 350s when flying with door off or open.

Greece- Training Incident

Extreme communication difficulties hampered a hoist training exercise in the Greek Meteora Region. During the training, the pilot of a Greek Military Super Puma had extreme difficulty with inserting rescuer on to the shoulder of a large boulder. In spite of a human relay, ground rescuers were unable to provide adequate radio communications as the helicopter approached the scene due to their radio transmissions being blocked by the terrain. Once over the scene, the pilot worked laboriously for a long time trying to place the rescuer on target. Finally, the rescuer was placed down slope and climbed up the targeted site. Reviewing the incident, it was recognized that during every exercise with the Greek military there is a different aircrew involved. This situation makes it very difficult for rescue personnel to develop solid working relationships. The ground-to-air communications have been improved with the use of three human relays on subsequent training missions at this site. There has been an IKAR/CISA recommendation since 2003 stating “Every HEC operation should be conducted with a proper two-way radio communication system”.

Norway- Incident

A fatal BASE accident in the Trollveggen (aka Trollwall) became complicated during the helicopter recovery effort. Rescuers located fatality by helicopter and then used captured video images to confirm what appeared to be an obvious fatality. A Sea King was then brought in to the scene and was in the process of lowering a rescuer via hoist, when rotor wash filled the BASE jumper's chute causing the victim to be dragged over a cliff edge and sustain an additional 150 meter drop. The post-incident review pointed out the consideration for conducting the rescuer insertion away from the accident scene to eliminate associated rotor wash hazard, during a mission where there is an associated parachute at the accident scene.

South Africa- Training Incident

A dynamic rollout from a hoist hook nearly occurred during helicopter hoist rescue refresher training session on March 2, 2006. Although the incident occurred two years ago, it is being reviewed here following release of an official investigative report.

This training was being conducted by the Mountain Club of South Africa's Mountain Rescue Team (Gauteng) in conjunction with 17 Squadron, South Africa Air Force at Dome Kloof in the Magaliesberg. Two members were being hoisted into an SA330 Oryx Helicopter, which was hovering at a height of approximately 16m (50') AGL. As the two members neared the aircraft (2-3m below the aircraft, 13-14m off the ground) one of them noticed that the figure eight device, to which they were both connected, had undergone a partial dynamic rollout from the hoist hook and was suspended on the lip of the hook. The rescuers decided to complete the hoist rather than try to signal the flight engineer to lower them back to the ground. The hoist was completed and no one was injured. The training session had 11 MCSA SAR members involved, which included two new trainees paired with other team members. Neither of these two "novice" team members was involved in the incident.

The rescuers each had attachment extensions from their harnesses which were connected by carabiners to the large ring of a single common (shared) figure eight abseil device. The small ring of the figure eight was then clipped into the hoist hook, giving one single point of attachment onto the hoist hook. The investigation determined that one of two scenarios occurred. The two rescuers allowed slack to

develop in the system just before they were lifted off the ground, or they were lifted off and then momentarily put back down again, resulting in slack in the system. Once this occurred it is believed that the figure eight became loaded upon the hoist hook latch (keeper). The hoist hook latch was constructed of rolled metal in contrast to the cast cargo hook. The deformed hook latch partially released the figure eight, which instead of falling free from the hoist hook, came to rest on the lip of the hook. The aluminum figure eight, which is a soft metal in comparison, permitted the hoist-hook to gouge a groove in it and ultimately come to rest in that gouged groove.

Post Investigation Follow-Up Actions

- Figure eight is being discarded as a helicopter hoisting connector.
- Adjustment of rescuer sling to no longer than harness-to-shoulder length.
- Rescuers are advised to support the hoist hook assembly under tension till they lifted.
- A standardized set of hand signals for use by rescuers and air-crews during hoist operations will be adopted.
- The MCSA SAR procedure recommends the use of steel twist-lock carabiners for helicopter work. Steel-on-steel components will slip instead of gouging into one another.
- Air-crews should be reminded that the procedure for hoisting is to lift the rescuer using the aircraft collective. Once the rescuer is off the ground they should inspect their connection to the hoist hook, and only when signaled to proceed, raise the rescuer up to the aircraft. If the hoist is used to lift the rescuer from the ground, it is possible that a small but sharp descent by the aircraft could result in a rescuer being put back on the ground. This in turn could result in the entire hoist hook connection to capsize into a hazardous configuration for lifting.

South Africa- Hoisting Incident

During a Mountain Club of South Africa's Mountain Rescue Team helicopter hoist training exercise with a South African Air Force BK- 117 an entanglement was encountered. The BK-117 is equipped with a "Mandela Step" to assist the 90 year-old former President with getting on board the helicopter. During a hoisting evolution the lip of the step snagged the leg loop strap of a rescuer's harness, causing the rescuer to be entangled with sudden and severe compression to the affected leg.

The location of the incident turned out to be fortunate as the rescuer was able to reach up and grab the hoist operator's leg in order to get their attention for immediate assistance. The potential for this step to be an entanglement hazard had been previously considered.

South Africa- Accident

A Bell 206 Jet Ranger crashed during a joint-agency surf rescue short-haul training exercise at 1300 hours on December 18, 2007. The training was being conducted by National Sea Rescue Institute (NSRI) along with a Vodacom Netcare 911 Surf Rescue helicopter. The Jet Ranger ditched in the surf, approximately 50 meters off-shore, near Groot Brak River, between Mossel Bay and George. The pilot, Paul Davidson and the duty NSRI helicopter crewman, Jaco de Jong, safely exited the aircraft and received assistance by the two Vodacom Netcare 911 Surf Rescue swimmers who had been in the surf preparing to be static line hoisted. The two rescue swimmers were not injured in the crash. Preliminary reports indicate that the accident might have been caused by "dynamic rollover." The accident report is pending from the South African Civil Aviation Authority (CAA). Vodacom Netcare 911 Surf Rescue helicopters are based in Durban, Margate, Port Elizabeth, George and Cape Town. Each is crewed by a pilot, a Netcare 911 medic, an SA Lifesaving rescue swimmer and an NSRI rescue swimmer.

South Africa- Accident

On November 21, 2007 a South African made Oryx, which is equivalent to the Eurocopter Super Puma, crashed in the mountains near the town of Wepener. The accident occurred in South Eastern Free State inside the Lesotho border. The aircraft was on a law enforcement pursuit mission when it went down during a high speed tight turn. The helicopter was carrying a total of 19 personnel on board, including the crew, at the time. One police officer died in the crash.

South Africa- Accident

During another law enforcement mission, a police BO-105 suffered a cable strike on July 4, 2008 in the community of Soweto. The aircraft was providing aerial assistance in tracking two fleeing robbery suspects. Based upon evidence at the scene it appears the helicopter struck power lines in the area. The helicopter from the Johannesburg Air Wing joined in the hunt for the suspects as the area in which they were hiding was not accessible by road. All three police officers aboard the helicopter survived the crash and were evacuated to the hospital for treatment.

Switzerland – HEMS accidents

Two accidents were reported with HEMS missions. The first involved a wire strike while transporting through a valley. The helicopter was able to land safely. The crew noted that the wire was not shown on the moving map display.

The second incident with an Augusta 109 Power involved ground resonance. The helicopter landed on a heliport and started to experience vibrations so high that the pilot was not able to maintain control. The vibration was so bad that the main rotor damper separated and flew 200 metres away. Collapse of the main landing gear followed. There were no injuries.

PRESENTATIONS:

New Hoist technology – Bob Strickland, Goodrich Hoists, USA

The latest in hoist technology from Goodrich hoists was presented. The trend is towards dual hoist installation on new aircraft particularly in the heavy category. This is to provide redundancy. It is most prominent in maritime SAR applications such as on the NH90

The new hoist installation on the Agusta Westland AW139 was discussed. A dual hoist installation is available on that aircraft. There is also a trend towards hoists with greater payload (up to 410 Kg), greater fleet angles (45 degrees +) and greater velocities (1.78m/sec). Other features now available include a built in health monitoring system and load sensors. Research is ongoing into developing hoist capability on unmanned aerial vehicles (UAVs)

Pilot Induced Oscillations, Patrick Fauchère, Air-Glaciers Switzerland
A pilot induced oscillation is defined as "an inadvertent, sustained aircraft oscillation as a consequence of an abnormal joint enterprise between the aircraft and the pilot" [McRuer, 1995]. As implied by the name, this phenomena is initiated by control inputs from the pilot. Its causes and techniques on how to recover from this were discussed. This condition is difficult to predict. A video from Croatia of the cockpit of an MI8 experiencing this condition was shown.

Night Sun – Geoff Dinsdale, Breeze Eastern Hoists, UK
A video presentation on the effectiveness of the latest night sun technology was presented. This equipment has 30 million candlepower. There are two models available including a lighter version that is limited to a broad beam. When the light is mounted forward, the pilot looks along the beam whereas when it is mounted aft, the whole area below the aircraft is lighted. This equipment is adapted to the latest generation of aircraft.

Environmental Considerations – Jean-Pierre Brässler, Eurocopter, France
A number of "green" environmental initiatives by Eurocopter were presented. Eurocopter feels that they are at the forefront of these types of initiatives in the industry. For many years, they have looked into quiet technology. Automatic variable speed control is one of those innovations. The Fenestron tail rotor technology has been around for many years and has been improved significantly with the latest aircraft in production. This technology provides significant noise reduction. Eurocopter is a member of the "Clean Sky Joint technology Initiative (Clean Sky JTI). This research project with an estimated budget of €1.6 million is one the largest ever and will be shared by the European Union and Industry. The research will focus on reducing CO2 and NOx emissions, noise reduction and adopting a "green" life cycle in manufacturing and recycling of materials. Initiatives in the manufacturing process include everything from blade, airframe and engine design to practices in construction facilities. It is recognized that this approach is increasingly important not only from an environmental perspective but also form a financial perspective for the manufacturer and the consumer.

Switzerland – COG discussions
The EC 635 is the military variant of the EC135. There were contract discussion between the manufacturer and the Swiss army on the centre of gravity envelope for normal operations. Although grounding the fleet was discussed this did not happen as the issue was resolved by the manufacturer. Recent incidents in Austria with EC135s tipping over backward were a result of human factors. One was a result of not having the skids fully on the ground and the other was a snow landing with the rear of the skids breaking through.

HEC Training Requirements – Gerold Biner, Air Zermatt, Switzerland

The flowchart on the training requirements in Switzerland presented two years ago was used as a template to generate discussion on possible recommendations for criteria to establish training and operational standards. Recommendations could be used to present to the Swiss Federal Office of Civil Aviation (FOCA).

An analysis of the IKAR/CISA reports between 2003 and 2007 revealed a significant number of accidents and incidents with HEC. These included fixed line and hoisting operations. There were a total of 21 HEC incidents including 27 fatalities. These numbers point to a requirement for strict training and operational regimens.

The concept is to have increasingly stringent requirements for Human External Cargo work (HEC). This would require a training progression based on total flight hours, flight hours with non-human cargo and HEC work in varying terrain. A recommendation was made on this topic and can be found on the IKAR/CISA website as # 15.

Training and Safety – Emmanuel Sillon, Gendarmerie Nationale, France

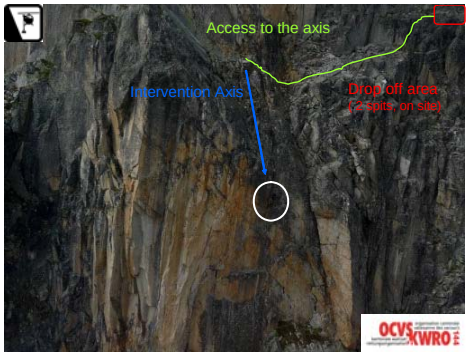
The mountain flying training program in place since 1953 was presented. Between 1958 and 2008, the Gendarmerie Nationale has performed over 100,000 rescue operations across the country. Two the significant events in the evolution of mountain flying was the touchdown of a Bell 47 G2 on Mont Blanc in 1957 and the first rescue mission for the Gendarmerie in 1958 with an Aerospatiale Allouette II also on Mont Blanc.

Training focuses on ground schools and flight training for pilots and hoist operators. Ground school briefings include environmental conditions specific to the mountain environment, mountain flying skills and the operational considerations for the mountain rescuers that will be deployed on the terrain. Training is done on all of the aircraft types. These include the EC 145, the EC135, the Allouette III and the AS350. The later two will soon be phased out. A minimum of 4 flight hours in hoist operations specific to each aircraft is required. The training philosophy focuses on safety, a team approach for the crew and operational capabilities.

Regulations vs Operations – Patrick Fauchère, Air-Glaciers, Switzerland.

In this presentation, the importance of consulting industry regarding operational requirements before drafting regulations was emphasized. The European Aviation Safety Agency (EASA) is in the process of drafting regulations for harness design. This would be done with a European Technical Standard Order (ETSO) for Class D operations. The other debate exists around the proposed JAR OPS 3 regulation for twin engine requirement on all HEMS operations.

Rescue, Petit Clochet – Patrick Fauchère, Air-Glaciers, Switzerland.



The various challenges presented by a rescue operation in technical terrain were presented. Two climbers were off route on this technical ascent. The lead climber fell and sustained critical injuries. He was hanging in his harness upside down in overhanging terrain. The patient was conscious after the fall. A mountain guide on the glacier below heard calls for help and this information was relayed to the rescue centre. A rescue crew operating nearby with an Alouette III responded immediately. Due to the nature of the overhanging terrain and the 40 metre limit on the cable hoist, it was not possible to hoist rescuers directly to the site. A ledge for 40 metres to the side with an existing bolt belay was used. From this point, rescuers traversed across and then lowered to the patient. He was secured and lowered down to where they could be hoisted off. The patient lost vital signs before reaching the base of the wall.

Tail Rotor Control at High Altitude – Karl Ockier, Eurocopter, Germany

This presentation focussed on explaining the phenomena of tail rotor issues encountered by pilots. It was pointed out that modern engines are capable of producing more torque than tail rotors are able to compensate under all conditions. There was technical data presented to illustrate the limitations with tail rotor authority at altitude. One of the important conclusions is that when operating at high power settings, a yaw rate should never be allowed to develop.

Crew Resource Management
Oral presentations were delivered on crew resource management (CRM) programs as well as air medical resource management (AMRM) training programs taught to HEMS crews. The following comments were generated by participants;

- In order to develop compliance with conducting post-mission debriefing sessions, air crews can be required to complete a logbook entry of whether mission was actually debriefed.
- Integrate all rescue personnel as "flight crew members" versus separating them as passengers.
- The U.S. Coast Guard employs the "GAR Model" as a planning tool in assessing risk. This involves quantifying the risk elements and developing a score that places the total risk in a green, amber or red category, which represents low risk, caution or high risk.
- Be aware that the "hero mentality" of one pilot within an organization can cause excessive and dangerous pressure on all other pilots in the organization.
- Rotor & Wing Magazine has provided an excellent "Webinar" on crew resource management, which has been available on the through their website.
- An effective decision-making process employed by Air Glaciers (Switzerland) in deciding to launch on a mission involves "triple security" among crew members. Each crew members answers these questions regarding the mission;
    - Doctor- *Is this a vital risk?*
    - Pilot- *Is the weather okay?*
    - Guide/Rescuer- *Are the hazards okay?*

    - *It was noted that this process works well for night missions, but not as well for day missions.*

Federal Government Follow-up on HEMS Safety, Ken Phillips, Grand Canyon National Park, USA
On June 30 (the day following the Flagstaff mid-air collision), the FAA released a "Fact Sheet" titled *EMS Helicopter Safety*. The following elements were identified as the FAA's immediate focus:

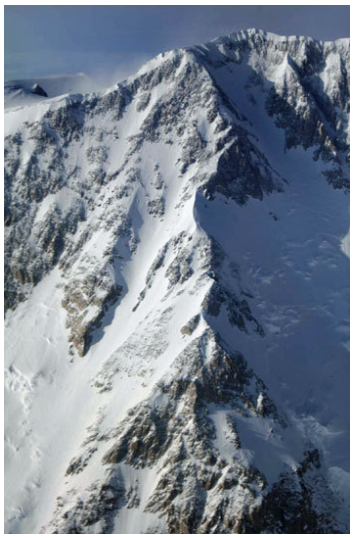
1. Risk management training.
2. Training for night and severe weather.
3. Collision avoidance technology.
4. Airline-type FAA oversight.

Due to the dramatic number of HEMS accidents in the past year, the National Transportation Safety Board plans to hold a three-day HEMS Safety Hearing in Washington, DC starting on February 3, 2009. Witnesses from all EMS communities including pilots, medical personnel, managers and FAA will be involved. Discussions topics at the hearing will include:

- Operational Structure and Models
- Flight Operations
- Aircraft Safety Equipment
- Training
- Oversight

Risk Management Best Practice - Ken Phillips, Grand Canyon National Park, USA

Officials at Denali National Park & Preserve, AK, made a conscious decision to not remove the body of a 51 year-old guided climber who died on July 4, just below the 6,194 meter (20,320 feet) summit along a 152 meter (500 feet) knife-edge ridge. James Nasti became the 101st death on the mountain since 1932. According to the National Park Service, *"considering the high risk involved in such a ground lowering, as well as the excessive risk of a helicopter recovery at this extreme elevation, the National Park Service has determined that the safest alternative is to leave the remains of the deceased climber on the mountain at this time."* Park rangers spoke directly with the victim's wife, who concurred with the plan to leave him there. In 1988, a climber died at an elevation of 19,600-feet on a descent from the summit; the body was not recovered. The site would place the contracted NPS Lama helicopter close to the power margin at 90% torque with one person aboard. The plan was that if this were a live person, a rescue effort would proceed. A lowering operation would require a minimum of six persons and expose them to considerable risk. A body has been recovered previously at 5,243 meters (17,200 feet), however the pre-established "barrier" for a body recovery on Denali is 4,267 meters (14,000 feet),



Joint Session with Medical Commission

A joint session was held with both commissions. One of the works in progress between the two is to develop guidelines for medical certification on HEMS crews. A committee of members from both commissions will prepare a draft before the 2009 conference.

IKAR/CISA 2009

It will be held in Zermatt Switzerland from September 22 to 27, 2009.