



International Commission for Alpine Rescue

2024 ICAR CONGRESS – THESSALONIKI AIR RESCUE COMMISSION FINAL REPORT

By Eva Sophia Shimanski, ICAR Air Rescue Commission Executive Secretary

The ICAR 2023 Congress took place in Thessaloniki Greece, hosted by the Hellenic Rescue Team.

The ICAR Air Rescue Commission (AirCom) presentations and workshops were developed under the direction of ICAR Air Rescue Commission President Charley Shimanski and Vice President Renaud Guillermet. The AirCom program was supported by its Executive Secretary Eva Sophia Shimanski, who has supported the AirCom in this role as a volunteer for the past 6 years, since the 2018 event in Chamonix, providing AirCom meeting management, as well as this report of minutes of presentations, gathering and distributing all presentations, and Audio-Visual support.

114 men and women registered for the AirCom sessions, with more than 120 rescue personnel participating in the AirCom room for multiple sessions. In contrast, 84 rescuers registered for the 2022 AirCom sessions in 2022 in Montreux.

- 126 of the AirCom registrants came from 39 ICAR Membership Organizations
- Our 126 AirCom participants came from 37 Countries
- Our AirCom Registrants came from 51 Partners and Organizations

ICAR CONGRESS PRACTICAL DAY – AIR RESCUE COMMISSION STATIONS

The Air Rescue Commission sessions for the ICAR Practical Day included four sessions organized by Renaud Guillermet, Vice President of the Air Rescue Commission. was organized into three distinct stations with a special lunch demonstration by the Greek Air Force. The first station featured the DRF Luftrettung HoistAR hoist simulator. The attendees first learned about the hoist simulator and then had the opportunity to engage with the simulator firsthand, participating in live demonstrations that allowed them to experience various hoist operations and techniques in a realistic, controlled environment.



The second station introduced a cost-effective alternative for hoist training, where participants were given rope, a hoist hook, a Petzl Lezard, and various carabiners and cord. They were



tasked with designing their own hoist exercise simulation setup as a group. This was followed by a debrief session where they shared the rationale behind their choices and discussed how their agencies approach hoist operations. This hands-on experience encouraged collaboration and knowledge sharing among participants from different organizations.

The third station presented a scenario-based exercise where participants were given a hypothetical situation involving an injured trail runner. In small groups, they discussed how they would approach and execute a rescue, comparing methods and sharing insights on differing operational procedures.

The day also included a demonstration by the Greek Airforce in collaboration with dog handlers from the Hellenic Rescue Team. In this demonstration, the handlers and their dogs successfully located an injured woman, the woman was then transferred to a Greek Airforce helicopter. The aircraft then departed, concluding the demonstration and providing participants with a live example of coordinated rescue efforts.

UPDATE ON ICAR AIRCOM PROJECTS



By: Charley Shimanski (AIRCOM President) and Renaud Guillermet (AIRCOM Vice President)

The ICAR Air Rescue Commission (AirCom) has experienced significant growth, with increased participation from various countries and a more diverse range of presenters. While this expansion has broadened the scope of discussions, it also presents challenges, such as the difficulty of maintaining engaging dialogues during sessions given a larger group and the absence of translators at ICAR events, making English the default language, which can pose barriers for some participants. This was a discussion brought to the group and is

something the AirCom is taking into account for future Congresses.

In the past year, AirCom leadership has been actively engaged in a variety of global conferences and work. Charley Shimanski and Renaud Guillermet have represented ICAR at key conferences, such as the Helicopter Association International (HAI) HeliExpo, the Airborne Public Safety Association (APSA) Rescue Summit, Collins Aerospace Goodrich Hoist USA Operators Conference and Lizard the DRF Luftrettung 4th HHO Symposium. Looking forward, the 2025 Collins Aerospace Goodrich Hoist USA Operators Conference and European Rotors will continue to serve as vital platforms for collaboration, with Renaud also gathering feedback from ICAR members to strengthen partnerships with regulatory bodies like EASA. Additionally, the commission continues its work on projects like the Helicopter-Assisted Rescue at Very High Altitudes Paper and the Interdisciplinary Drone Workgroup, encouraging members to share insights and experiences, particularly in the areas of accident reporting and evolving rescue technologies.



ACCIDENTS AND INCIDENTS DISCUSSION

**By: All AirCom Participants Moderated by
Renaud Guillermet (AIRCOM Vice President)**

This session focused on various types of accidents and incidents encountered in air rescue operations, including rotor strikes, wire strikes, bird strikes, and vortex ring state incidents. A significant challenge highlighted during the discussion was the difficulty in gathering detailed information about such events, with the call for more contributions from participants to help improve safety measures. Eva Sophia Shimanski, the Executive Secretary of the Air Rescue Commission is working on an incident and accident reporting database that will be shared with the commission members with a request to share amongst their agencies.



Incidents that were discussed included an ongoing investigation into a cliff collapse during a rescue operation in France, which may be classified as a rescue accident rather than an air operation accident. Additional examples involved rotor downwash, where a witness was fatally injured by a falling tree, and rockfall during hoist operations that led to injuries. These examples prompted action from both the Gendarmerie and Sécurité Civil to mitigate rotor downwash risks, now incorporated into educational programs. Furthermore, the session highlighted the need to develop a "speak up" culture, encouraging rescuers to voice concerns and evaluate the balance between operational hazards and assets.



Andrzej Gorka (TOPR - Tatra Volunteer Search and Rescue in Poland) shared an incident that occurred on June 22, 2024, during a rescue mission in a narrow alpine valley. The helicopter crew, responding to an injured hiker, initially faced stable weather, but conditions deteriorated rapidly. As the helicopter lowered its hoist for the second time, the aircraft suddenly descended, and the pilot reported a leftward turn, likely caused by a downburst or microburst. One patient, already clipped into the hoist, along with a medic, were yanked down the valley, with the medic hitting rocks. The hoist

operator managed to stabilize the team and prevent further harm, although the cable sustained severe damage as it got caught behind the wheel of the aircraft. The incident underscored the importance of contingency planning and rapid decision-making during hoisting operations in unpredictable weather conditions.

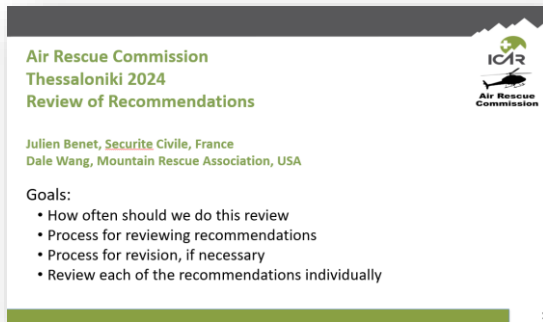
AIRCOM RECOMMENDATIONS

By: Dale Wang (MRA) and Julien Benet (GSM)

This session focused on the ongoing review of ICAR AirCom Recommendations, which had not been revisited since 2016. Led by Dale Wang (USA) and Julien Benet (FR), the task force aimed to evaluate the relevance and effectiveness of each recommendation. Key goals included establishing how often reviews should take place, identifying the process for revision, and



determining which recommendations might need updates. Specific recommendations discussed ranged from public education on safety, the use of instrument flight in rescue operations, and standard frequencies for air-to-air communications during rescue missions across international borders, to more technical recommendations such as hoist operations and the importance of active cable detection systems. For example, the group considered whether Recommendation 0001, which involves public education, should be updated to include more modern technology like cell phones and satellite communication devices.



Participants agreed that reviews should occur every two years, targeting the most critical recommendations rather than all at once. Some recommendations, such as those related to instrument flight and hoist operations, remain relevant but might require updates to reflect technological advancements and regulatory changes, particularly in regions like Europe where new aviation regulations have emerged. The session also highlighted the importance of gathering input from

ICAR members on how these recommendations align with current operations, ensuring that safety and operational standards continue to meet the needs of the rescue community.

Several working groups have been established to develop revisions to some of the recommendations. The proposed changes will be sent to the Commission for review prior to the 2025 Congress with the intent to finalize updates in Jackson Wyoming at the Congress itself.

PARALLEL USE OF HELICOPTERS AND UAVS IN POLICE MISSIONS

By Alexander Mois (PHSB)

This session explored the challenges and opportunities of using helicopters and UAVs (drones) in the same airspace, with experience being shared by the Bavarian Police Air Support Unit. The unit has integrated drones since 2021, with over 450 trained drone pilots and 140 drones. Key challenges include ensuring that drone pilots, who are often police officers, understand airspace regulations typically reserved for helicopters, and that both systems can operate safely in parallel. Drones, now equipped with advanced AI capabilities to detect objects, are increasingly used in operations, though the integration of their use with helicopters requires careful coordination.



The presentation centered on airspace management, safety protocols, and the technical challenges of visibility and communication. Drones and helicopters measure altitude differently, and drone pilots often lack access to VHF radios, which are standard for helicopters. Proposed solutions included setting altitude limits for drones, maintaining horizontal and vertical separation, and using systems like FLARM and ADS-B to ensure mutual visibility. The session



emphasized collaboration between drone and helicopter teams, with the helicopter pilot having the final say on drone use in shared airspace.

LATEST GENERATION OF MOUNTAIN RESCUE HELICOPTER: NEW POSSIBILITIES, NEW CHALLENGES, NEW CONCEPTS OF OPERATION

Four examples within the ICAR community by: Renaud Guillermet (GSM) Clayton Horney (Colorado Army National Guard) Christian Brunnlechner and Elmar Flatz (ARA)



This session explored the operational differences and similarities in using the H-145 Airbus helicopter across three countries: ARA Flugrettung (Austria), Colorado Army National Guard (USA), and Sécurité Civil (France). Each country shared insights into how the Airbus H-145 is changing rescue operations, particularly in mountain environments. Key differences emerged in equipment configurations, cabin setup, and crew composition. For example, ARA's H-145 is fully equipped for HEMS, while

CONG and Security Civil prefer lighter configurations to optimize their agencies specific needs. Additionally, while ARA and Security Civil prioritize a single pilot and hoist operator setup, CONG uses two pilots. Despite these variations, all three organizations reported similar standard operating procedures (SOPs), with the main distinction being the way they manage crew organization and composition. The session emphasized that while the H-145 offers advanced capabilities, each country's approach to configuration and mission scope is shaped by their unique operational demands.

In the second portion of the session, ARA Flugrettung provided insights into their night hoist operations. As the first organization in Austria to conduct night hoist operations, they emphasized the need for a highly professional team and advanced equipment to ensure safety. They shared a case example of a crashed paraglider at the Zugspitze summit. This example demonstrated both the challenges and benefits of night operations. The team had to manage steep terrain, loose rocks, and psychological distress in the victim, but the rescue was completed quickly thanks to the power and capabilities of the H-145, which allowed for a fast hoist operation and rapid transport to the hospital. This mission, which could have taken over six hours, was significantly shortened due to the helicopter's and teams' night operations.



HELICOPTER RESCUE AT VERY HIGH ALTITUDE



Dr. Kyle McLaughlin (Parks Canada)
and Charley Shimanski (AIRCOM President)

This session introduced the draft paper “Helicopter Rescue at Very High & Extreme Altitude,” a collaborative effort within ICAR MedCom. The paper outlines key considerations for rescues at altitudes between 3,500 and 5,500 meters (very high altitude) and above 5,500 meters (extreme altitude). It focuses on operational challenges such as managing helicopter performance under reduced air density, optimizing fuel and weight, and determining the best approaches for minimizing flight exposure time.

Discussions also covered the importance of pre-flight risk assessments and meteorological concerns, such as

increased icing risks and windshield freezing at these altitudes. The session emphasized the need for redundancy, including secondary helicopters and ground rescue teams, as part of a comprehensive contingency plan.

The session also highlighted pilot and rescuer safety, with a focus on acclimatization and high-altitude survival kits. Proper training in recognizing high-altitude illnesses like HAPE and AMS, as well as the use of supplemental oxygen, was deemed essential for safe operations. Ground site considerations, such as staging areas and helicopter landing zones, were discussed, with an emphasis on minimizing exposure to hazards and ensuring enough space for patient care. This paper’s draft document has a request for feedback from the members of the Air Rescue Commission.

EUROPEAN ROTORS

By Oliver Dismore (Guest)

The upcoming European Rotors event, scheduled from November 4th to 7th in Amsterdam, will feature a mix of trade shows, educational seminars, and safety-focused activities. The exhibit itself will run from November 5th to 7th, with the EASA Rotorcraft Safety Symposium kicking off the event on November 4th. The key themes for the event include sustainability, safety, and best practices, with sessions dedicated to specific topics such as sling operations, scene survival, and women in aviation, with a particular focus on inspiring young people to join the field. Additionally, there will be a “Rotorthon” competition where students from various countries, including Greece, Italy, and Egypt, will work in teams to present solutions on topics related to advanced air mobility, judged by industry experts.

Notable participants include major OEMs, European helicopter industry leaders, politicians, and safety advocates such as Fred North and Claude Vuichard. The event will also highlight common industry challenges, including regulatory complexity and the administrative burden faced by operators. Issues such as the interpretation of rules across EASA and national aviation authorities, unintended IMC (instrument meteorological conditions) leading to fatal accidents,



and training deficiencies in handling loss of tail rotor effectiveness and vortex ring state will be key points of discussion. The latest research on these topics will be presented, offering insights into improving safety and decision-making within the rotorcraft community.

HIGHLINE HELICOPTER RESCUE PROCEDURES, RISKS & MITIGATION

By Stefan Blochum (BWB)

The session focused on the unique challenges and risks associated with helicopter rescues off highlines. Highlines, which can stretch over 200 meters (with some exceeding 2,000 meters), pose significant difficulties for terrestrial rescue teams. Typically, these rescues involve either lowering the patient directly from the line or reaching one of the anchors, both of which are time-consuming and may leave the patient hanging in a harness for extended periods.



The session highlighted that direct helicopter rescues off highlines could drastically improve patient outcomes by reducing suspension time, thereby minimizing the risk of suspension syndrome.

Key risks identified in the session included the possibility of the highline obstructing the path between the rescuer and patient, requiring an approach from the side to prevent entanglement. Additionally, potential entanglement with backup loops or twisting of the hoist and longline with the patient's leash were highlighted as significant concerns. A critical part of the presentation involved testing whether a slackline could be cut by a hoist cable. Experiments at a helicopter simulation facility tested different highline materials like polyamide and Dyneema under various tension settings. The results showed that both materials are critically damaged by the hoist cable, with higher pre-tension leading to faster failure. In contrast, climbing ropes showed minimal damage and maintained their strength under similar conditions. While the session concluded that direct hoist rescues off highlines remain risky, the potential use of climbing ropes may offer safer alternatives in certain scenarios.



SAGF - TRAINING OF ALPINE RESCUE TECHNICIANS (T.S.A.) AND AIR RESCUE TECHNICIANS (T.E.) IN THE ALPINE RESCUE OF GUARDIA DI FINANZA



By Riccardo Manfredi, Nicolo Boffelli (SAGF)

This session highlighted the comprehensive modules provided by the Alpine School of Predazzo, which trains rescuers in both ground and air operations. After two years of experience, rescuers can qualify as HEMS technicians, learning to manage complex rescues across different terrains. The training covers essential skills, such as the use of rescue

winches for injured or deceased individuals, avalanche rescues with dog units, and operational embarkations in harsh environments. The *Helicopter Rescue Manual for Impervious Environments* serves as a key resource, outlining best practices for technical rescues. Instructors play a critical role after completing six years of service, acting as key reference points for ongoing training and requalification, which is supported by 24 specialized manuals.

UAS TRAINING AND OPERATIONAL FEEDBACK

By Benjamin Macht (QFD)

In this session, Benjamin Macht of the Queensland Fire Department (Australia) introduced their use of RPAS (Remotely Piloted Aircraft Systems or Drones/UAS) in mountain rescue operations. As a new addition to their capabilities, RPAS enhances situational awareness, gathers intelligence, and assists with payload drops. QFD has Queensland divided into four regions, each equipped with drones, allowing for coordinated and efficient rescue operations across the state's vast and often challenging terrain.



The benefits of RPAS in mountain rescue are numerous. Drones can be tasked with locating casualties faster, providing live-streamed remote assessments, and offering route guidance and hazard identification to improve crew safety. In night operations, drones can provide lighting, and they can also resupply rescue crews and casualties with payload drops, reducing the overall duration of rescues and crew fatigue. Additionally, RPAS operations provide high-quality recordings for post-rescue analysis,



helping to enhance training and awareness for key stakeholders. Queensland is currently trialing drones capable of carrying heavier payloads (30-40 kg), which could further improve efficiency and the speed of mountain rescue missions.

EQUIPMENT FOR MOUNTAIN RESCUE - AN OPEN AIRCOM DISCUSSION

By: Alexander Weissenboeck and Eoin Walker (Airbus Helicopters)



This session focused on the latest equipment and technological advancements for the Airbus H145 helicopter, aimed at improving pilot workload, safety, and mission efficiency in mountain rescue operations. Key updates include enhancements to the automatic flight control systems, such as a new helipad takeoff and landing mode and automatic hover hold, both of which significantly reduce pilot workload during critical operations.

Additional updates were presented on cargo hook options, blade tip illumination for night operations, and an external hoist system that allows operators to work from either side of the helicopter. A next-generation hoist system is also in development, with the goal of increasing the payload capacity from 250 kg to 303 kg. Safety features such as bird strike-resistant windshields and the Rotor Strike Alerting System (RSAS), which uses cameras to detect obstacles like rock walls, were also highlighted. The session concluded

with a discussion on wireless airborne communication systems (WACS), pushing for real-time connectivity to enhance communication during rescue missions.



PRESENTATION OF THE MOUNTAIN FLIGHT TRAINING CENTER OF THE FRENCH GENDARMERIE AIR FORCE

By Jean-Francois Martin and Benjamin Benoit (GSM)

This session focused on the Mountain Flight Training Center of the French Gendarmerie Air Force, located in Villars-Saint-Pancrace, near Briançon. The center, established in 2015, aims to improve high mountain flight training, specifically focusing on flying within power limits, landing in confined areas, and improving flight safety in mountainous regions. The choice of Briançon as a location is strategic, benefiting from 300 days of sunshine per year and proximity to the Écrins Massif, which allows flights to peaks over 4,000 meters. The staff includes one pilot instructor, one flight mechanic instructor, and the center commander, with additional reinforcements for 10 weeks each year.



The center offers a range of training programs for pilots and flight engineers, including high mountain pilot and flight engineer training (focused on operations above 2,000 meters), power limit flight training for crews operating overseas, and survival training. The training emphasizes managing power requirements in mountainous terrain, ensuring that pilots can land on specific spots with optimal power settings while always maintaining an exit strategy. Cooperation with other services and international partners has also been a key component, with shared expertise in dynamic hoist operations and other critical mountain flight skills.

COMBINED GROUND TRAINING PROGRAM IN SIX STEPS FOR RESCUEMEN AND DOCTORS TO ENHANCE GROUND OPERATIONS FOR HELICOPTER CREWS

By Fredrik Jomaas, Stein Bastian von Tangen Jordan and Dag Rune Vatle (RN oAF-330SQN)

This session introduced the six-step ground training program developed by the 330 Squadron, a SAR operator in Norway, to enhance the collaboration between rescuers and doctors in complex rescue operations. The squadron, which conducts around 2,000 missions annually, has seen a shift in mission characteristics, transitioning from 70% sea-based to 70% land-based rescues. The increasing complexity of terrain—ranging from ski touring and climbing to high lines and via ferratas—has required new skills and techniques from rescue personnel. The ground training program is specifically designed to prepare crews for these challenges by combining the medical expertise of SAR doctors with the technical rescue skills of rescuers.



The training is divided into six steps, starting with basic climbing and mountaineering skills, followed by basic rescue techniques, urban rescue, swift water rescue, basic winter rescue, and

ice and glacier rescue. These steps ensure that both rescuers and doctors are well-versed in the technical and environmental aspects of various rescue operations, from navigating icefalls and crevasses to handling swift water rescues. Force multipliers such as power ascenders and 200-meter ropes are also used to enhance operational efficiency. One of the key takeaways from the program is that doctors, traditionally focused on medical care, are now trained to assist in technical rescues, while rescuers have become valuable assets in supporting medical interventions in the field. This integration of roles has significantly improved the accessibility and effectiveness of the rescue-medical team in complex rescue scenarios.

CURRENT EASA APPROVALS FOR COMPLEX PCDS



By Enrico Ragoni (AirWork & Heliseilerei GmbH)

This session covered the advancements and EASA certification processes for complex Personnel Carrying Device Systems (PCDS). In partnership with Boost Human External Cargo Systems from Canada, the team is working on the development and approval of a double cargo complex PCDS. Simple PCDS are designed for one or two people, while complex PCDS can carry more than two individuals, often involving a mix of internal

(cabin) and external personnel, necessitating more stringent safety and design specifications.

The certification process for complex PCDS involves extensive testing, including environmental tests (for conditions such as humidity, UV radiation, and extreme temperatures), contamination tests (exposure to hydraulic oil, grease, and cleaning agents), and damage tolerance assessments. One of the key elements discussed was the cutting test, which analyzed how long it takes to cut through three different types of ropes used in PCDS. The test measured elongation and breaking load, highlighting how dynamic ropes with more elongation absorb and transfer energy when subjected to stress. The results of these tests are vital for the continued development and certification of new systems capable of carrying heavier payloads and withstanding the extreme conditions of mountain and rescue operations.



EASA UPDATE AND DISCUSSION

By Fabrice Legay (EASA)



The ICAR AirCom is fortunate to have had Mr. Fabrice Legay, EASA's Section Manager - Medium & Light Rotorcraft, join us for the fourth consecutive year. Mr. Legay's session covered various regulatory updates from the European Union Aviation Safety Agency (EASA) concerning helicopter operations, crash resistance, and personnel carrying device systems (PCDS). One of the key highlights was the Crash Resistant Fuel Systems (CRFS), which are designed to improve survivability in helicopter crashes. The presentation emphasized

that smaller helicopters have seen more

compliance with CRFS standards (with 2/3 of the fleet compliant), while larger helicopters lag behind, with only 1/3 of the fleet compliant. Retrofits for existing helicopters with crash-resistant fuel tanks and bladders were also discussed as cost-effective options that could have saved lives in past incidents between 2009 and 2018. Upcoming EASA regulations in 2025 will extend these CRFS requirements, making operators responsible for compliance, especially in emergency operations.

The session also touched on the Night Vision Imaging Systems (NVIS), which may be mandated for night flights in some situations. Operators are expected to fly only in pre-surveyed areas if they lack NVIS approval. Other regulatory updates included mandating autopilot for single-pilot night operations, and oxygen requirements for operations at or above 10,000 feet, with specifics on alleviation procedures shared in the slides.

For Mountain HEMS performance, EASA addressed the operational challenges of flying above 7,000 feet, with special conditions for Performance Class 3 (PC3) helicopter operations in hostile environments. The session emphasized that many helicopter types in the current fleet may no longer meet the required performance standards for higher altitudes. EASA also addressed high-altitude oxygen requirements and crashworthiness standards for helicopter operations in mountain environments.

Lastly, more information was shared on the upcoming EASA Rotorcraft and VTOL Safety Symposium in 2024, which will focus on continued safety improvements in helicopter operations. The presentation also encouraged participants to download the latest EASA Safety Review, which covers accidents and incidents in rotorcraft operations.



ARTIFICIAL INTELLIGENCE MODEL TO PREDICT LOST PEOPLE'S LOCATION

By Roy Hayes Jr., Ph.D. (SEI Security)

This session highlighted the advancements in AI models designed to predict lost person behavior, particularly in search and rescue (SAR) operations. The technology, developed by Systems Engineering, Inc. (SEI) in collaboration with the U.S. Department of Defense, leverages agent-based modeling (ABM) to simulate the behavior of lost individuals in wilderness settings. The AI model utilizes real-world data on terrain, elevation, and land cover, alongside characteristics of lost persons, to generate predictions on their likely movements.



The agent-based model simulates various reorientation strategies—such as random walking, traveling along routes, or moving toward higher ground—to mimic lost person behavior in specific environments. Each agent represents a simulated lost individual, and the model is calibrated using data from the International Search and Rescue Database (ISRID). The model's effectiveness has been validated, previously published work in predicting lost hikers' locations.

SEI's has integrated this AI model into LandSAR, a tool available in the United States. They plan to expand access to Europe by 2025. Additionally, SEI is collaborating with Raytheon BBN to create a handheld solution, enabling SAR teams to access real-time predictions in remote areas. The goal is to open-source the technology, allowing the SAR community to freely access and benefit from this advanced AI model in their operations.

HOIST VS. SLING IN HEC RESCUE

By Thomas Nordgaard Dahle (NLA) Alexander Weissenboeck (Airbus)

This session had two presentations. In the first, the *European Safety Promotion Network – Rotorcraft (ESPN-R)* was introduced. This initiative, a partnership between industry and authorities like EASA, aims to develop and disseminate safety





materials to improve helicopter operations. ESPN-R focuses heavily on hoist operations, providing best practice guides, training guides, and e-learning materials. Many manufacturers and experts across the rotorcraft industry contribute to this effort, voluntarily working towards enhancing global safety standards. They have created tools such as a Hoist Operator Training Guide and are working on additional guides, including those for PCDS (Personnel Carrying Device System) for Helicopter Hoist Operations and Simulated Helicopter Hoist Operations. The network also promotes widespread use of these safety materials via online platforms and free Airbus e-learning sessions in multiple languages, aiming for global outreach to operators and rescue crews.

In the second, the Norwegian Air Ambulance Foundation presented a study, which compared Hoist vs. Slingload operations in rescue missions. The randomized study aimed to assess various factors such as time, risk, precision, and workload in helicopter rescues using these two methods. Conducted at a simulated air ambulance base, the study involved 80 standardized rescue missions with 1640 hoist cycles and 82 hoist hours. Preliminary results indicated that while hoist operations generally resulted in shorter exposure times for rescuers and patients, the precision of rescues varied, with the hoist showing better precision in 41% of missions compared to rescue rope operations. The study also found that pilots experienced a lower workload when using the hoist compared to slingload, as hoist operations required fewer vertical adjustments. These results sparked a robust discussion among attendees, with perspectives varying depending on regional practices and experiences.

AIR RESCUE COMMISSION CLOSING CONVERSATIONS

By: Charley Shimanski (AirCom President), Renaud Guillermet (AirCom Vice President), and Eva Sophia Shimanski (AirCom Executive Secretary)

At the end of the two days of AirCom presentations, Eva Sophia shared information on a prior survey all AirCom Participants had taken sharing information about who was in the room to help inform all participants. Some key data included that of 53 responses 28% are volunteers, 83% uses External Cargo, 70% operate twin engine aircraft, and 38% operate only in a SAR capacity. President Charley Shimanski and Vice President Renaud Guillermet shared information on follow-up documents participants will receive and information on next year's Congress. Next year's Congress will include elections for many of the ICAR Board Positions, including the next AirCom President and Vice President.

Air Rescue Commission President Charley Shimanski announced at this session that despite the fact that he is eligible to run again for another 4-year term as AirCom President, he will step down from the ICAR Board and make way for new leadership in the ICAR Air Rescue Commission. Charley shared what a privilege it has been to serve for 7 years as AirCom President, but also noted that the AirCom deserves a chance to choose a new leader, and as such, he is prepared to leave the ICAR Executive Board after the 2025 Congress. Charley will continue to serve the AirCom as a delegate to ICAR from the Mountain Rescue Association (MRA-USA).



SIMULATION - THE FUTURE OF TRAINING STARTS NOW

By Sebastian Schneider and Jörg Redetzky (DRF)

In this session, the DRF Luftrettung HoistAR simulator was presented, a cutting-edge mobile hoist training simulator showcased at the event on the practical day for the Air Rescue Commission. Developed as part of a project that began in 2020, the HoistAR simulator was designed to allow hoist operators and pilots to train together in a realistic, controlled environment. The simulator can operate as a standalone unit or connect to the full flight simulator in Germany, enabling remote and collaborative training. A key feature of HoistAR is its mobility—it traveled 1880 km to Thessaloniki, proving its flexibility and ease of transportation.



During the session, attendees were treated to a live demonstration where a hoist operator from the audience participated in a simulation. The scenario involved picking up a patient and dealing with spin, but the simulation took an unexpected turn when the helicopter experienced an engine failure, forcing the operator to cut the cable just after the patient and medic were dropped off. The presenters emphasized the challenges of developing such a unique simulator, particularly the time, cost, and effort required, especially given that there is no certification process for this kind of equipment yet. The HoistAR continues to undergo testing and refinement, with the goal of being incorporated into training programs for hoist operators across the industry.

HELICOPTER RESCUE AT VERY HIGH ALTITUDE



By: Kyle McLaughlin (PC) and Charley Shimanski (AIRCOM President)

The work on *Helicopter Rescue at Very High Altitude* began in 2022 at ICAR in Montreux and has since evolved into a series of research papers addressing the unique challenges posed by extreme altitude rescues. These rescues, often compared to operating in conditions similar to those on the moon due to the thin air and harsh environment, require specialized guidelines for safety and effectiveness. One of the main



focuses of this session was the use of supplemental oxygen and pharmacological prophylaxis for rescuers and patients during rapid ascents above 3,500 meters. The recommendations, derived from collaborative input across ICAR members, outline clear protocols for when and how to use supplemental oxygen.

For flights shorter than 30 minutes above 4,000 meters, oxygen is optional, but it becomes recommended for flights longer than 30 minutes between 3,500 and 4,000 meters. Any operation above 4,000 meters mandates the use of oxygen. Terrestrial rescuers rapidly ascending above 3,500 meters should also consider using supplemental oxygen if resources allow. When oxygen is used, pharmacological interventions such as acetazolamide or dexamethasone, which are typically used to prevent high-altitude cerebral edema (HACE), are generally unnecessary. For pharmacological prevention of high-altitude cerebral edema (HACE), acetazolamide or dexamethasone is recommended depending on the circumstances.

The session concluded by referencing the helicopter rescue portion, which had already been covered in detail earlier in the week during the AirCom session. This segment delved into operational considerations such as managing helicopter performance at high altitudes, minimizing exposure times, and the complexities of flight planning in extreme environments. These topics, crucial for the safety and success of high-altitude rescues, were part of the broader discussions shared with AirCom participants, emphasizing the importance of continued collaboration.

If you have any questions about this report, please contact ICAR Air Rescue Commission President Charley Shimanski at charley.shimanski@gmail.com

Thank you.