

# CER SENIN

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**JAPCC NEWS**

**WHY AIR SUPERIORITY  
IS KEY FOR NATO**

**B-52 OPERATED  
FOR THE FIRST  
TIME IN ROMANIA**

**WINGS  
OF THE ALLIANCE**



**#STRONGERTOGETHER**





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F/A-18 HORNET AND ROU AF F-16

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# NATO'S ALLIED AIR COMMAND

## – DELIVERING AIR AND SPACE POWER TO THE ALLIANCE FOR FIVE DECADES –

On June 28, 1974, NATO stood up its first Air headquarters at the U.S. Air Base to establish coordination, command, and control of Allied air forces in the then Central Region during the Cold War. The leadership and staff marked this anniversary with a short ceremony held at Headquarters Allied Air Command 50 years later on June 28, 2024.

Initially established with personnel from Belgium, Canada, Germany, the Netherlands, the United Kingdom, and the United States, the mission of the then Allied Air Forces Central Europe (AAFCE) was to provide central direction and control for the NATO forces in the European Central Region by coordinating the headquarters of two Allied Tactical Air Forces.

"Today, 50 years later, not only has the number of nations represented at Allied Air Command expanded, but so too has our mission. In its modern form, AIRCOM is responsible for Command and Control, Integrated Air and Missile Defense, and Cyber and

Space Operations, as well as the Deterrence and Defense of NATO Territory through the projection of Air Power," said General James B. Hecker in his remarks.

As the Alliance grew, so did the Command's area of responsibility, expanding from its roots in central Europe to encompass most of the European continent. Through several name changes and reorganizations, Allied Air Command became NATO's singular air headquarters at Ramstein, delivering Air and Space Power to the Alliance – one key element of how NATO provided collective security to its members.

For 50 years, the team proved flexible and innovative, ready to defend the Alliance and to provide Air and Space Power more effectively and efficiently.

"Over five decades, Air and Space Power contributed hugely to ensuring peace and stability, working hand in glove with the other services; throughout the Cold War, during several rounds of NATO

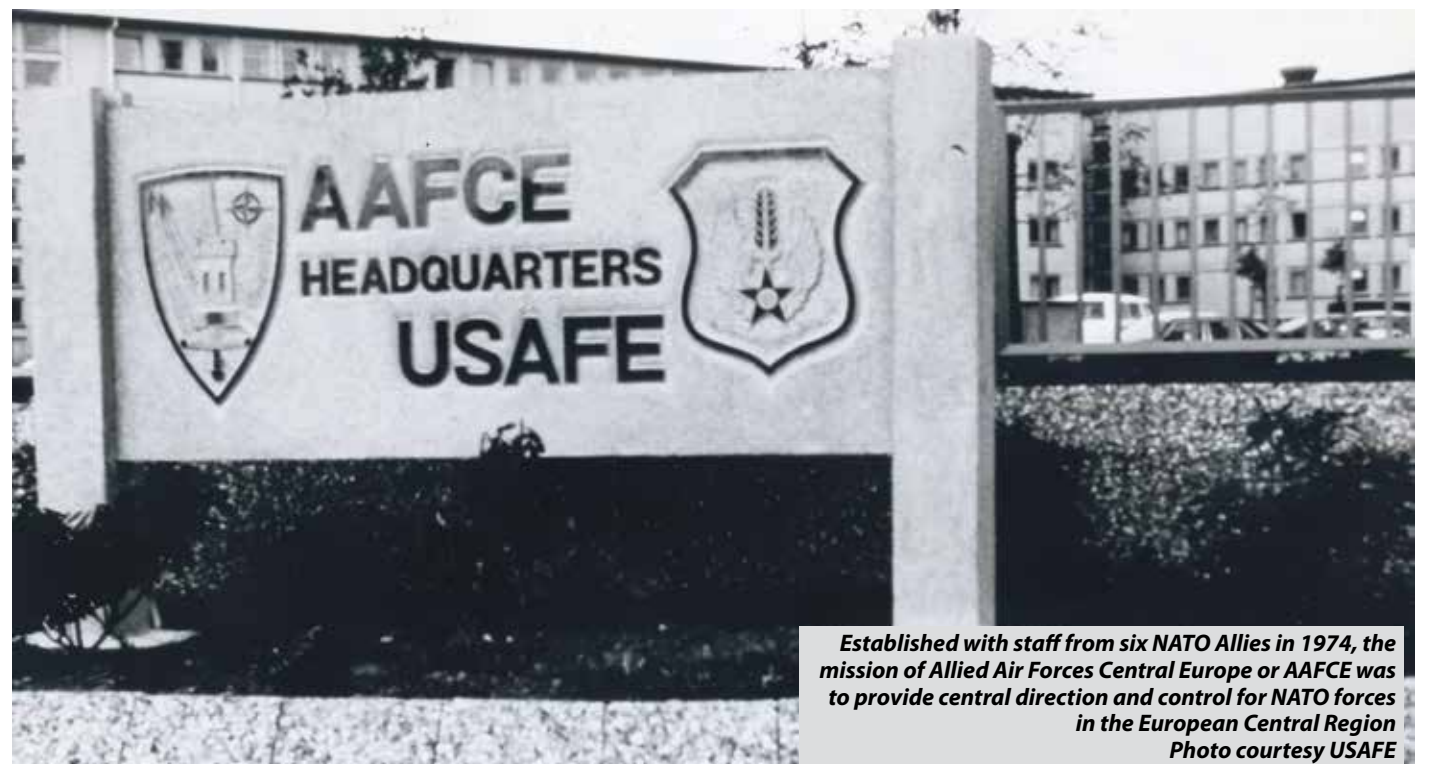
enlargement, executing out-of-area operations in Libya or Afghanistan, and most recently during the shift in the global security environment caused by Russia, first by illegally annexing Crimea and then by brutally attacking Ukraine's territory and citizens," General Hecker continued. "NATO Air and Space Power had a lead role in conducting NATO's enhanced vigilance activities, countless multi-domain operations, and flexible deterrence options," he stated.

"For 50 years, the Allied Air Command team proved to be flexible and innovative, ready to defend the Alliance and to provide Air and Space Power more effectively and efficiently. We adapted through the modernization of fighter fleets from third, fourth, and now fifth-generation aircraft, readily integrating powerful new capabilities into our plans and concepts for Alliance defense," General Hecker said.

He added that besides marking 50 years of NATO air at Ramstein Air Base, this year also marked 75 years of NATO as the most

successful collective security Alliance in history. "From its founding 75 years ago, building bridges and working towards consensus in ensuring collective security in post-World War II times, NATO has had a historic record of success and relevance," he explained. "Today, 75 years later, NATO is built on an enduring commitment to our shared values and our ability to adapt to emerging challenges. We celebrate our collective history of military preparations, innovations, and operations," he added.

General Hecker concluded by expressing his pride in having had the privilege to lead this fine team of awe-inspiring men and women representing NATO nations, gathered at Allied Air Command, and performing terrific work to provide NATO with cutting-edge Air and Space Power. "You made huge contributions to keeping our skies safe, protecting our territory and people, deterring potential aggressors, and - if necessary - defending every inch of NATO territory," he concluded.



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# Challenged Air Superiority Adapting to the Drone and Missile Age

By Lieutenant Colonel Kim Vogt, GE AF, JAPCC

By Lieutenant Colonel Andre Haider, GE Army, JAPCC

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## INTRODUCTION

The ongoing conflict in Ukraine has challenged current capabilities and military planner's assumptions, highlighting the ever-evolving nature of warfare, where superiority is achieved by staying 'one step ahead' of the adversary. Observing the conduct of the Russo-Ukraine war, it has become evident that the notion of air superiority, a cornerstone of Western military strategy, is no longer achieved by fielding a better air force. Just as the advent of aircraft revolutionized warfare a century ago, emerging technical and tactical advancements are dramatically reshaping the battlefield. This transformation underscores the necessity for a nuanced understanding of layered air superiority, encompassing everything from drones and Unmanned Aerial Vehicles (UAVs) to space-based assets and cyber capabilities. This article aims to explore these multifaceted dynamics and provoke thought on the future of air superiority and its implications for Multi-Domain Operations (MDO).

## THE EVOLUTION OF AIR SUPERIORITY

Traditionally, air superiority<sup>1</sup> has been understood as the ability of a nation's air force to conduct operations without prohibitive interference from opposing forces. This concept has been the bedrock of military planning since the First World War, when controlling the skies became pivotal. However, the Nagorno-Karabakh Conflict and the ongoing war in Ukraine have demonstrated that this paradigm is shifting.

One of the most striking aspects of the recent conflicts has been the extensive use of drones on both sides. Compared to cruise and ballistic missiles, drones are relatively inexpensive assets used throughout the kill chain, from intelligence and surveillance to cheap, precise munitions, creating effects with reduced risk to friendly personnel. The proliferation of unmanned systems has made it clear that air superiority is no longer solely defined by manned aircraft.

Integrated anti-access area denial (A2AD) systems have complicated the air superiority equation. Long-range and mobile surface-to-air missiles (SAMs) coupled with Electronic Warfare (EW) capabilities dynamically increase the risk of manned aircraft requiring additional or better capabilities in those contested areas.

The conflict between Azerbaijan and Armenia in 2020 over Nagorno-Karabakh illustrates the transformative impact drones are beginning to have on modern warfare.<sup>2</sup> Azerbaijan's extensive use of Turkish and Israeli drones, including the Bayraktar TB2 and Harop loitering munitions, effectively neutralized Armenia's air defences and impacted ground forces. This conflict marked a significant shift in the military perception of air superiority, highlighting the vulnerabilities of traditional air defence systems against a swarm of low-cost, expendable, and agile UAVs. The success of Azerbaijan's drone strategy underscored the necessity of integrating

counter-UAV technologies and adaptive tactics within modern air defence frameworks. Traditional Surface-Based Air Defence (SBAD) systems have become prime targets for drones, as the current capabilities and employment doctrine are often insufficient to counter these new and rapidly changing threats.<sup>3</sup> Protection against drones, therefore, requires innovative approaches beyond just enhancing current SBAD capabilities. 100% protection was never feasible, and even less so under the current development. Instead, we must focus on operational resilience and adaptability, moving away from a 'full coverage' mentality towards one that emphasizes war readiness and pragmatic defence.

Current events have forced a re-evaluation of tactics once considered sacrosanct, highlighting the vulnerability of even the most advanced aircraft and SBAD to asymmetric threats. Whether air superiority as a binary 'yes or no' category is still relevant in an age where drones can operate below traditional air defences and achieve comparable effects is increasingly pertinent. This could lead to a new definition of air superiority or a fundamental change in the related air doctrine. The ability of drones to sneak past high-altitude Defensive Counter Air (DCA) and directly threaten ground-based assets necessitates reevaluating traditional air superiority concepts. This shift highlights the need for integrated C-UAS (Counter-Unmanned Aerial Systems) capabilities within a layered air defence strategy to address these threats effectively.

## TECHNICAL AND TACTICAL INNOVATIONS

The advancements in drone technology and SBAD systems are just the tip of the iceberg, as there are emerging threats in hypersonic, very-high-altitude UAS, and space capabilities. The modern battlefield is increasingly characterized by its interconnected nature, where actions in one domain can have significant repercussions in others. This interconnectedness is particularly evident in the realm of air superiority.

The widespread use of drones in Ukraine has demonstrated their value not only in surveillance but also in direct attack roles.<sup>4</sup> These systems can operate in environments where traditional aircraft might be too vulnerable or costly to deploy. Their ability to gather real-time intelligence and deliver precision strikes has proven to be a game-changer.

Adversaries' anti-access systems have coupled multiple sensors and EW to high-end missiles, significantly increasing the risk to manned aircraft. These systems can accurately detect, track, and engage targets, making it difficult even for stealth aircraft to operate with impunity. The presence of these systems has forced air forces to develop new tactics and countermeasures, including drones and counter-drone systems. Addressing the threat posed by drones requires effectively integrating them into our own forces. This is not only to gain offensive capabilities but also to explore and plan with these

capabilities to anticipate adversaries' use. This includes developing doctrines for use, ensuring seamless integration with manned systems, and leveraging their reconnaissance, surveillance, and precision strike capabilities. Furthermore, the challenge of distinguishing between friend and foe in a drone-saturated environment, where many platforms are similar in appearance and electronic signature, such as commercial DJI drones, complicates the operational picture. Their similar appearance and numbers necessitate advanced identification and tracking systems and integrated command and control resistant to cyber and electronic warfare.

Specifically, the space and cyber realms have become integral to modern warfare, profoundly influencing air superiority. Cyberattacks can disrupt communication and control systems, rendering air assets ineffective or degrading their capabilities. Electronic warfare, including jamming and spoofing, can degrade the effectiveness of both offensive and defensive air operations. Satellites in modern warfare are closely tied to the cyber realm, and their importance cannot be overstated. They provide critical communication links, navigation support, and intelligence-gathering capabilities. However, they are vulnerable to anti-satellite weapons, cyber-attacks, and EW, which can have cascading effects on air operations. These brief examples clearly demonstrate that the air domain is a constantly evolving dynamic battlespace. Our panel discussion aims to provide further insight into how technological advancements will shape the future of air warfare.

## MULTI-DOMAIN OPERATIONS AND LAYERED AIR SUPERIORITY

The evolving nature of air superiority necessitates a broader, multi-domain approach to military operations. The concept of layered air superiority recognizes that air control is influenced by actions and capabilities across various domains, including land, sea, cyber, and space. Ground forces rely heavily on air support for reconnaissance, close air support, and logistics. Conversely, air operations depend on ground-based radar and missile systems for protection and targeting. The interplay between land and air domains is critical for operational effectiveness and campaign execution. Establishing air superiority now requires robust cyber and electronic warfare capabilities in addition to traditional assets. Protecting communication networks and disrupting enemy systems are essential tasks that must be integrated into air operations planning. Satellites provide essential support for air operations but must be protected from adversarial actions. Enhancing the resilience of space-based assets, developing countermeasures, and resilience to anti-satellite threats are crucial components of maintaining air superiority.



## OUTLOOK AND FUTURE CONSIDERATIONS

As we look to the future, the concept of air superiority will continue to evolve. The lessons from Ukraine underscore the importance of adaptability and innovation in military strategy. To maintain an edge, nations must invest in advanced technologies and develop integrated, multi-domain approaches to warfare. Three critical lessons from the Ukrainian conflict are:

- the necessity of layered, and cost-effective defence strategies;
- the importance of both quantity and quality of forces and systems;
- the disruptive nature of drone warfare.

The concept of 'layered defence',<sup>5</sup> exemplified by Ukraine's use of the Sky Fortress detection system, has proven highly effective. Sky Fortress enhances the detection capabilities of air threats, allowing Ukraine to deploy less expensive countermeasures first. For instance, drones and SHAHED cruise missiles are often engaged with machine guns and Stinger missiles, which are far more economical than high-value systems like SAMP/T or PATRIOT. This layered use of resources greatly improves Ukraine's cost to defend, both in absolute terms and relative to Russia's cost to attack, preserving costly and sophisticated assets for more significant threats or use as a last resort. By leveraging superior detection and integrating various layers of defence, Ukraine has demonstrated how nations can maximize the efficiency and sustainability of their air defence efforts, ensuring that high-value systems are reserved for critical situations while maintaining robust protection against a wide range of aerial threats.<sup>6</sup> A critical lesson from recent conflicts is: 'Quantity has a Quality all of its own.'<sup>7</sup> The sheer volume of drones and inexpensive ballistic missiles can overwhelm even the most sophisticated high-tech air defence systems. This

principle has been vividly demonstrated in various theatres of conflict, where mass-produced, cost-effective aerial threats have posed significant challenges to well-equipped militaries. The ability to field large numbers of drones and missiles at a fraction of the cost of advanced aircraft or complex missile systems shifts the strategic balance, compelling military planners to consider qualitative and quantitative factors in their defence strategies.

Continued investment in drone technology, advanced anti-aircraft systems, and cyber capabilities is essential. These technologies will play a pivotal role in future conflicts and must be prioritized in defence planning. Furthermore, the dual-use potential of these systems must be recognized and leveraged. By developing systems that are not only capable of defending high-value military assets in times of crisis and war but are also effective in protecting civilian infrastructure and populations, nations can enhance their overall security posture. For instance, advanced anti-aircraft systems and drones can be deployed to safeguard sports events, sites of national significance, and other civilian targets from terrorist attacks. This dual-use approach ensures that the technology investments made for military purposes can also provide robust protection for civilian life and property, thereby offering a comprehensive security solution that addresses both military and civilian threats.

Military doctrines must evolve to reflect the changing nature of air superiority. This includes developing new tactics for operating in contested airspace and training personnel to operate across multiple domain mindsets. The conflict in Ukraine has underscored the necessity for adaptive doctrines and innovative tactics in modern warfare. A prime example of Ukrainian innovation is their use of the PATRIOT missile system in an updated

version of the 'SAMBUSH tactic',<sup>8</sup> – a combination of Surface-to-Air Missile (SAM) and ambush strategies. This approach allows Ukraine to utilize the PATRIOT system not just in static defensive roles but in a more dynamic and agile manner. By repositioning PATRIOT batteries forward and setting up ambushes, Ukrainian forces can effectively counter enemy aircraft and missiles with an element of surprise. This flexibility enhances the overall effectiveness of the PATRIOT system, making it a formidable tool in Ukraine's air defence arsenal. By employing these tactics, the UKR forces make up for the deficit of air defence assets and increase the risk level for the attacking air force. The SAMBUSH tactic exemplifies how adapting traditional doctrines to incorporate new tactics can significantly enhance a nation's defensive capabilities, allowing it to respond swiftly and efficiently to evolving threats on the battlefield.<sup>9</sup> This approach maximizes high-value assets' operational utility, ensuring a more resilient and proactive defence posture.

Modern warfare is interconnected and requires enhanced cooperation between allied nations. Sharing intelligence, coordinating cyber defence, and jointly developing new technologies will be critical for maintaining air superiority in a multi-domain environment. In conclusion, the war in Ukraine has highlighted the shifting dynamics of air superiority. Integrating drones, advanced anti-aircraft systems, cyber capabilities, and space-based assets has fundamentally altered the multi-domain battlefield. As we move forward, it is imperative to embrace a layered approach to air superiority that recognizes the interplay between different domains and adapts to the ever-evolving nature of warfare. This will ensure that military forces are prepared to face future challenges and maintain their strategic advantage in the skies.

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For more information, please visit <https://www.japcc.org>.



## ROMANIA CELEBRATES FIRST GRADUATES OF EUROPEAN F-16 TRAINING CENTER



In mid-July, the 86<sup>th</sup> Borcea Air Base hosted a ceremony marking the graduation of the first batch of Romanian pilots trained to operate F-16 aircraft at the European Training Center. This event celebrated the completion of an intensive eight-month training program for seven Romanian pilots. The European F-16 Training Center, a collaborative initiative led by Lockheed Martin in partnership with the governments of Romania and the Netherlands, demonstrates the strengthened capabilities of the North Atlantic Alliance through allied cooperation. The Netherlands significantly contributed to this project by providing 14 F-16 aircraft from the Royal Netherlands Air Force.

The agreement with Romania to base these aircraft and conduct training operations in Romanian airspace was pivotal in preparing the pilots for the F-16. The European F-16 Training Center is set to expand, including other partner nations. The ceremony was attended by key figures such as Major General Gabriel Anghel - advisor to the Minister of National Defense, Major General Leonard-Gabriel Baraboi - Chief of the Romanian Air Force Staff, Her Excellency Kathleen Kavalec - the US Ambassador to Romania and Mr. Frank St. John - Lockheed Martin - Chief Operating Officer.

Story by ROU AF PAO  
Photos by Bogdan Pantilimon



*In her speech, Ambassador Kavalec highlighted the project's success in establishing common operational standards and enhancing NATO's ability to address complex challenges in the Black Sea region and Eastern Europe: "I extend my sincere congratulations to the seven Romanian Air Force pilots who successfully completed this demanding training course, which included rigorous theory, simulator flights, mission planning, and aerial missions over eight months. The Romanian Air Force looks forward to integrating you into its growing cadre of F-16 pilots, reinforcing NATO's eastern flank airspace defense. We thank the Romanian Air Force and the Ministry of National Defense for their support in hosting the aircraft and personnel, and for providing the necessary logistics and resources to maximize the training center's potential," stated Ambassador Kavalec*



## WHY AIR SUPERIORITY IS KEY FOR NATO



**"Training Allied forces to establish air superiority is a key requirement, and during the upcoming NATO live-fly exercise Ramstein Flag 2024 in Greece in October, this will be one priority for participants from 13 Allied Nations," wrote in his recent senior leader perspective on the topic for U.S. Air University. Photo courtesy of the U.S. Air University**

Russia's war in Ukraine reaffirms that air superiority remains job number one to allow conducting successful air operations. Consequently, NATO and its air forces need to be prepared to achieve air superiority early on in any potential conflict.

"But we must be clear about our purpose. The air component does not simply pursue air superiority for its own sake. Air superiority is not just the first thing we work toward," General Hecker wrote in his recent senior leader perspective on the topic for U.S. Air University. "It will typically remain our top priority—even if it becomes a low weight-of-effort later in the campaign—because it grants us freedom of manoeuvre to accomplish all other tasks and because attrition rates would otherwise become prohibitive," he continued. This has been known since the combined bomber offensive of World War II, and the current situation in Ukraine is a constant reminder of the terrible cost of a stalemate in the air. Battle management areas are rightly intended to increase flexibility and independent action, but it must also be ensured any changes do not impinge on the air component's freedom of action or negatively impact its support to operations on the ground. "Deterrence by denial first is an essential task that depends upon having the right forces—equipped, trained, and proficient—that can win," General Hecker went on to say. "In other words, when asking what force posture provides a credible deterrent, the answer is to be able to readily demonstrate that

NATO possesses the forces it would take to forcibly deny the adversary their objectives. Authoritarian regimes are not likely to be constrained by public disapproval of military adventurism, so we must appeal to their rational interest that conflict with NATO is not worth the cost and risk to their national forces or regime," he explained. "Balanced Effort second - we can derive many lessons from the relative stalemate in Ukraine. NATO nations cannot count on high-end capabilities alone to win the fight, as the proliferation of low-cost threats makes engagement with high-end weapon systems unsustainable," General Hecker stipulated. "In order to counter this, NATO - in its 75<sup>th</sup> anniversary year, now stronger by virtue of its new members Sweden and Finland - will need to depend on overall economic strength and resiliency, the ability to adapt and innovate, and the strength of political will and social cohesion," he added. General Hecker finished by saying that "our Alliance has tangible strengths in this area: A diverse and overlapping set of capabilities from various national defence industries is our strategic strength—as long as our Allies have taken an integration-by-design approach from the beginning to achieve day-zero interoperability.

**From September 5 to 6, NATO's Allied Air Command hosted the AIRCOM Commanders Conference at its headquarters in Ramstein, Germany. The conference was the stage for AIRCOM to engage with senior international military leaders to lay out how Air Power contributes to NATO warfighting.**

"This has been an excellent opportunity for AIRCOM to showcase and explain how we will fight to colleagues from across Allied Command Operations, NATO agencies, national operational commands and – last, but not least – our AIRCOM enterprise," said General James Hecker, AIRCOM Commander. "As advocates of NATO Air Power we play a crucial role in advancing changes of mind sets required to progress deterrence and defence and our warfighting capability in multi-domain operations. Air and Space support the Supreme Allied Commander's endeavour to boost the family of operational plans at all levels," General Hecker added. About 60 senior military representatives took part in a frank and open forum about current and future challenges and opportunities for AIRCOM and Allied Command Operations. Romania was represented by Chief of Air Component Command,

Brigadier General (AF) Cezar Stănculescu. In this context - and to illustrate how AIRCOM fights - General Hecker reiterated the importance of his five priorities: from Counter Anti Access/Area Denial (A2AD) and Integrated Air and Missile Defence to Air Command and Control, Information Sharing and Agile Combat Employment. "We are going to implement and train all these in our exercise programme," General Hecker added. "In our upcoming first Flag Series exercise Ramstein Flag in Greece in October and in our contribution to the ensuing strategic command post exercise Steadfast Duel," he added. These exercises will be an opportunity to demonstrate the ability to counter and defeat an adversary's A2AD structure and capabilities, ensuring freedom of manoeuvre and freedom of action and operate the Integrated Air and Missile Defence to defend NATO

## NATO ALLIED AIR COMMAND SHARES ITS WARFIGHTING IDEAS WITH ALLIED MILITARY LEADERS



**Senior military representatives from across the Alliance and the Nations took part in a frank and open forum about current and future challenges and opportunities for AIRCOM and Allied Command Operations.**

Photo by Arnaud Chamberlin

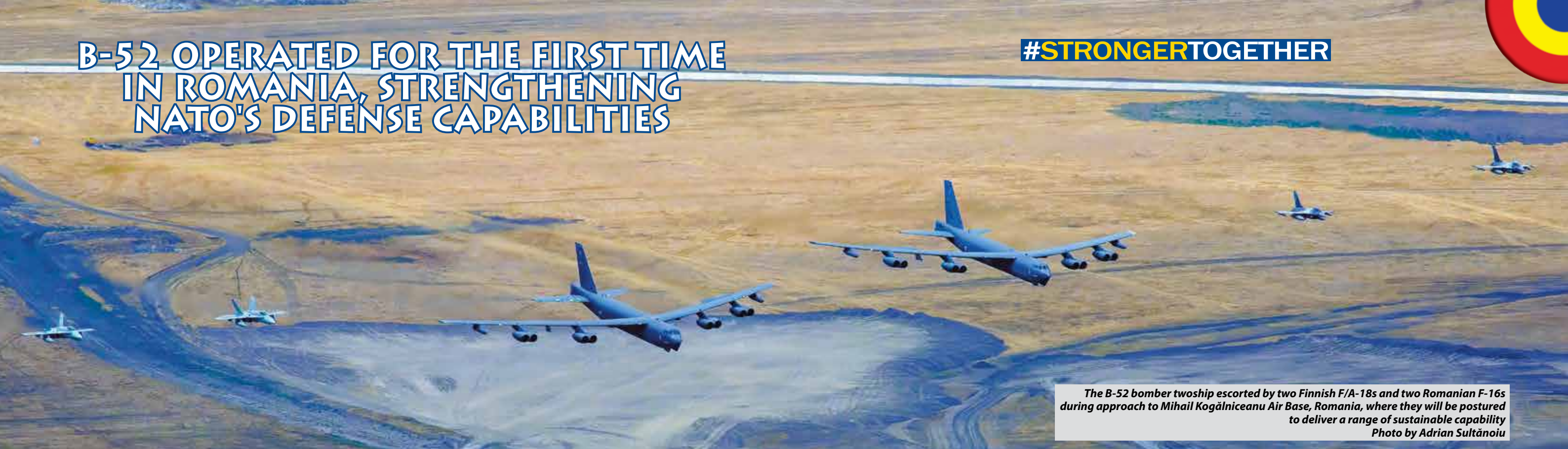
territory, its people, critical infrastructure, and essential defence capabilities. "Training and exercises in these domains are fundamental to develop and implement effective tactics,

techniques and procedures in order to achieve effective results and to be ready to promptly react in case of threats," General Hecker concluded.



# B-52 OPERATED FOR THE FIRST TIME IN ROMANIA, STRENGTHENING NATO'S DEFENSE CAPABILITIES

#STRONGERTOGETHER



*The B-52 bomber twoship escorted by two Finnish F/A-18s and two Romanian F-16s during approach to Mihail Kogălniceanu Air Base, Romania, where they will be postured to deliver a range of sustainable capability*  
Photo by Adrian Sultănoiu

**Two U.S. Air Force B-52Hs aircraft assigned to the 2<sup>nd</sup> Bomb Wing, Barksdale Air Force Base, Louisiana, arrived at Mihail Kogălniceanu Air Base, Romania, for Bomber Task Force 24-4, Sunday, July 21.** While flying in international airspace and in accordance with international law, the U.S. B-52 were intercepted by two Russian aircraft over the Barents Sea at approximately 8 a.m. Central European Time. The U.S. aircraft did not change course due to the intercept and continued along their scheduled flight plan without incident, allowing the B-52s to perform their pre-planned mission which included integration alongside NATO fighter aircraft before

landing at Mihail Kogălniceanu Air Base. During the deployment, the B-52s conducted operations from the Romanian air base near the Black Sea coast, with the mission focused on strengthening NATO's defensive posture. This deployment was designed to enhance the integration of U.S. strategic bombers with allied forces, reinforcing security commitments across the U.S. European Command area of responsibility. General James Hecker, commander of U.S. Air Forces in Europe and Air Forces Africa (USAFE-AFAFRICA), emphasized the strategic value of this deployment in the current global security environment. "It is

vital that we are postured to deliver a range of sustainable capabilities across great distances. This iteration of Bomber Task Force allowed us to refine our agile combat employment tactics, techniques, and procedures," General Hecker stated. He further highlighted the importance of allied collaboration, noting that these efforts are essential to countering both current and emerging threats. The deployment of B-52 bombers underscored the United States' unwavering dedication to NATO and its allies. Through routine Bomber Task Force (BTF) missions, the U.S. continues to demonstrate strategic predictability and

assurance while contributing to deterrence by introducing greater operational unpredictability for potential adversaries. "The U.S. is committed to working closely with our NATO allies along the eastern flank to ensure we maintain the combined capabilities and coordination necessary to uphold regional safety, security, and stability," General Hecker added. The B-52s, assigned to the 2<sup>nd</sup> Bomb Wing at Barksdale Air Force Base, Louisiana, were in Europe for short-term deployments as part of the ongoing BTF missions. Earlier on Sunday, these bombers were intercepted by Russian

fighters over the Barents Sea during a preplanned mission coordinated with NATO air assets. The U.S. aircraft, however, did not alter their course and continued without incident, demonstrating the routine nature of such encounters in international airspace. While most interceptions in international airspace conclude without incident, there have been instances of heightened tensions. For example, in June, Finland accused Russia of violating its airspace, and in March 2023, a Russian fighter collided with a U.S. drone over the Black Sea, resulting in the drone's crash in international waters.

The recent deployment of U.S. B-52 bombers to Romania, coupled with their successful navigation of an intercept by Russian aircraft, exemplifies the resilience and readiness of U.S. and NATO forces. These strategic initiatives reaffirm the United States' commitment to its NATO allies, ensuring regional security and stability while deterring potential adversaries.

**Story by Adrian Sultănoiu  
based on the information provided by  
Allied Air Command Public Affairs Office**



*A B-52H makes its initial landing at Mihail Kogălniceanu Air Base, Romania, in support of Bomber Task Force Deployment 24-4, July 21, 2024. The lethal, long-range strike capabilities provided by strategic bombers influence the decision making of competitors and adversaries*  
Photo by Staff Sergeant Narcisa Tuță



# WINGS OF THE ALLIANCE

## RAF AND FINNISH AIR FORCE STAND GUARD OVER ROMANIAN SKIES UNDER NATO'S SHIELD



The closing ceremony featured a formation flypast with a Romanian F-16, a Finnish F-18, and an RAF Typhoon soaring above the event  
Photo by AS1 Niran Lewis / Royal Air Force Photographer

### THE RAF MARKED SUCCESSFUL AIR POLICING DEPLOYMENT WITH CLOSING CEREMONY

The Royal Air Force (RAF) continues its commitment to NATO's air policing missions by deploying Typhoon jets annually as part of the organization's Enhanced Air Policing (EAP) efforts. These deployments form a critical part of the UK's contributions to NATO's collective defense strategy, providing Quick Reaction Alert (QRA) capabilities to intercept and address potential aircraft threats.

The RAF's involvement includes two key operations: Operation AZOTIZE, which focuses on the Baltic region, and Operation BILOXI, which covers the Black Sea region. Both operations are essential components of NATO's efforts to ensure the security and integrity of the Alliance's airspace, particularly in regions where tensions with neighboring states remain high.

RAF Typhoons, known for their advanced capabilities and versatility, play a vital role in these missions, offering rapid response to any unauthorized or hostile aircraft movements near NATO borders. These deployments not only reinforce the UK's role in international security but also demonstrate the RAF's ongoing readiness to support NATO's objectives across Europe.

The RAF's participation in these missions underscores the UK's commitment to maintaining



The ceremony, which was conducted in front of an RAF Typhoon, was also an opportunity for the Chief of the Romanian Air Force, Major General Baraboi, to present the prestigious Romanian Emblem of Honour to RAF personnel for outstanding support and high professionalism during the deployment. The medal recognises professionalism and collaboration with the Romanian Air Force  
Photo by AS1 Niran Lewis Royal Air Force Photographer

peace and stability in Europe, while also providing valuable experience for the aircrews involved in these complex and high-stakes operations.

As Operation Biloxi drew to a close, personnel from 140 Expeditionary Air Wing and IX(B) Squadron, stood together with personnel from the Finnish and Romanian Air Force in a ceremony to mark the end of another successful rotation of NATO enhanced Air Policing in Romania. The operation has seen RAF pilots

spend alternate weeks on high-readiness standby to defend NATO's airspace over the Black Sea, as part of NATO's enhanced Air Policing mission.

The mission was introduced after Russia annexed Crimea in 2014 and is now part of NATO's assurance measures.

Six RAF Typhoons and around 200 personnel have been based at Mihail Kogalniceanu Air Base in southeast Romania. Over a period of 4 months, the RAF has participated in exercises in Finland

and Poland and conducted training with other NATO partners to strengthen their skills and interoperability.

"The men and women of the 140 EAW and IX(B) Squadron have done an incredible job this deployment. It is a real privilege to be able to recognise them here today and for the opportunity to see some of them receive these awards. We have been here in Romania now for 4 months and the fact we have not had to conduct a live scramble shows the collective power of the Romanian, Finnish and UK as a deterrence to our adversaries" said Wing Commander Bird, Commanding Officer 140 Expeditionary Air Wing.



His Excellency Mr Giles Matthew Portman, UK Ambassador to Romania said: "It was a pleasure to be here on the 9<sup>th</sup> of April to mark the beginning of this important military operation. And I'm equally proud to be here again to congratulate the 200 strong Royal Air Force's team from 140 Expeditionary Air Wing for an exemplary and successful mission. Everyone has played a vital role supporting peace and security in Europe, reiterating to our adversaries the enduring strength of the UK's air power and its ability to respond to threats to prevent conflict and to provide assistance wherever needed. I also want, on behalf of the United Kingdom and the Royal Air Force, to thank the Romanian Air Force and the Romanian people for being wonderful hosts and to the Finnish Air Force for their support during their first detachment with NATO."

Photo by AS1 Niran Lewis  
Royal Air Force Photographer

"Receiving the Emblem of Honour fills me with immense gratitude, and I attribute this achievement to the exceptional efforts of my team of Armourers, as well as the continuous support and trust from both my chain of command and the armaments experts back in the UK. Working with our Romanian and other NATO partners has been a fantastic experience, offering an amazing opportunity to learn from each other's differing Armament Engineering practices, permitting us to further enhance the RAF's ability to fly and fight." – Flight Lieutenant Turner

Photo by AS1 Niran Lewis  
Royal Air Force Photographer





## THE FINNISH AIR FORCE'S FIRST MAJOR NATO DEPLOYMENT TO ROMANIA SUCCEEDED AS PLANNED AND ACHIEVED ITS OBJECTIVES.

The deployment of the Finnish F/A-18 Hornet fighter jets to Romania was part of NATO's Air Policing and Air Shielding missions, which strengthen the collective defence and deterrence of the Alliance through an enhanced presence and exercise activity of fighter jets and ground-based air defence units in NATO's eastern member states. The Finnish Air Force detachment consisted of seven Hornets and about 90 personnel at a time. The operation was carried out in three rotations and involved a total of about 250 personnel from all Air Force units during the summer. The aim of rotating the personnel was to gather as much experience as possible of operating under the direction of NATO's military command structure.

During June and July, the Finnish F/A-18 Hornet fighter jets were on quick-reaction alert (QRA) duty at Mihail Kogălniceanu Air Base on alternate weeks with the

Royal Air Force's (RAF) Typhoon jets. Romania is primarily responsible for surveilling and protecting its own airspace, but the presence of F/A-18s and Typhoons supported the readiness of NATO's collective defence in the Black Sea region. The Finns and the British will hand over the NATO missions in Romania to the Spanish Air Force.

### Lessons identified and learned for the future

For the Finnish Air Force, the objectives of the deployment were to enhance NATO integration, to deepen bilateral cooperation with the Royal Air Force, and to develop the capability to operate from an Allied air base. The objectives were achieved and lessons identified were written down to learn and improve own operations in the future.

With regard to the first objective, NATO integration, an important milestone was reached in early June when the Finnish fighter detachment passed a NATO

evaluation. The evaluation, conducted by the NATO Allied Air Command (AIRCOM), verified the Finnish Air Force's capability to start doing QRA duty of NATO's Air Policing mission. Passing the evaluation demonstrated that the detachment is capable of operating in accordance with NATO tactics, techniques and procedures.

In order to achieve the second objective, a very close and structured cooperation with the RAF was established during the deployment. Finnish and British fighter jets trained together in the air almost every day, and there was also cooperation off-duty, such as sports and sauna. The RAF's 140 Expeditionary Air Wing, consisting of six Typhoon jets and about 250 personnel, had arrived in Romania already at the beginning of April. Thus, the British were able to provide very valuable support to the Finnish detachment, especially in the early stages of the deployment.

As for the third objective, the operation provided valuable experience in deploying a fighter detachment to an Allied air base. The Finnish Air Force has been participating in international exercises for years, but the NATO deployment to Romania was both larger and longer in duration than a typical exercise abroad. In addition to the seven fighter jets, the detachment had approximately twenty vehicles and about a hundred containers.



**Above: Major Toni Vanhatalo, commander of the third and final rotation of the Finnish Air Force detachment**  
**Below: Finnish and British fighter pilots**  
**Photos by Finnish Air Force**



**"NATO integration consists of many different elements. The Alliance's ability to provide logistical support and intelligence, for example, will significantly enhance our capabilities. The lessons identified and learned from Romania are valuable for Finland, because the ability of all NATO members to work together is a huge asset for us. For me, the main takeaway from the operation is the confidence in NATO forces and our collective strength" – Major Vanhatalo**

The logistics were planned and carried out in close cooperation with the NATO Support and Procurement Agency (NSPA).

### Diverse exercise activity with Allies

In early June, immediately after the NATO evaluation was completed, the Finnish Air Force detachment participated in the Ramstein Legacy 24 exercise led by AIRCOM in Romania and Bulgaria. The exercise involved fighter jets and ground-based air defence units from several NATO member states. The main objective for flying units was to develop interoperability with ground-based air defence. At the Capu Midia firing range, for example, a Romanian Patriot air defence unit took part in the exercise.

During the deployment, the Finnish fighter detachment flew almost every day together with Allies as part of NATO's Air Shielding mission in Romania. In addition to dissimilar air combat training between different types of fighters, the Finnish fighter pilots also trained together with U.S. joint terminal attack controllers. The aim of the continuous exercise activity was

to maintain the collective defence and deterrence of the Alliance and to develop the interoperability of the fighter jets and ground-based air defence units from various NATO members.

For example, an air combat scenario flown in mid-July involved Finnish and Spanish F/A-18 Hornet fighter jets, Greek and Turkish F-16s and British Typhoon jets. Two tankers, a Spanish A400M and a Turkish KC-135, provided air-to-air refuelling support to the fighter jets. In addition, a French MAMBA air defence unit participated in the exercise on the ground.

At the end of July, the Finnish fighter detachment had the opportunity to train escorting United States Air Force B-52 Stratofortress bombers together with Romanian F-16s. The two bombers arrived at Mihail Kogălniceanu Air Base from Barksdale Air Force Base in Louisiana, training en route with several Allies. The Finnish Air Force's F/A-18 Hornet fighter jets escorted the B-52s, which flew non-stop via the Barents Sea, both in Finnish and Romanian airspace.

**Stories by: [www.raf.mod.uk](http://www.raf.mod.uk) and [www.maavoimat.fi](http://www.maavoimat.fi)**





## SPANISH AIR AND SPACE FORCES DETACHMENT CERTIFIED FOR ENHANCED AIR POLICING MISSIONS IN ROMANIA

Mihail Kogălniceanu 57 Air Base hosted the certification ceremony for the detachment of the Spanish Air and Space Forces (Ejército del Aire y del Espacio) deployed to Romania on Tuesday, August 6. This detachment will participate in Enhanced Air Policing missions in coordination with the Romanian Air Force, as part of NATO's ongoing efforts to secure the southeastern flank of the Alliance.

The Minister of National Defense, Angel Tilvăr, attended the event and underscored the significance of Spain's contribution to these missions, characterizing the involvement of the Spanish military as a "proof of cohesion and allied solidarity." Minister stated that this collaboration between Romania and Spain reflects "the collective commitment of NATO members to bolster the Alliance's response and deterrence capabilities in the Black Sea region."

Minister Tilvăr also emphasized the necessity for continuous adaptation to the evolving regional security environment. Concluding his remarks, Minister Tilvăr wished the involved personnel success, stating, "We remain vigilant and united in our resolve to address emerging security challenges." He emphasized that their success in upcoming missions is crucial for ensuring the security of NATO's airspace.

The ceremony was also attended by the Chief of the Defense Staff, General Gheorghiță Vlad, His Excellency José Antonio Pérez-Solórzano, the Ambassador of Spain to Romania, Lieutenant General Juan Pablo Sánchez de Lara, Commander of CAOC Torrejón and Major General Leonard Baraboi, Chief of Staff of the Romanian Air Force.

The Spanish detachment at Mihail Kogălniceanu comprises approximately 150 personnel, including pilots and technical staff, along with eight F-18 Hornet aircraft. Over the next four months, they will conduct enhanced Air Policing (eAP) missions alongside Romanian forces under NATO command. These joint missions will not only enhance NATO's response and deterrence capabilities but also strengthen the interoperability between the Romanian Air Force and the Spanish Air and Space Forces.

*Text and photos by Adrian Sultănoiu*



Above: During the ceremony, a mixed formation of F-18 Hornet aircraft from the Spanish Air and Space Forces and F-16 Fighting Falcons from the Romanian Air Force rendered aerial honors to the distinguished participants  
Left: The certification document for the Spanish detachment was presented by Lieutenant General Juan Pablo Sanchez De Lara, Commander of CAOC Torrejón to the Commander of the Spanish detachment, Lieutenant colonel Rafael Ichaso



"We must remain agile in the face of changes in the security landscape confronting the Alliance, and we must send a strong, unequivocal message to the public: we are united under the umbrella of the largest defense alliance, working together to protect the airspace of NATO's southeastern flank - a region with a complex security architecture, particularly following the outbreak of war in Ukraine in February 2022," said Minister Angel Tilvăr



## SPANISH F-18 JETS TRAINED INTEGRATED WITH NATO FRENCH-LED MULTINATIONAL FORCE

deterrence and defence mission," he added. The French-led Multinational Force "Aigle" supports NATO operations in Romania enabling deterrence and defence and executing the Alliance's regional defence plans; Belgium and Luxembourg also contribute to the force that totals more than 1,500 personnel.

This multinational force is equipped with "Leclercq" tanks, "Caesar" self-propelled artillery systems and the MAMBA ground-based air defence system. The latter regularly contributes to training with Allied fighter detachments e.g during missions simulating base and air defence procedures. "The aim of these combined joint missions is to integrate different member States' forces deployed on the eastern flank of NATO and enhance area security," added Lieutenant Colonel Ichaso Franco. "Frequent training is essential to make us better and to learn how best to execute Collective Deterrence and Defence. Working with the colleagues from the "Aigle" team here on the eastern flank of NATO further increases our cohesion and interoperability - we are ready if needed to respond to potential violations of Allied airspace or territory," he concluded.



Spanish Air Force F-18s flying alongside a Romanian F-16 during a training sortie. Since August, eight Spanish F-18s have been supporting NATO's enhanced Air Policing mission in Romania providing deterrence and defence along the eastern flank.  
Archive photo courtesy Spanish Air Force

The Spanish Air Force F-18 jets currently conducting NATO enhanced Air Policing out of Mihail Kogălniceanu Air Base in Romania supported the French-led Multinational Force "Aigle" during Air-Land Integration drills at the end of August. From August 26 to 31, the Spanish F-18 fighter pilots flew Close Air Support missions in cooperation with "Aigle" Joint Terminal Attack Controllers (JTACs). The Spanish F-18 took off from Mihail Kogălniceanu Air Base and flew more than 400 kilometres to the vicinity of the Cincu Training Area enabling JTACs to execute control runs with the jets against targets on the ground.

In the process, the JTAC patrol teams designated targets and called in one or more aircraft to engage it; the JTACs ensured the terminal control of the attacks as eyes on the ground for the fighter pilots. After completing the CAS training missions, the JTACs joined the F-18 detachment at Mihail Kogălniceanu. "During an informational visit, our pilots explained to

their army colleagues how a deployed NATO air detachment operates away from home in support of NATO's enhanced Air Policing," said Lieutenant Colonel Rafael Ichaso Franco, the Spanish F-18 detachment commander. "We also shared our great experience of working with other Allies especially the Romanian Air Force to safeguard NATO skies contributing to the



A French Mission Aigle Joint Terminal Attack Controller at work in Romania. During Close Air Support manoeuvres, JTACs control final phase of aircraft engagement and "talk" the pilots into position. Photo courtesy French EMACOM



Air and Land talking to each other - A member of the French led multinational force "Aigle" and a Spanish F-18 fighter jet cockpit during the visit concluding a week of close combined joint training among Allies. Photo by Spanish Air Force.



The French MAMBA air defence system viewed in a position at Capu Midia, Romania. As a crucial component of the French-led multinational force "Aigle" the MAMBA enable ground-based air defence along the eastern flank of NATO. Archive photo by Manfred Reudenbach





## INTEGRATION TRAINING OF FINNISH AND ROMANIAN AIR FORCE DISPLAYED ALLIED INTEROPERABILITY

Finnish and Romanian fighter aircraft conducted flying training missions with a Romanian C-130 transport aircraft on the Black Sea shores, demonstrating close integration and cooperation. Deployed to Romania for NATO Air Policing and Air Shielding, the Finnish F/A-18 Hornet fighter jets flew training missions with Allies almost every day. In a special event, the Finnish pilots practiced intercept and escort maneuvers with their Romanian

colleagues. For the first time since Finland joined NATO in 2023, Finnish F/A-18 fighters were deployed at Mihail Kogalniceanu Air Base near Constanța for two months, demonstrating their support for NATO enhanced Air Policing. Together with a British Royal Air Force Typhoon detachment and alongside the Romanian Air Force, they flew sorties patrolling the skies over Allied territory in the region. NATO introduced the defensive air mission in

Romania and Bulgaria in 2014 as a response to Russia's illegal annexation of Crimea. For ten years, Allied fighter detachments had been deployed to the region in a display of Allied cohesion and solidarity. The goal of the mission was to demonstrate the collective resolve of Allies and to deter aggression or the threat of aggression against NATO Allies on the Black Sea.

Photos by Alexandru Nițu

A detachment of approximately 35 military personnel and 3 F-16 aircraft from 86<sup>th</sup> Air Base was deployed from September 16 to October 4 at Los Llanos Air Base, Albacete. Flying course FC 2024-3 started on Monday, September 16, and concluded on Friday, October 4, with a 3-week duration.

Approximately 650 personnel participated in the Tactical Leadership Programme (TLP) during this course, with 34 graduating, including 22 pilots, 6 intelligence officers, and 6 air traffic controllers.

The flights took place from Monday to Friday in the afternoon, beginning on Monday, September 23, as the first week was dedicated to academic activities and simulator flights.

The nations that participated on the Blue side in this flying course provided 18 platforms, including Spain with Eurofighter aircraft, France with Mirage 2000D and Mirage 2000-5, the United States

with F-15E Strike Eagles, and Romania and Turkey with F-16s. As for the opposing side (Red Air), there were a total of 6 aircraft, with participating nations being Spain with Eurofighter, F-18A, and F-18M, and the United States with F-15E from the USAF.

To support the flight course, the Spanish Air and Space Force (EA) Command and Control resources were present during the execution of the missions.

Also noteworthy was the participation of the remotely piloted aircraft (RPAS) MQ-9 Predator B (NR-05) of the Spanish Air and Space Force, as well as two Belgian instructors specialized in

personnel rescue missions, and additional American and national tactical air control teams.

As an anti-aircraft threat, real air defense systems of the Spanish Army were involved, including the MISTRAL and MALLINA systems, along with several threat simulation systems from the American company POLYGON, and the French ARPEGE system, which were deployed in various locations within the area of operation.

Regarding the involvement of other air assets, a Spanish NH 90 helicopter participated in specific missions as BLUE AIR, along with its respective extraction teams, and two American SH-60

helicopters on the RED side. A Spanish C-295 tactical transport aircraft was also involved. Additionally, during the flight period, a national SAR helicopter was available from the San Javier Air Base.

Finally, the TLP facilities continued using the advanced flight simulator (MACE), which allowed the pilots to train not only in the virtual environment but also to interact with live aircraft in real missions through modern communication protocols.

Source: [www.tlp-info.org](http://www.tlp-info.org)  
Photo courtesy by 86<sup>th</sup> AFB



Reputed to be the largest military airshow in the world, **Royal International Air Tattoo** featured modern military and classic aircraft, both static and flying, from many continents.

In 2024, the Operational Theme was **'Pushing the Boundaries in Air and Space,'** marking 100 years of British military test flights and highlighting the critical role of flight testing and evaluation in modern aviation. This theme allowed aircraft and organizations from around the world to showcase the latest technological developments.

Another major theme in 2024 was the **F-16 'Fighting Falcon,'** celebrating 50 years since the aircraft's first flight. Developed for the United States Air Force, the Lockheed Martin F-16 made its maiden flight in 1974 and achieved global success, with over 25 nations operating it over the past five decades. Visitors were able to see F-16s, both flying and static, from various countries.

The show also commemorated **NATO's 75<sup>th</sup> anniversary,** recognizing its ongoing role in protecting the freedom and security of its member nations.

86<sup>th</sup> Air Base successfully represented Romania, both on the ground and in the air, showcasing a high level of professionalism and interoperability. Romanian air and ground crews demonstrated operational excellence during joint exercises, contributing to the overall mission success and strengthening allied partnerships. Their precise coordination, combined with advanced flight capabilities, highlighted Romania's commitment to NATO standards and readiness. Through both static and dynamic displays, 86<sup>th</sup> Air Base exemplified the integration of modern military technology with well-trained personnel, reinforcing Romania's role in enhancing regional security and collective defense operations. The Romanian Air Force was also present at RIAT 2024 with a C-27J Spartan aircraft from the 90<sup>th</sup> Airlift Base, featured in the static display.

Photos provided by 86<sup>th</sup> Air Base and 90<sup>th</sup> Airlift Base



## THE ROYAL INTERNATIONAL AIR TATTOO







# ROMANIAN AIR FORCE AT BUCHAREST INTERNATIONAL AIR SHOW 2024



Photos by Maria Ioniță, Alexandru Nițu,  
Dănuț Vlad, Adrian Sultănoiu



# APROC 24

**From 17–28 June 2024, a detachment consisting of two IAR-330 SOCAT helicopters and 30 personnel from the 71st and 95th Air Bases, along with a team from the Combat Search and Rescue Detachment (DCSL), was deployed to Spain for the third consecutive year to participate in the Air Centric Personnel Recovery Operatives Course 2024 (APROC 24) at Albacete Air Base**

This year's detachment, commanded by Colonel (AF) Răzvan Roșca, consisted of pilots from both the 71st and 95th Air Bases, as next year, the responsibility for generating and certifying personnel will fully transition to the Transylvanian aviation unit. During this training event in Spain, Romanian military personnel were educated and certified in planning, preparation, execution, and analysis of personnel recovery missions.

"The year 2024 marks the transition of responsibilities from the 95th Air Base to the 71st Air Base, enabling future training of pilots from the Transylvanian aviation unit in personnel recovery operations. APROC, organized in Spain by the European Personnel Recovery Center (EPRC), is the only course of its kind in Europe, highlighting the importance European nations place on these operations. Romanian Air Force was first invited in 2022, and our performance was praised as 'outstanding' by EPRC leadership. We've successfully trained the Search and Rescue Detachment pilots generated by the 95th Air Base for NATO missions. In the future, we'll also train F-16 pilots since personnel recovery operations involve both rotary-wing and fixed-wing aircraft. APROC not only ensures standardization and interoperability but also acknowledges the professionalism of Romanian pilots at the European and global levels. I believe we've

set a high standard. I want to thank both the personnel of the detachment for their professionalism and the leadership of the Air Force Staff, the 95th Air Base and the 71st Air Base for their continuous support in planning and executing this mission under optimal conditions," said Colonel (AF) Răzvan Roșca.

I also got the chance to interview two participants to learn more about their experiences and the importance of Romanian military involvement in such operations. Captain Aurel Danțiș, a pilot with the 952 SOCAT Helicopter Squadron at the 95th Air Base in Bacău, has served as a flight safety instructor since 2023. With over 1,300 flight hours, including 1,100 hours on the IAR-330 SOCAT, Captain Danțiș has participated in numerous courses both domestically and abroad.

"This was my third APROC experience. The professionalism and dedication of Romanian pilots have ensured the continued presence of the Romanian Air Force at APROC. Each year, the goals are to train pilots in personnel recovery missions, prepare experienced pilots to become Rescue Mission Commanders (RMC), and train extraction forces. The multinational environment offers significant advantages. Being part of a planning group with pilots from European countries is a remarkable experience. Leading the planning team and overseeing the formation of aircraft to achieve mission objectives is incredibly

satisfying," said Captain Aurel Danțiș. APROC 24 also included pilots participating for the first time—lieutenants who met the high standards of the course, forming crews and navigating across counterparts from Spain, France, and Italy. The support team performed exceptionally, with no major aircraft maintenance required.

"Executing a personnel recovery mission typically demands a large force package and meticulous planning, with attention to every detail. Planning is only effective when we use common techniques, tactics, and procedures. APROC is the ideal environment to practice and apply what I've learned," added Captain Danțiș.

Major (AF) Alexandru Fechetete serves as a patrol commander within the 713 SOCAT Helicopter Squadron of the 71st Air Base at Câmpia Turzii. At 34 years old, he has been a certified pilot since 2012, with more than 1,000 flight hours on various aircraft, including the Yak-52, IAR-99 STD, IAR-99 Șoim, and IAR-330. Since 2014, he has focused on helicopter operations, accumulating roughly 900 hours and qualifying as an instructor pilot in all conditions. Throughout his career, he has participated in numerous international courses and exercises, enhancing both his personal and professional development. "The APROC course offers Romanian pilots an excellent training opportunity alongside personnel from Great Britain, France, and Spain within an international environment. It also serves as a solid platform for consolidating and applying knowledge related to personnel recovery missions. Courses like this are essential for pilots, as they demonstrate that behind every successful mission is a team of individuals with diverse ideas, philosophies, and standards. Overcoming these differences is crucial to the mission's success. For me, APROC was a valuable training opportunity within a multinational framework," said Major (AF) Fechetete.

He highlighted that APROC emphasizes academics and planning, followed by the execution of the mission. The course provides a tactical environment that closely

replicates real-life scenarios, ensuring the safe conduct of flight missions. The Romanian detachment experienced a challenging yet rewarding period, and the knowledge gained during these two weeks will benefit the Romanian military in future operations.

"The morale of the 71st Air Base pilots was excellent. We are a united and well-connected group. We gained many valuable experiences that will help us grow and become our best selves. APROC is beneficial for any Romanian pilot, as it challenges you, sometimes pushing you to your limits, which forces you to find solutions and surpass yourself. This can only lead to progress. It was an intense experience for me, one that I would gladly repeat. This course reaffirmed the value and professionalism of the Romanian Air Force



**The detachment, through its commander, Colonel (AF) Răzvan Roșca, expressed gratitude to Deputy Chief of the Romanian Air Force Staff for Operations and Training, Brigadier-General (AF) Ioan Mischie for the support provided in participating in APROC.**



**"This time, the experience was different because we were accompanied by pilots from the 71st Air Base—professionals we could rely on both during the deployment and the course. In my opinion, APROC is one of the most valuable courses at the European level for helicopter pilots and beyond. It combines theoretical knowledge with practical application—what you learn in three days must be put into practice during the following seven days of flight." – Captain Aurel Danțiș**

personnel, at the same level with that of other NATO member countries. I encourage others to participate in this course, but they should be aware that it is a demanding period that requires a solid understanding of personnel recovery missions," added Major (AF) Fechetete.

**Story by Lucian Irimia**



**"The activity was interesting, and I'm glad I participated with my colleagues from the 95th Air Base. Their previous experience helped us better understand the instructors' requirements and quickly adapt. The course provides a comprehensive overview of executing a personnel recovery mission. I was particularly pleased with the dedication of the staff and the support they provided to newcomers. The cooperation with other nations went smoothly, and we made friends with some of the participating crews, which reassured me once again that Romanian pilots are highly regarded abroad and that their training efforts are not in vain." – Major (AF) Alexandru Fechetete**





## ALLIES TRAINED CLOSE AIR SUPPORT IN A TRADITIONAL CZECH-LED LIVE EXERCISE



From September 2 to 20, 2024, the Czech Armed Forces hosted the international exercise Ample Strike 2024 (AMSE24) more than 500 participants, including 200 foreign colleagues. The main goal of the exercise, conducted across Czech military installations and training areas, was to train all facets of Close Air Support (CAS) activities.

For the eleventh time, AMSE24 provided realistic scenarios offering challenging training opportunities for the participants. The drills included live ammunition delivery and night CAS, mainly at the Boletice military shooting range in the southern part of Bohemia. Joint Terminal Attack Controllers (JTACs) from Belgium, Denmark, Estonia, Finland, Germany, Italy, Lithuania, the Netherlands, Poland, Romania, Slovenia, the

United Kingdom, and the United States of America, under the supervision of experienced instructors, trained their ability and skills to provide precise and timely control to different types of flying assets. During AMSE24, the multinational JTACs, supported by Allied aircraft, verified the interoperability of Air Power and Air-Land Integration, which is key to combined joint Allied operations. The training activities drew on

support from transport, fighter, and support aircraft as well as helicopters from several Allies. They included Czech Air Force L-159 ALCA jets - the CAS workhorse - CASA C-295, Mi-17 and Mi-171, as well as Slovenian PC-9s, German Eurofighters, A-400 air-refuelers, and PC-9s, Dutch L-39s, and Lithuanian Mi-8T helicopters. For the first time, the Romanian Air Force deployed their IAR-330 Puma helicopters to fly missions during AMSE24. From the United States, the Texas Air National Guard operated their MQ-9 Reaper drone to further add to realistic and state-of-the-art training.

"A multinational Allied exercise is always an excellent opportunity to demonstrate our Host Nation Support capability," said Colonel Michal Kudyn, the AMSE24 exercise director. "Therefore, another important secondary goal of the exercise was to verify this capability mainly at the 21st Tactical Air Force base at Caslav and all other sites we used for the exercise," he added. "From a Czech perspective, we had two more firsts this year," said Colonel Kudyn. "We conducted the deployment and operation of our military fleet of ALCA jets from the civilian

airport at Ceske Budejovice, including weapons training. This was a big step forward in practicing and demonstrating Czech Air Force capabilities, especially in terms of resilience and flexibility," he added. "Last, but not least, for the first time in an AMSE exercise, we saw the participation of flying officer reservists from the Flight Training Centre (FTC) at Pardubice, who carried out support operations with the FTC Mi-17 helicopters. This confirmed that AMSE was not only an excellent opportunity for our Allied colleagues to keep current and enhance their capabilities, but also for the Czech Armed Forces to benefit from cooperation at the international level," Colonel Kudyn concluded. Since 2014, the Czech Republic has conducted the annual Ample Strike exercise, building a reputation for hosting this live-fly and live-fire exercise for NATO JTACs, demonstrating Allied cooperation, cohesion, and capabilities. At NATO Allied Air Command in Ramstein, Germany, staff worked to standardize tactics, techniques, and procedures for JTACs and granted NATO accreditation of Allied JTAC programs.



A Czech Air Force Mi-171 helicopter overhead during a previous exercise. For the first time during an Ample Strike exercise several of these helicopters are operating out of a civilian airport.  
Archive photo by Pavel Vanka



For the first time, the Romanian Air Force deployed two IAR-330 Puma helicopters to Namest Air Base to fly missions as a part of Ample Strike 24.  
Photo: W.O. Andreea Tabarca, ROU AF

## FALCON LEAP 2024



Falcon Leap 2024 was an international exercise held from September 9 to 21, 2024, involving military personnel from the land and air forces of the Netherlands and eight other nations. The exercise focused on practicing cargo and paratrooper drops from Eindhoven Air Base over the Netherlands, preparing participants for future missions.

The participating countries operated a variety of aircraft, including the C-130 H from the Netherlands, the C-130 J from the United States, the A-400M from Great Britain and Germany, and the C-27J and C-130 from Greece. Poland,

Portugal, and Spain used the C-295, while Romania participated with a C-27J Spartan from the 90<sup>th</sup> Airlift Base. During the first week, cargo drops and airborne landings were executed over

Marnewaard, Deelen, Wolfheze, and other areas. A recent example of a similar mission involved the delivery of humanitarian aid over Gaza. In the second week, paratroopers were deployed at various locations across North Brabant, Gelderland, and Groningen. A significant highlight of the exercise occurred on September 21, when the participating aircraft took part in a solemn commemoration of the 80<sup>th</sup> anniversary of

Operation Market Garden at Ginkelse Heide near Ede. This tribute underscored the deep historical connections and ongoing commitment to airborne operations. The exercise underscored international collaboration in airborne operations. Training with personnel, equipment, and aircraft from different nations enhanced procedural efficiency and interoperability.

**Text: Colonel (AF) Florin Sandu**  
**Photo: CER SENIN archive**



The European Tactical Airlift Programme – Course (ETAP-C 24-3) was conducted at Bezmer Air Base and within designated areas of Bulgarian airspace until September 20, as announced by the Bulgarian Ministry of Defence.

The international exercise involved aviation assets, crews, and personnel from the air forces of Bulgaria, Germany, Romania, Lithuania, Poland, the European Tactical Airlift Centre (Zaragoza), and the European Air Transport Command (Eindhoven). The exercise was led by Colonel Lazarin Lazarov, Commander of Military Unit 24 900 - Sofia. The Romanian Air Force participated with one C-130 Hercules aircraft and a detachment of 24 military personnel. The primary objectives of the exercise were to

enhance interoperability during multinational operations among allied forces and to improve the theoretical, tactical, and flight proficiency of participating military personnel. Additional objectives included advancing tactical and flight training for fighter aviation crews and refining the theoretical and tactical training of surface-to-air missile units for engaging low-altitude, slow-speed targets. The exercise also aimed to strengthen the Air Forces' logistical support procedures and host nation support capabilities.

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The European Tactical Airlift Programme – Course (ETAP-C) is designed to provide air transport crews with comprehensive airlift tactics training, enhancing their tactical acumen, expanding their operational 'comfort zones' in hostile environments, and increasing survivability within contested airspace. With nearly all European Air Transport Fleet (EATF) nations participating, the course fosters greater interoperability among European air forces.

**Source: [www.etac-mil.eu](http://www.etac-mil.eu), [www.pan.bg](http://www.pan.bg)**  
**Photo: Alexandru Nițu, CER SENIN archive**



## DACCC AUGMENTS NATO SURVEILLANCE CAPABILITY, SUPPORTS ENHANCED VIGILANCE IN ROMANIA

NATO's Deployable Command and Control Centre (DACCC) completed the move its Deployable Air Defence Radar (DADR) LANZA LTR-25 and support crew from Poggio Renatico, Italy, to Cataloi, Romania. For several months, NATO's air surveillance and control experts will be supporting the Alliance's enhanced Vigilance activities on the southeastern flank. The DACCC declared Initial Operational Capability of the DADR on August 14, enabling it to enhance surveillance coverage on the border of Romania, especially to detect reduced Radar Cross Section assets approaching NATO airspace.

This mobile radar is one of two assigned to the DACCC. Together with two additional passive sensors (Deployable Passive ESM Tracker – DPET) they provide a unique capability to the Centre making it the only NATO entity providing both active and passive radar discovery. "This deployment has to be seen as defensive and necessary in order to further increase protection of our host nation and Ally Romania," said

Major General Denny Traas, DACCC Commander. "The mission demonstrates the continuous evolution and improvement of Alliance defensive system," he added. "Our first priority is to contribute to NATO's effort to a robust and capable military posture to deter from an attack on the Alliance and be prepared to defend when deterrence fails," he said. Deployable active radars provide an efficient addition to

existing static and airborne command and control platform as they enhance interoperability through alliances and partnerships and reinforce the preparedness of NATO Air and Space Power. "The current deployment of the DACCC's radar to Romania demonstrates NATO's continuous commitment to safeguarding the integrity of Alliance Members' airspace. It coincides with the routine rotational deployment of NATO fighter jets – presently Spanish F-18s – to Mihail Kogalniceanu Air Base, Romania, to conduct enhanced Air Policing. Both deployments underscore the solidarity and cohesion among NATO Allies when it comes to deterrence and defence," said Brigadier General Michael Krah, Deputy Chief of Staff

Operations at Allied Air Command. For several months, NATO's air surveillance and control experts will be supporting the Alliance's enhanced Vigilance activities on the southeastern flank. The DACCC declared Initial Operational Capability of the DADR on August 14, enabling it to enhance surveillance coverage on the border of Romania, especially to detect reduced Radar Cross Section assets approaching NATO airspace. This mobile radar is one of two assigned to the DACCC. Together with two additional passive sensors (Deployable Passive ESM Tracker – DPET) they provide a unique capability to the Centre making it the only NATO entity providing both active and passive radar discovery.

## NATO'S DEPLOYABLE COMMAND AND CONTROL CENTRE SENT OFF SUBUNIT TO SUPPORT EXERCISE RAMSTEIN FLAG 24

NATO's Deployable Command and Control Centre (DACCC) dispatched a convoy of vehicles to Andravida, Greece, to set up and operate a mobile surveillance and control unit in support of Allied Air Command's major live-fly exercise Ramstein Flag 2024.

The DACCC deployment began on September 3, 2024, when a convoy consisting of around 30 vehicles departed from Poggio Renatico base. Within the framework of the deployment exercise Ramstein Dust 2024 (RADU24), the 2500 km deployment moved to the port of Trieste and then traveled by ferry to Greece. This movement marked the initial phase of the deployment of DACCC personnel and material in support of one of NATO's major

exercises in 2024 – Ramstein Flag (RAFL24), organized by the Allied Air Command at Andravida Air Base, Greece, in collaboration with the Hellenic Air Force. The DACCC participated with the deployment of approximately 115 women and men from Poggio Renatico base, including its Deployable Air Control Centre, Recognized Air Picture Production Centre/Sensor Fusion Post (DARS) with advanced Command and Control,

airspace management, and surveillance capabilities, as well as two "Ground-Air-Ground" radio modules.

"NATO forces must be ready to go wherever, whenever, on very short notice," said Brigadier General David Morpurgo, DACCC Deputy Commander, as he bid farewell to the DACCC personnel departing for Greece. "It is key for the Alliance that command and control systems which enable air assets to plan, undertake, and complete their mission are quickly deployable," he added. After the "build-up" phase, DARS began to operate fully connected to the NATO Integrated Air and Missile Defence System within the area of responsibility of NATO's Southern Combined Air Operations Centre at Torrejón, Spain. This integration offered several advantages, including better detection and tracking capability, greater air situation awareness, and faster response times. During RAFL24, the integration of DARS had a significant impact on the surveillance and control of exercise air assets, improving the system's ability to detect and track threats and providing a more complete air picture. The DACCC is the only NATO Command capable of carrying out aerial planning, tactical command and control, airspace management, and surveillance actions from the permanent site of Poggio Renatico or as a deployed unit. Its ability to deploy active and passive sensors made it a unique asset in the Alliance inventory.



## NATO MISSILE DEFENCE BASE IN POLAND NOW MISSION READY

A new U.S. ballistic missile defence site in northeastern Poland is now operational and available for the defence of the Alliance. Dubbed "Aegis Ashore", the site is part of a larger NATO missile shield and is designed to detect, track and intercept ballistic missiles in flight.

"This is an important step for transatlantic security and NATO's ability to defend against the growing threat of ballistic missiles," said NATO Secretary General Jens Stoltenberg. "Ballistic missiles have been widely used conflicts in Ukraine and the Middle East. As a defensive Alliance we cannot ignore that threat. Missile defence is an essential element for NATO's core task of collective defence," Mr Stoltenberg added. NATO's Ballistic Missile Defence allows for the detection of a missile attack and uses radar data to guide an interceptor to destroy the adversary's offensive ballistic missile. The missile defence site in Poland can defend against short-to-intermediate range ballistic missiles. Aegis Ashore is a key component of NATO's Ballistic Missile Defence "Enhanced Operational Capability" declared by Allied Heads of State and Government at the Washington Summit. NATO Ballistic Missile Defence's mission is



The new mission-ready Aegis Ashore Ballistic Missile Defence System facility at Redzikowo, Poland, provides capability to an essential element of NATO collective defence.

Archive photo courtesy U.S. Navy

to protect NATO's European populations, territory and forces against the increasing threat posed by ballistic missiles. Key elements of NATO's missile shield include the two U.S. Aegis Ashore sites in Poland and Romania along with U.S. navy destroyers out of Rota, Spain, and an early-warning radar in Kurecik, Türkiye. Aegis Ashore is purely defensive. About 200 military personnel are stationed at the two interceptor sites in Poland and Romania. The site in Deveselu, Romania, has been

operational since 2016. As a result of the 2009 European Phased Adaptive Approach initiative which calls for using Ballistic Missile Defense capabilities to defend Europe against threats originating from outside the Euro-Atlantic area, the new Naval Support Facility in Redzikowo, Poland, is the home to the Aegis Ashore Ballistic Missile Defense System mission. The new base will expand a defensive capability that protects NATO European territories, populations and forces.

## NATO AWACS: SUSTAINING VIGILANCE AND TRAINING WITH ALLIED FORCES

The NATO E-3A Component has successfully completed an extensive three-week deployment of the NATO AWACS, training alongside our Allies, operating from Rygge airbase in Norway. This was an invaluable opportunity to provide our high-readiness crews with unique opportunities to test, evaluate and validate our command and control capabilities. It has proven to be an excellent opportunity to refine the AWACS readiness, as part of wider NATO joint vigilance operations.

During the deployment, NATO AWACS trained with naval assets and other air forces from various NATO nations, showcasing NATO's readiness, strength and interoperability with our Allies. With battle-proven AWACS capabilities, the NATO alliance is able to maintain information superiority in an increasingly complex environment. The Italian and French Airborne Early Warning aircraft joined the missions as national contributions providing continued surveillance support on a daily basis. "NATO AWACS and

participating national assets were key to mission accomplishment," said Major General Gianluca Ercolani, Chief of Staff at Allied Air Command. "They also demonstrated interoperability and capability during combined operations in support of Alliance deterrence and defence," he added. "The strategic role of the NATO E-3A sits at the heart of NATO force projection; this capability integrates airpower from across the Alliance and provides both surveillance and Command and Control functions that are imperative to defending our airspace. By

operating out of Deployed Operating Bases, such as Rygge or elsewhere at short-notice, we showcase our determined ambition to maintain our vigilance and readiness to defend the Alliance," said Air Commodore Andrew Turk, NATO Airborne Early Warning and Control Force Chief of Staff and Deputy Commander. The E-3A AWACS is referred to as NATO's ultimate 'Eye in the Sky'. As one of the few military assets both owned and operated by NATO, the AWACS mission is to perform all surveillance and battle-management tasks on behalf

of the Supreme Allied Commander Europe. Such deployments to integrate into joint missions, demonstrate our flexibility in being able to operate anywhere, anytime, to safeguard the Alliance.

NATO is a defensive organisation who maintains transparency about the activities that are executed. The information gathered during NATO AWACS flights gives NATO decision-makers valuable insight to enhance our vigilance in the defence of the Alliance. NATO AWACS has flown enhanced Vigilance Activities missions regularly along the borders of Allied Territory to secure NATO's eastern flank. These missions have been part of NATO's operations since 2014.



# ITALIAN AIR FORCE 6° STORMO "DEVILS IN TRANSITION"

Gian Carlo Vecchi

Gian Carlo Vecchi, Pier Paolo Lazzarin



For the Air Force to date, the 6<sup>th</sup> Wing (placed under the Air Squadron Command, through the Combat Forces Command) represents the last link between the "old" generation aircraft, (the adjective " does not imply that the aircraft do not still carry out their task in the best possible way) and new generation, read 5<sup>th</sup> Generation. As happened at the 51st Wing of Istrana, the Air Force for better management of resources and standardization of operational lines has "collected" its entire Tornado line at the 6<sup>th</sup> Wing of Ghedi, in fact following the closure of the 50<sup>th</sup> Stormo, (14 September 2016) all the ECR Tornados of the 155<sup>th</sup> Group, were relocated to the Ghedi headquarters, effectively replacing the 156<sup>th</sup> Group (Le Linci) placed in the "Stand By" position. The three flight groups operate from the Brescia base with

different types of use and characteristics (even if two groups basically operate with the same machine). So three flight lines with the three permanent groups. The 154<sup>th</sup> Flight Group, (RED DEVILS) which operates on IDS tornados with CBOC (conventional all-weather fighter bomber) and CRO (all-weather reconnaissance fighter) specialties with reconnaissance and ground attack tasks. The 155<sup>th</sup> ETS (Electronic Warfare Tactical Suppression) Group (BLACK PANTHERS), which operates with Tornado ECR with tasks of suppressing enemy electronic defenses. The 102<sup>nd</sup> Flight Group (I PAPERI) in transition to the F35A aircraft, an omnirole aircraft. A complex reality to which is added the commitment that the Wing has been facing since 14 January at the Ali Al Salem base in Kuwait with the DEVIL Task Group.





Undoubtedly an absolutely interesting reality, the generational leap between aircraft is truly remarkable, but not only that, precisely to accommodate these new 5<sup>th</sup> generation aircraft the Ghedi base is undergoing numerous infrastructural upgrades such as buildings, cargo area and a specific area exclusively dedicated to the F35A, and the work in progress is truly remarkable, and not everything can be disclosed.

In this regard, and to better "describe" this new reality, JP4 went to the 6<sup>th</sup> Wing on several occasions to document all the activities, and to interview the "master" of the house, Col. Pilot Luca Vitaliti, Tornado and F35A pilot, the "real" ferryman of the 6<sup>th</sup> Wing, in fact it will be precisely under his command that the wing will be absolutely projected towards the Fifth Generation Fighter.

#### INTERVIEW WITH THE COMMANDER OF THE 6<sup>TH</sup> WING COLONEL PILOT LUCA VITALITI

**1-JP4: 6<sup>th</sup> Stormo, a look towards the future without losing sight of its past and history.**

**Col. Vitaliti:** The 6<sup>th</sup> Wing has a rich and very complex history. There were many locations in which he was deployed and many operations in which he participated with his Squadrons. We know how the Italian military aviation, in general, has been able to go through very different phases and has faced increasingly difficult contexts from an operational and human point of view, considering the rapid evolution of the geopolitical scenario. The Regia Aeronautica was born from the need to redefine the organizational and organic structure of the air forces, in order to achieve the necessary autonomy and be able to face the new air domain with innovative doctrine and operational concepts, free to pursue innovation and technological progress. The 6<sup>th</sup> Wing "Alfredo Fusco" was born in 1936, near Campoformido (Udine). Since its establishment it faced multiple vicissitudes due to its uninterrupted participation in front line operations, the stages of which are the historical heritage of the Air Force and of Italy. Here I will focus on the conceptual aspects of the history of the Department, rather than on the individual significant events that made the history of the Red Devils. The 6<sup>th</sup> Wing, in its infancy as well as today, operated for a long time outside national borders. This is confirmed by the current events we experience

today, with the 6<sup>th</sup> Wing supporting the NATO air defense mission in Eastern Europe with its V Generation F-35 aircraft and the stabilization in Iraq with its Tornado aircraft. On the other hand, the peculiarity of the Air Force is precisely the ability to project itself promptly at a distance to keep threats and dangers away from our borders to preserve our democracy, the well-being and freedom of our citizens. Even at the beginning of our history, therefore, the 6<sup>th</sup> Wing redeployed many times outside national borders, always in complex Operational Theaters. On the occasion of the first Gulf War, the 6<sup>th</sup> Wing contributed significantly to Operation Locust, within the Desert Storm coalition campaign, with Tornado crews and aircraft, taking part, the first time for the Air Force in a conflict from Second World War, to the liberation of Kuwait from the occupation of Iraq. We could correlate the different historical phases to the different aircraft that equipped it and supported the operational activity of the Department, for this reason we see them displayed in succession on the wall of this office. This wall shows us the gradual passage through seventeen machines in just over eighty years. Seventeen different systems, today they call them weapons systems and maybe the same person passed through four or five of these. This means going from an airplane that perhaps has an instrument on one side, to another that had it on the opposite side or that flew in a totally different way. An airplane that perhaps didn't come out of the spin, the other on the contrary went in on purpose, one that perhaps didn't have a

wheel on the nose the other did. Totally different things: biplane, monoplane, high wing, low wing. This is aeronautics, and this is why there is this projection towards the future, essentially, let's say, the present is already past. We have "Hunting" in our DNA, first using biplanes, then the G50, an aircraft that allowed us to expand the application of air power in a more extreme way in the field of air defense to arrive at the most high-performance fighters supplied to the Regia



Aeronautica. In the post-war phase, the rapid provision of jet aircraft, such as the DH100 "Vampire" from 1952 to the 154<sup>th</sup> Flight Group, highlights the rapid integration of the Unit within NATO. It is the moment in which the Air Force, in particular the 6<sup>th</sup> Wing, becomes a very important piece in terms of readiness, mass and operational contribution. The 6<sup>th</sup> Wing was certified to carry out missions with specific tasks for national defense and for the Atlantic Alliance and immediately specialized in counter-aviation and interdiction roles, which primarily means countering the enemy's air and anti-air capabilities and penetrating in depth to target the warfare capabilities of a potential threat or potential enemy. The Department has also specialized in reconnaissance, fundamental for the acquisition of strategic level intelligence information, for patrolling and control, and in close air support to ground troops. This is the timeline up to the 1960s, until the arrival of the F-104. We are talking, for the time, about machines designed to effectively fulfill an operational role, at most two. With the arrival of the Tornado, the Wing makes a notable generational leap by acquiring an intrinsically multi-role aircraft, therefore capable of operating effectively in a much wider range of roles. The Tornado, in addition to its capabilities for interdiction and engagement of targets, for example, is equipped with excellent reconnaissance capabilities, which have allowed it to establish a great tradition in this sector within the Department too. The Tornado carried out

"RECCE" missions demonstrating advanced specialist qualities that covered the territories in the area of operations and contributed to the national, coalition and NATO intelligence information assets. Furthermore, over the years, many interventions have been carried out on the national territory of reconnaissance, patrolling and surveillance for competition activities, in support of the Civil Protection in situations of natural disasters or for the monitoring of hydrogeological instability, or to the Police Forces for the control of territory and the fight against crimes against the environment, which confirmed the wide range of capabilities that Tornado aircraft can express. In retracing the history of the Department through the evolution of the aircraft, the month of December 2022 was certainly a watershed that saw the arrival of the F-35s in Ghedi. This methodology of narrating the historical stages of the 6<sup>th</sup> Wing referring to the means employed derives from the concept of evolution that has always inspired the Air Force and which is inextricably linked to the nature and characteristics of the operational environment in which it operates. Operations in the "third dimension" require leveraging the best and most modern technologies and knowing how to rapidly evolve, learn and adapt at all organizational levels to promptly guarantee their effective use, in order to be able to live up to modern operational scenarios. This also applies to the 6<sup>th</sup> Wing. The entry into line of the Tornado, which the 6<sup>th</sup> Wing with the 154<sup>th</sup> Gruppo Volo was equipped with first in Italy in 1982, introduced a "third generation thrust" aircraft, which although capable in terms of performance and reliability, like all weapon systems of the time compared to the level of the threat and the complexity and density of the operational scenarios, certainly posed limits which, however, could be overcome for the success of the missions by leveraging the human element, that is, thanks to the experience, skills and flair of the crews and support staff. A trained and experienced crew is a crew that can "see" what the aircraft "doesn't see, or if it sees it doesn't tell you" or interpret what the aircraft "sees" but cannot decipher. This applies, for example, to the interpretation of the data detected by the on-board avionics and the RADAR, or the stresses and stimuli detected by the self-protection system. Furthermore, for many years, before the update of the on-board avionics in the 2000s, the operational scenario and the traces were not integrated and presented in the cockpit, but were reconstructed and represented only in the mind of the crew who, interpreting the contents of the radio communications with command and control agencies, formation aircraft and the coalition air package, visualized the reality in his mind by referring to a planning map, positioning the information in radial, distance, altitude and reference time with respect to a "BULL'S EYE". Thus he oriented himself, quickly bringing to his mind a highly dynamic scenario, in which everything changes under the impulse of speed, and located the other components of



the package, the point of origin and direction of the threat, where and when the events developed. It is therefore clear that the human element is the cornerstone of operational capacity and the success of missions, and therefore the most valuable element. This wealth of experience, knowledge and professionalism is the legacy that emerges and sustains us today. I am referring, in particular, to what the Department staff still demonstrates today, as they have always done, every day and of which I was immediately aware when I had the fortune of operating in the 6<sup>th</sup> Wing, before being Commander, young fighter pilot of the 154<sup>th</sup> Group.

So I speak from direct experience, having used the Tornado in the most recent operational theaters, and having also had the fortune of qualifying on the modern F-35, the most advanced fighter in the world. Even with the evolution of technological means, and now using an aircraft that can operate effectively in the most modern operational contexts and in future scenarios, the human element is what, for previous generation aircraft, allows us to overcome technological limits to the success of the mission, or, for the latest generation

systems, is what allows them to fully express their potential.

To conclude I can state that the element of continuity of all these weapon systems that have served under the banner of the Red Devil for almost ninety years is the human element. It was able to adapt and interpret the limits and potential of the air environment and of the all-time system that was given and put in the hands of the crews and pilots but not only that, I am also talking about all the personnel who work in support therefore it had to understand well the own role and try with the means available to push the potential of the Department to the maximum also from the maintenance side and support in general.

**2-JP4: Could you give us a brief overview of the Tornado aircraft and its use?**

**Col Vitaliti:** Yes, of course, I quickly touched on the concept of multirole. These are concepts that will be useful for us to talk about the F35 later. The term multirole already makes it clear that the crews, those we talked about before and which are the strong point of the weapon system, are the elements that allow for the technological limits of a project





that finds its foundation in the 1990s. 70 of the last century, to interpret and make the best use of what they have available in order to operate effectively and prevail over a threat, allowing the full achievement of the mission and objective. The latter can also be the overflight of a point or the collection of data through images to understand, for example, how a flood has altered the environment, whether there are people who need help or how an object has evolved or moved. orographic front due to the effect of a landslide. Therefore not only by finalizing the use by interdiction with kinetic or war operations properly so called. Multirole means precisely this and as mentioned it embraces war operations, photographic reconnaissance operations, in the infrared, optical and multispectral range, engagement for self-protection from ground-air defense systems. In this way we have already more or less described what the Tornado represents today for the Air Force and for the 6<sup>th</sup> Wing. Since 2016, Ghedi has become the home of the entire Tornado fleet in all its components. Among these, the one dedicated to the suppression of enemy air defenses and electronic surveillance stands out for its peculiarity, through which it is possible to acquire electromagnetic emissions and understand whether these are aimed at hitting friendly assets.

Electronic warfare is a very complex context where Italy expresses excellence at a global level as it is among the first to promote it in Europe. The ECR component of the 155<sup>th</sup> Group, which passed here in Ghedi in 2016, truly represents a supply chain capable of mapping, understanding, planning and adapting both the detection and engagement systems of the anti-aircraft threat to the operational theater. The level of this peculiar ability makes us understand the degree of professionalism that resides in the 6<sup>th</sup> Wing. The 154<sup>th</sup> Group covers the sphere of all other



operational roles that the Tornado can express. It should be underlined, however, that within the 6<sup>th</sup> Wing, between the Groups and also within the fleet, there is a great transversality of skills and synergies which materializes in the interchangeability and great flexibility both in the use of the machine and of the flight group crews. From a purely doctrinal point of view, the 154<sup>th</sup> specializes in sectors ranging from interdiction to reconnaissance through Tornado operational conversion. The latter represents a very very vast activity that requires personnel with the highest qualifications and broad and in-depth operational experience as our syllabuses explore all the operational roles that the Tornado can perform, including air/ground engagement with systems capable of penetrating in depth such as Storm Shadow missiles for example, laser-guided POD systems to remotely and precisely acquire targets and then illuminate the targets with precision GPS, LASER, composite weapons etc.

The Tornado has an operational maturity such as to allow great versatility of use with different loads and armaments. Finally, as a reconnaissance officer he was fundamental both in Afghanistan and in the Iraqi theatre, therefore in Operation Inherent Resolve, still underway, for which we have been deployed since January for a third mandate.

**3-JP4: A few years ago to optimize resources (as already happened for the AMX aircraft), the Tornados were concentrated in Ghedi, expanding its potential with the 155<sup>th</sup>, and it seems that the 155<sup>th</sup> itself will be the real ultimate user of this aircraft, extending its operational life beyond 2030, is that correct?**

**Col Vitaliti:** it's not exactly like that. Let's say that the plans foresee that the Tornado will be able to end its operational life cycle well before

2030. The 155<sup>th</sup> is certainly destined to be the last flight group to transit on the F35. The fact of having centralized the Tornado fleet on a single base gives notable dividends because it still allows resources to be centralized in a critical mass, allows for much more flexibility, offers the possibility of training in all roles together, therefore of growing in all the roles at the same time by pooling all the Tornado resources. It allows you to operate more easily in packages even during training although the peculiarity of the Air Force allows you to always work jointly regardless of the deployment base. For example, you take off and find each other after planning together remotely and after coordinating via videoconference mission briefing. Therefore it is normal to reunite even at considerable distances to train jointly between different assets, in Composite Air Operations. Certainly having the entire Tornado component permanently on the same airport grounds helps and greatly facilitates joint training, interoperability, standardization and optimization in the use of resources. This will certainly help to give solidity to the Tornado fleet until the phase out. For this reason, what we expect is that the Tornado will be able to reach the end of its operational career without any significant problems.

**4-JP4: a portion of Tornado aircraft recently returned to Kuwait with reconnaissance duties: are they still up to the task?**

**Col Vitaliti:** Certainly, the answer is "yes". The Tornado remains a very valid machine and could not be used if it were not able to fully achieve the Coalition's objectives. The update with modern avionics and new navigation systems, the provision of new loads and latest generation sensors are fundamental elements to continue to ensure success in operations. Furthermore, it may seem like a

paradox but another strong point of the Tornado is precisely that of knowing its limits well. Limits that, regardless of their level, are known and do not hold any surprises in action. In Air Operations this represents an indicator of reliability, solidity and concreteness. The "surprises" in each mission are remarkable and as a qualified pilot on both the Tornado and the F35A I must say that the Tornado, despite its age, always remains a great machine precisely because you know well what it gives you and you know how to push yourself further by counting on its capacity. And, believe me, it gives you a lot.

**5-JP4: We said "a look at the future", the future of the 6<sup>th</sup> Wing is called F35A, how have the base's infrastructure changed to accommodate the new aircraft?**

**Col Vitaliti:** The evolution of infrastructure as well as the organization of logistical support and fleet support is a fundamental element of the transition to the fifth generation, which is a very broad concept that goes far beyond mere performance and operational considerations. Infrastructures must evolve because the new fleet management concept places infrastructures not on the sidelines but as an integral part of the weapon system. This requires that in order to express full operational capacity, adequate, usable and efficient infrastructures are needed, meeting the most modern requirements. They have the aim of making every process that takes place within them efficient, not only maintenance but also organisational: administrative of the Flight Groups, personnel, mission and fleet planning. This necessarily requires renewal and represents a "leap" that also involves the organizational structure and work processes in general.

One of the things we appreciate most, and this is in line with our DNA as Aviators, is precisely

the need to evolve rapidly every time to integrate new systems and methodologies. In this sense, also thanks to the push of the F35, we have reached a level that places us as leaders in Europe. In this historical moment we can say that in every sector of air capacity we express notable skills and relevance. In the current international context, the Air Force can therefore make an important contribution to the defense of the country and the Alliance. This is confirmed by the fact that we are very busy on various international fronts to protect airspace, monitor territories and contribute to stabilization. We are in great demand and we are aware of the importance of preserving the operation of our lines in order to contribute on the global scene. Infrastructure is fundamental to our operations and is therefore growing a lot. Already today the 102<sup>nd</sup> Group operates with the F35 in newly built infrastructures, designed according to the most advanced requirements. Other infrastructure is quickly taking shape to support the transition.

Right now we are at a stage where an increasingly steep growth in F35 capacity already mentioned has begun. This growth inevitably also brings with it the rapid growth of infrastructure. The F35 "citadel" is designed with the most modern requirements and will be able to host the operational flight group, the offices, the classified planning areas and the flight simulators, which are fundamental for the F35 because they are the only ones capable of faithfully reproducing the operational scenarios modern, characterized by maximum complexity, level and density of threat.

**6-JP4: One of your statements during our meeting particularly struck us, and it concerns the F35A aircraft, you stated that it is a fantastic machine and you can only speak badly of it if you don't know it. Could you explain in detail what you mean?**





**Col. Vitaliti:** Yes of course, we said that the F35 is not just a new "machine", but first and foremost it is a new approach to technology and organisation, a new way of interpreting operational use.

It is a weapon system designed to last at least fifty years and to always be at the top during its life cycle. After the initial production phase, the F35 has in fact entered more of a Follow on Development phase, i.e. subsequent development, so it continues to evolve. Obviously these are not changes that alter its appearance and shape, but its performance continues to evolve and its way of "thinking", as its artificial intelligence manages the on-board sensors, merges information. This fusion capability is critical in modern and future scenarios. It therefore belongs to a generation of systems in which the hardware will not be changed but instead they will be reconfigured for the operational management of the sensors and actuators and the operating software; This is a big change that is unprecedented and so how does it compare to other weapons systems in terms of cost? Which other weapon system in the costs of its planned life cycle of over fifty years has already budgeted for continuous updating to keep it "at the top"?

But what exactly does fifth generation mean? It means artificial intelligence, sensor fusion: it is an organism and the data acquired by its sensors that are aggregated into displays, like our body, where the organs function because they receive certain specific signals and interactions from others and could not effectively function alone. Furthermore, their mode of operation varies depending on the inputs they acquire and receive. The F35 aircraft does the exact same thing. In fact it has netcentric capabilities or the function of receiving and distributing information and has low observability and this gives an advantage both in terms of time and in terms of lethality and ability to survive. What does this ultimately lead to? It also leads to increasing the capabilities of



other aircraft, because it offers everyone an "umbrella of protection", which increases the survivability and lethality of the entire capacitive package. Another very interesting aspect of maintenance management is certainly the organization of the stock in "global pending" and the availability of spare parts "just in time". The weapon system requires a very limited stock of spare parts at the base thanks to artificial intelligence, applied in prognostics with the aim of predicting in advance which components will need to be replaced and how often, and therefore which parts will need to be kept ready at the redeployment base, this makes the stock of spare parts immediately available at the Flight Department very limited. The remaining parts are distributed only when they are actually requested, otherwise they remain available to all Partners. There is no other program that reduces the costs of storage, transport, conservation, maintenance and control of spare parts in this way.



In Italy we have one of the three F35 assembly plants in the world and the first activated outside the American continent. This also demonstrates the level of excellence of our country.

In fact, we were the first outside the United States to activate Main Operating Base F35, the first Flight Group, to reach IOC (Initial Operational Capability), to employ a V Generation aircraft for NATO operations, to activate FACO (Final Assembly and Check Out) trivalent, Cameri plant, where the F35 for Italy and for European partners is assembled, updated and where wing boxes are produced, with production efficiency and a very high level of quality.

The F35 universe brings a significant impact to Italy and European partners are very interested in Italian production: they aspire to be able to see their aircraft assembled in Italy and to turn to the only continental plant for exceptional maintenance and upgrades without having to go further Ocean. Another important aspect is the quality of training, standardization and interoperability of the fleet between the Program Partner Countries. The F35 that is deployed at an F35 base of another Program Partner Nation can be managed by foreign maintainers and supported logistically without the need to deploy any spare parts or carrying the bare minimum.

Furthermore, to think about developing a VI Generation aircraft it is necessary to have a good knowledge of the performance and limits of the V Generation thanks to direct operational use. Therefore, having the F35 is

the keystone that allows us not only to confidently face increasingly challenging current and future international contexts but also to be able to develop future generation technologies and systems. For all these reasons we can only be proud when we see an Air Force F35 taxiing in front of us and then taking off.

**7-JP4: I take up another statement of yours, the experience on the Tornado is not lost, but is totally projected onto the new aircraft with perfect man/machine integration with potential considered unthinkable until a few years ago. Are you referring to the omnirole capability of the F35A?**

**Col Vitaliti:** The F35 is able to carry out surveys in all operational domains and present data to the pilot that the latter can interpret to understand and manage the mission. In particular, understand which role you will have to play before converting into other roles, always being able to best interpret the exceptional skills available.

The human element is always fundamental. The pilot, thanks to the netcentric capacity of the vehicle, but in a team with other aircraft, can leverage a multiplicative factor given by the ease with which he can integrate and work together with the other aircraft in the package.

The suite of on-board sensors is complete and adapts to the different needs that emerge from the operational scenario. The experience gained by the staff on the Tornado aircraft

represents a fundamental lever to fully exploit the capabilities of the new aircraft. The human element is the most important and representative factor, an element of pride for the Commander of the 6<sup>th</sup> Wing. The level of professionalism, experience and ability, the genius in tackling ever-new problems and being able to understand the scenario is fundamental to making the best use of V Generation aircraft. Genius must be cultivated, rewarded, stimulated and doing this is everyday life for us.

Only the staff will be able to bring the F35 to express the qualities it innately has within itself. We need trained, ready pilots with an adequate wealth of professionalism and experience and an Armed Force capable of selecting the thousands of human resources and appropriately guiding the transformation and progress, training and training at the best piloting schools. in Lecce or Decimomannu and at the Operations Departments. Only the skills of the Air Force pilots can allow the F35 to fully express its operational potential. Differently, the F35 would also be just a "simple airplane".

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# PREVENTING AND COMBATING FATIGUE IN FLIGHT



In everyday life, amid numerous demanding activities, fatigue has become a common phenomenon, increasingly noticeable by anyone. In the aeronautical environment, due to the high demands specific to flight activities and the risks arising from the reduction in human performance, fatigue is an extremely delicate issue, often overlooked. Studies conducted in the United States estimate that fatigue contributes to annual losses totaling billions of dollars due to related accidents.

## Primary Causes of Fatigue:

- Inadequate and insufficient rest
- Excessive physical effort
- Prolonged periods of mental effort
- Disruption of biological rhythms

Similar to stress, fatigue manifests in three main forms:

1. Physical Fatigue: Characterized by a diminished capacity for muscular effort.
2. Mental Fatigue: Evidenced by a reduced ability to concentrate and difficulty in performing complex and rapid information processing.
3. Emotional Fatigue: Often arises from the combination of physical and mental fatigue, and can be exacerbated by conflict, discomfort, or dissatisfaction.

**In aviation, these effects can manifest in various scenarios, such as night landings, landings at unfamiliar airfields, long flights, and complex combat maneuvers. Such situations increase the risk of unexpected errors, especially during the final stages of flight, like landing.**

## Assessing Fatigue:

Identifying fatigue can be challenging, as it may be confused with other subjective factors, such as low motivation, professional dissatisfaction, fear of flying, poor adjustment to flying, or strained relations with management. Fatigue involves a progressive consumption of energy, leading to a continual decrease in the level of readiness.

## Sources of Fatigue in Aviation:

- Flight Fatigue: Directly linked to piloting duties, the various aspects of crew activities, and the conditions under which they are conducted.
- Lack of Sleep, Biological Rhythms, and Time Zone Differences: Significant contributors to fatigue among flight crews.

Flight preparation and pre-flight procedures can also contribute

to fatigue, especially for those who live far from the airfield or commute. These procedures can prolong the fatigue state, especially if they are excessively long or accompanied by frustration or conflict.

Flying itself remains a major source of professional fatigue, despite advances in modern aircraft technology that have automated many tasks. According to a report by Euractiv, insufficient rest opportunities force tired pilots in the EU to fly longer than they should, with three-quarters of pilots experiencing "microsleeps" in the cockpit. This report, produced for the European Cockpit Association (ECA), highlights how pilots are often forced to exceed normal duty hours, leading to fatigue accumulation.

**If fatigue is not recognized and managed, it can result in difficulty concentrating, errors in reasoning, communication issues, and even falling asleep—all of which can lead to aviation disasters. Preventive measures are essential in both the pre-flight and in-flight phases.**

## Pre-Flight Preventive Measures:

- Ensure 7-8 hours of sleep, avoiding coffee and alcohol 3-4 hours before bed, and refrain from using medications (except for time zone desynchronization).
  - Engage in moderate daily physical exercise.
  - Maintain an appropriate diet rich in fruits and vegetables.
- In-Flight Preventive Measures:
- Ensure adequate hydration.
  - Limit or avoid caffeine use at the beginning of the flight.
  - Encourage active communication among crew members.
  - In large crews on long-distance flights, where possible, allow short sleep periods through crew rotation.

**Principal Psychologist Florentina Ecaterina Radu, PhD**

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