

CER SENIN

Romanian Air Force Magazine

No 1 (168) English supplement ♦ 2022

www.roaf.ro  



#WEARENATO

PAGE 3-13





MAGAZINE EDITED BY
THE ROMANIAN AIR FORCE STAFF

EDITORIAL COUNCIL OF THE MAGAZINE *CER SENIN*

CHAIRMAN:

**Lieutenant general
VIOREL PANĂ**

MEMBERS:

**Air flotilla general
IULIAN PAŢILEA**

**Colonel
CRISTIAN PĂTRAŞCU**

**Colonel
LAURENŢIU MITITELU**

HONORARY MEMBERS

**DUMITRU AMARIEI
PETRE BĂNĂ
NICOLAE RADU**

THE EDITORIAL TEAM

EDITOR IN CHIEF:

Captain LAURA MĂCĂRESCU
e-mail: lmacescu@roaf.ro

ASSISTANT EDITOR:

Lieutenant LORENA-ADELINA NIŢĂ
e-mail: lnita@roaf.ro

TEXT EDITOR:

LEANA TUDORAN
e-mail: ltudoran@roaf.ro

PHOTOJOURNALIST:

ADRIAN SULTĂNOIU
e-mail: asultanoiu@roaf.ro

LAYOUT & DTP:

DIANA ŞUICĂ
e-mail: msuica@roaf.ro

ENGLISH TRANSLATION:

**CAPTAIN LAURA MĂCĂRESCU
LIEUTENANT LORENA-ADELINA NIŢĂ**

ENGLISH REVISION:

**LECTOR DANIELA NAGY, PhD
ALINA BANCUI**

COVER I: **F-16 TAXIING BEFORE A NEW MISSION,**
PHOTO: CAPTAIN MIRELA VIŢĂ
COVER III: **STRONGER TOGETHER,**
PHOTO: 53RD WARHAWKS
COVER IV: **F-16 AFTER NIGHT FLIGHT AT 86TH AIR**
BASE, PHOTO: ADRIAN SULTĂNOIU

TABLE OF CONTENTS



PAGE 3-13

#WEARENATO 3-13

PERFORMANCE IN THE INTERNATIONAL ENVIRONMENT 14

ROMANIA WANTS TO BUY

NORWEGIAN F-16 15

SBAD CONFERENCE 16-17

86TH AIR FORCE BASE - 70 YEARS OF HISTORY 18

MILITARY CAREER 19

AVIATION SAFETY 20-21

INTERNATIONAL CONTRIBUTORS 22-26



PAGE 15



PAGE 18

COPYRIGHT:

**Any copying is authorized if the
source is specified.**

Collaboration rules:

**Readers can send to the editorial office
texts and photos that fall within the theme
of the magazine.**

**The manuscripts are not returned.
The legal responsibility for the content of
the articles belongs exclusively to the
authors, according to the Romanian Laws.**

ŞOSEAUA FABRICA DE GLUCOZĂ
NO 2-4, DISTRICT 2, BUCUREŞTI
Phone/Fax: 021/232.63.27;
021/232.21.83 int. 104,110
E-mail: cersenin@roaf.ro
ISSN 1582-6317. B 916.10; C 3146.18



**Printed by
CENTRUL TEHNIC - EDITORIAL
AL ARMATEI
no 1061/2022**

**The responsibility for technical editing rests
entirely with the editorial staff**

This edition ended on March 21, 2022

SACEUR STATEMENT ON THE ACTIVATION OF THE NATO RESPONSE FORCE



SHAPE, Belgium – Over the past few months, NATO Allies and European partners have remained unified in opposition to threats against peace and security in Europe. In response to Russia's unprovoked and unjustified invasion of Ukraine, the Alliance has operationally aligned its maritime, land, air, space, and cyber forces to defend our NATO sovereignty.

With the response plans approved by the North Atlantic Council and in line with the evolving security environment, we are now employing elements of the NATO Response Force.

This is a historic moment and the very first time the Alliance has employed these high readiness forces in a deterrence and defence role. They represent a flexible, combat credible force that can be employed

in multiple ways and we are utilizing fully their inherent agility.

These deterrence measures are prudent and enhance our speed, responsiveness and capability to shield and protect the one billion citizens we swore to protect.

We are grateful to our allies Canada and the United States for their recent commitments to deploy an additional 7,460 troops, including an armored brigade combat team, artillery units, a naval frigate, and surveillance aircraft, to support this Alliance-wide effort.

As NATO establishes this enhanced vigilance on the Alliance's eastern flank, Allied military forces will posture and exercise to increase our readiness and interoperability. Your soldiers, sailors, airmen, and marines stand ready to protect every meter of Allied territory.

We admire the courage and tenacity of the Ukrainian Armed Forces and citizens in defending their country.

The Alliance remains steadfast in our collective commitment to shield and protect each other. Moving forward, we are prepared to leverage the strength of all our forces to defend the Alliance.

- General Tod D. Wolters, Supreme Allied Commander Europe (SACEUR)
Source: www.shape.nato.int

Press conference by NATO Secretary General Jens Stoltenberg following the extraordinary virtual summit of NATO Heads of State and Government

On February, 25 NATO Allies activated our defense plans. And as a result, we are deploying elements of the NATO Response Force. On land, at sea, and in the air. To further strengthen our posture. And to respond quickly to any contingency.

The United States, Canada and European Allies have deployed thousands of troops to the eastern part of the Alliance. We have over 100 jets high alert operating in over 30 different locations. And over 120 ships from the High North to the Mediterranean - Including three strike carrier groups.

We are of course monitoring the situation very closely. It is still a fluid situation. What we have seen is that the Ukrainian forces are fighting bravely and are actually able to inflict damage on the invading Russian forces. So NATO Allies continue to provide support to Ukraine. And it was actually at the meeting today, at the NATO Summit with EU and Finland and Sweden, Allies announced and also informed all the Allies about the type of weapons, the type of support. And some of that also includes air defense systems. So NATO Allies have and continue to provide support militarily, but also different types of equipment to Ukraine.

When it comes to cyber attacks and the risk for incidents and accidents, for instance, in the Black Sea, we are pursuing mechanisms of de-confliction to prevent that from happening.

We have, NATO Allies, especially the United States have done that, for instance, in Syria over a long period of time.

And we, of course, are much focused. I spoke with SACEUR, the NATO Supreme Commander on that issue recently. And he is very focused on the need to de-conflict to make sure that we don't have incidents or accidents that can spiral and get out of control and create a very dangerous situation. On cyber, well we have stated that cyber attacks can trigger Article 5. But we have never gone into the position where we give a potential adversary the privilege of defining exactly when we trigger Article 5. When it comes to cyber attacks and the risk for incidents and accidents, for instance, in the Black Sea, we are pursuing mechanisms of de-confliction to prevent that from happening. We have, NATO Allies, especially the United States have done that, for instance, in Syria over a long period of time. And we, of course, are very focused. I spoke with SACEUR, the NATO Supreme Commander on that issue recently. And he is very focused on the need to de-conflict to make sure that we don't have incidents or accidents that can spiral and get out of control and create a very dangerous situation. On cyber, well we have stated that

cyber attacks can trigger Article 5. But we have never gone into the position where we give a potential adversary the privilege of defining exactly when we trigger Article 5. Deployment of the NRF forces is something all Allies have agreed to do. 30 Allies agreed. But of course, especially those in the eastern part of the Alliance are extremely concerned. They are close to this, the fighting in Ukraine. And they also border Russia. And they have seen not only the military build-up and the ongoing war in Ukraine, but also seen the very threatening rhetoric. Because this goes far beyond Ukraine. This is about how Russia is actually challenging, contesting core values for security, and demanding that NATO should withdraw all forces and infrastructure from almost half of our members.

We are now deploying the NATO Response Force, for the first time in a collective defense context. And we speak about thousands of troops. We speak about air and maritime capabilities. They are only actually part of the standing naval groups. We have many planes operating in the eastern part of the Alliance. And then, several Allies have partly already assigned troops and forces to the NATO Response Force. We have the lead elements which are led by France. We have the United States which has assigned thousands of troops to the NATO Response Force. And these will be deployed to different places in eastern part of the Alliance. They are, partly, coming from the United States, but these are also very much European troops. For instance, the lead element, the VJTF - the Very High Readiness Joint Task Force, is now led by France, there is a strong German component there and other Allies also part of that. We have many elements, components, of the NATO Response Force. We have increased the readiness of the NATO Response Force. And then, I don't speak only about that lead element, or the VJTF - the Very High Readiness Joint Task Force, but we speak about more elements than just that one. Second, we have Allies, the United States, but also United Kingdom and other Allies that have increased readiness or forces that are assigned to NATO and the NATO Response Force. So of course these are additional forces that we can deploy as part of the broader deployment of the NATO Response Force. I'm not saying that we are deploying the whole force. The size of the NATO Response Force has been tripled since 2014, to roughly 40,000 troops. I'm not saying we're deploying the whole thing. I'm saying that we are deploying elements, elements of the lead..., the VJTF, and elements of the rest of the NATO Response Force.

Source: www.Nato.int

U.S VICE PRESIDENT KAMALA HARRIS VISITED ROMANIA

On Friday, 11 March, U.S Vice President Kamala Harris reaffirmed the U.S. commitment to defend its Eastern European NATO allies against any similar attacks such as the Russian invasion of Ukraine.

Addressing the Romanian partners, in the presence of the Romanian President, Klaus Iohannis, Harris stated that the U.S. commitment to Article 5 of the NATO Charter - 'an attack against one, is an attack against all' - is 'ironclad.'

"We will defend every inch of NATO territory", Harris said. The American Vice President noted the United States has added an additional 1,000 troops to its NATO force in Eastern Europe in recent weeks, raising the total number of U.S. troops in the region to 2000. President Iohannis expressed his gratitude to Vice President Harris for the sustained U.S. presence in the region.

Source: www.voanews.com



Source: www.voanews.com



Alexandru BADEA

On Friday 11 February, NATO Secretary General Jens STOLTENBERG visited Mihail Kogălniceanu Air Base (MK) in Romania to greet Allied deployments to the security of Romania and the Black Sea Region.

In a joint press conference with the President of Romania Klaus IOHANNIS the Secretary General thanked Romania for its significant contributions to the Alliance.

He praised contributions from Germany, Italy and Spain to help secure the airspace over the Black Sea region and welcomed the rapid deployment of one thousand additional troops from the United States, bringing the total of US service members operating from MK Air Base

to almost two thousand. "This is a powerful demonstration of transatlantic unity", the Secretary General said, underlining "North America's ironclad commitment to the defense of Europe". In recent days, NATO Allies have made announcements to deploy additional forces and assets to the eastern flank of the Alliance, from the Baltic to the Black Sea region. Mr. Stoltenberg said that at their next meetings, NATO Defence Ministers would discuss how to further strengthen NATO's presence, including new battle groups. In this regard, the Secretary General welcomed France's offer to lead a multinational battlegroup in Romania. With three Allies bordering the Black Sea, as well as

partners Ukraine and Georgia, security in the region is of "vital strategic importance" to NATO, the Secretary General said. This one-day visit came in the midst of worrying about the Russian military build-up along the borders of the Alliance. The Secretary General reiterated the Alliance's support for dialogue and its invitation to Russia to meet again in the NATO-Russia Council. He, however, insisted that NATO would not compromise on the core principles of national sovereignty and NATO's ability to protect all Allies: "there will never be first class and second class Allies in NATO", he said, "There are only NATO Allies. United as one".

Source: Ministry of National Defence Press office



STATEMENT BY NATO DEFENCE MINISTERS ON THE SITUATION IN AND AROUND UKRAINE

We are gravely concerned by the very large scale, unprovoked and unjustified Russian military build-up in and around Ukraine and in Belarus. We urge Russia, in the strongest possible terms, to choose the path of diplomacy, and to immediately reverse its build-up and withdraw its forces from Ukraine in accordance with its international obligations and commitments. We remain committed to our dual-track approach to Russia: strong deterrence and defense, combined with openness to dialogue.

Russia's actions pose a serious threat to Euro-Atlantic security. As a consequence and to ensure the defense of all Allies, we are deploying additional land forces in the eastern part of the Alliance, as well as additional maritime and air assets, as announced by Allies, and have increased the readiness of our forces. Our measures are and remain preventive, proportionate and non-escalatory. We are prepared to further strengthen our defensive and deterrent posture to respond to all contingencies.

Our commitment to Article 5 of the Washington Treaty is iron-clad. We stand united to defend each other.

NATO remains committed to the foundational principles underpinning European security, including that each nation has the



NATO defence ministers in Brussels, NATO Headquarters

right to choose its own security arrangements. We reaffirm our support for the territorial integrity and sovereignty of Ukraine within its internationally recognised borders. As stated previously, any further Russian aggression against Ukraine will have massive consequences and carry a high price. NATO will continue to closely coordinate with relevant stakeholders and other international organisations including the EU.

NATO and Allies continue to pursue diplomacy and dialogue with Russia on Euro-Atlantic security issues, including at the highest levels. We support all these efforts, and efforts

in the Normandy Format to implement the Minsk agreements. We have expressed our readiness to engage in a Renewed European Security Dialogue initiated by Poland as the current OSCE Chair. We have made substantive proposals to Russia to enhance the security of all nations in the Euro-Atlantic region and await a response. We have repeatedly offered, and continue to offer, further dialogue through the NATO-Russia Council, and stand ready to engage. We strongly encourage Russia to reciprocate and to choose diplomacy and de-escalation.

Source: www.Nato.int



USEUCOM COMMANDER HIGHLIGHTS BATTLEGROUP IN ROMANIA

Gen. Tod D. Wolters, Supreme Allied Commander Europe and Commander of U.S. European Command, visited Romanian and U.S. leadership at Mihail Kogalniceanu Air Base, Romania, in February.

During his visit, Gen. Wolters met with Romanian Chief of Defence Gen. Daniel Petrescu, and Maj. Gen. Matthew Van Wagenen, V Corps deputy commanding general.

As part of U.S. commitment to NATO Allies, approximately 1,000 troops from the 2nd Cavalry Regiment based in Vilseck, Germany,

have departed for Romania to augment the more than 900 U.S. service members already there supporting Operation Atlantic Resolve.

"A credible defensive battle group has stood up in Romania to focus on enhanced vigilance activities in multi-domain operations," Gen. Wolters said. "Alongside our Romanian Allies, the deployment of U.S. forces here reinforces the deterrent and defensive posture of NATO's eastern flank". To maintain a heightened state of readiness, the Department of Defense has also repositioned Europe-based units further

east and forward deployed additional U.S.-based units to Europe. U.S. European Command (USEUCOM) is responsible for U.S. military operations across Europe, portions of Asia and the Middle East, the Arctic and Atlantic Ocean. USEUCOM is comprised of more than 64,000 military and civilian personnel and works closely with NATO Allies and Partners. The command is one of two U.S. forward-deployed geographic combatant commands headquartered in Stuttgart, Germany.

Source: <https://www.eucom.mil>.



THE PRESIDENT'S VISIT TO THE 71ST AIR BASE

On February 2, Mr. Klaus IOHANNIS, the President of Romania, paid a visit to the 71st Air Base "General Emanoil Ionescu" in Câmpia Turzii. During this visit the President was briefed on the base missions and capabilities and then visited a static display of military aircraft and special operations equipment.

"We visited the 71st Air Base in Câmpia Turzii where we discussed in great detail about the technical capabilities and the preparedness of our military aircraft. We have concrete results of the modernization of the Air Force and Land Forces, starting with the political agreement we initiated, for the allocation of 2% of GDP for Defence. The current security context in the neighboring states proves that these measures were necessary. We are determined to continue the development and modernization of our military structures, in line with our NATO commitments. We will maintain our strategic efforts to ensure the territorial integrity and security of our citizens, as well as to provide support to allied and partner states".

President Klaus Iohannis also stated that "this security context confirms the need for a more consistent presence of NATO, of the United States and of other allies in the Black Sea region, in order to ensure a strengthened position of deterrence and defence, as I have strongly stressed repeatedly".

Referring to the Romanian Air Force, the President mentioned that it "has a major role in strengthening the defence capacity of our country, being able to carry out complex missions to defend the Romanian airspace, as well as to carry out long distance air transport missions. The new types of aircraft fitted for the Military, especially the F-16 aircraft, allow high-performance in carrying out all the specific missions. The process of modernizing the Air Force will not stop here, as we intend to purchase the new F-35 generation aircraft".

Source: 71st Air Base



Bogdan PANTILIMON

THE 2021 SELF-ASSESSMENT OF THE

The self-assessment meeting of the Air Force Staff for the previous year took place on February 1, 2022, at its headquarters.

During this meeting-attended by the Minister of National Defence Mr. Vasile DÎNCU, the Chief of Defence Staff General Daniel PETRESCU, as well as other representatives from the Ministry of National Defence, the Chief of the Air Force Staff Lieutenant-General Viorel PANĂ briefed the audience on the accomplishment of the objectives for 2021. The most important goal was speeding up the process of strengthening the fighting capacity of the Air Force structures to ensure the right posture in order to provide early warning, deterrence and rejection of aggressive air actions against Romania.

In 2021, the Air Force Staff achieved its general and specific objectives and has the capacity to lead actions to defend the integrity of the national airspace, while continuing to develop and strengthen the combat capability of its subordinate air bases and military structures.

Source: Romanian Air Force



Laurențiu TUROI and Adrian SULTĂNOIU



AIR FORCE STAFF



The Minister of National Defence, Mr. Vasile DÎNCU, and the Chief of the Air Force Staff, Lieutenant General Viorel PANĂ



WE TRAIN TOGETHER!

Captain Mirela VÎȚĂ

Borcea Air Base:
Mid February 2022, the Romanian and US airmen completed two weeks of joint training missions 86th Air Base in Borcea.

A United States Air Forces in Europe (USAFE) detachment of about 150 soldiers and eight F-16 Fighting Falcon aircraft conducted joint training missions with the F-16 Fighting Falcon Romanian airmen.

The US aircraft also conducted missions with the Romanian aircraft and with the Italian Air Force detachment's aircraft deployed in Romania since December last year.

Joint training missions aim was to increase interoperability between NATO allies, and joint air policing missions are meant to develop responsiveness and deter threats.

The US aircraft arrived on February 11 at 86th Air Base "Lieutenant Aviator Gheorghe Mociorniță" in Fetești, known as Borcea area. Between 8-16 February, additional 50 airmen and four F/A-18 Super Hornet were stationed at Borcea, being deployed in Europe from US Naval Forces.



Senior Airman Ali Stewart, 52nd Fighter Wing Public Affairs

Two U.S. Air Force F-16 Fighting Falcon aircraft assigned to the 480th Fighter Squadron at Spangdahlem Air Base, Germany, taxiing after a sortie at the 86th Air Base, Romania, Feb. 17, 2022. The 480th FS will routinely train with the Romanian Air Force and other NATO allies during their deployment at Fetesti while working to provide support to the European theater

U.S. Air Force Senior Airman Cole McGriff, 480th Expeditionary Fighter Squadron dedicated crew chief, marshals an F-16 Fighting Falcon aircraft assigned to the 480th FS at Spangdahlem Air Base, Germany, at the 86th Air Base, Romania, Feb. 17, 2022. The ability to deploy the Air Force at short notice to host airbases or austere locations across NATO's European area of responsibility is essential for timely and coordinated response for any contingency



#WEARENATO



Three U.S. Air Force maintenance crew members from the 52nd Fighter Wing at Spangdahlem Air Base, Germany, preparing an F-16 Fighting Falcon Aircraft after landing at the 86th Air Base, Romania, Feb. 17, 2022. Air Defense operations ensuring the protection of allied airspace in the transition from peacetime operations to crisis and conflict



Two U.S. Air Force maintenance crew members from the 52nd Fighter Wing at Spangdahlem Air Base, Germany, updating forms during post-flight procedures for an F-16 Fighting Falcon Aircraft after landing at the 86th Air Base, Romania, Feb. 17, 2022. Airmen from the 52nd Fighter Wing ensuring that proper procedures are followed in order that our aircraft is ready to adapt to any scenario

SEARCH AND RESCUE TRAINING EXERCISE

MK Air Base:
The Italian Air Force detachment of Eurofighter Typhoon aircraft stationed at 57th Air Base Mihail Kogălniceanu, performing Enhanced Air Policing missions for the second time in Romania, also carries out joint training missions with Romanian Air Force aircraft.

Behind the scenes similar to those in action movies, there are many hours of preparation and meticulous planning. Some extreme situations, like the rescue of ejected pilots depend on the colleagues' quick reactions. The airmen conduct training, taking into account all stages, especially if, according to the scenario, the

mission takes place in enemy terrain. This type of scenario exercise that took place at the end of January at Mihail Kogălniceanu 57th Air Base, in which the Romanian airmen, flying IAR-330 Puma L-RM helicopters, trained together with the Italian airmen deployed in Romania for the Enhanced Air Policing missions, on Eurofighter Typhoon aircraft.

Four Eurofighter Typhoon aircraft were involved in the search of the area, along with two IAR-330 L-RM helicopters, one of which was responsible for recovering two ejected Italian pilots using the extraction team, and the second, as an escort, providing air support and area search. "It was the first training of this

kind planned and carried out with the Italian partners. For the personnel involved, the mission was a complex one, it involved a tactical flight in hostile terrain and synchronization by the minute at each stage", said lieutenant-commander Florin BOGDAN, helicopter pilot and mission commander of this exercise.

The objectives of the exercise were to verify and update their standard operating procedures and tactics, both nations aiming to improve their own actions and to increase the level of interoperability. Subsequently, the Italian airmen carried out a similar sequence with the American partners, who participated with Black Hawk helicopters.



Captain Mirela VÎȚĂ

The IAR-330 Puma L-RM helicopter with the number 57 is the helicopter that left on March 2, 2022 in a search and rescue mission for the pilot of the MiG-21 LanceR aircraft. The pilot had lost the radio connection with the control tower of the 57th Air Base and disappeared from radar screens. The investigation commission will further establish the conditions that led to the crash of the helicopter. All the seven airmen on board, among them two from the Naval Force perished in the catastrophe.



AIR POLICING MISSIONS PERFORMED BY THE ROMANIAN AIR FORCE

Between 17-19 February, the Romanian Air Force F-16 Fighting Falcon and MiG-21 LanceR aircraft performed two real air policing missions in the national airspace.

The command, control and coordination of the mission were conducted by the air traffic controllers within the Air Operations Center.

The NATO Combined Air Operations Center (CAOC) Torrejón ordered the aircraft take-off of the Romanian Air Policing Combat Service under NATO command. The decision was made following the detection of open activities over the Black Sea, outside the national airspace.

The Romanian military aircraft performed air patrols and then returned to ground to restore flight capacity.

Currently, the Romanian Air Force carries out, together with airmen from Italy, Germany and the United States Air Force, enhanced Air Policing missions under NATO command for the defense of the national airspace.

The main objective of the joint training missions is to increase interoperability between NATO allies, and the joint Air Policing missions are meant to develop the responsiveness and deterrence capacity.

Source: Romanian Air Force



EUROFIGHTER TYPHOON AIRCRAFT LANDED AT MIHAIL KOGĂLNICEANU

Three German Air Force Eurofighter Typhoon aircraft landed on Thursday, February 17, at the 57th Air Base in Mihail Kogălniceanu.

The German detachment, consisting of about 60 airmen (pilots and technical personnel) and Eurofighter Typhoon aircraft, together with the Romanian Air Force airmen and the Italian Air Force, has carried out missions of enhanced Air Policing missions under NATO command, for three weeks.

The German Air Force assets were also present in Romania last summer, together with the United Kingdom's Royal Air Force, as part of the Joint Declaration on the interoperability of Eurofighter Typhoon aircraft for the joint execution of air policing missions.

www.mapn.ro



RADAR EXERCISE



A radar military unit from the 76th Intelligence, Surveillance and Reconnaissance Brigade equipped with TPS-77 radar, carried out an exercise in the area of Botoșani County, starting with the 16th of February 2022. The activity was attended by 20 airmen from this unit.

The exercise was a routine one and part of the main activities carried out in the current year. Similar exercises have taken place annually in this district since 2018.

Source: Romanian Air Force

THE CONFERENCE "UNMANNED SYSTEMS FORUM. SMART APPROACH, FAST DEVELOPMENT"



On Tuesday, February 22, the Minister of National Defence, Mr. Vasile DÎNCU, and the Chief of the Defense Staff, General Daniel PETRESCU, attended the conference "Unmanned Systems Forum. Smart Approach, Fast Development", at the National Military Circle, organized by the New Strategy Center in partnership with the Ministry of National Defence.

At the second edition of the conference were also present other officials, civilian and military experts from Romania and other NATO and EU member states, as well as representatives of universities and companies with extensive experience in unmanned systems.

The conference debates focused not only on the comprehensive assessment of security challenges in the Black Sea region, but also on the potential for the development and use of unmanned systems in this area, and the impact they have on the security environment.

"Unmanned systems can be seen as the answer to the new challenges of the security environment. In the present context, marked by the deteriorating situation in Ukraine as a result of the actions of the Russian Federation, the states in the region face increased challenges that require



new approaches involving the most efficient use of modern technologies, and the use of economic opportunities to respond adequately to address these military threats", said the Minister of National Defence.

Minister Dîncu referred also to the importance of the "UAS Tactical-Operational System Class II" (UAS-TO) endowment program, related to the purchase of seven unmanned aircraft.

In the conference section "Why the Black Sea Matters? An Assessment of the Security Impact on the Neighboring Regions", the Minister of National Defence said that the Black Sea area must be considered part of the Eastern flank and represented by a balanced and unitary NATO presence.

"A single command-and-control structure would have the capacity to materialize a robust plan for the joint training of all multinational forces on the Allied Eastern flank. Thus, the major air and sea exercises for the Black Sea and Baltic Sea regions would represent a strong message of discouragement and would increase the level of interoperability of NATO forces", General Petrescu stated.

Source: Ministry of National Defence Press office

NATO AND ALLIES AIR FORCE COMMAND SENIOR ENLISTED LEADERS CONFERENCE

The NATO and Allies Air Force Command Senior Enlisted Leaders Conference was held in Kaunas and Vilnius, Lithuania, from February 28th to March 4th, 2022. The conference was attended by commanding non-commissioned officers from 14 NATO and allied states. Romania was represented by the commanding non-commissioned officer of the Romanian Air Force, Chief Master Sgt. Daniel-Narcis SÎNPETRU.

The activity represented an opportunity to promote the interests of the Romanian Air Force, facilitating constructive meetings and discussions between the non-commissioned officers.

The theme of this year's event was "Changing Security environment: challenges in preparing (AF) enlisted personnel", the event agenda given the possibility of information and discussions on important issues related to the current security environment and military training programs of the personnel categories at the basis of the military hierarchy.



Commanding non-commissioned officer of the Romanian Air Force, Chief Master Sgt. Daniel-Narcis SÎNPETRU





TRILATERAL MEETING

Captain Laura CUCOȘ

An informal trilateral meeting of the chiefs of the Air Force from Romania, Italy and Germany took place on Thursday, March 3rd, at the 57th Air Base in Mihail Kogălniceanu.

The event was attended by the Romanian Air Force Chief of Staff, **Lieutenant General Viorel PANĂ**, the Italian Air Force Chief of Staff, **Lieutenant General Luca GORETTI**, and the German Air Force Chief of Staff, **Lieutenant General Ingo GERHARTZ**. They paid tribute to the eight airmen who lost their lives in the two aviation accidents on March 2nd, in Constanța County. A moment of silence was held in the memory of the fallen Romanian Air Force airmen.

The officials stressed the importance of the missions carried out together in Romania, in the current security context.

During the official meeting, the three air force chiefs of staff addressed issues related to the conduct of the Enhanced Air Policing missions, other missions to be carried out by the German detachment in cooperation with the Italian detachment deployed in Romania, as well as other topics of common interest.

Source: Romanian Air Force



MEETING BETWEEN THE ROMANIAN AND FRENCH DEFENCE MINISTERS

On March 6th, the 57th Air Base Mihail Kogălniceanu hosted a high-level meeting attended by the President of Romania **Mr. Klaus Werner IOHANNIS**, the Prime Minister **Nicolae IONEL CIUCĂ**, the Minister of National Defence **Vasile DÎNCU** and the French Minister of the Armed Forces **Mrs. Florence PARLY**.

The officials discussed various topics such as the extremely tense security situation in Europe, the crisis caused by the Russian invasion in Ukraine and the implementation of decisions to strengthen the Allied presence on the Alliance's eastern flank.

Minister Vasile Dîncu welcomed France's announcement with

respect to the French aircraft carrier Charles de Gaulle positioning in the Mediterranean Sea, to conduct air policing and surveillance missions in our region, including over Romania, emphasizing that "this action is a real measure to discourage any aggression".

The Romanian Prime Minister **Nicolae CIUCĂ** stated that 500 French troops and maintenance crew members from the 27th Mountain Troops Battalion from Annecy, joined another 300 Belgian and other Allied troops. The United States Military has already 2,000 troops in Romania, after the redeployment of a mechanized infantry battalion



from Germany. The Romanian Air Force is supported by 22 allied aircraft for the defence of the national airspace. At Mihail Kogălniceanu operate 14 Eurofighter Typhoon, eight from the Italian Air Force and six of the German Air Force, and another

eight F-16 aircraft of the US Air Force are deployed at Borcea Air Base. „We will continue to do whatever it takes to protect the Alliance from aggression”, added the Prime Minister.

Source: Ministry of National Defence Press office

DELEGATION OF THE US CONGRESS AT THE 57TH AIR BASE MIHAIL KOGĂLNICEANU

On Monday, March 21st, the Secretary of State for Defence Policy, Planning and International Relations **Simona COJOCARU**, and the Chief of the Defence Staff **General Daniel PETRESCU** met a US congressional delegation led by Stephen LYNCH, Chairman of the House of Representatives Parliamentary Subcommittee on Homeland Security at the 57th Air Base Mihail Kogălniceanu. In the context of the current security situation, the Chief of the Defence Staff conveyed to Congress representatives that the decision of the US authorities to supplement forces in Europe, especially on the eastern flank of the Alliance, is a strong and unequivocal message of the collective defence resolve among allies and underlines the strong transatlantic bond.

Source: Ministry of National Defence Press office



#WEARENATO

VISIT OF THE GERMAN MINISTER OF DEFENCE

The Minister of National Defence, **Vasile DÎNCU**, had a bilateral meeting with **Christine LAMBRECHT**, the Defence Minister of the Federal Republic of Germany, on Wednesday, March 2nd, at the 57th Air Base in Mihail Kogălniceanu.

The agenda included the latest developments on the critical security situation in Ukraine, caused by the invasion of the Russian Federation, as well as issues related to the Allied efforts to strengthen NATO's deterrence and defence stance in the Black Sea region.

Minister Vasile Dîncu welcomed the German Air Force to Romania, and thanked his German counterpart for his country's



contribution to ensure Romania's security and NATO's eastern flank, at a time when European security is seriously threatened.

The Minister of National Defence highlighted the solidarity of the international community with the Ukrainian people, pointing

out that Romania sends to the neighboring country ammunition, fuel, military equipment, but also food, water and sanitary materials, and support for Ukrainian refugees. The Romanian official stated that 2022 is a special year for the bilateral relationship between

Romania and Germany, in the context of the 30th anniversary from the signing of the German-Romanian Friendship Treaty, on friendly cooperation and partnership in Europe.

Source: Ministry of National Defence Press office

THE MEETING OF DEFENCE CHIEFS OF ROMANIA AND THE KINGDOM OF THE NETHERLANDS

On Monday, March 7th, the Chief of the Defence Staff, **General Daniel PETRESCU** met with the Chief of the Defence Staff of the Kingdom of the Netherlands **General Onno EICHELSEIM**, at 57th Air Base Mihail Kogălniceanu. The meeting took place in the context of the visit to our country of a delegation led by the Dutch Minister of Defence, **Kajsa OLLONGREN**, and of the official talks held with the Minister of National Defence, **Vasile DÎNCU**.

The agenda of the meeting included current issues concerning the security situation in the Black Sea region, in the context of the ongoing

war in Ukraine, respectively the allied efforts aimed to consolidate NATO's position of deterrence and defence. Vasile Dîncu underlined the importance of strengthening the relations of cooperation between the two parties, in the field of defence and security. In this context, the Romanian Minister of Defense welcomed the detachment of approximately 150 military personnel from the 11th Air Assault Brigade of the Kingdom of the Netherlands at Mihail Kogălniceanu Air Base. Along with the Romanian and US military personnel they attended, from March 7th until 24th, the multinational exercise "RAPID FALCON 22", held on the premises of



"Babadag" Secondary Combat Training Center in Tulcea County.

Source: Ministry of National Defence Press office

VISIT OF THE BELGIAN MINISTER OF DEFENCE



On Tuesday, March 15, at the 57th Air Base in Mihail Kogălniceanu, the Minister of National Defence, **Vasile DÎNCU**, met the Belgian Minister of Defense, **Ludivine DEDONDER**, who went to visit the Belgian military contingent at Mihail Kogălniceanu.



Vasile Dîncu stressed "the gravity of the situation generated by the invasion of the Russian Federation in Ukraine, this fundamentally changing the paradigm of European and Euro-Atlantic security".

The Romanian Minister of Defense thanked the Belgian counterpart for deploying a contingent of 300 troops with equipment in Romania, as part of the NATO Rapid Reaction Force (NRF). He also added that the presence of the troops of the European states in the countries on the eastern flank of NATO area is proof of the European solidarity. The Romanian Minister of Defense stressed the importance of supporting the Republic of Moldova and Georgia in their European point of view.

Another topic addressed by the Romanian Minister of National Defence during the meeting was the measures taken by Romania to support Ukraine, by increasing humanitarian aid in Suceava located near Ukraine, as well as the management process of the flow of refugees. Minister Vasile Dîncu welcomed the very good bilateral relationship between Romania and Belgium. He also highlighted the extraordinary cooperation with the Military Hospital in Brussels, involved in the treatment of Romanian patients with severe burns and thanked the Belgian counterpart for the support provided.

Source: Ministry of National Defence Press office

Răzvan shared with us some aspects of this beautiful experience, being grateful to all those that supported him, confessing that so far he has not discovered a more beautiful job than flying an airplane: *"Although an hour of flight requires intense training, it is worth every moment. There seems to be no barriers during flight. Because you focus on the mission, you only realise in the end how beautiful it was".*

He wanted to fly and joined the Air Force, and he had the chance to learn what he could never imagine: *"Here I have the chance to grow and push my limits. Being my first flight training abroad, I didn't know what to expect. I quickly joined a team that later became very united. In my class, I had colleagues from the USA, Italy, Turkey, UK, but I had the opportunity to meet colleagues and instructors from all the 14 partner countries. Although it is a standard program, with very few deviations, I was surprised to learn different ways to apply the theoretical knowledge".*

Even though he was in the first series of Romanian pilots licensed in the ENJJPT program, he often worked with Romanian colleagues and instructors in the program: *"The key to success is working together; there is not enough time to learn only from your mistakes. It was necessary to take into account the experience of others in order not to repeat the same mistakes and to have time to learn as many new techniques as possible".*

He was also impressed by the training experience of many instructors at the advanced Air Force Training Course from Sheppard Air Force Base. He saw the flight from another perspective: *"During the course I flew the T-6A «Texan II» aircraft, with a turbo-prop engine, which was by far the most powerful propeller plane I flew, and the T-38C «Talon»,*



WINGS IN 2022

Lieutenant Mădălina BURLACU

Lieutenant Răzvan MACOVEI, a pilot of the 951st Advanced Air Training Squadron, is the first to receive an ENJJPT (Euro NATO Joint Jet Pilot Training) flying license, being one of the first two Romanian pilots sent by the Romanian Air Force to train in ENJJPT, the only multinational program in the world that trains NATO combat pilots. Pilots enrolled in this program have to complete the flight training stages on T-6 Texan and T-38 Talon aircraft.

that has a supersonic jet engine,

The flight on the T-38C was unexpectedly intense. Although the

avionics are new, the aircraft is over 50 years old. This makes the aircraft very difficult to fly and also quite dangerous".

Răzvan says that he had the chance to work with reliable and transparent people and developed close professional relationships with his colleagues. In the medium and long term, he wants to become an instructor and share the joy of flying with new colleagues. *"I am waiting for the flight to resume as soon as possible and I am curious how the next training will take place".* His family and fiancée were the ones who offered him the support he needed and motivated him to go beyond his limits: *"Without them and without the cooperation of my Romanian colleagues, I know how hard it would have been. I hope that I, in turn, will be able to help new colleagues".*

His first thought referring to 95th Air Base is being part of a wonderful team: *"I have been working in the 95th Air Force Base since 2018 and here I made the transition from a school airplane to a fighter airplane".*

The first licensed Romanian pilot in the ENJJPT program, Lieutenant Răzvan-Ionuț Macovei, is 27 years old and he is an instructor pilot at the 95th Air Base, Bacău.

He graduated "Ștefan cel Mare" Military High School in Câmpulung Moldovenesc, the "Henri Coandă" Air Force Academy in Brașov, he attended the courses of the Civil Aviation Higher School in Strejnicu, graduated from the Air Force Training School in Boboc, before obtaining the flight license of the Euro-NATO Joint Jet Pilot Training program in the Sheppard Air Force Base, Wichita Falls, Texas, USA.

He was born in Gura Humorului, Suceava County, and he wanted to join the military since he was a child. His favorite quote is John C. Maxwell's: *"The only guarantee of failure is to stop trying".*



ROMANIA WANTS TO BUY NORWEGIAN F-16

Through a letter signed by the chiefs of the two Chambers of the Romanian Parliament, sent in December, the Romanian Parliament approved the purchase of 32 Norwegian F-16 fighter jets. The estimated total Romanian budget is EUR 454 million and the Norwegian share of this will be determined through further negotiations.

The F-16 has been a formidable capacity for the Air Force and the defence of Norway. The F-16 has claimed sovereignty in Norwegian airspace, as well as participated in a number of national and international operations and exercises until they are now taken out of service at the turn of the year.

The bilateral relations between Norway and Romania are good. A sale to Romania will give the Romanian armed forces a significant and rapid boost in their combat air power.

The process of selling this type of military equipment to other nations is extensive, and there have also been several players in the market. I am therefore very pleased that Romania has now decided to buy our F-16 aircraft. Our fighter jets are among the best maintained in the world and they have been regularly upgraded. *"I am sure that our aircraft will serve Romania well for a number of years to come"*, says director at The Norwegian Defence Materiel Agency, Mette Sørfonden.

Now that Romania has decided to buy Norwegian F-16s, The Norwegian Defence Materiel Agency will start detailing and finalizing the contract between the nations. Before the planes are handed over to Romania, they are scheduled to undergo maintenance.

"In the sales process, it has been important to us that the contract will also provide income to Norwegian industry. Kongsberg Aviation Maintenance Services has been chosen as a strategic partner and will provide both support, maintenance and training of Romanian technical personnel", says director of The Norwegian Defence Materiel Agency, Mette Sørfonden.

A resale of the F-16 requires third-party approval from the US authorities and for export, as in this case, an export license from the Ministry of Foreign Affairs is also required. There is thus strict control over who can receive the Norwegian F-16 aircraft.

According to the plan, the first aircraft will be delivered in 2023 and the last aircraft will be delivered in 2024. For the remaining aircraft that cannot be sold, an overall assessment will be made regarding the possibilities for exhibition at a museum or other purposes. Here, too, approval from the American and Norwegian authorities will be required.

FACTS

In September 2019, the Ministry of Defence commissioned The Norwegian Defence Materiel Agency to lead the disposal of the F-16 system within current regulations in the most favorable way for the state.

The sale of the F-16, or equipment related to the F-16, must be approved by both the US and Norwegian authorities.

Source: Ministry of Defence/ <https://www.regjeringen.no/en/id4/>

AIR DEFENCE: PAST AND FUTURE CHALLENGES



Between December 14-16, 2021, the Air Force Staff (SMFA) and the "Henri Coandă" Air Force Academy (AFA HC) organized the National Conference SBAMD 2021 with the topic "1916-1921. 105 years from the Burileanu pivot cannon system to PATRIOT". The topics for these three conference days caught the attention of the future missile and anti-aircraft artillery officers and of the other participants.

Colonel Dan PĂCURARU, Head of the Weapons Systems Management Service under the Air Force Staff, explained the complexity of the modern systems that our country has recently acquired: "Romania has taken a big step, moving from ex-Soviet-made equipment to modern air defence surface-based systems. They are different in many aspects like configuration, maintenance, training, infrastructure, etc. The advantage of the new systems is that they can be permanently improved by adding hardware and software parts".

DRONES AND DRONE SWARMS - A CHALLENGE FOR THE AIR DEFENCE

Colonel Virgil TOȘA, head of SBAD Methodological Regulations and Instruction section in the Air Force Staff, explained to the students the drone threats and their destructive capacity. He reminded those attending the conference that unmanned vehicles are capable of carrying sophisticated equipment and heavy loads. "When we talk about drones, we are not just referring to UAVs, but to any vehicle controlled remotely, without a pilot on board, moving on the ground, in the air, on water or underwater. However, a new concept has emerged: the swarm of drones. They are able to coordinate, identify targets, and even make decisions without the intervention of a human operator. These are real threats", said colonel TOȘA.

He added that, unlike a UAV that is controlled from the ground, the swarm of drones involves two approaches: "One of the approaches refers to a coordinated parent drone from the ground, and through the communication system and by means of artificial intelligence, the other drones coordinate accordingly. Another



approach is where the swarm of drones is launched and the software on board of these aircraft is capable of making decisions together, recognizing targets together and constantly communicating with each other", stressed colonel Virgil TOȘA.

It appears that the first swarm of drones was used in military operations in Syria, when 13 drones attacked an air base used by the Russian Federation and the port of Tartus. From a historical perspective, the first use in combat of an unmanned aerial vehicle was in 1848, when Austria attacked the Italian city of Venice, using unmanned balloons loaded with explosive material. Since then, the UAV phenomenon has evolved dramatically, which no one anticipated at the time.

A FORAY INTO THE HISTORY OF THE CAPU MIDIA FIRING RANGE

During the conference, the commander of the National Training Center for Air Defence "Brigadier General Ion Bungescu", **colonel Viorel-Eugen BITAN**, gave the students of the Air Force Academy a foray into the history of Capu Midia firing range, the place where artillery and anti-aircraft missiles airmen started their journey into this domain. In the interwar period, more precisely in the 1920s, the anti-aircraft artillery weapon was looking for its identity, those who laid its foundations being the ground artillerymen.

Basically, the appearance of the anti-aircraft specialty was determined by the appearance of the air means of combat (hot air balloons, the first planes), as a way to combat them.

During the interwar period, anti-aircraft gunners trained in a firing range in Mamaia. Only in 1949 did the leadership of the Territorial

Defense Command look for another place to conduct anti-aircraft firing exercises, because the existing one no longer met the conditions, and the chosen place was Capu Midia. "Many practical activities took place in the 1950s. The ground firing exercises were carried out close to Vadu. The anti-aircraft firing was carried out as follows: those of small caliber near Năvodari, and those of medium caliber in the current positions in the fire range", added Colonel Bitan.

With the arrival of anti-aircraft missiles in our country, in 1959, the leadership of the Romanian Military at that time decided to partially give up anti-aircraft artillery, an activity resumed later, after 1968.

In 1971, the first missile was launched at Capu Midia, in the context of the first military seminar organised in the firing range.

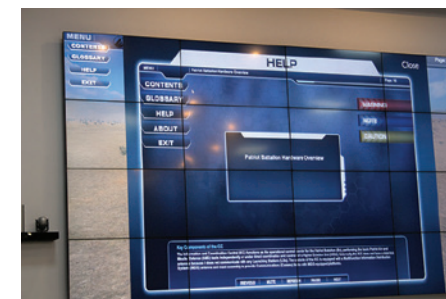
Between 1990 and 2000, the firing range was equipped with a Firing Assessment Center and the Air Target Simulator.

The first HAWK missile was launched here in 2012, and 5 years later the first PATRIOT missile was fired by the US military in the Capu Midia firing range.

Air Force colonel PhD Marius ȘERBESZKI and colonel Viorel-Eugen BITAN



NEW PATRIOT SOFTWARE SIMULATOR AT THE AIR FORCE ACADEMY



The year 2022 started with news for the missile and anti-aircraft artillery students of the "Henri Coandă" Air Force Academy. Since January, they have been training on a PATRIOT system simulator designed just for unclassified lesson, developed with the support of the Air Force Staff. Simulation training is done as closely as possible to the battlefield situation.

Before training on using the new simulator, students had the opportunity to see how officers train themselves on the existing simulator in the 74th PATRIOT Regiment, which was brought to Capu

Midia Firing Range in the fall of 2020, when the reception of the first PATRIOT battery into the Romanian Air Force took place. "The five weeks spent at Capu Midia inspired us to request a simulator for the Air Force Academy. To achieve that, we went through several steps: we identified how to make the simulator, the financial resources needed, the technical performance of the hardware part and last, but not least, the actual programming of the simulator", said **colonel PhD Vasile-Ioan ȘANDRU**, the vice-rector of the "Henri Coandă" Air Force Academy. The simulator has 10 spots, and the third year students have been training theoretically and practically since January 2022.



86th AIR FORCE BASE

70 YEARS OF HISTORY

The 86th Air Base bears the name of aviation - lieutenant Gheorghe MOCIORNIȚĂ, the Romanian fighter hero who bravely fell on duty for the liberation of Czechoslovakia, only two weeks before the end of the Second World War.

The air base heirs the traditions of the 206th Tactical Fighter Aviation Regiment, established on March 10, 1952 at Deveselu airfield. The first commander of the air base marked on the honor plate was Lieutenant-Major Daniel MĂLĂESCU, former MiG-15 jet pilot.

The destiny made Borcea not just a simple airfield, but a painting. A painting in which time added airplanes. A painting in which people - from civilian personnel to the fighter pilots - added

soul, becoming themselves part of the living nature inside the frame.

Finally, a painting in which the artist captured the reality at the level of metaphor or painting on canvas. A place where feelings, from the most elementary sensations, to the most complex perceptions have entered the history textbooks of Romanian aeronautics.

Bărăgan, Cocargeaua, Borcea... three words, one thought... flight. Training flight, day or night, in normal or heavy conditions, all with one purpose: to learn the combat flight.

Text from the archive of **CER SENIN** magazine

AIR FORCE CARAVAN AT THE NATIONAL MILITARY COLLEGE "DIMITRIE CANTEMIR"



Grațela MIHĂESCU, Ionuț SĂVESCU, Grațela MIHĂESCU, Antonio BADEA

February began with the campaign to present the educational offer of the Romanian Air Force, at the "Dimitrie Cantemir" National Military College in Breaza.

The choice of an Air Force career and the steps to be followed were the topics that raised the interest of 11th and 12th grade high school students, participants in the activity of counseling and guidance in the future form of military education.

Officers, pilots and Air Force students presented to the military high school students the latest information about the educational offer and what a career in this category of forces means, but also about the unique experiences that await those who will have aviation as an option.

Aviation Colonel Iulian BĂLȚĂTESCU, the representative of the Air Force Staff, was accompanied by colleagues from Personnel and Mobilization Office, and aviation Colonel Oliver CIUICĂ was accompanied by nine students from the "Henri Coandă" Air Force Academy, also Cantemirist graduates.

People passionate about the profession they have chosen have come in front of the students to help them spread their wings for a flight career. "Our advice is to choose what you think you like, to go to work with pleasure and to have a feeling of accomplishment", said the Air Force representatives.

The information presented in a coherent, clear and explicit manner approached various aspects, and was meant to guide the Cantemirist falcons, so that they will be able to plan and manage their own educational path in relation to their intellectual and affective potential.

Ambition, perseverance and hard work, a lot of work, are words that were stressed by Captain Adriana COMĂNOAIA, who has over 600 flight hours on helicopter, of which 500 on IAR-330. She graduated from the same high school college, ten years ago, and her described experience about her professional career was like an open book to the younger colleagues.

The young Cantemirists took full advantage of the presence of the airmen and future brothers-in-arms to find out all the answers to their many questions.

At the end of the activity, two aircraft flew over the "Dimitrie Cantemir" National Military College, and the images sent by the pilot Mario VĂDĂNOIU, graduate of the 2016 class, showed the beauty of that day's event.

"I am deeply grateful that they managed to present us in such a beautiful manner the Air Force educational offer. They convinced me more than before to follow a military career in the Air Force", said Student Sergeant Valentin ILIESCU.

"I really want to become a jet fighter pilot, because I consider that this is a peak that an officer in the Romanian Military can reach. I would very much like to continue the flight path I started in the nest of the Cantemirist falcons and to reach the highest peaks of the Romanian aviation.

I consider that the aviation domain offers a continuous challenge and makes one improve oneself with each passing day, which I think it suits me", said Student Sergeant Teodor GIURGICĂ.

Make the right choice!
Good luck, dear Cantemirists!





Human error and human factors that affect the performance of aircraft maintenance

Lieutenant-Colonel Mădălina MANOLACHE

Human error

Over time, the word „error” has taken on different definitions and meanings, all related to the context in which it is used and how it is perceived by people. Reason (1990) explains it as „a generic term that includes all those occasions when the planned succession of mental or physical activity fails to achieve the desired result”. Sanders and Moray (1991) state that it is „something that was done unintentionally by people, was not wanted by a set of rules or an external observer, or that led the task or system beyond its acceptable limits”.

Given all these interpretations, it can be concluded that **an error occurs when an action performed by an individual is different from the outcome**. Strauch (2004) comes up with a definition that describes **an error as an action or decision that results in one or more unintended negative results**.

Norman (1988) studied human errors from a cognitive and motory point of view and divided them into two categories: **skidding** and **mistakes**. The former are caused by a lack of attention and happen at the execution level.

The factors that contribute to these types of errors are personal memories, knowledge and experiences. The second category is caused by a faulty plan or intention and happens at the cognitive level, which leads to actions or decisions that are not in agreement with the intention.

J. Rasmussen (1983) initiated an error theory based on three types of behavior. Each **type of behavior** is associated with a different type of error: **skill-based, rule-based, and knowledge-based**. This is known as the Skills, Rules and Scale of Knowledge (SKR).

The **SKR model** explains errors by relating them to the level of conscious control a person has while performing a task. To give an example, there is a different level of awareness when starting a car's engine compared to starting a turbojet engine. According to the theory of Rasmussen (1993), each person, when involved in a task, is classified in one of three types of behavior and it all depends on the experience of the situation and the type of task.

Human factors that affect the performance of aircraft maintenance

Of all the factors that can have an impact on aircraft maintenance performance, the human being can be one of the most important. When we refer to the individual, we are actually referring to the motivation and self-control that could cause that person to make mistakes in the execution of the work. Examples of such factors that affect performance are: work aptitude, physiological characteristics (sight, hearing, etc.), personality, professional integrity, motivation, attitude towards safety, extreme levels of arousal (boredom and stress), fatigue, mood, work, circadian rhythms, distractibility, concentration, awareness, perception, memory, ability to process information, level of knowledge, experience, timeliness, norms and cultural influences (e.g. national culture, national regulations).

The most important factors that influence performance in maintenance are **staff training, communication, teamwork and experience**.

The training and coaching of technical and engineering personnel have been and will remain essential in preventing the occurrence of

aviation accidents, being extremely important for the daily operations of maintenance and safe repairs. Over time, there has been a need for the specialized training of technical and engineering personnel operating aircraft, through human factor courses, safety maintenance (e.g. disassembly-assembly of the fuel tank), application of regulations and technology standards.

Another thing closely related to training is **the elimination of the superficiality of the technical-engineering staff** in the execution of various periodic inspections or maintenance works. From the mentioned safety handbooks, the following situations about aircraft maintenance and teamwork can be given as example: *“After the prophylactic work, due to the superficiality of the aircraft maintenance work, it was found that the engine oil tank was not filled with the required amount, which led to the ignition of the indicator light in the cockpit, which led to postponing the mission”*.

Communication and teamwork

Aircraft maintenance activities require verbal, non-verbal and written communication. The technical-engineering staff must constantly communicate during the preparation, execution and reporting of the work performed. Experience has shown that inadequate maintenance communication has led to delays or interruptions in the execution of missions.

Another example from the handbook: at the end of the flight mission, the aircraft technician superficially checked the aircraft's forms in which the faults were recorded by the pilot, and the defects were partially remedied, the aircraft returning to flight with some of the

defects reported unresolved. One measure of a strong security culture is the level of information distribution at the organizational level. It is very important to have a 15-20 minute daily briefing in the hangar, which will ensure that all important information can be transferred between workshops and work teams.

In addition to communicating the tasks to be performed, it is necessary to establish solutions and highlight key issues. This reduces downtime and thus delays the completion of work on the aircraft, making the aircraft available as soon as possible for the execution of missions. Also, do not underestimate the dissemination of information at the individual level, because this process is not unique, but is based on both the organization and the distribution of knowledge and information from one generation to another. Over time, maintenance offices have found different ways to communicate safety through relevant information: **safety and quality bulletins, information panel, reading and signing, etc.**

Poor staff experience at the beginning of the career may reduce the quality of work performed on aircraft and increase the manpower of the work performed, but through effective communication with experienced staff, this can be corrected.

In conclusion, **training, technical staff training and better communication together support a mature safety culture, and improve aviation safety**.

References:

- 1) Reason J.-Human Error, Cambridge 1990
- 2)Senders, J.W., Moray N.- Human Error, Causes, Prediction and Reduction, LEA Publishers Hillsdale, N.J., 1991.

DUTCH WILDCATS CELEBRATION

"300 Squadron, the 'You never walk alone' feeling"

By Carlo KUIT & Paul KIEVIT/ Bronco Aviation 

It has been 25 years since the first of the 17 brand-new AS-532 *Aérospatiale* Cougars of the Royal Netherlands Air Force (RNLAF) landed for the first time at Soesterberg Air Base, home base for 300 squadron at that time. The initial contract was signed on the 23rd of October 2013. The first 'Cougar' was delivered on the 3rd of May 1996 and all 17 deliveries were completed in the subsequent two years. Currently, 300 squadron operates out of Gilze-Rijen Air Base as part of the RNLAF Defence Helicopter Command (DHC), established in 2008.

'In Mobilitate Vis Nostra'

The 'Wildcats', their usual callsign when operating in the Netherlands, of 300 squadron have completed more than 55,000 flight hours to date which, since 1996, enabled them to participate in a very respectable number of major deployments and exercises. Active deployments all around the world, consisting of ship- and land based operations, shows mobility is clearly within the DNA of the squadron. Something that is also embedded within the squadron's motto '*In Mobilitate Vis Nostra*' (in mobility lies our power).

NEW COMMANDER

Since the beginning of September 2020, LtCol. Roy Hemmelder became the new Commander of 300 squadron. He has been with the unit flying the Cougar helicopter ever since the beginning of this millennium. Only being away from the squadron while broadening his rotary wing experience flying the NH90 for several years for the maritime 860th squadron and learning the ropes as a flight instructor at the 131st squadron. Having been deployed to Bosnia, Iraq and Afghanistan for numerous times he proudly elaborates; "300th Squadron just breathes agility. Its people combined with the Medium Utility Cougar helicopter are able to operate in multiple domains, over land and water, supporting conventional, maritime and Special Forces. The Defence Helicopter Command has many capabilities up its sleeve, of which agility and versatility are definitely a major part of 300 squadron's trademark". This also shows in the squadron's numerous partners, simultaneously operating with Special Forces, Navy Marines and Air Mobile Infantry during various exercises and deployments. LtCol. Hemmelder adds; "Such diversity fits perfectly within the 5th generation air force concept, where integrating and sharing knowledge between joint assets and operating in a multi-domain battlefield is vital". After serving various staff functions at the Airforce HQ and Armed Forces HQ, LtCol. Hemmelder finished his Advanced Staff Training during 2019-2020. One year in as Commander of 300th squadron he reflects; "Thus far this has been

Two 300 squadron AS532s were operating out of Dutch Naval Vessel ZrMs Karel Doorman in June 2018 to conduct Helicopter Qualifications (HQ).

Sven SCHEFFERS 



The port of Rotterdam has been the host of the exercise Port Defender for a couple of years in which The Dienst Speciale Interventies (DSI/ Special Intervention Service) exercises in anti-terrorist scenarios. The DSI is part of the Dutch National Police Corps and was established on 1 July 2006.

one of the most rewarding jobs I've experienced, mainly due to 300 squadron's people and esprit the corps, but also the diversity. I'm enjoying every day, looking forward to what the future has in store."

HISTORY

The squadron's history dates back to 1962, at the time operating out of Ypenburg Air Base, close to the city of The Hague. First, they started operating in the training role with the H-23 Raven. By August of 1965 the transition was made to the Alouette III. From this point on the squadron also operated the L-21B Super Cub and the DHC 2 Beaver. With the retirement of the last Super Cub in 1976 and Ypenburg Air Base losing its operational state, the squadron moved to Deelen Air Base and operated there from 1968 to 1995. From 1996 to 2008 the Squadron was based at Soesterberg Airbase after which it was relocated to Gilze-Rijen Airbase during the establishment of the Dutch Defence Helicopter Command.

SHOCKING NEWS

In 2011, after another round of Dutch Defence cuts, it was decided that 300 squadron would be decommissioned. This came as a huge shock to the squadron, especially since the continuous record of accomplishment since the introduction of the 17 Cougar helicopters in 1996. The decision was (partly) reversed in the same year due to a shortage of SAR-helicopters (due to replacement of the Lynx for N90 and the retirement of the three AB-412 helicopters, which had a dedicated SAR task). The plan was to continue to execute tasks with three 'Cougars' (in a dedicated SAR role) in anticipation of future maturity of the NH-90 fleet. The squadron would stay operational until 2012. However in the same year the decision was rolled back further by increasing the number of operational AS-532 'Cougars' to eight and prolonging the squadrons task up to 2018. In 2015 four more were made operational which leads to the current fleet of twelve Cougars that remain in service of the squadron. In 2018 it was decided that the squadron will stay operational with the Cougar helicopter

until at least 2030. 'Being uncertain about our future, as a team, we had to endure a lot the last decade. I believe flexibility and teamwork was key to deal with this situation' Lt Col Hemmelder adds. But I also believe the Medium Utility Helicopter in itself has contributed significantly in this regard. 'In the end we are like an oiled Swiss Army knife, which has proven its added value over the years, and is quickly available when called upon'.

DEPLOYMENTS

Since the 1990s the 'Wildcats' have been deployed during numerous conflicts and humanitarian missions all over the world. In 2001 and 2002, 300 squadron took part in the Stabilization Force (SFOR) in Bosnia. For this mission five Cougars operated out of Divulje Barracks, Croatia, for a period of a year. The primary tasks was Air Mobility; transporting cargo and troops but also operating as an Incident Response Platform from Sipovo Hospital throughout the AOO.

In 2004, 300 Squadron took over the duties in Iraq as part of the Stabilization Force Iraq (SFIR). For this operation three 'Cougars' operated out of Tallil Air Base. Again in the transport and MEDEVAC role.

The 'Cougars' of 300 squadron also deployed to Afghanistan several times during 2006 to 2010 Operations took place out of Kandahar Airfield in support of the Task Force Uruzgan. Besides a transport role of supplies also missions to support Special Operations Forces (SOF) where executed.

300 Squadron also supports humanitarian missions like fighting forest fires (Fire Bucket Operations - FBO), in 2004 the squadron deployed two Cougars to Portugal, and in August 2007 towards Greece to support the firefighting there.

FROM WILDCATS TO SEACATS

Furthermore, the Cougars have also been involved during Anti-Piracy missions of the coast of Somalia operating from the Royal Netherlands Navy vessel Hr. Ms. In Rotterdam. A wide variety of tasks were carried out ranging from Reconnaissance Flights, transportation of



Dominique Schreinemachers has been with 300 squadron since 2005. Currently she is working for the Dutch Defence staff. During 2008-2009 Dominique was deployed as part of the mission to Afghanistan. A major accident occurred on 10 December 2009 on a flight from Tarin Kowt to Kandahar when a tail rotor malfunction led to an emergency landing at Frontenac, a US Forward Operation Base (FOB) just north of Kandahar.

boarding teams (Marines), drugs encounters and even blocking suspicious ships. The unit has been involved in Anti-Piracy missions during 2012 until 2017 under various mission names; 'Atalanta', 'Ocean Shield' and 'Carib'. For these amphibious overseas missions six Cougars (serials S-419, 441, 442, 445 and 447) are available with maritime equipment like floats to prevent the helicopter from sinking when it comes in the water.

The incorporation of maritime capacity in the "toolkit" gives the 300 Squadron personnel, technicians and aircrew alike, the opportunity

and challenge to adapt to a new environment. "Operating out of a small working place and not having the experience of being at sea for a long time where the biggest challenges", Captain Dominique added. She is one of the experienced pilots within 300 Squadron, these days putting her rotary wing experience to good use at the Airforce HQ.

Until 2015, the squadron was tasked as Patients transport (Air Ambulance) from the Wadden Islands, which are located in the upper north of the Netherlands in the Wadden Sea, to hospitals on the mainland. In 2019, 300 Squadron deployed two Cougars for 'Hurricane Disaster Relief' after Hurricane Dorian hit the Bahamas. A naval exercise towards the Bahamas went from training towards a real mission overnight. In 2020 the 'Cougars' operated from the Royal Netherlands Navy vessel 'Hr. Ms. Karel Doorman' in the Caribbean for the "COVID Support 2020". Though Covid-19 remains to have impact on the global society, 300 squadron has been adapting to this new situation. Indeed; In mobility lies their power.

MISSION QUALIFICATION TRAINING (MQT)

As international training and exercises where largely cancelled during 2020 due to COVID-19, the unit organized a six-week Mission Qualification Training (MQT) including a tactical electronic warfare exercise (TAC EW) itself in the Netherlands. Captain Jimmy, one of 300th Squadron's Flight Commanders, adds; "this all is part of the continuous learning curve we enjoy during our careers, to train as new pilot towards operational (combat) readiness takes about two years, but the learning never stops". The MQT took place during January and February of 2021. Following that precious training, in April 2021 the exercise 'Port Defender' took place in the Port of Rotterdam with a dedicated focus on Dutch Counterterrorism activities during which 300 squadron was further able to hone its skillset. LtCol Hemmelder adds; "before the year is through, we'll also have trained our environmental skills in Degraded Visual Environments during EDA HOT in Beja Portugal, and Mountain Training in Aviano Italy. Furthermore, valuable



Since September 2021 Lt Col Roy Hemmelder has been appointed as Commander of 300 squadron. He has been with the unit since 1996 with an intermediate period with 860 squadron during 2011-2015.

A key task for the Dutch Cougar fleet is tactical movement of underslung loads to and from the battlefield. This task is part of exercises throughout the year.





The crew of a AS532 consists of a pilot, copilot and a loadmaster. Depending on the mission the crew consists of three or four members (pilot, copilot, loadmaster, gunner).



joint training is coming during the International SOF-exercise Nighthawk in Denmark and the maritime amphibious exercise Joint Warrior near Scotland and Ireland. The MQT serves its purpose, in laying a firm bedrock for our crews to build upon when training towards those various mission sets.

MAINTENANCE

Currently 300squadron maintenance crews are performing a 'Base Maintenance Inspection' on one of the Cougars. According to 1st Lieutenant Niels Henderson, Chief Helicopter Maintenance of 300 squadron, this is a unique opportunity. During early 2018 Heli-One (based in Richmond, British Columbia, Canada), a leading provider of Helicopter Maintenance, repair, and overhaul (MRO) services signed an agreement with the Royal Netherlands Air Force (RNLAf) to provide on-site Intermediate/Depot-level maintenance on the twelve AS-532US 'Cougars' helicopters and to support five additional aircraft in storage. A staffing facility at Woensdrecht Air Base with project managers, technicians and support crew from Heli-One Poland has been established at that time. The agreement covers Inspections and Maintenance above the 750 Hours/2-year interval, Engine Makila 1A2 inspections, Corrosion Prevention, and support to the Operational Level Maintenance organization upon request.

To be able to continue operations until at least the year 2030, a so-called Obsolescence Prevention Program has been acquired for the Cougar-fleet, primarily in order to update the twelve Cougars on maintainability en serviceability. Since the introduction with the Royal Netherlands Air Force (RNLAf) no major

investments have been made to the 'Cougar' fleet. A number of essential parts of the Weapon System have aged and spare parts have become difficult to obtain. In the past, this has already had a negative impact on the availability of the 300 Squadron fleet. The Obsolescence Prevention Program will focus primarily on upgrades to the Cockpit, Engine Instruments, Communications suit, Navigation System, Interoperability and the Head Up Display (HUD) system.

The Dutch Cougar helicopters are equipped with an extensive Self-Protection Package, the Integrated Self Protection System (ISPS). This Computer-Controlled System consists of the Missile Approach Warning System (MAWS), the Radar Warning Receiver (RWR) and an Advanced Counter Measures Set (ACMS). The MAWS ensures that the crew is warned in the event of a rocket attack. The RWR ensures that the crew is warned when they are followed by a Radar System. The ACMS ensures that the appropriate countermeasures are taken. In addition, the AS.532 has flares (linked to the MAWS) and chaff (linked to the RWR).

RECENT EXERCISES

This year again a number of international training exercises are planned explains Jimmy, 300 squadron flight Commander. 'We started off in July 2021 with 'Hot Blade' in Portugal to retain proficiency in brown out operations. Lt Col Hemmelder adds "It has been a valuable multi-ship and multi type training for us. We are able to improve and further standardize our military cooperation with our European partners who took part during Hot Blade".

This year we also have planned the 'High

Blaze' exercise again taking place at Aviano Air Base in Italy. This exercise will be important for our crews to catch up with operations in mountainous areas operations. In preparation for the mentioned exercise, late July 2021, we deployed to Laupheim in Germany where we organized an initial mountain training before heading to Italy.

The rest of 2021 will bring the four weeks 'Hebrides Archer' exercise out of the Royal Netherlands Navy vessel 'Hr. Ms. Karel Doorman' with 2 Cougars together with one NH90 starting at the half of September. The final exercise for 2021 will be the three weeks SOF 'Nighthawk' exercise held in Denmark out of Aalborg Air Base, starting at the last week of September.

SOF-EXERCISE NIGHTHAWK

Captain Jimmy states 'in order to improve our conventional support tasks and capabilities towards the Special Operations Forces (SOF), we will be involved in the large scale SOF-exercise "Nighthawk" which is held in Denmark later this year. The 'Wildcats' of 300 Squadron will be in direct support of the Special Operations Forces (SOF) of the Netherlands and various other partners present at that exercise.

During 2013, a dedicated Program was started to build up SOF Air capabilities within NATO. This Program was initiated by the Supreme Headquarters Allied Powers Europe (SHAPE) as part of the NATO Special Operations Headquarter (NSHQ) in Mons, Belgium. In the Netherlands, on the 5th of December 2018, the Netherlands Special Operations Command (NL SOCOM) was established as a dedicated Command for all Special Forces activities. These forces comprise of Commando's (Korps Commando Troepen, KCT) and Maritime Special Operation Forces, (MARSOFF).

LtCol Hemmelder adds; "Obviously much effort is being invested into the further development of SOF. Although we are no SOF-unit ourselves, throughout the year we are supporting Dutch SOF (amongst other partners) with our rotary wing capabilities. Working to better our tactics, techniques and procedures while at the same time increasing the habitual relationship with the various partners. It's a valuable combination, and it gives us experience on a steep learning curve. Experience we directly incorporate to the benefit of our other partners as well. We are therefore looking forward to participating in this year's Nighthawk exercise.



A key task for the Dutch Cougar fleet is tactical movement of underslung loads to and from the battlefield. This task is part of exercises throughout the year.



#WEARENATO

