

Senior Leader Perspective

**DETER—DEFEND—
DEFEAT
SUCCEED IN 3D**

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**Air and Space Force in 2022: An Unrivaled Operational
Credibility and Strategic Impact¹**

“If we lose the war in the air and in space, we lose the war, and we lose it quickly.” For centuries, the strategies of States were primarily concerned with maritime and land-based environments. The twentieth century experienced a change in conflicts, and in how nations demonstrate their power, especially with the advent of aviation and, later on, space capabilities.

In a little over one hundred years, freedom of movement in the air and space has become essential for all activities in terms of the functioning, prosperity, and security of all nations. The fight for air superiority, and in the future for space superiority, has thus become a priority to ensure the operational superiority of the Armed Forces and prevent strategic paralysis.

In addition, Air and Space power contribute *decisively to the full spectrum of warfare*. They enable us to understand and anticipate, to protect our interests, to demonstrate our solidarity with strategic partners, to display our ambition, to discourage our adversaries, to manage the escalation of tension, and if necessary, fight and defeat (from the 3rd dimension) as part of modern military operations (multidomain).²

In order to intervene without delay while tempering the strength of the effects it delivers, the French Air and Space Force relentlessly seeks to challenge by going further, faster, higher, and longer. Innovative by nature, its history and experience allow it to produce rapid ripple effects that contribute to the establishment of solid partnerships. The French Air and Space Force thereby maintains its position, including that of framework nation within coalitions.

1. This is a translated version of General Stéphane Mille's French Air and Space Force *Strategic Vision 2022*.

2. As explained in the Armed forces employment concept: the term “domain” usually encompasses the land, air, maritime, space, cyberspace, as well as the electro-magnetic and informational spaces.

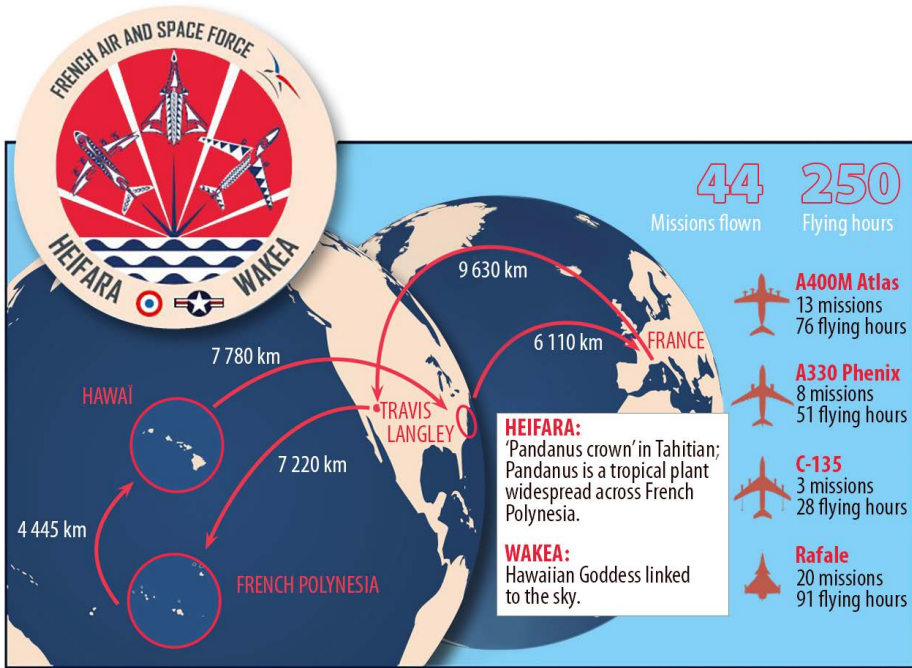


Figure 1: Mission and flying hours

The Air and Space Force has been deeply involved in the operations of the past three decades. The Service’s quick responsiveness, efficiency, credibility, agility, and versatility are the essential elements to the credibility of our position as power of balance on every continent.³

Our Freedom of Action in the 3rd Dimension Is Contested

After 30 years of progress, including technological progress, reductions in the shape of Western air combat fleets and a decade of major investment by some competitors are challenging the air superiority—the determining factor of operational superiority—of Western armed forces.

The air superiority and freedom of access to space that Western armed forces have enjoyed for the past 30 years is being challenged by:

- A drive towards stepping up, whereby an increasing number of states are investing massively in the development and fielding of combat systems, as well as efficient disruptive weapons and area-denial systems.

3. Quick Reaction Alert, Gulf War, former-Yugoslavia, Libya, the sub-Saharan region, Middle-East including Operation Hamilton (2018), Afghanistan with Operation Apagan (2021), as well as Operations Sentinel, Irma, Resilience, etc.

- The proliferation of modern offensive and defensive systems in vast zones where air power in particular, has been expanding since 2014.
- The use of low-cost defensive systems, a “poor man’s air power,” sometimes to the point of saturation. Their cost-effectiveness ratio is unfavourable to the defender; it can even change the balance of power on a local scale.
- The rise of threats in space is also a factor, through dual capabilities of systems the intentions of which are unclear. The number of satellites put into orbit every year has multiplied by 10 over a decade. This tendency is accelerated by the development of constellations numbering thousands of satellites, as well as Chinese and Russian new military capabilities (hypersonic orbital weapons, blinding and jamming activities, antisatellite (ASAT) weapons).

In fact, the fight for air superiority is already a reality. Over the last decade, 98 fighters, 60 helicopters, 24 transport aircraft and 335 drones have been shot down or destroyed, essentially at the doorstep of Europe.⁴ The war waged by Russia in Ukraine since February 24, 2022 has already significantly increased these figures.

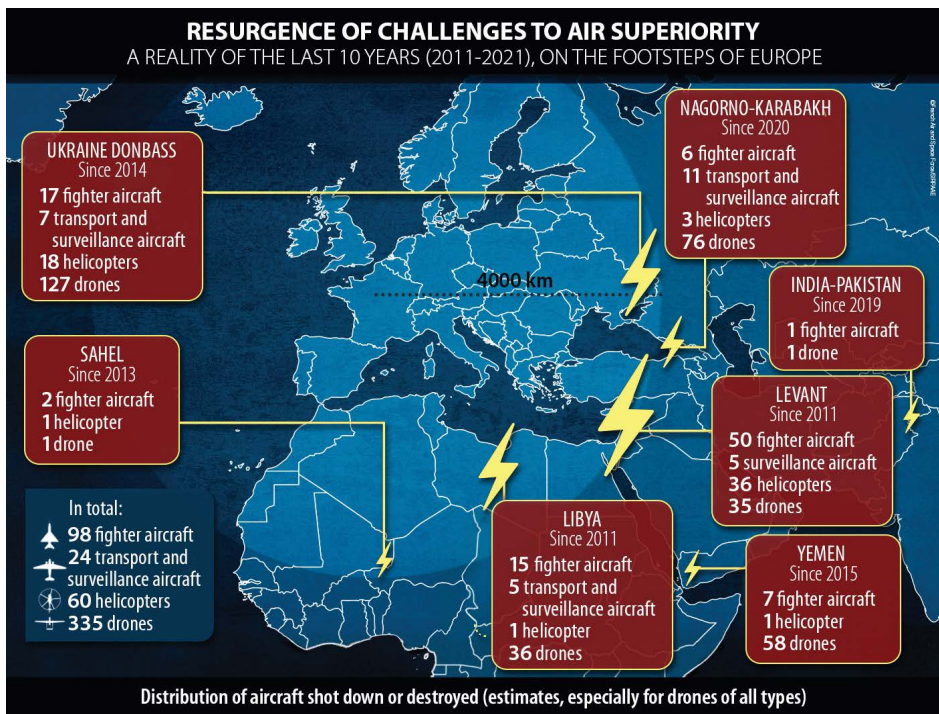


Figure 2. Resurgence graphic

This upward trend could rapidly extend into the space domain.

4. Syria and Iraq, Libya, Ukraine (Donbas), and Nagorno-Karabakh.

Threats Are Spreading into Space

Aviators face numerous challenges to our freedom of action in the sky and in space. Every day, the possibility of space becoming a battlefield is more credible.

Space has become a fertile ground for strategic confrontation with an estimated 34,000 objects larger than 10 cm and another 900,000 larger than 1 cm in orbit. There is also an increasing number of launches and tens of thousands of satellite constellations in development.

This trend, complicated by the ambiguous purpose of dual-use capabilities, has led several countries to strengthen their capacities to act across the whole spectrum of competition, contestation, and confrontation, even in space:

- Competition: by preempting certain scarce resources (orbital positions, frequencies, etc.);
- Contestation: through cyber activities, by maneuvering satellites to positions for the purposes of intelligence gathering, interception of signals or jamming, blinding observation satellites, etc.;
- Confrontation: by developing capabilities to destroy orbiting satellites with directed-energy weapons, armed satellites, or more spectacularly by launching ASAT weapons either from the ground or the air.

In an increasingly uncertain world and with the growing number of military threats close to our national territory or to our deployed forces, we are facing the risk of falling into military paralysis and strategic decline.

The Air and Space Force Chief of Staff's Intentions

In an uncertain strategic environment where high-intensity conflict is once again becoming a possibility and a challenge to air and space superiority, I demand an Air and Space Force that is:

- Audacious, by drawing on our aviator spirit of challenge and innovation in order to accelerate its modernization;
- Agile, open-minded, and connected, transforming our society's core evolutions into opportunities and operational advantages;
- Focused on the training and combat-readiness of today's force, while also committed to the training of the next generation.

This will guarantee the current nuclear deterrence posture and the safety of our airspace (soon to be air and space) while generating decisive effects from the 3rd dimension in order to Deter–Defend–Defeat.

We will deter a competitor or a potential adversary from weakening France's positions, threatening its interests, or hindering its freedom of action by conducting intelligence-gathering missions in order to anticipate crises and undertaking rapid

actions to counter fait accompli policies. We will carry out visible but reversible actions to show our determination and send a clear political message to our challengers.

We will defend and protect our citizens and deployed forces wherever they may be, always ready to rapidly launch noncombatant evacuation operations or to provide assistance during crises or natural disasters.

We will defeat any enemy's attempt to forcefully impose their will upon us, including in a high-intensity conflict, by guaranteeing the commitment of our aviators and air and space forces in a major conflict, through joint efforts, within alliances or coalitions.

Accelerate the Modernization of the Air and Space Force

Finding the right balance between quality and quantity:

In the Air and Space Force, the versatility of our equipment and personnel enabled us to compensate in part for the downsizing of our capabilities over the last decades. Given the evolution of the strategic context and of the evolving threats, our requirements, in particular those of our fighter force, defined by the operational ambition, have now reached a minimum level that should be redressed as a priority. Without modifying our operational ambition, our Rafale Force must reach the levels set in the current Military Planning Act as soon as possible.⁵ The risk of attrition is now a reality.

This logic of finding the right balance has to be applied to all our capabilities such as air-to-air refueling, strategic and tactical airlift, ground-to-air defence systems, ammunition stocks, mission-essential equipment and pre-deployment stores packs. In relation to space, redundancy must be considered, including the use of constellations or reactive launches. The fragile balance must enable us to possess sufficient mass in order to be efficient in the context of constant competition, to be resilient during contestation, and to have the ability to succeed in times of confrontation.

Learning Lessons from Recent Engagements

Drones

The increasing use of drones, from nano to strategic and including low-cost options, highlights the need to protect sensitive sites but also to integrate the capabilities into a centralized aerospace management system. With 15 years of experience deploying drones in operational theatres combined with specific responsibilities in the field of airspace coordination, the Air and Space Force must strengthen its capabilities to detect, classify, identify and manage all types of drone activity both on operations and at home. The upcoming 2024 Olympic Games forces us to accelerate the changes required.

5. Loi de programmation militaire.

Using and Protecting Ourselves from the Power of Communication

As early as the conception phase of an exercise, deployment, or operation, aviators must develop the communication strategy specific to their mission. The aim is to maximize the impact of activities taking place in the 3rd dimension. From the earliest stages of planning for an activity, it is important to “know how” we can exploit our aviator’s “know-how” which is maintained to the highest standard!

Likewise, information is increasingly being manipulated. Our aviators’ professionalism and the success of our operations are being manipulated. Before engaging the Air and Space Force on operations, a thorough analysis will need to take this new trend into account systematically, before proposing different courses of action to the Joint Commander.

“Learn from our recent engagements in order to guarantee the operational efficiency of the Air and Space Force both offensively and defensively.”

SEAD (Suppression of Enemy Air Defence)

Air superiority relies on two fundamental and complementary pillars: dominance in air combat superiority and the neutralization of enemy ground-to-air defence systems. SEAD capabilities are essential once more in order to ensure the coherence and freedom of our action in a contested environment. An in-depth knowledge of adversary capabilities and functioning is required as soon as “competition” begins. Once fighting begins, we require the ability to neutralize these systems (through jamming or destruction).

Monitoring and Intervening in Space

Owing to the numerous stakeholders in space and the congestion of orbits, the competition for access to this environment is likely to be arduous. Understanding what is happening in space is essential, therefore being able to protect and defend our space capabilities is also essential. This requires the implementation of command and control means for the space domain which, as a matter of priority, will require strong links with air and joint C2 organizations.

Necessary Incremental Technologies

- Collaborative combat will harvest our ability to retain air superiority, a key prerequisite to military operations in the face of current and future threats. Resorting to the *connectivity* of all combat systems brings the challenge of balancing *interoperability*, the use of artificial intelligence within defence systems, and the ability to control and exploit *mass data* effectively.
- Hypervelocity is a technological breakthrough with both tactical and strategic consequences. Expected to be operational in 2035, the implementation of the ASN4G missile within the French Air and Space Force will enable us to join the very restricted circle of great powers who master this technology. This industrial

and operational achievement, in addition to consolidating the credibility of the airborne nuclear component, will benefit our conventional capabilities.

- Exploiting mass data will play a central role in our operations as well as in our daily lives. There is a requirement to structure, store, share, and process the data generated by all sensors in order to facilitate decision making. The importance of data will force us to adapt our internal organization as well as the training of aviators. These changes will result from experimentation and an iterative process promoting in particular the use of synthetics and artificial intelligence. In addition to its tactical applications, digitization will affect the fields of space, force development, management, and human resources in particular.
- Finally, it will be imperative for the Space domain to fully exploit the opportunities offered by disruptive or dual technologies, some of which are already available: constellations, quantum technologies, etc. The twenty-first century will be “spatial.”

Be Open-minded, Agile, Connected, and in Symbiosis with the Nation

These transformations must be the answer to our aviators’ expectations by positioning them at the forefront of a responsible Air and Space Force where digitization, modernization, and sustainable development work hand-in-hand toward a common goal: operational effectiveness.

Open to Joint Cooperation

More effort is required to digitize operations and connect our equipment and command structures. The agility and federating capabilities of Air C2 will enable the Chief of the Defence Staff (or nominated representative) to make swift decisions, thereby increasing the enemy’s tactical dilemmas. The mastery of these factors will lead to greater initiative and decisive advantage. This is at the heart of integrated Multidomain operations.

Driving Inter-Ministerial Cooperation

State-sponsored air missions are ever increasing; the proliferation of stakeholders in the 3rd dimension brings many challenges in terms of threats and air traffic management. It is essential to respond to these new challenges and maintain the highest level of airspace security without waiting for the high visibility events planned for 2023 and 2024. The Air and Space Force will share its ability to federate the dynamic environments of air and space to further improve the efficiency of State actions in the air environment.

Stronger with Our Allies

Over and above the ability to carry out national operations, the Air and Space Force will continue to operate within coalitions or indeed to lead them, integrating allies and partners. Specifically, the *interoperability* of our equipment and processes continues to be a constant challenge, exemplified by the arrival of the F35 in Europe. In fact, the Air and Space Force actively cooperates widely with an international network; a key support for the execution of potential worldwide action.

Committed to a Sustainable Approach

All modernization effort must consider our sustainability impact. The Air and Space Force is committed to the Ministerial energy strategy, which aims for our consumption to be optimized, reduced, and secured, while ensuring that the energy is a tool to ensure operational superiority.

Concerning the environment, air bases provide real estate that is conducive to biodiversity; they will be mobilized for a significant reduction of their carbon footprint by 2030.

Likewise, initiatives in terms of youth, inclusion, occupational and social integration, as well as equal opportunities will be considered in an ambitious plan. Specific initiatives implemented by our aviators will be scaled up to all our air bases.

Preparing Today's Fighter and Envisioning Tomorrow's Aviator

Preparing Aviators for High-Intensity Conflicts

Adequate organization, preparation, and team spirit enable seamless transitions from training to operations. Given that an aviator's daily life, as a combat tool of the Air and Space Force, takes place on an air base, local commanders pay close attention to their physical, technical and mental preparation. The functioning of air bases and the maintaining of quick reaction postures also relies on the commitment of the air reserve component. With a decrease of 15,000 aviators over the last 15 years, the Air and Space Force relies more than ever on its reserve component which contributes to our nation's resilience through its engagement.

Making decisions in times of crises requires strong commitment and deep thinking regarding mission objectives and relies on a well-reasoned use of force. Ethics, the first pillar of leadership, guides aviators' actions.

Training More Efficiently

In order to motivate an aviator with the operational need in mind, there is a requirement to ensure training is modernized, optimized, shortened, and improved. Coherence and continuity between phases of training is essential. Indeed, it is imperative to monitor technological evolutions and adapt training accordingly. Current

training programs must be reviewed, taking the relevant status and rules into consideration in order to ensure that training can be flexible and more easily adaptable.

Envisioning Tomorrow's Aviator

Our aviators' spirit and moral fortitude are at the heart of the Air and Space Force's efficiency. The *commitment* of aviation pioneers whose footsteps we follow continues to be a source of inspiration. *Audacity* and *passion* have characterized aviators since the birth of aeronautics. Strengthened by this legacy, aviators continue to look as far and as high as possible. They anticipate the evolution of their missions, they envisage the new skills they'll require, and they adapt their know-how. The rise of disruptive technology opens the door to *exciting prospects*, jobs, and ways to operate. Aviators must be ready to step up to the challenge.

In order to successfully implement the rise of defence in space, all aviators require an acclimatization to space concerns. The implementation of a "space" career path and associated specific training will strengthen the next generation with lasting expertise in space operations—a specific environment demanding specific skills. **Æ**

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