FEATURE

Challenges and Lessons Learned from the Projection of French Airpower in Afghanistan

Capt Ivan Sand, French Air Force*

A few weeks after the withdrawal of Western forces from Kabul, *The Wall Street Journal* reported on discussions held last September between Washington and Moscow about the possible utilization of Russian military bases by American forces if the latter were to carry out strikes against al-Qaeda or ISIS (Daesh) on Afghan soil.[1] More than a reversal of history that this situation could symbolize, it echoes the complexities of the projection of Western forces in 2001, particularly for the nations that do not benefit from the United States' diplomatic-military networks and negotiating power. Accustomed to operations within their own zones of influence, notably in West and Central Africa, French forces have retrospectively perceived their engagement in Afghanistan as a disruption, from the point of view of the area but also of the duration.

The 12 years of French participation in this war have several distinct components. Operation Heracles corresponds to the French contribution to the American Operation Enduring Freedom, which aimed to overthrow the Taliban regime and to combat its insurgent forces, while Operation Pamir designated the participation of French forces to the North Atlantic Treaty Organization (NATO)-led International Security Assistance Force (ISAF), whose objective was to secure the Afghan territory and train the Afghan Army. What was the impact of this war on the model of projecting French airpower? Political and military authorities were confronted with several difficulties to deploy air transport, observation, and combat detachments. Diplomatically, fly-over authorizations and most of all basing within neighboring countries all proved to be major obstacles. Compounding basing problems were flight paths that depended heavily on weather conditions and specificities of coalition warfare that had a great deal of influence on flight autonomy and therefore the responsiveness of air forces. Finally, the counterinsurgent nature of this conflict greatly influenced the geography of air operations and required the French Air Force to make a number of adaptations.

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Challenges of "Airbase Opening:"[2] Geography of an Airpower Deployment

The specificity of the Afghan theater for Western forces—and particularly for French troops—consists largely in the fact the territory is situated in Central Asia, traditionally a Soviet sphere of influence during the Cold War.[3] The coalition led by the United States faced a great deal of difficulty establishing bases in-theater on Afghan soil and in neighboring countries to intervene in this landlocked enclave. France held a unique place within this coalition. Without strategic interests in Afghanistan, political authorities wanted to provide diplomatic assistance to the United States by intervening on their behalf—all while maintaining a certain degree of autonomy.[4] This position was shown by the desire to limit their footprint and situate French forces as far as possible from Afghan territory. Even if this diplomatic situation changed during the 12-year engagement, it had a considerable influence on the choice of initial capabilities deployed by French forces.

Thus, the first French missions in the context of the war against the Taliban regime utilized methods of listening, observing, and in-flight refueling. On 11 October 2001, a C-160 Gabriel and a DC-8 Sarigue bedded down at Al Dhafra Air Base, United Arab Emirates,[5] followed on 21 October by two Mirage IVPs and two C-135 FRs.[6] Utilization of this base, located 2,000 km from Kabul, illustrates the problem of basing for the war in Afghanistan. Additionally, the United Arab Emirates accepted the deployment of reconnaissance, refueling, and transport aircraft but was reluctant to accept fighter jets.[7]

Following a sequence of diplomatic negotiations with Central Asian states, Tajikistan became the first country in the region to accept the installation of a French detachment—though fighter jets were still not accepted. The deployment of an Operational Transport Group (GTO) to Dushanbe permited the Air Force to open what would later be named the "northern door" to the theater and above all prepare for the capture of Mazar-i-Sharif, 250 km from the Tajik capital, to create a forward operating base. In the wake of the agreement with the Tajiks, the French Air Force launched its first attempt to deploy three Transall transport aircraft, which left Istres-Le Tubé Air Base, France, on 16 November 2001. Lacking an agreement with local authorities during a stopover in Turkey, the C-160s were forced to turn back. This shows diplomatic difficulties of air operations that required more than a simple authorization from the destination country. Thanks to the help of American resources—using a C-17 to Uzbekistan then CH-47 Chinook helicopters to northern Afghanistan—a small advance team of French forces led by Lt Col Bernard Hufschmidt managed to travel to Mazar-i-Sharif to prepare for the arrival of French aircraft.[8] The first French aviator to set foot on Afghan soil in this war, Hufschmidt

was responsible for preparing the runway (practicable distance, repair of any damages, lighting, marking, signs, etc.) on behalf of the Special Operations Division, which had been created within military air transport in 1993.[9]

From 3 December, a small-scale airlift was established that included two components: intertheater, between Istres and Dushanbe (with, in the beginning, stops in Istanbul and Astrakhan, where the first planes remained grounded due to diplomatic problems[10]) and intratheater, between Dushanbe and Mazar-i-Sharif. An A-310 strategic transport plane from the Esterel Squadron was called on to transport some of the mechanics to Dushanbe—over the course of Operation Heracles, a number of chartered aircraft (Ilyushin 76s and Antonov 124s belonging to Ukrainian companies as well as American C-17s[11]) were used to transport freight in support of French forces in Dushanbe. During the operation to open Mazar-i Sharif, a C-130 rotated between Istanbul and Dushanbe, while a second C-130 operated between Istanbul and Istres. The first landing of a C-160 at Mazar-i-Sharif occurred during the night of 6 December. After that, rotations began for the complete bed down of a combat company and a support company from the 21st Marine Infantry Regiment. As the coalition wanted to establish a presence at Bagram Air Base, Afghanistan, 50 km north of Kabul, a French Transall was the first to touch down at this airfield, which would become the hub for US forces.[12]

While based in Dushanbe, the four French transport aircraft of the GTO executed intratheater sorties to forward operating bases on Afghan soil. When Operation Pamir began in January 2002, 43 rotations of C-160 and C-130 aircraft enabled the deployment of French troops assigned to ISAF in Bagram.[13] Located 450 km from Kabul and 250 km from Mazar-i-Sharif, the Dushanbe airfield became the gateway for French military forces into Afghanistan as well as the transloading location for materiel and freight. During the first six months of the deployment of French forces, the C-160s totaled 1,445 flight hours while the C-130s totaled 980,[14] the vast majority on an intratheater scale. The use of short airstrips and of airfields lacking modern facilities generated a certain number of lessons in the domain of air transport. General Luc de Rancourt, the first commander of the GTO at Dushanbe, thus insisted on the importance of "having precise means of navigation that enable autonomous arrivals" so that aircraft can, without ground-based navigation, "penetrate independently regardless of weather conditions," notably thanks to progress in the domain of digitization of the battlefield.[15] According to de Rancourt, the communications sector is "the main factor" within an operation that is characterized by "command structures dispersed around the globe: Paris, Al Kharj in Saudi Arabia, Karshi-Khanabad in Uzbekistan, Mazar-i-Sharif, Kabul, Tampa."[16] The GTO's airbase-opening capabilities were subsequently requested in November 2003, when a French special forces

detachment was deployed to Spin Buldak, in Kandahar Province in the south of the country.[17] Relying on the engineers' work in preparing the airfield, a C-160 based in Dushanbe was the first to land there after a stop at Kandahar Airfield and a low-altitude flight. The French GTO thereby played both a relay role in transloading and that of a springboard for the installation of forward operating bases on Afghan soil. The Dushanbe base would also later host French combat aircraft, starting in October 2004—the runway would be rebuilt by French Air Force engineers.[18] In the meantime, it was in Kyrgyzstan that French authorities found, at the end of December 2001, an initial operating location for the Mirage 2000 D. At the same time, the French government decided to deploy the naval aviation group constituted around the aircraft carrier *Charles de Gaulle*, whose combat aircraft would fly an average of 12 missions a day until June 2002. This capacity, however, did not replace the long-term presence of aircraft deployed to airbases in the region.

It was the airfield of Manas, Kyrgyzstan, 20 km northwest of the Kyrgyz capital of Bishkek, which would be the first to receive French Air Force combat aircraft during the war in Afghanistan. Since the end of 2001, this airport had been used as a logistics hub by US forces:[19] a detachment of C-130s retrieved materiel delivered there by civilian aircraft in order to distribute it at the coalition's forward operating bases.[20] In January 2002, when the possibility of an agreement with the Kyrgyz authorities was acquired, the French Air Force dispatched an advanced echelon of several officers, who landed at Manas in a Falcon jet to evaluate the work required for a bed down of Mirage 2000 Ds. The engineering troops were brought in on 14 February, and the field was ready to receive aircraft at the end of the month.[21] Once again, the charter of Ilyushin 76 and Antonov 124 private aircraft was indispensable for the deployment of a detachment composed of six Mirage 2000 Ds and two C-135 FR tankers. It was, therefore, at the price of heavy diplomatic negotiations and considerable logistical and financial commitments[22] that the French Air Force was able to deploy an air strike capability, in line with the requirements of political decision makers. In addition, the 1,500 km separating Manas from combat zones, coupled with overflight constraints (terrain, refusal of overflight by Uzbek authorities) limited the action of French aircraft.

The Problem of Air Routes Used by French Aircraft

More generally, the Afghan theater is distinguished from most other operations of the French Air Force by the multitude of air routes used over the course of 12 years of engagement, as well as by the strong geographic, political, and military constraints that affect the flight paths of aircraft. The different periods of

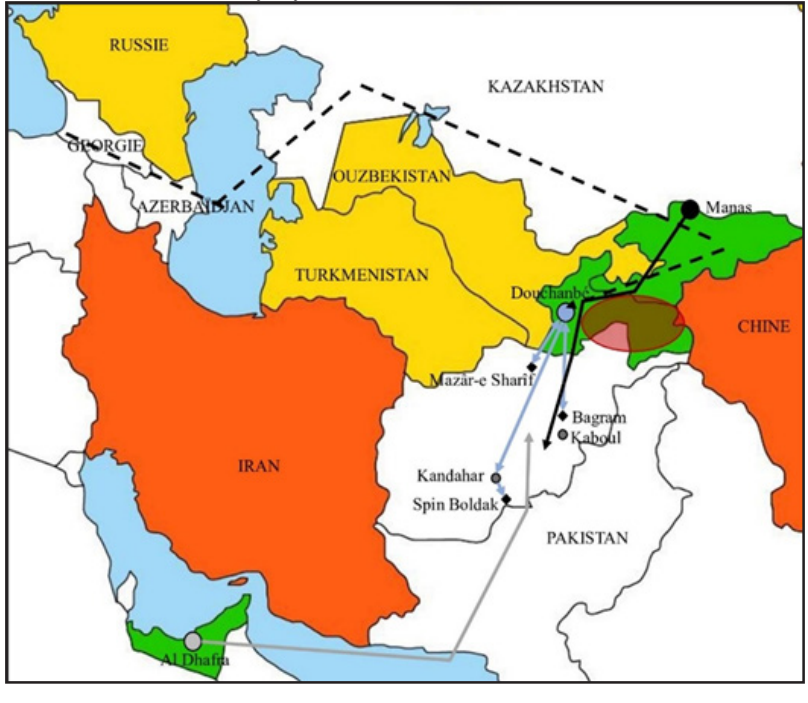
deployment of French airpower correspond to distinct basing and engagement conditions that influenced the construction of aircraft routes of flight.

When Mirage IV aircraft, based in the United Arab Emirates, executed their first intelligence-gathering mission on 23 October 2001, their route met the specific characteristics of strategic reconnaissance flights. The Mirage IV and the C-135 FR tanker initially formed a tight patrol and followed a civilian air corridor; their signal would therefore appear as that of an airliner in the eyes of air traffic controllers. They crossed the Arabian–Persian Gulf, skirted the Iranian coasts, then penetrated Pakistani airspace. Their entry into Afghan airspace was by way of the south, near the Kandahar region. At that moment, the Mirage IV accelerated at medium altitude for an hour and a half before rejoining the tanker at high altitude and starting the return trip to Al Dhafra. In a little more than 100 days and with an average of one mission a day, the Mirage IVs totaled 450 flight hours[23]—in the four to five flight hours per mission, only 1.5 hours were devoted to surveying objectives, given the distances and the areas to be avoided.

This type of restriction usually takes on a more important dimension when it comes to combat missions. The location of the Mirage 2000 Ds at the Manas base, 1,000 km from Kabul, is an illustration of that. In addition to the distance, the terrain, and diplomatic constraints (the Uzbek authorities prohibit the overflight of any French fighter aircraft) complicated the determination of the air routes for the French fighter detachment. The aircraft had to avoid entering Uzbek airspace while flying around the highest peak of the Pamir mountain range, which straddles Tajikistan, Afghanistan, Kyrgyzstan, and China. This condition is due to the difficulty for the French Air Force to ensure rescue missions in the event of a possible ejection in a zone where the summits reach almost 5,000 meters[24]—the helicopters used for this type of mission having a ceiling of about 4,000 meters.[25] This route via the Vakhsh Valley represents a detour of several hundred kilometers, which had an impact on the cost of fuel but also on the fatigue of the pilots and, ultimately, on the time devoted to combat missions—the airmen call it "playtime."[26] Despite this precaution, the French Air Force set up an unprecedented high mountain search capability in the event of an ejection during which the pilot would not be able to see a valley, for example during a flight with dense cloud cover. Called RESAL (airborne search and rescue), this system is based on an international agreement: it consists of a French C-130 based in Dushanbe, Spanish Puma helicopters, and Kyrgyz Mil Mi-8 helicopters. Set up in May 2002, it included, in addition to air commandos, elements of the high mountain gendarmerie platoon from Chamonix.

Furthermore, on an intertheater scale, the air routes for the deployment of French aircraft as well as for their logistical supply were subject to constraints of the same

order. On the diplomatic front, Uzbekistan and Russia refused the transit of arms and ammunition, while Turkmenistan initially accepted only humanitarian assistance flights.[27] French Air Force transport aircraft, as well as chartered private aircraft, must therefore bypass these areas, for example via Georgia and Azerbaijan. At the intratheater scale, the region's rugged terrain presented an additional constraint for French transport aircraft. From Dushanbe—a base located at an altitude of 700 meters but surrounded by mountains that reach 4,500 meters—the C-160s were at the limit of their capacities to cross the mountain barrier, and it was impossible for them to come back in case of breakdown after the beginning of their descent.[28] The Kabul airfield has the same characteristics of a "runway in the middle of a circus surrounded by towering mountains"[29] and reminded transport pilots of their missions during the Sarajevo Airlift in 1993. Two years after the opening of the Manas airfield, the installation of a detachment of combat aircraft in Dushanbe represented a substantial savings in time and fuel for the French Air Force. On 20 October 2004, three Mirage F1-CRs began a 20-day operation to carry out route reconnaissance, surveillance, and mapping missions, while on 6 August 2005, three Mirage 2000 Ds and three Mirage F1-CRs were deployed there, but this time for ground support missions. The deployment of the first three Mirage F1-CRs required the transport of 100 tons of materiel, mostly by AN-124s and IL-76s.[30]



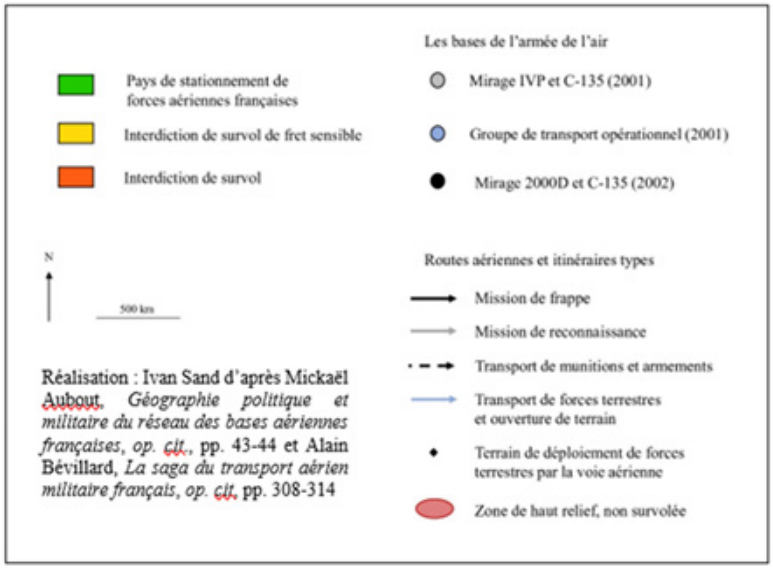


Figure 1. The initial picture of the Air Force in Afghanistan (2001–2002)

About a 10-minute flight from the Afghan border and one hour from the main combat zones, the base at Dushanbe offered a much more compelling position than Manas.[31] However, with the Dushanbe infrastructure close to saturation, the C-135 tanker accompanying the first Mirage F1-CRs had to move to Manas. It would typically take off 50 minutes before the fighter planes to rendezvous with them in Tajik airspace.[32] As of August 2005, the flight time of French combat aircraft was generally close to five hours—up to six hours when their mission took them into southern Afghanistan. They refueled three times and had about three hours of presence over the operation areas. While the performance was significantly better than when departing from the Manas base, it was much lower than that of the coalition aircraft based at the Afghan airfields of Bagram and Kandahar. Officially, the French authorities did not have access to these bases because they were already at maximum capacity[33] or because the security conditions were not met.[34] According to some testimonies, placing their aircraft outside the Afghan theater allowed the French political authorities to show their independence from their allies.[35]

The election of Nicolas Sarkozy in 2007 changed the deal and initiated a rapprochement with Washington. A few months after his election, the president announced his desire to return to the integrated command of NATO. With regards to this conflict, it resulted in the first installation of French combat aircraft on Afghan soil. On 26 September 2007, the detachment of three Mirage 2000 Ds was transferred from Dushanbe to Kandahar, followed three weeks later by three Mirage F1-CRs.[36] In addition to the political symbolism, this relocation placed

French planes 30 minutes from the main combat zones, which significantly increased their air support role within the coalition—during five-hour missions with two in-flight refuelings, the playtime was now approximately three and a half hours. Furthermore, this reorganization considerably improved the response time, which, thanks to an alert system on the ground, was three hours at night and 1.5 hours during the day. Until 2012, the date of the withdrawal decided by Pres. François Hollande just after his election, squadrons of Mirage F1-CR, Mirage 2000 D and Rafale rotated so that the French detachment had six fighters permanently in Kandahar. On the ground, as in the sky, the French Air Force was now fully integrated into the coalition. Its ability to support the various ground detachments—US forces were spread across some 100 bases on Afghan territory[37]—was therefore greatly increased, especially with the Rafale, whose payload is greater than that of the Mirage 2000 D.[38] The presence of the most-modern fighter aircraft of the French Air Force, combined with the relocation of the fighter detachment from Dushanbe to Kandahar, brought renewed credibility and greater weight to the French involvement in the coalition.[39]

Throughout the engagement in Afghanistan, the challenge of air routes was critical. On the diplomatic level, in addition to questions of overflight and basing in bordering nations, there is also the matter of France's role in the coalition, while on the geographic level, distance and terrain affected the performance of French aircraft. It was not until 2007 that the installation in Kandahar, "at the very heart of the fighting," made it possible to lift the "elongation constraint" on the one hand and was seen by the coalition as "additional proof of the French willingness to support coercive action . . . in a risk-sharing approach with the allies."[40] Diplomatic and geographic variables are also imposed on the conditions of engagement specific to a counterinsurgency war, in which the modalities depend both on the strategy followed by the coalition and on the political will of the French leaders.

Territorial Dynamics of Air Support in a Modern Counterinsurgency Conflict

The vast area of Afghan territory (650,000 km^2), its 30 million inhabitants, its landlocked character, as well as the diversity of the natural terrain encountered—"vast desert expanses, great plains and high rocky mountains with deeply steeped valleys"[41]—played a primary role in the deployment of airpower in the face of an enemy using guerrilla warfare. While Western nations had not needed to wage counterinsurgency wars for a very long time, they had to adapt their strategy and military tools to an adversary who had a perfect knowledge of the terrain, avoided direct confrontation, and blended into the local population. The increase in troops,

from a few thousand at the end of 2001 to 140,000 in 2011,[42] illustrated the coalition's difficulties in ensuring security throughout the territory.

Beyond the sheer size of the Afghan theater, it is the lack of delineation of a "constantly evolving battle space"[43] that posed many challenges to modern armed forces. Faced with this situation, the time factor becomes a fundamental element, especially from the viewpoint of air forces: in general, with the enemy only identifiable just before an attack, the response time "comes into direct conflict with a calm apprehension and a taking into account of all the parameters that will lead us to strike."[44] At various levels, the command-and-control structures implemented by the coalition sought to respond to this accelerated ops tempo, while some US processes inherited from the Cold War were sometimes considered too slow for a counterinsurgency conflict.[45] They resulted in a pronounced geographical dispersion at the strategic and operational levels, while at the tactical level, air support for troops on the ground was perfected through the establishment of dedicated resources and processes.

US Central Command, located in Tampa, Florida, is the agency responsible for joint operations. The Combined Air Operations Center (CAOC), which directs the air plan, was initially located at the base at Al Kharj in Saudi Arabia, before moving to Al Udeid Air Base in Qatar (land and maritime operations are also each managed from a regional base). The principal allied nations of the United States sent representatives and liaison elements to exert influence on the decisions when possible, or at least to gather as much information as possible and to ensure respect for the conditions of engagement of their nations' forces as defined by political authorities.

The rules of engagement, called ROEs, within the coalition presented a particularly delicate subject for the French Air Force. In September 2006, French aircraft were prohibited from "dropping bombs in urban areas, except when the air support controller on the ground [JTAC] is French and can ensure that no civilian is at risk of being the victim of an airstrike."[46] These rules or caveats were perceived as very restrictive, both within the French detachment and within the coalition. After a few situations where these conditions prevented French aircraft from striking on behalf of allied troops,[47] the national authorities decided to reverse these rules, so as not to discredit French participation in Operation Enduring Freedom—especially since technical factors regarding GPS-guided bombs, encrypted radios, and data links also limited French actions.[48]

The French military decided, at the end of the 2000s, to reinforce the link between land and air environments in operations in Afghanistan with the creation of the Tactical Air Control (CTA). Following feedback from air commandos, deployed as part of the French special forces' participation in combat against the Taliban, a team of air controllers was embedded with ground troops at the level of

the joint tactical group (GTIA).[49] The diffused threat in Afghanistan influenced ground maneuvers: "the operational principal is to never take 'one step without support,'"[50] notably air support in the form of combat aircraft, helicopters, or intelligence, surveillance, and reconnaissance (ISR) platforms. While the ground elements that guided air forces were on the order of four personnel per brigade during the conflicts in the former Yugoslavia, the GTIA teams consisted of between six and 12 soldiers in the last years of French engagement in Afghanistan. These air control specialists, thus, illustrated the density and omnipresence of air support in this theater. During missions of the category "Preplanned Close Air Support," in other words, air support planned in advance,[51] French aircraft based in Kandahar were allocated a time slot, a zone of operation, and a JTAC to carry out missions as needed.[52] In addition to eventual strikes called for by the JTAC, the crews would also have the mission to monitor a zone, for example, the area around a forward operating base, to conduct reconnaissance missions, or even to protect a convoy.[53] The war in Afghanistan, thereby, constituted a pivotal example of the increased usage of airpower in a counterinsurgency war. In particular, it reinforced the interaction between air operations and the situation on the ground, a role of aviation that would be confirmed several years later during the operations conducted against the Islamic State in Iraq and Syria.

Air mobility was a major asset for the coalition given the distances to travel, the impractical roads, and especially the threat that hung over convoys—between 2001 and 2010, 70 percent of coalition losses were caused by improvised explosive devices.[54] At the intratheater level, the number of passengers and tons of freight transported by heavy helicopters[55] and coalition aircraft grew noticeably as the conflict took the form of a counterinsurgency, which grew in intensity during the years 2000–2010.[56] Air drop was also used on an increasing basis by the entire coalition to resupply the numerous detachments on the ground.[57] In this domain, French forces developed an innovation: high-altitude low-opening air drop (LMTGH-OB).[58] Validated from 1 July 2008 forward,[59] this technique was a low-cost solution to effect airdrop in total safety—the aircraft flew higher than 6,000 meters to be above the Taliban air defense capabilities. In comparison with the US systems, its originality resided in basing the precision of the airdrops on meteorological data alone (notably the analysis of winds)[60] and not on GPS guidance. A team from Météo France was notably solicited to develop a model specific to Afghan geography that accounted for wind, temperature, and air pressure to determine the drop point—the precision was on the order of 250 meters. The aircrew worked with oxygen masks given the altitude of the flight, while the ground forces had to secure a circular area with a radius of 500 meters to recover the materiel.

Conclusion

At multiple levels, the war in Afghanistan represented a turning point for French airpower projection. The geographer Mickaël Aubout stated that this operation validated the "theater air base concept," with transport crews notably distinguishing themselves in the domain of airbase opening.[61] The air routes used by French aircraft—whether for intertheater deployment, intratheater transport, or combat missions—show the importance of diplomacy. Force projection can indeed be considerably constrained when lacking authorization for overflight, stopover, or basing. Finally, the specifics of counterinsurgency warfare markedly influenced the use of airpower, with the risk that as coalition troops become bogged down, air interventions are carried out almost solely to support the ground scheme of maneuver, be it for the resupply of troops or in the domain of supporting fire.

Twelve years of engagement in Afghanistan have left a durable mark on the French Air Force. If they have highlighted certain limits to France's power projection model, they have equally been marked by operational innovations and real progress in the processes of allied planning and targeting. Despite the negative outcome of the Taliban's return to power, the shared work of different air forces engaged in Afghanistan represents an essential step in this era of grand air coalitions, which began with the Gulf War of 1991 and is unlikely to be ending soon. ✪

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Notes

1. Michael R. Gordon and Gordon Lubold, "U.S. Asked Russia About Offer of Bases to Monitor Afghan Terror Threat," *Wall Street Journal*, 27 September 2021, https://www.wsj.com/.
2. Within the French Air Force, this term refers to the first use of an airfield.
3. French C-160s landed in Kabul on 25 September 1996, to carry out an operation to evacuate nationals when the capital was captured by Taliban troops. *See* Alain Bévillard, *The Saga of French Military Air Transport* (Paris: L'Esprit du livre, 2007), 307.
4. Lieutenant-Colonel Jérôme de Lespinois, "The specificity of Air Force adaptation: the example of the Air Force in Afghanistan" *Note de recherche stratégique*, no. 22, IRSEM, July 2015, https://www.irsem.fr/.
5. Therefore, it is not a permanent French base, which opened in 2008. This deployment was therefore carried out within the framework of agreements specific to this conflict with the Emirati authorities.
6. Philippe Chapleau and Jean-Marc Marill (dir), *Dictionary of French Army External Operations. From 1963 to the present day* (Paris, Nouveau Monde, 2018), 144.
7. Frédéric Lert, *Pilots in Afghanistan. French Aviators in Combat* (Levallois-Perret: Altipresse, 2009), 78.
8. See the testimony of Lieutenant-Colonel Bernard Hufschmidt in Bévillard, *The Saga of French Military Air Transport*, 314.
9. General Luc de Rancourt, "A small affair of fifteen days...with tacit renewal," *Le Trap*, no. 214, September 2013, 26–28.
10. Bévillard, *The Saga of French Military Air Transport*, 310.
11. Colonel Luc de Rancourt, "Tactical Lessons from Operations HERACLES and AMMONITE," in *The Air Force, the French Armies at the Dawn of the 21st Century, Volume II*, ed. Pierre Pascallon (Paris: L'Harmattan, 2003), 229–37.
12. Lert, *Pilots in Afghanistan*, 155.
13. Lert, *Pilots in Afghanistan*, 156.
14. Bévillard, *The Saga of French Military Air Transport,* 308.

15. de Rancourt, "Tactical Lessons from Operations HERACLES and AMMONITE."
16. de Rancourt, "Tactical Lessons from Operations HERACLES and AMMONITE."
17. Lieutenant Charline Rodin, *Afghanistan: Aviators' Perspectives* (Paris:, SIRPA Air, 2011), 96.
18. Lert, *Pilots in Afghanistan*, 157.
19. Colonel Jean-Marc Laurent, "Allied deployment in Kyrgyzstan: the international dimension of an airbase," *Les Cahiers de Mars*, no. 177, 2003/2, 106–13.
20. Laurent, "Allied deployment in Kyrgyzstan," 79.
21. Laurent, "Allied deployment in Kyrgyzstan," 80; and Lieutenant Mickaël Aubout, "Military geography of an airbase: the example of the base at Manas (2002 – 2004)," *Penser les Ailes Françaises*, No. 19, February 2009, 28–38.
22. The Royal Air Force arrived at the same conclusion regarding the difficulties of deployment using bases that lack modern infrastructure. Air Chief Marshal John Day, "After Afghanistan - the role of air power," *The RUSI Journal* 147, no. 6 (2002), 38–43.
23. Lert, *Pilots in Afghanistan*, 126.
24. Aubout, "Military geography of an air base."
25. Aubout, "Military geography of an air base."
26. Lert, *Pilots in Afghanistan*, 163.
27. Aubout, *Political and military geography of the network of French air bases*, 402–03; and Aubout, "Military geography of an air base."
28. Bévillard, *The Saga of French Military Air Transport,* 330.
29. Bévillard, *The Saga of French Military Air Transport,* 331–32. This configuration also raises fears of fire from RPG-7 rocket launchers during take-off and landing, Jean-Charles Jauffret, *The Unfinished War. Afghanistan, 2001-2013* (Paris: Autrement, 2013), 136.
30. Lert, *Pilots in Afghanistan*, 157.
31. Marc Scheffler, *The War Seen from the Sky. The Battles of a Mirage 2000D Pilot* (Paris: Nimrod, 2013), 168.
32. Lert, *Pilots in Afghanistan*, 160.
33. Scheffler, *The War Seen from the Sky*, 168.
34. Lert, *Pilots in Afghanistan*, 192.
35. Lert, *Pilots in Afghanistan*, 192.
36. Chapleau and Marill, ed., *Dictionary of French Army External Operations*, 145.
37. Jauffret, *The Unfinished War*, 128.
38. de Lespinois, "The Specificity of Air Force Adaptation."
39. Christian F. Anrig, "Neglected Contributors: The Continental European Air Powers," in *Air Power, Insurgency and the "War on Terror,"* ed. Joel Hayward (Cranwell: Royal Air Force Center for Air Power Studies, 2009), 125–40.
40. Lieutenant-Colonel Thierry Marzocchi, "Les ailes de la liberté: huit ans d'engagement aérien français dans le ciel afghan," *Penser les Ailes Françaises*, no. 23, summer 2010, 12–17.
41. Général Gilles Desclaux, "Le rôle de l'arme aérienne dans une opération de stabilisation et de contre-insurrection," *Penser les Ailes Françaises*, no. 23, summer 2010, 71–79.
42. de Lespinois, "The Specificity of Air Force Adaptation."
43. Lieutenant-Colonel Thierry Marzocchi, "The wings of freedom: eight years of French air engagement in the Afghan sky", *Penser les Ailes Françaises*, no. 23, summer 2010, 12–17.
44. Marzocchi, "The wings of freedom," 12–17.

45. Colonel John C. Wilkinson and Andrew Hill, "Airpower against the Taliban. Systems of Denial," *Air & Space Power Journal*, fall 2017, pp. 44-49.

46. de Lespinois, "The Specificity of Air Force Adaptation."

47. For a precise description of one of these missions from the point of view of a French pilot, see the first chapter of Scheffler, *The War Seen from the Sky*, 15–31.

48. Adaptations were quickly found for each of these cases, notably the installation of the ROVER (Remotely Operated Video Enhanced Receiver) data link system between the ground and the air. *See* de Lespinois, "The Specificity of Air Force Adaptation.".

49. Lieutenant-Colonel Bernard Granier, "French specificity in terms of 'Joint Terminal Attack Controller' (JTAC): tactical air control (CTA)," *Penser les Ailes Françaises*, no. 23, summer 2010, pp. 102–07.

50. Granier, "French specificity in terms of 'Joint Terminal Attack Controller'," 102–07.

51. Two other types of support missions for land forces were carried out: X-CAS, where crews are on alert on the ground for the benefit of identified units; and E-CAS, emergency missions for the benefit of land forces which do not have no JTAC.

52. Lert, *Pilots in Afghanistan*, 198.

53. Jauffret, *The Unfinished War*. 128.

54. Desclaux, "The role of the Air Force in a stabilization and counter-insurgency operation."

55. Roger Anett, *Lifeline in Helmand. RAF battlefield mobility in Afghanistan* (Barnsley: Pen & Sword Aviation, 2010), 99.

56. Anthony H. Cordesman, *US Airpower in Iraq and Afghanistan. 2004-2007* (Washington: Center for Strategic and International Studies, 13 December 2007).

57. Antony Loveless, *Blue Sky Warriors: The RAF in Afghanistan in their own words* (Sparkford: Haynes, 2010), 99.

58. The low opening means that the parachute opens at a low altitude to minimize the drift of the released material.

59. Rodin, *Afghanistan: Aviators' Perspectives*, 98.

60. Lieutenant-Colonel Laurent Solda, "Military air transport: dropping equipment at a very high height with low parachute opening," *Penser les Ailes Françaises*, no. 23, summer 2010, 108–15.

61. Aubout, *Political and military geography of the network of French air bases*, 412.