Forward Air Controller (Airborne): Training to Win Large Scale Combat Operations

A Monograph

by

Lieutenant Colonel Jesse D. Breau
US Air Force

School of Advanced Military Studies
US Army Command and General Staff College
Fort Leavenworth, KS
2019

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1. REPORT DATE *(DD-MM-YYYY)*	**2. REPORT TYPE**	**3. DATES COVERED** *(From - To)*
23-05-2019	Master's Thesis	JUN 2018-MAY 2019

4. TITLE AND SUBTITLE
Forward Air Controller (Airborne): Training to Win Large-Scale Combat Operations

5a. CONTRACT NUMBER

5b. GRANT NUMBER

5c. PROGRAM ELEMENT NUMBER

6. AUTHOR(S)
Lt Col Jesse D. Breau

5d. PROJECT NUMBER

5e. TASK NUMBER

5f. WORK UNIT NUMBER

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
U.S. Army Command and General Staff College
ATTN: ATZL-SWD-GD
Fort Leavenworth, KS 66027-2301

8. PERFORMING ORG REPORT NUMBER

9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)
Advanced Military Studies Program

10. SPONSOR/MONITOR'S ACRONYM(S)

11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION / AVAILABILITY STATEMENT
Approved for Public Release; Distribution is Unlimited

13. SUPPLEMENTARY NOTES

14. ABSTRACT

The current doctrinal focus on Large Scale Combat Operations versus peer adversaries has reinvigorated investment into joint air-ground integration. Forward Air Controllers (Airborne) have historically enhanced Close Air Support in Large Scale Combat Operations. The recently-activated 24 Tactical Air Support Squadron has a unique mission as the only Forward Air Controller (Airborne) centralized training unit in the Air Force. This monograph explores the history of Forward Air Controllers during various conflicts, the trajectory of peacetime CAS-focused training and Close Air Support culture, and how the 24 Tactical Air Support Squadron can contribute to a healthy joint Close Air Support culture through training, integration, and education.

15. SUBJECT TERMS
Forward Air Controller (Airborne); Close Air Support; air-ground integration; Large Scale Combat Operations; Tactical Air Support Squadron; CAS culture

16. SECURITY CLASSIFICATION OF:			**17. LIMITATION OF ABSTRACT**	**18. NUMBER OF PAGES**	**19a. NAME OF RESPONSIBLE PERSON**
a. REPORT	**b. ABSTRACT**	**c. THIS PAGE**			**19b. PHONE NUMBER** *(include area code)*
(U)	(U)	(U)	(U)	41	

Monograph Approval Page

Name of Candidate: Lt Col Jesse D. Breau

Monograph Title: Forward Air Controller (Airborne): Training to Win Large Scale Combat Operations

Approved by:

_____, Monograph Director
John M. Curatola, PhD

_____, Seminar Leader
Geoffrey A. Whittenberg, COL

_____, Director, School of Advanced Military Studies
Kirk C. Dorr, COL

Accepted this 23rd day of May 2019 by:

_____, Director, Graduate Degree Programs
Robert F. Baumann, PhD

Abstract

Forward Air Controller (Airborne): Training to Win Large Scale Combat Operations, by Lt Col Jesse D. Breau, US Air Force, 41 pages.

The current doctrinal focus on Large Scale Combat Operations versus peer adversaries has reinvigorated investment into joint air-ground integration. Forward Air Controllers (Airborne) have historically enhanced air-ground integration via Close Air Support in Large Scale Combat Operations. The recently-activated 24 Tactical Air Support Squadron has a unique mission as the only Forward Air Controller (Airborne) centralized training unit in the Air Force. This monograph explores the history of Forward Air Controllers during selected large-scale conflicts, the trajectory of peacetime CAS-focused training and Close Air Support culture, and how the 24 Tactical Air Support Squadron can contribute to a healthy joint Close Air Support culture through training, integration, and education.

Table of Contents

Acknowledgements

I am grateful to God for the tireless and humbling support from my family- Laura, Hunter, and Elizabeth. Many thanks to Dr. John Curatola and COL Geoff Whittenberg for their broad latitude and coaching throughout the research process. To my colleagues in The Ocho Seminar, thanks for teaching and challenging me. Finally, I appreciate the valuable inputs and editing help from Björk Niebuhr, El Cid Neuenswander, Smack Balzhiser, Dan Keller, Cajun Chaisson, Rick Griset, Meta Dietz, Fester Fredrick, Magilla Geriat, Razor Rurka, Thrill Laird, Chaos Davis, Apollo Allen, Rock Wilson, Whiskey Dickson, Venita Krueger, Beatrice Liu, Rusty Rafferty, Hoot Walker, MiG Halley, and Glenmorangie 18-year old scotch.

Acronyms

AFB	Air Force Base
AGOS	Air Ground Operations School
ALOs	Air Liaison Officers
BALO	Battalion Air Liaison Officer
CAS	Close Air Support
CIG	Close Air Support Integration Group
CJTF	Combined Joint Task Force
CSAR	Combat Search and Rescue
DaCAS	Digitally-Aided CAS
DOC	Desired Operational Capability
FAC(A)	Forward Air Controller (Airborne)
GFC	ground force commander
JFAC(A) MOA	Joint Forward Air Controller (Airborne) Memorandum of Agreement
JFO	Joint Fires Observer
JTAC	Joint Terminal Attack Controller
LOEs	Lines of Effort
LSCO	Large Scale Combat Operations
MDMP	Military Decision Making Process
ODA	Operational Detachment Alpha
RMC	Rescue Mission Commander
SF	Special Forces
SOF	Special Operations Forces
TACP	Tactical Air Control Party
TASS	Tactical Air Support Squadron

TDY	Temporary Duty
WfF	War fighting Function
WIC	Weapons Instructor Course

Illustrations

Introduction

The role of the Forward Air Controller (Airborne), or FAC(A), is four-fold. FAC(A)s train to conduct detailed planning and integration with the maneuver element; execute the desires of the ground commander in day, night, and adverse weather conditions; integrate joint fires on the battlefield, and lower the risk of fratricide.[1] Several recent significant events have reinvigorated the US Air Force (USAF)'s interest in the FAC(A)'s specialty of integrating joint fires. The 2018 National Defense Strategy's focus on peer adversary competition has cued the joint force to reorient from decades of low-intensity counter-terror operations to training for potential Large Scale Combat Operations (LSCO). In March 2018, the USAF's Air Combat Command chartered the Close Air Support Integration Group (CIG). The CIG's charter is to "integrate air, space, and cyber effects into the full spectrum of Close Air Support (CAS) operations while establishing mutually supportive joint relationships and educating joint and coalition warfighters."[2] As the only flying unit within the CIG, the 24 Tactical Air Support Squadron (TASS)'s primary roles are to manage and conduct the USAF's FAC(A) training course, to provide air support for Joint Terminal Attack Controller (JTAC) training, and to liaise across the services to enhance joint warfighter expertise.[3] The purpose of this monograph is to explore how the Air Force and Army can leverage the unique capabilities of the 24 TASS to improve air-ground integration and joint training for potential LSCO against a peer adversary. The following research questions form the monograph's structure.

---

[1] Joint Chiefs of Staff, *Joint Publication (JP) 3-0, Joint Operation* (Washington, DC: Government Printing Office, 2017), 187.

[2] James Holmes, "57th Operations Group's CAS Integration Group Charter," Air Combat Command, September 26, 2017, 1.

[3] Ibid., 2.

1. Have unique FAC(A) capabilities historically made joint forces more effective in LSCO?

2. What is the historical trajectory of FAC(A) training, and how does that history reflect CAS culture?

3. What is the current state of FAC(A) training and CAS culture?

4. What are the challenges and opportunities for the 24 TASS to contribute to joint integration and CAS culture?

In Afghanistan, almost daily throughout the summer of 2017, "Smack" and Dan huddled in a dimly-lit JOC over a map and a laptop. Smack is a FAC(A)-qualified F-16 instructor pilot and was deployed with his USAF fighter squadron; Dan is a Special Tactics Squadron JTAC and was attached to an Army Special Forces (SF) Operational Detachment Alpha (ODA). They simultaneously cursed the broken Gridded Reference Graphic laminator and the stubborn "dot.kml" Google Earth files that they were using to develop Airspace Control Measures. However, their efforts would prove invaluable in shaving seconds from future CAS 9-lines and artillery Calls for Fire. The mission planning was not glamorous, but the air-ground integration and reciprocal education reduced risk during combat in the months to follow. As Smack described post-deployment,

> Integration and education was our money-maker. None of our support for the SOF teams' combat success would have been possible if we did not aggressively advertise our capabilities to the JTACs and the Special Operations Task Force (SOTF) commander. We rehearsed with the JTACs and teams to build trust, when nothing was going on. I spent at least half of every non-flying day in the JOC with the JTACs and commander to further build that trust. Once the JTACs and Ground Force Commander were comfortable with our act and we were familiar with the Area of Operations (AO), they started to trust us with Brief/Stack/ Mark/Control [doctrinal CAS procedures] since they knew we were tight on Rules of Engagement (ROE), target identification, the AO, weaponeering, etc. . . . It got to the point where the CCT [Combat Controller] JTACs and GFCs would approve our FAC(A)s generating CAS briefs and 9-

> lines, as well as deconfliction in the stack. That let the JTAC focus on not dying, or whatever other task the ODA was currently engaged in at the time.[4]

Fast forward several weeks to Dan's recount of a multi-team clearance operation, after the deliberate and intensive integration and planning between the FAC(A) and the supported ground commander,

> First of all, the schedulers at the fighter squadron leaned forward and made sure to stack the schedule with FAC(A) pilots during all the critical times (dawn, dusk- when the enemy attacks typically). This particular day was winding down and dusk was setting in. Smack [FAC(A) F-16 pilot] was still on station, as well as some Apaches and a B-52. We were setting up in a compound for the night and we took a direct hit from enemy IDF, killing half a dozen of us and wounding everyone else, 20-plus. Obviously this was a worst-case scenario that was unfolding for us. We needed as much shit as possible to blow up as quickly as possible, since we were completely fucked up and receiving small arms fire from a 210 degree fan. Smack and his wingman started dropping effective ordnance, and quickly generated 9-lines for nine separate targets, which they passed to the B-52. All the while, they were managing deconfliction in the rest of the stack, tracking incoming MEDEVAC birds, battle-tracking another ODA on the other side of the valley, and passing a battle handoff to the incoming FAC(A) flight lead.
>
> When life was literally at its lowest point ever, it was a Viper FAC(A) who stepped up on the CAS Team and carried us through. Could a non-FAC(A) have worked through that scenario and gotten ordnance down in a timely manner and safely? Absolutely, but it's all the other things that were happening at once that Smack was able to help with, because he knew the GFC intent and he maintained high situational awareness. It would have been task-saturating for most pilots who don't have that level of FAC(A) training. The FAC(A)s in that squadron had such an appetite and desire to be strong CAS Team members, and that attitude permeated through their entire squadron. That made their CAS effects extraordinary.[5]

FAC(A)s enhance air-ground integration and multiply CAS effects in support of ground units. Historical case studies show consistent evidence that unique FAC(A) capabilities make CAS more effective, specifically during the Korean War, Vietnam, and Operation Enduring Freedom. The trend during Korea and Vietnam was that the Air Force used FAC(A)s to enhance air-ground integration, but the programs started during combat operations as ad hoc organizations

[4] Smack Balzhiser, "FAC(A) Research," e-mail message to author, December 18, 2018.

[5] Dan Keller, "FAC(A) Research," e-mail message to author, December 20, 2018.

that were cobbled together to meet urgent requirements for better joint integration. Despite the success of combat-proven FAC(A) programs, the Air Force has historically focused on other priorities besides FAC(A) training and doctrine during interwar years. The lack of investment in peacetime FAC(A) training has required "starting over" in re-establishing a CAS culture of air-ground integration during each new conflict.

Operation Anaconda, the first major post-9/11 Afghanistan operation, illustrated the effectiveness of maintaining an institutional FAC(A) capability with the Air Force. During Anaconda, F-16 and A-10 FAC(A)s played a key role in synchronizing CAS effects in a challenging, dynamic battle. Although the Operation Enduring Freedom FAC(A)s provided an example of tactical success mid-execution, their efforts were not planned, but were simply an ad hoc reaction to solve the tremendous challenges of Anaconda's compressed airspace and numerous complex CAS targets.

In that sense, the trend of using FAC(A) in an unanticipated pickup game role has continued from the Korean War to Operation Enduring Freedom. In short, the USAF and Army have historically shown a tendency to let CAS culture wither during peacetime, which leaves the joint force ill-prepared to execute integrated air-ground operations in wartime. Recognizing that tendency, Air Combat Command hosted a CAS integration conference in 2015, to deliberately preserve joint CAS culture. The result of that conference was a charter to create the CIG and the 24 TASS in March 2018 at Nellis Air Force Base (AFB)–the "Home of the Fighter Pilot."

To better understand the role of the CIG and 24 TASS in preserving CAS culture through joint air-ground training, it is necessary to examine the historical trajectory of Air Force FAC(A) training. The first major employment of FAC(A)s in US military history was the "Mosquito" slow-FAC program during the Korean War. The early, slow moving FAC(A)s flew primarily modified T-6 trainer aircraft, with the descriptive radio callsign "Mosquito." None of those pilots were trained as a FAC(A) prior to the war. The pilots were pulled from other aircraft and learned by experimenting with tactics on combat sorties. The capability of pilots to find targets and

control airstrikes greatly enhanced CAS and Army ground maneuver effectiveness. The program was so successful that it evolved to include six different aircraft types, with the primary missions of visual reconnaissance, strike fighter coordination, and strike control. Unfortunately, after the Korean War, the benefits of the FAC(A) program were not captured as institutional knowledge in either training or doctrine. In effect, there was no change to air-ground integration or CAS doctrine between 1946 and 1966.[6]

As a result, the Vietnam conflict required starting a FAC(A) program from scratch, when it was evident that the highly mobile and camouflaged targets required the FAC(A) skillset to enable effective CAS and interdiction. The Vietnam slow-FAC program evolved with the surface-to-air threats of Anti-Aircraft Artillery and Surface-to Air Missiles. The increased air defense lethality led to the creation of a fast-FAC program. The F-100 jets chosen for the Commando Sabre program provided higher speed and maneuverability in the heightened threat envelope, with the fast-FAC fighters complementing or replacing the slow-FACs when surface-to-air threats dictated a more survivable airframe.[7] Similar to the Korean War, the Vietnam FAC(A)s had no prior training; they made up the tactics in combat and paid for the lessons learned with many jets shot down.[8]

Following Vietnam, the USAF shifted away from a CAS or FAC(A) focus back into a Strategic Air Command prioritization of Cold War nuclear capability, deterrence, and long-range strategic bombers.[9] Likewise, the Army dealt with challenging post-Vietnam downsizing and social issues; joint integration was not high on either service's priorities. However, some

---

[6] J. Farmer and M. J. Strumwasser, *The Evolution of the Airborne Forward Air Controller: An Analysis of Mosquito Operations in Korea* (Santa Monica, CA: RAND, October 1967), vi.

[7] Rick Newman and Don Sheppard, *Bury Us Upside Down: The Misty Pilots and the Secret Battle for the Ho Chi Minh Trail* (Sacramento, CA: Presidio Press, 2007), 35.

[8] Ibid., 372.

[9] Peter Grier, "The First Offset," *Air Force Magazine* (June 2016): 56-60.

semblance of FAC(A) institutional knowledge and CAS culture survived, in the form of TASSs that transitioned from their combat FAC(A) role to dedicated FAC training squadrons. The various conflicts between Vietnam and Operation Enduring Freedom did not require significant CAS, primarily because air interdiction was so successful that the results precluded friendly ground forces from needing much CAS. Operation Enduring Freedom's Operation Anaconda served as an illuminating example of how FAC(A)s can enhance CAS effectiveness, and the benefits of maintaining a CAS culture that fosters air-ground integration. The historical trajectory of gaps in FAC(A) training indicates that a concerted effort is required to maintain a CAS culture via joint training and doctrine during peacetime. The Air Force's CIG and 24th TASS are the primary means to enable that goal.

The current state of USAF FAC(A) training is trending upward, but still at low output capacity. Both the USAF and the USMC train FAC(A)s; however, to scope this paper appropriately, this analysis will focus on USAF training. For USAF fighter squadrons, there are three key questions that relate to FAC(A) training. The first is how to create a FAC(A), the second question is how to keep qualified FAC(A)s current at the unique mission, and the third is who needs to be FAC(A)-qualified.

The 2018 Joint Forward Air Controller (Airborne) Memorandum of Agreement (JFAC(A) MOA), which governs joint and partner nation FAC(A) training, answers the first and second questions. Which units should train for FAC(A) is dictated by each individual squadron's Desired Operational Capability (DOC) statement. The DOC statement offers Combatant Commanders a snapshot of what each squadron is trained and equipped to do, and answers the third question. Within the USAF, all A-10 squadrons have FAC(A) on their DOC statement. Only a few active-duty F-16 squadrons carry a FAC(A) tasking. In the future, the USAF expects that F-35 squadrons will also be tasked with the FAC(A) role as the F-35 replaces 4th-generation fighters.

After answering the questions of how to create FAC(A)s, how to keep them current, and who needs to be FAC(A)-qualified, the next question is how best to train them. The two primary options are to (1) execute distributed training within each Combat Air Force fighter squadron, or (2) conduct FAC(A) training at a centralized location. In general, aircraft such as the A-10 with focused DOC taskings of primarily to air-to-ground, CAS-oriented missions have the instructors, training ranges, and continuity to accomplish FAC(A) upgrades "in-house" via a distributed training model. In contrast, multi-role squadrons, such as the F-16 and F-35, are tasked with a wider range of missions on their DOC statements, which leads to a lack of training resources and favors a centralized location for FAC(A) upgrade training.[10]

As the only flying squadron within the Nellis-based CIG, the 24 TASS has a unique set of challenges and opportunities to contribute to joint integration and CAS culture. The squadron executes five specified tasks: (1) Provide air support for JTAC training, (2) Manage and conduct a centralized FAC(A) upgrade program, (3) Establish and conduct a Combat Search and Rescue (CSAR) "Sandy" program, (4) Conduct roadshows to develop tactical expertise within the CAS community, and (5) Assist in developing and evaluating CAS weapons and tactics.[11] There are numerous implied tasks associated with the joint CAS integration role as well, and all of the unit's taskings nest under three broad Lines of Effort (LOEs), in increasing order of impact to the US military: (1) Train within the 24 TASS, (2) Integrate the CAS team, and (3) Educate the joint force.

The TASS's location at Nellis AFB is the result of a deliberate plan to ensure that the USAF's central node of joint CAS knowledge is physically located at the center of the CAS network. That network includes the USAF Warfare Center and its elite Weapons Instructor Course, the 6th Combat Training Squadron which trains JTACs and Air Liaison Officers (ALOs),

[10] Björk Niebuhr, "FAC(A) Research," e-mail message to author, October 1, 2018.

[11] Holmes, "57th Operations Group's CAS Integration Group Charter," 2.

the USAF Green Flag squadrons that are tasked to support the Army's National Training Center and Joint Readiness Training Center, and the USAF detachment that supports Fort Sill's Joint Fires Observer (JFO) training course.

Not only does the TASS's location enable its mission to strengthen and maintain CAS culture and knowledge, but also its manning and equipment. The TASS is manned with a mix of pilots, intelligence personnel, ALOs, JTACs, and an Army Ground Liaison Officer.[12] The purposefully diverse manning framework allows effective joint crosstalk. The unit currently flies F-16s, and will soon receive F-35s to ensure 4th and 5th generation FAC(A) integration to develop tactics for effective close air support in the highly-contested airspace of LSCO. Overall, the 24 TASS is working through the resource-constrained challenges of any newly-created military unit, but is well-postured to fulfill its unique mission to enhance joint air-ground integration and to preserve CAS culture.

The following chapters will address the four research questions posed in this introduction. The first research question to address is, *have unique FAC(A) capabilities historically made joint forces more effective in LSCO?*

Why Forward Air Controller (Airborne)?

> The 'tactical' Air Force, it was said, ran on a combination of cigarettes, popcorn, whiskey, twenty-five cent beer, jet fuel, and testosterone.
>
> —Newman and Shepperd, *Bury Us Upside Down*

The linkage between FAC(A) capabilities and winning at LSCO against a peer adversary is joint integration. The 2018 NDS mandate to build a more lethal joint force implies the need to

[12] Commander, 57 OG, "Nellis CIG Task Assessments and Prioritized Tasks" (Powerpoint presentation, 2018).

maximize joint integration across multiple warfighting domains.[13] The Secretary of Defense and Chairman of the Joint Chiefs of Staff (CJCS) have clearly communicated a renewed joint force training focus on LSCO against a peer adversary.[14] The unique capabilities of a FAC(A) make their role as a joint integrator directly relevant to increasing joint force effectiveness in LSCO. According to JP 3-09.3, a FAC(A) brings four primary capabilities to the joint fight: (1) execute the desires of the ground commander in day, night, or adverse weather; (2) conduct detailed planning and integration with the maneuver unit; (3) integrate fires on the battlefield; (4) mitigate the effects of friendly fire (fratricide).[15]

In addition to serving as a joint integrator, the FAC(A) typically serves as an extension of the Tactical Air Control Party (TACP) as a rated pilot officer. In that role, FAC(A)s bring an airman's perspective on integrating effects from air, space, and cyberspace, which enables Multi Domain Operations in support of the ground component.[16] Put simply and non-doctrinally, a FAC(A) is a combination of fighter pilot, JTAC, and subject matter expert on both USAF CAS and the Army fires warfighting function. Airborne FACs have the advantage of flexibility to cross unit boundaries in search of enemy formations, the speed to travel hundreds of miles per hour across an Area of Operations, and an airborne perspective to efficiently cue additional joint fires effects on to ground commander priority targets.[17] In summary, a FAC(A) can speed up the kill chain by doing three basic tasks: (1) finding targets, (2) communicating target locations to

---

[13] James Mattis, *Summary of the 2018 National Defense Strategy of The United States of America* (Washington, DC: Government Printing Office, 2018), 7.

[14] Mattis, *Summary of the 2018 National Defense Strategy*, 11; Joint Chiefs of Staff, *Joint Publication (JP) 3-0, Joint Operations* (Washington, DC: Government Printing Office, 2017), VIII-1.

[15] Joint Chiefs of Staff, *JP 3-09.3* (2014), III-120.

[16] US Department of the Air Force, *Air Force Doctrine Document (AFDD) 3-0, Operations and Planning* (Washington, DC: Government Printing Office, November 2016), 14.

[17] Joint Chiefs of Staff, *JP 3-09.3* (2014), III-121.

supporting aircraft and artillery, and (3) clearing aircraft to release weapons on those targets.[18] Given the FAC(A)'s unique capabilities, the next question is how those capabilities affect LSCO.

According to Army *Field Manual 3-0, Operations*, LSCO will be characterized by elevated levels of complexity, ambiguity, lethality, and speed.[19] Acknowledging the Clausewitzian concept of the unchanging nature of war, the basic elements of future LSCO against a peer adversary will likely be similar to past large scale combat operations.[20] Although technology and other variables will undoubtedly influence the character of future wars, the historical examples of the Korean War, Vietnam War, and Operation Anaconda in Afghanistan illustrate common themes that the joint force should expect in future conventional combat. The fact that FAC(A)s played an important role in joint CAS integration in each of those conflicts strengthens the argument for FAC(A) relevance in future LSCO. The answer to the first research question in this paper, *Why FAC(A)?* is simple- it works.

US military forces entered the Korean War with no institutionalized airborne FAC capability.[21] However, the grim reality of the Communist North Korean army overrunning most of the Korean peninsula forced the US military to drastically adapt. Almost immediately after the conflict began, ground FACs identified the challenges of harsh terrain that restricted mobility and blocked radio line-of-sight to communicate with CAS aircraft. In addition, heavy foliage and enemy camouflage of fleeting targets impeded target acquisition from the ground. In response to the challenges faced by ground FACs, Fifth Air Force created the first comprehensive airborne

[18] Farmer and Strumwasser, *Evolution of the Airborne Forward Air Controller*, vi.

[19] US Department of the Army, *Field Manual (FM) 3-0, Operations* (Washington, DC: Government Printing Office, October 2017), 1-2.

[20] Carl von Clausewitz, *On War*, trans, and ed. Michael Eliot Howard and Peter Paret (Princeton, NJ: Princeton University Press, 1989), 86-87.

[21] Farmer and Strumwasser, *Evolution of the Airborne Forward Air Controller*, 6.

FAC program.[22] The FAC(A) unit established its base at Taegu, South Korea in July 1950, and began flying T-6 trainer aircraft immediately, using the radio callsign "Mosquito." In August 1950, when 5th Air Force designated the Mosquitos as the 6147th Tactical Control Squadron (Airborne), the organization was formalized.[23]

The Mosquito FAC(A)s quickly demonstrated their effectiveness, as the FAC program matured and pilots refined tactics during combat sorties.[24] According to a 1967 RAND study titled *The Evolution of the Airborne Forward Air Controller*, "In five months' time, the Mosquito went from official nonexistence to a position of prominence and indispensability to the UN effort."[25] The FAC(A)'s impact in Korea is highlighted by the impressive statistic that in the first 18 months of the Mosquito program, 93 percent of all CAS strikes were controlled by FAC(A)s; the remaining 7 percent were controlled by traditional ground FACs. The RAND *Evolution* study praised the mature Mosquito FAC(A) program with the following summary:

> Because he monitored all ground activity, discovered virtually every target, procured the aircraft for all immediate close support strikes, and controlled almost all the strikes, the airborne FAC gave the TACS [Tactical Air Control System] flexibility, efficiency, and accuracy in air support otherwise unattainable.[26]

By the time the Mosquito FAC(A) unit–the 6147th Tactical Control Group–was disbanded in July 1953, the Mosquito pilots had flown 40,554 successful missions. Those sorties found and destroyed 5 enemy tank divisions, 563 artillery pieces, 5,079 vehicles, 12 locomotives, and 84 bridges. However, the enemy anti-aircraft gunners recognized the FAC(A)'s value as well. The Mosquitos lost 20 aircraft and 16 pilots during just the first six months of operations. Those

---

[22] Farmer and Strumwasser, *Evolution of the Airborne Forward Air Controller*, 4.

[23] Ibid., 33.

[24] Ibid., 4.

[25] Ibid., 38.

[26] Ibid., 7.

losses continued through the war, at the approximate rate of four aircraft per wing and 2 pilots per squadron every month.[27] There is no doubt that the unique characteristics of the FAC(A) enhanced joint integration and CAS in the Korean War.

Unfortunately, US military doctrine writers did not internalize the valuable lessons observed in the Korean War; FAC(A) training and doctrine did not change in the aftermath of LSCO. FAC(A) doctrine remained essentially unchanged from the end of World War II to the beginning of the Vietnam conflict.[28] In Vietnam, the USAF was again forced to develop a FAC(A) program from scratch, in a combat theater, in response to an unanticipated operational environment and a large-scale combat requirement for closer air-ground integration.

The USAF entered the Vietnam conflict relying on a 1957 Joint Air Ground Operations doctrine manual, which emphasized ground FACs as the backbone of the Tactical Air Control System. However, the heavy jungle canopy and rugged terrain in Vietnam rendered ground controllers virtually useless, even more so than in Korea. Therefore, the Air Force adapted in 1964 by equipping its only TASS with 23 Army Cessna L-19s- redesignated O-1 Bird Dogs. The newly-formed FAC(A) program was so effective that it expanded to 121 aircraft and 172 FAC pilots within a year. As in Korea, the USAF policy was still that FACs be trained fighter pilots, which vastly increased the O-1 pilots' effectiveness in "talking on" fast-moving jet aircraft to fleeting targets. Since controllers and CAS aircraft pilots came from a similar training background and spoke a common fighter pilot parlance, the FAC(A)s were well aware of jet capabilities, effective weapon-target pairing, and the fast-mover's unique airborne perspective looking down at targets.[29] The O-1 served as a responsive initial option for the FAC(A) program,

---

[27] Gary Lester, *Mosquitoes to Wolves: The Evolution of the Airborne Forward Air Controller* (Maxwell AFB, AL: Air University Press, 1997), 72, 86.

[28] Lester, *Mosquitoes to Wolves*, 76.

[29] John Schlight, *Help from Above: Air Force Close Air Support of the Army 1946-1973* (n.p.: US Air Force History and Museums Program, 2003), 316, 319.

but by 1968 it was replaced by the O-2 (a modified Cessna 337), and eventually the OV-10 Bronco. The FAC(A)'s aircraft were initially unarmed, due to concerns that "trained fighter pilots would forget about directing strikes and be tempted to carry out the strikes themselves." However, a 1969 combat test period of arming FACs discounted that concern; armed OV-10 pilots could attack targets much more quickly than if they called in additional fighters, and the FAC(A)s neutralized 80 percent of the targets themselves, without needing to call for supporting aircraft.[30]

Two factors made the Vietnam FAC(A) experience much different from the Korean War. Vietnam's geography drove non-contiguous friendly ground troop locations, which was much different from distinguishable front lines in Korea.[31] In addition, the surface-to-air threat was much higher in Vietnam than in Korea. The Soviets introduced SA-2 Surface-to-Air Missiles into North Vietnam in 1965, and by 1967, the threat environment made the "slow-FAC" Korean War legacy aircraft unsurvivable. A 7th Air Force staff officer's "ride-along" visit on a 2-ship, prop-driven, O-1 slow-FAC mission energized the transition to high-performance jet fast-FACs. As USAF intelligence officer 1st Lt Ray Bevivino succinctly and profanely described, "A SAM blew up one of the fuckers up right in front of the headquarters weenie. He shit his pants. Slow FACs came to an end and we [fast-FACs] started up."[32] Thus, the first jet FAC(A) squadron was created in July 1967; it was a top-secret unit known officially by the code name "Commando Sabre," but more commonly by the radio callsign "Misty."[33] The squadron started with sixteen volunteer fighter pilots, and flew supersonic F-100s that were more survivable against advanced threats than the Korean War-era prop FAC aircraft.

---

[30] Schlight, *Help from Above*, 319-320.

[31] Ibid., 327.

[32] Newman and Sheppard, *Bury Us Upside Down*, 35.

[33] Ibid.

The FAC(A) impact on CAS effectiveness and air-ground integration in Vietnam was tremendous. FAC(A)s were often the only link between remote US outposts and other friendlies. Success stories of FAC(A)s effectively controlling massed airpower to decisively save outnumbered Americans of Americans abound- at Plei Me in October 1965, Kham Duc in May 1968, and Duc Lap in August 1968. At Duc Lap, the USAF kept two FACs airborne during all daylight hours; they directed 392 fighter sorties, 100 gunship sorties, and adjusted artillery more than 50 times- all during two days of intense combat.[34] In the Junction City campaign to sweep through War Zone C northwest of Saigon, USAF fighters flew over 5,000 sorties in support of two Army divisions. General Bernard Rogers, assistant commander of 1st Infantry Division, said of the FAC(A)s' support,

> The short reaction time; the intense desire of the forward air controller- and the pilots of the flight he was directing- to put the ordnance exactly on the spot desired by the ground commander . . . left a last impression upon us infantrymen. I could not be more outspoken in my praise.[35]

Air Force air-ground doctrine and CAS practices evolved considerably during the Vietnam conflict; the most significant improvement was the massive scale and success of the airborne FAC program, including the birth of the "fast-FAC" F-100 Misty and follow-on jet FAC(A) capabilities.[36] In notable contrast to the post-World War II and post-Korean War era, the Air Force preserved some FAC(A) doctrine and training emphasis after Vietnam, as the US military developed the AirLand Battle integrated joint maneuver concepts to counter the Cold War Soviet Union threat to Europe.[37] Fortunately, the threat scenario did not materialize, and

---

[34] Schlight, *Help from Above*, 327, 332.

[35] Ibid., 335.

[36] Ibid., 362.

[37] US Department of the Army, *Field Manual 100-5, Operations* (Washington: Department of the Army, 1976), 8-1.

CAS was not required to counter the anticipated Soviet tank divisions pouring through the Fulda Gap.

Decades later, the 2003 Operation Iraqi Freedom highlighted many impressive aspects of American airpower. However, of the 112, 235 sorties flown; only 1,461 were CAS sorties flown by the Air Force. The air component front-loaded its efforts and conducted a month-long air interdiction campaign prior to the Army's 100-hour drive to Baghdad. The highly effective interdiction bombing reduced the need for CAS during the 23 to 27 February "Thunder Run" by US ground forces. Iraqi Army resistance was light after being pummeled from the air for a month. US ground forces moved quickly, and avoided extended contact with the enemy that would typically require CAS as additional firepower.

> Because Army forces were executing the famous "left hook" or "Hail Mary," they moved rapidly. Iraqi resistance was seldom prolonged in any given location and was dealt with for the most part by ground forces firepower. Typically, CAS sorties . . . were either on-station airborne under the control of Fast-FAC aircraft or were handed off to a forward air controller accompanying the ground forces. . . . They moved so rapidly that the classic situation for close air support- troops in contact with the enemy- rarely developed.[38]

Although FAC(A)s were valuable in a forward scouting role, they did not control a large volume of CAS sorties during the Iraq invasion. The most prolific recent example of FAC(A) value as a combat force multiplier is Operation Anaconda, the well-known battle for the Shahikot valley in eastern Afghanistan in March 2002.

Airpower effects in support of Operation Anaconda were chaotic for the first three days. However, starting on day three of the operation, FAC(A)s developed and executed an airspace control plan that enabled effective and devastating airpower effects via CAS. From the start of planning, Coalition Joint Task Force (CJTF) Mountain (10th Mountain Division) did not anticipate heavy enemy opposition; therefore, staff planners envisioned the operation primarily

[38] James Winnefeld, Preston Niblack, and Dana Johnson, *A League of Airmen: US Air Power in the Gulf War* (Santa Monica, CA: RAND, 1994), 234.

from a ground component perspective. Unfortunately, they did not include the air component in the planning process, and the plan for CAS was simply to submit requests for immediate CAS. As the 18th Air Support Operations Group commander described the planning challenge facing CJTF Mountain, "You had a division-level headquarters with corps-like responsibilities with a brigade-sized force."[39] Even with ideal coordination in planning, the operation presented a problem of highly-compressed airspace over a small battlefield. The Shahikot Valley was a very small geographic area, from the perspective of fighter and bomber pilots whose orbits typically occupy at least 13x13 kilometers laterally. Figures 1 and 2 reflect the magnitude of the airspace deconfliction challenge. Figure 1 shows the dimensions of the battlespace as only 5x9 kilometers. Figure 2 represents the vast amount of aircraft supporting Operation Anaconda, all compressed into the small volume of airspace overhead. In that scenario, aircraft and weapon deconfliction require serious planning efforts and real-time airspace control; FAC(A)s are specialists in both CAS planning and execution.

[39] Benjamin Lambeth, "Reflections on the Balkan Air Wars," *Airpower History* 57, no. 1 (Spring 2010): 42.

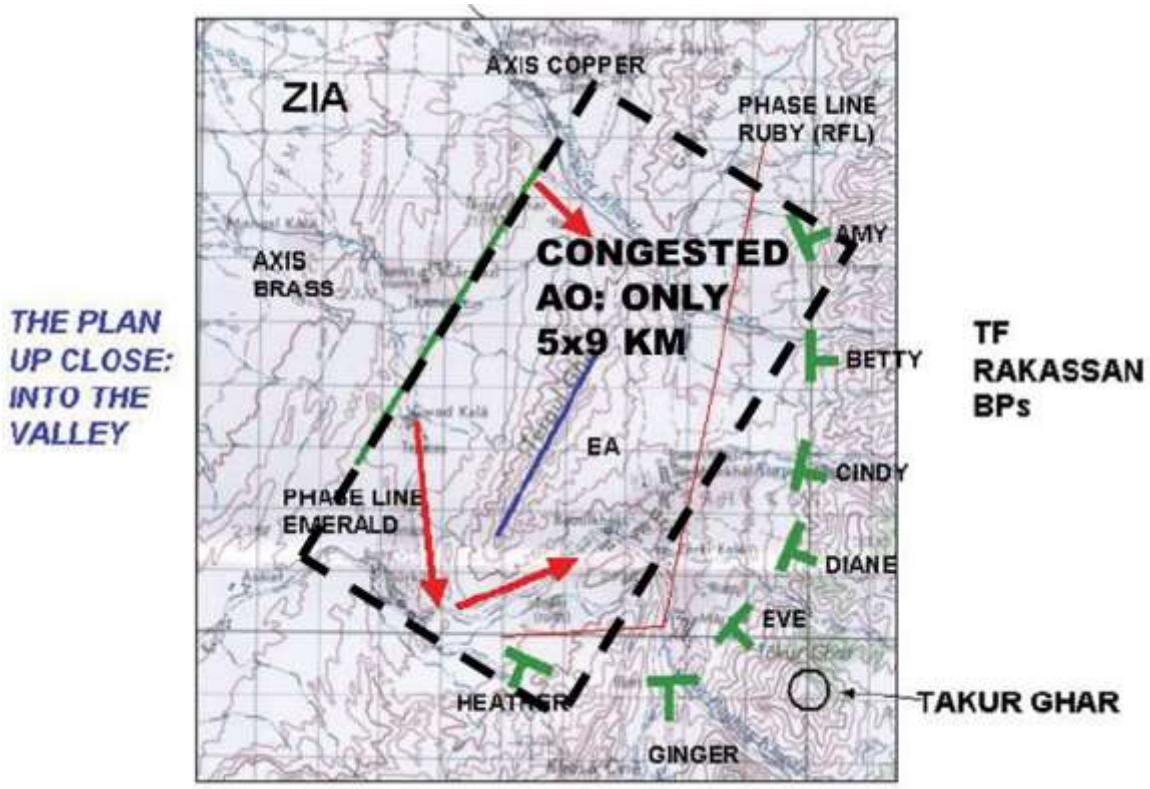


Figure 1. Operation Anaconda Shahikot Valley Congested Area of Operations. Richard L. Kugler, Hans Binnendijk, and Michael Baranick, *Anaconda Lessons Learned for Joint Operations* (Washington, DC: National Defense University, 2009), 56.

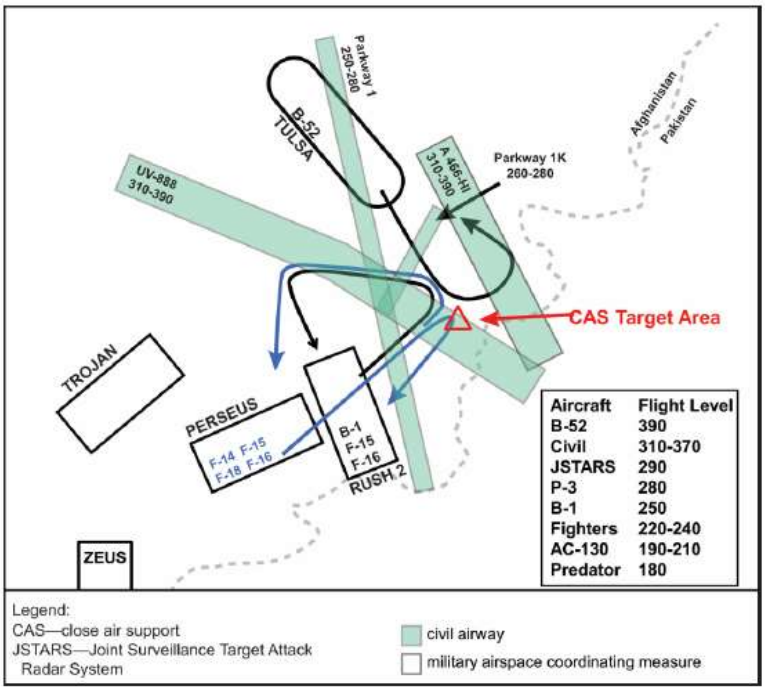


Figure 2. Operation Anaconda Close Air Support stack. ALSA Center, *Airspace Control* (Joint Base Langley-Eustis, VA: ALSA Center, February 2019), 22.

In addition to restrictive airspace, the number of different ground units and their attached Ground Forward Air Controllers (now called JTACs) cluttered communications and required a massive effort in radio frequency management. There were 37 Ground Forward Air Controllers within the relatively tiny Anaconda Area of Operations, with both Special Operations Forces (SOF) and conventional forces, all transmitting different targeting requests with varying levels of urgency to aircraft overhead.[40]

During execution, the need for better air-ground integration quickly became evident. Aircrews immediately recognized the lack of planning for the high volume and intensity of CAS that would be required to defeat the unanticipated large numbers of enemy fighters in the Shahikot Valley. The few FAC(A)-qualified F-16 and F-14 pilots took the initiative within the first day, and were retasked from the traditional CAS fighter role to the FAC(A) mission. Above the tactical level, the Combined Forces Air Component Commander recognized the urgency of the developing situation, and "pulled out all the stops," as the air component forward-deployed five A-10s to support Anaconda. The A-10 pilots brought their community's institutional FAC(A) knowledge and experience to the fight, and by day three, they had devised a killbox deconfliction plan that allowed FAC(A)s to effectively manage the airspace to provide maximum firepower and flexibility to the CJTF Mountain troops on the ground.[41]

Extensive Operation Anaconda After-Action Reports have highlighted many lessons to improve joint integration. The two most relevant lessons to judge the utility of FAC(A)s in LSCO are (1) the FAC(A)'s value as an extension of the TACP in integrated joint planning, and (2) the unique contributions of an airborne FAC in congested airspace over a complicated ground battle.

---

[40] Matthew D. Neuenswander, "JCAS in Operation Anaconda- It's Not All Bad News," *Field Artillery* (June 2003): 3.

[41] Neuenswander, "JCAS in Operation Anaconda- It's Not All Bad News," 4.

A 2009 National Defense University report on joint lessons learned from Operation Anaconda emphasized both of those FAC(A) qualities as keys to success.

> Anaconda illustrates the reasons for having a forward air command and control staff, plus airborne command aircraft and FACs, capable of handing the demanding functions of air battle management and coordination with local ground commanders. The problems encountered during Anaconda's first 3 days likely would have been less serious if such command and control considerations and assets had been part of initial Anaconda planning. . . . There is general agreement that a FAC-A is a facilitator and essential to effective CAS in this type of operation. Air Force F-16s and Navy F-14s we re-roled as FAC-As on Day 1, but this mission had not been anticipated, and there were some gaps in coverage. Within 72 hours, Air Force A-10s were deployed into the fight and assumed FAC-A duties, thus greatly improving command and control.[42]

The question of relevance- whether airborne FAC capabilities will make the joint force more effective in future LSCO–is partially answered by examining the history of FAC(A)–employment in support of large-scale ground combat. The historical examples of the Korean War, the Vietnam conflict, and Operation Anaconda in Afghanistan present overwhelming evidence of the value of the joint integration mindset and knowledge that well-trained FAC(A)s bring to the fight. That value can be measured not only in terms of weapons employed, enemy casualties, or targets destroyed; but also in the sense of battlefield synergy that comes from joint fires integration. Air-ground integration is more than the sum of its parts, and FAC(A)s are key force multipliers to ensure that integration takes place, both during planning and on the battlefield. Air-ground integration only happens when air and ground forces train for it, and when integration is embedded in the institutional culture. That reality leads to the next research question, *what is the historical trajectory of FAC(A) training, and how does that history reflect the health of CAS culture?*

[42] Richard L. Kugler, Hans Binnendijk, and Michael Baranick, *Anaconda Lessons Learned for Joint Operations* (Washington, DC: National Defense University, 2009), 25-26.

Close Air Support Culture

> Only a crisis- actual or perceived- produces real change. When that crisis occurs, the actions that are taken depend on the ideas that are lying around.
>
> —Milton Friedman, *Milton Friedman in His Own Words*

Edgar H. Schein described organizational culture as "a pattern of basic assumptions—invented, discovered, or developed by a given group as it learns to cope with its problems of external adaptation and internal integration—that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way."[43] Acknowledging that the concept of culture is difficult to measure, Schein described how leaders and organizations identify their values and what is important to them as "what they systematically pay attention to."[44] Building upon Schein's theory and definitions, it is possible to describe the health of the USAF's CAS culture by examining the level of attention and resources that the USAF devotes to tactical air support of ground forces. Because FAC(A) capabilities are so closely associated with joint integration and effective CAS, the trajectory of FAC(A) training since the Korean War is a useful lens through which to observe and assess CAS culture, as it describes air-ground integration between the Air Force and Army during peacetime training.

The historical examples of the FAC(A)'s role in the Korean War and the Vietnam War emphasize that the USAF entered those conflicts with very little institutional FAC(A) capability. After the Korean War ended in 1953, USAF training priorities shifted to strategic bomber force projection and nuclear readiness. The Cold War standoff with the Soviet Union overshadowed tactical air support training or doctrine; and FAC(A) was effectively forgotten. In contrast, after

[43] Edgar H. Schein, *Organizational Culture and Leadership*, 5th ed. (Hoboken, NJ: Wiley, 2017), 6.

[44] Ibid., 225.

Vietnam, USAF leaders were inclined not to repeat the post-Korea failure to capture FAC(A) lessons-learned with training focus and doctrinal updates.[45]

In 1975, the USAF departed Vietnam with a fleet of dedicated FAC(A) aircraft- a mix of O-1s, O-2s, and OV-10s. Those slow-FAC propeller-driven aircraft formed the backbone of the post-Vietnam TASSs. The TASSs created in the Vietnam combat theater to fill the high demand for FAC(A)s were distributed throughout the world to US air bases, and were paired with Army units to maintain a CAS culture of habitual relationships and joint training. However, the multirole fast-FAC jet aircraft, which had been required for survivability in high-threat areas of Vietnam, were absorbed back into their normal fighter squadron roles and original missions, which did not include FAC(A) as a priority. The famous Misty FAC unit serves as a poignant example of the quick post-Vietnam death of fighter jet fast-FAC capability. The F-100 Misty program was unceremoniously disbanded as Vietnam wound down with a single-line order that stated "This confirms the Misty FAC program termination."[46] Similarly, the F-4 units that had converted to the fast-FAC mission in Vietnam went back to their original roles as interdiction or interceptor fighters.

The post-Vietnam TASSs played an important role in preserving the joint CAS culture that had been developed and proved successful in Vietnam. In addition to tactical air support wings at Shaw AFB, SC and Davis-Monthan AFB, AZ; the USAF also maintained TASS units at Suwon Air Base, Republic of Korea, Ramstein Air Base, Germany, and in Hawaii. The TASSs were dedicated FAC(A) squadrons; their pilots flew a mix of O-1s, O-2s, OV-10s, and eventually OA-37s and OA-10s. The USAF TASSs were typically aligned with an Army corps, and they assigned a Battalion Air Liaison Officer (BALO) to every battalion within their "sister unit" corps. The ALOs were not only qualified as FAC(A) pilots, but many were jump-qualified and

[45] Schlight, *Help from Above*, 363.

[46] Newman and Sheppard, *Bury Us Upside Down*, 372.

stayed on a 6-hour alert response time to deploy with their aligned Army battalion for field exercises or combat.[47]

The mid-1980s example of Shaw AFB and Fort Bragg illustrates how effective the TASS concept was at maintaining habitual joint relationships. A Shaw AFB TASS BALO was paired with each battalion in Fort Bragg's 18th Airborne Corps. The USAF BALOs could easily fly their aircraft north to Fort Bragg in less than one hour or drive in three hours, to introduce new ALO squadron mates, in a deliberate effort to preserve continuity in the relationship. New BALOs would stay for a week at Bragg, and get to know the commanders and staff of the various units they would train to support. Not only did the BALOs visit their aligned Army units, but the TASS pilots would also invite key Army stakeholders to the airfield for "liaison day," which was an opportunity for the pilots to give Army battalion commanders and Fire Support Officers incentive rides in their aircraft. The familiarization sorties were invaluable to show the advantages and challenges of an airborne perspective of the battlefield. The USAF BALOs often took their Army counterparts to bombing ranges to drop practice bombs or execute strafe passes, which further educated the joint force on weapons effects and limitations against different types of targets.[48]

The three-month training pipeline that provided qualified FAC(A) pilots to the TASSs centered around Hurlburt AFB and Patrick AFB, Florida. Hurlburt hosted the Air Ground Operations School (AGOS), a three-week academic course designed to teach the fundamentals of integrating and controlling CAS to both ground and airborne FACs. After the AGOS academic course, USAF pilot trainees spent several months flying sorties from Patrick to nearby Avon Park Range, to get familiar with the capabilities of their assigned aircraft, and to learn FAC-specific tasks such as managing multiple radios and marking targets with white phosphorous 2.75-inch

[47] Cajun Chaisson, "FAC(A) Training History," telephone interview with author, October 31, 2018.

[48] Chaisson, interview.

rockets known as “Willy Pete.” The aircraft used for the mission were the legacy propeller-driven models left after Vietnam, until the introduction of the OA-37, which was a modified attack version of the T-37 “Tweet” trainer. The distinctive high-pitched whine of the Tweet’s twin jet engines metaphorically reflected the USAF’s historical attitude toward CAS during the interwar periods of lean budgets and competing priorities. Cold War strategic nuclear missions still weighed heavily on Air Force funding and doctrine, which led to the USAF rigging a modified T-37 trainer as one of its primary FAC(A) platforms.[49]

The TASS concept of dedicated FAC(A) squadrons kept institutional CAS culture healthy until 1991, when post-Desert Storm budget cuts demanded massive force restructuring from all the military services. US military spending decreased by one-third in the 1990s, and joint CAS integration suffered as a result.[50] OV-10s and the other Vietnam-era propeller-driven slow-FAC aircraft were phased out of the Air Force inventory in the early 1990s.[51] With their primary aircraft retired, the TASS units were deactivated as well. The OA-10 Warthog TASS units (the “O” designates an aircraft with an observation or scouting mission, such as a forward air controller) were absorbed into normal A-10 attack squadrons. The relatively few A-10 squadrons and their pilots were left as the only significant remnants of FAC(A) knowledge in the Air Force. From 1991 to 1995, the Air Force’s CAS culture dipped.

Just as the Korea and Vietnam conflicts had demanded better joint integration and creation of FAC(A) capability, the looming threat of combat in Bosnia and Kosovo invigorated USAF interest in airborne FACs in 1995. Then-Lieutenant General (Lt Gen) Mike Ryan, an F-16 pilot and future Chief of Staff of the Air Force, had experienced first-hand the benefits of the

[49] Chaisson, interview.

[50] Dinah Walker, “Trends in US Military Spending,” Council on Foreign Relations, July 15, 2014, accessed December 18, 2018, https://www.cfr.org/report/trends-us-military-spending.

[51] Rick Griset, “Luke AFB FAC(A) History,” telephone interview with author, December 4, 2018.

FAC(A) during his 153 combat missions flying F-4s in Vietnam.[52] As tensions built in southern Europe in 1995, the three-star commander of 16th Air Force (part of US Air Forces in Europe) anticipated Operation Deliberate Force in Bosnia and declared "I want to bring back the fast-FAC(A)s like we had in Vietnam. They would be useful in Bosnia and Kosovo."[53] Once again, the wartime necessity of a healthy CAS culture drove a renewed focus on joint integration and effective forward air control.

In response to Lt Gen Ryan's demand for FAC(A)s over Bosnia, officers from the two F-16 squadrons based at Aviano, Italy scrambled to find the fastest possible way to create the first-ever F-16 "Viper" FAC(A)s. Their creative solution was to send pilots on temporary duty (TDY) to Davis-Monthan AFB in Tucson, Arizona. The F-16 pilots flew two-seat trainer-model Vipers, and invited their FAC(A)-qualified A-10 buddies to ride in the backseat and serve as their instructor pilots for the FAC(A) upgrade. They used an A-10 training syllabus, with a few on-the-fly modifications for the faster F-16, and successfully completed the upgrade program at the A-10 base in Arizona.[54] Given the sense of urgency that the approaching Bosnian conflict generated, the US Air Forces in Europe air staff temporarily waived the Hurlburt AFB three-week AGOS course academic requirement. Flying combat sorties in Operation Deliberate Force was the reward for fighter pilot aggressiveness and initiative; Aviano Viper FAC(A)s finished their training in time for the 1995 bombing campaign over Bosnia, which was the first-ever NATO combat action.[55]

---

[52] US Department of the Air Force, "Biography- Gen. Michael E. Ryan," USAF Biographies, September 2001, accessed December 4, 2018, https://www.af.mil/About-Us/Biographies/Display/Article/105755/general-michael-e-ryan/.

[53] Shaggy Bucklew, "24 TASS Thoughts," e-mail message to author, December 13, 2018.

[54] Shaggy Bucklew, "24 TASS Thoughts," e-mail message to author, December 11, 2018.

[55] Bucklew, interview, 13 December 2018; Lambeth, "Reflections on the Balkan Air Wars."

The Air Force quickly recognized the benefits of creating an F-16 FAC(A) capability, to complement the A-10 community's traditional role as gatekeepers of the USAF's institutional CAS knowledge. In 1996, two F-16 squadrons based at Moody AFB, Georgia began internal FAC(A) upgrade programs. Moody pilots executed a FAC(A) upgrade program from 1996 through 1997 that was similar to the pre-1991 training pipeline. The F-16 pilots selected for FAC(A) upgrades attended the three-week AGOS academic course in the Florida panhandle-an easy TDY drive from their air base in Georgia. They flew upgrade sorties to practice basic FAC(A) skills on Patrick's Avon Park bombing range, just like their slow-FAC ancestors did in propeller-driven aircraft prior to 1991.[56]

Less than a year after the Moody pilots initiated their internal upgrade program, Air Combat Command conceived the idea of a centralized F-16 FAC(A) training program, and assigned that mission to the 310th Fighter Squadron at Luke AFB, Arizona. The FACs at Luke enjoyed close proximity to the world-class Barry M. Goldwater training range, which encompasses over one million acres of land and hundreds of target areas suitable for bombs, strafe, rockets, laser marking, and overall great CAS training.[57] In 1997, the first formal class of four Viper FAC(A)s graduated from the program.[58] The 310th served as the Viper FAC(A) schoolhouse from 1997 to 2017, when the current USAF fighter pilot shortage forced the 310th to focus entirely on training brand-new F-16 pilots, to increase the rate of pilot production. The increased F-16 qualification capacity came at the cost of the 310th's FAC(A) training mission; the squadron could no longer support both requirements. The mission of training airborne FACs

[56] Matthew D. Neuenswander, "FAC(A) History," interview by author, December 10, 2018.

[57] Marcy Copeland, "Barry M. Goldwater Range Celebrates 75 Years," 56th Fighter Wing Public Affairs, November 16, 2016, accessed December 10, 2018, https://www.luke.af.mil/News/Article-Display/Article/1003697/barry-m-goldwater-range-celebrates-75-years/.

[58] Rick Griset, "Luke AFB History," telephone interview with author, December 5, 2018.

transferred to the 24 TASS at Nellis AFB, Nevada, which was reactivated in March 2018 at Nellis AFB.[59]

The historical trajectory of USAF FAC(A) training reflects the health of CAS culture, which can be measured by the level of attention and resources that the USAF devotes to tactical air support of ground forces. Analysis of the airborne forward air controller training history naturally leads to the third research question addressed in this paper, *what is the current state of FAC(A) training and CAS culture?*

Current State of Forward Air Controller (Airborne) Training

The two primary documents that govern FAC(A) training are the Joint FAC(A) Memorandum of Understanding (JFAC(A) MOA) and a generic fighter squadron's DOC statement. Those two documents describe three things: how to create a FAC(A), how to stay current at the FAC(A) mission, and who needs to be FAC(A)-qualified. The USAF designates which squadrons need to maintain FAC(A) qualification; they fall into two general categories. F-16 and F-35 squadrons are considered *multi-role*, which simply means that they are tasked to execute a wide range of air-to-air and air-to-ground doctrinal mission sets. In contrast, A-10 squadrons are known as *dedicated* units, tasked with a specialized focus on three air-to-ground missions: CAS, FAC(A), and CSAR. Contrasting the DOC statements, or taskings, of those squadrons will lead to a comparison of two ways to accomplish FAC(A) training: a centralized training course, or distributed training within individual units.

The US Joint Staff J6 chairs a Joint Fire Support Executive Steering Committee, which includes flag-level representatives from each US military service, combatant command, and their counterparts from fifteen partner nations' militaries. The purpose of the Joint Fire Support Executive Steering Committee is to provide integrated and interoperable joint fires capabilities to

[59] Matthew Dickson, "FAC(A) Info," e-mail message to author, December 17, 2018.

US and partner nation warfighters. Specifically, the Joint Fire Support Executive Steering Committee uses memoranda of understanding to standardize training for terminal attack controllers and joint fires observers. The JFAC(A) MOA establishes baseline training requirements for all FAC(A)s; therefore, it provides answers to the first two questions posed in this section, by dictating how to create a FAC(A) and how to stay current and qualified at the FAC(A) mission. Baseline training requirements for creating and maintaining FAC(A) qualification are listed in detail in the JFAC(A) MOA; however, the training needs can be generalized with the list below.[60]

1. Controlling attacks from both fixed-wing and rotary-wing aircraft.
2. Joint Terminal Attack Controllers (JTACs) and, ideally, maneuver units on the ground to simulate LSCO.
3. Bombing ranges on which to drop live bombs and shoot high-explosive incendiary bullets.
4. Contested environment, which is normally simulated with electronic warfare (EW) range emitters.

The task of training FAC(A)s is clearly resource-intensive and requires many stakeholders to bring their capabilities together to create an adequately challenging training environment. With FAC(A) training requirements in mind, an overview of a fighter squadron's DOC statement will answer the third question posed in this section, regarding who needs to be FAC(A)-qualified.[61]

---

[60] Joint Chiefs of Staff, Chairman of the Joint Chiefs of Staff Instruction 5127.01, *Joint Fire Support Executive Steering Committee Governance and Management* (Washington, DC: Government Printing Office, May 2014).

[61] Joint Chiefs of Staff, *Joint Fire Support Executive Steering Committee Action Plan Memorandum of Agreement 2004-02 Joint Forward Air Controller (FAC[A])* (Washington, DC: Government Printing Office, March 2018).

Each USAF squadron's desired operational capability is communicated in a DOC statement, which lists primary and secondary missions that the unit can expect to be tasked with during combat operations. By setting expectations for combat, the document serves as the foundation for the squadron's annual training plan. The DOC statement is the source document that differentiates *dedicated* units (A-10, F-22, F-15C) from *multi-role* units (F-16, F-35, F-15E). For example, F-15Cs are dedicated primarily to air-to-air missions. On the other end of the dedicated spectrum, A-10s train for a niche of specialized air-to-ground missions. In contrast, multi-role fighters train for a wide range of both air-to-air and air-to-ground roles, which prevents a multi-role squadron from specializing in any one mission set. Resources are spread thin in order to cover all multi-role training requirements.

Example F-16 Ready Aircrew Program Tasking Memorandum (RTM)	Example A-10 Ready Aircrew Program Tasking Memorandum (RTM)
Primary Missions: - Offensive Counter Air - Suppression of Enemy Air Defenses (OCA-SEAD) - Defensive Counter Air (DCA) - Offensive Counter Air - Escort (OCA-Escort)	**Primary Missions:** - Close Air Support (CAS) - Forward Air Controller (Airborne) - Combat Search and Rescue (CSAR)
Secondary Missions: - Air Interdiction (AI) - Offensive Counter Air (OCA) - Offensive Counter Air - Attack Operations (OCA-AO) - Close Air Support (CAS) - Counter Fast Attack Craft/Fast Inshore Attack Craft (Counter FAC/FIAC (CFF))	**Secondary Missions:** - Air Interdiction (AI) - Counter Fast Attack Craft/Fast Inshore Attack Craft (Counter FAC/FIAC (CFF))

Figure 3. Ready Aircrew Program Tasking Memorandum, F-16 versus A-10 primary and secondary missions. HQ ACC/A3T, "A-10C Ready Aircrew Program (RAP) Tasking Memorandum, Aviation Schedule 2018 (AS-18)," Air Combat Command, October 1, 2017; HQ ACC/A3T, "F-16CM Blk 50/52 Ready Aircrew Program (RAP) Tasking Memorandum, Aviation Schedule 2018 (AS-18)." Air Combat Command, October 1, 2017.

The difference in training focus between single-mission and multi-role squadrons illuminates the discussion about distributed versus centralized FAC(A) training. A-10 units have been using a distributed approach to upgrading FAC(A)s within each Combat Air Force squadron for decades; they have a singular mission focus. CAS culture is strong in A-10 squadrons, and the complementary FAC(A) and CSAR missions enhance that air-ground mindset.

In contrast, since multi-role squadrons have so many competing mission sets and training priorities, a centralized schoolhouse maximizes FAC(A) training for F-16 and F-35 units. The additional benefit of a centralized FAC(A) training course for F-16 and F-35 squadrons is that centralization preserves the CAS culture that results from specialization and habitual joint integration. Institutional CAS knowledge stays well-preserved with a core cadre of instructor pilots who constantly keep a finger on the pulse of CAS tactics and not only joint doctrine, but also Army planning processes and warfighting functions. Figure 4 highlights the advantages and disadvantages of a centralized FAC(A) course. Especially for a multi-role fighter unit, the advantages significantly outweigh disadvantages.[62]

[62] Bjork Niebuhr, "FAC(A) Research," e-mail message to author, October 1, 2018.

Advantages of centralized FAC(A) training:	Disadvantages of central FAC(A) training:
- Experienced FAC(A) instructor pilots (IPs) - Need 3-4 FAC(A) IPs to run 2-3 pilot course. Most combat squadrons have zero to few FAC(A) IPs - Currency requirements kept updated IAW JFAC(A) MOA - Lessons-learned passed from class to class - Academics kept updated & standardized - Familiarity with JFAC(A) MOA requirements - Continuity for training scenario management - IPs familiar with training ranges & targets - Access to JTACs and ALOs - Simulator training products built (software) & simulator contractor IPs trained - Five-week FAC(A) course exceeds most combat squadrons' CAS training phase - Increased sorties available for home-station squadron (FAC sorties taken from school) - Bombing range & munitions availability - Support CAS fighters built into schedule - Integration of dissimilar aircraft types	- Avionics/ engine differences between bases - Small schoolhouse limits support aircraft - TDY to schoolhouse is unit-funded - TDY students require local area flying familiarization simulator

Figure 4. Advantages versus disadvantages of centralized FAC(A) training course. Created by author based on multiple interviews by author.

Analysis of the current state of FAC(A) training and CAS culture will be wrapped up by introducing the USAF's recently-created FAC(A) training squadron, the 24 TASS at Nellis AFB in Las Vegas. The 24 TASS was activated in March 2018 under the charter of the CAS Integration Group, with the mission to lead the joint community in building and maintaining CAS expertise. The TASS is ideally located at the center of a network of joint CAS expertise and training. The CAS network includes the USAF JTAC qualification course, basic and senior ALO skills courses, the Air Support Operations Center qualification course, Army Joint Support Team-North, the Joint Firepower Course, and the elite Weapons Instructor Course (WIC) FAC(A) and CAS tactical experts. Additionally, Nellis is the centralized hub for USAF Green Flag squadrons that are dedicated to supporting Fort Erwin's National Training Center and Fort Polk's Joint

Readiness Training Center. Finally, Nellis hosts the parent unit for the USAF detachment at Fort Sill's Fires Center of Excellence for JFO training.[63]

Regarding physical training range space, Nellis AFB is ideal to host FAC(A) training and joint integration; with access to the Nevada Test and Training Range. The Nevada Test and Training Range occupies 2.9 million acres of land, and provides 12,000 square nautical miles of training airspace. The range bristles with radar emitters that simulate peer adversary Integrated Air Defense Systems, and hosts hundreds of target sets for both live and simulated air-to-ground weapon employment. Mobile targets employ the latest camouflage, concealment, and deception tactics throughout the desert training environment. The urban CAS training complex known as "Gotham City" adds to the realistic and challenging range of potential combat scenarios. The "largest contiguous air and ground space available for peacetime military operations in the free world" is an ideal central location to train not only FAC(A)s, but also the entire CAS team.[64] The current state of FAC(A) training and CAS culture is trending upward, as illustrated by the USAF's investment of resources into creating the 24 TASS at Nellis AFB. The next section will address the final research question, *what are the challenges and opportunities for the 24 TASS to contribute to joint integration and CAS culture?*

24 Tactical Air Support Squadron: Challenges and Opportunities for Joint Integration

The 24 TASS exists for the sole purpose of strengthening joint CAS culture and increasing joint CAS training capacity. The Nellis-based unit is the only dedicated FAC(A) training squadron in the US Air Force. Five specified tasks underpin the TASS mission; they are:

1. Provide air support for JTAC training.

---

[63] Commander, 57 OG, "57th Operations Group Kneeboard," July 5, 2018.

[64] 99th Air Base Wing Public Affairs, "Nellis Test and Training Range," Air Force Fact Sheet, October 2017, accessed December 11, 2018, https://www.nellis.af.mil/Units/NTTR/.

2. Manage and conduct a centralized FAC(A) upgrade program.

3. Establish and conduct a CSAR Sandy program.

4. Conduct roadshows to develop tactical expertise within the CAS community.

5. Assist in developing and evaluating CAS weapons and tactics.[65]

The TASS has a unique manning structure and jet composition; both of those aspects provide special capabilities to serve a joint CAS integration role. Unlike most fighter squadrons, TASS manning includes not only fighter pilots and support personnel, but also a USAF ALO, 2 JTACs, and an Army Ground Liaison Officer.[66] Representatives from each element of the broader CAS team enhance crosstalk and mitigate the potential for knowledge stove-piping.

In addition to the deliberately diverse personnel billets, the assigned aircraft will, in the future, promote an exchange of tactical knowledge and situational awareness among CAS pilots, the CAS team, and the joint force through liaison officers. The squadron currently flies the F-16 "Viper" as the modern-day equivalent of a "fast-FAC." The F-16 in a FAC role complements the more specialized, yet more vulnerable (to modern radar-guided Surface-to-Air Missiles) A-10 "Warthog." In the near future, the TASS will gain several F-35As, which the Air Force has programmed as the eventual replacement for multi-role 4th-generation aircraft. To round out the unique mix of aircraft and pilots, it is likely that the TASS will also fly the newest "OA-X" light attack aircraft, if the USAF chooses to purchase one of the light attack options which are currently undergoing testing.[67] The TASS's unique manning and planned aircraft structure contribute to the unit's top priority, which is to enhance joint CAS training, integration, and education.

---

[65] Holmes, "57th Operations Group's CAS Integration Group Charter," 2.

[66] Commander, 57 OG, "Nellis CIG Task Assessments and Prioritized Tasks."

[67] Bucklew, interview, December 11, 2018.

As the only flying squadron within the CIG, the TASS contributes to the range of the CIG's activities. The tasks assumed by the squadron, many of them shared by other CIG units, are summarized by the graphic "24 TASS Lines of Effort" in Appendix 4. In general, the 24 TASS's mission is to train multiple CAS-related specialties within the unit; to integrate across the CAS team, and to educate the joint force. Three broad LOEs describe the TASS mission: Train, Integrate, and Educate. Habitual relationships among the CAS team and the joint force will be a deliberate byproduct of the TASS's activities, and will contribute to a US military better-trained to dominate LSCO, through an integrated CAS team that is built on a strong CAS culture. The following examination of the inherent potential for the Train, Integrate, and Educate LOEs will highlight challenges and opportunities for the 24 TASS to improve joint integration.

The Training LOE describes the TASS's daily execution of training syllabi, primarily flying sorties, simulators, and academics to upgrade pilots' qualifications to act as FAC(A)s and "Sandy" Rescue Mission Commanders (RMC). The F-16 FAC(A) upgrade program is currently the focal point of TASS internal flying upgrades. The FAC(A) syllabus consists of eleven hours of academics, five simulator sorties, and six aircraft sorties over the typical class length of approximately five weeks. Successful completion of the FAC(A) syllabus qualifies a fighter pilot as a FAC(A), in accordance with the requirements set forth in the Joint Staff's JFAC(A) Memorandum of Agreement (MOA). The number of assigned aircraft is the primary factor that determines FAC(A) class size and upgrade capacity. With a relatively low number of assigned aircraft and many other competing training priorities, the squadron can typically support 8-12 FAC(A) upgrades annually. The TASS will expand the scope of the FAC(A) syllabus in 2019, to add F-35 considerations after the squadron integrates the fifth-generation platform.[68]

A-10 squadrons have historically filled the USAF's "Sandy" RMC role, which is vitally important for responsive CSAR and Personnel Recovery doctrinal missions. During the

[68] Niebuhr, e-mail message to author, October 1, 2018.

timeframe 2015 to 2018, in anticipation of the USAF being forced to retire the A-10, the Air Force designated the TASS with primary responsibility for providing "Sandy" RMC training.[69] Now that the defense fiscal environment allows the A-10 to keep flying until at least 2030, the TASS is deliberately analyzing the F-16 and F-35 platform's capability to assume the RMC mission.[70] The avionics and communications suites of both jets may not optimized to interface with the CSAR technical architecture, so the TASS is working with the tactics development community and joint CSAR experts to clarify its specific role in the future of USAF "Sandy" RMC training.

The final task in the Training LOE is to support USAF Operational Test efforts to test and field new CAS-related weapons. An example of a recently-fielded CAS weapon is the laser rocket, known officially as the Advanced Precision Kill Weapon System. Advanced Precision Kill Weapon System kits convert legacy 2.75-inch rockets from unguided area suppression and target marking rounds to precision strike capability against point targets. The new laser rocket capability was fielded in response to an Urgent Operational Need request for deployed USAF fighter squadrons in 2016.[71] With only a handful of Operational Test squadrons in the USAF, the TASS can serve as a "gap-filler" to augment the test community's limited bandwidth for evaluating each new weapon.[72] The TASS is well-postured to test CAS-specific air-to-ground weapons, given its singular focus on CAS and the unique advantage of employing live weapons on almost every training sortie.

---

[69] Holmes, "57th Operations Group's CAS Integration Group Charter," 2.

[70] Russell Wicke, "New Wings to Secure A-10 Longevity," US Air Force, May 9, 2008, accessed February 20, 2019, https://www.af.mil/News/Article-Display/Article/123611/new-wings-to-secure-a-10-longevity/

[71] BAE Systems, "USAF Deploys APKWS Laser-Guided Rockets on F-16s," June 8, 2016, accessed February 20, 2019, https://www.baesystems.com/en-us/article/us-air-force-deploys-apkws-laser-guided-rockets-on-f-16s.

[72] Commander, 57 OG, "Nellis CIG Task Assessments and Prioritized Tasks."

The Integration LOE arguably has the most impact on the joint force. The 24 TASS serves as a central node in the myriad of overlapping networks within the joint CAS community. One of the most practical ongoing initiatives is the integration of technical systems to enable Digitally-Aided CAS (DaCAS). At the simplest level, the concept allows ground parties and airborne platforms to share information through computer systems, datalinks, radios and aircraft avionics. For example, instead of relying on time-consuming radio calls that will likely be jammed in future LSCO, the DaCAS concept allows a JTAC to pass information such as an Area of Operations update and CAS 9-lines digitally to the display screens in the CAS aircraft's cockpit.

Despite the encouraging DaCAS progress, challenges remain. For instance, CAS fighters have hoped for decades that the US Army and USMC's Advanced Field Artillery Tactical Data System could communicate with the widely-proliferated Link-16 (TADIL-J) datalink network. Most CAS aircraft cannot currently display any real-time Advanced Field Artillery Tactical Data System information, so CAS pilots still plot artillery gun-to-target lines with grease pencil on a map. An automated digital display of "hot" artillery fire would greatly ease and hasten fires deconfliction. Fortunately, there is potential for a gateway solution to translate the Variable Message Format datalink to Link-16, but it will require continued engagement by operators and program management offices.[73] Because the TASS consistently flies only CAS and FAC(A) sorties, has embedded TACPs, and is synchronized with the Operational Test community; TASS pilots and JTACs are uniquely postured to capture lessons-learned and maximize the potential of DaCAS.

In addition to technically-oriented integration solutions, the TASS enables many other CAS integration and training programs. The TASS's sister squadrons within the CIG–primarily

[73] Northrop Grumman, *Understanding Voice and Datalink Networking* (San Diego, CA: Northrop Grumman, December 2014), 5-2.

the 6th Combat Training Squadron–conduct a large portion of USAF TACP training, for both JTACs and ALOs. The TASS is the primary air support unit for the JTAC Qualification Course (QC) and JTAC Weapons Instructor Course (WIC).[74] The JTAC interaction during training events on the range and in-person debriefs builds trust, common interpretation of doctrine, and strong working relationships between the two types of CAS terminal attack controllers- ground-based and airborne FACs.

Not only does the TASS habitually train with JTACs, but also with the ALO community. ALOs are the primary mechanism to ensure effective CAS planning and integration at the maneuver unit level; USAF ALOs are assigned to each Army maneuver battalion (and each echelon above, up to corps). Prior to 2009, ALOs were rated pilots, who brought their flying experience and airborne perspective of the battlefield to enhance CAS planning within Army units. Since 2009, the ALO community has transitioned almost entirely to a specialized career field of non-rated officers. They bring the unique advantage of familiarity with both the flying and TACP communities, and typically find benefit from training with their colleagues who fly as CAS fighters and understand the challenges of employing ordnance in close proximity to friendly ground forces. The TASS's close proximity and aligned CAS-related training missions allows effective integration among pilots, JTACs, and ALOs.

In the same way that ALOs serve as a network of liaisons to Army maneuver units, Weapons School instructors form an informal network of tactical experts across the USAF. Therefore, the TASS's role as CAS fighters during WIC support for A-10, F-16, and JTAC WIC classes ensures that the TASS pilots, JTACs, ALOs, and intelligence professionals are attuned to the latest CAS tactics and high-end training focus. Fortunately for all parties, the knowledge flows both ways. TASS personnel bring continuity and best practices to the WIC sorties and

[74] Bjork Niebuhr, "FAC(A) Research," e-mail message to author, December 21, 2018.

debriefs, and WIC students and instructors contribute their community's expert perspective to the TASS's holistic view of the joint CAS enterprise.

There are potential opportunities for future integration efforts via TDY training events, as well as larger-scale interaction via electronic "tactics bulletins" and online "FAC forums." The TASS has a unique capability that very few units can offer- fighter aircraft, live ordnance, experienced pilots, organic TACP and intelligence support- all dedicated to building robust training scenarios on a premier training range, and flying tactical air support sorties! Nellis AFB is well-equipped to host TDY units. JTACs, JFOs, Combat Air Force squadrons tasked with CAS, and Army maneuver and fires Subject Matter Experts can leverage the TASS's resources to enhance their own training. To complement in-person training and overcome the perennial shortage of TDY funds available, the TASS can serve as a lead agent for FAC tactics bulletins and newsletters, for both ground FACs and FAC(A)s. Finally, a concept as simple as a professional online FAC forum can serve as a tremendous force multiplier to integrate the far-flung communities that comprise the joint CAS team.

Many ground force commanders may not realize how effectively FAC(A)s and a healthy CAS culture can serve as force multipliers; the 24 TASS's role in the joint fires discourse is to represent those perspectives. The Education LOE encompasses the phrase, "here's what USAF FAC(A)s and CAS fighters bring to the joint fight in LSCO." The Operation Anaconda case study and anecdotal observations from numerous FAC(A) and CAS Subject Matter Experts indicate that truly integrating CAS into a ground maneuver plan is rare. Smack and Dan's 2017 Afghanistan vignette is a refreshing example of joint integration. The tendency is to use Military Decision Making Process (MDMP) to create a detailed plan, then "sprinkle" CAS into Annex D under the fires WfF, likely due to a lack of integrated joint training.[75] That observation does not

[75] Razor Rurka, "FAC(A) and Sandy," telephone interview with author, January 2, 2019; Kugler, Binnendijk, and Baranick, *Operation Anaconda*, 3; Nick Sargent, "Successful Tactical Joint Fires Integration Training in a Resource-Constrained Environment at Fort Sill," *Air Land Sea Bulletin* (Summer 2018): 31.

assign blame for the lack of planning integration, but it does illuminate the TASS's role to educate the joint CAS community on how to best leverage FAC(A)s and CAS fighters during both planning and execution. The primary avenues available for the TASS to pass information throughout the joint force are doctrine, professional journals, and face-to-face briefing "roadshows."

Doctrine rewrite conferences require a significant investment from stakeholders. From a joint doctrine stakeholder perspective, the 24 TASS has relevant inputs primarily for JP 3-09.3, *Close Air Support*. The current version of JP 3-09.3 has an excellent guide for integrating CAS into land component maneuver and fires planning (Appendix 3, CAS Integration Model). At the annual JCAS Symposium, the TASS will also have inputs for FAC training requirements in the JFAC(A) MOA. Finally, the Air Land Sea Application (ALSA) Center publishes Multi-Service Tactic, Technique, and Procedure (MTTP) manuals that guide joint employment at the tactical level. The relevant MTTPs for FAC(A) and the TASS include Air Operations in Support of Maritime Surface Warfare, Fighter Integration, Joint Application of Firepower, Joint Suppression of Enemy Air Defenses, Kill Box, Strike Coordination and Reconnaissance, Theater Air Ground System, and Conventional Forces-Special Operations Forces Integration.[76]

Professional journals and roadshow briefings serve as excellent vehicles to raise awareness of how FAC(A)s and the TASS's training environment can improve joint CAS integration. The *ALSA Bulletin*, *Field Artillery*, *Air and Space Power Journal*, *Center for Army Lessons Learned Handbook*, and *Joint Force Quarterly* enjoy wide readership within the joint CAS community; FAC(A) vignettes and success stories can only help increase situational awareness of force multipliers such as FAC(A)s. The joint CAS enterprise can also use informal networking platforms; for instance, the "Combat Air Force" Facebook page has recently become

[76] Bjork Niebuhr, "FAC(A) Research," e-mail message to author, December 11, 2018.

a clearinghouse for TDY training opportunities.[77] The "bro network" may sound cliché, but joint warfighters will be well-served to take advantage of their multiple overlapping networks to access valuable training. Finally, the 24 TASS has an opportunity to raise awareness of FAC(A) and CAS fighter capabilities through roadshow briefings. Roadshows to USAF fighter, bomber, and Remotely Piloted Aircraft (RPA) squadrons would likely focus on tactical-level FAC(A) academics. A FAC(A)-qualified fighter pilot could augment the assigned TACP to bring a new level of CAS integration to a brigade staff's MDMP at National Training Center or Joint Readiness Training Center. A roadshow briefing to a Combatant Commander's staff could have impact at the operational level, and potentially cue the staff to recognize opportunities to incorporate CAS experts into their Operational Planning Teams for both deliberate and crisis planning. A RAND report on FAC(A)s in the Korean War noted that, in 1950, as FAC(A)s became synonymous with effective CAS, "tactical planners began to include airborne FACs in preparations for ground operations."[78] It would be a shame to ignore the valuable lessons recorded from seven decades ago: joint integrated planning increases combat effectiveness.

Conclusion: Winning Large Scale Combat Operations

This research has scratched the surface of FAC(A) history to show that unique FAC(A) capabilities have made joint forces more effective during past LSCO. The primary mechanism that has enabled increased combat air-ground effectiveness is enhanced joint CAS integration. In that sense, FAC(A)s and their advanced training as joint fires integrators are simply a reflection of a healthy CAS culture between the air and ground components of the US military, which for this paper's purposes is simply the relationship between the Air Force and Army that is focused primarily on tactical close air support for soldiers. CAS culture is difficult to measure, but

[77] "Combat Air Force Fighter Career Field," *Facebook*, accessed January 20, 2019, https://www.facebook.com/groups/366009697096611/.

[78] Farmer and Strumwasser, *The Evolution of the Airborne Forward Air Controller*, 22.

analysis of peacetime FAC(A) training has provided a useful metric to assess the strength of CAS culture since the Korean War. The current state of CAS culture is trending upward, as evidenced by the 2018 activation of 24 TASS. The 24 TASS contributes to CAS culture by pursuing three primary LOEs: train FAC(A)s and JTACs, integrate the CAS team, and educate the joint force on CAS-related tactics. The 24 TASS is ideally located at the center of the US military's "CAS network," and the unit exists solely to promote joint integration and a strong CAS culture.

The final key points from this research are presented here in the form of a practical, humble recommendation for commanders and staff who are training for future large-scale combat. Historical case studies show that FAC(A)s help ground force commanders (GFCs) create order from chaos, both during planning and on the battlefield during execution. It would be a disservice to US soldiers if a commander or staff was pleasantly surprised when the TACP or Chief of Current Operations stated that there was a FAC(A) on-station during CAS execution. Ground commanders who include CAS assets in the planning process can expect exponentially better CAS; the most effective air support starts in the earliest steps of the Military Decision Making Process (MDMP) or Joint Planning Process. For an example of doctrinally-synchronized CAS planning incorporated into MDMP, please reference the "CAS Integration Model" excerpt from JP 3-09.3 in Appendix 3. Inclusion in the planning process requires a prior relationship or interaction.

Relationships are the key to success, because they build the trust required for effective joint integration under combat stress. The introduction vignette of "Smack" and Dan's thankless mission planning days in a 2017 Afghanistan JOC illustrated how important mutual trust is to combat success. More importantly, their example shows that both ground and air commanders are well-served to demand integration at the earliest practical phases of planning. Requesting a FAC(A) via the Air Tasking Order process for high-priority CAS operations will cue USAF planners to consider the possibility of allocating those limited capabilities to support ground operations, and the request will also cue the FAC(A)-capable squadron to send a representative to

integrate with the ground unit's staff during planning and Operations Order (OPORD) generation. However, the bottom line is that *relationships* are much more important than a bureaucratic military air tasking process–even a clever Air Tasking Order request cannot replace face-to-face integration during planning. The advance situational awareness for CAS pilots and aircrew will pay off in spades for the GFC, and will help the joint force dominate future LSCO.[79] Success in future large-scale combat will require unprecedented levels of joint integration; airborne forward air controllers can help integrate the CAS team and educate the joint force by building a strong CAS culture and habitual relationships during peacetime training.

[79] Joint Chiefs of Staff, *JP 3-09.3* (2014), III-121.

Appendix 1: FAC(A) Aircraft

T-6 Texan. Senior Master Sgt. David Lipp, "Historical LT-6G Aircraft over South Korea," 1 October 1953, Defense Visual Information Distribution Service, accessed 29 March 2019, https://www.dvidshub.net/image/3984692/historical-lt-6g-aircraft-over-south-korea.

O-1 (L-19). Lt.Col. USAF(ret) Edward Merek, "The Bird Dog in the Vietnam-Laos Wars," posted 23 August 2017, Bird Dog International Association, accessed 29 March 2019, https://cessnabirddog.org/2017/08/the-bird-dog-in-the-vietnam-laos-wars/.

O-2 (Cessna 337). Gerry Hawes, Phu Cat Air Base RVN, 29 April 1971, “Put Down the Budweiser – A Vietnam Flying Story,” 2 June 2016, accessed 29 March 2019, https://airfactsjournal.com/2016/06/put-budweiser-vietnam-flying-story/.

OV-10. Fighter Sweep.com, “Is the Bronco Back into the Fray for Good,” 20 March 2016, accessed 29 March 2019, https://fightersweep.com/4761/bronco-back-fray-good/.

OA-37. International Civil Aviation Organization, “Aircraft,” accessed 29 March 2019, https://doc8643.com/aircraft/A37.

OA-10. Keith Svendsen via Network. “A Photo of an A-10 with the Angular Gas Diverter,” accessed 29 march 2019, https://www.thedrive.com/the-war-zone/13329/early-on-the-a-10-warthogs-legendary-gun-was-both-a-blessing-and-a-curse.

F-16. Photo of author, undisclosed location, 2010.

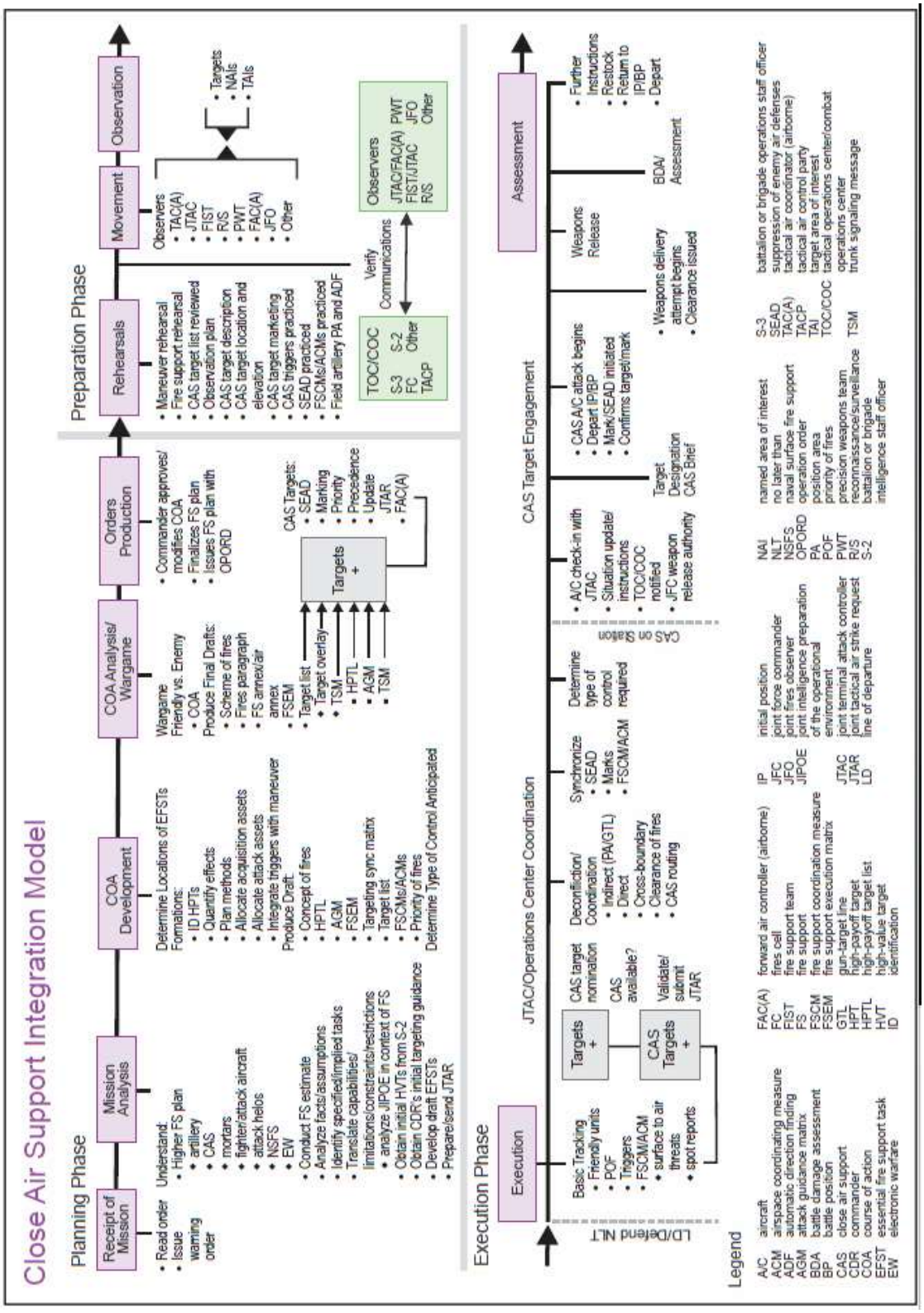
F-35. Military Tech Cooperations, “The Accident did not affect the Timing of the Adoption of the F-35 Fighter Jets into Service,” Posted 31 July 2014, accessed 29 March 2019, https://militarytechcooperations.wordpress.com/2014/07/31/the-accident-did-not-affect-the-timing-of-the-adoption-of-the-f-35-fighter-jets-into-service/.

Appendix 2: Potential Conditions for TACP/JTAC to Request FAC(A)

1. Expecting a large number of CAS aircraft in a small amount of time or restrictive airspace.
2. Operating in restrictive terrain (urban, forested) where a platform with the same perspective as CAS assets for target talk-ons would air in the efficiency of CAS missions.
3. Operating with a limited capability to mark targets.
4. Expecting difficult communications due to terrain and/or threat environment.
5. When operational needs require an aviator overhead who is intimately familiar with the ground commander's intent and scheme of maneuver and versed in CAS TTP, to assist in the battle/ operation.

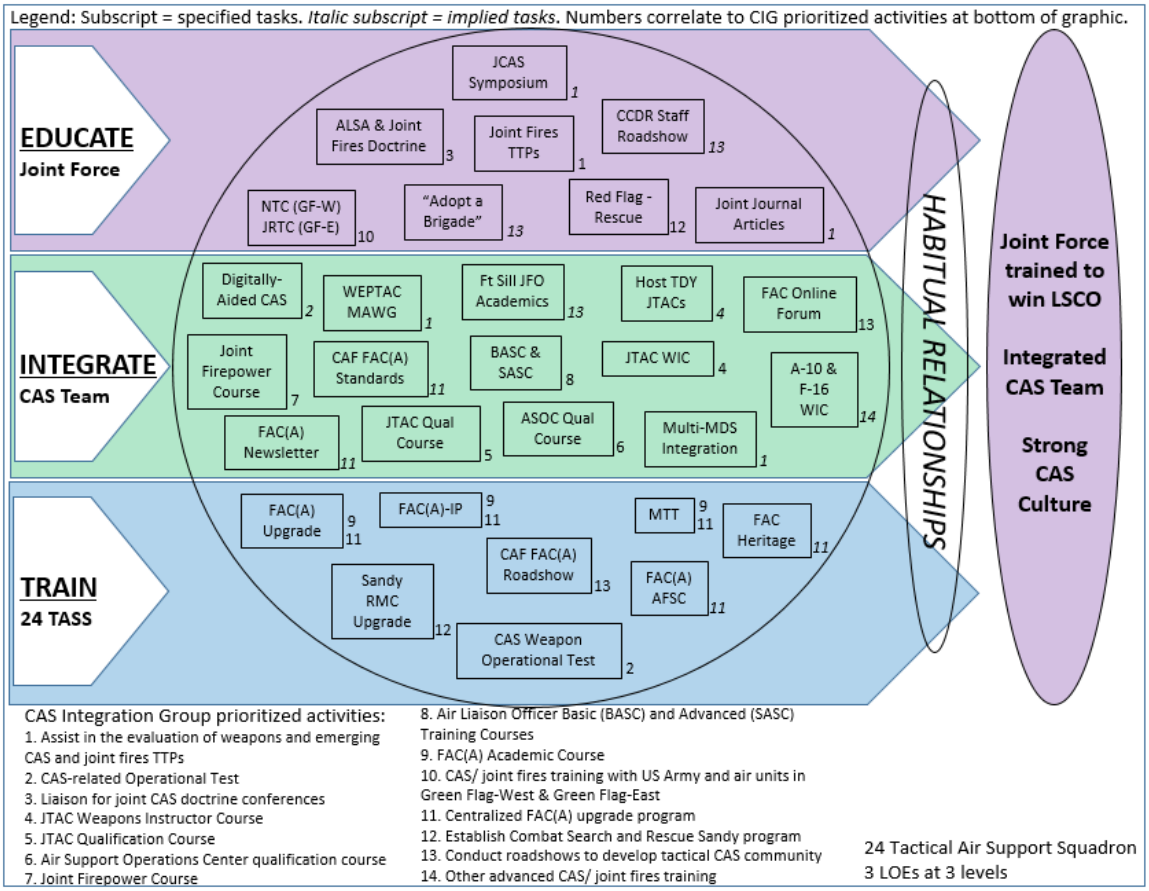
Source: Joint Chiefs of Staff, *Joint Staff, Joint Publication (JP) 3-09.3, Close Air Support* (Washington, DC: Government Printing Office, 2014), III-121.

Appendix 3: Close Air Support MDMP Integration Model



Source: Joint Chiefs of Staff, *Joint Staff, Joint Publication (JP) 3-09.3, Close Air Support* (Washington, DC: Government Printing Office, 2014), III-2.

Appendix 4: 24 Tactical Air Support Squadron Lines of Effort



Source: Created by author; CIG prioritized activities from Commander, 57 OG, "Nellis CIG Task Assessments and Prioritized Tasks" (Powerpoint presentation, 2018).

Bibliography

99th Air Base Wing Public Affairs. "Nellis Test and Training Range." Air Force Fact Sheet. October 2017. Accessed December 11, 2018. https://www.nellis.af.mil/Units/NTTR/.

Air Land Sea Application Center, *Multi-Service Tactics, Techniques, and Procedures for Airspace Control.* Joint Base Langley-Eustis, VA: ALSA Center, February 2019.

Balzhiser, Smack. "FAC(A) Research." E-mail message to author. December 18, 2018.

BAE Systems. "USAF Deploys APKWS Laser-Guided Rockets on F-16s." June 8, 2016. Accessed February 20, 2019. https://www.baesystems.com/en-us/article/us-air-force-deploys-apkws-laser-guided-rockets-on-f-16s.

Bucklew, Shaggy. "24 TASS Thoughts." E-mail message to author. December 11, 2018.

———. "24 TASS Thoughts." E-mail message to author. December 13, 2018.

Chaisson, Cajun. "FAC(A) Training History." Telephone interview with author. October 31, 2018.

Clausewitz, Carl von. *On War*. Translated and Edited by Michael Eliot Howard and Peter Paret. Princeton, NJ: Princeton University Press, 1989.

Commander, 57 OG. "57th Operations Group Kneeboard." July 5, 2018. Document received by author via e-mail. July 15, 2018.

———. "Nellis CIG Task Assessments and Prioritized Tasks." Powerpoint Presentation, 2018.

Copeland, Marcy. "Barry M. Goldwater Range Celebrates 75 Years." 56th Fighter Wing Public Affairs, November 16, 2016. Accessed December 10, 2018. https://www.luke.af.mil /News/Article-Display/Article/1003697/barry-m-goldwater-range-celebrates-75-years/.

Dickson, Matthew. "FAC(A) Info." E-mail message to author. December 17, 2018.

Farmer, J., and M. J. Strumwasser. *The Evolution of the Airborne Forward Air Controller: An Analysis of Mosquito Operations in Korea*. Santa Monica, CA: RAND, October 1967.

Friedman, Milton. "Milton Friedman in His Own Words." Becker Friedman Institute for Economics at the University of Chicago. November 9, 2012. Accessed February 10, 2019. https://bfi.uchicago.edu/news/post/milton-friedman-his-own-words.

Grier, Peter. "The First Offset." *Air Force Magazine* (June 2016): 56-60.

Griset, Rick. "Luke AFB FAC(A) History." Telephone interview with author. December 4, 2018.

———. "Luke AFB History." Telephone interview with author. December 5, 2018.

Holmes, James. "57th Operations Group's CAS Integration Group Charter." Air Combat Command. September 26, 2017. Document received by author via email.

HQ ACC/A3T. "A-10C Ready Aircrew Program (RAP) Tasking Memorandum, Aviation Schedule 2018 (AS-18)." Air Combat Command. October 1, 2017. Document received by author via email. December 20, 2018.

———. "F-16CM Blk 50/52 Ready Aircrew Program (RAP) Tasking Memorandum, Aviation Schedule 2018 (AS-18)." Air Combat Command. October 1, 2017. Document received by author via email. December 20, 2018.

Joint Chiefs of Staff. Chairman of the Joint Chiefs of Staff Instruction 5127.01, *Joint Fire Support Executive Steering Committee Governance and Management*. Washington, DC: Government Printing Office, May 2014.

———. *Joint Fire Support Executive Steering Committee Action Plan Memorandum of Agreement 2004-02 Joint Forward Air Controller (FAC[A])*. Washington, DC: Government Printing Office, March 2018.

———. *Joint Publication (JP) 3-0, Joint Operations*. Washington, DC: Government Printing Office, 2017.

———. *Joint Publication (JP) 3-09.3, Close Air Support*. Washington, DC: Government Printing Office, 2014.

Keller, Dan. "FAC(A) Research." E-mail message to author. December 20, 2018.

Kugler, Richard, Hans Binnendijk, and Michael Baranick. *Operation Anaconda: Lessons for Joint Operations*. Washington, DC: National Defense University, 2009.

Lambeth, Benjamin. "Reflections on the Balkan Air Wars." *Airpower History* 57, no. 1 (Spring 2010): 30-43.

Lester, Gary. *Mosquitoes to Wolves: The Evolution of the Airborne Forward Air Controller*. Maxwell AFB, AL: Air University Press, 1997.

Mattis, James. *Summary of the 2018 National Defense Strategy of The United States of America*. Washington, DC: Government Printing Office, 2018.

Neuenswander, Matthew. "FAC(A) History." Interview by author. December 10, 2018.

———. "JCAS in Operation Anaconda- It's Not All Bad News." *Field Artillery* (June 2003): 2-4.

Newman, Rick, and Don Shepperd. *Bury Us Upside Down: The Misty Pilots and the Secret Battle for the Ho Chi Minh Trail*. Sacramento, CA: Presidio Press, 2007.

Niebuhr, Björk. "FAC(A) Research." E-mail message to author. December 11, 2018.

———. "FAC(A) Research." E-mail message to author. December 21, 2018.

———. "FAC(A) Research." E-mail message to author. October 1, 2018.

Northrop Grumman. *Understanding Voice and Datalink Networking*. San Diego, CA: Northrop Grumman, December 2014.

Rurka, Razor. “FAC(A) and Sandy.” Telephone interview with author. January 2, 2019.

Sargent, Nick. “Successful Tactical Joint Fires Integration Training in a Resource-Constrained Environment at Fort Sill.” *Air Land Sea Bulletin* 2018–2 (Summer 2018): 30-33.

Schein, Edgar H. *Organizational Culture and Leadership*. 5th ed. Hoboken, NJ: Wiley, 2017.

Schlight, John. *Help from Above: Air Force Close Air Support of the Army 1946-1973*. n.p.: US Air Force History and Museums Program, 2003.

US Department of the Air Force. *Air Force Doctrine Document (AFDD) 3-0, Operations and Planning*. Washington, DC: Government Printing Office, 2016.

———. “Biography- Gen. Michael E. Ryan.” USAF Biographies, September 2001. Accessed December 4, 2018. https://www.af.mil/About-Us/Biographies/Display/Article /105755/general-michael-e-ryan/.

———. *Operation Anaconda: An Air Power Perspective*. Washington, DC: Government Printing Office, February 2005.

US Department of the Army. *Field Manual 100-5, Operations*. Washington, DC: Government Printing Office, 1976.

———. *Field Manual (FM) 3-0, Operations*. Washington, DC: Government Printing Office, 2017.

Walker, Dinah. *Trends in US Military Spending*. Council on Foreign Relations, July 15, 2014. Accessed December 18, 2018. https://www.cfr.org/report/trends-us-military-spending.

Wicke, Russell. “New Wings to Secure A-10 Longevity.” U.S. Air Force. May 9, 2008. Accessed February 20, 2019. https://www.af.mil/News/Article-Display/Article/123611/new-wings-to-secure-a-10-longevity/.

Winnefeld, James, Preston Niblack, and Dana Johnson. *A League of Airmen: US Air Power in the Gulf War*. Santa Monica, CA: RAND, 1994.