The A.S. Air in the Air Mar Over Serbia, 1999 AIR POWER History / SUMMER 2015



(Overleaf) The A-10 Thunderbolt II was a major aircraft in the air war over Serbia. (All photos USAF.)

he last major United States military operation of the twentieth century was noteworthy in a number of ways. It narked the first time NATO took part in combat operations against a sovereign nation. It was the last time manned aircraft shot down manned enemy aircraft. The operation resulted in no American casualties. It ended one of the worst instances of genocide in a century of genocide. Most importantly, it was the first air campaign that produced victory without the use of ground forces. Operation Allied Force, or the Air War Over Serbia, resulted in victory without any American or NATO "boots on the ground."

In early 1998, violence erupted within Kosovo between Yugoslavian (Serb) forces and the Kosovo Liberation Army (KLA). As a result, a Contact Group consisting of the foreign ministers of six nations, the United States, the Russian Federation, the United Kingdom, Germany, France, and Italy met in London during March in an attempt to discuss the growing war within Kosovo. Partly in response to two statements from the Contact Group, dated March 9 and 25, the United Nations Security Council passed Resolution 1160 on March 31. It urged a political settlement of issues in Kosovo, supported greater autonomy for Kosovo within Yugoslavia, and banned arms sales and deliveries to Yugoslavia. The resolution also condemned the use of excess force by Serbian paramilitary police forces against the civilian population, and denounced any terrorist activity such as that which the Serbs claimed the KLA performed.¹

In May and June, NATO leaders met in Brussels to consider military options. In June, an agreement between Yugoslav President Slobodan Milosevic and Boris Yeltsin, President of Russia, allowed the formation of a Kosovo Diplomatic Observer Mission, consisting of representatives from several nations, to report on freedom of movement and security conditions in the troubled province. The six-nation Contact Group continued to meet, and issued statements on June 12 and July 8 on the increasing deterioration of conditions in Kosovo. Serbian police security forces in Kosovo, in an effort to deprive the KLA of their civilian supporters, began to drive ethnic Albanians from their homes.

The UN Secretary-General, Kofi Annan, acknowledged "excessive and indiscriminate use of force by Serbian security forces and the Yugoslav Army which has resulted in numerous civilian casualties and...the displacement of more than 230,000 persons from their homes." These words were incorporated into United Nations Security Council Resolution 1199 passed on September 23, that demanded a ceasefire in Kosovo, dialogue between the warring parties, the end of action by security forces against civilians, and the safe return of refugees.²

Concurrently, the North Atlantic Treaty Organization prepared to exercise air strikes, if necessary, to enforce UNSCR 1160. Dr. Javier Solana, Secretary-General of NATO, stated on September 24, the day following the passage of UNSCR 1160, that the alliance was preparing to act. Solana announced that the North Atlantic Council had just approved issuing an activation warning that increased its level of military preparedness and allowed NATO commanders to begin identifying forces required for possible air operations.³

On October 12, 1998, Richard Holbrooke, President Clinton's special envoy to the Balkans, flew to Belgrade and warned the Yugoslavian president that if he failed to comply with UN resolutions, he risked NATO air strikes. Lt. Gen. Michael E. Short, USAF, who commanded NATO air forces in the theater, accompanied Holbrooke. He spoke personally with Milosevic, telling him essentially that the question was not whether NATO planes would be flying over Kosovo, but whether they would be taking photographs or dropping bombs. On October 13, NATO's North Atlantic Council authorized activation orders for air strikes. United States aircraft and aircrews deployed to Europe in preparations for air strikes against Serbia.⁴

The threat produced diplomatic results in Belgrade. On October 15 and 16, Yugoslavian representatives signed agreements to allow a Kosovo verification mission on the ground and an air verification mission. On October 24, the United Nations Security Council passed Resolution 1203, which endorsed the verification missions. However, Milosevic, as president of Yugoslavia, had signed neither agreement, suggesting that he could later

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(Near right) Slobodan Milošević was the President of Serbia from 1989-97 and President of the Federal Republic of Yugoslavia from 1997 to 2000.

(Far right) Lt. Gen. Michael E. Short, USAF, who commanded NATO air forces in the theater.





claim he had never made such a commitment himself. After intense negotiations between Milosevic and Dr. Javier Solana, the Secretary General of NATO, with NATO military leaders present to reinforce the threat of NATO air strikes, Milosevic reluctantly agreed on October 25, to sign an agreement to remove "excess" Serb police and paramilitary forces from Kosovo and allow the verification missions to proceed. Gen. Wesley K. Clark, USA, Supreme Allied Commander, Europe (SACEUR) was present at the signing.⁵

The aerial verification agreement allowed NATO reconnaissance aircraft such as USAF U-2s and MQ-1 Predators, to verify the removal of Serb forces from civilian areas of Kosovo. A week later, NATO formally approved aerial surveillance missions over Kosovo, Operation Eagle Eye, which began on October 29, 1998. ⁶

Operation Eagle Eye aerial verification flights over Kosovo took place in conjunction with the ground verification mission or KVM (Kosovo Verification Mission). The Organization for Security and Cooperation in Europe (OSCE) provided approximately 1,400 personnel for that part of the verification process. The ground mission arrived in Kosovo in November under the leadership of William Walker, a former U.S. ambassador to El Salvador.⁷

Resolution 1203, in addition to endorsing the verification missions in Kosovo, also called for the enforcement of previous UN Security Council Resolutions 1160 and 1199. The United Nations and the North Atlantic Treaty Organization spoke with one voice on the need for Yugoslavia to reduce its military presence in Kosovo, to allow the return of refugees, and to eventually agree to greater autonomy for Kosovo and its ethnic Albanian majority. It also called "for prompt and complete investigation, including international supervision and participa-

tion, of all atrocities committed against civilians and full cooperation with the International Tribunal for the former Yugoslavia, including compliance with its orders, requests for information and investigations..."8. As a result of the resolution, an International Criminal Tribunal for the Former Yugoslavia convened, with Louise Arbour appointed as chief prosecutor.9

The crisis intensified in November and December, 1998. Milosevic forbade the entrance of United Nations war crimes investigators to determine whether ethnic cleansing and genocide had occurred in Kosovo. On November 17, the UN passed Security Resolution 1207, condemning Yugoslavia for failing to arrest and transfer three individuals indicted by the International Criminal Tribunal for the Former Yugoslavia. 10

The final crisis began in January 1999. On January 8 and 10, the KLA ambushed and killed four Serbian policemen near Stimlje, Kosovo. On January 15, fighting erupted around the village of Racak, as Yugoslavian police forces advanced into the area. The KLA retreated from the town. Several people were shot and wounded during the advance. The Yugoslavian forces cornered about thirty men and boys in the cellar of a house. Letting the boys go, they took the twenty-three men elsewhere. The next day, villagers found their bodies. They had been shot at close range. The Yugoslavs had apparently targeted the men of the village, probably in retaliation for the killing of their own police earlier in the month. International investigators soon determined that forty-five persons had died in Racak, including two women and a twelve-year-old boy. Nine KLA soldiers were also found dead. Walker, head of the KVA, accused the Yugoslavian authorities of a massacre.¹¹

International response was quick. U.S. President William "Bill" Clinton, responding quickly

MILOSEVIC RELUC-TANTLY AGREED ON OCTOBER 25, TO SIGN AN AGREEMENT TO REMOVE "EXCESS" SERB POLICE AND PARA-MILITARY FORCES FROM KOSOVO



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to Walker's report, condemned the killing of the civilians in Kosovo. Yugoslavian authorities refused to allow Arbour to investigate the killings at Racak, and demanded that Walker, head of the KVM, leave the country. On January 19, the United Nations Security Council denounced the Racak massacre and Serbia's refusal to allow a UN investigation. At the same time, General Clark met in Belgrade with President Milosevic. Clark demanded that Milosevic pull his security forces out of Kosovo or face air strikes. Meanwhile, Yugoslavian Army and Serbian police units attacked ethnic Albanian villages around Racak for the third day. On January 30, NATO authorized its Secretary General, Solana, to launch air strikes on Serbia. 13

Milosevic reacted to the pressure by agreeing to peace talks at Rambouillet, France, between representatives of Yugoslavia, the Kosovo Liberation Army, and NATO. The talks began on February 7. News reports that a bomb had exploded in downtown Pristina, capital of Kosovo, killing three ethnic Albanian civilians, soured the opening of negotiations. To stop the atrocities, NATO demanded that its troops be allowed to enter Kosovo. During February, Serbia's President Milan Milutinovic and Yugoslavia's foreign minister Zivadin Jovanovic echoed Milosevic's opposition to the possible deployment of foreign troops into Serbia. At the same time, Kosovar Albanians demanded a referendum on independence and rejected calls to disarm. 14

The U.S. Air Force began extensive deployment of forces to the theater in preparation for possible war as early as February 19, the day before the original deadline set for an agreement at Rambouillet. The Contact Group extended the deadline to February 23, the day the Kosovar Albanian delegation agreed to a NATO peace plan. The Kosovo Liberation Army officially agreed to the terms on March 8. However, Yugoslavia refused to agree to the deployment of foreign troops in Kosovo; Serbs within the province continued to force ethnic Albanians from their homes there; and the Yugoslavian army massed along the border of Kosovo in anticipation of a greater conflict. ¹⁵

On March 12, while prospects for war over Kosovo escalated, Poland, the Czech Republic, and Hungary joined NATO as full members of the alliance. This demonstrated not only the increasing isolation of Yugoslavia internationally, but also the continuing decline of Russian influence in central and eastern Europe. However, Russia still supported Serbia. ¹⁶

To prevent another conflict in the Balkans similar to the 1995 war in Bosnia, NATO and the parties within Kosovo met again in Paris on March 15, to follow up the Rambouillet talks. These discussions produced little success. On March 18, the Kosovar Albanian delegation to the Paris talks signed the proposed peace agreement, which would have granted them autonomy within Serbia but not full independence. However, the Yugoslavian government still refused to allow foreign troops into Kosovo, and the talks ended without a signature from the Serbian delegation.¹⁷

Yugoslavia's prolonged recalcitrance increased the likelihood of war, especially after a Finnish forensic investigation led by Helena Ranta on March 16, revealed that the more than forty ethnic Albanians killed by Serbs in Racak in January were unarmed civilians. Undeterred, the Serbs launched a new offensive in Kosovo called Operation Horseshoe on March 20, forcing thousands of ethnic Albanians from their homes northwest of Pristina in an attempt to deprive the KLA of popular support. The next day, Yugoslavian special forces killed ten ethnic Albanians in Srbica and shelled seven nearby villages. Following reports of shooting and looting by Yugoslavian security and paramilitary forces, and fearful of being captured as hostages, as happened to international peacekeepers in Bosnia-Herzegovina in 1995, international observers in the Kosovo Verification Mission evacuated from Kosovo to Macedonia. On March 24, the air verification mission, Operation Eagle Eye, also ended. The path was now clear for NATO air operations, if necessary. 18

While the verification missions ended, Holbrooke returned to Belgrade for last-minute talks with Milosevic, but reported no change in the Serb leader's position. On March 22, NATO authorized Secretary General Solana to launch air strikes against Serbia. Solano then directed General Clark to initiate air operations against Yugoslavia. On March 23, the U.S. Senate passed a resolution, sponsored by Senator Joseph Biden Jr., authorizing President Clinton to conduct military air operations and missile strikes against Yugoslavia. The House of Representatives failed to pass the resolution, but by the War Powers Resolution of 1973, the

President was authorized to use U.S. military forces for up to sixty days without Congressional approval. The stage was set for war over Kosovo. 19

Operation Allied Force began March 24, 1999, and marked the first time NATO went to war against a sovereign country in the 50-year history of the alliance. Exclusively an air campaign, Allied Force involved the militaries of several NATO countries, but the United States provided the leadership and the majority of the forces. NATO launched the war on Serbia not for the national interest of any of its members, but to enforce United Nations resolutions and to stop an "ethnic cleansing" campaign in Kosovo that included forced evictions. However, the United Nations Security Council never directly sanctioned NATO's military action, partly because of the opposition of Russia, a veto-carrying member. The United States called its portion of Allied Force Operation Noble Anvil.²⁰

The two operations, one within the other, pursued common goals. General Clark served as NATO commander for Allied Force, also called the Air War Over Serbia. The campaign's focus on air power magnified the significance of Clark's Combined Force Air Component Commander (CFACC), General Short, who also served as commander of the Sixteenth Air Force and Allied Air Forces Southern Europe (AIRSOUTH). Short directed the air campaign from the NATO Combined Air Operations Center (CAOC) at Vicenza, Italy, although most of the combat aircraft were based elsewhere. Sixteenth Air Force had been the first to employ the expeditionary wing concept, which rotated preselected USAF organizations for more predictable deployments overseas. Allied Force's largest footprint was in Italy. On February 19, 1999, the United States Air Forces in Europe (USAFE) activated the 16th Air and Space Expeditionary Task Force-Noble Eagle, with headquarters at Aviano, not far from Venice, to support the operation. At the same time, USAFE also activated the 16th and 31st Air Expeditionary Wings at Aviano, and the 100th Air Expeditionary Wing at RAF Mildenhall, in the United Kingdom. As the war intensified, the Air Force committed more organizations to the effort. The United States Navy deployed ships armed with Tomahawk Land Attack Cruise Missiles (TLAMs) to the Adriatic Sea, just off the western coast of Yugoslavia.²¹

The United States and its NATO allies employed a broad spectrum of weapons systems for the operation. On the opening night of Allied Force, March 24, 1999, the NATO CAOC managed 214 strike aircraft. They came not only from Aviano Air Base in Italy, on the Adriatic Sea, but also from as far away as Germany, the United Kingdom, and the United States. American aircraft comprised more than half of the strike aircraft on the first day. They included three types of strategic bombers, used to destroy elements of Yugoslavia's integrated air defense system and key military command and control targets. B–52s from the 2d Expeditionary Bomb Group-NOBLE ANVIL, based at RAF Fairford, and refueled by KC-135s stationed at the same base.

launched precision cruise missiles to open the campaign. The bombers had deployed to England from the 2d and 5th Bomb Wings based in the United States. The tankers had deployed to England from the 366th Wing. B-1s that had deployed to RAF Fairford from the 28th Bomb Wing, also took part in the opening of the campaign. B-2 bombers entered combat for the first time, flying long round-trip missions from Whiteman AFB in Missouri to Yugoslavia and back, a 29-hour round trip, with numerous aerial refuelings. The B-2s belonged to the 509th Bombardment Wing, and they carried the new Joint Direct Attack Munition (JDAM) whose precision satellite guidance enabled it to hit variable targets, regardless of weather or time of day. The U.S. Navy also took part in the initial air strikes, using ship-launched Tomahawk missiles to hit similar targets. While NATO aircraft from other countries played important roles in the campaign, NATO depended more on the United States than any other country for night operations, precisionguided munitions, identification of aircraft beyond visual range, airborne command and control, and intelligence, surveillance, and reconnaissance data.22

USAF fighter aircraft, based at Aviano Air Base in Italy, also assumed prominent roles in the conflict. Among them were F-15s to counter the MiG-29s the enemy launched against the attacking aircraft. On the first night, March 24, 1999, two USAF F-15C pilots of the 493d Expeditionary Fighter Squadron each shot down one MiG-29, using AIM-120 missiles. These missiles had their own homing radar, allowing pilots to "launch and leave" instead of hanging around to provide radar guidance to the missiles. AIM-120s also had longer range than infrared-guided missiles, allowing the downing of enemy aircraft from beyond visual range. A Dutch F-16 pilot also shot down a MiG-29 that night. On the third night of Allied Force, an F-15C pilot of the 493d Expeditionary Fighter Squadron shot down two MIG-29s in aerial combat over Yugoslavia, using AIM-120 missiles. Thus, in the first three days of the conflict, NATO pilots shot down five of the best Yugoslavian fighters, with no friendly aircraft losses.²³

Operation Allied Force over Serbia in 1999, had similarities and differences with Operation Desert Storm, over Iraq, eight years earlier. In both operations, the air component commander wanted to begin with the destruction of enemy command and control and communication structures in the enemy capital and deprive the enemy of his ability to counter American airpower. General Short wanted to hit Belgrade as hard as Baghdad had been hit in 1991. However, General Clark at first limited Short's targets in the enemy's largest city, because he wanted to limit civilian casualties. He also wanted American air power to hit the Serbian tanks in Kosovo that were threatening Albanian civilians there. As a result, Operation Allied Force at first focused more on small military targets on the ground, which were much more difficult to hit than strategic targets such as electrical power plants,

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and which required the aircraft to fly lower, making them more vulnerable to enemy antiaircraft defenses. 24

Milosevic surprised NATO and United States military leaders by not coming to terms after the first three nights of bombing, March 24 to 26. Some of those leaders suspected that Milosevic, after a gesture of defiance to placate Serbian extremists supporting him, would capitulate early. They were wrong. Despite the temptation to use radar to guide their extensive air defense network's arsenal of surface-to-air missiles (SAMs), the Serbs largely turned off the radar, knowing that NATO fighters with high-speed, anti-radiation missiles (HARMs) could zero in on them. As a result, throughout the conflict, the SAMs remained a threat. So also did anti-aircraft artillery (AAA) and shoulder-launched infrared-guided missiles, which persuaded NATO to keep its aircraft flying at an altitude of at least 15,000 feet. The higher altitude missions degraded the accuracy of air strikes, because small targets such as tanks could not be seen from high alti- ${
m tude.}^{25}$

Besides F–16s from such organizations as the 31st Air Expeditionary Wing based at Aviano Air Base, a host of other USAF aircraft types participated in Operation Allied Force. Among them were A-10 aircraft, more effective than faster lesserarmored aircraft against ground forces, and as a result, General Short made plans to deploy more A-10s to the theater. Additionally, EC-130s served as Airborne Battlefield Command and Control Center (ABCCC) aircraft. Unmanned and unarmed RQ-1 Predator reconnaissance and surveillance aircraft, based at Tazsar, Hungary, assisted the A–10 pilots in locating and destroying small enemy targets such as enemy artillery pieces. The Predator allowed real time intelligence to enable air strikes to be more effective against moving targets such as the Yugoslavian Third Army in Kosovo. 26 The C-17 also took part in the Air War over Serbia. Having completed its testing less than four years earlier, it was the only USAF transport capable of carrying outsize cargo into certain airfields, such as Tuzla Air Base in Bosnia.²⁷

By the end of March, NATO aircraft and missile strikes had hit more than fifty targets in Yugoslavia. With portions of the Yugoslavian air defense system crippled, NATO launched air strikes in daylight for the first time. Russia, with close political ties to Serbia, requested that the United Nations halt the NATO airstrikes, but the Security Council voted down the resolution by an overwhelming 12 to 3 vote. ²⁸

The NATO air campaign against Yugoslavia proceeded remarkably well, in terms of attrition, until March 27, the fourth night of the operation, when Serbian SA-3 surface to air missiles took down a USAF F-117 Nighthawk. General Short had anticipated some air losses, but not this particular aircraft type, a stealth fighter famous for its ability to avoid significant radar detection and its virtual invisibility at night. The Serbs fired two SAMs and only one struck its target. SAM fire had

succeeded despite the enemy's limited use of radar to guide it. Analysts later speculated how the Serbs had been able to down the venerable F-117: it had flown a somewhat predictable path; it could have been detected when it became more visible on radar as it opened its weapons-bay doors; the aircraft might have become more observable when it banked, increasing its radar cross section momentarily; the RC–135 Rivet Joint aircraft might have failed to locate a key SA-3 battery; the F–16CJs carrying HARMs had left the area, temporarily removing the threat to enemy radar equipment; the EA–6B aircraft might not have been in the best position to jam enemy radar.²⁹

In light of the shootdown, there was some positive news. A USAF A-10 pilot from the 81st Expeditionary Fighter Squadron located the downed pilot and vectored a helicopter rescue team to save him within a few hours of his ejection. The effort involved the cooperative efforts of A-10, MC-130, MH-53, and MH-60 pilots and crews. F-16 pilots covering the mission, sustained by KC-135 tankers, remained airborne for more than nine hours. The A-10 pilot, the pilot of the lead MH-53, and the MH-60 pilot who carried out the rescue all earned the Silver Star that day. Notably, this incident demonstrated the progress made since the 1995 downing of Captain Scott O'Grady over Bosnia, who had to evade enemy forces for six days before he was rescued.³⁰

Despite extensive NATO air strikes over Kosovo and the rest of Serbia, the Yugoslavian "ethnic cleansing" campaign intensified at the end of March. Large columns of refugees migrated out of the besieged province into Albania, Macedonia, and Montenegro, and the Serbian forces burned the homes of the refugees to discourage them from returning. In the course of five days, some 50,000 Kosovar civilians fled their homes.³¹

By the end of March, a week into the air campaign, Milosevic showed no signs of capitulating, and actually intensified his ground campaign in Kosovo, forcing ever increasing numbers of refugees to flee to neighboring states. Between March 24 and 31, more than 100,000 people fled Kosovo to Albania, Macedonia, and Montenegro. As a result of Milosevic's intransigence, NATO members expanded the target list to include sites in the central part of the Serbian capital, and on March 31, NATO aircraft struck the headquarters of the Yugoslavian Army's Special Unit Corps in downtown Belgrade. 32

The expanding NATO target list grew to include not only more sites in Belgrade but also Serbian fielded forces in Kosovo. On March 30, General Short launched the Combined Air Interdiction of Fielded Forces (CAIFF), a new stage of the air campaign designed specifically to cripple or destroy Milosevic's ground troops in Kosovo, but it was initially limited to a ten-mile penetration of the province. Clouds and bad weather challenged the early missions, hindering NATO's ability to destroy its relatively small targets effectively and mount a steadily increasing pressure on the enemy.

MILOSEVIC SURPRISED NATO AND UNITED STATES MILITARY LEADERS BY NOT COMING TO TERMS AFTER THE FIRST THREE NIGHTS OF BOMBING



A C-5 Galaxy transport aircraft prepares to launch from Aviano Air Base, Italy. The C-5 was one of the many aircraft at Aviano supporting NATO's Operation Allied Force.

A–10s served well for combat search and rescue, but after their first successful attack against a Serbian truck park on April 6, the armored attack aircraft proved especially useful against enemy ground forces in Kosovo.³³

On April 1, Yugoslavian forces captured three U.S. soldiers on patrol near the border of Kosovo and Macedonia and sought to use the hostages as leverage to restrict the air campaign, as Serbs had done with United Nations personnel in Bosnia in 1995. This time the tactic did not work. Generals Clark and Short did not want to reward hostagetaking, and European allies did not pressure them to do so because this time, the hostages were Americans. The campaign continued without diminution.³⁴

Since March 1998, more than a half million people had been displaced from their homes in Kosovo, a fifth of them in the last week of March 1999. Without reducing the air campaign, NATO and the United States inaugurated an additional operation called Sustain Hope to airlift humanitarian supplies to the refugees in Albania. The United States called its part of the new operation Shining Hope. On April 4, a USAF C-17 airlifted relief supplies from Dover Air Force Base, Delaware, to Tirana, Albania. The 86th Contingency Response Group deployed to Tirana, where they increased the airfield capacity to allow more than 400 daily takeoffs and landings where earlier there had been only ten. For Joint Task Force Shining Hope, the USAF provided 930 airmen, two-thirds of the total personnel. In the first month of Operation Sustain Hope, allied transports that included USAF C-5s, C-17s, and C-130s airlifted more than 3,000 tons of food, medicine, tents, supplies, cots, blankets, sleeping bags, and other relief cargo for refugees in camps located outside of Kosovo. Major General William S. Hinton, Jr., USAF, commanded the operation. On April 10, NATO approved Operation Allied Harbor, an additional humanitarian effort to aid refugees from Kosovo.35

Meanwhile, NATO airstrikes on Belgrade continued, and were not limited to aircraft. On April 3, NATO missiles struck central Belgrade for the first time, destroying the Yugoslavian and Serbian interior ministries. Some of these missiles were

Tomahawk Land Attack Missiles (TLAMs), launched from U.S. Navy ships in the Adriatic. On the same day, B–1s deployed from the United States to RAF Fairford, where they were equipped with conventional air-launched cruise missiles (CALCMs) for additional attacks on Belgrade. On April 8, a NATO cruise missile destroyed the main telecommunications building in Pristina, the capital of Kosovo, which had been used to help coordinate Serbian ground operations in the province.³⁶

Strategic debates accompanied tactical success. General Clark and his air component commander, General Short, disagreed on the operation's most important target set. General Clark insisted that the "jewel in the crown" was the Yugoslavia's tanks and troops in Kosovo. But General Short "never felt that the Third Army in Kosovo was a center of gravity."37 He preferred to strike key fixed electrical, communication, transportation, and industrial structures in Belgrade than tanks, vehicle-drawn artillery pieces, and troops hidden in the forests of Kosovo. Spotting small moving targets under trees and behind hills was especially difficult for USAF and other NATO pilots who flew at altitudes high enough to erase the effectiveness of shoulderlaunched missiles and AAA. Clark continued to focus on the destruction of fielded military forces in Kosovo, using F-16s, F-15s, and A-10s, but he allowed Short to use his B-2s and F-117s, along with the Navy's TLAMs, to strike Belgrade. Clark was caught between two extremes: U.S. Air Force officers who wanted to attack more targets in the Yugoslavian capital, and certain NATO allies in Europe who wanted to severely limit the targets struck there. General Clark later wrote, "no single target or set of targets was more important than NATO cohesion."38

While General Clark overruled General Short by insisting the air forces strike the Yugoslavian Third Army in Kosovo, and not focus on targets in Belgrade, the Pentagon did not permit him to add a ground campaign that would concentrate Serb fielded forces in Kosovo, making them more vulnerable to NATO air strikes. This concept included using U.S. Army Apache attack helicopters in Task Force Hawk. Although the helicopter task force existed, NATO leaders would not authorize a ground campaign, and the U.S. Secretary of Defense would not allow the use of the helicopters over Kosovo, where they would be more vulnerable than the fighters to ground fire. As a result, Clark kept his operation focused on an air campaign that would not include attack helicopters except as a possible future threat. General Clark listed some of the likely problems planning or launching a major ground campaign would engender: a longer war; more casualties; increased cost; unpredictable consequences; lack of detailed planning; perceived admission that the air campaign failed; limited personnel; and difficulty maintaining public support.³⁹

Like other generals in the U.S. Army, General Clark doubted that an air campaign could ever succeed without an accompanying ground campaign. He remembered that the Soviet Union, despite air

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supremacy, had failed to keep Afghanistan under control during its failed long-term occupation in the 1980s. He recalled that the United States and its coalition partners forced Iraqi troops out of Kuwait only after a weeks-long air campaign was capped by a short but intense Allied invasion involving "boots on the ground." He knew that NATO air power worked in 1995 against the Bosnian Serbs partly because it had been accompanied by a Croatian ground offensive. There was no such offensive in Kosovo. The closest thing to it was the resistance of the Kosovo Liberation Army within Kosovo itself.⁴⁰

Three weeks into Allied Force, Serbian troops remained deeply entrenched in Kosovo, and Milosevic showed no sign of relenting. To apply more pressure, General Clark called for a significant increase in the number of aircraft devoted to the operation. When the campaign opened on March 24, only 430 NATO aircraft were committed to the war. Within a few weeks, that number more than doubled. 41

Air raids against Serbian ground forces in Kosovo intensified during April. On the 14th, the Air Force assigned five new air expeditionary wings, the 48th, 52nd, 60th, 86th, and 92nd, to join the three (the 16th, 31st, and 100th) that already served the 16th Air and Space Expeditionary Task Force-Noble Anvil. The aircraft types available to these eight wings, deployed from stateside bases with their crews, included F-16, F-15, and F-117 fighters, A-10s attack airplanes, and E-8s and EC-130s for communications. A-10 pilots, support personnel, and aircraft deployed from the 74th Fighter Squadron at Pope AFB, North Carolina, to serve with the 81st Expeditionary Fighter Squadron of the 40th Expeditionary Operations Group. On April 11, the 81st moved from Aviano Air Base, in northern Italy, to Gioia del Colle in extreme southern Italy, where it could more effectively to strike targets in Kosovo. At the same time, Macedonia, a country that had itself declared independence from Serbian-dominated Yugoslavia in 1991, allowed NATO to use its air space for flights against Serbian forces. NATO attack aircraft could now enter Serbia and attack its targets in Kosovo more easily.42

The first Allied Force NATO air raid that caused significant civilian casualties occurred on April 12, when an F–15 dropped precision-guided munitions to destroy a railroad bridge near Lekovac. Unfortunately a passenger train was crossing at the time, and about thirty civilians lost their lives.⁴³

When fighters attacked ground targets among the trees and villages of Kosovo, they did not always hit them. Flying at high altitudes to reduce the chances of being hit by ground fire, pilots sometimes misidentified moving objects on the surface. In one notable case on April 14, NATO fighters that included an F–16 and a French Jaguar accidentally hit two refugee convoys because the pilots confused the long column of tractors and other vehicles as enemy tanks. General Short subsequently decided

to allow certain aircraft to fly in at lower altitudes for target identification.⁴⁴

While air raids on fielded Serbian forces in Kosovo continued, NATO gradually shifted more of its weight to the bombardment of Belgrade's leadership and command, control, and communication systems . On April 21, cruise missiles struck radio and television stations in the Serbian capital, as well as the political offices of Milosevic, crippling his ability to control and disseminate propaganda. NATO later used the 4,700-pound GBU "bunkerbusting" bomb to damage Milosevic's huge national command center, some of which was buried 100 feet below the ground. ⁴⁵

During April, General Clark prepared his attack helicopters for possible use against Serbian fielded forces in Kosovo. He deployed Task Force Hawk, which included twenty-four U.S. Army Apaches, from Germany to Albania. In an unusual move, Air Mobility Command temporarily relinquished operational control of its deployed C–17s in the theater to the United States Air Forces in Europe. The Air Force flew 737 C–17 missions to deliver twenty-four Army helicopters and their associated resources, including 7,745 passengers and 22,937 short tons of cargo. As a result, Task Force Hawk tied up crucial air space over southern Europe needed for Operations Noble Anvil and Shining Hope⁴⁶

As NATO's air campaign continued, international pressure against Milosevic to cease his Kosovo ground offensive intensified. On April 21, the European Union stopped delivery of petroleum product deliveries to Yugoslavia. On the same day, NATO missiles struck the headquarters of Milosevic's Serbian Socialist Party and his private residence in Belgrade, as well as radio and television stations in the enemy capital. On April 23, at a NATO summit meeting in Washington, D.C., NATO revised its objectives and on May 1, the North Atlantic Council approved an expanded the target list which included more infrastructure facilities. Further, Turkey and Hungary approved the basing of NATO strike aircraft on their territories to allow them to attack targets in Serbia around the clock. Eventually NATO aircraft flew combat missions from bases in fifteen countries.⁴⁷

By May, the air campaign against Serbia had become a long-term commitment, and the Air Force mobilized Air Force Reserve Command units to support Operation Allied Force, eventually calling six tanker wings and one rescue wing to active duty. USAF aircraft devoted to the Noble Anvil campaign more than doubled, from 203 to 514 (the total number of NATO aircraft was higher, but the USAF continued to furnish a majority of the almost 1,000 NATO airplanes eventually devoted to Allied Force). USAF aircraft eventually flew 150 strike sorties per day. Targets ultimately included refineries, communication lines, electrical power grids, and dual-use communication structures; however NATO maintained strict control over which targets could be hit and which were off limits. General Short could generate 1,000 strike sorties a day by

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An F-16 Fighting Falcon from Shaw Air Force Base, S.C., takes off from Aviano. The F-16 is one of more than 170 aircraft deployed to Italy in support of NATO's Operation Allied Force.



early May and could destroy targets more quickly than they could be approved by the leaders of the various nations in the alliance. NATO approval of certain targets sometimes took as long as two weeks, and there were two air tasking orders, one for NATO, and one for the U.S. only, which hindered the effectiveness of the operation.⁴⁸

The increased pressure began to have an effect on the Serbian leader. Milosevic agreed on May 1, to release the three U.S. soldiers his forces had captured near Kosovo's border with Macedonia a month earlier. By releasing the hostages to U.S. civil rights activist Reverend Jesse Jackson, Milosevic likely sought some political advantage, but probably realized that holding the hostages would not diminish the intensifying air campaign.⁴⁹

Serbian surface-to-air missiles and antiaircraft artillery failed to down a single NATO aircraft during the entire month of April, but on the night of May 2, 1999, Serbian forces celebrated their shooting down of a second USAF airplane by an SA-3 missile. This time it was an F-16CG piloted by Lt. Col. David Goldfein (call sign HAMMER 34), commander of the 555th Fighter Squadron, who had just finished an air strike against Serbian surfaceto-air missile sites near Novi Sad. Like the F-117 pilot shot down earlier, Goldfein did not stay in enemy territory very long. Within hours, an MH-60 Pave Hawk helicopter crew rescued him. Lt. Col. Steve Laushine, who had commanded the rescue of the F-117 pilot in March, also led this mission, flying in one of two MH-53 Pave Low helicopters that escorted the MH-60. Four A-10s of the 40th Expeditionary Operations Group covered the three helicopters.⁵⁰

The Serbs had little time to celebrate. The next day, May 3, USAF F-117s dropped BLU-114 submunitions on five transformer yards of Belgrade's

electrical power grid, cutting off electricity to seventy percent of Yugoslavia and threatening communications with headquarters of the Yugoslav 3rd Army in Kosovo. Subsequent air strikes, using the same weapon, took out most of the electrical power again in later days, preventing its permanent restoration. Air strikes also destroyed a sizable vehicle and munitions factory in the enemy capital, significantly reducing Serbia's industrial production and depriving thousands of workers of employment.⁵¹

Unlike ground fire, Serbian aircraft failed to down a single NATO aircraft during the campaign. In fact, the opposite happened. On May 4, F–16CG pilot Lieutenant Colonel Michael H. Geczy of the 78th Expeditionary Fighter Squadron shot down another Yugoslavian MIG–29 over Kosovo, the fifth and final USAF aerial victory of Operation Allied Force, and the sixth such victory by NATO pilots. Like the other four aerial victories of USAF pilots over MIG–29s in 1999, the AIM-120 missile proved it could hit an enemy aircraft from beyond visual range, despite the fact that this incident occurred during daylight hours. At first, Geczy could see the enemy aircraft only on radar, but he also saw the fireball that resulted from his missile's impact.⁵²

Although much of the air campaign focused on enemy ground troops and their vehicles in Kosovo, General Short continued air strikes on Belgrade. Mistargeting curtailed the latter part of Allied Force on May 7, when a B–2 dropped a Joint Direct Attack Munition (JDAM) on the Chinese Embassy in the Yugoslavian capital, killing three and wounding twenty persons. President Clinton called the attack a "tragic mistake." Air campaign planners using faulty maps had identified the building as the Federal Directorate for Supply and Procurement. The resultant political furor forced

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An A-10 rolls down the pavement in Yugoslavia during Operation Allied Force.

General Clark to draw a five-mile-radius circle in central Belgrade within which NATO airplanes were forbidden to strike for almost two weeks. The accident and subsequent bombing restrictions gave Milosevic a break and more time to resist capitulation. 53

As an almost inevitable result of its intensified bombing campaign over Serbia, NATO munitions sometimes struck civilians accidentally. For example, on May 14, bombs struck Korisa, a village in southern Kosovo, killing seventy-nine people and wounding fifty-eight. A few days later, a NATO bomb killed inmates in a jail in the town of Istok near Pristina in Kosovo. NATO believed the facility was no longer being used as a prison but as an enemy command center. Later, on May 22, NATO admitted to have accidentally bombed the Kosare area after Kosovo Liberation Army forces took it, killing seven and injuring fifteen to twenty-five KLA soldiers. One of the KLA leaders, Hashim Thaqi, called the bombing a technical mistake, since Serbian forces had been in control of the area, and urged continued and even more intense NATO airstrikes.54

On May 12, Joint Task Force Shining Hope, the humanitarian counterpart of Operation Allied Force, opened Camp Hope, the first of three camps for assisting Kosovar Albanian refugees. The goal of the simultaneous operations was the same: to save ethnic Albanians threatened with the loss of their lives or homes as a result of a Serbian military offensive in Kosovo. 55

The NATO air campaign against Serbia continued throughout May, showing no signs of diminishing or ending without a reversal of Yugoslavian policy. In fact, the United States Air Forces in Europe activated two additional air expeditionary wings in

Turkey during the month, bringing the wing total to ten.⁵⁶ Diplomatic pressure on Milosevic also intensified. On May 22, the United Nations International Criminal Tribunal for the former Yugoslavia indicted Milosevic and four other Serbian leaders for crimes against humanity, which threatened the popularity of their cause. The next day, NATO resumed bombing the Yugoslavian electricity grid, depriving much of the country of power. On May 21, the 104th Expeditionary Operations Group began flying A-10 missions from Trapani Air Base in Sicily, just two days after its arrival. The increasing A-10 attacks became more effective than earlier ones because a ground offensive by the Kosovo Liberation Army, launched on May 25, forced the Serb forces to mass, making them more vulnerable to air attack. By the end of the month, NATO strike aircraft flew more than 250 sorties per day. Unfortunately, the KLA offensive (Operation Arrow) did not last long and bogged down after only three days.⁵⁷

At the same time, air attacks on infrastructure in Belgrade intensified. On May 24, precision-guided weapons destroyed much of the Serbian capital's electrical power grid, even more effectively than the May 3 attacks. Without electricity, Serbian military leaders were hard-pressed to maintain communications with their forces in Kosovo. The absence of electrical power likely increased popular pressure against Milosevic, partly by crippling his telecommunications propaganda machine and ruining the computer connections of the banking industry. More significantly for the NATO air warriors, the attacks on the Belgrade electrical grid largely paralyzed what remained of the Serbian air defense network. ⁵⁸

A combination of military and diplomatic pressure ultimately succeeded in convincing Milosevic to accept a peace deal. On June 2, 1999, Viktor Chernomyrdin, representing Russia, and Finland's President Martti Ahtisaari, representing the European Union, flew to Belgrade to pressure the Serbian leader into an agreement. The next day Milosevic finally approved talks between senior Yugoslavian and NATO officers, which began on June 5.⁵⁹

When the talks temporarily collapsed on June 7, General Clark disagreed with critics who charged that Allied bombing discouraged negotiations. In fact, he believed that the continued bombing increased the likelihood of restarting negotiations. With NATO authorization, he approved air strikes on Batanjica airfield and an oil refinery at Novi Sad. On June 7, two B-52s and one B-1 dropped eighty-six MK 82 munitions and cluster bombs on Serbian troops in Kosovo, effectively ending the Serbian offensive against the KLA. On June 9, Serbia agreed to all NATO terms, including immediate withdrawal from Kosovo. The next day, the withdrawal began. Milosevic also agreed to allow multinational peacekeeping forces into Kosovo and permitted the return of refugees. His only consolation was that Kosovo would remain part of Serbia and not all the peacekeepers would

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be from NATO (Russian forces would also take part). 60

On June 10, 1999, after seventy-eight days of bombing, NATO suspended air strikes. However, General Clark remained vigilant, and remained ready to resume them if the Serbs had shown any signs of noncompliance. Concurrently, the UN Security Council passed Resolution 1244. The vote was 14-0, with China abstaining. The resolution called for an end of violence and repression in Kosovo; return of refugees; withdrawal of all Yugoslav military, police, and paramilitary forces from the province; and the deployment of an international peacekeeping force of some 50,000 troops, which were almost identical to the NATO conditions. Milosevic more willing allowed international peacekeeping forces in Serbia's Kosovo province if under the auspices of the UN rather than NATO, and was more cooperative when some of the troops were Russian. Kosovo came under temporary international civilian control, but remained, at least temporarily, part of Serbia.⁶¹

On June 11, NATO inaugurated Joint Guardian, a peacekeeping operation in Kosovo. The United States portion of the new operation was called Operation Decisive Guardian. Three days later, the Joint Chiefs of Staff directed Gen. Wesley Clark to suspend construction of two refugee camps in Albania because the Kosovars could now return to their homes within Serbia. By June 20, Milosevic and the Serbs had demonstrated compliance with NATO and UN demands, and Operation Allied Force formally ended. Operation Sustain Hope (Shining Hope) concluded on July 1. During that operation, USAF C-17s and C-130s flew 1176 airlift missions to deliver well over 3,000 tons of humanitarian cargo, including some 4,000 tents, 476,000 rations, and 5,000 blankets.62

The air campaign had intensified tremendously between March 24 and June 20. The number of air expeditionary wings committed to Operation Noble Anvil, the U.S. portion of Allied Force, had expanded from three to ten. The number of USAF aircraft deployed had doubled, and by the end of the operation, 13,850 USAF airmen were deployed at twenty-four locations. What was originally conceived to be a contingency operation to force Milosevic's compliance with NATO demands morphed into a major theater war, with more than a third of the USAF front-line fighters involved.⁶³

During Allied Force in 1999, B–2 bombers based in the United States flew extremely long-range missions to destroy key facilities in Serbia, using precision-guided munitions. Targets included airfields, army bases, munitions storage facilities, engineer depots, arms and heavy equipment factories, petroleum storage facilities, smelters, and an aviation repair base. One B–2 dropping precision-guided weapons could destroy 16 different targets on only one sortie, although such a sortie from Missouri to Serbia and back was an extremely long one, requiring multiple aerial refuelings on the way. Still, the cost would be considerably less than the

use of sixteen non-recyclable cruise missiles such as TLAMs. 64

Air Force Special Operations Command personnel and aircraft flew important missions during Operation Allied Force (Noble Eagle). Contributing organizations included the 16th Special Operations Wing, the 352d Special Operations Group, and the 720th Special Tactics Group. Four AC-130s from the 4th Special Operations Squadron flew 124 armed reconnaissance and battlefield air interdiction sorties from Brindisi. Four MC-130s from the 67th and 9th Special Operations Squadrons flew a total of seventy-five combat sorties, also from Brindisi, mostly to refuel nine MH-53 helicopters from the 20th and 21st Special Operations Squadrons. These aircraft proved instrumental in combat search and rescue operations, especially after the downing of the F-117 and F-16 aircraft during the operation. Four additional helicopters, MH-60s from the 55th Special Operations Squadron, performed additional combat search and rescue sorties. The special operations helicopters flew a combined total of 481 sorties out of Brindisi, Italy. Two additional MC-130s from the 7th Special Operations Squadron at RAF Mildenhall flew seventy-three combat sorties to drop psychological warfare leaflets over Serbia, having picked them up at Ramstein. Supplementing the leaflets were radio broadcasts from a pair of 193rd Special Operations Wing EC-130s that flew eighty-one combat sorties from their deployed base at Ramstein.⁶⁵

During Operation Allied Force, organizations of the Air Mobility Command flew 2,130 airlift missions. Between mid-February and into July 1999, they carried more than 32,000 passengers and 52,645 short tons of cargo to from, and within southeastern Europe. During the same operation, Air Mobility Command tankers refueled a great variety of aircraft flying to and within the combat zone. They included fighters, bombers, and transports, not only from the U.S. Air Force, but also from other services and allied nations. Between the beginning of air strikes on March 24 and the conclusion of hostilities on June 9, USAF KC-10s and KC-135s flew 9,000 missions and transferred 348.5 million pounds of fuel to receiving aircraft. Without aerial refueling, the non-stop B-2 missions from Whiteman Air Force Base, Missouri, to Yugoslavia, and back would have been impossible. By the end of Operation Allied Force, NATO marshaled 175 tankers based at twelve operating locations.⁶⁶

Operation Allied Force lasted for seventy-eight days and involved approximately 38,000 NATO sorties. The Air War Over Serbia proved historic for many reasons. It was the first major USAF air campaign in which no friendly air crews were killed or taken prisoner; in fact, there were no NATO casualties. USAF pilots shot down five enemy MIG–29 aircraft, while the Serbs shot down only two manned USAF aircraft, using surface-to-air missiles, and both the downed F–117 and F–16 pilots were rescued within hours. Only two of the many USAF A–10s involved in the operation received any battle damage. Allied Force saw the first combat use of the

BY JUNE 20, ...OPERATION ALLIED FORCE FORMALLY ENDED. OPERATION SUSTAIN HOPE ... CONCLUDED ON JULY 1



A B-2 Spirit prepares to receive fuel from a KC-135 during a mission in the European Theater supporting NATO Operation Allied Force.

B–2 Spirit "flying wing" stealth bomber. Never before had the Air Force employed all three of its strategic bombers of the late twentieth century, the B–52, B–1, and B–2, in the same combat operation. C–17s, the Air Force's latest transport aircraft type, flew their initial combat missions. For the first time, USAF Predator unmanned aerial vehicles helped locate enemy targets for destruction.⁶⁷

More significantly, air power had achieved something new. For the first time, NATO went to war against a sovereign nation and conducted an air campaign without an accompanying major ground offensive. When reporters asked General John Jumper, commander of the United States Air Forces in Europe, how many tanks NATO aircraft had destroyed, he responded, "enough." He and General Short knew that destroying tanks was not the primary objective, because the most important target was the will of Slobodan Milosevic, making the strikes on Belgrade more decisive. John Keegan, the military historian, noted that the Air War Over Serbia in 1999 "proved that a war could be won by air power alone." John A. Tirpak, editor of Air Force Magazine, held a similar opinion. He noted "For the first time in history, the application of air power alone forced the wholesale withdrawal of a military force from a disputed piece of real estate." General Wesley K. Clark, overall commander of the operation, addressed the claim in his book Waging Modern War, admitting that his own efforts to organize a NATO ground campaign came to nothing. What remained was air power alone. Clark himself was amazed that there was not a single Allied combat casualty in what proved to be a victorious war.68

The United States dominated the NATO operation, not only providing its leadership but also the majority of its aircraft and the leading technology. The USAF furnished 29,552 of the 38,004 NATO sorties, and over 400 aircraft, including:

USAF Aircraft and Sorties

214 fighters 8,889 sorties
18 bombers 322 sorties
175 tankers 6,959 sorties
43 transports 11,480 sorties
1,038 ISR sorties
834 special ops sorties
496 UAV sorties

Air Mobility Command aircraft flew 2,130 airlift missions that transported 32,111 passengers and 52,645 short tons of cargo. USAF KC-135 and KC-10 tankers flew some 9,000 missions and transferred more than 348 million pounds of fuel while airborne. Other USAF aircraft included RQ-1 Predators, E-3 AWACS, E-8 JOINT STARS, RC-135s, U-2s, and EC-130s. Among the special operations and rescue aircraft and crews taking part were AC-130, MC-130, EC-130, and HC-130 aircraft, as well as MH-53, HH-60, MH-60, and HH-60 helicopters. Of the 28,018 munitions expended by NATO, the USAF delivered 21,120. The U.S. Air Force dropped more than 650 of the new Joint Direct Attack Munitions (JDAMs), which proved to be more accurate than traditional bombs because GPS satellite signals guided them. In foggy or cloudy weather, they were even more accurate than laser-guided or television-guided bombs. But the percentage of precision-guided weapons in Allied Force was lower than that for Operation Deliberate Force four years earlier. The U.S. Air Force expended a total of 8,618 tons of munitions. Finally, U.S. intelligence sources provided 99 percent of target nominations for the air campaign, because NATO depended almost entirely on United States technology to link intelligence information with operations. 69

The legacy of the successful air campaign continued into the twenty-first century. Hundreds of thousands of ethnic Albanian Kosovars safely returned to their homes within Serbia, guarded from the threat of Serbian military and paramilitary forces, which had withdrawn from the province, by thousands of international peacekeepers. On October 6, 2000, Milosevic lost reelection in Serbia, and on February 12, 2002, he faced the United Nations War Crimes Tribunal at The Hague, Netherlands, for the first international trial of a head of state for war crimes. Operation Allied Force demonstrated that nations determined to use airpower effectively in the name of humanity could stop genocide. The operation allowed the people of Kosovo to regain their sense of peace and security at home, and contributed eventually to its full independence from Serbia in 2008. More importantly, in a military sense, Operation Allied Force proved that an air campaign could succeed in winning a war without a significant ground campaign, and with very few casualties. The experience of Allied Force reinforced the fact that military forces can be most effective tools for the accomplishment of political foreign policy objectives. In this case, the tool was air power.⁷⁰

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OFFENSIVE

- 1. United Nations Security Council Resolution 1160, dated March 31, 1998.
- 2. United Nations Security Council Resolution 1199, dated September 23, 1998; HQ USAF, The Air War Over Serbia Initial Report, Sep. 30, 1999 (AFHRA IRIS no. 01149318), p. 11; Julie Kim, "Kosovo Conflict Chronology: September 1998-March 1999," April 6, 1999, Congressional Research Service (CRS) Report for Congress; USAFE History, 1998-1999, vol. I, p. xx.
- 3. Press Statement from Secretary General of NATO issued on September 24, 1998; Wesley Clark, *Waging Modern War* (New York: Public Affairs, 2001), p. 145.
- 4. USAFE History, 1998-1999, vol. I, p. xxii; Julie Kim, "Kosovo Conflict Chronology: September 1998-March 1999," April 6, 1999, Congressional Research Service (CRS) Report for Congress; Interview of Lt. Gen. Michael C. Short, by Public Broadcasting Service (AFHRA IRIS number 01129172, call number K570.051-24, 1998-1999), p. 5-7.
- 5. United Nations Resolution 1203 dated October 24, 1998; Wesley Clark, *Waging Modern War* (New York: Public Affairs, 2001), pp. 152 and 157.
- 6. HQ USAF, The Air War Over Serbia Initial Report, Sep. 30, 1999 (AFHRA IRIS no. 01149318), p. 11; Julie Kim, "Kosovo Conflict Chronology: September 1998-March 1999," Apr. 6, 1999, Congressional Research Service (CRS) Report for Congress.
- 7. "Operation Eagle Eye," Allied Joint Force Command Naples (http://jcfnaples.nato.int/page 7194727).
- 8. United Nations Security Council Resolution 1203 dated October 24, 1998.
- **9**. Wesley Clark, Waging Modern War (New York: Public Affairs, 2001), p. 325.
- 10. Julie Kim, "Kosovo Conflict Chronology: September 1998-March 1999," April 6, 1999, Congressional Research Service (CRS) Report for Congress.
- 11. Tim Judah, War and Revenge (New Haven, Ct.: Yale University Press, 2000), p. 193.
- 12. USAFE History, 1998-1999, vol. I, p. xxiii; Julie Kim, "Kosovo Conflict Chronology: September 1998-March 1999," April 6, 1999, Congressional Research Service (CRS) Report for Congress; Col. Christopher E. Haave, USAF, and Lt. Col. Phil M. Haun, USAF, editors, A-10s Over Kosovo (Maxwell AFB, Ala.: Air University Press, 2003), p. xxvii; HQ USAF, The Air War Over Serbia Initial Report, Sep. 30, 1999 (AFHRA IRIS no. 01149318), p. 11.
- 13. Col. Christopher E. Haave, USAF, and Lt. Col. Phil M. Haun, USAF, editors, A–10s Over Kosovo (Maxwell AFB, Ala.: Air University Press, 2003), p. xxviii; Julie Kim, "Kosovo Conflict Chronology: September 1998-March 1999," April 6, 1999, Congressional Research Service (CRS) Report for Congress.
- 14. *Ibid.*; USAFE History, 1998-1999, vol. I, p. xxiv; HQ USAF, The Air War Over Serbia Initial Report, Sep. 30, 1999 (AFHRA IRIS no. 01149318), p. 11.
- 15. Julie Kim, "Kosovo Conflict Chronology: September 1998-March 1999," April 6, 1999, Congressional Research Service (CRS) Report for Congress; USAFE History, 1998-1999, vol. I, p. xxiv.
- 16. USAFE History, 1998-1999, vol. I, p. xxv.
- 17. HQ USAF, The Air War Over Serbia Initial Report, Sep. 30, 1999 (AFHRA IRIS no. 01149318), p. 11; USAFE History, 1998-1999, vol. I, p. xxv; Julie Kim,

- "Kosovo Conflict Chronology: September 1998-March 1999," April 6, 1999, Congressional Research Service (CRS) Report for Congress.
- 18. HQ USAF, The Air War Over Serbia Initial Report, Sep. 30, 1999 (AFHRA IRIS no. 01149318), p. 11; Julie Kim, "Kosovo Conflict Chronology: September 1998-March 1999," April 6, 1999, Congressional Research Service (CRS) Report for Congress; Col. Christopher E. Haave, USAF, and Lt. Col. Phil M. Haun, USAF, editors, A-10s Over Kosovo (Maxwell AFB, Ala.: Air University Press, 2003), p. xxviii; USAFE History, 1998-1999, vol. I, p. xxv; Wesley Clark, Waging Modern War (New York: Public Affairs, 2001), p. 173.
- 19. HQ USAF, The Air War Over Serbia Initial Report, Sep. 30 1999 (AFHRA IRIS no. 01149318), pp. 7-8; Col. Christopher E. Haave, USAF, and Lt. Col. Phil M. Haun, USAF, editors, A-10s Over Kosovo (Maxwell AFB, Ala.: Air University Press, 2003), xxviii; Julie Kim, "Kosovo Conflict Chronology: September 1998-March 1999," April 6, 1999, Congressional Research Service (CRS) Report for Congress; U.S. Congressional Resolution 21, 106th Congress.
- **20**. HQ USAF, The Air War Over Serbia Initial Report, Sep. 30, 1999 (AFHRA IRIS no. 01149318), p. 12; Julie Kim, "Kosovo Conflict Chronology: September 1998-March 1999," April 6, 1999, Congressional Research Service (CRS) Report for Congress; "To War in the Balkans," *Air Force Magazine*, vol. 82, no. 5 (May 1999) p. 16.
- 21. HQ USAF, The Air War Over Serbia Initial Report, Sep. 30, 1999 (AFHRA IRIS no. 01149318), pp. 8, 20; Col. Christopher E. Haave, USAF, and Lt. Col. Phil M. Haun, USAF, editors, A-10s Over Kosovo (Maxwell AFB, Ala.: Air University Press, 2003), pp. xiii-xiv, xxix, xxxii, 20-23; Organization Record Card of the 16 Air and Space Expeditionary Task Force-NOBLE ANVIL, at AFHRA/RSO; William M. Butler, Fifty Years on NATO's Southern Flank: A History of Sixteenth Air Force, 1954-2004 (Aviano AB, Italy: Sixteenth Air Force Office of History, 2004), p. 11.
- 22. HQ USAF, The Air War Over Serbia Initial Report, Sep. 30, 1999 (AFHRA IRIS no. 01149318), pp. 21-22; "To War in the Balkans," Air Force Magazine, vol. 82, no. 5 (May 1999), p. 16; Julie Kim, "Kosovo Conflict Chronology: September 1998-March 1999," April 6, 1999, Congressional Research Service (CRS) Report for Congress; Interview of Lt. Gen. Michael C. Short, by Public Broadcasting Service (AFHRA IRIS number 01129172, call number K570.051-24, 1998-1999), p. 17; Roy Handsel, "Talking Paper on B–2 Participation in Operation Allied Force," given to author during visit to Eglin Air Force Base, home of the 678th Armament Systems Squadron.
- 23. 16th Air and Space Expeditionary Task Force, Special Order GF-024 dated 23 August 1999; Interview of Lt. Gen. Michael C. Short, by Public Broadcasting Service (AFHRA IRIS number 01129172, call number K570.051-24, 1998-1999), p. 10; Benjamin S. Lambeth, The Transformation of American Air Power (Ithaca, NY: Cornell University Press, 2000), pp. 162-164.
- **24**. *Ibid*, pp. 185-186.
- **25**. Interview of Lt. Gen. Michael C. Short, by Public Broadcasting Service (AFHRA IRIS number 01129172, call number K570.051-24, 1998-1999), pp. 9-

- 11, 14; HQ USAF The Air War Over Serbia Initial Report, Sep. 30, 1999 (AFHRA IRIS no. 01149318), p. 23
- **26.** Col. Christopher E. Haave, USAF, and Lt. Col. Phil M. Haun, USAF, editors, *A–10s Over Kosovo* (Maxwell AFB, Ala.: Air University Press, 2003), pp. xvii, xxxii; Interview of Major James Hoffman by Ninth Air Force historian Gary Lester, 4 Aug 2005; Susan H. H. Young, "Gallery of USAF Weapons," *Air Force Magazine*, vol. 83, no. 5 (May 2000), pp. 143-144. **27.** *Ibid.*, p. 148.
- 28. Julie Kim, "Kosovo Conflict Chronology: September 1998-March 1999," April 6, 1999, Congressional Research Service (CRS) Report for Congress; "To War in the Balkans," *Air Force Magazine*, vol. 82, no. 5 (May 1999), p. 17.
- **29**. Benjamin S. Lambeth, *The Transformation of American Air Power* (Ithaca, NY: Cornell University Press, 2000), 200-202; HQ USAF The Air War Over Serbia Initial Report, Sep. 30, 1999 (AFHRA IRIS no. 01149318), pp. 23-24.
- 30. HQ USAF The Air War Over Serbia Initial Report, Sep. 30, 1999 (AFHRA IRIS no. 01149318), pp. 23-24; Col. Christopher E. Haave, USAF, and Lt. Col. Phil M. Haun, USAF, editors, A-10s Over Kosovo (Maxwell AFB, Ala.: Air University Press, 2003), p. xxix; "To War in the Balkans," Air Force Magazine, vol. 82, no. 5 (May 1999), p. 17; Interview of Lt. Gen. Michael C. Short, by Public Broadcasting Service (AFHRA IRIS number 01129172, call number K570.051-24, 1998-1999), p. 22; Dale Zelko e-mail messages to Daniel Haulman, Sep. 17 and Oct. 5, 2009; Darrel Whitcomb, "The Night They Saved Vega 31," Air Force Magazine, vol. 89, no. 12 (December 2006); Rudi Williams, "Daring Rescues Snatch Pilots from Jaws of Enemy," Defense Link News Article dated Feb. 17, 2000; "Rev. Jesse L. Jackson: Wins Freedom for American POWs in Yugoslavia," Jet, May 17, 1999.
- **31**. Julie Kim, "Kosovo Conflict Chronology: September 1998-March 1999," April 6, 1999, Congressional Research Service (CRS) Report for Congress. **32**. *Ibid*.
- **33**. HQ USAF The Air War Over Serbia Initial Report, Sep. 30, 1999 (AFHRA IRIS no. 01149318), pp. 24, 30; Col. Christopher E. Haave, USAF, and Lt. Col. Phil M. Haun, USAF, editors, *A–10s Over Kosovo* (Maxwell AFB, Ala.: Air University Press, 2003), pp. xiii-xiv, xxiv, xxx; Interview of Lt. Gen. Michael C. Short, by Public Broadcasting Service (AFHRA IRIS number 01129172, call number K570.051-24, 1998-1999), pp. 15-16
- **34**. Col. Christopher E. Haave, USAF, and Lt. Col. Phil M. Haun, USAF, editors, *A–10s Over Kosovo* (Maxwell AFB, Ala.: Air University Press, 2003), p. xxix.
- **35**. HQ USAF The Air War Over Serbia Initial Report, Sep. 30, 1999 (AFHRA IRIS no. 01149318), pp. 25-26; Col. Christopher E. Haave, USAF, and Lt. Col. Phil M. Haun, USAF, editors, A–10s Over Kosovo (Maxwell AFB, Ala.: Air University Press, 2003), p. xxx; Daniel L. Haulman, One Hundred Years of Flight: Chronology of Significant Air and Space Events, 1903-2002 (Washington, DC: Air Force History and Museums Program, 2003), pp. 154-155.
- **36.** Col. Christopher E. Haave, USAF, and Lt. Col. Phil M. Haun, USAF, editors, *A–10s Over Kosovo* (Maxwell AFB, Ala.: Air University Press, 2003), p. xxix; Benjamin S. Lambeth, *The Transformation of American Air Power* (Ithaca, NY: Cornell University Press, 2000), pp. 185-186.
- 37. John A. Tirpak, "Short's View of the Air Cam-

- paign," Air Force Magazine vol. 82, no. 9 (September 1999).
- **38**. Interview of Lt. Gen. Michael C. Short by Public Broadcasting Service, AFHRA IRIS number 01129172, pp. 1-2, 14, 19; HQ USAF The Air War Over Serbia Initial Report, Sep. 30, 1999 (AFHRA IRIS no. 01149318), p. 24; Gen. Wesley Clark, Waging Modern War: Bosnia, Kosovo, and the Future of Combat (New York: Public Affairs, 2001), pp. 243, 245, 430.
- **39**. *Ibid.*, pp. 246, 305, 311, 320, 367, 438-441.
- **40**. *Ibid*., p. 430.
- **41.** Benjamin S. Lambeth, *The Transformation of American Air Power* (Ithaca, NY: Cornell University Press, 2000), p. 184.
- **42**. Col. Christopher E. Haave, USAF, and Lt. Col. Phil M. Haun, USAF, editors, *A–10s Over Kosovo* (Maxwell AFB, Ala.: Air University Press, 2003), pp. xxx-xxxi, 15-19; Organizational Record Card of the 16th Air and Space Expeditionary Task Force-NOBLE ANVIL, at AFHRA/RSO.
- 43. Marcus Tanner, "Up. to 100 Feared Dead as NATO Bombers Strike Kosovo Village," *The Independent*, May 15, 1999; Benjamin S. Lambeth, *The Transformation of American Airpower* (Ithaca, NY: Cornell University Press, 2000), p. 205.
- 44. Interview of Lt. Gen. Michael C. Short, by Public Broadcasting Service (AFHRA IRIS number 01129172, call number K570.051-24, 1998-1999), pp. 14-15; Col. Christopher E. Haave, USAF, and Lt. Col. Phil M. Haun, USAF, editors, A-10s Over Kosovo (Maxwell AFB, Ala.: Air University Press, 2003), p. xxx. 45. Benjamin S. Lambeth, The Transformation of American Air Power (Ithaca, NY: Cornell University Press, 2000), p. 187.
- **46.** HQ USAF The Air War Over Serbia Initial Report, Sep. 30, 1999 (AFHRA IRIS no. 01149318), pp. 26-27, 29.
- 47. *Ibid.*, pp. 30-31; Col. Christopher E. Haave, USAF, and Lt. Col. Phil M. Haun, USAF, editors, *A-10s Over Kosovo* (Maxwell AFB, Ala.: Air University Press, 2003), p. xxx; Benjamin S. Lambeth, *The Transformation of American Airpower* (Ithaca, NY: Cornell University Press, 2000), p. 187.
- **48**. HQ USAF The Air War Over Serbia Initial Report, Sep. 30, 1999 (AFHRA IRIS no. 01149318), pp. 27-31; USAFE History 1998-1999, vol. I (AFHRA call number K570.01, Jan 1998-Dec 1999, vol. I, IRIS number 01147645), p. 165.
- **49**. Col. Christopher E. Haave, USAF, and Lt. Col. Phil M. Haun, USAF, editors, *A–10s Over Kosovo* (Maxwell AFB, Ala.: Air University Press, 2003), p. xxxi.
- **50.** Chris Roberts, "Holloman Commander Recalls Being Shot Down in Serbia," (http://www.f-16.net/news_article2167.html; Dale Zelco e-mail messages to Daniel Haulman, Sep. 17, and Oct. 5, 2009; Rudi Williams, "Daring Rescues Snatch Pilots from Jaws of enemy," Defense Link News Article dated Feb. 17, 2000; Col. Christopher E. Haave, USAF, and Lt. Col. Phil M. Haun, USAF, editors, *A-10s Over Kosovo* (Maxwell AFB, Ala.: Air University Press, 2003), p. xxxi.
- **51**. USAFE History, 1998-1999, vol. I, p. 193; Benjamin S. Lambeth, *The Transformation of American Air Power* (Ithaca, NY: Cornell University Press, 2000), p. 188.
- **52**. 16th Air and Space Expeditionary Task Force, Special Order GF-024 dated 23 August 1999.
- **53**. HQ USAF The Air War Over Serbia Initial Report, Sep. 30, 1999 (AFHRA IRIS no. 01149318), p. 31; Interview of Lt. Gen. Michael C. Short, by Public

Broadcasting Service (AFRHA IRIS number 01129172, call number K570.051-24, 1998-1999), pp. 17-18; Col. Christopher E. Haave, USAF, and Lt. Col. Phil M. Haun, USAF, editors, *A–10s Over Kosovo* (Maxwell AFB, Ala.: Air University Press, 2003), pp. xxxi.

54. *Ibid.*, p. xxxii; Marcus Tanner, "Up. to 100 Feared Dead as NATO Bombers Strike Kosovo Village, *The Independent*, May 15, 1999; Steven Pearlstein, "NATO Admits Bombing Kosovo Rebels," *Washington Post*, May 23, 1999, p. A27.

55. USAFE History, 1998-1999, vol. I, p. xxvii.

56. Organization Record Card, 16 Air and Space Expeditionary Task Force-NOBLE ANVIL, at AFHRA/RSO; HQ USAF The Air War Over Serbia Initial Report, Sep. 30, 1999 (AFHRA IRIS no. 01149318), pp. 33-34.

57. HQ USAF The Air War Over Serbia Initial Report, Sep. 30, 1999 (AFHRA IRIS no. 01149318), pp. 31-32; USAFE History, 1998-1999, vol. I, p. xxvii; Col. Christopher E. Haave, USAF, and Lt. Col. Phil M. Haun, USAF, editors, A-10s Over Kosovo (Maxwell AFB, Ala.: Air University Press, 2003), pp. xxxii-xxxiii, 19-20; Interview of Lt. Gen. Michael C. Short, by Public Broadcasting Service (AFHRA IRIS number 01129172, call number K570.051-24, 1998-1999), p. 2; Benjamin S. Lambeth, The Transformation of American Air Power (Ithaca, NY: Cornell University Press, 2000), p. 189.

58. *Ibid.*, pp. 188-189.

59. HQ USAF The Air War Over Serbia Initial Report, Sep. 30, 1999 (AFHRA IRIS no. 01149318), pp. 31-32; USAFE History, 1998-1999, vol. I, p. xxvii; Col. Christopher E. Haave, USAF, and Lt. Col. Phil M. Haun, USAF, editors, A-10s Over Kosovo (Maxwell AFB, Ala.: Air University Press, 2003), pp. xxxii-xxxiii, 19-20; Interview of Lt. Gen. Michael C. Short, by Public Broadcasting Service (AFHRA IRIS number 01129172, call number K570.051-24, 1998-1999), p. 2; Gen. Wesley K Clark, Waging Modern War (New York: Public Affairs, 2001), pp. 365, 370, 442; Benjamin S. Lambeth, The Transformation of American Air Power (Ithaca, NY: Cornell University Press, 2000), p. 189.

60. HQ USAF The Air War Over Serbia Initial Report, Sep. 30, 1999 (AFHRA IRIS no. 01149318), pp. 31-32; USAFE History, 1998-1999, vol. I, p. xxvii; Col. Christopher E. Haave, USAF, and Lt. Col. Phil M. Haun, USAF, editors, A-10s Over Kosovo (Maxwell AFB, Ala.: Air University Press, 2003), pp. xxxii-xxxiii, 19-20; Interview of Lt. Gen. Michael C. Short, by Public Broadcasting Service (AFHRA IRIS number 01129172, call number K570.051-24, 1998-1999), p. 2; Gen. Wesley K Clark, Waging Modern War (New York: Public Affairs, 2001), pp. 365, 370, 442; Benjamin S. Lambeth, The Transformation of American Air Power (Ithaca, NY: Cornell University Press, 2000), p. 190.

61. USAFE History, 1998-1999, vol. I, pp. xxvii-xxviii; Col. Christopher E. Haave, USAF, and Lt. Col. Phil M. Haun, USAF, editors, *A–10s Over Kosovo* (Maxwell AFB, Ala.: Air University Press, 2003), p. xxxiii; Report by MSgt. Timothy M. Brown, "AFSOC in the Balkans: Provide Promise to Noble Anvil, 1992-1999" (Hurlburt Field, Fla.: Air Force Special Operations Command History Office, 2000), p. 52; Benjamin S. Lambeth, *The Transformation of American Air Power* (Ithaca, NY: Cornell University Press, 2000), p. 190.

62. HQ USAF The Air War Over Serbia Initial Report, Sep. 30, 1999 (AFHRA IRIS no. 01149318), p. 34; USAFE History, 1998-1999, vol. I, p. xxviii; Col. Christopher E. Haave, USAF, and Lt. Col. Phil M. Haun, USAF, editors, *A–10s Over Kosovo* (Maxwell

AFB, Ala.: Air University Press, 2003), p. xxxiv; USAFE History 1998-1999, vol. I (AFHRA call number K570.01) Jan 1998-Dec 1999, vol. I; IRIS number 01147645), p. 276.

63. HQ USAF The Air War Over Serbia Initial Report, Sep. 30, 1999 (AFHRA IRIS no. 01149318), pp. 22, 33-34

64. John A. Tirpak, "Short's View of the Air Campaign," *Air Force Magazine* vol. 82, no. 9 (September 1999); B–2 Post Kosovo Briefing Slides by 509 Bomb Wing of Air Combat Command (June 1999), sent from Roy M. Handsel of the 678th ARSS to author by e-mail dated Mar. 27, 2008.

65. Report by MSgt. Timothy M. Brown, "AFSOC in the Balkans: Provide Promise to Noble Anvil, 1992-1999" (Hurlburt Field, FL: Air Force History Support Office, 2000), pp. 43-45, 54, 70.

66. "Air Refueling Ensures Global Reach and Global Power," historical report from the Air Mobility Command history office, January 2007, pp. 24-25; HQ USAF The Air War Over Serbia Initial Report, Sep. 30, 1999 (AFHRA IRIS no. 01149318).

67. Ibid., pp. 7, 23-24, 32-33, 36, 46, 48; Col. Christopher E. Haave, USAF, and Lt. Col. Phil M. Haun, USAF, editors, A-10s Over Kosovo (Maxwell AFB, Ala.: Air University Press, 2003), pp. xiii, xv, xvii; Susan H. H. Young, "Gallery of USAF Weapons," Air Force Magazine vol. 90 no. 5 (May 2007), p. 142; USAFE History, 1998-1999, vol. I, pp. xxvii-xxviii; Interview of Lt. Gen. Michael C. Short, by Public Broadcasting Service (AFHRA IRIS number 01129172, call number K570.051-24, 1998-1999), p. 21; Wesley K. Clark, Waging Modern War (New York: Public Affairs, 2001), pp. 430, 438; John A. Tirpak, "Lessons Learned and Re-Learned," Air Force Magazine (August 1999), p. 23.

68. HQ USAF The Air War Over Serbia Initial Report, Sep. 30, 1999 (AFHRA IRIS no. 01149318), pp. 7, 23-24, 32-33, 36, 46, 48; Col. Christopher E. Haave, USAF, and Lt. Col. Phil M. Haun, USAF, editors, A-10s Over Kosovo (Maxwell AFB, Ala.: Air University Press, 2003), pp. xiii, xv, xvii; Susan H. H. Young, "Gallery of USAF Weapons," Air Force Magazine vol. 90 no. 5 (May 2007), p. 142; USAFE History, 1998-1999, vol. I, pp. xxvii-xxviii (material used is U); Interview (U) of Lt. Gen. Michael C. Short, by Public Broadcasting Service (AFHRA IRIS number 01129172, call number K570.051-24, 1998-1999), p. 21; Wesley K. Clark, Waging Modern War (New York: Public Affairs, 2001), pp. 430, 438; John A. Tirpak, "Lessons Learned and ReLearned," Air Force Magazine (August 1999), p. 23.

69. Air War Over Serbia Fact Sheet, contained in Testimony, CSAF to SASC/HASC on Readiness (AFHRA IRIS no. 01149329) tab 4; Gen. Wesley K. Clark, Waging Modern War (New York: Public Affairs, 2001), p. 427; "Refueling Highlights, 1992-2007," published by the Air Mobility Command history office in 2008; Roy Handsel, "Talking Paper on B–2 Participation in Operation Allied Force," given to author during his visit to Eglin Air Force Base, Fla., home of the 678th Armament Systems Squadron; Col. Mark D. Shakelford and others, "The Materiel Solution," in Air War Over Serbia: Aerospace Power in Operation Allied Force, vol. II (2.1.0.3) (Wright-Patterson AFB, OH, 2000), p. 29.

70. HQ USAF The Air War Over Serbia Initial Report, Sep. 30, 1999 (AFHRA IRIS no. 01149318), p. 24; Col. Christopher E. Haave, USAF, and Lt. Col. Phil M. Haun, USAF, editors, *A–10s Over Kosovo* (Maxwell AFB, Ala.: Air University Press, 2003), p. xxxiv.