Airpower got the job done in the Balkans despite an initial strategy that was—among other things—very shortsighted.

Airpower Made It Work

By Rebecca Grant

OPERATION Allied Force started out on March 24 to be a short, sharp military response to a political event—the refusal of Yugoslavia to accept the Kosovo peace plan forged earlier during talks in Rambouillet, France. When the NATO strikes began, 112 US and 102 allied strike aircraft were committed to the operation. Thirteen of NATO's 19 nations sent aircraft to take part. NATO's three newest members—Poland, Hungary, and the Czech Republic—did not join in. Greece, Iceland, and Luxembourg also abstained.

The initial plan envisioned a few days of air operations against a carefully chosen set of about 50 preapproved targets. Target categories included air defense sites, communications relays, and fixed military facilities, such as ammunition dumps. No targets in downtown Belgrade were on the list for the initial strikes. Planners had data on far more than 50 targets, but the consensus in NATO would support only limited action.

The alliance military campaign opened with the use of a formidable array of weapons. The Air Force's conventional air launched cruise missiles and the Navy's Tomahawk land attack missiles were launched against Yugoslavian air defense sites and communications. Two B-2 stealth bombers flew from Whiteman AFB, Mo., marking the first use of the B-2 in combat. The B-2s flew more than 30 hours on a round-trip mission and launched the highly accurate Joint Direct Attack Munition against multiple targets. US and NATO fighters in theater main-

USAF photo by SrA. Jeffrey Allen

A pilot from the 510th Fighter Squadron at Aviano AB, Italy, on return from an Operation Allied Force bombing mission. The 510th carried out numerous strikes on targets across Yugoslavia.

tained combat air patrols while others bombed targets.

No one knew exactly what it would take to shake Serbian dictator Slobodan Milosevic. Two statements made at the start of the campaign bracketed the range of ways it might unfold. Pentagon spokesman Kenneth Bacon said on March 23, "We have plans for a swift and severe air campaign. ... This will be painful to the Serbs. We hope, relatively quickly, that the Serbs will realize they've made a mistake." Bacon's comment echoed NATO's collective hope that a show of resolve would get Milosevic to accept Rambouillet.

Tough Talk

The Supreme Allied Commander Europe, Army Gen. Wesley K. Clark, on March 25 spelled out the other option at the other end of the spectrum. He said, "We are going to systematically and progressively attack, disrupt, degrade, devastate, and ultimately destroy these forces and their facilities and support —unless President Milosevic complies with the demands of the international community." Clark's statement described what NATO airpower could do, given time. But the air campaign had started from the premise that NATO wanted to try limited action to achieve its goals.

How would Milosevic react? A White House "senior official" had already mulled over the possibilities: "As we contemplated the use of force over the past 14 months, we constructed four different models. One was that the whiff of gunpowder, just the threat of force, would make Milosevic back down. Another was that he needed to take some hit to justify acquiescence. Another was that he was a playground bully who would fight but back off after a punch in the nose. And the fourth was that he would react like Saddam Hussein. On any given day, people would pick one or the other. We thought that the Saddam Hussein option was always the least likely, but we knew it was out there, and now we're looking at it."

Milosevic ignored the initial NATO airstrikes, just as he had flouted NATO–backed diplomacy. CIA Director George J. Tenet had forecast for weeks that Yugoslav forces could respond to NATO military action by accelerating the ethnic cleansing. Now Milosevic gambled that his forces would push ethnic Albanians and the Kosovo Liberation Army out of Kosovo before NATO could react.

Theater of operations

By the time Milosevic backed away from Rambouillet, his forces had battlefield dominance in Kosovo. The Yugoslav 3rd army was assigned to Kosovo operations, along with reinforcements from 1st and 2nd armies. About 40,000 troops and 300 tanks crossed into Kosovo, spreading out in burned out villages and buildings abandoned by the refugees. Paramilitary security forces from the Interior Ministry were engaged in multiple areas across Kosovo.

By early April, the KLA was bloodied, and organized resistance in most of central Kosovo was diminishing. An American official said the government forces had carried out devastating attacks, and the prospects for the KLA were dim.

The Tactical Blunder

But Milosevic's gamble was also his major miscalculation. His push through Kosovo created a mass of refugees that ignited world opinion. Estimates of the number of displaced persons jumped from 240,000 in March to 600,000 by early April. Clark called it "a grim combination of terror and ethnic cleansing on a vast scale." Central Kosovo was largely emptied of its ethnic Albanian population.

Milosevic's tactical gamble hit NATO in a vulnerable spot. The allies were committed to limited airstrikes, with no firm plans beyond a few days or weeks. Since fixed targets were the focus of the plan, NATO flew just a few packages each night. There was nothing that military force could do quickly against the fully developed offensive. As US Air Force Chief of Staff Gen. Michael E. Ryan commented, there was no way that airstrikes alone could halt the door-to-door killings that had been under way. On April 3, a Pentagon

official said of Milosevic's campaign, "He's basically done."

The plight of the Kosovo refugees stiffened NATO's resolve. Now, the alliance would have to win.

To deprive Milosevic of his gains in Kosovo, the alliance would have to use its air forces to meet goals that had just gotten much more difficult. The politics of the situation meant that NATO missed the chance to let its airmen do it "by the book" and halt or disrupt Milosevic's forces as they massed on the border and moved into Kosovo in March. As Secretary of State Madeleine K. Albright explained on March 28, the new goal was to force Milosevic to back off by "making sure that he pays a very heavy price."

The first thing NATO needed was more airpower. An additional five B-1 heavy bombers, five EA-6B electronic warfare aircraft, and 10 tankers were already en route, along with more allied aircraft. The aircraft carrier USS *Theodore Roosevelt,* veteran of Bosnia operations four years earlier, was due to arrive with its battle group around April 4.

NATO also needed enough aircraft to sustain 24-hour operations over the dispersed Yugoslav forces in Kosovo. Allied planners proposed an augmented package of forces. This was known as the "Papa Bear" option, and it would more than double the number of strike aircraft in the theater.

Secretary of Defense William S. Cohen captured the new mood of resolve after a meeting at Supreme Headquarters Allied Powers Europe on April 7 when he declared, "Whatever General Clark feels he needs in order to carry out this campaign successfully, he will receive."

Now the joint and allied air forces faced a most difficult task. NATO air had to take on the military both directly, at the tactical level, and indirectly, by hitting strategic targets in Yugoslavia as well as in Kosovo. Airmen would have to expand the roster of strategic targets and seek out and destroy both fixed military targets and mobile military forces, including tanks, armored personnel carriers, and artillery pieces. Much of this would take place in close-battle conditions. Yugoslav forces were mixed in with civilians and refugees. Military vehicles and forces hid in and around buildings.

Two Target Sets

In early April, NATO expanded and clarified the air campaign plan, revising it to including simultaneous attacks on the two types of targets. Here was the heart of the air campaign as it would be carried out over the next two-and-a-half months.

Target set 1 included fixed targets of unique strategic value. It included national command and control; military reserves; infrastructure such as bridges, Petroleums, Oils, and Lubricants production, and communications; and the military–industrial base of weapons and ammunition factories and distribution systems. Serbia's electric power grid was soon added to the list.

Target set 2, a high priority for Clark, comprised the Serbian fielded forces—military forces, tactical assembly areas, command-and-control nodes, bridges in southern Serbia and Kosovo, supply areas, POL storage and pumping stations, choke points, and ammunition storage. Initial guidance focused on forces south of the 44th parallel, but soon, military targets north of the line also made the list.

NATO was now pursuing a multipronged strategy with its air campaign. The goal was not just to demonstrate NATO resolve and hope to coerce Milosevic. It was to directly reduce and eliminate the ability of Yugoslav forces to carry on their campaign of destruction in Kosovo.

American military experience and doctrine say that it is most efficient to hit enemy forces when they mass and maneuver at the beginning of operations. In early April, NATO did not have enough forces in theater to clamp down on units of the regular Yugoslav army (VJ) or the paramilitary special police (MUP). NATO air forces had been postured for combat air patrol and flexible strike packages against a limited set of targets, not for 24-hour operations over dispersed forces. In early April, it was possible to close one engagement zone over some of the ground forces for only a few hours a day. Under these conditions the Yugoslav forces could hide in buildings and move at night.

Poor weather also limited airstrikes. Brig. Gen. Leroy Barnidge Jr., commander of the 509th Bomb Wing, Whiteman AFB, Mo., told how one night, one of the wing's B-2s en route to the target was recalled because of weather. That night "the weather was so bad, the whole war was canceled," he remarked. Weather was favorable only about one-third of the time—with most good weather days coming late in the campaign.

Preservation of NATO's cohesion rested on several factors that defied military logic but made political sense. First, NATO casualties had to be held to an extremely low level. The allies came to the Balkan War with sharply differing views on the Balkan political dispute, and com-

USAF photo by SSgt. Efrain Gonzalez

The stealthy B-2 was not the only US bomber in the action. B-1 Lancers and venerable B-52 Stratofortresses, shown here on the ramp at RAF Fairford, UK, added heavy firepower to Operation Allied Force.

manders feared that losing aircraft could undermine NATO's will to continue the campaign.

We're Here to Help

Moreover, each NATO government could approve or veto targets. In the US, sensitive targets were forwarded for White House approval, and similar processes took place in the capitals of Europe. "Each president of the NATO countries, at least the major players, [are given] an opportunity to at least express their judgment [on targets]," explained Cohen in April. Some targets of high military value were never released to be added to the list for airstrikes.

Gen. Richard E. Hawley, then commander of USAF's Air Combat Command, spoke for many airmen when he said, in late April, "Airpower works best when it is used decisively. Shock, mass are the way to achieve early results. Clearly, because of the constraints in this operation, ... we haven't seen that at this point."

However, the tide was about to turn. On April 23, the allies gathered in Washington, D.C., for the long-planned celebration of NATO's 50th anniversary. They reaffirmed their commitment to stick with the air war. Target approval procedures eased somewhat. The White House announced a major force increase, and now the campaign was on course toward its objectives.

Combat deployments increasingly demanded more aircraft and supplies. In the midst of the surge, the air mobility forces of the US Air Force also began humanitarian relief operations. Albania's capital city, Tirana, opened up its airfield and quickly became the aerial port for relief supplies and for a heavy Army force of Apache helicopters.

While the air campaign was gearing up in intensity, talk of a ground invasion began. However, it was clear from the beginning that NATO had to keep discussion of ground force options off the table. President Clinton said outright, "I do not intend to put our troops in Kosovo to fight a war." The Chairman of the Joint Chiefs of Staff, Army Gen. Henry H. Shelton, pointed out the military reality that NATO estimated it would take anywhere from a low of 20,000 up to a couple hundred thousand ground troops to carry out a NATO military action in Kosovo—numbers well beyond what NATO was willing to contemplate. The options for using ground forces never materialized.

The experience of Bosnia and ambivalence about political elements of the Kosovo crisis made it highly improbable that NATO would agree as an alliance to fight Milosevic's army and special police with ground forces. Also, the Russians made it plain from the start that they would stand against a ground force invasion. On April 9, Russian President Boris Yeltsin appeared on Russian television to warn against NATO bringing in ground troops.

Clark did, however, move quickly to deploy Army attack helicopters to Tirana. Twenty-four Apache helicopters plus 18 multiple launch rocket systems went into the busy airfield along with nearly 5,000 soldiers. Pentagon spokesman Bacon described the deployment as "an expansion of the air operation." With their formidable firepower, it was thought the Apaches could help in identifying and attacking Yugoslav military forces in Kosovo. A force of 12 USAF C-17s flew more than 300 sorties to deploy the Apache force.

In the end, the Apaches were never used in combat. Two training accidents in late April and early May tragically claimed the lives of two crewmen and destroyed two helicopters. However, the problems with employing the Apaches had been evident from the outset. To reach the key areas of fighting, the Apaches would have had to fly 100 miles and more at low altitude over terrain studded with Yugoslav military forces. Small-arms fire, anti-aircraft artillery, and shoulder-fired missiles from these troops would pose a constant threat to the helicopters.

The Lion's Share of Airpower

To carry out a sustained air campaign, NATO tapped primarily the resources of the US Air Force. For the Air Force, the commitment to the Kosovo campaign quickly went from a contingency operation to a Major Theater War. The Air Force had downsized 40 percent since 1989. That meant that Kosovo strained the smaller force and tested its new concept for expeditionary operations. In late April, President Clinton called up reserve component forces to keep the air war going.

Desert Storm had marked a leap forward in capabilities in 1991, but the Kosovo operation demonstrated that aerospace power had evolved into something far stronger. Many aspects of the Kosovo campaign resembled other operations in the 1990s. But unique rules of engagement and the spectacular debut of new systems marked points of special interest in the campaign. All along, the overriding challenge was to summon expeditionary airpower and unleash the aircrews to carry out the missions they had been trained to do.

Operations began with constant combat air patrols over Kosovo and Bosnia. Suppression of Enemy Air Defenses assets were also on call. Then, strike packages, most with dedicated SEAD assets, would be assigned to specific missions. Operation Allied Force included combinations of NATO and US aircraft and some US–only packages. NATO seized and held air dominance from the start of the operation. However, the operational environment for NATO airmen flying over Yugoslavia held many challenges.

Yugoslavia's air defenses could present a considerable challenge, as NATO airmen well knew. Just before the air war began, USAF head Ryan cautioned: "There's no assurance that we won't lose aircraft in trying to take on those air defenses." The air defense system in Yugoslavia, especially around Belgrade, was dense, and mobile Surface-to-Air-Missiles added more complexity.

Targets in the integrated air defense system were included in the first night's strikes. However, even as NATO gained freedom to operate, the Yugoslav air defense strategy presented some unorthodox challenges. Reports suggested that spotters used cell phones and a chain of observers to monitor allied aircraft as they took off. Many times, the air defense system simply did not "come up" to challenge NATO strikes. "Their SAM operators were, in the end, afraid to bring the SAMs up and engage our fighters because of the lethality of our [SEAD] aircraft," Gen. John P. Jumper, commander, US Air Forces in Europe, remarked.

More Dangerous Than 1991?

That was a mixed blessing. The Yugoslavs could not prevent NATO from attacking key targets, but they

could—and did—make it tough to completely decimate the air defense system. Yugoslav air defenses were not efficient, but they were not dead, either. As a consequence, pilots often got warnings that SAMs were active while on their missions. An initial assessment from pilot reports and other sources tallied almost 700 missile shots: 266 from SA-6s, 174 from SA-3s, 106 from man-portable systems, and another 126 from unidentified systems. One informal estimate concluded a pilot was more than twice as likely to be shot at by SAMs over Kosovo than in Desert Storm.

Overall, NATO did not destroy as many SAM batteries as air planners would have liked. Preliminary data from the Joint Staff estimated that two out of a total of three SA-2 batteries were hit and 10 of 13 SA-3s were destroyed. However, early estimates cited kills of only three of about 22 SA-6s. "We learned from this war that it is a different ball game when SAMs don't come up to fight," acknowledged Jumper. The concept of operations for lethal SEAD depended on targeting individual batteries as they begin to track and illuminate friendly aircraft.

Offensive counterair actions scored many successes. The Yugoslav air force included frontline MiG-29s as well as older MiG-21s and other aircraft. American pilots shot down five aircraft in air-to-air engagements and a Dutch F-16 got a MiG-29 on the first night. Many more aircraft were destroyed on the ground. In one remarkable example, a Tomahawk targeted and destroyed a MiG-29 fighter on the ramp.

NATO also did well against Yugoslav airfields. "One of the myths that was dispelled in this conflict was that you can't close an airfield," commented Jumper. "As a matter of fact, we closed almost all the airfields," he said.

Despite this overall success story, the loss of the F-117, known by the call sign Vega 21, became one of the major media events of the war. On March 27, the stealth fighter went down over Serbia. Sources cited evidence suggesting the airplane was hit by a Yugoslav SA-3 missile active in the area at the time. Other reports hinted that the Serbs may also have tracked the fighter optically using an intricate network of ground observers. A daring rescue retrieved the pilot from Serb territory. Public interest spiked with dramatic television pictures of the wreckage clearly showing the aircraft's Holloman AFB, N.M., markings.

USAF photo by SrA. Jessica Kochman

A1C Jason Fifield of the 393rd Bomb Squadron, Whiteman AFB, Mo., examines a rack of Joint Direct Attack Munitions before they are loaded onto a B-2 bomber during Allied Force.

USAF officials stuck to a policy of revealing no details about the crash or the rescue. The loss of the F-117 did not shake the commitment to employing stealth as 24 F-117s in the theater continued to perform tough missions. SEAD was used routinely for all strike packages, as had been the custom in the Balkans since the shootdown of Capt. Scott F. O'Grady four years earlier.

Supplement to Stealth

In early July, Lt. Gen. Marvin R. Esmond, USAF's deputy chief of staff for air and space operations, described it this way, "The question I get frequently is, was ECM [Electronic Countermeasures] required for stealth assets? The answer is no, it is not required—depending on the risks you want to put the aircrews at. If you have the capability, then the prudent person would say, why not suppress the threat with Electronic Countermeasures as well as taking advantage of our stealth capability, which all totaled up to survivability for the platform. That is simply what we did."

Concern over collateral damage had a profound impact on how NATO ran the air war. A key part of the air campaign strategy was to target Milosevic's power base, shock the Serb leadership, and disrupt the functioning of the state—but it all had to be done without targeting the populace.

The rules of engagement for Operation Deliberate Force in Bosnia in 1995 indicated that collateral damage would always be a dominant factor in the execution of a NATO air campaign. Back then, NATO and the UN approved a category of targets prior to the operation. Ryan, who was then the commander of Allied Air Forces Southern Europe, personally approved every designated mean point of impact that was struck.

In the Kosovo operation, target approval and concerns for collateral damage became some of the stickiest challenges for the alliance. The vast displacement of refugees made the pilot's job infinitely harder. "There's little doubt in my mind that Milosevic had no compunction at all about putting IDPs [Internally Displaced Persons] inside of what we felt to be valid military targets," said USAF Lt. Gen. Michael C. Short, NATO's joint force air component commander. "And, in fact, a couple of times we struck those targets and then saw the results on CNN."

NATO released 23,000 bombs and missiles, and, of those, 20 went astray to cause collateral damage and casualties. By far the most serious geopolitical shock came from the accidental bombing of a Chinese Embassy building May 7. Reports suggested that sev-

eral JDAMs hit the building, crashing through several floors, and killing three Chinese nationals. The US apologized and said that intelligence sources had been using an outdated map of Belgrade that pinpointed the wrong location.

Even so, the air campaign kept up high standards of accuracy. Defense Secretary Cohen said, "We achieved our goals with the most precise application of airpower in history."

Pilots operated under very strict rules of engagement. They were "as strict as I've seen in my 27 years [in the] military," commented USAF Maj. Gen. Charles F. Wald, of the Joint Staff's Strategic Plans and Policy Division and key Pentagon spokesman during the operation. NATO was able to impose and live with the rules of engagement because aircrew training and technical capacities of aerospace power permitted rapid conferences about whether to strike a target or not. Often, getting clearance to attack a target required a pilot to make a radio call back to the Combined Air Operations Center to obtain approval from the one-star general on duty.

The 15,000-Foot Floor

Concern over the air defense threat led Short to place a 15,000-foot "floor" on air operations. Flying at that altitude reduced the effects of anti-aircraft fire and shoulder-fired SAMs. Aircraft could dip below the limit to identify targets. For the most part, precision attacks were carried out with laser-guided weapons that worked well from that altitude.

Changes came from the highest political authorities, too, even after aircraft had taken off. One B-2 strike had to turn back when a target was denied en route. Short recounted how at the last minute, one or two nations could veto a target, causing packages in the air to be recalled via airborne warning and control system aircraft and tankers. This played "havoc with a mission commander's plan."

While the short leash was frustrating, it was also a sign of the incredible technological sophistication of the NATO air campaign. Controlling it all was the CAOC. According to Jumper, it is a weapon system in its own right. The CAOC connected pilots and controllers airborne over the battlespace to the nerve center of the operation. Since Bosnia, the CAOC at 5th Allied Tactical Air Force in Vicenza, Italy, had grown from a hodgepodge of desks and unique systems to an integrated operation. Its staff swelled from 300 to more than 1,100 personnel.

CAOC planners crafted the air tasking order on a 72-hour cycle to plan allocation of assets. But the strikes were executed on a much shorter cycle. Commanders were able to assign new targets to strike aircraft and change munitions on airplanes in a cycle as short as four to six hours.

Increasingly, the CAOC served as the pulse-point of aerospace integration, linking up many platforms in a short span of time. Multiple intelligence sources downlinked into the CAOC for analysis. Operators integrated target information and relayed it to strike aircraft. Pilots could radio back to the CAOC to report new targets and get approval to strike.

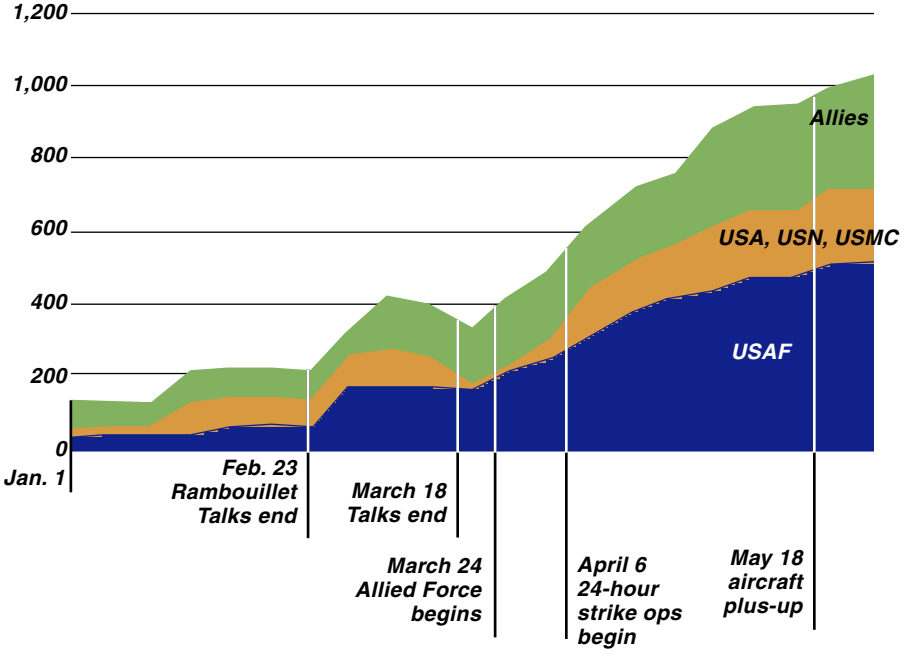
Jumper recounted how, in the CAOC, "We had U-2s that allowed us to dynamically retask to take a picture of a reported SA-6, beam that picture back to Beale AFB [in California] for a coordinate assessment within minutes, and have the results back to the F-15E as it turned to shoot an AGM-130 [precision guided munition]." This real-time tasking was a leap ahead of Desert Storm operations. Over time, Predator unmanned aerial vehicles were used in a similar way via the CAOC and, with a brand-new laser designator, could direct strike aircraft already flying in the engagement zone onto positively identified targets like tanks and armored personnel carriers.

The B-2 flew 49 sorties, with a mix of two-ship and single-ship operations. All told, the B-2 delivered 650 JDAMs with an excellent, all-weather accuracy rate. The targeting system allowed the B-2 crew to select 16 individual designated mean points of impact, one for each JDAM carried.

Measures of Effectiveness

The B-2 crews proved first of all that they could operate effectively on

Aircraft Committed to the Effort



Deploying more aircraft to the theater was a key to making the campaign work. With new guidance in early April, NATO airmen had two target sets: targets of unique strategic value and Yugoslav army forces and their sustainment elements scattered across Kosovo. Isolating and pinning the fielded forces required 24-hour coverage of the Kosovo engagement zones to detect and prevent organized movement. All that demanded more aircraft, and USAF bore the brunt of the surge. "This is the equivalent of a Major Theater War," Secretary of Defense William Cohen said at a briefing in late May. "It's a major campaign on the part of the United States Air Force."

missions that took more than 30 hours to complete. A folding chaise lounge behind the pilots' seats and stashes of hot food on board helped the two-man crew manage fatigue. At the same time, the bomber proved itself combat-worthy. Using just six of the nine aircraft at Whiteman, the 509th made every takeoff time and participated in 34 of the 53 air tasking orders generated for Operation Allied Force. Every B-2 was launched in "pristine" condition—meaning its radar and infrared signature met low-observable specifications, with no rough patches to degrade survivability. The B-2 stood up to the demands of combat operations, sometimes taking as little as four hours to refuel, rearm, and turn the jet in preparation for another combat sortie. "It is an incredibly durable, incredibly robust airframe. You turn it on, and it just keeps running," Barnidge reported.

The secret new art of disrupting enemy military capabilities through cyberspace attacks appeared to have been a big part of the campaign. Air Combat Command stood up an information warfare squadron in Fiscal 1996 to handle defensive protection of information and offensive information techniques at forward-deployed locations. According to one report, the unit had its "combat debut" during the Kosovo operation and the Serbs felt the impact. "They're pulling their hair out at the computer terminals," said one unnamed official. "We know that." Jumper said there was "a great deal more to talk about with regard to information warfare that we were able to do for the first time in this campaign and points our way to the future."

By May, USAF had deployed another significant increment of forces. With 24-hour operations under way the air campaign was able to keep the pressure on military forces in a much wider area of Kosovo via the "Kosovo engagement zones," updated terminology for the "kill box" concept pioneered in the Kuwait theater of operations in Desert Storm. There were enough forces in theater to cover the engagement zones for about 20 hours a day. Strike aircraft tripled so that a total of 323 American and 212 allied strike aircraft worked against the two major goals of hitting Serb military forces and striking targets of unique strategic value. Air forces now attacked from all sides. Marine F/A-18s flew missions from a base in Hungary. Strike packages from Italy could fly around Yugoslavia to ingress from the northeast, surprising air defenses around Belgrade.

"Take Them Out"

"The mission is to pin them down, cut them off, take them out," said NATO spokesman Maj. Gen. Walter Jertz. "We have pinned them down, we have pretty much largely cut them off, and are about to begin to take them out." Under the relentless pressure of air attacks, Milosevic's forces in Kosovo were losing. Evidence of VJ and MUP defections was mounting. Their fuel supplies were limited, and their resupply lines had been cut, and Milosevic knew it would only get worse. More forces were slated to deploy, and two months of good summer weather lay ahead. Wald said, "This is a game with as many innings as we want, and I think [Milosevic] is running out of baseballs."

Around May 22, the pressure increased again. Better weather and more forces allowed NATO airmen to ramp up the pressure on the Yugoslav army. In about 10 days, bomb damage assessment confirmed that NATO airmen had doubled the number of tanks destroyed, hit three times the number of armored personnel carriers, and hit four times as many artillery and mortar pieces. "We're driving him to a decision," announced Clark at the end of May.

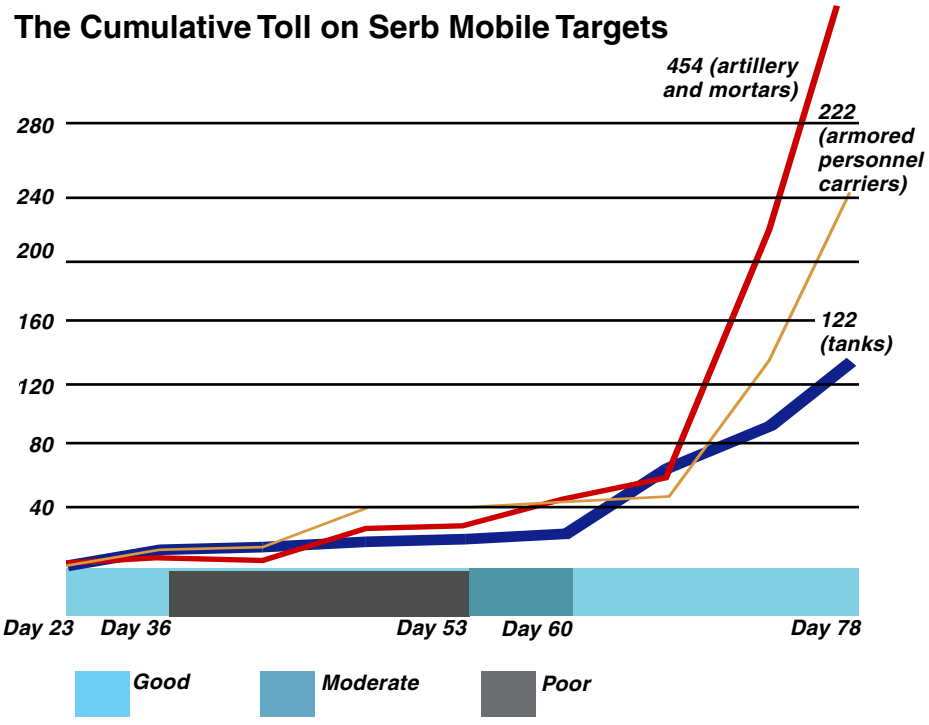
Also in late May the KLA began its first large-scale offensive in more than a year. About 4,000 troops pressed ahead from points along the Albanian border. The KLA's Operation Arrow soon met heavy resistance from Yugoslav artillery and troops. In about two days, the rebels were pinned down along Mount Pastrik. Heavy mortar and artillery fire ensued and the KLA was "creamed" according to a senior US intelligence official.

The small-scale offensive reportedly helped NATO identify more Yugoslav military equipment in the immediate area. "As the VJ and MUP fire their artillery, they're detected," said Wald. "Then we'll go ahead and attack them and destroy them." Cohen emphasized that NATO was not coordinating operations with the KLA. Indeed, by this time, NATO air attacks on Yugoslav military installations and forces were spread widely across Kosovo and southern Serbia every day and night, well beyond the localized effects of the KLA actions.

By early June, military impact and a series of diplomatic events were coming together as powerful coercion. The diplomatic chain of events had started a few weeks earlier, with the G-8 meeting in Bonn on May 6. There, the major Western economic powers plus Russia agreed on a basic strategy to resolve the conflict. The European

USAF photo by SrA. Jeffrey Allen

SrA. Aaron Fontagneres and SSgt. John Rodriguez of the 494th Fighter Squadron at RAF Lakenheath, UK, load a Mk 82 bomb onto an F-15E on April 7. Bad weather hampered operations and forced cancellation of many sorties.



Source: CJCS briefing, June 10, 1999.

US Army Gen. Henry H. Shelton, Chairman of the Joint Chiefs of Staff, briefed the immediate count of the results of the campaign on June 10. Better weather and more forces exponentially increased the hits on tanks, armored personnel carriers, and heavy artillery. Numbers subsequently confirmed by NATO on Sept. 16, 1999, were 93 tanks, 153 armored personnel carriers, and 389 artillery and mortars.

Union announced its appointment of President of Finland Martti Ahtisaari as its special envoy for Kosovo on May 17. Under Ahtisaari's auspices, the US, NATO, and Russia agreed to a NATO–drafted plan in late May. On May 27, an international tribunal in The Hague indicted Milosevic as a war criminal—an indictment, as Cohen pointed out, with no statute of limitations. Yugoslavia's parliament voted to accept the plan on June 3.

The air campaign was also having a devastating effect. Roads, rail lines, and bridges across Yugoslavia had been knocked out, halting the normal flow of the civilian economy. Good weather and long summer days ahead meant that more of Milosevic's country and his military forces would be exposed to devastation. In late May and early June, the impact on fielded forces spiked.

Heavy Losses

Destruction of armored personnel carriers, artillery, and tanks continued to rise "almost exponentially" in the words of Shelton. He said the Yugoslav army forces lost 450 or about 50 percent of their artillery pieces and mortars to air attack. About one-third of their armored vehicles were hit: a total of about 122 tanks and 220 armored personnel carriers. A later NATO assessment released Sept. 16 put the numbers at 389, 93, and 153, respectively. These heavy losses meant they could not effectively continue organized offensive operations.

At the same time, Yugoslav forces in Serbia were also feeling the pressure. First army, in the north, had 35 percent of its facilities destroyed or damaged while 2nd army, near the Kosovo border, had 20 percent of its facilities hit. Third army, assigned to operations in Kosovo, had 60 percent of its fixed facilities damaged or destroyed. The Joint Staff assessed that the air attacks had significantly reduced 3rd army's ability to sustain operations.

Belgrade was largely without electric power and about 30 percent of the military and civilian radio relay networks were damaged. Across Yugoslavia, rail and road capacity was interdicted: Some 70 percent of road and 50 percent of rail bridges across the Danube were down. Critical industries were also hard hit, with petroleum refining facilities 100 percent destroyed, explosive production capacity 50 percent destroyed or damaged, ammunition production 65 percent destroyed or damaged, and aviation and armored vehicle repair at 70 percent and 40 percent destroyed or damaged, respectively.

Industrial targets and bridges would take a long time to repair. In many cases, electric power and communications could be restored more readily. However, the combined effect had brought the war home to Belgrade and restricted Milosevic's ability to employ his fielded forces effectively. On June 9, after last-minute wrangling with Yugoslav military commanders, Milosevic accepted the NATO conditions. "I think it was the total weight of our effort that finally got to him," said Short, the allied air commander.

The 78-day air campaign brought about an ending that seemed almost impossible back in March. Milosevic agreed to a cease-fire, the withdrawal of Serb forces from Kosovo, the entry of an international peacekeeping force, the return of refugees, and Kosovar autonomy within Yugoslavia. Kosovo would remain within the sovereignty of Yugoslavia. However, the international peacekeeping force would be armed and empowered.

Military historian John Keegan wrote with some awe, "Now, there is a new date to fix on the calendar: June 3, 1999, when the capitulation of President Milosevic proved that a war can be won by airpower alone." ■

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