Gulf Coalition Operations in Yemen (Part 2): The Air War

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Mar 25, 2016
Also available in
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Brief Analysis

The air campaign has demonstrated surprising endurance and proficiency, but the coalition's strategic communications and efforts to mitigate collateral damage have been sorely lacking.

Part 1 of this three-part Policy Watch discussed ***the ground campaign (http://www.washingtoninstitute.org/policy-analysis/view/gulf-coalition-operations-in-yemen-part-1-the-ground-war)*** *; part 3 examines* ***the naval blockade effort (http://www.washingtoninstitute.org/policy-analysis/view/gulf-coalition-operations-in-yemen-part-3-maritime-and-aerial-blockade)*** *.*

The air operations undertaken by the Gulf coalition over the past year have been complex and controversial. What began as a single-front operation to liberate Aden has evolved into a sprawling war where coalition forces are in contact with enemy forces on as many as seven major battlefronts each day. Operations have become more refined over time, starting out with around 90 combat sorties per day, peaking at up to 300 last fall, and now settling at 20-70 sorties per day, many of which return to base without releasing their weapons. The campaign's key failing has been its inability to address the widespread perception that airstrikes are killing far too many noncombatants, a factor that may ultimately overshadow the coalition's achievements.

PHASES OF THE CAMPAIGN

As the air campaign passes its one-year mark, operations can be broken down into a series of overlapping phases.

The preplanned phase. The first month of the intervention saw the coalition execute an air operation that had been meticulously planned in the years since Saudi Arabia's previous war with the Houthis in 2009-2010. Around 150 fixed military targets were struck numerous times. The main achievements of this phase were the destruction of

most of Yemen's medium- and high-altitude surface-to-air missiles (SAMs), plus a portion of its surface-to-surface missiles (SSMs) as well as refueling and maintenance support sites. In combination with the Houthi failure to win over residual elements of the Yemeni Air Force -- one of the few elements of the Saleh-loyalist military that did not support the Houthis -- the early strikes secured air supremacy, giving the coalition full freedom to safely undertake logistical airdrops, paratroop operations, reconnaissance, and aerial refueling over Yemen (**for more on the Houthi-Saleh alliance, see part 1 (http://www.washingtoninstitute.org/policy-analysis/view/gulf-coalition-operations-in-yemen-part-1-the-ground-war)**)

Northern front operations. The Houthis and Saleh loyalists achieved their most effective retaliation through attacks on the Saudi border, either launching SSMs or infiltrating commando groups:

- *The Scud hunt.* The strategic rocket forces fielded by Saleh loyalists have made effective use of SS-1C Scud C variants (North-Korean Hwasong-6 missiles) and converted SA-2 SAMs (called Qaher-1) to strike deep at Saudi military cities (e.g., Khamis Mushait) and civilian airports and industrial cities. They have also used SS-21 Scarab B missiles and BM-27 multiple rocket launchers to strike coalition bases in Yemen or just over the border. The coalition took some painful blows -- most notably 52 troops killed in a September strike in Marib, and another 39 killed in a December headquarters strike in Bab al-Mandab -- but the threat is slowly diminishing. SSM firings have dropped off since they peaked with weekly attacks in December-January, due largely to coalition operations against missile reserves and support facilities, plus occasional destruction of Yemen's rare mobile launch vehicles. (The coalition has hit two so far, compared to none destroyed by U.S.-led forces during the entire 1991 Gulf War.) Missile defense operations using U.S.-supplied Patriot PAC-3 systems have intercepted a number of longer-range Scuds.
- *The border war.* Along the partially depopulated Saudi-Yemeni border, the coalition has fought a harsh blow-for-blow struggle against Houthi and Saleh-loyalist infiltrators and rocket teams. Saudi attack helicopters have combined with coalition artillery and fixed-wing close air support "stacks" to bring heavy fire on enemy forces withdrawing from raids. Although Saudi losses have been severe (i.e., sixty armored vehicles lost in the past six months), steady attrition has apparently been inflicted on the Houthis as well. Both sides have made extensive use of cluster-type munitions and mines on this front.

Coercive targeting. One of the air campaign's most problematic elements has been the stream of "strategic targets" struck with the intention of coercing the Houthi leadership and population to weaken or prompting Saleh loyalists to defect. Since May, the Houthi home province of Saada has been singled out for special coercive treatment, resulting in numerous strikes on what are typically viewed as civilian targets -- mosques, houses, and water wells (see PolicyWatch 2465, **"The Saudi-UAE War Effort in Yemen: The Air Campaign" (http://washin.st/1Kg1D0t)**). Practically every major state institution has been struck multiple times, as have most properties belonging to Saleh loyalist leaders, leaving the country's government in shambles.

Focus on emerging targets. Last fall, as the fixed target list was exhausted and multiple ground axes of attack began to open, the focus of the air campaign shifted toward dynamic short-notice targeting of suddenly emerging Houthi and Saleh forces. Since then, many strikes have been aimed at military units, SSM teams, or commanders who betray their location through movement patterns or intercepted communications. At any given time, the coalition is now operating stacks of close-support strike aircraft over four or five active frontlines. These circling aircraft are guided to emerging targets by airborne controllers with specialized sensors and links to special forces and unmanned aerial vehicles. This has resulted in a huge variety of target locations being hit on short notice: bridges, gas stations, camps, occupied commercial and residential buildings, and even schools, hospitals, and mosques.

COLLATERAL DAMAGE

The global perception of the coalition air effort is highly negative. Earlier this month, the Houthi-controlled

Ministry of Public Health claimed that around seven thousand civilians had been killed by airstrikes; in January, the UN put the number at 2,682. Wherever the truth lies, a number of high-profile strikes against Medecins Sans Frontieres (MSF) clinics between October and January effectively cemented international opinion against the air campaign. As of this writing, strong condemnations have been issued by MSF, Human Rights Watch, the UN secretary-general, the UN Office for the Coordination of Humanitarian Affairs, the International Committee of the Red Cross, and the European Parliament, with the latter seeking an EU arms embargo against Gulf coalition states.

Yet looking at the UN's numbers from January -- 2,682 civilians reportedly killed by coalition airstrikes after around 275 days of operations -- the average daily death toll (9.75) was not greatly higher than that of the 78-day NATO air operation in Kosovo in 1999 (6.7 civilian deaths per day), and significantly lower than for Operation Desert Storm in 1991 (85 civilian deaths per day). In other words, air operations over Yemen resemble a 1990s NATO air campaign. In preprogrammed strikes, care has been taken to vet targets, select weapons, and time attacks in a manner that limits civilian casualties. Yet not all casualties can be averted, partly because the Houthis sometimes place military units in civilian locations, but also because mistakes happen in war, particularly during a campaign involving coercive targeting. The Gulf coalition seems to be relearning the lessons that NATO forces learned in their numerous air operations, in terms of both avoiding collateral damage and transparently explaining such instances to the international public.

The increasing proportion of dynamic targeting was also a factor in the wave of civilian casualties caused by strikes on hospitals, bridges, and markets. Again, Houthi and Saleh loyalist forces have used civilian locations as gathering places and ammunition storage facilities, so it is certainly possible that they have exploited or even engineered collateral damage incidents to cast negative attention on the coalition. The air forces involved in the campaign lack practical experience at limiting such incidents during dynamic strikes -- a skill that is new even to the most advanced Western air forces. For instance, air controllers often lack the high-acuity sensors needed to vet targets in real time, while pilots in a close air support stack are not necessarily carrying the optimal weapons for hitting the kind of target they are ordered to attack on the fly, resulting in delivery of oversized munitions. Strike aircraft may also lack specialized pods that can superimpose collateral damage rings around targets to show whether civilians are in the impact zone.

Although these factors do not excuse many of the egregious collateral damage incidents caused by the coalition air campaign, they do explain many others. Reports of reduced combat-sortie and weapon-release rates plus diminishing numbers of collateral damage incidents indicate that the coalition is gradually adapting its air operations to meet global expectations.

ASSESSING THE CAMPAIGN

Air supremacy has been a great asset to the coalition's war effort, enabling air drops to friendly forces, aerial refueling over Yemen, and powerful air cover for ground forces on a broadening number of fronts. Although the campaign is not a large one, averaging 150 combat sorties per day in 2015, the coalition's ability to sustain the effort has been impressive, and its accident rate -- four fixed-wing strike aircraft reported lost in a year -- has been low. The constant rotation of units for three-week tours of duty has created a broad base of combat experience in participating air forces from Saudi Arabia, the United Arab Emirates, Bahrain, Kuwait, Qatar, Morocco, Jordan, and Sudan. Meanwhile, the United States and others have provided important intelligence, aerial refueling, and logistical support to help sustain operations.

The air campaign's key failing so far has been in the field of collateral damage mitigation and strategic communications. The international public has become accustomed to receiving detailed briefings on air operations, and the media space surrounding any given air campaign is now recognized as vital strategic terrain. The Gulf coalition ceded this space to the Houthis and Saleh loyalists from the beginning. If the Houthis are in fact fabricating

collateral damage stories, the coalition should task its surveillance assets with providing proof. Likewise, if the coalition has imagery of massive secondary explosions that suggest Houthi ammunition storage at schools and hospitals, it should publicize such material. At present, the coalition will be presumed guilty until evidence is produced to the contrary, and until greater transparency is incorporated in future air operations.

Michael Knights is a Lafer Fellow with The Washington Institute. ❖

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