

# Syrian Air Force Operations: Strategic, Effective, and Unrestrained

by [Jeffrey White \(/experts/jeffrey-white\)](/experts/jeffrey-white)

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## ABOUT THE AUTHORS



[Jeffrey White \(/experts/jeffrey-white\)](/experts/jeffrey-white)

Jeffrey White is an adjunct defense fellow at The Washington Institute, specializing in the military and security affairs of the Levant and Iran.



Brief Analysis

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**Absent more robust international intervention, the regime remains essentially unopposed in the air, allowing it to continue pursuing its strategic objectives and killing civilians with relative impunity.**

**P**rior to the ongoing civil war, the Syrian Arab Air Force (SAAF) was never considered a key component of the Syrian military. Routinely bested by the Israeli Air Force and equipped with a mostly aging fleet of Soviet-era aircraft, it was not seen as an important player in the regional military landscape. The war has changed that, however, raising the SAAF to a prominent role in the struggle to preserve the Assad regime. Since spring 2012, air operations have become a strategic element in the conflict, allowing the regime to strike anywhere in the country with virtual impunity, contributing to the opposition's failure to consolidate control of territory, and supporting a wide variety of military operations. Along the way, the air force has been involved in some of the worst regime attacks on civilians. The SAAF's central role in regime preservation and human-rights violations make it a logical and morally justifiable target for foreign intervention, whether in terms of direct allied air operations or enhanced assistance to the opposition.

## Military Context

**A**s the regular army has been ground down in a war of attrition, the air force has become more important. The SAAF provides a core element of regime firepower, and its capabilities are one of the conflict's key asymmetries. Air operations are a principal means of imposing attrition on rebel forces and causing civilian casualties in rebel-held areas. Neither rebel nor "Islamic State"/ISIS forces have any effective response to the SAAF, and no area of Syria is secure from its attacks. It is a flexible and responsive force that has proven capable of sustained effort in strategic operations and in support of offensive and defensive ground operations. Airstrikes occur over complex battlefields: urban, rural, mountainous, desert. Targets are close to or embedded in populated areas, and often close to or in contact with regime forces. The SAAF has been operating in all of these environments, if not with precision, at least

with effect.

After two-and-a-half years of continuous operations in a war it was not prepared for, the SAAF has also shown surprising resilience. It has lost five of its twenty-five air bases, and seven or eight others are under siege or periodic attack. At the beginning of the war, it had over 500 fixed-wing and rotary combat aircraft of the types principally used in the war: L-39s, MiG-21s, MiG-23s, MiG-29s, Su-22s, and Su-24s for strike missions, and Mi-8/17s and Mi-24s for barrel bombing and strafing attacks. Although its losses are difficult to track, estimates based on opposition reporting indicate that upwards of 200 combat aircraft may have been destroyed, along with a number of aircrew killed, captured, wounded, or defected. Even given expected exaggeration, SAAF attrition appears significant.

These losses aside, the air force appears to be conducting about fifty combat sorties per day based on limited reporting from opposition and other sources. Russia and Iran have likely provided critical assistance to keep the SAAF flying, including spare parts, refurbishments, and upgrades. In short, the SAAF operates with few constraints other than those typically imposed on any air force by the limitations of aircrews, maintenance, logistics, intelligence, and weather.

## Air Strategy and Operations

**T**he regime bombs with purpose -- its air operations are integrated into its overall conduct of the war and are being used to achieve clear strategic and tactical objectives. At the strategic level, Damascus aims to break the people's support for the rebellion physically and mentally, forcing them to acquiesce to regime rule. Air campaigns such as the winter 2013-2014 barrel-bomb blitz of Aleppo city are used to demonstrate regime dominance of the military situation and the opposition's comparative weakness. At the tactical level, air operations are intended to reduce resistance against ground offensives, assist regime forces that are on the defensive, and attrite rebel forces.

The SAAF's operations against ISIS are significant as well, though secondary to operations against the opposition. Prior to its emergence as a military threat, air actions against ISIS were very limited, leading to accusations of regime collusion with the group. Since this summer, however, SAAF operations have included strategic attacks aimed at ISIS centers in Raqqa and Deir al-Zour, and strikes in support of regime offensive and defensive operations in Aleppo, Raqqa, Hasaka, Homs, and Deir al-Zour provinces. Based on civilian casualties from regime action, of which airstrikes are a leading cause, the SAAF devotes a significantly smaller portion of its air operations to areas under ISIS control than to areas where it is confronting the rebels.

The SAAF conducts a wide variety of combat operations in support of its objectives:

- Attacks on civilian areas (area bombing), including homes, medical facilities, water facilities, bakeries, crops, and livestock, with helicopter-dropped barrel bombs playing a major role.
- Support to siege operations aimed at breaking resistance in rebel-held areas, with helicopters again playing a major role.
- Strikes on military targets including rebel leadership, forces, equipment, logistics, and facilities.
- Tactical and operational interdiction of movement including attacks on civilian vehicles and rebel convoys.
- Tactical close air support missions to assist ground forces.
- Vengeance attacks after an area has fallen to rebel forces.

The SAAF's other important military tasks include aerial resupply of isolated forces, aerial redeployment and reinforcement, and evacuation of forces (at least the officers) from threatened garrisons. These missions have been critical to the regime's ability to sustain ground forces under siege and in combat; for example, each type of operation was seen during this summer's heavy fighting in Raqqa province.

The SAAF has employed a variety of tactics during its operations:

- Single sorties consisting of one aircraft conducting one or more passes over a target.
- Streaming attacks consisting of sequential strikes by single aircraft.
- Sustained/repetitive attacks against an area target over a period of time by one or more aircraft.
- Precision attacks with guided weapons, probably by MiG-29s and Su-24s.
- Strafing with cannon by fixed-wing aircraft and helicopters.
- Barrel bombing by transport and attack helicopters against area targets.

Such strikes have involved a number of munitions, primarily high explosives (cannon and bomb), incendiary bombs, fragmentation bombs, thermobaric bombs, and barrel bombs. In addition, helicopters have reportedly used barrel bombs to deliver chemical agents (namely chlorine) on multiple occasions.

SAAF operations are frequently conducted in coordination with artillery strikes, surface-to-surface missile (SSM) strikes, and fire from tanks and anti-aircraft guns. The introduction and increased use of barrel bombs -- the "poor man's Scud missile" -- may reflect their greater availability and lower cost than SSMs. The regime's general approach is to use all available weapons to strike targets. Ground operations frequently involve isolating a target area, then making cautious ground advances accompanied by intense airstrikes.

## Consequences and Casualties

**S**AAF operations have had broad effects on the war, with airstrikes becoming one of the regime's principal means of killing. Data from the Violations Documentation Center in Syria indicates that aerial attacks accounted for more than a third (39 percent) of those killed from August to October, more than any other cause; a substantial portion of these deaths are attributed to barrel bombs. Airstrikes are also a principal cause of destruction to buildings in opposition areas, and when sustained, as in the Aleppo blitz, they can render whole areas unlivable. Moreover, airstrikes have a significant negative impact on the morale of rebels and civilians, who have no effective defense against them. Inaccurate weapons and tactics have also led to numerous friendly-fire incidents against government forces.

Despite the regime's protestations that it does not target civilians -- most recently in Bashar al-Assad's November 28 interview with *Paris Match* -- noncombatants are killed in large numbers by airstrikes, as indicated above. And the regime has shown no compunction about striking hospitals, schools, and other clearly civilian areas. Its late November attacks in Raqqa, where as many as several hundred civilians were reportedly killed, are only the most recent example. The lack of serious negative international reaction to such activity has undoubtedly encouraged the regime to continue and even escalate it.

While the SAAF essentially owns the airspace over Syria, that is due to the absence of effective opposition. Facing a modern air force (or coalition of air forces), its traditional weaknesses in air-to-air combat would be revealed. The SAAF has shown no inclination to engage Israeli aircraft or U.S.-led coalition aircraft operating over Syria, and there is no reason to expect it to do so if such incursions increased. Its aircraft are too valuable in the air-to-ground role against regime opponents to risk them.

Finally, aircraft from the U.S.-led coalition do not appear to be coordinating their operations with regime aircraft, as some have concluded from the fact that they often conduct strikes in the same general areas. Rather, each party seems to be striking targets of opportunity belonging to the same enemy.

## Conclusion

**G**iven the lack of political and military pressure against it, the SAAF can fly wherever it wants, bombing at will with whatever munitions it pleases, and with awful consequences. The regime should not be allowed to conduct unrestricted aerial warfare against its own population with impunity; continuing the status quo will harm not only the Syrian people, but also U.S. and coalition objectives.

The United States and its partners have multiple options for imposing restrictions, ranging from denial of specific airspace to broad attacks on the SAAF and associated targets. Creating a limited air-exclusion zone in areas where the coalition is operating would be a relatively low-cost, low-risk approach, forcing the regime to either acquiesce or challenge the zone at potentially great risk to its own valuable assets. Such a move would provide great relief for the Syrian population in affected areas, create a more secure military situation for the rebels, and deal a severe political and military setback to the regime. Implementing it would require the commitment of more resources, and there would of course be risks. But those risks could be managed with strong diplomacy and readiness to use force to enforce the exclusion zone.

Alternatively, but likely with less effect, outside parties could provide the rebels with more anti-aircraft systems and an improved capability for airfield interdiction. This could help them contest regime air operations more effectively by imposing a higher rate of attrition and increasing disruptions at airfields.

Neither of these approaches would completely prevent the regime from bombing its people, however. Solving that problem requires a comprehensive plan to take the Syrian air force out of the war.

*Jeffrey White is a defense fellow at The Washington Institute and a former senior defense intelligence officer.* ❖

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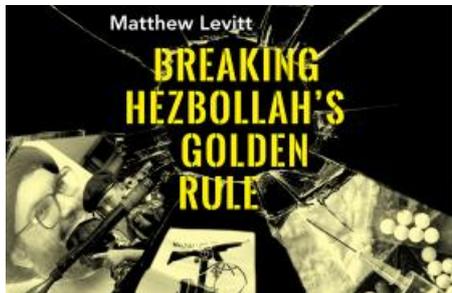
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