

Syria's Secret Air Arm

Syrian Arab Air Force REVEALED

The Syrian AF is without doubt one of the most secretive air arms in the world. Its assets are so well shielded from potential onlookers that photographs of modern SyAAF aircraft are extremely hard to come by. An Internet query for 'Syrian Arab Air Force' returns more Israel Defence Force images and information than it does for the SyAAF itself. But this battle-hardened air force maintains a constant state of alert, reflecting the proximity of its most serious adversary: Israel.



report: **Marco Dijkshoorn**



A very rare flying photograph of a Syrian AF MiG-23MS 'Flogger-E', a type mainly used for interceptor duties.

After its establishment on October 16, 1946, the Syrian Arab AF or Al Quwwat al-Jawwiya al Arabiya as-Souriya initially operated mainly British and Italian aircraft, but its major boost came when Syria turned to the Soviet Union in the mid-1950s. When Syria gained independence from France and the UK in April 1946 the Syrian government in effect followed in the footsteps of its major ally of the time, Egypt. After the first deliveries of MiG-15 fighters to the SyAAF in the mid-1950s, many more Soviet-designed types would follow. The initial batch of first-generation jets comprised 20 Czechoslovakian-built S-103 (MiG-15bis) fighters and four CS-102 (MiG-15UTI) trainers. However, these were diverted to Egypt and most of them were destroyed during the Suez War of 1956, only three MiG-15UTIs escaping to Syria. Replacement aircraft were all built in the USSR, and the Soviet connection was there to stay. Today, former Soviet states remain Syria's major suppliers of arms.

The closed nature of the country and the enthusiastic protection of its military from prying eyes make it hard to determine the exact current operational status of the Syrian air arm.

Although the SyAAF has long been regarded as a formidable force in the region when it comes to air power, reports suggest that Syria has more recently invested largely in ground-based air defenses and ballistic missiles, rather than aircraft. The size of the SyAAF — including a personnel strength of somewhat less than 40,000 troops — is not reflected in the number of serviceable aircraft. (A larger Syrian Air Defense Force, meanwhile, is responsible for operating SAMs and AAA.) Conflicts fought with Israel in the past decades have resulted in heavy attrition, making an approximation of the numbers of serviceable aircraft and helicopters even harder. Although most available information suggests the SyAAF is having a hard time fulfilling its basic roles and responsibilities, the force of MiG-21s and MiG-23s (and to a lesser extent MiG-29s and Su-24s) remains active.

Syria has experienced turbulent relationships with bordering nations in the last decades. The country is strategically located between Turkey in the north, Iraq in the east, Jordan in the south, and Lebanon and Israel in the south-west. Relations with its neighbors have at times deteriorated into warfare, the most recent clashes occurring with Israel.



A fabulous underside view of a Syrian AF Su-22M 'Fitter' in flight near Damascus.

Syria's longest border of approximately 700km is shared with Turkey in the north. Turkey has represented one of Syria's most significant military threats for several years. A particular cause of concern is the status of the Turkish-Israeli relationship, which has seen Israel sell large quantities of military equipment to Turkey. In the past, the IDF has even participated in Turkish exercises including 'Anatolian Eagle', but more recently Turkish-Israeli relations have cooled. The current Turkish administration under President Gül maintains a far more reserved stance towards Israel, especially so since Operation 'Cast Lead', when the IDF attacked the Gaza Strip and its Hamas occupants in late 2008 and early 2009. Turkish-Israeli tensions have led to bilateral state visits between Syria and Turkey, and have even resulted in a letter of intent on defense co-operation, signed in 2009.

Syria's current relationship with Iraq is stable, but the US maintains a constant eye on Damascus. Despite some clashes in which US forces entered Syrian territory in pursuit of alleged terrorists, the military relationship between Iraq and Syria has remained peaceful. The Iraqi AF's imminent receipt of T-6 Texan II attack aircraft — and possible delivery of Block 50/52 F-16C/D fighters — combined with the delivery of high-tech intelligence, surveillance and reconnaissance assets might pose a threat to Syria in the future, however. A direct attack from Iraq might not be expected, but the presence of the US-led Iraqi AF is certainly unwelcome for Syria, especially since aerial intelligence-gathering is likely to be performed by mixed US/Iraqi crews for the foreseeable future.

Diplomatic relations with Lebanon are stable, and both countries have embassies in each other's capital. Lebanon has been a pawn in US and Russian relations in recent years. Both parties have offered Lebanon arms, leading to the delivery of Cessna 208B Grand Caravans and S-61N helicopters to the Lebanese AF. The arrival of 10 Mi-24 assault helicopters was due in July. Syrian ties with the Lebanon-based Hezbollah political movement remain a sensitive subject in the international political arena, especially because Iran is considered the most important sponsor of this alleged terrorist organization, with Syria as an intermediary between the two players.

Syria's most important military allies can be found in the former Soviet Union (most notably Russia, Belarus and Ukraine), as well as North Korea and Iran. All are known to

have delivered weapons to Syria. Hezbollah likely receives training and weaponry from both Syria and Iran.

Israel and Syria have maintained a very tense and violent relationship since the formation of the Jewish state in 1948, and the two countries have fought several major wars. Syria lost parts of the Golan Heights region during the Six-Day War in 1967, and failed in its attempt to retake them in 1973. The fighting in the Golan did not stop at the end of the Yom Kippur War, however, and in April 1974 a UN-supervised ceasefire was agreed. Since then,

United Nations Disengagement Observer Force (UNDOF) troops have controlled the eastern side of the Golan Heights, which has been officially 'Syrian' ever since (and can be accessed only from the Syrian side). In 1981 Israel annexed part of Golan, but this annexation was never internationally recognized.

Doctrines and training

SyAAF doctrines applied in training, exercises and on the battlefield were originally primarily based on Soviet standards. Since 1967, however, the Syrians have followed their



own path, earning their pilots a reputation as 'renegades' in Israel and in the former USSR. North Korea has now replaced the former Soviet states as the major supplier of weapons instruction and air defense training.

Minakh AB, north of Aleppo (itself home of the main SyAAF maintenance center) once housed the SyAAF air academy, but the training effort probably moved to nearby air bases after the L-29 jet trainer was withdrawn from use in the late 1990s. Minakh and Rasin el Aboud are the most likely candidates. Minakh houses the West German-supplied SIAT 223K-1 Flamingo primary trainers, and Mi-8/17s employed for helicopter training. A training school at Rasin el Aboud provides primary and advanced training on the Flamingo and L-39 respectively. Aleppo might still be the home of theoretical classes, but this is uncertain.

It is believed that the Flamingo, of which around 60 were delivered in the mid-1970s, is still the main platform for initial training. SyAAF cadets then progress to receive advanced training on the Mushshak, based at Jirah. Six Mushshaks were covertly delivered by Pakistan some years ago. After completion of the advanced training syllabus on the Mushshak, the cadets make the transition to the L-39, which serves as a lead-in fighter trainer. A total of 99 L-39ZO/ZAs were delivered between 1980 and 1986 and the fleet has been completely overhauled in the last six years. The lack of a modern basic trainer remains arguably the biggest shortfall in the SyAAF training program.

Front-line forces

The SyAAF currently operates three types for offensive duties: the MiG-23BN, Su-22M, and the all-weather-capable Su-24MK. These are mainly employed in ground attack and close air support roles. Syria hosts a number of vast weapons ranges, where full-scale operational training can be performed using live ammunition. A total of 20 Su-24MKs is thought to have been delivered, and these serve with a single squadron at Tiyas.



Top: A line-up of four MiG-23MF/UM 'Floggers' with an Su-22M in the distance, parked in a hardened shelter.

Above: A pair of MiG-25s parked on dispersals along with two Su-24MKs on an operational flightline at their home base.

Two further squadrons operate the swing-wing Su-22M at Shayrat. Two squadrons of MiG-23BNs are based at An Nasiriya. A local modernization program for the Su-24MK was completed in 1999, although the exact scope of this upgrade is unknown.

The MiG-25 has formed the backbone of the SyAAF for many years, serving in the all-weather interceptor and reconnaissance roles. In its heyday, four squadrons operated the powerful Soviet-made fighter, but the disbandment of two squadrons in 2008 marked the beginning of the end of the MiG-25 in Syrian service. The MiG-25 fleet has

been concentrated at Tiyas since the 1990s. As part of the withdrawal process, 7 Squadron at Shayrat and 9 Squadron at Dumayr lost their aircraft to 1 Squadron and 5 Squadron at Tiyas. Reliable reports suggest that SyAAF MiG-25 operations came to an end in 2009; indeed, the last time high levels of operations were noted were as far back as 2006. MiG-25 types operated comprise the MiG-25PD single-seat all-weather interceptor, the MiG-25RB single-seat reconnaissance-bomber, and the MiG-25PU two-seat trainer.

In 2008, Syria received 33 MiG-23 fighters from Belarus. The aircraft initially appeared at Aleppo, where they are thought to have undergone maintenance. Eventually, half of these jets will find their way to current MiG-21 squadrons, where they will replace this ageing fighter. The remainder will be used as spare-

Syria's enigmatic fighter upgrades

Identifying the particular sub-variants of MiG fighters operated by the SyAAF is no easy task. The reason for this is the SyAAF's ongoing series of 'in-house' upgrades, which have been made to the MiG-21 and MiG-23 fleets since 2004. Aircraft originally delivered as MiG-21MF and MiG-23MF/ML variants, for instance, are now very different, and altogether more capable assets. The locally upgraded MiG-21 and MiG-23 jets are reported to be equipped with a considerable quantity of new equipment, including new nav/attack systems, plus more modern weapons. Work extends to structural changes, including entirely new

aerodynamic sections. For instance, the SyAAF continues to operate MiG-23MF interceptors, but these are now equipped with wings and other components from the definitive MiG-23MLD sub-variant, rendering them more maneuverable in air combat. The upgraded MiG-23s may also incorporate radar and weapons systems from Russia's MiG-23-98 upgrade project that integrated R-73 and advanced R-77 air-to-air missiles. According to unconfirmed reports, these upgraded fighters use the local designation MiG-235 (not to be confused with the Soviet initial-production aircraft of the same designation).

Meanwhile, the 'MiG-21MF' aircraft have effectively been upgraded to near-MiG-21bis standard. These 'Syrian bis' incorporate a number of new items of equipment, including an upgraded weapons system of unknown origin, new ECM and new chaff and flare dispensers. Around 60 such aircraft are likely to exist.

Syrian MiG-23BN ground-attack aircraft also no longer exist in their original form. A number of reports have suggested that Syria acquired a squadron's worth of MiG-27s, but more likely the aircraft in question are original MiG-23BNs that have been upgraded to provide compatibility with the latest

parts sources. The 2008 delivery augments the 140 MiG-23s delivered since the late 1970s for use in the interceptor and attack roles. In recent times, an unknown MiG-21 squadron at Dumayr was disbanded after its aircraft moved to Khalkhalah, and the MiG-21 units at the latter base absorbed the aircraft.

The current fleet of MiG-29 fighters is apparently home-based at Sayqal, but the fighters make frequent forward deployments to various other bases, including Tiyas. Dayr as-Zawr saw forward deployments by MiG-29s from 2004, although today the base hosts only the resident MiG-21bis squadron.

One of the two squadrons also provides a detachment at Hamah. In December 2006, Syrian President Bashar al-Assad visited Moscow to meet with Russian diplomats to discuss the modernization of the ageing SyAAF fighter fleet. In particular, upgrade of the MiG-29 — theoretically the most capable fighter in the SyAAF inventory — was high on the agenda. Although it took several years to materialize, Russia reported in 2009 that an order for 12 new MiG-29M/M2 fighters had been finalized, with the first deliveries expected in 2010. It was reported that the contract had been finalized in 2006, part of a deal worth approximately \$1 billion and also including tanks, miscellaneous weaponry, training and maintenance.

If realized, the purported MiG-29M/M2 order will probably lead to the upgrade of earlier MiG-29s in SyAAF service, and possibly retirement for the oldest airframes. Only one squadron of 12 MiG-29M/M2s has reportedly been ordered so far, but with the current fleet of around 48 MiG-29s due to be upgraded to M2 standard, the SyAAF will receive an enormous boost in capabilities. The upgrades will likely take place in Russia.

A highly controversial — and entirely unconfirmed — order concerns the possible delivery of eight MiG-31E fighters, as identified in security reports and by Israeli sources. The MiG-31Es would be drawn from Russian surplus stocks, since production of the 'Foxhound' was terminated some years ago.

Russian-made precision-guided weapons. Other reports indicate that the same aircraft may have received Western electronic countermeasures equipment.

The MiG-25 fleet has been grounded since late 2009 but could be the next candidate for local upgrade, although details remain scarce. These upgrade programs are one of the primary reasons for the veil of secrecy that Syria so vigorously maintains over its fighter fleet. In order to protect the identity of its upgraded jets, the Syrian authorities are therefore keen to prevent any kind of photographs of modern SyAAF fighters being published. **Tom Cooper**

The reports suggest that up to six MiG-31s would attain operational status in Syria while the other two would be cannibalized to keep the remainder serviceable. To date, Rosoboronexport, Russia's state arms export organization, has denied any involvement in the potential delivery of MiG-31s to Syria, although work apparently began on refurbishing six examples destined for SyAAF service, so confident were they of sealing the deal. Should this order ever materialize, it would go some way to filling the gap left by the decommissioning of the MiG-25, with MiG-25 pilots transferring to the more modern fighter. However, there is still no evidence that Syria has actually ordered MiG-31s.

Rotary-wing capabilities

Reflecting Syria's Russian ties, the Mi-8 and Mi-17 form the backbone of the transport helicopter fleet. In total, around 100 'Hips' were delivered to Syria, with an approximate 50:50 division between Mi-8 and Mi-17 versions. The helicopter fleet is dispersed across the country and provides the main means of transporting troops to austere locations. Two of the major Mi-8/17 bases, Qabr as Sitt and Marj As Sultan, are both located due east of the capital Damascus, but are only two miles apart. The two miles that separate the bases are dotted with ground-based air defense sites. A recent

change involved the Mi-8/17 helicopters formerly based at al-Mazza, which have now all moved to Marj As Sultan. Closure of al-Mazza has been planned for some time. Built outside Damascus in the 1930s, it now falls within city limits and is clearly too dangerous for the public and exposed to prying eyes. Mi-8/17s formerly based at al-Mazza included the white-painted VIP transport helicopters of 909 Squadron, plus camouflaged tactical transport versions operated by an unspecified unit.

From the late 1970s, France supplied more than 60 SA342 Gazelle helicopters for use in the anti-tank role. Armed with HOT missiles, these have seen considerable action in conflicts. Due to the lack of spare parts and missiles it is thought that some Gazelles have now shifted to the more peaceful VIP transport role, although pairs of Gazelles have regularly been observed patrolling the DMZ. Al-Mazza was once the main base for the Gazelle, but since 2004-05 it has only been used as a forward refueling point. The Gazelle fleet is known to have sustained wartime losses, including at least two confirmed shot down and two damaged during the conflicts with Israel.

More recently, the Mi-24 helicopter has fulfilled the role of tank-buster, with the fleet now based at Marj Ruhayyil, south of Damascus. The Mi-24s of 765 Squadron

Syria's Mi-24s helicopter fleet is now based near Damascus.



Syria received around 100 Mi-8 and Mi-17 'Hips', which continue to form the backbone of its transport helicopter fleet.





On the tarmac at Damascus, this is one of the Yak-40s used by the Syrian AF. Tom Cooper

and 766 Squadron were formerly based at As Suwayda, the southernmost air base in Syria, but more recently it was judged more efficient to base the helicopters closer to the capital. Reportedly, around 40 Mi-24s were delivered to the SyAAF and survivors were overhauled and upgraded in Eastern Europe in the last four years.

Transport

Logistics are key to the effectiveness of any military force, and the SyAAF transport fleet is considered highly important. The SyAAF transport inventory includes two An-24Bs, six An-26s, four Il-76Ms and six Tu-134B-3s. Most of these sport a quasi-civilian Syrianair color scheme, but can be utilized by the

Syrian armed forces when required. Regular military flights have been operated between Syria and Iran, Russia, Belarus and Algeria. Of the transport assets, the An-26s have not been active for some years, while two Il-76s are currently undergoing overhaul. Of the Tu-134s, two are regularly used for domestic passenger operations, the others being parked at Damascus IAP. Satellite imagery from June 2009 reveals an Il-76 withdrawn from use at Damascus alongside a Syrianair Caravelle. An additional Syrianair-marked Caravelle is used for special operations training south of Damascus.

The military VIP fleet consists of eight Yak-40s, two Dassault Falcon 20Es and one Falcon 900, the Falcons being notable for the fact that they are always very closely guarded. Despite the fact that the Falcons also bear Syrianair markings, several recent reports indicate that they are operated and maintained by military-

Syria's MiG-29 'Fulcrums' are home-based at Sayqal, but they make frequent forward deployments to various other bases around the country. Tom Cooper



Order of battle

The Syrian air arms, comprising the Air Force and Naval Air Arm, utilize just over 20 air bases across the country. Most bases are located near the capital Damascus, and in the western provinces, with proximity to Israel and Lebanon. Only a few airstrips and paved

runways exist in the east, near the Iraqi border. This dispersion of air bases reflects Syria's primarily defensive objectives. The following list includes virtually all the airstrips and airfields in Syria, making the runway density of this country notably low.

Syrian Arab Air Force	
Minakh	36°31'19.12"N 37° 2'11.34"E
Training School	
4 FTS	SIAT 223K-1, Mi-8/17
Aleppo-Nayrab	36°10'52.95"N 37°13'37.65"E
2 Squadron?	Mi-8/17
Aleppo houses the biggest overhaul center in Syria. Mi-8/17, MiG-21, MiG-23, MiG-29 and Su-22 aircraft are known to have been maintained and upgraded here.	
Rasin el Aboud	36°11'13.47"N 37°35'2.84"E
Training School	
3 FTS	SIAT 223K-1, L-39ZA/ZO
Qabr as Sitt	33°30'3.08"N 36°28'0.88"E
532 Squadron	Mi-8/17
Jirah	36° 5'49.05"N 37°56'10.19"E
24 Brigade?	
Unknown FTS	L-39ZA/ZO, Mushshak
10 Squadron (MiG-21MF/UM) appears to have departed some years ago.	
Afis	35°58'25.73"N 36°47'2.58"E
253 Squadron	Mi-8/17
255 Squadron	Mi-8/17
Tabqa	35°45'18.07"N 38°33'48.02"E
24 Brigade	
12 Squadron	MiG-21MF/UM

Unknown squadron	MiG-21MF/UM
Abu ad Duhur	35°44'1.60"N 37° 6'14.34"E
77 Brigade	
678 Squadron	MiG-23MS
The L-39ZA/ZO squadrons reported here (including 2 Squadron) appear to have left or have been disbanded.	
Deir Zzor/Dayr as-Zawr	35°17'13.19"N 40°10'23.10"E
24 Brigade	
8 Squadron	MiG-21MF/UM
Unknown squadron det	Mi-8/17
In the past routinely accommodated forward-deployed MiG-29s.	
Hamah	35° 7'5.47"N 36°42'40.18"E
14 Brigade	
679 Squadron	MiG-21MF/UM
680 Squadron	MiG-21MF/UM
Unknown squadron	Mi-8/17
Unknown squadron	MiG-29
Al Qusayr	34°34'9.92"N 36°34'14.49"E
86 Brigade	
Unknown FTS	SIAT 223K-1, Mushshak
825 Squadron	MiG-21bis
826 Squadron	MiG-21bis
Shayrat	34°29'23.47"N 36°54'33.52"E
50 Brigade	

uniformed pilots and personnel. While much of the transport fleet may be grounded at Damascus IAP, the VIP fleet remains active. Recently observed in operational use are the Falcon 20E (last seen October 2009), Falcon 900 (January 2009) and Yak-40 (May 2010).

Naval Air Arm

The airport of the Mediterranean city of Latakia is home to the Syrian naval aviation fleet, which consists of 20 Mi-14PS/PL and five Ka-28 helicopters. These are all land-based and are operated by Air Force personnel. After being grounded for some years, recent reports suggest that an upgrade program is now under way for the Mi-14s. These are to be overhauled in Ukraine, where they are due to receive updated mission systems and avionics. The Mi-14PL and Ka-28 are both configured for the anti-submarine warfare role, while the Mi-14PS is a search and rescue



Latakia is home to the Syrian naval aviation Mi-14PS/PL 'Haze' fleet. John Berends



helicopter equipped with searchlights, sliding doors and a hoist.

Despite investment made by the Syrian government, the Israeli military remains overwhelmingly superior to its north-eastern neighbor. In particular, the SyAAF is hampered by a lack of basic training facilities, modern equipment and serviceable aircraft. In case of a full-scale air war, Israel would hope that its technical superiority would show against Syria's air defense systems and counter its large numbers of troops. Whether the MiG-29M/M2 order and the modernization of the current SyAAF fleet will help redress the balance remains to be seen. Syria's powerful arsenal of ballistic missiles could potentially wreak havoc upon Israel, however, and if reports of Syria's possession of chemical and biological weapons are correct, the Syrian armed forces must be considered a very serious adversary.



675 Squadron	MiG-23MF/UM
677 Squadron	Su-22M-2
685 Squadron	Su-22M-4
Tiyas (T.4)	34°31'21.32"N 37°37'38.20"E
70 Brigade	
1 Squadron	MiG-25 (withdrawn)
5 Squadron	MiG-25 (withdrawn)
819 Squadron	Su-24MK
827 Squadron	Su-22M-4
All MiG-25s (including aircraft from the former 7 Squadron at Shayrat and the former 9 Squadron at Dumayr) are now located here.	
An Nasiriya	33°55'10.63"N 36°52'0.49"E
17 Brigade	
695 Squadron	MiG-23BN/UB
698 Squadron	MiG-23BN/UB
Sayqal	33°40'47.44"N 37°12'52.05"E
697 Squadron	MiG-29/MiG-29UB
699 Squadron	MiG-29/MiG-29UB
MiG-29s maintain a detachment at Hamah.	
Dumayr	33°36'34.92"N 36°44'56.13"E
Two unknown squadrons operated the MiG-23ML from here, although reports suggest this base has been all but abandoned since the late 1990s.	
Marj As Sultan	33°29'13.83"N 36°28'31.15"E
59 Brigade	
525 Squadron	Mi-8/17
537 Squadron	Mi-8/17
909 Squadron	Mi-8S/17 (VIP)
al-Mazza	33°28'38.90"N 36°13'22.84"E
976 Squadron	SA342L Gazelle
977 Squadron	SA342L Gazelle

Mi-8s formerly based here have moved to Marj As Sultan.

Damascus International Airport	33°23'51.77"N 36°30'40.75"E
Transport Brigade	
522 Squadron	An-24B, An-26, An-26B, Il-76M
565 Squadron	Yak-40, Yak-40K
575 Squadron	Falcon 20E, Falcon 900
585 Squadron	Tu-134B-3
Marj Ruhayyil	33°17'21.20"N 36°27'22.26"E
30 Brigade	
765 Squadron	Mi-24
766 Squadron	Mi-24
767 Squadron	Mi-24
54 Squadron with Su-22 or MiG-23 and 77 Squadron with MiG-23ML/UM departed some years ago.	
Khalkhalah	33° 3'54.48"N 36°33'2.07"E
73 Brigade	
945 Squadron	MiG-21bis
946 Squadron	MiG-21bis
As Suwayda	32°42'15.59"N 36°24'51.29"E
64 Brigade	
Mi-24s previously based here have moved to Marj Ruhayyil.	
Kamishly	37° 1'20.62"N 41°11'37.30"E
Syria's most northerly airfield has no permanently attached aircraft but is of military significance, reflected by air defense facilities near the northern part of the runway.	

Syrian Naval Aviation

Latakia	35°24'44.48"N 35°57'9.62"E
618 Squadron	Mi-14PS/PL, Ka-28