THE AIR WAR OVER ANGOLA, 1987-1988: AN ANALYSIS

Leopold Scholtz[1]

1. INTRODUCTION

Few military campaigns in modern history have been so subject to controversy and dispute than the final months of South Africa's and Cuba's role in the Angolan Civil War in 1987-'88. Ever so often, the battle lines are once again drawn and the war is fought anew – although this time, thankfully, with words and not again with bullets, shells or bombs.[2]

The intention is not here to examine the matter as such once again; the author has already done it and stand by his nuanced conclusion that the Angolans lost badly, but that both the South Africans and Cubans came out of the fighting relatively well.[3] The intention is to look at a specific element of the fighting, namely the application of air power during the campaign and the influence it had on the course of the fighting on the ground as well as the outcome of the campaign. The purpose is also not so much to add new facts, but to interpret the known facts in the light of the principles of aerial warfare.

The air war above Angola elicits controversy as well. Radical leftist writer Barry Healy, for instance, states quite categorically (without trying to substantiate it): "Angolan and Cuban MiG-23 pilots swept the South African Air Force from Angolan skies."[4] In the same vein, Horace Campbell asserts: "The Angolan radar defensive positions broke the South African air superiority, Angolan and Cuban

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2 On the one side politicians like ex-minister Ronnie Kasrils and American historian professor Piero Gleijeses maintain that the Cuban and Angolan armed forces roundly defeated the SADF (*vide* Ronnie Kasrils, "Turning point at Cuito Cuanavale", *Sunday Independent*, 23 March 2008); Piero Gleijeses, "Cuito Cuanavale revisited", *Mail & Guardian*, 9 July 2007). On the other side South African officers such as General Jannie Geldenhuys, Chief of the SADF during the eighties, say that the South African military achieved a substantial victory over the Angolans and their Cuban allies (cf. Jannie Geldenhuys, "Veterane van die koue oorlog, insluitend die diensplig-generasie, oor waarheid en propaganda" at www.news24.com/Rapport/InDiepte/0,,752-2462_2447895,00.html)

3 Cf. Leopold Scholtz, "Cuito Cuanavale: Wie het regtig gewen?", *Scientia Militaria* 28/1, 1998.

4 Barry Healy, "Cuito Cuanavale: Cuba strikes for Africa's freedom", *Green Left Weekly*, 755, 18 June 2008.

MiG-23 pilots proved equal and even superior to their counterparts in the South African Air Force."[5]

More importantly, Ronnie Kasrils, South African ex-minister and ex-combatant of *Umkhonto we Sizwe* (MK), the ANC's armed wing during the movement's armed struggle, wrote: "Soviet MiG-23s had demonstrated their superiority over South Africa's aged Mirage fighters and now that they commanded the skies the network of SADF bases in northern Namibia was at their mercy."[6] And nobody less than Fidel Castro, *el lider* of Cuba himself, in one of his last public speeches before standing down, spoke of his 40 000 troops advancing towards the SWA/Namibian border, supported by – amongst others – "1 000 anti-aircraft weapons and the daring MiG-23 units that secured air supremacy".[7]

Robert Davies, too, categorically asserts that the battle at Cuito Cuanavale "smashed the myth of SADF invincibility". The reasons were, *inter alia*, that "the equipment of the South African Air Force (SAAF) was technologically inadequate. Partly as a result of the cumulative effects of the international arms embargo, the SAAF found itself unable to penetrate Soviet-made Angolan and Cuban radar and missile defences in Cuito Cuanavale, and rapidly lost its previous air superiority".[8]

Taken together, three statements are usually made:

- That the South African Air Force (SAAF) lost air supremacy in Angola by 1987;
- that this was the direct result of the international arms embargo against the apartheid government; and
- that this played a major role in ensuring that the South African Defence Force (SADF) lost the last campaigns in Angola in 1987-'88, collectively known as the Battle of Cuito Cuanavale.

The purpose of this article is, therefore, to investigate the accuracy of these assertions.

2. THE ROLE OF AIR POWER IN WAR

Air power may be defined as the use of aircraft, especially military aircraft, in pursuing a political goal as defined by the civilian government. This may take place in war as well as peacetime.

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5 Horace Campbell, "Cuito Cuanavale – a tribute to Fidel Castro and the African Revolution", *Socialist Unity*, 9 June 2008.

6 Ronnie Kasrils, "Turning point at Cuito Cuanavale", *Sunday Independent*, 23 March 2008.

7 "Fidel on 30th anniversary of the Battle of Cuito Cuanavale, Angola & more" at www.itsabouttimebpp.com/Announcements/Fidel_on_30th_Anniversary.html. Cf. Fidel Castro with Ignacio Ramonet, *My Life* (Londen, 2008), p. 329.

8 Robert Davies, "After Cuito Cuanavale: The new regional conjuncture and the sanctions question", in Mark Orkin (ed.), *Sanctions against Apartheid* (London, 1990), p. 201.

Since the World War I, air power has played an ever more important role in war. Most modern wars, including the two wars against Saddam Hussein's Iraq in 1991 and 2003, proved the experience of World War II and several other wars since that air power is indispensable for victory.[9] Simply put: There can be no victory in the face of an efficient enemy air supremacy. There are, of course, limits to the influence of air power. In two recent instances, attempts were made to win a war with air power only, namely in Kosovo in 1998,[10] and again during the Israeli-Lebanese War of 2006. In the first instance, air power proved adequate to coerce the Serbian government to withdraw its troops from Kosovo, but this remains an absolute exception. The latter example confirmed that wars are generally won by boots on the ground, supported by air power.

Broadly speaking, air power in wartime is exercised by five different means:

- *Securing and retaining air supremacy*: Destroying enemy aircraft, either on the ground or in the air, in the greatest possible numbers, to prevent the enemy from becoming masters of the air to your detriment. This usually results in classic dogfighting, or at least attempts to shoot each other out of the sky from a distance. Sometimes, as in the opening hours of the Six Day War in 1967, it may result in a concerted attack on enemy air bases in order to destroy the enemy air force even before it can take to the air.
- *Strategic bombing*: The destruction of your enemy's industrial capacity and infrastructure to diminish his warfighting potential. The best known example of this is the Allied day and night bombing campaign against Nazi Germany and Imperial Japan, which wrecked these countries and killed close to a million civilians.
- *Battlefield isolation*: To prevent the enemy on the frontline from receiving either supplies (such as food or ammunition), reinforcements, or replacements for casualties. In the Korean War, a substantial part of the American air war (of which 2 SA Squadron, incidentally, formed a part) concentrated on battlefield isolation, while Operation Rolling Thunder during the first half of the Vietnam War was another example.
- *Close air support*: To supplement artillery in order to keep the enemy's head down or disorient him during your own advance. This was pioneered by the German *Luftwaffe* during the first part of World War II, when their Stuka dive bombing attacks played havoc with the defending British, French, Polish and Russian troops. Especially the US Marines, with their organic air capability, have honed this to a fine art.

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9 Cf. Leopold Scholtz, "The ten commandments of armoured warfare", *Journal for Contemporary History* 28/2, September 2003.

10 Cf. Leopold and Ingrid Scholtz, "Pirrhiese oorwinning – die oorlog in Kosovo", *Scientia Militaria* 29/1, 1999.

- *Reconnaissance*: Battlefield intelligence is of decisive importance to any army, and air reconnaissance is one of the best ways of obtaining it. Since the eighties, ever more use was made of unmanned aerial vehicles (UAVs). These are steered from the ground by specially trained personnel and are able to observe its vicinity by television cameras. In this way, no personnel are endangered.
- *Logistics*: To keep your own side adequately supplied with the necessities of war, replacements or reinforcements. In the last months of World War II, especially the United States Army Air Force (USAAF) played a decisive role in enabling the advance through France and the Low Countries into Germany to keep going. With its enormous airlift capability, the modern US Air Force (USAF) made it possible for the frontline troops to smash the Iraqi forces twice in lightning ground campaigns.

In this article the emphasis will be on the role of the SAAF during the campaigns of 1987-'88 to see how much truth, if any, there is in the allegations that the SAAF lost command of the air and that this contributed to the SADF's alleged loss of the war. First there is a short overview of the campaign, so as to orient the reader in time. This is followed up by weighing the available equipment of the SAAF and the Cuban and Angolan Air Forces; then the aerial encounters between the opposing forces are analysed; and their ability to conduct ground attacks and to limit their opponents' freedom of action, as well as their ability to keep their ground forces supplied, are looked into.

3. OPERATIONS MODULER, HOOPER, PACKER AND DISPLACE

During the first half of 1987, SADF intelligence became aware of a FAPLA build-up in the vicinity of Cuito Cuanavale and plans to launch an overwhelming offensive against UNITA. This was known as Operation *Saludando a Octubre* ("Salute to October", a reference to the Communist October Revolution of 1917 in Russia). At first, the government was unwilling to let the SADF become involved beyond clandestine assistance, but as the overwhelming strength of the FAPLA offensive unfolded, the original restrictions were progressively discarded. Within a short time, the SA Army presence was increased to an understrength brigade – 20 SA Brigade – with elements of 32 Battalion and 101 Battalion, the formidable 61 Mechanised Battalion Group (the Army's strongest and most experienced conventional warfare formation) and artillery support. Later 4 SA Infantry Battalion, a powerful formation similar to 61 Mech, was added to the force. The strategic goal was to keep UNITA alive; the operational goal to stop the FAPLA offensive.

The incremental way in which the SADF became involved, meant that SAAF participation was, at first, so surrounded with restrictions that it amounted to a veto

over SAAF operations, but by the end of August the hound was released. Now the Air Force was given the green light for close air support, to attack the Angolan forces as they tried to cross the Lomba River, and to intercept Cuban and Angolan aircraft. The first strikes took place on the morning of 16 September.[11]

In the about three weeks following this, South African Army forces prevented a FAPLA force, six brigades strong, from crossing the Lomba to advance on Mavinga. Five of the six brigades were so severely mauled that the whole force reeled back northwards with heavy losses.

Even before the Lomba battles had been finished, President PW Botha visited Mavinga and again broadened South Africa's participation. He ordered the SADF to follow up its victory and hit the Angolans so hard that they would not be able to launch another offensive before the end of 1988. Operationally, this was translated into the goal to drive the FAPLA forces completely out of the area east of the Cuito River.

The follow-up offensive duly took place, and in another series of battles FAPLA was systematically driven back northwestwards. However, because of the denseness of the bush, as well as the slowness of the commander of one of the South African battle groups, the Angolans escaped every time, albeit having suffered greatly. At last, they were driven into a limited piece of territory, known as the Tumpo Triangle, just across from Cuito Cuanavale on the other side of the Cuito. In this very difficult terrain – difficult for attackers, that is – the South Africans made three attacks on a well-organised and fortified Angolan defence line, stiffened by Cuban troops. Every time the South Africans became ensnarled in minefields and had to abandon the attempt – the third time with the loss of three damaged tanks.

That was the end of the fighting on this front.

4. THE OPPOSING SIDES

In general, according to a secret CIA analysis of early 1987, Soviet military assistance "has transformed Cuba's military into one of the largest and best equipped forces in the Third World".[12] When Cuban forces first intervened in the Angolan Civil War in 1975, they were supported by a squadron of 9 MiG-17F fighters and 1 MiG-15UTI trainer of the *Fuerza Aérea Revolucionaria* (FAR, or Cuban air force). When some more advanced MiG-21MFs arrived somewhat later, the original aircraft were donated to the nascent Angolan Air Force, better known as *Fuerza Aeria Popular de Angola* (FAPA). While the Angolan aircraft were deployed against the separatist

[11] Helmoed Römer Heitman, *War in Angola. The final South African phase* (Gibraltar, 1990), pp. 43 and 48.

[12] "Soviet military assistance", 5 January 1987, at www.foia.cia.gov/

movement FLEC in the enclave of Cabina, the Cuban MiG-21s were also utilised on the southern front against UNITA and the SADF.[13]

These aircraft remained the main teeth in the air on the Angolan/Cuban side until 1984. They were no match for what the South Africans had to offer, but in that year the Cubans and Angolans started receiving the much more advanced MiG-23ML and Mig-23UB Flogger (MiG-23s had been delivered to the FAR in 1978).[14] Fidel Castro claimed in a newspaper article in October 2008 that the combined Cuban and Angolan air forces were considerably weaker than what the SAAF had in the theatre,[15] but all other sources prove this to be a piece of propaganda.

Different sources cite differing figures for the Cuban and Angolan air strength, but we may assume that they had anywhere up to 100 fighters and fighter-bombers[16] - a quite formidable force by any standard. Helmoed-Römer Heitman states that most of the ground attack work was done by Angolan pilots in MiG-21s, while the top cover and intercepting fell to Cubans in the MiG-23s.[17] By 1985, according to Fred Bridgeland, 80% of the combat pilots were Angolan,[18] although a few pilots from the Soviet Union, East Germany and Romania apparently also joined in.[19]

It is, however, an open question how many of these aircraft were serviceable at any given time. Fred Bridgeland says Cuban Air Force General Rafael del Piño, who had defected to the USA a few weeks before the fighting in Angola started, told his hosts that "[s]tandards of command, discipline and technical maintenance … began to fall". For instance, Del Piño was sent to Angola in 1984 to investigate "a series of losses of fighter-bombers, transport planes and helicopters in crashes. Many had crashed through sheer carelessness …" He also discovered that "the navigation systems of many aircraft had not been inspected or serviced five years or more and that most of the entries in aircraft service logs were fraudulent".[20]

On the other side of the hill, the SAAF was quite a formidable force as well. During the sixties, they acquired 40-50 GAM Dassault Mirage III aircraft (of which 16 were Mirage IICZ interceptors, and the others mostly Mirage IIIEZ ground attack aircraft) from France. In 1975, the first of a new batch of Mirage F1s, consisting of

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13 Rubén Urribarres, "The MiG-17 Fresco in Cuba", at www.geocities.com/urrib2000/EqMiG17-e.html; Tom Cooper and Jonathan Kyzer, "Angola: Claims & reality about SAAF losses", at www.acig.org/artman/publish/article_184.shtml

14 Heitman, *War in Angola*, pp. 12 and 13.

15 Fidel Castro, "The truth in battle and Martin Blandino's book" in *Granma*, 15 October 2008. English translation at www.granma.cu/ingles/2008/octubre/mier15/Reflections-15oct3.html.

16 Fred Bridgeland, *The war for Africa* (Gibraltar, 1990), p. 17; Peter Vanneman, *Soviet strategy in Southern Africa. Gorbachev's pragmatic approach* (Stanford, 1990), p. 52; Heitman, *War in Angola*, p. 22; Table 13: "Major Air Force and Air Defense Force Equipment, 1988" at lcweb2.loc.gov/frd/cs/angola/ao_appen.html

17 Heitman, *War in Angola*, p. 329.

18 Bridgeland, p. 15.

19 Cooper and Kyzer.

20 Bridgeland, pp. 23 and 24.

16 F1CZ interceptors and 32 F1AZ ground attackers, was received, although these would become operational only in the course of 1978.

In the hands of its vastly superior Israeli pilots, the Mirage III more than held its own against the Egyptian and Syrian MiG-21s before, during and after the 1967 Six Day War. But when the Border War in SWA/Namibia and Angola started intensifying in 1975, this aircraft was already obsolescent. Two Mirage IIICZs from 2 Squadron were utilised during Operation Reindeer in May 1978, when an understrength parachute battalion attacked Cassinga, a SWAPO logistics and training base deep inside Angola. These were tasked to protect the C-130s and C-160s carrying the parachutists against possible Angolan MiG-21 intercepts. This did not materalise, but they did make strafing attacks against the SWAPO base and a Cuban armoured column rushing to Cassinga to aid their SWAPO allies.[21]

After Reindeer, no Mirage IIICZ or IIIEZ was ever again used operationally in either Namibia or Angola, although the reconnaissance model, the III2RZ, was extensively utilised. The SAAF rightly feared that these aircraft would not survive in the war theatre. Although 2 Squadron soldiered on for a few years with their obsolete Mirage IIICZs until re-equipped with the Cheetah C some 15 years later, all model IIIEZs were reallocated to 85 Advanced Flying School at AFB Pietersburg. The Mirage F1AZs from 1 Squadron and F1CZs from 3 Squadron became the Air Force's frontline fighter, and in fact, the first two F1CZs entered the war only two months after Reindeer when they escorted a Canberra photo reconnaissance flight over Angola.[22]

Comparing the opposing aircraft makes for a fascinating analysis. When the F1 was taken into service, the best fighter available to the Angolans/Cubans was the MiG-21, which was undoubtedly inferior to the F1. Twice, in 1981 and again in 1982, a South African pilot in a F1CZ interceptor – Major Johan Rankin – shot down a MiG-21 with his 30 mm cannon after having damaged the first one with an air-to-air missile near miss.[23] However, the MiG-23 was a different kettle of fish. According to Helmoed Römer Heitman, this model "had more power and speed than the Mirage F1 and also had head-on radar-guided missiles, a major edge over the F1CZ, which had only infrared homing missiles".[24]

According to one authoritative analysis, "Western pilots who flew the MiG-23 said its handling was similar to something between the F-4E [Phantom]

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21 Dick Lord, *From fledgeling to eagle. The South African Air Force during the Border War* (Johannesburg, 2008), pp. 84-87; Jan Breytenbach, *Eagle strike! The story of the controversial airborne assault on Cassinga 1978* (Sandton, 2008), pp. 224-225 and 329-330.

22 Dick Lord, *Vlamgat. The story of the Mirage F1 in the South African Air Force* (Weltevreden Park, 2000), p. 45; Lord, *From fledgeling to eagle*, p. 90.

23 Lord, *Vlamgat*, pp. 110 and 128-131; Lord, *From fledgeling to eagle*, pp. 193-194 and 215-217. A Cuban account was written by Rubén Urribarres, "Los MiG-21 Fishbed de Cuba en acción" at http://www.geocities.com/urrib2000/EqMiG21a.html

24 Helmoed Römer Heitman, "Equipment of the Border War", *Journal for Contemporary History* 31/3, December 2006, p. 106.

and the Panavia Tornado in some parts of the flight envelope, and more like the F-105 [Thunderchief] in others. Soviet manuals considered the MiG-23MLDs performance and handling superior to that of the F-4E and, in some parts of the flight envelope, better than the F-16A's, but admitted that the F-15 has an overwhelming superiority over the MiG-23 family. The Israelis tested the MiG-23 and found that it had better acceleration than the F-16 and F-18. Overall, the MiG-23 represents the final incarnation of the late 1960s fighter technology which, despite being developed close to its full potential, was quickly overtaken by the next generation. The MiG-23's closest contemporaries are perhaps the Mirage F1 and Saab Viggen, which ended up with fairly similar careers."[25]

The superiority – on paper, anyway – of the MiG-23 over the Mirage F1 may be seen in the following performance tables:

MiG-23[26]

Maximum speed:	Mach 2,35, 2 500 km/h at altitude; Mach 1,14, 1 350 km/h at sea level (1 553 mph / 840 mph)
Range:	1 150 km with six AAMs combat, 2 820 km ferry (570 mi / 1 750 mi)
Service ceiling:	18 500 m (60 695 ft)
Rate of climb:	240 m/s (47 245 ft/min)
Wing loading:	575 kg/m² (118 lb/ft²)
Thrust/weight:	0,88:1
Powerplant:	1x Khatchaturov R-25-300 afterburning turbojet, 83.6 kN dry, 127 kN afterburning (18 850 lbf/28 700 lbf)

Mirage F1[27]

Maximum speed:	Mach 2,1, 2 573 km/h at 11 000 m (1 600 mph at 36 000 ft) Range: 425 km combat with a typical payload, 2 150 km ferry (265 mi / 1 335 mi)
Service ceiling:	20 000 m (65 600 ft)
Rate of climb:	215 m/s (42 320 ft/min)
Thrust/weight:	0,64:1
Powerplant:	1x SNECMA Atar 9K-50 afterburning turbojet, 50,21 kN with afterburner (15 785 lbf).

On paper the MiG-23 was in most respects superior to the Mirage F1. It had a higher maximum speed and could accelerate faster, thereby being able to break

25 Quick Aviation Links, "Mikoyan-Gurevich MiG-23 'Flogger'" at quicklink.all.googlepages.com/mig23.htm

26 *Ibid*.

27 Quick Aviation Links, "Dassault Mirage F1" at quicklink.all.googlepages.com/mirage_f1.htm

off and get out of a fight whenever it was at a disadvantage. And the MiG could fire a radar-guided missile (the R-24) from the front (the effective range in this configuration was 7-10 km), while the South African aircraft could only fire from the rear. To compound matters, both the French Matra 550 and its South African-licensed V3B Kukri air-to-air missile with which the Mirages were equipped in 1987-'88, were not quite up to scratch. It had the nasty tendency of detonating on the fleeing enemy aircraft's hot tail plume before being able to damage the aircraft. This happened several times during Operations Moduler, Hoover and Packer. Also, the missile could not withstand manoeuvres pulling more than 4 Gs.[28] The much better V3C became available only shortly after the end of hostilities.[29] The radar-guided Matra 530 was, due to its inadequate performance, never used in Angola.[30] At the same time, the MiG-23 was designed as a high-level bomber interceptor, not as a dogfighter. Chances are that, weapons and pilots being equal, the Mirage was probably better suited to dogfighting[31] – something a well trained MiG pilot would, therefore, try to avoid.

But there is more to be taken into consideration. When all is said and done, the training, quality and tactics of the pilots inside the cockpits are decisive. For instance, Syrian MiG-23s were decimated at the hands of the much better Israeli pilots in F-15s and F-16s during the 1982 Lebanon War.

Most authoritative sources tend to agree that the SAAF pilots were light years better than their Angolan counterparts, who were poorly trained. The Cubans, who did much operational flying, especially the safer top cover tasks, were also much better, although they were not nearly as aggressive as the South Africans, apparently having little desire to die for the Angolans.[32] An unofficial Cuban account acknowledged that the professionalism of the SAAF pilots was "superior to that of the Angolan pilots, but at the same level as that of the Cubans".[33] The South Africans held yearly training exercises, in which both ground attack and air combat manoeuvring (ACM, better known as dogfighting) would extensively be practised. Before being posted to a frontline fighter or bomber squadron, pilots would often have as much as 1 000 flying hours and even operational experience in light Impala Mk. II ground attack aircraft. After joining a Mirage squadron, they would have to pass another stiff course before being allowed to fly operationally. By this time, they would be comparable to the best elsewhere in the world. All sources agree that the SAAF fighter pilots in 1987

28 Cooper and Kyzer.

29 Lord, *From fledgeling to eagle*, pp. 403 and 513.

30 "The Kukri air-to air missile: The sword is drawn" at www.aessa.org.za/articles/kukri.doc

31 Cf. Heitman, p. 329.

32 *Ibid*., p. 329.

33 Rubén Urribarres, "A Cuban MiG-23 in Angola, II: Air superiority missions" at www.geocities.com/urrib2000/EqMiG23aa-e.html

were very aggressive and eager to fight – everybody wanted to shoot down MiGs.[34] As a matter of fact, Col. N.C. Parkins, then SAAF attaché in the USA, reported that during his term there, in 1988, the foreign air attachés stationed in Washington unanimously voted the South African Air Force the best in the world, with a toss-up between the RAF and Israeli Air Force for second place.[35]

On the other side, the Cuban and Angolan pilots flew according to Soviet doctrine, which discourages individual initiative in the air, the crews being strictly subordinated to direction from the ground. Their tactics typically would be to make a fast slashing attack and then use their superior speed to disengage or outdistance the opponents.[36] As Colonel (later Brigadier General) Dick Lord, senior SAAF officer in the theatre, told Fred Bridgeland: "One thing that worked for us was that FAPA [the Angolan Air Force], despite the high quality of its MiG-21s, MiG-23s and Su-22s, was among the worst trained air forces of Africa. And it operated according to rigid Soviet doctrine. Our pilots had freedom of initiative while working within carefully conceived plans. The Angolan Air Force guys were given fixed radar and distance vectors on which to fly from Menongue. As they approached the target they were still directed from Menongue control: 'Steer 145 degrees, hold it steady for 46 nautical miles, now drop your bombs', that sort of thing."[37]

According to Commandant Jan Hougaard of 32 Battalion, who witnessed the Cuban and Angolan MiGs while on clandestine missions near to Menongue, the "Cubans were much better pilots than the Angolans … The poor training of the FAPLA pilots was working in our favour. Theirs was probably the worst trained air force in Africa. They had technologically more advanced planes, but the superior training of our guys closed the gap."[38]

South African and Israeli pilots would from time to time be exchanged to enable the SAAF to benefit from the vast operational experience which the Israeli Air Force had amassed during its decades of war with its Arab neighbours.[39] Even in 2006, when the USAF sent a flight of F-15 Eagles – arguably their best air superiority fighter at the time – to South Africa for excercises against the SAAF's 2 Squadron, the honours in aerial "kills" were even – six on each side.[40] And bear in mind that the South African Cheetah-C, although in most respects a vast improvement on the Mirage III and F1, was not nearly the equal of the F-15!

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34 Lord, *From fledgeling to eagle*, p. 402.

35 Col NC Parkins: "Faster, better and higher. The image of the S.A. Air Force as viewed by a veteran" at http://www.rhodesia.nl/parkins.htm

36 Cooper and Kyzer.

37 Bridgeland, p. 262.

38 *Ibid*., p. 252.

39 Lord, *From fledgeling to eagle*, p. 158.

40 Conversation with a SAAF pilot who wishes to remain anonymous, May 2007.

In the sixties, the SAAF also bought 16 Blackburn Buccaneer S. Mk. 50 bombers, as well as six English Electric Canberra B.(1) Mk. 12 bombers and two Canberra T. Mk. 4 trainers (later converted to B. Mk. 2 standard), which gave the SAAF a considerable capability. The Canberras (12 Squadron) were often used during the seventies in Rhodesia and Angola and the early eighties in support of the SA Army's cross-border operations into Angola. However, by 1987, it was discovered that 12 Squadron's ageing Canberras were too vulnerable to ground fire (one having been lost in action already in 1979), and were utilised mainly in the photo reconnaissance role.[41] Nevertheless, the SAAF's most potent bomber, the Buccaneer (24 Squadron) was extensively used; four being deployed to AFB Grootfontein in the north of SWA/Namibia. The brunt of the ground attacks were carried by 1 Squadron's 12 Mirage F1AZ fighter-bombers at AFB Grootfontein. Together these 16 aircraft flew 176 strikes over the period of 191 days during which strike aircraft were deployed.[42]

The SAAF in addition had approximately 80 Impala Mk. 2 light ground attack aircraft of which 13-14 were permanently deployed to AFB Ondangwa and AFP Mpacha in the Caprivi.[43] They, however, played a very limited role in the period and theatre under discussion.

In addition, the SAAF posessed about 40 Douglas C-47 Dakota light transports, as well as seven Lockheed C-130B Hercules and nine Transall C-160 medium transports, and some 69 Aerospatiale Puma medium and well over 100 Sud-Aviation Alouette III light helicopters. The Pumas were used for trooping and casevac, while some Alouettes were in addition converted into most useful gunships in the COIN role. Together, they served the needs of the South African ground troops fighting against the Angolan and Cuban Armies as best they could. The presence of MiG-23 combat air patrols over the operational area did mean that supply and casevac flights could normally only be flown at night in very difficult circumstances. Especially the C-130s and C-160s, flying between AFB Rundu and the UNITA-controlled airstrip of Mavinga, had to be well gone before daylight or risk being destroyed on the runway by the Angolan/Cuban MiGs. During the campaign, the C-130s flew 412 sorties, moved 5 448 tons of supplies and 4 730 men, while the figures for the C-160s were 169 sorties, 1 435 tons of supplies and 2 097 men respectively.[44]

The pilots of these transport aircraft not only played a vital role, keeping the troops at the front supplied with the essentials of war, but they had to be extremely good at their job, with nerves of steel. They would typically take off after dark from AFB Grootfontein, heavily laden with an assortment of supplies, including food, ammunition, vehicle and weapon spare parts, clothes, and medical supplies. They then

41 Hilton Hamann, *Days of the generals* (Cape Town, 2001), pp. 89-90.

42 Lord, *From fledgeling to eagle*, pp. 53-55 and 218-219; Heitman, *War in Angola*, pp. 310-311.

43 Dick Lord, "SAAF fighter involvement in the Border War, 1965-1988", *Journal for Contemporary History* 31/3, December 2006, p. 252.

44 Lord, *From fledgeling to eagle*, pp. 414-416; Heitman, *War in Angola*, p. 321.

flew to Mavinga, mostly at a height of 150 meters and without radar so as not to alert the enemy and without navigational landmarks, due to the flat terrain. Mavinga had only a very primitive airstrip, barely long enough to handle the lumbering transports, no flight tower and no electrical lighting. When an aircraft came in, tins filled with fuel-drenched sand would be lit along the sides of the runway, and immediately doused once the plane came to a hault. This was a hair-raising experience which called for airmanship of the highest standard and which had to be repeated night after night.[45]

"Every night it was hellishly hairy for the transport crews", Dick Lord told Fred Bridgeland.[46]

However, the SAAF did not posess enough airlift capability, and so even the frantic efforts of 28 Squadron was not enough. The troops at the front continually had to contend with shortages of just about everything.

In principle, these aircraft were all irreplaceable due to the international arms embargo against South Africa. It is true that the Air Force was working up another fighter squadron with brand-new Cheetah-Es, a South African modernisation of the Mirage III, but this unit, 5 Squadron, would not be operational for many months. And therefore the SAAF was right from the beginning rather skittish in whether and how to employ its aircraft.[47] This would be an inhibiting factor throughout the campaign.

5. AERIAL ENCOUNTERS

In contrast to World War II, the Korean War or the different wars in the Middle East, the South African participation in the war in Angola was not characterised by great aerial battles in which aces could become heroes and make their way into movies. In fact, there were only four encounters in the air between South African and Cuban aircraft, and none between South Africans and Angolans. Earlier in the decade, pilot Johan Rankin did, of course, shoot down two Cuban MiG-21s.The air combat was shared by the eight Mirage F1CZ fighters deployed to AFB Rundu.

These four encounters may be summarised as follows:[48]

- On 10 September, 1987, four South African aircraft were scrambled from Rundu to intercept ten MiG-23MLs, of which eight were attacking ground forces, while the other two were providing top cover. This was on the same day of the first big clash between the South African Army and FAPLA,

45 Lord, *From fledgeling to eagle*, pp. 414-416; Heitman, *War in Angola*, pp. 321-322.

46 Bridgeland, p. 184.

47 Cf. Heitman, *War in Angola*, p. 48.

48 Lord, *Vlamgat*, pp. 176, 178-180 *et seq*.; Lord, *From fledgeling to eagle*, pp. 401-402, 405-406 and 439-440; Heitman, *War in Angola*, pp. 319-320 ; Bridgeland, pp. 104 and 108; Cooper and Kyzer. The Cuban viewpoint may be found in an unofficial Cuban website, but it is not clear how authoritative it is. Cf. Rubén Urribarres: "A Cuban MiG-23 in Angola, II: Air superiority missions" at www.geocities.com/urrib2000/EqMiG23aa-e.html

whose 21 Brigade was in vain trying to cross the Lomba. The South African aircraft arrived on the scene while the MiG attack was still going on. On detecting the Mirages, the fighter-bombers immediately fled, while the two escorts turned towards the South Africans. One apparently lost his nerve, because he made a bad mistake by turning to the left and exposing his tail pipe to Captain Anton van Rensburg's Mirage. Van Rensburg did not waste time, spiralled down after him and launched, one after the other, two Matra 550 heat-seeking missiles. Both tracked beautifully, but a frustrated Van Rensburg had to watch helplessly how the first exploded in the heat plume behind the MiG and the second failed, letting the MiG escape. Both MiGs then fled to Menongue, while the Mirages returned to Rundu.

- The second encounter went less well for the South Africans. On the morning of 27 September, a SAAF photographic reconaissance sortie was threatened by a gaggle of MiG-23s, and the Mirages were scrambled in a hurry. One source states that the SAAF sent up six Mirages in an attempt to set up a trap for the Migs, while another says that the MiGs were escorting a helicopter mission.[49] Whatever the case, this time two MiGs, piloted by Major Alberto Ley Rivas and First Lieutenant Juan Carlos Chávez Godoy, attacked the Mirages from the front – something they could do with their superior radar and radar-guided missiles, while the South Africans could only shoot from behind. In a later internet article one of the Mirage pilots, Captain Arthur Piercy, recalled: "Anyway, the next thing I remember is this MiG coming head-on at me from about my one, two o'clock position. Still turning towards him, I remember flicking the trigger safety over to the cannon position. If he was going to fly through my sights, I was going to squeeze off a few rounds. Unfortunately for me he got off the first shot. "There was a bright orange flash from his left wing and then this incredibly fast telephone pole came hurtling towards me trailing a solid white smoke trail. What more is that it was corkscrewing, so I was never sure where it was going.

> "In all our training we were taught to break towards the missile. This could or should create a tracking problem for the missile and cause it to possibly overshoot.
>
> "But faced with reality I found it took a lot of willpower to fly towards something I knew was trying to kill me. However, I kept breaking towards it and I watched it corkscrew over my right wing and disappear behind me. I thought it had missed until I heard a dull thud and felt a light bump on the aircraft. I immediately scanned all the gauges, but there was no indication of any damage. When I looked up again the MiG flew over the canopy and disappeared behind me as well.
>
> "I immediate informed the leader that I thought I might have been hit and his reaction was: 'OK, let's go home.' I did not need a second invitation and I rolled the aircraft onto its back and headed for the ground.

[49] Cooper and Kyzer. Urribarres, "A Cuban MiG-23 in Angola, II: Air superiority missions" at www.geocities.com/urrib2000/EqMiG23aa-e.html

> "With hindsight it appeared that the whole fight lasted no more than 60 seconds from the time we pitched until I got the 'go home' command."[50]

Piercy succeeded in nursing his badly damaged aircraft back to AFB Rundu, but because his hydraulics were all smashed, he could not brake. The plane overshot the runway, his seat was accidentally ejected, he then landed on his back and was paralysed for life. The Mirage was repaired and eventually returned to operational flying by cannibalising another one which had crashed. It therefore cannot really count as a kill for the Cubans.[51]

- The third encounter happened on the morning of 25 February 1988, when a flight of three Mirage F1AZs, piloted by Major Willie van Coppenhagen and Captains Dawid Kleynhans and Reg van Eeden, were intercepted by MiG-23s. (A Cuban source states that there was only one MiG-23, flown by First Lieutenant Eladio Avila, who alledgedly broke off his attack on the Mirages because of a fuel shortage.) The South Africans immediately aggressively turned towards the MiG(s), which turned tail and fled.
- A few hours later on the same day, Commandant Johan Rankin, Major Frans Coetzee and Captain Trompie Nel were on another F1AZ bombing sortie, when two MiG-23s, flown by Captain Orlando Carbo and a wingman, positioned themselves on the South Africans' six o'clock position. Again, the South Africans aggressively turned into the MiGs, who swept over them. The South Africans went after them, but because they were configured for ground attack with bombs slowing them down, they could not overtake the fleeing MiGs. Rankin got on Carbo's six, launched two missiles and fired his 30 mm cannon, but to no avail. The MiGs used their superior acceleration and speed to escape.

An apparently well-researched piece by two South African writers document eight Cuban MiG-23MLs, four MiG-21s, and two Su-22s shot down, apparently by SADF and UNITA ground fire.[52]

Several conclusions may be drawn. Firstly, as far as air-to-air combat is concerned, the war ended inconclusively. Neither side won. Secondly, the South Africans conducted themselves considerably more aggressively in the air than their opponents. In encounters number one and four, they were very unlucky not to have shot down the MiGs. Thirdly, this confirms what we already knew on paper, namely that the MiG's more advanced avionics and missiles gave it a definite edge over the Mirage. However, this advantage could very well have been neutralised by the South Africans' better training and more aggressive posture. Lastly, on the basis of these

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50 Arthur Piercy, "A SAAF Pilot" at http://www.geocities.com/urrib2000/ArticPiercy2.html

51 Cooper and Kyzer; Heitman, *War in Angola*, pp. 71 and 73.

52 Cooper and Kyzer.

four encounters, it is logical to assume that, had the war in the air continued, the SAAF would have given more than they got.

After the second fight in which Piercy's aircraft was severely damaged, the South Africans poured considerable energy into developing new tactics in dealing with the MiG-23. However, the SAAF command called 3 Squadron back to AFB Waterkloof. As Heitman explains: "The distance from Rundu, the nearest air base to the front able to handle Mirages, was too great for the Mirage F1CZs to be effective in their counter-air role. Unable to protect the deployed ground forces, and with no threat to Rundu, there was no justification for keeping a detachment of 3 Squadron at Rundu."[53]

One may, however, surmise that the events of 27 September also played a role in this decision. As Brigadier General Dick Lord explained to Fred Bridgeland: "Air-to-air combat was now completely out of the question for us. The FAPA (Angolan Air Force) had too many advantages in terms of speed, range, radar and survivability in the shape of numerous little airstrips they could lob into in the case of emergencies."[54] And, as the fight in which Piercy was injured illustrated, the SAAF's nearest airstrip capable of handling a Mirage was at far-off Rundu.

6. THE GEOGRAPHICAL FACTOR

The central question which needs to be addressed in this study, is to what extent both sides'close air support and battlefield isolation influenced the course of the campaign. But if one wants to comprehend this aspect fully, you first have to take the geographical nature of the theatre into account.

The fact is that as the campaign wore on, geography started to work in favour of the Cubans and Angolans. The main argument comes from Dick Lord and Helmoed Römer Heitman, who explain that the biggest and most well-equipped SAAF base was at Grootfontein,. The Cubans and Angolans used air bases at Menongue and Cuito Cuanavale. From take-off at Cuito Cuanavale it was just three minutes' flying to the Lomba. This is one reason why the South African artillery made it its business to neutralise the airstrip.[55] As the Angolan Army was pushed back northwards, Mirages flying from Grootfontein required 42 minutes to reach the fighting area, which meant that they had fuel for two minutes of fighting before reaching bingo state – Air Force jargon for the minimum amount needed to get back to base. The SAAF did have recently acquired Boeing 707 tanker aircraft, but operations with these were only starting and did not have much success in Angola. At the same time, flying from Menongue to the Lomba took 17 minutes and nine to Tumpo. In other words, with its range, the MiG-23s could linger over an hour over the latter battlefield, protecting

53 Heitman, *War in Angola*, p. 321.
54 Bridgeland, p. 262.
55 *Ibid*., p. 173.

their own troops from South African bombing attacks, or alternatively looking for targets of opportunity.[56]

AFB Grootfontein played host mostly to the Buccaneers, which had a considerable longer range than the Mirages. This is exactly the reason why the Mirages, with their shorter legs, sometimes started their missions at AFB Rundu, just south of the Angolan border and nearer to the frontline (18 minutes). However, the runway at Rundu was not long enough to allow the Mirages to take off with full bomb loads, which often forced them to start their missions at Grootfontein.[57]

Colonel Dick Lord told Fred Bridgeland that the SAAF flew in a more hostile environment than any air force had ever faced (US pilots flying over Hanoi during the Vietnam War might differ, but Lord is quite correct that it was a very challenging environment indeed.) "The Israeli Air Force has never faced such a full range of missiles", Lord said. "And when its pilots have carried out deep penetration raids it's been on a one-off basis. Our pilots had to go deep day-in, day-out. During Moduler they had to fly to avoid Sam-8s, Sam-13s and Sam-9s as well as the normally expected shoulder-launched Sam-7s, 14s and 16s. During Hooper they also came in range of Sam-6s (computer-controlled missiles with ranges of up to 30 km which can lock on to aircraft as close as 100 m to the ground and up to a height of 18 000 metres) and Sam-3 (guided missile used in short-range defence against low-flying aircraft)."[58]

Besides, the further north the SAAF aircraft had to fly, the lower they had to get to avoid enemy radar for as long as possible. They really had to hug the ground.[59]

The conclusion, clearly, is that geography favoured especially the Cubans/Angolans and hampered the SAAF.

7. GROUND ATTACK

With this background, we may now proceed to analyse the ground attack missions on both sides, and especially their effect on the course of the war.

The questions that need answering now are the following:

- To what extent did the Cuban and Angolan air superiority prevent the South Africans from attacking FAPLA on the ground?
- To what extent did the South African ground attacks hamper FAPLA's ground operations?
- To what extent did the SAAF prevent the Cubans/Angolans from attacking the SADF and UNITA on the ground?

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56 Cf. Lord, *From fledgeling to eagle*, p. 426; Lord, *Vlamgat*, pp. 182-183; Heitman, *War in Angola*, p. 312; Bridgeland, pp. 261-262; Urribarres, "A Cuban MiG-23 in Angola, II: Air superiority missions" at www.geocities.com/urrib2000/EqMiG23aa-e.html

57 Heitman, *War in Angola*, pp. 48-49; Lord, *From fledgeling to eagle*, p. 425.

58 Bridgeland, p. 261.

59 *Ibid*., p. 262.

- And lastly, to what extent did the Cuban/Angolan ground attacks hamper the SADF's ground operations?

On the South African side, close air support and battlefield isolation fell to 1 Squadron (with 12 Mirage F1AZs deployed) and 24 Squadron (with four Buccaneers deployed). Together, they flew 144 and 32 multi-aircraft strikes respectively, or 683 and 99 sorties.[60] This was a modest force by any standard.

The answer to the first question is fairly simple. By way of introduction, it must be said that the second air battle on 27 September 1987, when Captain Arthur Piercy's Mirage F1CZ was damaged, gave the SAAF a fright. This fight, as well as the one on 10 September – and this was confirmed by the encounter on 25 March 1988 – illustrated that the SAAF's weapons systems on the Mirage F1CZ were not the equal of those of the MiG-23. In spite of attempts to come up with improved tactics and the superiority of the South African pilots, the decision was taken at SAAF HQ to recall these aircraft. After all, they were practically irreplaceable, as it would take some months before the first Cheetah-E squadron would become operational. This meant that the bombing raids by the Mirage F1AZs and Buccaneers would have to be made without any fighter protection.

This, however, did not matter that much. In his book, largely based on official SADF records, Heitman lists a whole host of strikes flown by 1 and 24 Squadrons. His measured conclusion is that the total of 1 185 Cuban sorties flown for top cover, intercept and escort, "had virtually no effect on the SAAF strike programme". In fact, the Mirages "flew several strikes while MiG-23s were prowling above them". He says they "were also not able to prevent the SAAF from striking their ground forces at will anywhere in the area, even in the immediate vicinity of Cuito Cuanavale and Menongue. They did, however, force the SAAF to restrict transport operations to the hours of darkness."[61]

In an interview with Fred Bridgeland, Commandant Jan Hougaard of 32 Battalion – at the time he was with a clandestine mission on the supply route between Menongue and Cuito Cuanavale – explained that the SAAF Mirages came in low and fast and only when they knew the enemy MiGs were on the ground or when they could otherwise fool the MiGs.[62] After all, although it might be damaging to your sense of machismo, it made no military sense to send your irreplaceable Mirages (remember, these were the F1AZ ground attack version, less suitable for dogfights than the interceptor F1CZ) into the air when they are decidedly inferior to the enemy in straight combat.

As far as the Angolans' ground defences are concerned, it is true that they had more than enough state of the art anti-aircraft guns and missiles at their disposal –

60 Heitman, *War in Angola*, p. 311.
61 *Ibid*., pp. 313 and 328.
62 Bridgeland, p. 249.

the deadly ZU-23 AA gun, for instance, as well as the obsolete SA- 2, the somewhat more modern SA-3 and even the latest SA-8 missiles. Right at the beginning of the campaign, on 3 September 1987, a SA-8 destroyed a South African Bosbok spotter aircraft, piloted by Lieutenant Richard Glynn, with Commandant Johann du Randt in the passenger's seat. The presence of this missile system took the SADF totally by surprise, and the result was the immediate withdrawal of the by now obsolete and vulnerable Canberra bombers from the theatre. This also resulted in a short halt in the SAAF aerial bombing, but Commandant Jan Hougaard, who witnessed the South African toss-bombing by Mirage and Buccaneer bombers from the ground, assured HQ that the method worked excellently and caught the enemy by surprise time after time. And so, aerial bombing was resumed.[63] A few days later, a complete SA-8 system was captured intact and flown to South Africa from Mavinga by a SAAF C-160 cargo plane – the first time this very sophisticated system fell into enemy hands.[64]

On 9 February 1988, Major Ed Every was shot down and killed during a Mirage F1AZ bombing sortie by an Angolan surface-to-air missile.(Another F1, flown by Major Willie van Coppenhagen, was lost on 19 March, but the likely cause was an accident.)[65] Nevertheless, just as the MiG mastery of the air did not deter the SAAF from attacking FAPLA troops at will, neither did the Angolans' posession of superb Soviet-made AA weapons systems. Once a SA-8 locked on to a Buccaneer, but the lock was quickly broken.[66]

During the whole campaign, South African pilots reported a total of 112 enemy missiles fired at them. To have downed only two SAAF aircraft, seems truly remarkable. In turn, according to South African intelligence, the South African bombing raids were responsible for between 4 000 and 6 000 enemy casualties. Dick Lord reports that Fidel Castro even mentioned the number of 9 000 in a speech in parliament.[67]

This success was primarily due to the fact that the SAAF had learnt a very good bombing tactic from other Western air forces, known as the "toss-bombing method". This means that the attacking pilots approach the vicinity of the target right down on the deck, and at a predetermined point pull their aircraft up fairly sharply at a predetermined angle. At a predetermined height they then release their bombs, turn around, dive back to the ground and make for home. If done correctly, stick after stick of bombs smother the target and obliterates it, without the enemy radar being able to lock on to the attacking aircraft. Afterwards, the aircraft sometimes exited as low as 15 m![68]

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63 *Ibid*., pp. 53-55; Heitman, *War in Angola*, p. 49; Hamann, p. 90.

64 Lord, *From fledgeling to eagle*, pp. 414-423; Nortje, p. 241; Bridgeland, pp. 150-160.

65 Lord, *From fledgeling to eagle*, pp. 438-439 and 441-442; Jan Breytenbach, *Buffalo soldiers. The story of South Africa's 32 Battalion 1975-1993* (Alberton, 2002), p. 313.

66 Heitman, *War in Angola*, p. 313.

67 Lord, *From fledgeling to eagle*, p. 443.

68 *Ibid*., pp. 428-434; Bridgeland, pp. 49-51.

This method, however safe, does have a major drawback in that it makes precision bombing, which often is necessary for close air support, very difficult, especially when the enemy and friendly troops are (as is often the case) very near to each other. (This task was, therefore, successfully taken over by the South African artillery.[69]) The Mirage F1AZ did have an excellent laser range-finder and rolling map display which made dive-bombing very accurate indeed,[70] but this only worked when the plane passed not far from the target. The toss-bombing method worked well as area-bombing, and therefore was more suitable for battlefield isolation – i.e. preventing supplies and reinforcements, carried by vehicle convoy, from reaching the enemy on the front line.

Especially at the Lomba River early on, several Angolan formations were hammered hard by SAAF planes and this contributed to the Angolan decision to abandon the effort to cross the Lomba.[71] However, in the final phase, during the battles in the Tumpo Triangle, the South African Army had to do virtually without air support. As Bridgeland explains, "despite all the skills, ingenuity and courage of South Africa's pilots, the Mirage obsolesence factor outweighed all the qualities the SAAF's men could bring to bear in the Tumpo Triangle. If the SAAF had tried to fly into the Triangle too often in close support its planes would have been swallowed up as though in some evil black hole."[72] Therefore, units operating within 39 km of Cuito Cuanavale were warned not to expect any SAAF close air support – interestingly enough not because of interference from the Cuban and Angolan interceptors, but due to the AA systems in and around the place.[73]

Mirage IIIR2Z photo reconaissance aircraft often made sorties. They would stay right down at 50m, rapidly gain height and take their photographs, and exit again on the deck. Not a single one was shot down.[74] Other reconaissance missions were undertaken by the Air Force's Seeker unmanned aerial vehicles (UAVs) from 10 Squadron, which observed the enemy by television camera and beamed back to the handlers. They played an invaluable role especially during the Lomba battles, when they – in the words of Dick Lord – "assisted in the identification of suitable targets as the Angolan brigades advanced through the dense bush". Three were shot down, but they were relatively cheap and carried no crew.[75]

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69 Cf. for instance Bridgeland, pp. 75 and 84.

70 The writer witnessed this himself during a demonstration at Lohatlha Army Battle School in 1996. A tank would fire a smoke bomb which would explode a few hundred yards away and became the target for the Mirages. Their bombs landed within 5-10 metres of the target, more than adequate to destroy it. (Of course, the Cheetah-Cs with their even more advanced equipment were even better, but that is beside the point.)

71 Bridgeland, pp. 49, 100-101 and 140-141.

72 *Ibid*., p. 295.

73 Heitman, *War in Angola*, p. 94.

74 Bridgeland, p. 49.

75 *Ibid*., p. 116; Heitman, *War in Angola*, pp. 325-326; Lord, *From fledgeling to eagle*, pp. 399-400.

To answer the second question is less easy because of a lack of sources on the Cuban and Angolan side. According to Russian author, Gennady Shubin, "Lieutenant-Colonel of the reserve Igor Zhdarkin recalls another occasion – the South African planes, flying at a low level, burned away 29 petrol tankers on the 'road of life' between Menonge [sic] and Cuito-Cuanavale. In total on the road there were over 350 remains of burned out tanks, BTRs, infantry combat vehicles, petrol tankers and trucks."[76]

On 29 December 1987 a rather frightened (Cuban?) officer signalled General Ochoa Sanchez, Cuban commander in Angola, that he could not attend a meeting. He added: "Also under Boer air attack all morning. 34 light casualties. No kites [aircraft] hit. Relief urgent."[77]

From intercepted radio messages and recce reports, it is also clear that the Angolans at times were terribly distressed by the SAAF attacks and that they suffered badly.[78] Colonel Jan Breytenbach reports that FAPLA convoys between Menongue and Cuito Cuanavale were devastated at least on 16 occasions by SAAF Mirage attacks, artillery bombardments or both. He adds: "Results were monitored and confirmed by Recces on the ground, so the figures can be regarded as accurate."[79] At other times, the attacks were inconclusive. In an attack on a supply convoy on 22 December 1987, for instance, only eight vehicles in a convoy of 318 FAPLA vehicles, including 35 tanks, were destroyed. In contrast, on 9 January 40 vehicles out of 170 were destroyed by an air strike.[80]

The SADF also repeatedly attempted to destroy the bridge over the Cuito River at Cuito Cuanavale, as it was an important supply route from the harbour of Namibe to Menongue and thence to the front. A special forces team placed explosives at the base, but this only weakened the bridge and did not destroy it. SAAF Buccaneer and Mirage F1AZ bombers repeatedly attacked it, but also could not bring it down. Finally, it was destroyed in December 1987 by an H2 guided glide bomb, launched by a Buccaneer. However, a pontoon bridge was built alongside the destoyed one, and the supply movement went on, albeit at a reduced rate.[81]

It thus appears as if the Angolans were, at times, severely disadvantaged by SAAF operations, but not decisively so. SAAF strikes did help to restrict their supply trains and curtailed their operational and tactical movements, but where they

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76 Gennadi Shubin (ed.), *The memoirs of veterans of the war in Angola* (Moscow, 2007), footnote 39.

77 Series of radio messages, intercepted by the US NSA, passed on to British intelligence, which in turn passed them on to South Africa. They are published by an internet site which in the past have made several secret sources available. See www.trust-us.ch/cryptome/01-Cryptome-061213/ao-cu-sigint.htm

78 Bridgeland, pp. 177 and 247; Heitman, *War in Angola*, pp. 69, 95, 164 and 183.

79 Breytenbach, *Buffalo soldiers*, p.312.

80 Bridgeland, pp. 246 and 250.

81 Lord, *From fledgeling to eagle*, pp. 428-434.

were defeated, the SAAF attacks were but a secondary factor. The prime reason was defeat at the hands of the ground forces.

As far as the third question is concerned, we may be short. As the SAAF command at the end of September 1987 made a strategic decision not to actively seek to engage the Cubans or Angolans in the air, they never tried to prevent the enemy from attacking either the South African Army or UNITA on the ground. The Cubans and Angolans had more or less free play.

At the same time, Cuban/Angolan aircraft were, at times, destroyed by South African and UNITA ground forces. G-5 artillery bombardment of the airstrip at Cuito Cuanavale, called for by the Recces with their sharp eyes, more than once destroyed Cuban/Angolan aircraft on the ground, after which these were at the end of October 1987 withdrawn to Menongue.[82] Nevertheless, having a free hand in the air, Cuban MiGs undertook a total of 1 283 sorties above Cuito Cuanavale between January and March 1988.[83]

The fourth question will again take some space.

It is clear that the Cuban/Angolan domination of the air caused problems for the South Africans on the ground right from the beginning. When 61 Mechanised Battalion Group, the Army's largest conventional war formation, was ordered into Angola at the beginning of September, they moved at first in daylight. As 61 Mech's deputy commander, Major Laurence Maree, related to Fred Bridgeland, "Until Luengue (100 km south of Mavinga) we moved by day. But then we came within range of the enemy MiGs and we had to start moving at night only. It caused lots of problems … We stopped at sunrise, spread the convoy, camouflaged everything under the trees and rested all day. At sunset we started again. But only one of our Ratels had night navigation electronics. It would set a course for Mavinga and then weave a way through the forest towards the destination. We had to move very slowly and stop constantly to check by radio that all 126 vehicles were within sight of each other."[84]

This seems like being fairly representative of South African Army movements throughout the campaign, which generally had to be conducted in the hours of darkness due to the danger of MiG attacks. This obviously changed resupplying the troops at the front into a major headache, and this meant that the South African weapons, especially the artillery, could not be properly maintained. Lack of maintenance and lack of spares caused ever more guns, tanks, armoured cars, trucks, etc., to become unserviceable.[85] Also, throughout the latter part of the campaign the

82 Cf. *Ibid*., p. 180; Heitman, *War in Angola*, pp. 107-108.

83 Rubén Urribarres, "Los MiG-21 Fishbed de Cuba en acción" at http://www.geocities.com/urrib2000/EqMiG21a.html

84 Bridgeland, pp. 119-120.

85 Heitman, *War in Angola*, p. 102.

big South African 155mm G-5 and G-6 guns – arguably the SADF's key weapons system – had to be moved around continually to avoid MiG strikes.[86]

Generally the Cuban/Angolan MiGs were in the air in strength, but they caused very little casualties.[87] This was due to two factors.

The first was that South African reconnaissance commandos were stationed close to Menongue air base, and every time the MiGs took off, the SADF ground forces were alerted by radio, so that they could camouflage themselves and not be seen from the air.[88] Secondly, the Cuban/Angolan pilots had a healthy fear of their adversaries' anti-aircraft weapons. Not so much the South Africans' – these were mainly obsolete Cactus missiles which were moreover designed for base protection, not the harsh bush conditions, as well as 20mm cannon on the back of Unimog trucks. The pilots were much more afraid of UNITA's deadly hand-operated Stinger missiles, supplied by America. This meant that they generally released their bombs at a minimum of 6 000 feet and sometimes as high as 16 000 feet. Also, the Cubans and Angolans had to stay high in order to been "seen" by their own radar controllers. Their style of fighting was typically Soviet, with tight control from the ground. This, too, made their bomb runs highly inaccurate.[89]

Nevertheless, inaccurate or not, the flip side of the coin was that the South Africans had to stop their movements and hide every time the MiGs were overhead. And that certainly hampered their ground operations. During the Lomba battles, the Cuban and Angolan bombers were not much of a factor. But as the South Africans advanced northward to the Chambinga high ground and finally the Tumpo triangle, Menongue was only a few minutes' flight away, and the MiGs could therefore dominate the air totally. Even though their bombing stayed highly inaccurate (only four South African soldiers died and seven were wounded as a result),[90] there are many South African accounts of radio calls of "Victor, victor!" (Afrikaans: *vyande-like vliegtuig*, or "enemy aircraft") coming through. One troopie remembered: "(After) this call over the radio everyone would pull off the path and into the bushes where we would quickly camouflage them with branches. We heard several MiG's and sometimes we would spot them at high altitude, but they wouldn't see us."[91]

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86 Bridgeland, p. 175.

87 Cf. for instance *Ibid*., pp. 143 and 196.

88 *Ibid*., p. 67; Hamann, p. 90.

89 Heitman, *War in Angola*, pp. 110 and 329. Cf. also Breytenbach, *Buffalo battalion*, p. 277, and Bridgeland, pp. 85, 162, 262 and 273. There is an interesting account by a Cuban pilot, Captain Juan Francisco Alfonso Doval being shot down in a MiG-23 while engaged in a ground attack sortie. Cf. Ivan Terrero, "El vuelo inolvidable de Juan Francisco Doval" *Granma*, 1 December 2005 at www.granma.cu/ESPANOL/2005/diciembre/juev1/49piloto.html

90 Lord, *From fledgeling to eagle*, p. 443.

91 Damian French, "1 SAI – Ratels in Op Hooper (1987-1988)" at http://uk.geocities.com/sadf_history1/dfrench.html.

Describing the history of 32 Battalion, Colonel Jan Breytenbach also mentions the "unwelcome attention of MiGs" during this series of battles. While the MiG strikes always missed their target, they slowed the South African advance considerably and meant that the element of surprise was lost.[92] At one time, a major attack was actually cancelled because UNITA came up with false intelligence about an imminent MiG strike. The South African battle group immediately retreated into the bush. "If they had remained and been caught by enemy strike jets on the open expanse of the flood plain, the consequences might have been devastating", Breytenbach concludes.[93] Sometimes ground offensives – for instance, the attack on 11 November – had to be postponed because of MiGs in the sky.[94]

One South African crew member of an Olifant tank later published his diary, from which the following extracts are taken:

> "02/01/1988 – 01h39 Attacked 21st FAPLA Brigade ... We are attacked by MiGs at tree top level. Our water bunker is hit. 17h30 departed for new position 30km away. Arrived at 22h00. Bombs fell less than 100m away during MiG attack.
>
> "03/01/1988 – Continuous harassment from MiGs during the day …
>
> "04/01/1988 – MiGs bomb own forces….
>
> "06/01/88 – MiGs attack us at 0600. Bombs landed close to us. Dived into fox holes. Moving position tonight 30 km away...
>
> "12/01/88 – Departed 03h15 to get into position for attack …MiGs delayed attack."[95]

The next day, a South African battle group attacked FAPLA's 21 Brigade to the north of Tumpo. "The going was extremely slow," a South African remembered, "as once day broke we were hampered by 'VV' calls as the sky had cleared and the MiGs could fly from Menongue."[96]

Many of the Cuban strikes during this time was flown by "Cuba's finest MiG pilots" who were hastily flown to Angola, following a decision by Fidel Castro that his country could not allow a victory by the racist South Africans.[97]

From Clive Holt's personal memoirs of his service with 61 Mech during Operation Hooper's attacks on the Angolans, it is also very clear that MiGs were, as it were, continually swarming in the air. And although he adamantly states that the air attacks were mostly off target, his account testifies to the way the MiGs' mastery of the air made the South Africans' movements on the ground rather difficult at crucial

92 Breytenbach, *Buffalo battalion*, p. 286.

93 *Ibid*., p. 293. Cf. also Edward George, *The Cuban intervention in Angola, 1965-1991* (London, 2005), p.215.

94 Heitman, *War in Angola*, p. 132.

95 William Surmon, "School of Armour – 4 SAI – Operation Hooper (1987-1988)", at uk.geocities.com/sasolboy/abenstxt.html

96 Damian French, "1 SAI – Ratels in Op Hooper (1987-1988)" at http://uk.geocities.com/sadf_history1/dfrench.html

97 George, p. 215.

times.[98] During 61 Mech's first attack on the Angolans in the Tumpo Triangle, their artillery support at one stage fell away because of the MiGs in the air. The G-5s could not afford to give away their position to the aircraft, and for some reason or another, UNITA's troops had no Stingers available.[99]

And during Operation Packer, the third and final SADF attack at Tumpo (22 March 1988), the South Africans had, once again, to form up during the preceding night because of the MiG danger. As Gerhard Oosthuizen relates in his study of Regiment Mooi River during this time: "However, the nocturnal movement started disastrously, because the scouts, who also acted as guides, lost the way. Consequently the first tanks got lost and ended up behind the last ones! In the process of sorting out the chaos, the convoy was stationary for a long time, and because the engines were not switched off, a thick layer of diesel gas caused considerable discomfort."[100]

This caused much delay and certainly played a role in the repulse of the South African attack that day.

These are all anecdotal pieces of evidence, but typical of what happened throughout. Helmoed Römer Heitman's conclusion seems inescapable: "What they [the enemy air attacks] did achieve, was to hamper South African operations considerably. It would not be going too far to say that on several occasions it was only the timely arrival of MiGs over a battlefield that prevented the complete destruction of a FAPLA brigade. It was also in large measure because of the MiGs that the small remaining Tumpo bridgehead could be held. If there had been no MiGs overhead, the South African artillery could in time have silenced its opponents on the west bank. The ground forces would then have cleared the east bank of FAPLA. That the MiGs were able to excercise that much influence on the ground battle, was largely a result of the remarkable reluctance of the South Africans to accept casualties. A force less concerned with that aspect might have been able to achieve rather more for no appreciably greater number of casualties."[101]

Another aspect of this question is, of course, logistics. The presence of MiG-23 combat air patrols over the operational area meant that supply and casevac flights could normally only be flown at night in very difficult circumstances. Especially the C-130s and C-160s of 28 Squadron, flying between AFB Grootfontein and the UNITA-controlled airstrip of Mavinga, had to be well gone before daylight from Mavinga or risk being destroyed on the runway by the Angolan/ Cuban MiGs. During the campaign, the C-130s flew 412 sorties, moved 5 448 tons of supplies and

98 Clive Holt, *At thy call we did not falter* (Cape Town, 2005), pp. 87 and 89-98. Cf. also Bridgeland, pp. 212 and 274; Heitman, *War in Angola*, p. 227.

99 Bridgeland, p. 297.

100 GJJ Oosthuizen, "The final phase of South African transborder operations into Angola: Regiment Mooi River and Operations Modular, Hooper, Packer and Displace (Handbag), 1987-1988", *Journal for Contemporary History* 28/2, September 2003, p. 103.

101 Heitman, *War in Angola*, p. 328. Cf. also pp. 250-251, 259-262, 279-280, and 283.

4 730 men, while the figures for the C-160s were 169 sorties, 1 435 tons of supplies and 2 097 men respectively.[102]

The pilots of these transport aircraft not only played a vital role, keeping the troops at the front supplied with the essentials of war, but they had to be extremely good at their job, with nerves of steel. They would typically take off after dark from Grootfontein, heavily laden with an assortment of supplies, including food, ammunition, vehicle and weapon spare parts, clothes, and medical supplies. They then flew to Mavinga, mostly at a height of 150 meters and without radar so as not to alert the enemy and without navigational landmarks, due to the flat terrain. Mavinga had only a very primitive airstrip, barely long enough to handle the lumbering transports, no flight tower and no electrical lighting. When an aircraft came in, tins filled with fuel-drenched sand would be lit along the sides of the runway, and immediately doused once the plane came to a hault. This was a hair-raising experience which called for airmanship of the highest standard and which had to be repeated night after night.[103]

"Every night it was hellishly hairy for the transport crews," Dick Lord told Fred Bridgeland.[104]

However, the SAAF did not posess enough airlift capability, and so even the frantic efforts of 28 Squadron were not enough, especially as daylight hours could not be utilised. The troops at the front continually had to contend with shortages of just about everything. This, too hampered Army ground operations, but not decisively so.

Another element to be addressed is the extent of SAAF helicopter operations inside Angola. In contrast to operations south of the border, where the SADF was fighting a counter-insurgency war against SWAPO, the Air Force did not employ any Alouette III gunships; nor did they take troops into battle. They did provide a shuttle service between Brigade HQ and the front line for essential passengers – visiting staff officers and the like, or frontline commanders who had to visit Brigade HQ at Mavinga – and urgent cargo. They were stationed at Rundu and would typically fly to Mavinga, refuel and fly onwards to the front and back again. For the same reason as the C-130s and C-160s they had to be back at Rundu before sunrise.[105]

These same chopper pilots also flew casevac missions as they did throughout the Border War. At other times, they extricated members of the Reconaissance Commandos who were fleeing before an enemy in hot pursuit.[106]

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102 Lord, *From fledgeling to eagle*, pp. 414-416; Heitman, *War in Angola*, p. 321.
103 Lord, *From fledgeling to eagle*, pp. 414-416; Heitman, *War in Angola*, pp. 321-322.
104 Bridgeland, p. 184.
105 Heitman, *War in Angola*, pp. 323-325.
106 Lord, *From fledgeling to eagle*, pp. 396-398 and 423.

8. THE FINAL CUBAN FLANKING MARCH

In Havana, the Cuban dictator, Fidel Castro, was under severe domestic pressure to abandon the ever increasingly unpopular war in Angola, and he therefore made contact with the South Africans and Americans to discuss peace. But he wanted to leave the war with honour, not with his tail between his legs. Thus, he took command of all operations from his HQ in Havana, fiercely rejecting requests to abandon the Tumpo Triangle and Cuito Cuanavale and to pull back to Menongue. He reinforced the FAPLA forces in front of Cuito Cuanavale and sent his élite 50th Division, which normally guarded his capital, all the way to Angola. Having been assembled there, this formation was marched southwards towards the SWA/ Namibian border, ostensibly threatening to invade Namibia or even to cut off the South African force in the Tumpo Triangle. Some 80 MiG-23s and MiG-21s covered this advance from the air.[107]

As Castro himself explained somewhat propagandistically: "So while in Cuito Cuanavale the South African troops were bled, to the southwest 40 000 Cuban and 30 000 Angolan troops, supported by some 600 tanks, hundreds of pieces of artillery, 1 000 anti-aircraft weapons and the daring MiG-23 units that secured air supremacy, advanced towards the Namibian border, ready to literally sweep up the South African forces deployed along that main route."[108]

In the process, the Cubans threatened the Calueque water works just north of the border, on which a large part of northern SWA/Namibia depended for its fresh water. Some sharp exchanges followed, but neither side wished to escalate the war.

During this last phase, Cuban aircraft were not challenged in the air at all, the SAAF Mirages and Buccaneers having been pulled back to South Africa already. In the process, the Cubans crossed the border once or twice and came to within 20 km of Oshakati and AFB Ondangwa. The South Africans now had to decide whether to bring back their Mirages, especially since the Cubans had established air bases at Xangongo and Cahama, not all that far from the border.

Colonel Dick Lord explained to Fred Bridgeland: "Although we did think they might attack the bases, the high altitudes they were flying were not conducive to surprise. They were always within our radar cover. I think we made the correct analysis of the extent of the threat. We decided that they wanted to test our pilots' reaction times. For that reason we were reluctant to scramble, but often we couldn't because we didn't have any suitable fighters situated there!" (Only Impalas were

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107 Urribarres, "Los MiG-21 Fishbed de Cuba en acción" at http://www.geocities.com/urrib2000/EqMiG21a.html

108 "Speech by Dr Fidel Castro Ruz, President of the Republic of Cuba, at the ceremony commemorating the 30th anniversary of the Cuban Military Mission in Angola and the 49th anniversary of the landing of the "Granma", Revolutionary Armed Forces Day, December 2, 2005" at emba.cubaminrex.cu/Default.aspx?tabid=15937

available.)[109] Later on, Lord became convinced that these transgressions were the result of navigational errors rather than deliberate provocations. Besides, as a deterrent, the SAAF decided to hold its annual *Golden Eagle* exercise in northern SWA/Namibia, the scenario being attacks from the north. This was done within range of the enemy's long-range radar.[110]

The air war ended with a Cuban air attack on South Africans protecting the Calueque Dam, killing 12 of them. One MiG-23, however, was shot down by AA fire.[111]

9. CONCLUSION

Several conclusions result from the above analysis.

- Especially with the MiG-23, the Cubans and Angolans had an aircraft which was superior to the Mirage F1CZ in certain critical respects. With properly working air-to-air missiles, chances are that the more capable South African pilots would, however, have been able to neutralise the MiG-23's superiority. As it was, the SAAF declined to fight a battle in which the enemy invariably would have the advantage. Its aircraft were, at least for the time being, irreplaceable. And besides, it is a universally accepted principle of war not to fight the enemy where he is strong, but where he is weak. The decision to pull back the interceptor F1CZ was, therefore, militarily sound.
- This left the SAAF Mirage F1AZ and Buccaneer ground attack aircraft to sneak in and bomb the enemy ground forces when their air force was not looking. Through intelligent handling of intelligence and good planning of the bombing sorties, the South Africans could mostly attack when and where they wished.
- Although these bombing sorties at times did hurt the Angolan troops on the ground and destroyed a great deal of their supply convoys, the SAAF was never present in sufficient strength to have a decisive influence. Where the Angolans were defeated, the action of the South African Army was the decisive factor; the Air Force at most played a secondary role.
- The Air Force made a superhuman effort to keep the troops on the front line supplied, but the task was simply too great. The result was that a shortage of spares impacted negatively on the South African artillery and armour, especially during the later stages of the campaign. It is impossible to assess the effect this had on the outcome conclusively, but it must have played a contributory role.

109 Bridgeland, pp. 344 and 360.
110 Lord, *From fledgeling to eagle*, p. 448.
111 Bridgeland, pp. 361-363; Heitman, *War in Angola*, pp. 306-307.

- Being masters of the air, the Cuban and Angolan aircraft attacked the South Africans on the ground at will, especially in the final weeks. Their base at Menongue was near, and their aircraft had sufficient loiter time over the battlefield to attack targets of opportunity. However, because they were mostly afraid to attack from a low altitude, they often stayed too high to be accurate, and therefore caused only minimal casualties. Nevertheless, their "hassle effect" was high. The South Africans' major movements had to be undertaken at night, and where they moved in the day, they had to stop and hide every time the MiGs came over – which happened many times. In other words, their ground campaign was definitely hampered. At times, the effect was important in that they helped an enemy unit to escape destruction. In general, the enemy air attacks were, however, not decisive for the outcome of the campaign. Again, the outcome was decided primarily on the ground.
- Flowing from this, we may come to a general conclusion about the role of air power in warfare. Common wisdom – and we mentioned it at the beginning of this study – has it that no land campaign can be succesful in the face of enemy supremacy in the air. In the light of the campaign in Angola, 1987-1988, we may adapt this conclusion somewhat: A land campaign *can* be succesful in the face of enemy aerial supremacy, *provided* that the enemy air force is militarily incompetent, like the Cuban and Angolan Air Forces.

One question remains: Was the international weapons embargo against the SADF responsible for the SAAF's problems in Angola? On balance, the answer is probably negative.

The SAAF frontline fighter, the Mirage F1, became operational a decade before the fighting analysed above. This is not a long time – for instance, at the time of writing (early 2009) some air forces still operate the F1, or the Lockheed F-16, which came into production only a few years after the F1, and we are now more than 30 years down the line. As a parliamentary journalist, this writer was told by an Armscor official already in the early eighties that preliminary work had begun on an upgrade of the Mirage III, which eventually became the Cheetah-E and the Cheetah-C. The Cheetah-E became operational later in 1988,[112] while the failing air-to-air missiles were soon afterwards withdrawn and replaced by the much better V3C and V4 missiles.[113]

In other words, the renewal of the SAAF equipment took place pretty much in the normal time frame one would expect for an air force unhampered by an embargo. In fact, the campaign of 1987-1988 caught the SAAF at an unfortunate time when its aircraft were already outclassed, but before their replacements could reasonably be expected to be operational. The question of how the Cheetah-E, or its final

112 "Cheetah-E" at http://www.saairforce.co.za/the-airforce/aircraft/68/cheetah-e

113 "Mirage F1AZ/CZ ordinance" at newsite.ipmssa.za.org/content/view/149/28/1/5

version, the Cheetah-C, would have fared against the MiG-23, cannot, of course, be conclusively answered and will remain a matter for speculation. With the latter's beyond visual range capability (radar as well as missiles),[114] one may assume that it would have been more than a match for the Soviet fighter. Also, when one takes into account how well the Cheetah-C did in excercises in 2006 against USAF F-15s, one may surmise that the air war of 1987-1988 could have had a different course had the Cheetah been available then.

[114] Divan Muller, "Cheetah phasing out function", *African Pilot* 7/5, May 2008.