Operation SERVAL: French Intervention in Mali

Airpower & Joint Lessons for the ADF

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UNCLASSIFIED: ALL MATERIAL DRAWN FROM OPEN SOURCES
**Presentation Outline**

**Background**

**Militant Offensive**

**French Reaction - Operation SERVAL**
- Phase 1: Protect Bamako & Blunt Militant Offensive
- Phase 2: Retake Northern Mali
- Phase 3: Re-unite Mali under government control

**Key French Highlights with a focus on Airpower**

**Airpower Issues to consider**

**Airpower & Joint lessons for the ADF**
Mali 1960-2011

1960  Independence from France, Tuareg issue in north

1961  First Tuareg Rebellion against government rule

1990s  Northern Tuareg MPA* seek a separate state

2003  AQIM* arrives in remote Tegharghar mountains

2007  New Tuareg grouping emerges to fight govt forces

2011  Armed Tuareg in Gaddafi army return, form MNLA*

2011  Islamist Anser Dine splits from MNLA

*Movement Populaire de l’Azaouad/Azawad (MPA)

*Al-Qaeda in Islamic Maghreb (AQIM)

*National Movement for Liberation of Azawad (MNLA)

Source: Making Sense of Mali, Aljazeera 17th Jan 2013
Mali 2012

Mar  President Toure ousted & constitution suspended

Mar  MNLA alliance with Ansar Dine *, MUJAO * & AQIM

April  Kidal, Gao & Timbuktu overrun, Azawad state

Apr/Jun  Islamist groups impose Sharia Law, MNLA revolts

Oct  UN authorises 3000 Africans to combat Islamists

Dec  AQIM splits with Signatures in Blood offshoot

(Note: On 16th Jan, Signatures in Blood attacks Algerian Gas Field)

*Anser Dine (related to MNLA & FLNA)

*Movement for One & Jihad in West Africa (MUJAO)

Source: Making Sense of Mali, Aljazeera 17th Jan 2013; Map from BBC, 15th Jan 2013
Jan 2013: Islamist Pre-emptive Offensive

UN Resolution 2085 approves AFISMA* for 1 year

Islamist Militants plan offensive to pre-empt AFISMA

Phase 1  Konna & Diabaly
Phase 2  Mopti harbour, Sevare, & Segou
Phase 3  March on Bamako

French intelligence identify 2 offensive columns

600 personnel, 100 utes, BTR-60 APCs & BM-21 MLRS

8th Jan Mali Government seeks French intervention

9th Jan Phase 1 first success with Konna falling to Militants

*African International Support Mission in Mali (AFISMA)

10th Jan: French launch Operational SERVAL

French Defence Minister Le Drian details Operation SERVAL:

1. Protect Bamako (6,000 French civilians)

2. Halt militant offensive using responsive airpower & SF mobile forces

3. Accelerate AFISMA deployment to begin on the 17th January

4. Recapture Northern Mali and re-instate government control

5. Deploy 450 man European Union Trg Mission to Mali (EUTM Mali)

Note: French search/rescue of nationals kidnapped by Jihadists in Sahel already underway in West Africa

How much force & where to deploy?

Mali is a land locked state, harsh/dry climate

Dominated by the Niger River

Northern Mali is semi arid to desert

Distance from the Capital Bamako

- Bamako to Konna: 400km (front line)
- Bamako to Gao: 945km (key northern town)
- Bamako to Kidal: 1193km (far north)

Outside support base distance to Bamako

- Dakar to Bamako: 1353km (port)
- Abidjan to Bamako: 1110km (port)
- N’Djamena to Bamako: 2500km (airbase)

French Assessment of Militant Forces

Tactical competence

- War hardened, unit operations, fought in Libya/Mali
- Concentration/dispersal, manoeuvre & co-ordinated indirect fire
- Direct Fire: light arms, crew weapons on vehicles & old APCs
- Indirect Fire: light artillery, BM-21 MLRS (Libyan/Mali Army stocks)

Militant Group Weakness

- Loose command/co-ord between groups – AQIM more aggressive
- Lack of tactical & secure communications equipment
- Lack ability to counter a range of airpower
- Foreign Islamist’s not popular with local Turareg over Sharia law

French Operational Plan

1. Secure Bamako with forces from Senegal, Chad & Ivory Coast
2. Surprise air/SF strikes on both columns to inhibit militant advance
3. Fast deployment of light, highly trained forces to halt offensive
4. Continued use of air strikes in depth to attrite militant forces
5. Retake Niger Basin with air mobile re-enforcement & light columns
6. Mechanised re-enforcements to clear Northern Mali – activate Cheetah Re-enforcement Plan

**1st Combined Arms Battle Group Deployment**

**Key Bases**
- Main Base: Bamako  
  - 400km from Militants
- Forward Operating Base at Sevare Airport  
  - 50km from Militants

**Battle Group Deployment**
- Airlift to Bamako on 11th Jan  
  - 2nd RIMA Company
- 15 assault/transport helos to Bamako Airport  
  - 1 Air Mobile Group
- Chad 350 pers  
  - EFT Marines/Cavalry
- Senegal 350 pers  
  - EFS
- Ivory Coast 450 pers drive 1110km to Bamako  
  - 3rd RPIMA, 1er RHP
- Ivory Coast 450 pers drive 1110km to Bamako  
  - 17th Para Eng

1. French Joint HQ, Centre de Planification et de Conduite des Opérations (CPCO) in Paris
   - Airforce HQ, Lyon
   - Naval HQ, Toulon
   - Special Forces Autonomous Group Sub Command (GSA)
   - AFISMA HQ at Abidjan, Ivory Coast
   - US Africa Command (AFRICACOM), AOC in Ramstein AFB

2. Operational Command, Dakar, Senegal
   - Joint Force Air Combat Comd (JFACC), N’Djamena, Chad

3. Tactical Land & Airforce Headquarters at Bamako, Mali

Critical Enablers: Secure Airbase at N’Djamena, Chad

West African Joint Force Air Combat Comd (JFACC)

- Mirage 2000D: 3 increased to 6
- Rafale: 4 fly in, increased to 8
- C-135 tankers: 2 increased to 4 + allies
- Transports: 6 varied C-130, C160, A310
- Mirage F1-CR recce jets: 2 move to Bamako Airport

African Distances

- N’Djamena to Bamako: 2500km
- N’Djamena to Konna: 2071km
- N’Djamena to Gao: 1690km

Source: French Press Briefing, 15 Jan 2013 & Telegraph 29 Jan 2013
Critical Enablers: SATCOM Communications

Syracuse 3A & B Satellite System launched in 2005/6

- Secure voice and data in X and Ku Band
- UHF low-speed mobile
- SHF for secured telecom
- EHF for high speed
- Total Frequency Band 600 MHz
- Mobile coverage in SHF and EHF
- SATCOM terminals: man portable, light vehicle & large earth stations

NOTE: terminals could not be used on the move

**Critical Enablers: Strategic ISR**

Helios 2 high resolution surveillance satellites

Astrium Twin Pleiades (sub 1m resolution with modes)

Target

Strip Mapping

Tri-stereo

Corridor

Persistent Surveillance

ISR Input from US Air Operations Centre (AOC), Ramstein AFB, Germany

Critical Enablers: Theatre ISR

French

- COMINT/ELINT Transall C-160 platform capability
- Tactical recce FI-CR deployed to Bamako
- Damocles targeting pod (NT-ISR) on Mirage 2000D & Rafale
- Reco-NG reconnaissance pod on Rafale with Lk16 offload
- 2 Harfang Unmanned Aerial Systems (UAS) in Niamey, Niger
- 2 Atlantique II Maritime Patrol Aircraft (MPA) in Dakar, Senegal

Allies

- UK Sentinel Wide Area Surveillance Aircraft (after 24th Jan)
- ISR assets from US Africa Command (after 14th Jan)

Critical Enablers: Early reliance on Tactical Air Lift

Early reliance on French Tactical Air Fleet assets
- 14 C-130, 40 C-160, 7 CN235, 3 A310 & 2 A340 transports

Urgent request for tactical transports from NATO allies
- 1 C-130 each from Denmark & from Spain
- 2 C-130 each from Belgium and Italy
- 2 C-160 Transall from Germany

Lack of Strategic Air Lift results in requests & leasing
- C-17: UK 2, Canada 1, NATO 1, & US 3 after 19 Jan
- French charter An-124 & Il-76 with a follow on An-225

French inventory of 14 RC-135 (Strategic Air Command)

2 at N’Djamena, builds to 4 by 14th Jan

Additional tankers: 3 US KC-135, 1 German A310 & 1 Italian 767

French shift of 2 RC-135 to Bamako in early March

Range Issues

For direct sorties 2 TACAIR per tanker

Persistence dynamic sorties 1 TACAIR per tanker

N’Djamena to Konna 2071km

N’Djamena to Gao 1690km

Phase 1: Blunt Militant Offensive

11th Jan Opening strikes
15th-21st Jan Major Ground actions
Priority Air Targeting

**Deliberate targeting**
Northern Mali militant bases, logistics dumps & training areas
- Kidal
- Timbuktu
- Gao

Militant fixed/stationary targets behind recent offensive
- Lere
- Douentza

**Dynamic tasking**
Interdiction of militant columns, supporting forces and supplies
- Lere towards Diabaly
- Douentza towards Konna

Blunt offensive pushes (Interdiction & Close Air Support)
- Right militant column near Diabaly
- Left Militant column heading for Mopti

Jan 11: Surprise strike at Southern Militant Column

Surprise strike hours after French commit forces
Target is the southern Militant Column heading for Mopti
Special Forces Aviation Unit from Burkina Faso
Destroys 4 Technical vehicles & column withdraws

Strike Package
4 Gazelle SA-342M unarmoured gunships
Armed with HOT missiles & 20 mm guns
One Gazelle hit by Rebel fire with first French fatality

Jan 11: Surprise Night Strike against Northern Column

Surprise night strike near Diabaly

- Northern Militant Column vehicles & positions
- Special Forces input into targeting
- 5 hour mission, 2071km from N’Djamena to Konna
- BDA indicated destruction of vehicles and stores

Strike Package

- 4 Mirage 2000D
- 2 GBU-12 LGB & Damocles targeting pod
- 2 air-to-air refuelling by 2 C-135 tankers

Source: French Ministry of Defence (MoD) Briefing, 12th Jan 2013 & French MoD Briefing, 14th Jan 2013
Jan 13: Rafale Night Strike at GAO

Direct strike against militant assets & logistics in Gao

- Ingress route over 3000km via Morocco, Mauritania & Mali to Gao
- Onward 1690 km from Gao to N’Djamena airbase in Chad
- Mission nearly 10 hours, 21 out of 24 weapons expended

Strike Package

- 4 Rafale from Saint Dizier airbase, EC 1/7 & 2/30
- 3 fuel tanks & Damocles 3rd generation targeting pod
- 2 Rafale with 6 GBU-12 500-lb Laser Guided Bombs (LGBs)
- 2 Rafale with 6 500lb INS/GPS AASM (Armement Air-Sol Modulaire)
- 6 air-to-air refuellings from 2 C-135 tankers

Jan 14-19: Increase in Sortie Rate from N’Djamena

Focus on targets in Central Mali

Air Support aims at stopping Militant offensive

Dynamic targets: Militant columns & support near Diabaly

Pre-planned targets: Militant bases & logistics support

BDA from targeting pods and Mirage F1-CR from Bamako

Strike Packages involving the following assets

6 Mirage 2000D with 2 GBU-12 & Damocles targeting pod

4 Rafale with up to 6 GBU-12 for dynamic targeting or AASM for direct attacks

4 C-135 tankers

First French ground counter attack
Militant forces near Konna
Gazelle armed helicopters provide CAS
Daily TACAIR for dynamic tasking

Islamists display a level of tactical competence
Engage with crew mounted weapons
Manoeuvre against French attacks
Co-ordinate with other columns

19th Jan French forces enter Konna

Source: Telegraph, 19th Jan 2013
14-17th Jan: Northern Militant Column resumes its advance

14th Jan Militants seize Diabaly
- Develop operations towards the Niger River
- Display determination against Mali forces
- Potential to seize a bridgehead across the Niger
- Support Militant forces under French attack at Mopti

19-21st Jan: French switch axis to help Mali Forces

French hold a key bridgehead over the Niger River
French guard the bridge at Markala
French SF cross the river to help Mali ground forces
Militants pushed back towards Diabaly

French/Mali Force
Diabaly retaken on 21st Jan by French/Mali force
200 soldiers with 30 armoured vehicles
French/Mali forces re-occupy Doutenza
Militants begin withdrawing to Niger River Basin

Source: Telegraph, 19th Jan & Aljazeera 21st Jan 2013
# Phase 1 Airpower Summary at 19th Jan

<table>
<thead>
<tr>
<th>Sorties</th>
<th>Aircraft Type</th>
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<tr>
<td>60</td>
<td>Mirage 2000D and Rafale</td>
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<tr>
<td>10</td>
<td>Gazelle Attack helicopter</td>
</tr>
<tr>
<td>40</td>
<td>ISR and tanker</td>
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<tr>
<td>30</td>
<td>Intra-theatre airlift sorties flown</td>
</tr>
</tbody>
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Phase 2: Retake Northern Mali

19th Jan – 25th Jan: Buildup
26 Jan – 1st Feb: Retake Niger Bend
Mid Feb – April: Border strongholds
Phase 2 Critical Enablers: Air Additions

More available Strategic Air Lift Assets

24th Jan, An-225 Mriya & more C-17 available

More Airpower

17th Jan, 2 Tiger gunships deploy to Burkina Faso from 5th Regt
20th Jan, 4 more Rafale including Reco-NG reconnaissance pod

Improved Wide Area ISR to track road movements

24th Jan, UK deploy a Sentinel Mk1 with SAR/GMTI to Dakar
70 personnel with Ground Control Station (GCS) in Bamako

Source: Gen. Bertrand Clément-Bollée, commander of French land forces, 19th Jan 2013; French MoD, 18th Jan 2013 & Telegraph 29 Jan 2013
French Activate Cheetah Re-enforcement plan

Elements of 2 Mechanised Brigades on high alert

21st Jan, Dixumde LHD departs Toulon

Unloads at Dakar, Senegal

HQ, troops, light armour & logistics vehicles

Artillery: 4 CAESAR SP 155mm guns & 4 120mm mortars

23rd Jan, road trip of 2550km from Dakar to Kidal

28th Jan, 3,500 personnel deployed with equipment

NOTE: Dixumde LHD similar to HMAS Canberra

25th Jan - 1st Feb: Operations south of the Niger River Bend

Brigade strength with Air Mobile Gp & Mali forces

26th Jan Gao retaken

- Pre ISR & associated air strikes
- Ph 1 French secure the airport with paratroopers
- Ph 2 French secure southern strategic bridge
- Ph 3 French/Mali force eject Islamists

27-28th Jan Timbuktu retaken

- Pre Persistent ISR for Islamist positions
- Ph 1 Encircle the town & Rafale ‘show of force”
- Ph 2 Airport assault by 2nd Para Regt (40 a/c)
- Ph 3 Clear city & area between Gao & Timbuktu

Source: Early Lessons from France’s Operation Seval in Mali, MAJGEN Oliver Tramond & LTCOL Phillipe Seigneur, Army, June 2013, p2; French Defence Ministry; Reuters; Striking Success, Craig Hoyle, Flight International, 11-17 June, 2013, p106 & BBC, 26th Jan 2013
Feb: Retaking Kidal & Tessalit

Re-enforced with Cheetah Mechanised Gp & AFISMA

28-30th Jan Kidal retaken

- Air drop/assault on Kidal airport by 2nd Foreign Para Regt
- 30 aircraft & attack helicopters

29-30th Jan Southern flank opened from Niger

- Nigerians troops occupy Ansongo from Niger
- Chadian troops from Niger enter Menaka then Kidal

8th Feb Tessalit airport retaken

- MALE UAS providing ISR for assault on Tessalit airport
- Linking with 1st Marine Infantry Regt

Locating Militant Strongholds

Increased ISR on the Ifoghas Mountains region

Early strategic ISR focus

Step up in US intelligence support

Air Options and Support

ISR from a range of US assets including Global Hawk & EP-3

Live video and COMINT feeds from Predator UAS

New French use of Harfung UAV lasing for Atlantique II with GBU-12

French air strike tempo rises with improved targeting information

Late Feb – April Clearing Militant Strongholds

Mid Feb: Operation Panther in Adrar des Ifoghas mountains

Heavy fighting, French forces suffering casualties including 1 dead

3rd March Chadian raid in Adrar des Ifoghas mountains

Chad Special Forces Unit trained by the US

Engagements result in 24 dead, 50 wounded Chadian soldiers

March: Operations in Adrar des Tigharghar near Algeria

US actionable intelligence on key AQIM leaders movements

Re-emergence of Guerrilla tactics

Islamist Militants seeking secure bases outside towns
French respond with ground HUMINT, SIGINT & pattern of life ISR

Suicide bombings start
8th Feb, MUJAO launch two suicide bombing in Gao
27th Feb, Suicide bomb kills 7 at a Tuareg checkpoint in Kidal

Hit & run tactics against Govt buildings
21st Feb, Gao city hall seized by Militants
Retaken by Mali forces with Gazelle gunship support
French armoured battle group specialising in urban combat

Source: Mali Rebels hide as French Pursue, Guardian, 30 Jan, 2013 & Tegharghar Mountains, Fighting escalates in Mali, JDW, 6 Mar 2013, p19
April-May

Political transition underway in Mali

Counter Insurgency & stability operations continue

Rebuilding of Mali Armed Forces underway

French plan reduction in forces to 1000 by end of year

Draw down in AFISMA with Chadian forces already gone

French Air/Joint Highlights

& Defence Review Results
Strategic Level

West African HQs already in place connected by secure SATCOM for voice and data

Strategic ISR available from French Satellite systems with US supplementation

Pre-positioned Army and Air force assets available in West Africa

French Expeditionary Force re-enforcement through activation of Cheetah Plan
French Airpower Application

Command

- France: HQ Lyon through CPCO in Paris
- Chad: AOC at N’Djamena in theatre with JFACC for ATO/ACO planning
- Air control: AEW&C controlling aircraft from Dakar in Senegal

Aircraft Roles

- TACAIR: Rafale enabled direct AASM, night CAS/GBU-12, show of force, gun runs
- Recce: Dedicated F-1 & Rafale with Reco-NG recce pod and datalink
- Gunships: Tiger enabled close ISR, search/destroy & road interdiction
- Persistent ISR: Harfung UAS & MPA combination, allied ISR & targeting support
- Airlift: French Inter-intra theatre lift & allied strategic lift
- Airspace: AOC with forward based AEWC co-ordination
- Tanking: Vital support for TACAIR and Reconnaissance sorties

French Airpower Application (Cont.)

Theatre Level ISR and airspace co-ordination

- Airspace co-ordination with Rafales above Mirage 2000, transports, UAVs & helicopters
- Large area of operations very demanding on ISR assets – lack of persistent UAS
- TACAIR reconnaissance sorties lasting 5 hrs, refuelling 3 times
- Reco-NG pod on Rafale passing 10 images via Link 16 to Niamey in Niger in 10-15 mins

Theatre Level Air Strike

- Long range air strike sorties feasible, achieved surprise & shocked enemy forces
- Air strikes in depth reduced militant endurance by targeting fuel, munitions & water resources
- Base attacks employed 4 ship Rafale in night strikes dropping 24 500lb weapons
- AASM enabled up to 90 degree angle of attack on base targets minimising collateral damage

French Airpower Application (Cont.)

Tactical Level

TACAIR show of force used just before major ground operations
CAS TACAIR night operations with GBU-12 LGBs lasting 9 hours, refuelling 5 times
New version of AASM with laser guidance to enable engagement of targets at 50km/hr
CAS attack helicopters employed canon/HOT missiles/rocket fire
Rafale has 3 times the weapons load of Mirage 2000D at range
Rafale flown 800 sorties by late May with pilots flying every second day & 90% availability

NOTE: Combined arms & joint co-ordination practiced between FAF & French Army Aviation

French Airpower Lessons

ISR
Maximise available theatre ISR assets & draw on allied support

Air Strike
In a benign air environment, TACAIR long range air strike is feasible
500lb GBU-12 & AASM – smaller warhead?
Moving targets: fast tracking laser version of AASM
Air tanking is vital and tankers should have Link 16
Tiger good for CAS & search/destroy ops – laser rocket upgrade
ES/EA important to reduce militant communications & co-ordination

Airlift
Strategic airlift is vital early - 10 aircraft by hiring/borrowing
Tactical fixed wing lift lack of lift/flexibility
Tactical rotary wing vital for speeding positioning of light forces

French Firsts

US sharing of strategic ISR with the French via AFRICACOM

NATO supplementation of Strategic/Tactical Air Lift

French

Use of JFACC at N'Djamena to control an air campaign

Developing ATO/ACO daily: TACAIR, ISR, UAS, transports & helos

Employing long range TACAIR strike sorties with tanker support

Daily Harfung UAS sorties providing priority persistence

Stop gap Atlantique II for ISR & GBU-12 (with Harfung lasing)

Employing Rafale for differing daily missions

Source: A French Perspective, LTGEN J Gaviard (RET), AFJ, June 2013, p73
French SF Combined Ground/Air Co-operation

Special Autonomous Group Sub Command (GSA) HQ
- The 1st Marine Parachute Infantry Regiment (1er RPIMa) – SF
- 13th Regt Parachutists, French army Long Range Recon Patrol (LRRP)
- Commando Parachute Group No. 10 (CPG10) for seizing airbases

4th Special Forces Helicopter Regiment (SFHR)
- 1st SQN operates Puma and Cougar transport helicopters
- 2nd SQN operates Gazelle gunships armed with 20mm canon
- Other assets include the Caracal (EC725) & new Tiger attack helicopters

Air Force Fixed Wing Special Operations (DOS)
- FAF DOS, C-160 Transalls, low level flying & night ops (NVGs)
- FAF EHS Puma transport/gunships for special ops & CSAR
- FAF CEIT C-130 SQN

New French Defence Strategy – 29th April

New focus on intelligence and power projection forces

- New observation satellites after Helios II - CSO planned end of 2016
- New 4 EW satellite constellation called Ceres (Elisa demonstrator)
- Better equipment for SF - eg Intelligence light aircraft
- Aerial refuelling/transporters - 12 A330 MRTT confirmed
- Aerial troop transport - 50 A400 planned
- Request for 2 Reaper UAVs & a GCS from US – up to 16?
- Upgrade for 18 Atlantique 2 (ATL 2) MPA confirmed

NOTE: French see the essential future need to pool key NATO resources

Airpower Issues to Consider
US Layered Level of Intelligence Support

Strategic

US provide more responsive Satellite Overhead support

Theatre ISR in North/Central Africa

Global Hawk from Mediterranean to Diego Garcia

Tactical pinpointing positions & monitoring movement

MQ-1 Predator at Niamey in Niger provides actionable intelligence
PC-12/U-28As based at Ouagadougou, capital of Burkina Faso

Note: Tips on how to avoid UAV strikes by AQIM found in Timbuktu

Persistent Theatre ISR

What level to achieve real time or near real time ISR?

Ability to provide 24/7 orbit at range over a target?

What mix of future wide/narrow area sensors is required?

What level of digital secure datalinking & data storage?

GMTI/Radar valuable to assess road traffic movement

Western Nations continue to leverage US capabilities

U2 persistent loitering ISR and SIGINT

MQ-1 Predator persistent loitering ISR and SIGINT

RQ-4B Global Hawk long dwell, long range imager

RJ/CC/CS/G/EP-3C COMINT/ELINT

Tanker numbers determine sorties at Range

For long range direct air attacks 2 jets per tanker

For any persistence at long range 1 jet per tanker

Future need for tankers to be networked
Armed UAS in a Benign Air Environment

Ability to provide 24/7 rather than limited time window
- Slow speed loitering enabling continual point target observation
- Cuts effects chain timing when engaging fleeting targets
- Onboard wide area COMINT & radar with narrow area EO/IR
- Linkage with ground forces and JTAC
- Switch roles from conventional to countering Guerrilla tactics

NOTE: French request 2 Reaper/1GCS from US, potentially 16
Meeting Air Lift Requirements

Strategic air lift early if road/port limitations

- Strategic airlift supplemented by 10+ a/c
- Theatre airlifter fleet supplemented by 12+ a/c

French A400M tactical/strategic airlift – delivery in July

- 77,000lbs cargo: 9 pallets or 116 paratroopers or 66 patients
- 2 Tiger attack helicopters
- 3 Armoured Personnel Carriers (APCs)
- 55,000lbs fuel - 2 2650lb/min hose & drogue refuelling pods
- Steep approach assault landing capability
- Under 2000ft landing strips

Airpower Lessons for the ADF
**ADF WGS SATCOM greatly expands coverage & capacity**

X/Ka-band, 2.1 to 3.6 Gbps of data, 4.875 GHz instant bandwidth, 900 2.6MHz sub channels

ADF requires sufficient out of area terminals (French strength with Syracuse)

Source: https://www.defenseindustrydaily.com/americas-wideband-gapfiller-satellite-program-02733/
Strategic Airlift is vital in out of area operations

For the ADF, 6 C-17 aircraft provide strategic airlift

Building up forces at range quickly & moving outsized cargo
ADF joint force readiness/mobility

- New helicopter asset integration into the joint force (Tiger/NH-90/NH-90 Maritime)
- New maritime LHD capability to move forces between theatres
- Need to develop joint force planning and training - French Cheetah Plan
Persistent ISR at range in a Benign Air Environment

5 Flight Heron MALE UAS in Afghanistan for persistence, wide area COMINT & narrow area EO/IR

RAAF Future Land surveillance capability AIR 7100 (White Paper 2013)

Armed Response at range in a Benign Air Environment

It is noted that Armed UAS enable faster effects chain reaction from target location to engagement
COMINT & Electronic Attack (EA) in a Benign Air Environment

RAAF will acquire 12 E/A-18G (White Paper 2013)

COMINT is vital in a Benign Air Environment to build understanding of enemy

EA in the low band can impede or halt enemy co-ordination communications
Fast Jet TACAIR

RAAF has 24 F/A-18F Super Hornet (SH) & 71 Legacy Hornets

Capable in day/night, direct/dynamic air strike tasking, good against visible targets

SH radar/GMTI & EO/IR targeting with choice of LGB, JDAM & contact/airburst fuses

Future F-35 with spherical DAS night time targeting, radar/GMTI, EOTS targeting

Sortie generation & persistence based on the level of sustainable tanking support
Relative Distance in Australian Terms

Darwin-Learmouth 2000km
Bamako-Gao 1500km
Paris-Bamako 4130km
N’Djamena-Gao 1690km
Amberley - Learmouth 4000km
N’Djamena-Bamako 2550km
RAAF Airbus 330 Multi-Role Tanker/Transports (MRTTs)

5 A330 MRTT increase overall lift availability due to dual role

MRTT numbers dictate TACAIR sortie numbers at long ranges
Operation SERVAL tested French ability to perform combined operations at long range

French deployed in sparse arid conditions & conducted a successful operation

Airpower provided responsiveness, speed, fire power & combined operations support:

- Sufficient persistent and responsive in theatre ISR
- Early surprise night strikes had a major impact in slowing Militant advance
- Deep fixed target strike against Militant logistics & asset bases
- Helicopter/fast jet Interdiction and CAS in support of ground forces
- Inter-intra theatre airlift

Many of the Air Power lessons mirror ADF challenges if undertaking regional response operations

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