



## INTERNATIONAL CENTRE FOR POLITICAL VIOLENCE AND TERRORISM RESEARCH

A CENTRE OF THE S. RAJARATNAM SCHOOL OF INTERNATIONAL STUDIES,  
NANYANG TECHNOLOGICAL UNIVERSITY, SINGAPORE

# The Evolution of Aviation Terrorism



**S. RAJARATNAM SCHOOL  
OF INTERNATIONAL STUDIES**  
A Graduate School of Nanyang Technological University

# Outline

- **Overview of State Involvement**
- **Why Target Civil Aviation**
- **Tactical Environment**
- **History of Attacks**
- **Al Qaeda's War**
- **Threat Groups in Southeast Asia**
- **Levels of Response**
- **Conclusions**



# Conceiving the Threat

Ideas - Internet

STRATEGIC

Groups – Al  
Qaeda, Jemaah  
Islamiah, ASG,

OPERATIONAL

Individuals and  
small groups –  
homegrown  
jihadists

TACTICAL



# Evaluating the Threat

Ideas – Internet

STRATEGIC

Groups – Al  
Qaeda, Jemaah  
Islamiyah, ASG,

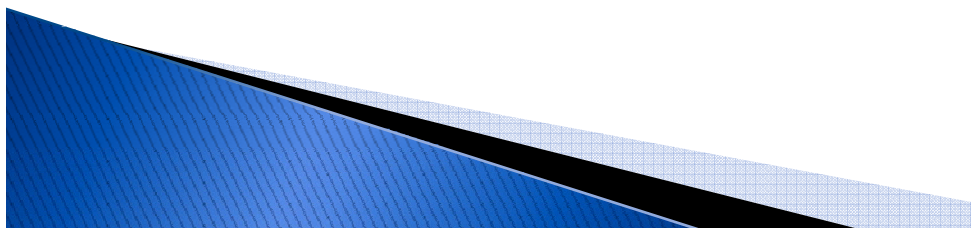
OPERATIONAL

Individuals and  
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TACTICAL

# State Involvement

- National Defence
- Economic Reasons
- Safety
- Prestige



# Why Target Civil Aviation

- **Symbolic target**
- **Multinational Stage**
- **Unrivalled media potential**
- **Economic consequences for target nation**
- **Revenge**
- **Relatively simple and effective operation**



# Strategic Trends

- Ideological hijackings and bombings dominant since the late 1960's
- George Habash PFLP
- Al-Qaeda's strategic operations
- Bojinka Plot 1995
- September 11th 2001
- Richard Reid December 2001
- Liquid Plot August 2006



# Operational Trends

- ▶ Organizations Matter
  - Linked Cells
  - Semi-linked Cells
  - Independent Cells
  - Lone Wolf
- ▶ Al Qaeda is Reasserting itself
- ▶ Renewed focus on Aviation





# Tactical Trends

- Diverging group structures impact tactics

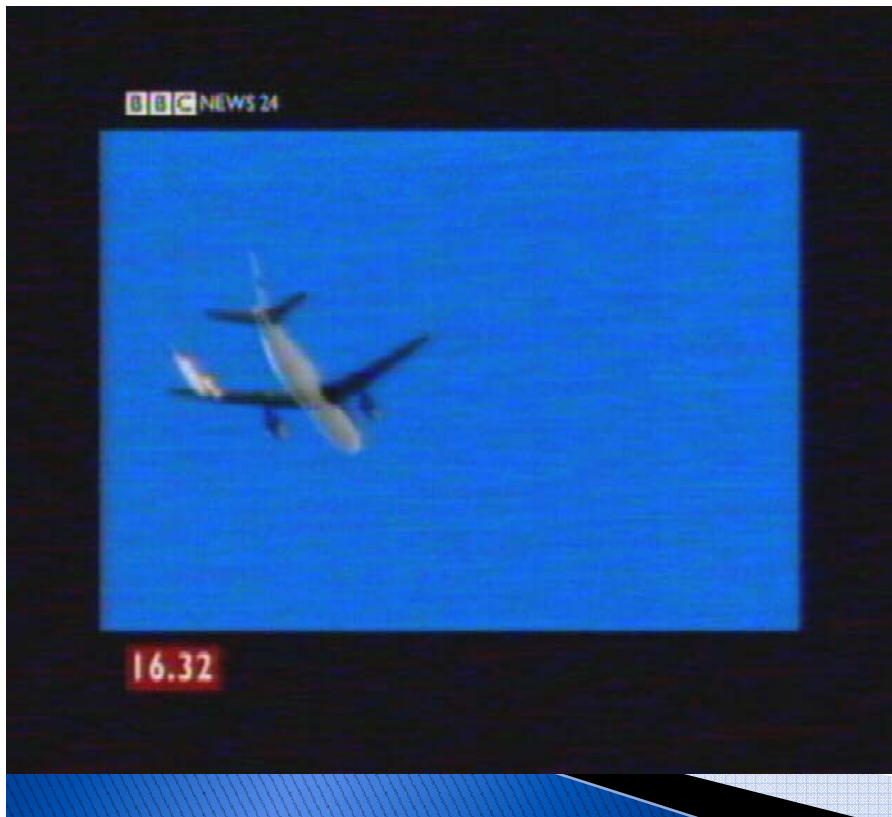
## Aviation Tactics

- Man portable Missiles / Surface to Air Missile Attacks
- Bombings
  - Shift to liquid
- Hijackings
  - Temporary shift away
- Assaults
  - Shift towards
- Other threats



# Terrorists Tactics (SAM Attacks)

- **Man portable Missiles 17 confirmed attacks.**



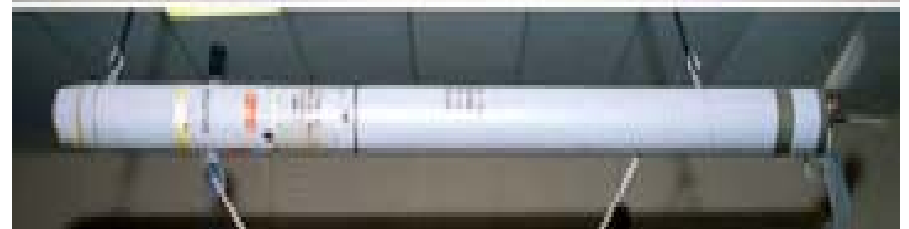
# Mombasa Attack November 2002

- **Paradise Hotel Attack**
- **13 Dead**
- **80 wounded**
- **Arkia Airlines**
- **Boeing 757**
- **271 Passengers and Crew**



# DHL Attack 22 November 2003

- **Airbus A300B4-203F**
- **3 Crew**
- **SA 14**
- **One missile destroyed the hydraulics systems**
- **Crew successfully landed using only thrust**



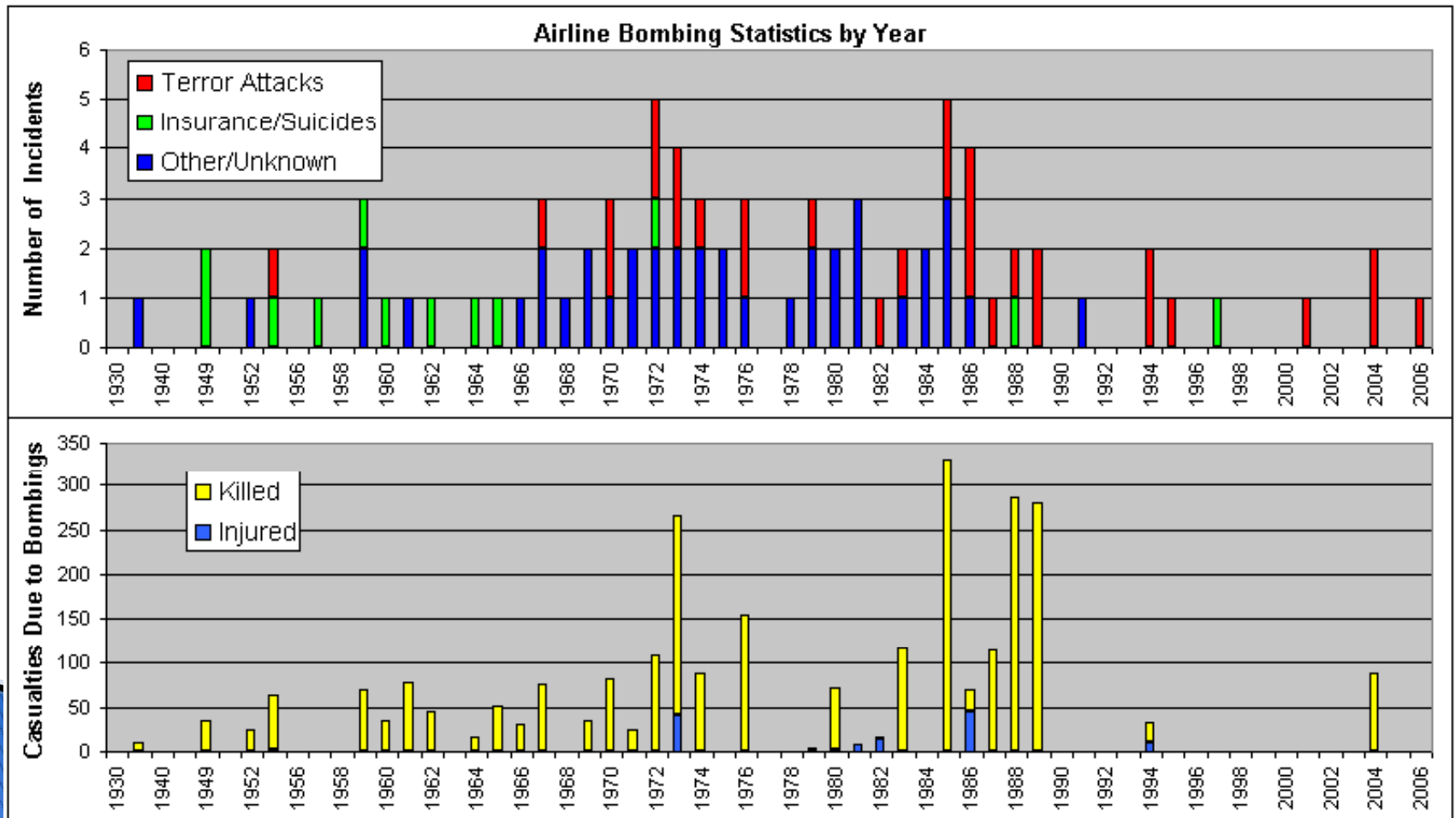
# Kenya November 2002

- **Weapon: SA 7 Stella**
- **Introduced 1972**
- **1.47 Meters long**
- **70mm wide**
- **Range 500-5,500 meters**
- **Altitude 18-4500 meters**
- **Speed mach 1.4-1.75**
- **IR contact HE**
- **More than 100,000 exported form Soviet Union**



# Terrorist Tactics (Bombings)

- **Bombings: Since 1948 - 97 total of which 88 political.**



# Aviation Bombings

- **Popular Front for the Liberation of Palestine General Command**
- **Founded by Amhed Jibril**
- **Credited with inventing altimeter detonator switch making aviation bombings possible**



# Air India Flight 182 June 23 1985

- **Boeing 747-237B Emperor Kanishka in route from Canada to India**
- **329 passengers and crew**
- **Sikh Separatist group Baddar Khalsa responsible**
- **Part of twin bombings, other device exploited prematurely at Naritia Airport killing two baggage handlers**





# Key Suspects



# Only two faced any punishment

- **Inderjit Singh Reyat served 10 years for the Naritua bombing and 5 for pujery**
- **Talwinder Singh Parmar killed by Punjab Police in 1992**



# Pam Am 103 21 December 1988

- Boeing 747-121 named Maid of the Seas
- 259 Passengers and Crew
- 270 killed, all aboard the flight and 11 on the ground in Lockerbie Scotland



# Suspects

## **Abdelbaset Ali Mohamed Al Megrahi**

- **Libyan Intelligence officer and head of security for Libyan Arab Airlines station in Malta.**
- **Convicted January 31, 2001**

## **Al Amin Khalifa Fhimah**

- **Station Chief for Libyan Arab Airlines station in Malta**
- **Acquitted January 31, 2001**



# Terrorists Tactics (Hijacks)

- **Hijackings: Since 1931 - 1036 total more than two dozen political.**



# SQ 117 March 1991

- **SQ Flight 117 in route from Kuala Lumpur to Singapore**
- **114 passengers and Crew**
- **Operation Thunderbolt**
- **All four Pakistani hijackers killed**



# Tactics (Others)

## Assaults

- Insurgent
- Terrorist

## Other

- eg. Lasers



# History of Attacks

- **First hijacking 1931**
- **Late 1940's to Late 1960's hijacking to flee persecution or prosecution**
- **Ideological hijackings and bombings dominant since the late 1960's**
- **George Habash PFLP**





# Organizations

## PIRA

- Aircraft & Airport

## PFLP

- Hijacking

## PFLPGC

- Aircraft & Airport

## Sikh extremists

- Aircraft

## FARC

- Aircraft

## JRA

- Aircraft & Airport

## Croatian extremists

- Hijacking

## Omega 7

- Bombing

## Libya

- Aircraft

## North Korea

- Aircraft

## Hizbolla

- Aircraft

## ANO

- Aircraft & Airports

## UBO

- Aircraft & Airport



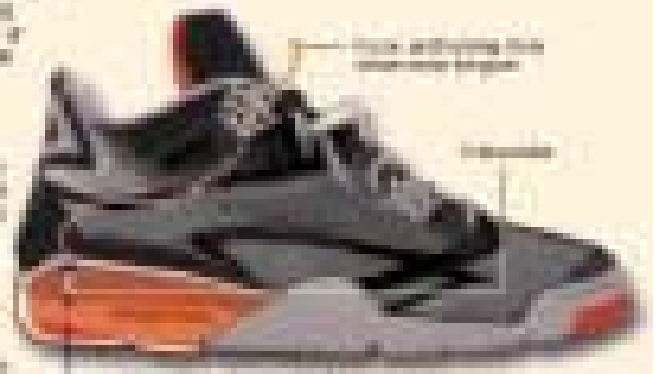
# Al-Qaeda's War

- World Trade Center 1993
- Bojinka Plot 1995
- Millennium Plot 1999/2000
- September 11th 2001
- Richard Reid December 2001
- Mombassa Attack November 2002
- Heathrow February 2002
- Various flight cancellations 2003-
- Liquid Plot August 2006



## Shoe Bomb

The shoe bomber, seen in front of a U.S. airport, was the first to use a shoe as a bomb. The shoe was found in the luggage of a man who was arrested on the 9/11 attacks. The shoe was found in the luggage of a man who was arrested on the 9/11 attacks. The shoe was found in the luggage of a man who was arrested on the 9/11 attacks.



# Response

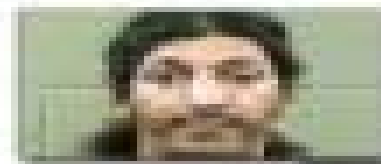
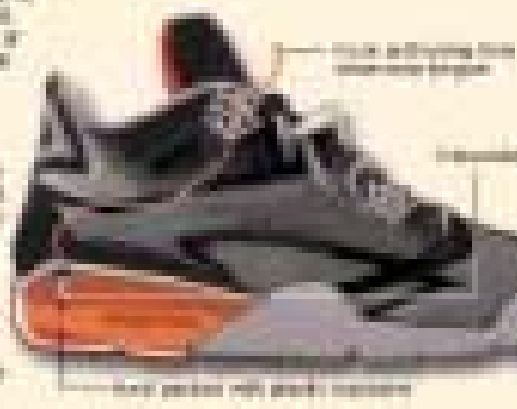


# Response



## Shoe Bomb

The shoe bombing, also known as shoe bombing, is a form of terrorism in which explosives are hidden inside shoes and carried into crowded areas. The shoe bombing is a form of terrorism that is often used to cause fear and panic among the general public. The shoe bombing is a form of terrorism that is often used to cause fear and panic among the general public. The shoe bombing is a form of terrorism that is often used to cause fear and panic among the general public.



# Conclusions

- ▶ *Strategic*
- ▶ A sustained research effort by the industry to understand the trends
- ▶ in transnational threats and how they will impact its operations.
- ▶ The industry must invest in non-technical research in order to support technical security efforts.



- ▶ *Operational*
- ▶ International Civil Aviation Organization (ICAO) needs to establish
- ▶ basic standards for such items as cargo screening, document security
- ▶ and other in-flight issues.
- ▶ The ICAO needs to have enforcement power, which can and should
- ▶ include economic incentives for meeting required standards and recommended
- ▶ practices.
- ▶ • The ICAO and International Air Transport Association (IATA) should
- ▶ establish Joint Systems Integration Command (JSIC).



- ▶ *Tactical*
- ▶ Develop and implement a more coherent tactical response.
- ▶ Regular and realistic training is required.
- ▶ Assist in developing economically viable responses across the system.





**THANK  
YOU**



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