



AVIATION SAFETY
AND
SECURITY

OUTLINE

- **Basic definitions**
- **Accident causes and accident statistical data**
- **Human factor in aviation safety**
- **Aircraft accident investigation**
- **Aviation security**



Basic definitions

Definitions of Basic Terms

What is Safety?

Safety is freedom from accidents

What is an Accident?

An Accident is an occurrence with the operation of an aircraft which:

- takes place between the time any person boards the aircraft with the intention of flight until all such persons have disembarked, AND**
- any person suffers death or serious injury, OR**
- the aircraft receives substantial damage**

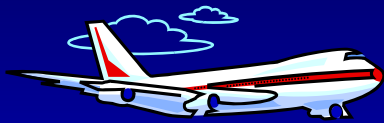
Definitions of Basic Terms

What is Incident ?

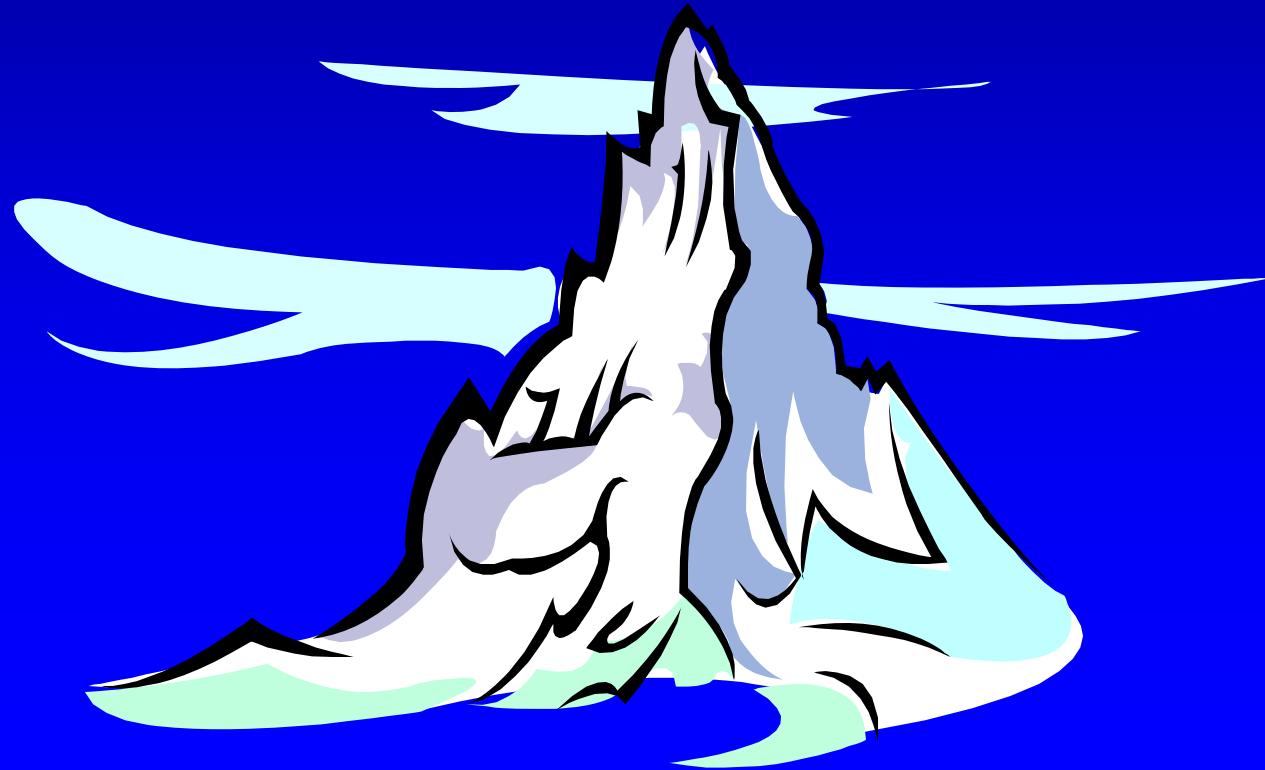
It is an occurrence other than an accident, associated with the operation of an aircraft, which affects or could affect the safety of operations. Some most common types of incidents are:

- Near mid-air collision
- Flight critical equipment failure
- In-flight fire
- Runway incursions

Ex: Descent Below Safe Altitude

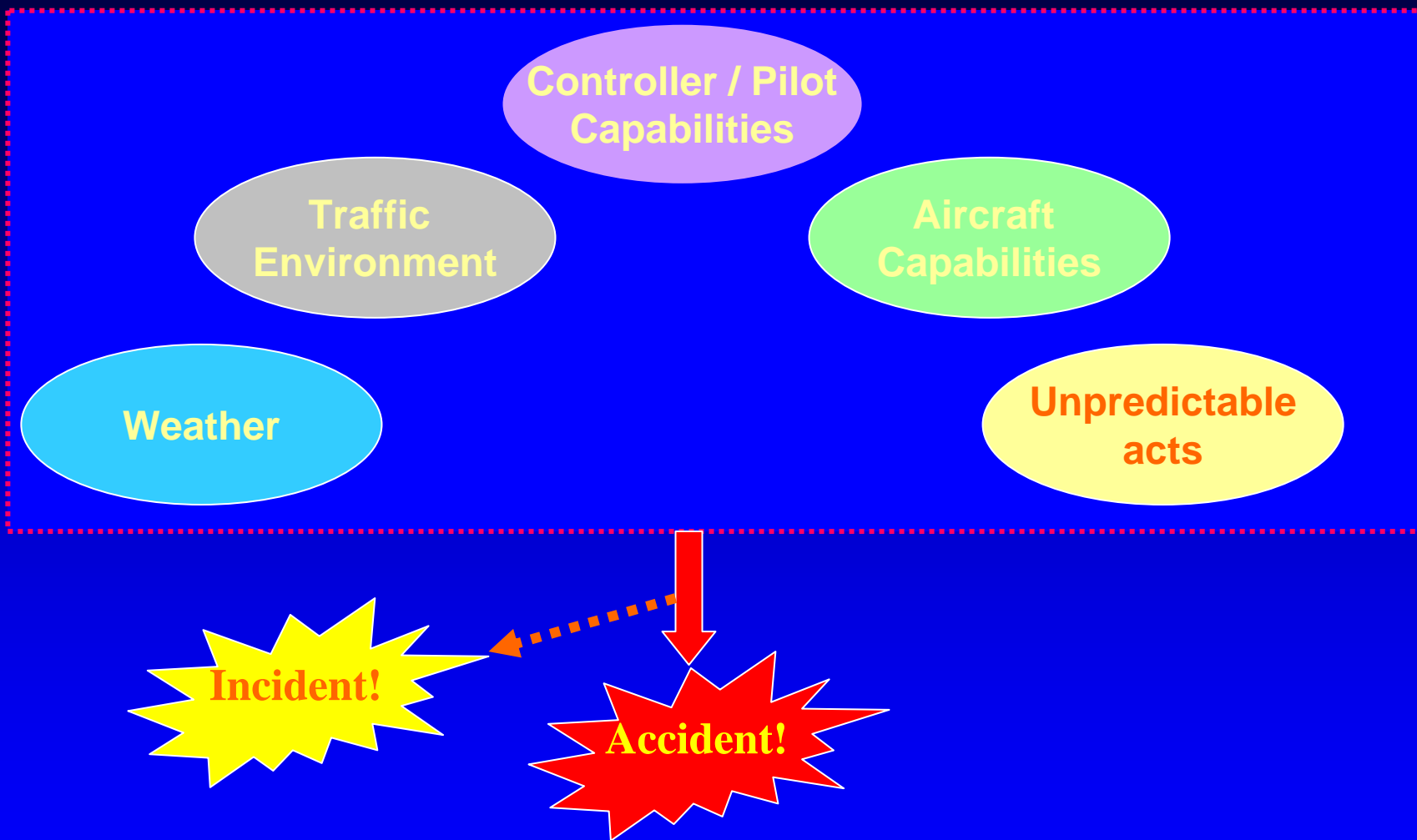


Minimum Safe Altitude (MSA)



Accident

Primary Accident Causes



HUMAN FACTOR IN AVIATION SAFETY



HUMAN FACTOR IN AVIATION SAFETY

- **Human factor is about people and their relationship with equipments, procedures, the environment and other people.**
- **The objective to study of human factors is to enhance safety and efficiency.**

AIRCRAFT ACCIDENT INVESTIGATION



Case Study : Air France 2960



Case Studies : Air Italia MD-11



Fighter Mishap

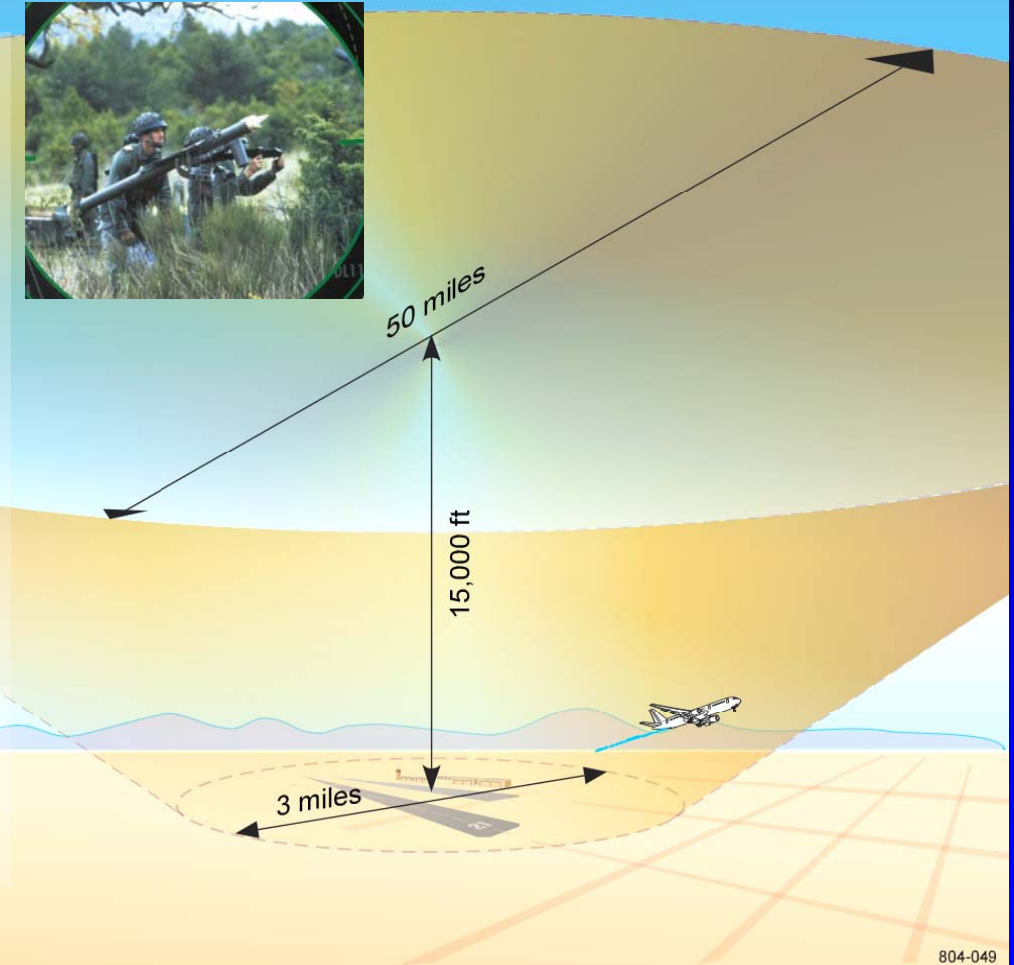




Aviation Security

Manpads Threats

- IR missiles are available
 - Affordable
 - Low profile
- Threat sectors are large
 - 30 to 50nm from airport perimeter
 - Unprotected or patrolled areas
- Reaction to attack must be automatic
 - False alarms negatively impact countermeasures
 - Early warning is not possible
 - Timelines to counter IR missile measured in seconds



Counter measures

- **Improved Aircraft Design**
- **Machine Readable Travel Documents (MRTD)**
- **Biometrics I. D. Control**
- **Advanced Threat Assessment Technology**
- **ICAO Global AVSEC Audit Program**