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Obstacle Limitation Surfaces – New concept

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The Current Scenario

- SARPs in Annex 14, Vol 1, Chapter 4 on OLS
- Developed before the 1970's
- Not addressing capabilities of the modern aircraft operations
- 38th ICAO Assembly called for a review of obstacle limitation surfaces
- OLS Task Force of ADOP was set up



The Challenges

- Harmonize the different controlling and assessment surfaces found in ICAO Annex, PANS & Docs
- Design surfaces that are applicable today and adaptable to future operations
- Assess the sufficiency of OLS in safeguarding operations
- Develop a set or sets of surfaces
 - with clear purposes and characteristics so that only surfaces required are adopted
 - that are performance based and
 - adaptable to the type of operations conducted at the aerodrome



Proposed Changes

- OLS comprise of two sets of surfaces:
 - Obstacle free surfaces (OFS) and
 - Obstacle evaluation surfaces (OES).

- They have distinct purposes and are applied based:
 - on the type of runway,
 - Aeroplane Design Group (ADG) and
 - the flight procedures available for that runway.



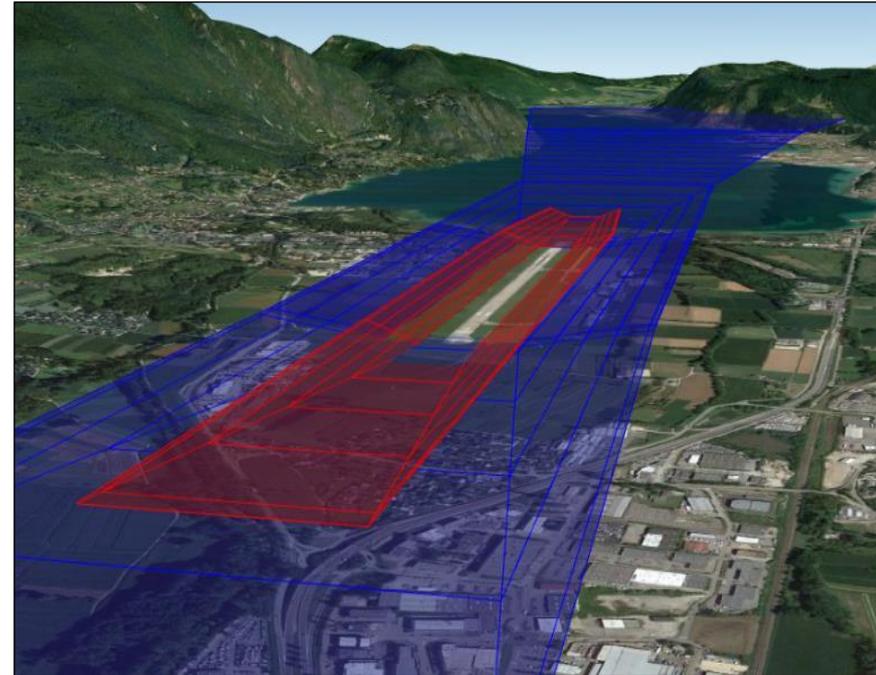
Obstacle Free Surfaces (OFS)

- Surfaces that are applied within a defined airspace in the immediate vicinity of the aerodrome.
- To protect the existing and future operational capacity of the aerodrome by limiting obstacles.
- Intended to preserve accessibility of the aerodrome by containing standard operations (straight-in approaches) with a high level of probability.
- Hard surfaces to be kept free from obstacles except for existing obstacles and/or terrain which would have been assessed earlier.



Principles of OFS

- Consider operations that can hardly adapt to obstacles:
 - Approaches, go-arounds and balked landings.
 - Take-off climbs
- For fixed and mobile objects around all runways
- Strict obstacle limitations.





Obstacle Evaluation Surfaces (OES)

- Applied in a defined airspace, in addition to the OFS to be evaluated against obstacles.
- Act as triggering surfaces used in determining the acceptability of obstacles in ensuring safety and regularity of operations at the aerodrome.
- Penetration by terrain or obstacles are to be evaluated as they may adversely affect the safety or accessibility of the intended aircraft operations.



Obstacle Evaluation Surfaces (OES)

- OES of standard dimensions are proposed to cover the most common types of operations
- OES may be modified to address operations varying from the ones supporting the standard OES dimensions
- OES with specific characteristics and dimensions can be adopted



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The Aeroplane Design Group

Dimensions of OFS and OES are determined based on
Aeroplane design group (ADG) categorization.

The aeroplane design group utilises two criteria

- the aircraft's indicated airspeed at threshold and
- the aeroplane wingspan.

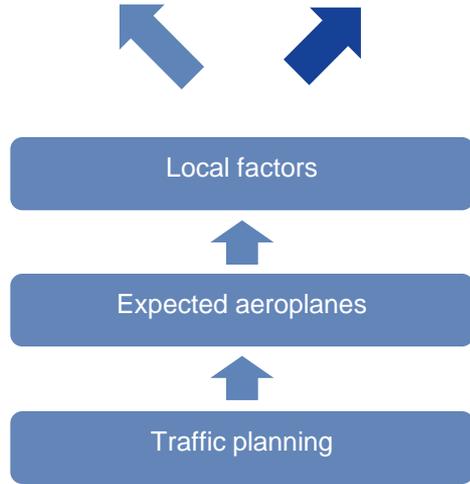
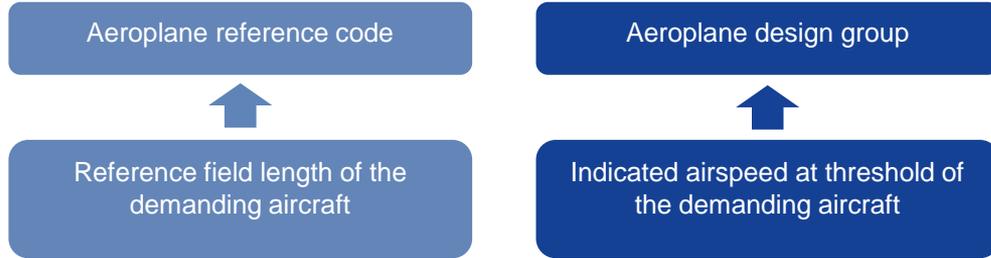


The Aeroplane Design Group

Aeroplane design group	Indicated airspeed at threshold		Wingspan
I	Less than 169 km/h (91 kt)	and	Up to but not including 24 m
IIA	Less than 169 km/h (91 kt)	and	24 m up to but not including 36 m
IIB	169 km/h (91 kt) up to but not including 224 km/h (121 kt)	and	Up to but not including 36 m
IIC	224 km/h (121 kt) up to but not including 307 km/h (166 kt)	and	Up to but not including 36 m
III	Less than 307 km/h (166 kt)	and	36 m up to but not including 52 m
IV	Less than 307 km/h (166 kt)	and	52 m up to but not including 65 m
V	Less than 307 km/h (166 kt)	and	65 m up to but not including 80 m



ARC to ADG



Code number	1	2	3-4				
Aeroplane design group	I	IIA	IIB	IIC	III	IV	V



Aeronautical Study

- *An aeronautical study is a process of examining an aeronautical concern by assessing its impact on safety and regularity of aircraft operations and identify, if need be, possible mitigation measures.*
- Triggers :
 - Penetration of OFS and OES;
 - Characteristics and purpose of object;
 - Anytime requested or reported.
- A New Chapter in PANS-Aerodromes (Doc 9981)



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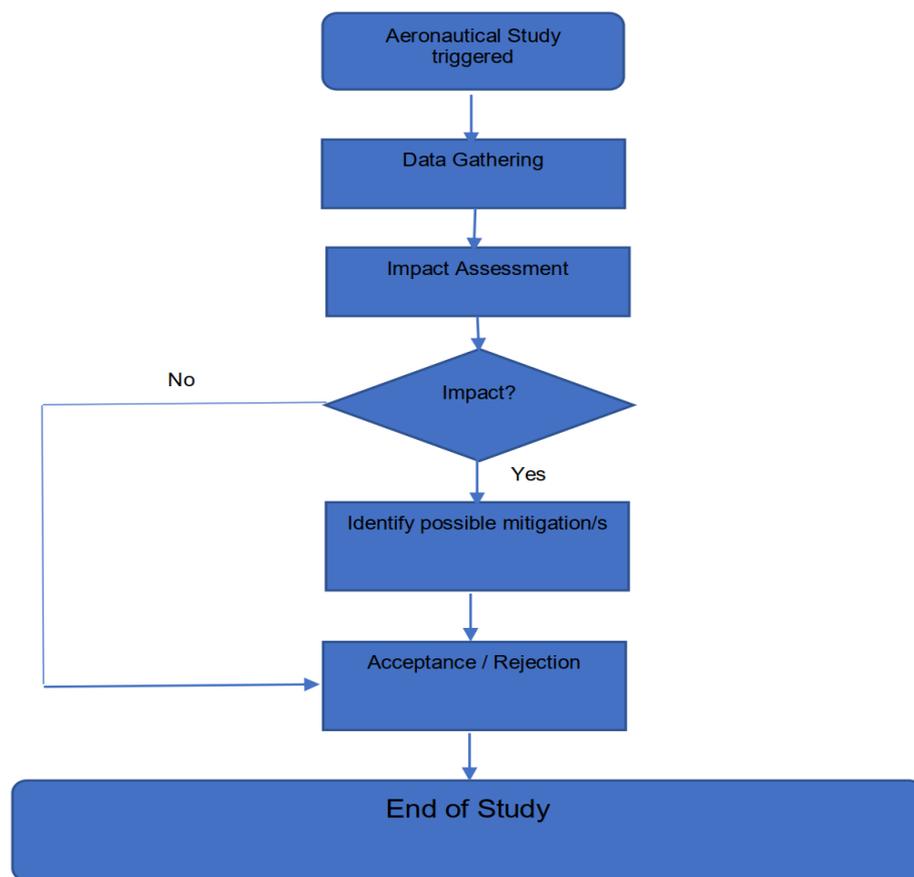


The Stake holders in Aeronautical studies

- **Civil Aviation Authority**
- **Proponent of the proposed construction/development**
- **Aerodrome operator**
- **Air Navigation Service Providers**
- **Flight procedure designers**
- **Aircraft operators (commercial aviation and the military)**
- **Appropriate authorities (e.g. land use planner, military etc)**



Aeronautical study





ICAO Documents *(being reviewed...)*

- **Annex 14, Vol I**
- **Annex 4**
- **Annex 15**
- **PANS – Aircraft Operations (Doc 8168)**
- **PANS- Aerodromes (Doc 9981)**
- **PANS – AIM (Doc 10066)**
- **Airport Services Manual, Part 6 (Doc 9137)**



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Finalization
of
OLS
Materials

Preliminary
Review

ICAO
State Letter
Circulation

State Letter
Final
Review

ICAO
Council
Adoption

Effective
Date

Applicable
Date



Q4
2022

Q1
2023

May
2023

Late Fall
2024

Q1
2025

July
2025

Nov
2028





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- ICAO aims to enhance awareness in the industry and promote cooperation between counterparts in terms of OLS related issues.
- In the future OLS related workshops and seminars can be organized.
- Specific audience targeted training and courses could be developed as necessary.





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Thank you!

