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Introduction to the PANS-AIM (Doc 10066)

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Outline

- The new PANS-AIM
 - Guiding principles
 - Highlights
 - Current Status
 - Impact



Procedures for Air Navigation Services (PANS)

Procedures for Air Navigation Services (PANS) for the most part comprise material:

- *which may eventually become Standards when it has achieved the maturity and stability necessary for adoption as such;*
- *considered too detailed for SARPs; and*
- *amplifying the basic principles contained in corresponding SARPs to assist in their application.*
- States are expected to publish in their AIPs up-to-date lists of significant differences between their procedures and the related PANS
- With PANS, we are trying to identify those practices that require global harmonization

How this applies to AIM?

Since PANS primarily consist of material related to the standardization of how something is to be done material such as product specifications, standard procedures, and protocols are ideal material for promulgation as PANS.

- 1) Appendix 1 of Annex 15 concerning the formatting of an AIP;
- 2) Appendices 2, 3, 5, and 6 of Annex 15 and material from Doc 8126 concerning NOTAM, SNOWTAM, and ASHTAM; and
- 3) Material from Doc 8126 concerning AIP, AIP Supplements and AIC where it is desirable to elevate the material to a status beyond guidance.



How this may apply to AIM (future)?

PANS-AIM provides a vehicle for expanded and/or new specifications in the future:



- ✓ Quality management practices;
- ✓ Data handling to achieve integrity requirements
- ✓ Expanded and/or new specifications for digital datasets
- ✓ data exchange procedures
- ✓ Any material where it is found desirable to have a level of standardization but the material is too detailed or not appropriate for inclusion in Annex 15 as a SARP.



Guiding principles

Chapter 2: Aeronautical Information Management



AIM functions:

Collection:

- Record of data originators
- Data mapped to authorized sources
- The content of formal arrangements (examples)

Processing:

- Validation & Verification
- Automation

Distribution

- To be developed

Quality Assurance and Control:

- QC: Compliance and Consistency in AI products
- QA: Data integrity monitoring and assurance

Chapter 3: Quality Management



Quality Management System (general requirements)

- Quality manual
- Main processes, sequence, interaction
- Effective operation and control of these processes
- Availability of information to support operations/monitoring
- Measure, monitor, analyze those processes
- Records
- Feedback mechanisms

To be further developed together with the guidance material

Chapter 4: Aeronautical Data Requirements



Specifications on:

Data origination requirements

- How to classify positional data
- How data shall/should be collected (e.g. compliance with WGS84)
- How to deal with those coordinates whose accuracy of original field work does not meet the applicable requirements

Minimum metadata requirements

- Source, action performed, date

Chapter 5: Aeronautical Information Products and Services



Aeronautical information in a standardized presentation:

- Mostly text relocated from Annex 15
- Encouragement! AIP sections may be replaced with digital data, when available (#AIP-DS, #OBS-DS)
- NOTAM improvements: Language used; series management

Digital Datasets:

- Performance requirements for aeronautical data exchange
- Digital datasets detailed description

Distribution services and pre-flight info service:

- Mostly relocated text from Annex 15

Chapter 6: Aeronautical Information Updates



Aeronautical information updates:

- The same update cycle shall be applied to the AIP and the digital data sets in order to ensure the consistency of the data items that appear in multiple aeronautical information products

Legacy products updates:

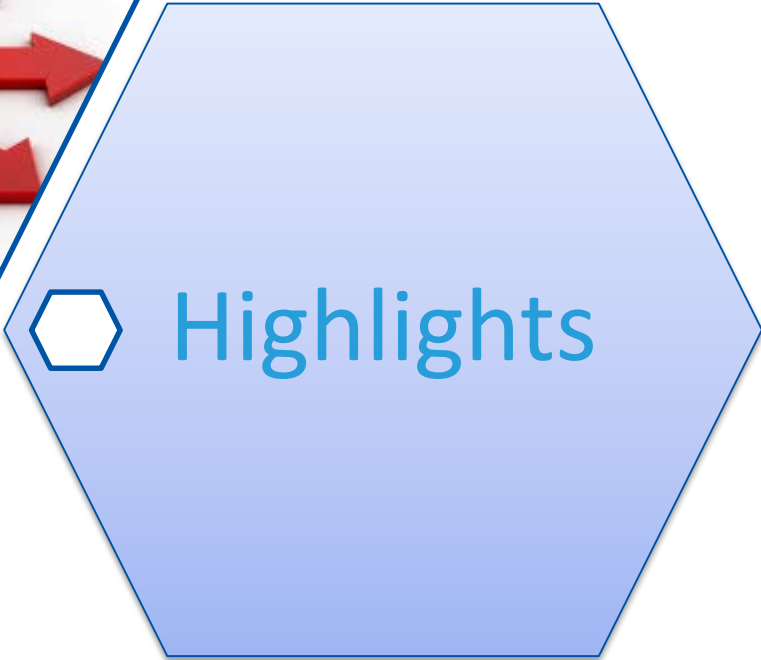
- Mostly relocated text from Annex 15

Digital products updates:

- No data set in between AIRAC cycles (use NOTAM)

NOTAM improvements:

- NOTAM timeliness
- NOTAM validity
- Trigger NOTAM



The Aeronautical Data Catalogue

(Appendix 1 of PANS-AIM)

Table A1-2 Airspace data

| Subject | Property | Sub-Property | Type | Description | Note | Accuracy | Integrity | Orig Type | Pub. Res. | Chart Res. |
|--------------|-------------------|--------------|-----------|---|------|-------------|-----------|------------|----------------|----------------|
| ATS Airspace | | | | Airspaces of defined dimensions, alphabetically designated, within which specific types of flights may operate and for which air traffic services and rules of operation are specified. | | | | | | |
| | Type | | Text | Type of ATS airspace according to ICAO Annex 11. | | | | | | |
| | Name | | Text | The designator given to an airspace by a responsible authority | | | | | | |
| | Lateral limits | | Polygon | The surface defining the horizontal shape of the Airspace | | see Note 1) | | | | |
| | Vertical limits | | | | | | | | | |
| | | Upper limit | Altitude | The upper limit of the airspace | | | | | | |
| | | Lower limit | Altitude | The lower limit of the airspace | | 50 m | routine | calculated | 50 m or 100 ft | 50 m or 100 ft |
| | Class of airspace | | Code list | A categorisation of airspace which determines the operating rules, flight requirements, and services provided, as indicated in Annex 11, Section 2.6 and Appendix 4 | | | | | | |

The Data Catalogue is a general description of the AIM data scope and consolidates all data that can be collected and maintained by the aeronautical information service. It provides a reference for aeronautical data origination and publication requirements

The Aeronautical Data Catalogue

The Data Catalogue contains the aeronautical data subjects, properties and sub-properties organized in:

| | |
|--------------------|--|
| <i>Table A1-1</i> | <i>Aerodrome data;</i> |
| <i>Table A1-2</i> | <i>Airspace data;</i> |
| <i>Table A1-3</i> | <i>ATS and other routes data;</i> |
| <i>Table A1-4</i> | <i>Instrument flight procedure data;</i> |
| <i>Table A1-5</i> | <i>Radio navigation aids/systems data;</i> |
| <i>Table A1-6</i> | <i>Obstacle data;</i> |
| <i>Table A1-7</i> | <i>Geographic data;</i> |
| <i>Table A1-8</i> | <i>Terrain data;</i> |
| <i>Table A1-9</i> | <i>Data types; and</i> |
| <i>Table A1-10</i> | <i>Information about national and local regulation, services and procedures.</i> |

Main elements to remember...

**Aeronautical
data catalogue**
...from product-centric
to data-centric

- ✓ provides a common list of terms and **facilitates the formal arrangements** between data originators and the aeronautical information service
- ✓ means for States to facilitate the **identification of the organizations and authorities** responsible for data origination
- ✓ **single source of all data quality requirements**
- ✓ Contains existing data quality requirements
- ✓ Adaptive to future quality requirements

Other Appendices

- Appendix 2. Contents of the Aeronautical Information Publication (AIP)
- Appendix 3. NOTAM Format
- Appendix 4. SNOWTAM Format
- Appendix 5. ASHTAM Format
- Appendix 6. Terrain and Obstacle Attributes Provision Requirements
- Appendix 7. Predetermined Distribution System for NOTAM
- Appendix 8. Terrain and Obstacle Data Requirements

RELOCATED TEXT FROM ANNEX 15





PANS-AIM – the Status

PANS-AIM - Status



- Draft Report to Council (ANC): June 2018
- **To be approved by the ICAO Council:** memo distributed to the Council on the 14th July
- State Letter: August 2018
- App. Date: Nov 2018





The Impact

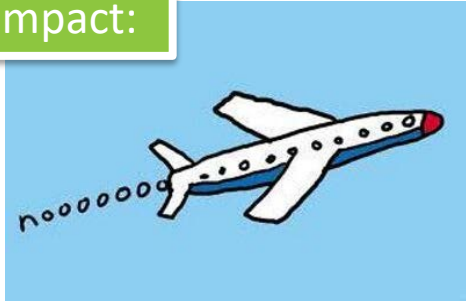
Benefits

- Increased harmonization within the AIM domain
- Vehicle for the emerging technical requirements of AIM
- Better means for implementations:
 - Procedures are provided to States to increase quality at origination and to maximize data integrity along the aeronautical data process
 - Specifications are provided to States to facilitate the use of new digital aeronautical information products (“digital data sets”) therefore increasing efficiency in the process



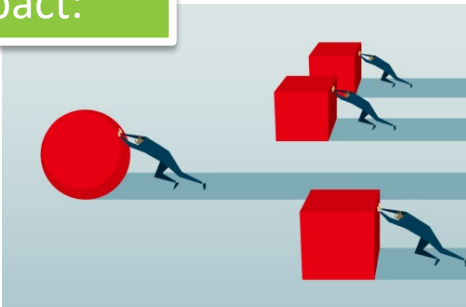
Impact

Flight safety impact:



POSITIVE!
Clear AIM procedures

Efficiency impact:



POSITIVE!
Automation/Digitalization
increase efficiency

Financial Impact:



- Initial major investments
- Phased-approach is recommended

Implementation time



2 to 5 years (Change of Reg.
Framework references)



- North American Central American and Caribbean (NACC) Office
Mexico City
- South American (SAM) Office
Lima
- ICAO Headquarters
Montreal
- Western and Central African (WACAF) Office
Dakar
- European and North Atlantic (EUR/NAT) Office
Paris
- Middle East (MID) Office
Cairo
- Eastern and Southern African (ESAF) Office
Nairobi
- Asia and Pacific (APAC) Office
Bangkok



Thank You