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INTERNATIONAL CIVIL AVIATION ORGANIZATION
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Aviation System Block Upgrade (ASBU)

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Aviation System Block Upgrade (ASBU)

- The ICAO GANP ASBU methodology is a programmatic and flexible global approach that allows all Member States to enhance their air navigation capabilities based on their specific operational requirements.

Aviation System Block Upgrade (ASBU) Improvements

- *The ASBU works according to the following structure:*
  - *ASBU Thread: three different catogories, operative, information and technology.*
  - *ASBU Module: is the set of elements of a thread that, according to the enablers' roadmap, will be available for implementation within the defined period established by the ASBU Block.*
  - *ASBU Block: this implies that the element and all the enablers associated with it must be available for implementation in the ASBU block year.*
  - *ASBU Element: This module is the set of elements of a common thread that, according to the enablers' roadmap, will be available for implementation within the defined timeframe established by the ASBU Block.*

ASBU THREAD|

INFORMATION

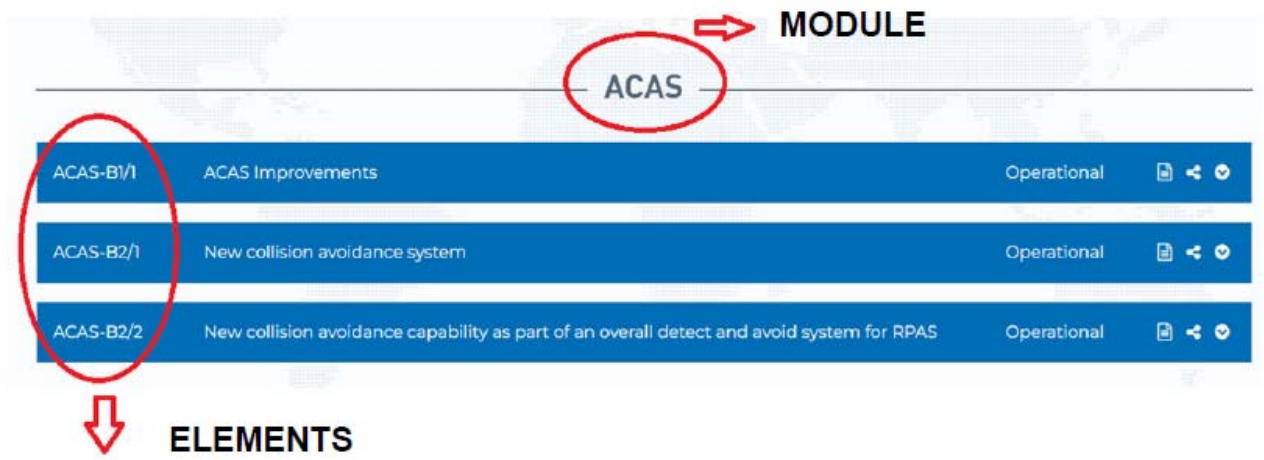
- *AMET: Información meteorológica*
- *DAIM: Gestión digital de la información aeronáutica.*
- *FICE: Información de vuelo y flujo para un entorno colaborativo (FF-ICE).*
- *SWIM: Gestión de la información en todo el sistema*

TECHNOLOGY

- *ASUR: Alternative Surveillance*
- *COMI: Communication Infrastructure*
- *COMS: ATS Communication Service*
- *NAVS: Navigation Systems*

OPERATIONAL

- *ACAS: Airborne collision avoidance system (ACAS)*
- *A-CDM: Airport Collaborative Decision Making*
- *APTA: Airport Accessibility*
- *CSEP: Cooperative Separation*
- *DATS: Digital Aerodrome Air Traffic Services*
- *FRTO: Improved operations through enhanced en-route trajectories*
- *GADS: Global Aeronautical Distress and Safety System*
- *NOPS: Network Operations*
- *OPFL: Improved access to optimum flight levels in oceanic and remote airspace*
- *RSEQ: Improved traffic flow through runway sequencing*
- *SNET: Ground-based Safety Nets*
- *SURF: Surface operations*
- *TBO: Trajectory-based operations*
- *WAKE: Wake Turbulence Separation*



https://www4.icao.int/ganpportal/ASBU

ASBU Element

Each ASBU element contains information about its functional description, enablers, implementation applicability, and performance impact assessment. States must understand that ASBU elements are addressed to satisfy an operational need or resolve a deficiency, increase efficiency and safety.

- *Why?: the main purpose is that it provides a summary of the essence of the element for the operational elements, it provides information of the direct relationship of the performance.*
- *What? description of what stakeholders can do with this element that could not be done before. This section is not intended to describe performance enhancement or benefits*
- *How? additional information to improve the understanding of the element*

Aviation System Block Upgrade (ASBU) Improvements

ASBU Elements have different levels of maturity:

- *Ready for implementation: This maturity level focuses on the end of system development and initial global operational capability.*
- *Standardization: this level of maturity focuses on the definition of the necessary provisions for the interoperability of the system and the harmonization of procedures.*
- *Validation: This maturity level focuses on industry research and validation and includes proof-of-concept validation, independent prototyping and testing, testing and prototyping in a representative environment, and engineering feasibility demonstration Complete in real system application.*
- *Concept: This maturity level focuses on exploratory research and includes scientific inquiry, investigation of observed and reported basic principles, and concept definition.*

AMET-B0/1	Meteorological observations products	Information

☐ Sixth edition of the GANP

Main Purpose Meteorological observations in support of flexible airspace management, improved situational awareness, collaborative decision-making and dynamically optimized flight trajectory planning.

New Capabilities Provision of observations of additional meteorological parameters/elements. More automated observations. Higher temporal and spatial resolution for lightning, radar and satellite information.

Description This element represents the provision of meteorological observational products including:

- Automatic Weather Observation System (AWOS) information (including real-time exchange of wind and RVR data)
- Local reports (MET REPORT / SPECIAL)
- Aerodrome reports (METAR / SPECI)
- Lightning information
- Ground-based weather radar information
- Meteorological satellite imagery
- Aircraft meteorological report (ie. ADS-B, AIREP, AMDAR etc.)
- Vertical wind and temperature profiles
- Volcano Observatory Notice for Aviation (VONA)
- Wind shear alerts

Maturity Level Ready for implementation

Human Factor Considerations

1. Does it imply a change in task by a user or affected others? **No**
2. Does it imply processing of new information by the user? **No**
3. Does it imply the use of new equipment? **Yes**
4. Does it imply a change to levels of automation? **Yes**

CLASSIFICATION OF ASBU ELEMENTS BY THEIR LEVEL OF MATURITY

- ✓ Elements classified according to their maturity level.
- ✓ Guidance material for the assessment of ASBU elements in their “ready to implement” state of maturation is being worked carried out.

Example:

ASBU ELEMENTS	
Ready for implementation:	
Standarization:	
Validation:	
Concept:	
No define:	

ACDM (Airport Collaborative Decision Making)				
B0	**B1**	**B2**	**B3**	**B4**
ACDM-B0/1 Airport CDM Information Sharing (ACIS) Operational		ACDM-B2/1 Airport Operations Plan (AOP) Operational	ACDM-B3/1 Full integration of ACDM and TAM in TBO Operational	
ACDM-B0/2 Integration with ATM Network function Operational		ACDM-B2/2 Airport Operations Centre (APOC) Operational		
		ACDM-B2/3 Total Airport Management (TAM) Operational		

AMET (Advanced Meteorological Information)				
B0	**B1**	**B2**	**B3**	**B4**
AMET-B0/1 Meteorological observations products Information	AMET-B1/1 Meteorological observations information Information	AMET-B2/1 Meteorological observations information Information	AMET-B3/1 Meteorological observations information Information	AMET-B4/1 Meteorological observations information Information
AMET-B0/2 Meteorological forecast and warning products Information	AMET-B1/2 Meteorological forecast and warning information Information	AMET-B2/2 Meteorological forecast and warning information Information	AMET-B3/2 Meteorological forecast and warning information Information	AMET-B4/2 Meteorological forecast and warning information Information
AMET-B0/3 Climatological and historical meteorological products Information	AMET-B1/3 Climatological and historical meteorological information Information	AMET-B2/3 Climatological and historical meteorological information Information	AMET-B3/3 Climatological and historical meteorological information Information	AMET-B4/3 Climatological and historical meteorological information Information
AMET-B0/4 Dissemination of meteorological products Information	AMET-B1/4 Dissemination of meteorological information Information	AMET-B2/4 Meteorological information service in SWIM Information	AMET-B3/4 Meteorological information service in SWIM Information	AMET-B4/4 Meteorological information service in SWIM Information

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ENABLERS

CATEGORIES:

- *Regulatory provisions, regulations.*
- *Operating procedures*
- *Onboard systems capacity (avionics)*
- *Ground Infrastructure*
- *Training*
- *Operational authorization*
- *Others*

ENABLER TYPE:

- *National regulatory framework*
- *Information Exchange*
- *Aircrafts Onboard Systems*
- *Ground Infrastructure*
- *Training*
- *Certification*
- *Others*

Example:

ENABLERS

Enabler Category	Enabler Type	Enabler Name	Description / References	Stakeholders	Year
Ground system infrastructure	Surveillance	ADS-B ground stations	ADS-B ground stations receive information from aircraft and transmit it to one or more Service Delivery Points Reference material: Technical standa... read more	ANSP	2008
Ground system infrastructure	Surveillance	*Service Delivery Point(s) for ADS-B information	Service Delivery Point(s) receive ADS-B information provides it to ATC automation for processing and display to controller Reference material: Guid... read more	ANSP	2008
Ground system infrastructure	Technical systems	HMI that supports controller awareness	Human Machine Interface (HMI) of the Air Traffic Controller Working Position (ATCo CWP) Reference: Guidance material: ICAO Doc. 9924 Aeronautical... read more	ANSP	2008
Airborne system capability	Surveillance	SSR Mode S transponder with extended squitter version 0, version 1 and version 2	Reference: Technical standards and guidance material: ICAO Annex 10 Volume IV Chapter 2,3 and 5 ICAO Doc. 9871 Technical Provisions for Mode S ... read more	Aircraft manufacturer Aircraft operator	2008
Training	-	Training requirements ADS-B implementation	Depending on the ANSP implementation, some controller training on new symbology may be required. If phraseology is changed by an ANSP, then controller... read more	ANSP	2008
Airborne system capability	Navigation	Basic Aviation GNSS receiver with RAIM	Position source. Basic Aviation GNSS receiver with RAIM. Such a receiver must comply with the technical performance requirements of either [E]TSO-C129... read more	Aircraft manufacturer Aircraft operator	2008

Thank You!

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