

**IISMG5 WP3.1A3 – Appendix 1 - Identified ASBU elements applicable to AFI region in MET Field**

| ASBU Modules  | ASBU Elements  | Purpose of elements   | Maturity level                  | Applicable (Yes or No) | Rational of applicability   | Enablers  | Stakeholders   |
|---|--|---|---------------------------------|------------------------|---|---|--|
| <b>AMET-B0</b><br><br>Global, regional, and local meteorological information to support flexible airspace management, improved situational awareness, collaborative decision-making and dynamically optimized flight trajectory planning. | <b>AMET-B0/1</b><br>Meteorological observations products | Provides Meteorological observations in support of flexible airspace management, improved situational awareness, collaborative decision-making and dynamically optimized flight trajectory planning | <b>Ready for implementation</b> | <b>Yes</b>             | <ul style="list-style-type: none"> <li>A3 Chap. 4: §4.1.5 requires that at aerodromes with runways intended for Category II and III instrument approach and landing operations, automated equipment for measuring or assessing, as appropriate, and for monitoring and remote indicating of surface wind, visibility, runway visual range, height of cloud base, air and dew-point temperatures and atmospheric pressure shall be installed to support approach and landing and take-off operations.</li> <li>Annex 3 Appx. 6: §6.2.5 requires that the wind shear alerts shall be disseminated from automated, ground-based, wind shear</li> </ul> | <ul style="list-style-type: none"> <li>National framework amendment for the provision of meteorological observations products</li> </ul>                | <ul style="list-style-type: none"> <li>CAA</li> </ul>  |
|   |  |   |                                 |                        |   | <ul style="list-style-type: none"> <li>Procedures for the provision of meteorological observations products</li> </ul>                                  | <ul style="list-style-type: none"> <li>ANSP</li> <li>MET Service Provider</li> </ul>                           |
|   |  |   |                                 |                        |   | <ul style="list-style-type: none"> <li>Transmission of meteorological observations data from aircraft</li> </ul>  | <ul style="list-style-type: none"> <li>Aircraft Manufacturer</li> </ul>  |
|   |  |   |                                 |                        |   | <ul style="list-style-type: none"> <li>Automated systems and infrastructure to support the provision of meteorological observations products</li> </ul> | <ul style="list-style-type: none"> <li>Airport Operator</li> <li>ANPS</li> <li>MET Service Provider</li> </ul> |

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|--|---|--|---------------------------------|------------------------|--|---|---|
|  |   |  |                                 |                        | remote-sensing or detection equipment in accordance with local arrangements to those concerned.  | <ul style="list-style-type: none"> <li>• Training requirements for the provision of meteorological observations products</li> </ul>                 | <ul style="list-style-type: none"> <li>• CAA</li> <li>• ANSP</li> <li>• MET Service Provider</li> <li>• Airport Operator</li> </ul> |
|  | AMET-B0/2<br>Meteorological forecast and warning products | Provides Meteorological forecasts, advisories and warnings in support of flexible airspace management, improved situational awareness, collaborative decision-making and dynamically optimized flight trajectory planning. | <b>Ready for implementation</b> | Yes                    | <ul style="list-style-type: none"> <li>• Annex Chap. 3: §3.2 &amp; Appendix 2: §1.2 require for the provision of the new gridded WAFS information (e.g. Wind, Temperature, Icing, Turbulence, CB clouds).</li> </ul> | <ul style="list-style-type: none"> <li>• National framework amendment for the provision of meteorological forecast products and warnings</li> </ul> | <ul style="list-style-type: none"> <li>• CAA</li> </ul>   |
| <ul style="list-style-type: none"> <li>• Procedures for the provision of Meteorological forecast products and warnings</li> </ul>            |   |  |                                 |                        |  | <ul style="list-style-type: none"> <li>• ANSP</li> <li>• MET Service Provider</li> </ul>  |   |
| <ul style="list-style-type: none"> <li>• Training requirements for the provision of meteorological forecast products and warnings</li> </ul> |   |  |                                 |                        |  | <ul style="list-style-type: none"> <li>• CAA</li> <li>• ANSP</li> <li>• MET Service Provider</li> <li>• Airport Operator</li> </ul>                 |   |

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|---|---|---|---------------------------------|------------------------|---|--|--|
|   |   |   |                                 |                        |   | <ul style="list-style-type: none"> <li>Systems and infrastructure to support the provision of meteorological forecast and warning products</li> </ul>  | <ul style="list-style-type: none"> <li>MET Service Provider</li> </ul> |
|   | <b>AMET-B0/3</b><br>Climatological and historical meteorological products | Climatological products in support of the design and planning of infrastructure, flight routes and airspace management. Historical meteorological observations, forecasts, advisories and warnings in support of incident and accident investigations | <b>Ready for implementation</b> | <b>Yes</b>             | <ul style="list-style-type: none"> <li>Annex 3 Chap 8: §8.1.1 requiring for the provision of Aerodrome climatological information and historical meteorological products in support of the design and planning of infrastructure, flight routes and airspace management.</li> </ul> | <ul style="list-style-type: none"> <li>National framework amendment for the provision of climatological meteorological information products</li> </ul> | <ul style="list-style-type: none"> <li>CAA</li> </ul>                  |
| <ul style="list-style-type: none"> <li>Procedures for the provision of climatological meteorological information products</li> </ul>            |   |   |                                 |                        |   | <ul style="list-style-type: none"> <li>ANSP</li> <li>MET Service Provider</li> </ul>   |  |
| <ul style="list-style-type: none"> <li>Training requirements for the provision of climatological meteorological information products</li> </ul> |   |   |                                 |                        |   | <ul style="list-style-type: none"> <li>CAA</li> <li>ANSP</li> <li>MET Service Provider</li> <li>Airport Operator</li> </ul>                            |  |

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|---|--|---|---------------------------------|------------------------|--|---|--|
|   |  |   |                                 |                        |  | <ul style="list-style-type: none"> <li>Systems and infrastructure to support the provision of climatological meteorological products</li> </ul> | <ul style="list-style-type: none"> <li>MET Service Provider</li> </ul> |
|   | <b>AMET-B0/4</b><br>Dissemination of meteorological products | Dissemination of meteorological products in support of flexible airspace management, improved situational awareness, collaborative decision-making and dynamically optimized flight trajectory planning | <b>Ready for implementation</b> | <b>Yes</b>             | <ul style="list-style-type: none"> <li>The requirements for the dissemination of OPMET messages in both TAC and digital formats as of November 2020 prescribed by Annex 3 provisions (A3 App. 3: §2.1.3; App. 6: §1.1.6 &amp; §1.2)</li> </ul> | <ul style="list-style-type: none"> <li>National framework amendment for meteorological information exchange</li> </ul>                          | <ul style="list-style-type: none"> <li>CAA</li> </ul>                  |
| <ul style="list-style-type: none"> <li>Procedures for meteorological information exchange</li> </ul>                    |  |   |                                 |                        |  | <ul style="list-style-type: none"> <li>ANSP</li> <li>MET Service Provider</li> </ul>  |  |
| <ul style="list-style-type: none"> <li>Communications infrastructure for meteorological information exchange</li> </ul> |  |   |                                 |                        |  | <ul style="list-style-type: none"> <li>ANSP</li> <li>MET Service Provider</li> </ul>  |  |
| <ul style="list-style-type: none"> <li>Training for meteorological information exchange</li> </ul>                      |  |   |                                 |                        |  | <ul style="list-style-type: none"> <li>ANSP</li> <li>MET Service Provider</li> </ul>  |  |

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|--|---|---|------------------------|------------------------|--|---|--|
|  |   |   |                        |                        |  | <ul style="list-style-type: none"> <li>ICAO Meteorological Information Exchange Model (IWXXM) V1-V2</li> </ul>                              | <ul style="list-style-type: none"> <li>ANSP</li> <li>MET Service Provider</li> </ul> |
| <b>AMET-B1</b><br><br>Meteorological information supporting automated decision process or aids, involving meteorological information, meteorological information translation, ATM impact conversion and ATM decision support | <b>AMET-B1/1</b><br>Meteorological observations information | Provides Meteorological observations information in support of automated decision processes or aids and performance based requirements, involving meteorological information, meteorological information translation, ATM impact conversion and ATM decision support. | <b>Standardization</b> | <b>Yes</b>             | <ul style="list-style-type: none"> <li>IWXXM format became a Standard for dissemination on 5 November 2020 with the applicability of Amendment 79 to Annex 3 for the following TAC products: SIGMET, AIRMET, METAR, SPECI, TREND, TAF, VAA, TCA and SWXA.</li> <li>Significant weather (SIGWX) forecasts, is recommended for dissemination in IWXXM as of 4 November 2021</li> </ul> | <ul style="list-style-type: none"> <li>National framework amendment for the provision of meteorological observations information</li> </ul> | <ul style="list-style-type: none"> <li>CAA</li> </ul>                                |
|  |   |   |                        |                        |  | <ul style="list-style-type: none"> <li>Procedures for the provision of meteorological observations information</li> </ul>                   | <ul style="list-style-type: none"> <li>ANSP</li> <li>MET Service Provider</li> </ul> |
|  |   |   |                        |                        |  | <ul style="list-style-type: none"> <li>Transmission of meteorological observations information from aircraft</li> </ul>                     | <ul style="list-style-type: none"> <li>Aircraft Manufacturer</li> </ul>              |

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|--------------|---|--|------------------------|------------------------|--|--|---|
|              |   |  |                        |                        | <ul style="list-style-type: none"> <li>Furthermore, the Conclusion 23/29 of APRG/23 Established a Regional Space Weather Project to assist States with the implementation of Space Weather requirements as per the provisions of Annex 3 to Chicago Convention.</li> </ul> | <ul style="list-style-type: none"> <li>Automated systems and infrastructure to support the provision of meteorological observations information</li> </ul> | <ul style="list-style-type: none"> <li>Airport Operator</li> <li>ANSP</li> <li>MET Service Provider</li> </ul>              |
|              |   |  |                        |                        |  | <ul style="list-style-type: none"> <li>Training requirements for meteorological observations information</li> </ul>  | <ul style="list-style-type: none"> <li>CAA</li> <li>ANSP</li> <li>MET Service Provider</li> <li>Airport Operator</li> </ul> |
|              | <b>AMET-B1/2</b><br>Meteorological forecast and warning information | Meteorological forecast and warning information for automated support for decision processes or aids and performance based requirements, involving | <b>Standardization</b> | <b>Yes</b>             | <ul style="list-style-type: none"> <li>The above is applied</li> </ul>   | <ul style="list-style-type: none"> <li>National framework amendment for the provision of meteorological forecast and warnings information</li> </ul>       | <ul style="list-style-type: none"> <li>CAA</li> </ul>   |

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|--------------|--|---|------------------------|------------------------|---|--|---|
|              |  | meteorological information, meteorological information translation, ATM impact conversion and ATM decision processes                  |                        |                        |   | <ul style="list-style-type: none"> <li>• Procedures for the provision of meteorological forecast and warnings information</li> </ul>                       | <ul style="list-style-type: none"> <li>• ANSP</li> <li>• MET Service Provider</li> </ul>  |
|              |  |   |                        |                        |   | <ul style="list-style-type: none"> <li>• Training requirements for Meteorological forecast and warning information</li> </ul>                              | <ul style="list-style-type: none"> <li>• CAA</li> <li>• ANSP</li> <li>• MET Service Provider</li> <li>• Airport Operator</li> </ul> |
|              |  |   |                        |                        |   | <ul style="list-style-type: none"> <li>• Systems and infrastructure to support the provision of meteorological forecast and warning information</li> </ul> | <ul style="list-style-type: none"> <li>• MET Service Provider</li> <li>•</li> </ul>   |
|              | <b>AMET-B1/3</b><br>Climatological and historical meteorological information | Climatological information in support of the design and planning of infrastructure, flight routes and airspace management. Historical | <b>Standardization</b> | <b>Yes</b>             | <ul style="list-style-type: none"> <li>• Enhanced climatological data/Information with their associated characteristics such as metadata; required to support the design and planning of</li> </ul> | <ul style="list-style-type: none"> <li>• National framework amendment for the provision of climatological meteorological information</li> </ul>            | <ul style="list-style-type: none"> <li>• CAA</li> </ul>   |

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|--------------|---|---|------------------------|------------------------|--|--|---|
|              |   | meteorological observations, forecasts, advisories and warnings in support of incident and accident investigations. |                        |                        | infrastructure, flight routes and airspace management.   | <ul style="list-style-type: none"> <li>• Procedures for the provision of climatological meteorological information</li> </ul>                        | <ul style="list-style-type: none"> <li>• ANSP</li> <li>• MET Service Provider</li> </ul>  |
|              |   |   |                        |                        |  | <ul style="list-style-type: none"> <li>• Training requirements for climatological meteorological information</li> </ul>                              | <ul style="list-style-type: none"> <li>• CAA</li> <li>• ANSP</li> <li>• MET Service Provider</li> <li>• Airport Operator</li> </ul> |
|              |   |   |                        |                        |  | <ul style="list-style-type: none"> <li>• Systems and infrastructure to support the provision of climatological meteorological information</li> </ul> | <ul style="list-style-type: none"> <li>• MET Service Provider</li> </ul>  |
|              | <b>AMET-B1/4</b><br>Dissemination of meteorological information | Dissemination of meteorological information in support of automated decision process or aids, involving             | <b>Standardization</b> | <b>Yes</b>             | <ul style="list-style-type: none"> <li>• As of 5 November 2020, States were required by Annex 3 to the Convention to implement IWXXM format for the</li> </ul> | <ul style="list-style-type: none"> <li>• National framework amendment for the dissemination of meteorological information</li> </ul>                 | <ul style="list-style-type: none"> <li>• CAA</li> </ul>   |



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|--------------|---------------|--|----------------|------------------------|--|---|---|
|              |               | <p>meteorological information, meteorological information translation, ATM impact conversion and ATM decision support.</p> |                |                        | <p>international exchange of MET information.</p> <ul style="list-style-type: none"> <li>• States, ROCs and RODBs in a position to do so will begin to disseminate gridded and imagery products throughout Block 1.</li> <li>• RODBs to implement TAC Request/Reply and IWXXM Request/Reply Procedures.</li> </ul> | <ul style="list-style-type: none"> <li>• Procedures for the dissemination of meteorological information</li> <li>• Communication infrastructure for meteorological information exchange</li> <li>• Training for the dissemination of meteorological information</li> <li>• ICAO Meteorological Information Exchange Model (IWXXM) V3</li> </ul> | <ul style="list-style-type: none"> <li>• ANSP</li> <li>• MET Service Provider</li> <li>• ANSP</li> <li>• MET Service Provider</li> <li>• CAA</li> <li>• ANSP</li> <li>• MET Service Provider</li> <li>• Airport Operator</li> <li>• ANSP</li> <li>• MET Service Provider</li> </ul> |