SURVEY OF STATE METEOROLOGICAL INFORMATION SUPPORTING AIR TRAFFIC MANAGEMENT

(Presented by Chair and Secretariat)

1. INTRODUCTION

1.1. The survey was conducted by the Asia/Pacific Regional Office in October/November 2015 as follow-up to APANPIRG Conclusion 26/57 (State letter Ref.: T 4/3.2.7: AP152/15 MET refers). Responses were received from 19 States, including: Australia, Bangladesh, Fiji, Hong Kong China, Macao China, Indonesia, Japan, Lao People's Democratic Republic, Malaysia, Maldives, Mongolia, Nepal, Pakistan, Republic of Korea, Singapore, Solomon Islands, Thailand, United Kingdom and United States.

1.2. The survey asked 10 questions about or related to the types of meteorological (MET) information and services provided and required specifically to support air traffic management (ATM) and air traffic flow management (ATFM) operations. A copy of the survey questionnaire is provided at **the Attachment** to this paper.

1.3. This paper provides a preliminary discussion on outcomes from the survey of state MET information supporting ATM.

2. DISCUSSION

Question 1

2.1. Most responses indicated that OPMET information (TAF, METAR and SIGMET) are disseminated to ATM organizations. Some States with maturely implemented ATM systems, like Australia, Hong Kong China, Japan and United States, indicated that ATM-tailored MET information was shared among ATM stakeholders.

Question 2

2.2. In terms of methods for information sharing, in addition to the components of the aeronautical fixed service (AFN), e.g., the aeronautical fixed telecommunication network (AFTN) and ATS message handling system (AMHS), web-based tools, such as web portals or web- /video- conference systems are used operationally in some States, indicating these latter, advanced type of tools can be useful to support collaborative decision making (CDM) and ensuring timely sharing of information among all stakeholders.

Question 3

2.3. Most responses placed priority on the provision of OPMET data to support ATM. However, considering that those types of information were not necessarily designed for ATM-specific purposes, the preference for OPMET information in the responses could be viewed as an artefact due to the ready availability of OPMET information provided in the responding States.

Question 4

2.4. Many responding States use WAFS forecasts to support trajectory setting and flight planning activities, except those States which have their own numerical weather prediction systems producing forecasts that are more precise in terms of temporal and spatial resolution.

Question 5

2.5. Most responding States use wind and temperature forecasts, which would probably be because those States would rely only on WAFC products, which originally include such weather elements.

Question 6

2.6. Some States, like Thailand, indicated their intention to implement ATFM systems supported using the grid-point MET data system.

Question 7

2.7. Some States indicated that MET services in support of ATM may be fostered through the establishment of sound communication channels between ATM and MET. Additionally, it was envisaged that ATM-tailored MET information would need to be compliant with applicable ICAO standards such as the provisions for quality assurance of the MET information.

Question 8

2.8. Initiatives and motivators which lead to the development of MET support for ATM appear NOT to be agreed among the responding States. Rather, some States indicated that information sharing to support CDM should be important; dedicated MET information and services may be improved through MET/ATM collaboration, including daily operational use and post-analysis. GANP/ASBU represents important global initiatives, which all the States should follow.

Question 9 and 10

2.9. Most responding States have implemented generic legislation for the MET services, regulated in accordance with the ICAO Annex3. There do not appear to be significant issues; however it may be considered that ATM-related global standards will be developed in the near future.

3. CONCLUSION

3.1. In accordance with the responses to the survey, some suggestions may be derived as follows:

3.1.1. MET information, which is basically necessary for ATM, has been shared among ATM stakeholders in most of the States. On the other hand, ATM-tailored MET information has only been developed in some States.

3.1.2. Most of the responding States actually depend on WAFS forecasts in generating air-routes or flight planning, but more precise data obtained from NWP systems may improve the quality of the support. In either case, it should be important to assure the quality of the information provided through continuous verification.

3.1.3. A number of States have developed MET information for ATM without the benefit of generic guidance or specific standards, indicating that the Regional guidance on the implementation of MET information and services in support of ATM should be developed, taking into account the GANP/ASBUs initiative.

3.1.4. It should be also considered that ATM requirement for MET information may be different according to the situation of each State, such as air traffic demands, climatology, geography, etc.

3.1.5. Mutual understanding through close coordination among stakeholders, ATM, MET, and airline users, should be an essential consideration for the development for MET information and services in support of ATM.

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INTERNATIONAL CIVIL AVIATION ORGANIZATION
ASIA AND PACIFIC OFFICE

SURVEY OF STATE METEOROLOGICAL INFORMATION SUPPORTING AIR TRAFFIC MANAGEMENT

(Adapted from APANPIRG/26 WP/10 Appendix E)

INTRODUCTION

This survey is intended to inform ICAO (and States) on the types of meteorological (MET) information currently provided by States specifically to support Air Traffic Management (ATM) including Air Traffic Flow Management (ATFM) operations.

The results will be used to facilitate a coordinated approach to the further development of MET services in the Asia/Pacific Region (within the context and scope of existing provisions in Annex 3 to the Convention on International Civil Aviation — *Meteorological Service for International Air Navigation*) specifically in support of ATM and ATFM operations.

Please circle all relevant responses (there may be more than one per question)

Q1. Indicate below the specific MET information/service/website/s that your State/Administration has available to support ATFM:

a) Local report, routine/special
b) Aerodrome meteorological report, routine/special (METAR/SPECI)
c) Volcanic activity report
d) Volcano Observatory Notice to Aviation (VONA)
e) Air-report, routine/special (ARP/ARS)
f) Aerodrome forecast (TAF)
g) Trend forecast (TREND)
h) Area forecast for low-level flights (GAMET)
i) Significant weather (SIGWX) forecast; low-level (flight levels below 100)
j) Significant weather (SIGWX) forecast; medium-level (flight levels between 100 and 250)
k) Significant weather (SIGWX) forecast; high-level (flight levels between 250 and 630)
l) Volcanic ash advisory information
m) Volcanic ash advisory information in graphical format (VAG)
n) Tropical cyclone advisory information
o) Tropical cyclone advisory information in graphical format (TCG)
p) SIGMET information
q) AIRMET information
r) Aerodrome warning (AD WRNG)
s) Wind shear Warning (WS WRNG)
t) Wind shear alert
u) Aeronautical climatological information
v) Other MET information, e.g., tailored service (please specify): . . . . . .
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w) Websites (please specify):. . . . . .
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Q2. Please indicate below the modes by which your State/Administration disseminates aeronautical MET information:

a) Aeronautical Fixed Telecommunications Network (AFTN)
b) ATS Message Handling System (AMHS)
c) Telephone
d) Facsimile
e) Internet portal
f) Web/video conferencing
g) Other (please specify): . . . .
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Q3. With reference to Q1, please list the MET information/services your State/Administration considers to be necessary to support ATFM operations (in order of priority, starting with highest):

1.	13. . . . .
2.	14. . . . .
3.	15. . . . .
4.	16. . . . .
5.	17. . . . .
6.	18. . . . .
7.	etc. . . . .
8.	. . . .
9.	. . . .
10	. . . .
11.	.. . .
12.	.. . .

Q4. Does your State/Administration's ATM and/or ATFM system/s utilize automated processing of gridded MET information (e.g., from world area forecast centres) in the generation of flight trajectories and flight plan updates?

a) No
b) Yes – using world area forecast system (WAFS) forecasts
c) Yes – using forecasts from another source (please specify): . . . .
. . . .
. . . .

Q5. If you answered Yes, b) or c), to Q4 – please indicate below which gridded forecasts are used:

a) Wind
b) Temperature and humidity
c) Icing
d) Turbulence
e) Cumulonimbus cloud
f) Other (please specify): . . . .
. . . .

Q6. If you answered No, a), to Q4 – is your State/Administration planning to implement automated process/es using gridded MET information to support ATM/AFTM system/s?

a) No
b) Yes (please specify target implementation date): . . . . . .
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Q7. Please elaborate below on your State/Administration's expectations with respect to the provision of MET information/service in support of ATFM operations: . . . . . .
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Q8. Please elaborate below on what initiatives your State/Administration is presently undertaking or will undertake to enhance MET service provision specifically in support of ATFM operations: . . . . . .
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Q9. Has your State/Administration enacted primary legislation and supporting regulations to ensure the implementation of MET service in accordance with ICAO Annex 3 and any applicable regional air navigation agreements?

a) No
b) Yes (please specify): . . . . . .
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Q10. Has your State/Administration enacted regulations to ensure that air traffic service authorities and meteorological authorities establish an agreement defining roles and responsibilities and the MET information to be provided in accordance with ICAO Annex 3 and ICAO Doc. 9377 – *Manual on Coordination between Air Traffic Services, Aeronautical information Services and Aeronautical Meteorological Services*?

a) No
b) Yes (please specify) . . . . . .
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Thank you for your assistance.