



STUDY NOTE

**MEETING OF THE METEOROLOGY PANEL (METP)
WORKING GROUP MOG**

THIRD MEETING

Gatwick, London, United Kingdom, 13 to 16 June 2016

**Agenda Item 6: Matters relating to WAFS
6.2.2: Impacts in relation to Amendment 77**

**ADDITIONAL FLIGHT LEVEL INFORMATION TO BE PROVIDED AS PART OF WAFS
GRIDDED FORECASTS IN GRIB2 CODE FORM**

(Presented by the WAFC Provider States)

SUMMARY

This Study Note updates the group with details relating to the additional levels of gridded upper air forecast data that will be provided by the WAFCs with applicability of Amendment 77 to ICAO Annex 3 – *Meteorological Service for International Air Navigation*.

1. INTRODUCTION

1.1 The group will recall the first meeting of the Meteorological Operations Working Group (WG-MOG) to the Meteorological Panel (METP) that took place 8-11 September 2015, Gatwick, United Kingdom.

1.2 A paper was presented at that meeting detailing the relevant information available at the time. In advance of the introduction of the new levels, the WAFCs can now provide additional information and also repeat – for convenience – appropriate details from the previous paper.

2. DISCUSSION

2.1 Background and requirements:

2.1.1 It is anticipated that Amendment 77 to ICAO Annex 3 will specify additional data to be included in WAFS gridded upper air forecasts. **Appendix A**, provides details, and can be summarised as:

- U wind for FL080 (750hPa), FL210 (450hPa), and FL480 (125hPa)
- V wind for FL080 (750hPa), FL210 (450hPa), and FL480 (125hPa)
- Geopotential altitude for FL080 (750hPa), FL210 (450hPa), and FL480 (125hPa)
- Temperature for FL080 (750hPa), FL210 (450hPa), and FL480 (125hPa)
- Humidity for FL080 (750hPa) only.

2.2 The WAFCs have undertaken initial work to meet this requirement, and have proposed WMO Abbreviated Header Line allocations as specified in **Appendix B**.

2.3 Both WAFCs are undertaking initial production and testing of this additional data.

2.4 **Operational availability:**

2.4.1 The WAFCs will include the additional data in their respective datasets effective with data issued from the 1200 UTC 'data-time' on 9 November 2016. This is slightly in advance of the applicability of Amendment 77 to ICAO Annex 3 (10 November 2016).

2.5 The WAFCs are able to give access to test data. The test data is available on systems that are not fully operationally resilient.

WAFc London is making test data available, as would be presented on Secure SADIS FTP, via:

```
Server:      ftp.metoffice.gov.uk
User:        collect_wafc_additional
Password:    nozowo2i
```

Note: The above is a non-operational service provided for test and development purposes only, and will be removed by 30 November 2016 when the operational change has been fully implemented.

WAFc Washington is making test data available, via:

```
Server:      https://testbed.aviationweather.gov/wifs/data
User:        WIFS username
Password:    WIFS Password
```

3. **CONCLUSIONS**

3.1 Both WAFCs are pleased to report good progress in production of (pre-operational) additional gridded upper air forecast data that is anticipated for Amendment 77 to ICAO Annex 3

3.2 Both WAFCs will make the data available operationally with their existing datasets, effective with data issued from the 1200 UTC 'data-time' on 9 November 2016.

3.3 Users may access test data, available now, via the details provided in 2.5 of this paper.

3.4 For reference, the WMO AHLs that will be allocated to the data are provided in **Appendix B** to this paper.

4. **ACTION BY THE METP-WG/MOG**

4.1 The METP-WG/MOG is invited to:

- a) note the information contained in this Study Note; and

APPENDIX A: Recommendation for additional flight level data to be provided as part of WAFS gridded forecast data in GRIB2 code form

1. WORLD AREA FORECAST SYSTEM

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1.2 Upper-air gridded forecasts

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1.2.2 The grid point forecasts prepared by a WAFC shall comprise:

- a) wind and temperature data for flight levels 50 (850 hPa), 80 (750 hPa), 100 (700 hPa), 140 (600 hPa), 180 (500 hPa), 210 (450 hPa), 240 (400 hPa), 270 (350 hPa), 300 (300 hPa), 320 (275 hPa), 340 (250 hPa), 360 (225 hPa), 390 (200 hPa), 410 (175 hPa), 450 (150 hPa), 480 (125 hPa) and 530 (100 hPa);

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- d) humidity data for flight levels 50 (850 hPa), 80 (750 hPa), 100 (700 hPa), 140 (600 hPa) and 180 (500 hPa);

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- i) geopotential altitude data for flight levels 50 (850 hPa), 80 (750 hPa), 100 (700 hPa), 140 (600 hPa), 180 (500 hPa), 210 (450 hPa), 240 (400 hPa), 270 (350 hPa), 300 (300 hPa), 320 (275 hPa), 340 (250 hPa), 360 (225 hPa), 390 (200 hPa), 410 (175 hPa), 450 (150 hPa), 480 (125 hPa) and 530 (100 hPa).

APPENDIX B: WMO Abbreviated Header Line Allocation for additional flight level data to be provided as part of WAFS gridded forecast data in GRIB2 code form

The T₁T₂A₁A₂ii allocation for additional flight level data to be provided as part of WAFS gridded forecast data in GRIB2 code form.

The CCCC allocation will be EGRR for WAFC London, KWBC for WAFC Washington.

	Geopotential Altitude			Temperature			U Component of Wind			V Component of Wind			Humidity
Unit	gpm	gpm	gpm	Kelvin	Kelvin	Kelvin	m/s	m/s	m/s	m/s	m/s	m/s	%
Pressure Level	750hPa	450hPa	125 hPa	750hPa	450hPa	125 hPa	750hPa	450hPa	125 hPa	750hPa	450hPa	125 hPa	750hPa
Nominal Flight Level	FL080	FL210	FL480	FL080	FL210	FL480	FL080	FL210	FL480	FL080	FL210	FL480	FL080
T+06 (C)	YHXC75	YHXC45	YHXC13	YTXC75	YTXC45	YTXC13	YUXC75	YUXC45	YUXC13	YVXC75	YVXC45	YVXC13	YRXC75
T+09 (D)	YHXD75	YHXD45	YHXD13	YTXD75	YTXD45	YTXD13	YUXD75	YUXD45	YUXD13	YVXD75	YVXD45	YVXD13	YRXD75
T+12 (E)	YHXE75	YHXE45	YHXE13	YTXE75	YTXE45	YTXE13	YUXE75	YUXE45	YUXE13	YVXE75	YVXE45	YVXE13	YRXE75
T+15 (F)	YHXF75	YHXF45	YHXF13	YTXF75	YTXF45	YTXF13	YUXF75	YUXF45	YUXF13	YVXF75	YVXF45	YVXF13	YRXF75
T+18 (G)	YHXG75	YHXG45	YHXG13	YTXG75	YTXG45	YTXG13	YUXG75	YUXG45	YUXG13	YVXG75	YVXG45	YVXG13	YRXG75
T+21 (H)	YHXH75	YHXH45	YHXH13	YTXH75	YTXH45	YTXH13	YUXH75	YUXH45	YUXH13	YVXH75	YVXH45	YVXH13	YRXH75
T+24 (I)	YHXI75	YHXI45	YHXI13	YTXI75	YTXI45	YTXI13	YUXI75	YUXI45	YUXI13	YVXI75	YVXI45	YVXI13	YRXI75
T+27 (J)	YHXJ75	YHXJ45	YHXJ13	YTXJ75	YTXJ45	YTXJ13	YUXJ75	YUXJ45	YUXJ13	YVXJ75	YVXJ45	YVXJ13	YRXJ75
T+30 (K)	YHXK75	YHXK45	YHXK13	YTXK75	YTXK45	YTXK13	YUXK75	YUXK45	YUXK13	YVXK75	YVXK45	YVXK13	YRXK75
T+33 (L)	YHXL75	YHXL45	YHXL13	YTXL75	YTXL45	YTXL13	YUXL75	YUXL45	YUXL13	YVXL75	YVXL45	YVXL13	YRXL75
T+36 (M)	YHXM75	YHXM45	YHXM13	YTXM75	YTXM45	YTXM13	YUXM75	YUXM45	YUXM13	YVXM75	YVXM45	YVXM13	YRXM75

The requirement will generate 143 additional bulletins per run. Following implementation there will be 858 (currently 715) WAFS GRIB2 bulletins for wind, temp, humidity, gph, and tropopause data. The number of CB, icing and turbulence bulletins, currently 407, will remain unchanged. As a consequence, the TOTAL number of bulletins issued per run by each WAFC will increase from 1122 to 1265.