



INFORMATION PAPER

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

SEVENTH MEETING

Offenbach, Germany, 11 to 13 April 2018

**Agenda Item 3.3: Work required in support of WAFS Developments
3.3.1 Matters relating to the gridded WAFS products**

GRIDDED DATA PRECISE PRESSURE LEVELS
(Presented by the WAFS Provider States)

SUMMARY

This paper presents information regarding the change to pressure levels used during the calculation of WAFS flight level gridded data

1. INTRODUCTION

1.1 WG-MOG/4 SN/25 “WAFS Medium Term Strategy 2018 to 2023” introduced the idea of using precise pressure levels in the calculation of flight levels to avoid the use of approximations that are currently in use. This information paper describes the planned changes.

2. DISCUSSION

2.1 ICAO Annex 3, Appendix 2, Section 1.2 describes the upper-air gridded data sets that are produced by WAFS. The requirement is for the data to be provided in terms of flight levels.

2.2 At present published WAFS forecasts use the nearest standard pressure level to each flight level. For example, 600hPa is used for FL140 data sets.

2.3 Development of WAFS production systems mean that it will soon be possible to output WAFS flight level data using the precise atmospheric pressure value. This means that model data for 595.2hPa would be used in the creation of the FL140 data sets, and approximations will be removed. A summary table of precise pressure values for each flight level is shown in Appendix A. *Note: the goal is to provide information above FL530 and thus the table in Appendix A provides data up to FL600.*

2.4 **Implementation plan:**

- All 0.25° test data sets, available from November 2019 onwards will be generated using exact pressure levels.
- From XX UTC on xx November 2020 all WAFS data sets (at 1.25° and 0.25° resolutions) will be created using exact pressure levels.

2.5 **Documentation**

- Annex 3, Appendix 2, section 1.2 (Upper-air gridded forecasts) will not be adjusted to show the exact pressure levels, and instead for Amendment 79 the following note will be added to paragraph 1.2.2

“Note.— The exact pressure levels (hPa) for a), d), f), g), and i) is provided in the Manual of Aeronautical Meteorological Practice (Doc 8896)”.

- It is planned that information on exact pressure levels will be removed from Annex 3 with Amendment 80, and moved to the new PANS-MET document.

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

- 3.1 The METP-WG/MOG is invited to note the information contained in this paper.

APPENDIX A

Flight Level	Geopotential Altitude (FT)	ICAO Standard Atmosphere pressure level (hPa)	Pressure levels used by WAFC until Nov 2019 (hPa)	Flight Level	Geopotential Altitude (FT)	ICAO Standard Atmosphere pressure level (hPa)	Pressure levels used by WAFC until Nov 2019 (hPa)
FL050	5000	843.1	850.0	FL330	33000	262.0	
FL060	6000	812.0		FL340	34000	250.0	250.0
FL070	7000	781.9		FL350	35000	238.4	
FL080	8000	752.6	750.0	FL360	36000	227.3	225.0
FL090	9000	724.3		FL370	37000	216.6	
FL100	10000	696.8	700.0	FL380	38000	206.5	
FL110	11000	670.2		FL390	39000	196.8	200.0
FL120	12000	644.4		FL400	40000	187.5	
FL130	13000	619.4		FL410	41000	178.7	175.0
FL140	14000	595.2	600.0	FL420	42000	170.4	
FL150	15000	571.8		FL430	43000	162.4	
FL160	16000	549.2		FL440	44000	154.7	
FL170	17000	527.2		FL450	45000	147.5	150.0
FL180	18000	506.0	500.0	FL460	46000	140.6	
FL190	19000	485.5		FL470	47000	134.0	
FL200	20000	465.6		FL480	48000	127.7	125.0
FL210	21000	446.5	450.0	FL490	49000	121.7	
FL220	22000	427.9		FL500	50000	116.0	
FL230	23000	410.0		FL510	51000	110.5	
FL240	24000	392.7	400.0	FL520	52000	105.3	
FL250	25000	376.0		FL530	53000	100.4	100.0hPa
FL260	26000	359.9		FL540	54000	95.7	
FL270	27000	344.3	350.0	FL550	55000	91.2	
FL280	28000	329.3		FL560	56000	87.0	
FL290	29000	314.9		FL570	57000	82.8	
FL300	30000	300.9	300.0	FL580	58000	79.0	
FL310	31000	287.4		FL590	59000	75.2	
FL320	32000	274.5	275.0	FL600	60000	71.7	