STANDARDS RELATED DOCUMENT

AMETOCP-3.2

FILE NAMING CONVENTION FOR NATO METOC DATA AND PRODUCT EXCHANGE

EDITION A Version 1

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NORTH ATLANTIC TREATY ORGANIZATION

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NORTH ATLANTIC TREATY ORGANIZATION (NATO)

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NATO LETTER OF PROMULGATION

17 June 2019

1. The enclosed Allied Standards Related Document, AMETOCP-3.2, Edition A, Version 1, FILE NAMING CONVENTION FOR NATO METOC DATA AND PRODUCT EXCHANGE, which has been approved in conjunction with AMETOCP-3 by the nations in the Military Committee Joint Standardization Board, is promulgated herewith.

2. AMETOCP-3.2, Edition A, Version 1 is effective upon receipt.

3.

4. This publication shall be handled in accordance with C-M(2002)60.

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Brigadier General, HUNAF
Director, NATO Standardization Office

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CHAPTER 1 FOREWORD

1.1. REFERENCES

[1] MC 0594/1 (Final), Military Committee Policy on Meteorological and Oceanographic Support to NATO Forces, 02 April 2014 + Final decision on change 1 to MC 0594/1 (Final) dated 17 June 2015.

[2] ***Manual on the Global Telecommunication System WMO No 386 Edition 2015 (Updated in 2018), Part II Attachment II-15. "Recommended Pratices and Procedures for the implementation, use and application of TCP/IP on the GTS" , Chapter "GTS data exchange methods", Section "SFTP / FTP procedures and file naming convention***

1.2. BACKGROUND

1. The use of accurate, timely, relevant, consistent and reliable meteorological and oceanographic (METOC) data, information and products has been identified by the Military Committee (MC) as key to decision superiority, enabling safe, effective, and successful operations (Reference 1). As per the Integrated METOC (IMETOC) principle, METOC data, information and products exploited in NATO come from various civil and military sources. Therefore, standardization and interoperability in METOC data, information and products exchanges is paramount and NATO should maximize the use of standard WMO, ICAO and IOC codes and formats. However, NATO METOC codes may be developed if standard codes cannot meet specific military requirements. To meet the IMETOC principle, METOC data, information and products have to be shared with all operational stakeholders. For this reason, operational partners supporting NATO-led activities have to be enabled to retrieve and exploit IMETOC Lead Nation and Assisting Nation-provided data, information and products (Reference 1).

2. Current and planned NATO METOC systems have been primarily designed to support commanders, planners and operators in the NATO Command Structure (NCS) and the NATO Force Structure (NFS). Currently, no efficient auxiliary METOC support tool is available enabling the Alliance to share NATO METOC information with Troop Contributing Nations (TCN), non-NATO Nations and NATO-partners as required by NATO policy or to provide a back-up capability for the NATO METOC visualization systems.

3. Therefore, SHAPE requested the NATO Communications and Information Agency (NCI Agency) to procure/develop an easily accessible, light and straight forward tool to be deployed at various classification levels, namely the Internet, Mission XXXXXXX (MS) and NATO XXXXXX (NS) networks which reduces manual intervention to a minimum. Moreover, in addition to the IMETOC data and products,

the required tool is expected to make Subject Matter Experts' (SME) production available to the whole NATO METOC community contributing to NATO-led activities.

4. In order to minimize related manpower resources; operating and maintenance costs, SHAPE advised to implement a highly automated web solution. This way it has been made a key requirement for the NATO METOC Data Web Portal (NMD Web) to automatically adapt (generate pages, tabs, hyperlinks …) based on given product file names.

5. For this purpose, filename standards have been developed for the METOC information in terms of this FNC to be transmitted within the ACOMEX circuits.

CHAPTER 2 INTRODUCTION

2.1. CONVENTIONS ON FILE NAMES AND CONTENTS

1. The present document contains conventions that facilitate interoperability when using file based distribution of meteorological data in an operational environment by standardizing the filename conventions on use intended between user groups and allies.

2. LN and AN that are producing NATO METOC products for Allies are requested to strictly respect this NATO METOC File Name Convention (NATO FNC).

3. Its primary use is for Weather Analysis Centers (WAC), WAC-to-theatre meteorological data controller distribution, operational fire control and other systems requiring meteorological data as critical input.

4. For those user groups or nations who do not use file exchange, or inside their fire control systems, this standard has little or no relevance and will not impact upon them or their systems, although may underpin their future requirements working with their allies.

2.2. FILE RENAMING

1. Most NATO and Non-NATO Nations already apply their own standards for the naming of files to be exchanged at national and international levels. Often, these standards differ from nation to nation bringing difficulties when METOC data have to be exchanged among themselves.

2. To ensure interoperability of METOC data, information and products provided by various IMETOC Lead Nations (IMETOC LN) and Assisting Nations (IMETOC AN) in support of NATO-led activities, manpower and increased workload were requested in order to manually convert filenames based on national file naming conventions into the NATO METOC File Naming Convention.

3. By Ref 1, Allies agreed that NATO METOC community will maximize the use of standard WMO, ICAO, IOC codes and formats. Nevertheless, in order to meet specific military requirements, a NATO METOC code must be developed to ensure rapid and reliable availability of LN/AN products on a shared network.

4. Standardised structure of the general file name convention can be found in Ref 2. The NATO METOC FNC is an extension of the WMO FNC and the main difference resides in the “free-format” field which is mandatory.

5. Having an agreed NATO METOC FNC established will make it possible to automatically expose METOC products and data on portals and will ease the process of maintenance and control of the data flow.

CHAPTER 3 NATO METOC FILE NAMING CONVENTION

3.1. WMO Operational Procedures for GTS's file naming convention

The WMO rules for naming of exchanged files can be found within REF 2. Those rules are building the base of the NATO METOC FNC and are partly adjusted and refined for this use.

Pflag_Productidentifier_Oflag_Originator_yyyyMMddhhmmss[_FreeFormat] .Type[.Compression]

- The "WMO-Like" fields are the ones highlighted hereupon.
- All the "WMO-Like" fields are mandatory, except the Compression field.

1. **Pflag**. The Pflag is a fixed length field of 1 char indicating how to decode the "Productidentifier" field. Currently, the NATO FNC only allows the unique "Z" character (Originating centre's local product identifier).

2. **Productidentifier.** The productidentifier is a fixed length field (3 char) that describes the nature of the content of the file. Valid entries are listed in table A.1.

3. **Oflag**. The oflag is a field with a fixed length of 1 char indicating how to decode the Originator field. Currently, the NATO METOC FNC only allows the unique "C" character.

4. **Originator.** The Originator field has a fixed length of 4 alphanumeric characters and it states where the file originated. It will be decoded as a standard CCCC country code.

5. **yyyyMMddhhmmss**. The yyyyMMddhhmmss is a fixed length date and time stamp field. It has a fixed length of 14 digits. This field represents the date and time of creation of the file by the originator. See Ref a. for further explanation.

a. yyyy : 4 digits representing the year
b. MM ; 2 digits representing the month
c. dd : 2 digits representing the day
d. hh : 2 digits representing the hours in 24 hour format
e. mm : 2 digits representing the minutes
f. ss : 2 digits representing the seconds

6. **Free-format.** The free-format field contains all extra information for the NATO METOC FNC. Chapter 3.3 describes all subfields.

7. **Type (Mandatory)**

The Type field is a variable length field that describes the file type also called file extension. It should be noted that the delimiter before the type is a “.” (period).

8. **Compression (Optional)**

The Compression is a variable length field specifing if the file uses industry standard compression techniques. It gives information whether the file is compressed using a packer such as zip, tar …etc. In the case that a compression is used the original file extension is also kept in order to inform NCIA SHAPE and BGIC about the file type contained in the archive.

3.2. Free-format field

3.2.1. Specifics of the NATO FNC

For FNC some extra rules apply in order to enable software to work based on those filenames.

1. NATO doesn't used WMO's concepts of file pairs but is using free-format part within the filename to store an index which points to tables containing the metadata.

2. WMO does distinguish lower and upper case conventions regarding whether a file is processed or transmitted. NATO FNC makes case insensitive use of the filename regardless of the use case.

3. Some subfields store an index. The values belonging to those can be found in lookup tables, which are maintained by SHAPE J2 METOC Section in close coordination with MNMSG (see also Chapter 3.3 and Annex A, respectively).

4. In case an optional field or subfield would not be used (for any reason), no character should be added between the subfields delimiters (underscores "_"). Exceptions are the subfields type and compression, respectively. Those fields start with period and have no ending delimiter.

5. The sequence of the free-format subfields is mandatory.

3.2.2. FREE-FORMAT subfields description

According to WMO specs, the free-format field content is up to each user. For the NATO METOC FNC, this field is used in a standardized way to contain the extra information that is required for data usage by different NATO METOC systems.
The free format part is composed of 17 standardized subfields.

The content of the free-format part is depicted below, detailed explanation will be given right after:

1. Syntax within the Filename

   Classification**ActivityFlag**_ActivityName_**Role Flag**_Data or Product Name_Area_Height/Depth_**Model /Data Source**_NWP Scale_Forecast Run Time/Measurement Time_**Forecast Period Offset**_Forecast Period_Forecast Increment_Forecast Time_Update Cycle_Increment Counter_**Variant**

2. List of subfields with references to tables in Annex A:

Subfield	**Table**
Classification	A.2
Activity Flag	A.3
Activity Name	A.4
Role Flag	A.5
Data or Product Name	A.6
Area	A.7
Height/Depth	A.8
Model /Data Source	A.9
NWP Scale	A.10
Forecast Run Time/Measurement Time	None
Forecast Period Offset	None
Forecast Period	None
Forecast Increment	None
Forecast Time	None
Update Cycle	None
Increment Counter	None
Variant	A.11

1. **Classification** (Mandatory)
is a fixed length subfield of 3 digits that describes the NATO Security Classification. It is used to determine the classification of the file content. Valid entries can be found in lookup table A.2.

2. **Activity Flag** (Mandatory)
is a fixed length subfield of 1 letter describing the type of NATO-led activity the data is meant to support. This flag is used to sort the file into the corresponding library on web portals. Valid entries can be found in lookup table A.3.

3. **Activity Name** (Mandatory)
Is a fixed length subfield of 2 alphanumerical characters referring to the name given to the NATO-led action the data is meant to support. This field is used to group products by supported action Valid entries can be found in lookup table A.4.

4. **Role Flag** (Mandatory)
Is a fixed length subfield of 1 letter describing the role assumed by the “Originator” with respect to the IMETOC principle. It is used as further information on portals. Valid entries can be found in lookup table A.5.

5. **Data or Product Name** (Mandatory)
Is a variable length subfield of **up to 5 alphanumerical** characters containing the unique Name Identifier of the content. It is used to display the Name of the content on Web Portals. Valid entries can be found in lookup table A.6.

6. **Area**. (Mandatory)
Area within this context means either an area or a Point Of Interest (POI).
There are two ways to specify the Area subfield:

- Is a variable length subfield **of either 3, 4, or 5 alphanumerical characters** referring to the location (e.g. region, country, city, ocean, sea, Point of Interest (POI)) to which the content of the file applies.
    - **3 characters for areas**
    - **4 characters for ICAO or ICAO-like location indicators (EQ/KQ)**
    - **5 characters for WMO Location indicators or special location indicators (e.g. mobile radar sites)**

  It is used to group the content by area or to display the Name of the Location. Valid entries can be found in lookup table A.7.

- Since it is not possible to include all existing locations in a Look-up-table, the NATO METOC FNC also allows a location to be provided in terms of its latitude and longitude. In this case the fixed length syntax has to be:

  LaLaLaLaV_LoLoLoLoLoH_

- LaLaLaLa providing latitude with 4 digits in cent-degrees
- V indicating latitude North or South as “N” or “S”
- LoLoLoLoLo providing longitude with 5 digits in cent-degrees
- H indicating longitude West or East as “W” or “E”

7. **Height/Depth** (Optional)
Is a variable length subfield of 6 to 8 char containing two parts. The subfield describes the horizontal level of the content. It is used to display content for different levels. The generic expression of the Height subfield is **aaaaaAAA**, where:

- **aaaaa** is a 5 digits number representing the value.
- **AAA** is a combination of 1 to 3 alphabetical characters referring to the units such as hPa, FL, Ft, m.

Valid entries for the unit can be found in lookup table A.8.

8. **Model / Data Source** (Optional)
Is a fixed length subfield of 3 alphanumerical characters. This subfield hosts information about the source of the content. The corresponding index has to be selected according to the following hierarchy:

1. The Mathematical Model used to generate a certain forecast

or

2. The sensor which has recorded and transmitted a certain picture

or

3. The name of the entity (e.g. NOGAP, 21 OWS) that has generated/produced the content of the file.

It is used as further information on portals. Valid entries can be found in lookup table A.9.

9. **Numerical Weather Prediction Scale** (Optional)
Is a fixed length subfield of 3 alphanumerical characters refering to the resolution that is applicable to the content of the file. It is used as further information on portals. Valid entries can be found in lookup table A.10.

10. **Forecast Run Time/Measurement Time** (Optional)
Is a fixed length subfield of 12 digits containing an absolute timing in UTC. It is used to determine the Basetime of the content. It is coded as **YYYYMMddhhmm** where:

- **YYYY is a 4 digits number referring to the year.**

- **MM is a 2 digits number referring to the month**
- dd is a 2 digits number referring to the day of the month
- hh is a 2 digits number referring to the hour of the day
- mm is a 2 digits number referring to the minutes of the day.

The subfield can have different significations:

- If the products refers to a forecast:
  - the beginning moment of a Forecast Period
  - the Model Run Time

- Time of Observation or measurement.

11. **Forecast Period Offset** (Conditional)
Is a fixed length of 7 digits sub-field providing the interval between Forecast Run Time/Measurement Time and Beginning of Forecast Period in case they are not equal(condition extra). It is used to determine the start time of the Forecast Period. It is coded as **dddhhmm** where:

- **ddd** is a 3 digits number referring to the amount of days
- **hh** is a 2 digits number referring to the amount of hours
- **mm** is a 2 digits number referring to the amount of minutes

12. **Forecast Period (Conditional)**
is a fixed length subfield of 7 digits provides the total duration of the forecast, starting at the Forecast Run Time/Measurement Time until the time of the last forecast from same model run. It is used to determine which forecasts should be available. It is a coded as **dddhhmm** where :

- **ddd** is a 3 digits number referring to the amount of days
- **hh** is a 2 digits number referring to the amount of hours
- **mm** is a 2 digits number referring to the amount of minutes

In case of several forecast times based on an NWP run, this field is mandatory in order to have a full description of the scope of products per run.

13. **Forecast Increment** . **(Conditional)**
Is a fixed length length subfield of 7 digits that provides the period of time between 2 immediately consecutive available forecast data/parameters from a single run. It is used to determine the frequency of content available. It is coded as **dddhhmm** where:

- **ddd** is a 3 digits number referring to the amount of days
- **hh** is a 2 digits number referring to the amount of hours
- **mm** is a 2 digits number referring to the amount of minutes

In case of several forecast times based on an NWP run, this field is mandatory in order to have a full description of the scope of products per run.

14. **Forecast Time (Conditional)**
is a fixed length length subfield of 7 digits providing information regarding the timing at which the METOC data/parameter contained in the folder is valid (Validity Time). This sub-field is coded as **dddhhmm** where:

- **ddd** is a 3 digits number referring to the amount of days
- **hh** is a 2 digits number referring to the amount of hours
- **mm** is a 2 digits number referring to the amount of minutes

The Validity Time of the products is the sum of the **Forecast Run Time/Measurement Time** and the **Forecast Time**

The **Forecast Time** is a multiple of the **Forecast Increment**, but no greater than **Forecast Period**.

In case of several forecast times based on an NWP run, this field is mandatory in order to have a full description of the scope of products per run.

15. **Update Cycle (Conditional)**
is a fixed length length subfield of 7 digits providing the expected elapsed time between 2 consecutive Forecast Runs/Measurement Times. It is coded as dddhhmm where :

- **ddd** is a 3 digits number referring to the amount of days
- **hh** is a 2 digits number referring to the amount of hours
- **mm** is a 2 digits number referring to the amount of minutes

In case there is a fixed stepping between two Forecast Run Times / Measurement Times, this field is mandatory in order to know when the next Update will be performed.

16. **Increment Counter** (Mandatory)
Is a fixed length length subfield of 1 digits to indicate e.g. amendments to already issued forecasts / products. It enables showing the latest version of the respective content.

17. **Variant (Conditional)**
This subfield has a fixed length of 1 alphanumeric character. The “Variant” subfield is used to distinguish between different variants of the same product. The additional

characterisation given by this subfield indicates variants of one specific product such as e.g. greyscale vs. coloured; high vs. low resolution; standard climate period vs. 10-years base period etc. The subfield is only defined when two or more variants are disseminated at the same time. Used for the variant, not for the “standard” product. Valid entries can be found in lookup table A.11.

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CHAPTER 4 Further Explanation

4.1. Example for an FNC Filename

The following example illustrates the coding of the a example filename with FNC:

Pflag_Productidentifier_Oflag_Originator_yyyyMMddhhmmss_Classification_Activity Flag_ActivityName_Role Flag_Data or Product Name_Area_Height/Depth_Model /Data Source_NWP Scale_Forecast Run Time/Measurement Time_Forecast Period Offset_Forecast Period_Forecast Increment_Forecast Time_Update Cycle_Increment Counter_Variant .Type.Compression

1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13.
Z_040_C_ETGT_20190319145607_100_O_02_L_04041_002_00002m_003

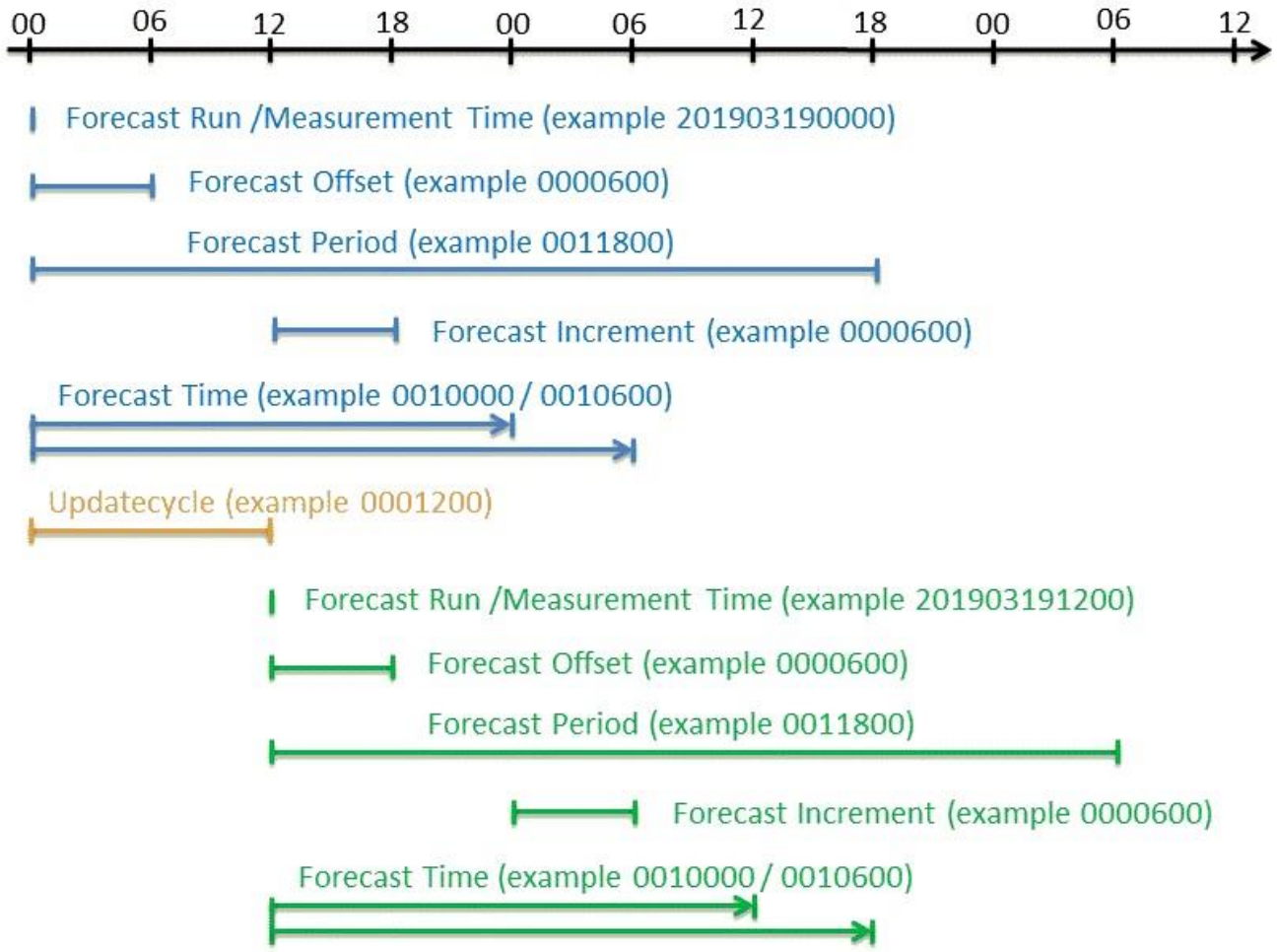
14. 15. 16. 17. 18. 19. 20. 21. 22.
_001_201903191200_0000300_0070000_0000300_0002100_0001200_0_1

23. 24.
.png.zip

1. Pflag = Z (Originating centre's local product identifier)
2. Productidentifier = 040 (Direct Model Output at PL & std. heights, and integrated variables)
3. OFlag = C (The originator field will be decoded as a standard CCCC country code)
4. Originator = ETGT (Euskirchen Mil. Met. Centre)
5. yyyyMMddhhmmss = 20190319145607 (19.03.2019 14:56:07 UTC)
6. Classification = 100 (NATO UNCLASSIFIED (NU))
7. Activity Flag = O (Operation)
8. ActivityName = 003 (NATO Response Force)
9. Role Flag = L (Lead Nation)
10. Data or Product Name = 04041 (Weather)

11. Area = 002 (Mediterranean Sea)
12. Height/Depht = 00002m (2 meters)
13. Model/Data Source = 003 (ICON)
14. NWP Scale = 001 (Global)
15. Forecast Run Time/ Measurement Time = 201903191200 (19.03.2019 12:00UTC)
16. Forecast Period Offset = 0000300 (3 hours)
17. Forecast Period = 0070000 (7 days)
18. Forecast Increment = 0000300 (3 hours)
19. Forecast Time = 0002100 (21 hours)
20. Update cycle = 0001200 (12 hours)
21. Increment Counter = 0 (no Increment / Amendment)
22. Variant = 1 (greyscale)
23. Type = png (A Portable Network Graphics file)
24. Compression = zip (Compression format zip)

4.2. Figure of Time within FNC free format part



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Annex A Lookup tables

1. The lookup tables, as presented in this annex, serve to illustrate their use in conjunction with the generation of file names according to the FNC.

2. The NATO METOC FNC makes extensive use of these look-up tables which have 3 main objectives :
   a. Compile a list of valid entries for each field of the file naming convention.
   b. Prevent file names of exceeding 128 characters (including all delimiters as advised by WMO) to allow processing by all international systems.
   c. Avoid duplication of identical information.

3. AMETOCP-3.2 is a self-explanatory document. However, it is recognized that the lookup tables (and all other parts of this document) may change at any time, since any new product or any supported NATO activity requires additional entries in the tables. The currently published version may not be up-to-date even a day after publication.

   LNs in coordination with the custodian / MN MSG are responsible for modifying / updating the lookup tables based on new requirements /products. The custodian of AMETOCP-3.2 / MN MSG is responsible for the adaptation of the lookup tables according to changed IMETOC support. The updated lookup tables will be sent to and disseminated by SHAPE. Additionally, the custodian initiates updates of this document according to the procedure for SRDs defined by NSO.

4. The user of AMETOCP-3.2 is advised to contact the custodian to receive an up-to-date version of the lookup tables. An electronic version of the tables is available for usage in FNC-related software. Existing users will receive notifications regarding updates. Furthermore, the lookup tables are distributed with the METOC data stream on a regular basis.

Table A.1 – Product identifier

ID	Name
010	Satellite Products
020	Radar Products
030	Surface Observations
040	Direct Model Output at PL & std. heights, and integrated variables
050	Direct Model Output at FL
060	TDAs
070	Manually Added Value Products
080	Crosssections
090	Tephigrams
100	Meteograms
110	Oceanographic Products
120	CBRN & Artillery Messages
130	Climatologies and Seasonal Forecasts
140	Space Weather Products
150	Ensemble Products
160	Other Products

Table A.2 - Classification

ID	Name
000	INFORMATION RELEASABLE TO THE PUBLIC
100	NATO UNCLASSIFIED (NU)
110	NATO UNCLASSIFIED (NU) COMMERCIAL
120	NATO UNCLASSIFIED (NU) MANAGEMENT
130	NATO UNCLASSIFIED (NU) STAFF
200	NATO RESTRICTED (NR)
300	NATO CONFIDENTIAL (NC)
400	NATO CONFIDENTIAL ATOMAL (NCA)
500	MISSION SECRET (MS)
600	NATO SECRET (NS)
700	NATO SECRET ATOMAL (NSA)
800	COSMIC TOP SECRET (CTS)
900	COSMIC TOP SECRET ATOMAL (CTSA)

Table A.3 – Activity flag

ID	Name
E	Exercise
O	Operation
S	Space
C	Climate
A	other Activity

Table A.4 – Activity Name

ID	Name
00	NONE
01	KFOR
02	Operation Sea Guardian
03	NATO Response Force
04	Resolute Support
05	Air Policing
06	NATO Maritim
07	Standing Naval Forces
08	Dynamic Guard
09	Dynamic Manta
…	…

Table A.5 – NFlag

ID	Name
L	IMETOC lead nation
A	IMETOC assisting nation
H	Host nation

Table A.6 – Data or product name

ID	Name	Description
00	Dummy for NMD Web Bug 0	A Dummy for the NMD Web Bug
01	Dummy for NMD Web Bug 1	A Dummy for the NMD Web Bug
02	Dummy for NMD Web Bug 2	A Dummy for the NMD Web Bug
03	Dummy for NMD Web Bug 3	A Dummy for the NMD Web Bug
04	Dummy for NMD Web Bug 4	A Dummy for the NMD Web Bug
05	Dummy for NMD Web Bug 5	A Dummy for the NMD Web Bug
06	Dummy for NMD Web Bug 6	A Dummy for the NMD Web Bug
07	Dummy for NMD Web Bug 7	A Dummy for the NMD Web Bug
01001	Infrared	Overview of clouds, greyscale. Low clouds will be shown dark, high clouds will be shown white.
01002	True Colour	
01003	Visible	Overview of clouds, greyscale.
01004	Water Vapour	Overview of water vapor, geyscale. Dry areas will be shown dark, wet areas will be shown white.
01101	Visible 007	

01201	Infrared 120	
01202	Infrared 108	
01203	Infrared 108 + Lightnings	
01211	Infrared - MB	
01212	Infrared - RB NWS	
01301	HRV	
01505	3-Dim Clouds	This composite product will show high level cloud blue, low level cloud yellow and vertical thick clouds white.
01506	Nocturanal Clouds	Low stratus clouds: pale green or pale blue (cold or warm atmosphere) color. Cold thick clouds: dark red color. Very cold thick clouds: dark red color with embedded green dots. Very cold thin clouds: dark blue color.
01507	Cloud Type	Automatic classification of clouds. Clouds can be differentiated between transparent and non-transparent as well as a rough indikation of cloud top height.
01508	Cloud Top Temperature	This composite product will show the cloud top temperature with steps of 5 degrees Kelvin.
01509	Dust	This composite product will show areas of dust, colored in magenta.
01510	Airmass	
01511	Fog	
01512	False Colour Composite	
01521	Infrared + Visible - MSI	
02001	Total Rainfall (Reflective)	radar reflectivity is a measure for the intensity of rainfall
02002	Rain Rate (mm/hr)	integrated from radar reflectity and duration
02003	Composite Reflectivity	
02004	Base Reflectivity	
02005	Vertical Integrated Liquid	
02101	Echo Tops	
02201	Base Mean Radial Velocity	
02202	Velocity Azimuth Display	
02901	Lightning	
04001	Temperature	temperature at 2m above ground or on given pressure level, in °C
04002	Dewpoint Temperature	temperature, at which condensation will start in a given air parcel
04003	2m Temperature Spread	moisture content of an air parcel, relative to the maximum possible moisture content.
04005	Wind + Surface Temperature + RH	
04010	850mb WBPT + 1000mb RH	
04011	RH + Temperature WBPT	
04012	MSLP + Surface RH + 850hPa WBPT	
04021	Wind	mean wind speed (10minutes average) in 10m height, in knots. Colouring is based on warning thresholds.
04022	Wind Vectors	mean wind speed (10minutes average) in 10m height. Arrows are coloured according to Beaufort Scale.
04023	Maxwind	maximum wind speed at 10m during last hour before forecast time, given in knots. Colouring is based on warning thresholds
04030	Mean Sea Level Winds + Temperatures	
04031	Accumulated Precipitation + MSLP + 1000-500mb Thickness + Wind	
04032	1000-500hPa Thickness + 500hPa geopotential height	
04041	Weather	significant weather at timestep (WMO weather code)
04042	MSLP + WW	mean sea level pressure with isobars, in hPa and significant weather (WMO weather code)
04043	MSLP + Wind 10m + PPTN	
04063	Visibility	
04071	MSL Pressure	mean sea level pressure with iscobars and pressure centers, in hPa
04101	Medium Clouds + MSLP + Weather	cloud cover in medium level (between 800hPa and 400hPa) together with mean sea level pressure, in hpa and significant weather (WMO weather code)
04110	Overview Clouds	total cloud cover in percent, which includes low, medium and high clouds together, as an overwiew
04111	Overview Clouds + MSLP	total cloud cover in percent, which includes low, medium and high clouds together and mean sea level pressure with isobars in hPa

04112	Total Cloud Coverage High + MSLP	total cloud cover of high clouds (higher than 400hPa level) in percent together with mean sea level pressure with isobars in hPa
04113	Total Cloud Coverage Medium + MSLP	total cloud cover of medium clouds (between 800 and 400hPa level) in percent together with mean sea level pressure with isobars in hPa
04114	Total Cloud Coverage Low + MSLP	total cloud cover of low clouds (below 800 hPa level) in percent together with mean sea level pressure with isobars in hPa
04115	Horizontal Extent of CB	horizontal extent of cumulonimbus clouds is a measure for the covering rate of cumulonimbus clouds within a grid box
04116	Convective Cloud Base	base of convection in feet above mean sea level
04117	Convective Cloud Top	tops of convection in feet above mean sea level
04118	Vertical Extent of Convective Clouds	depth of convection in feet
04119	Total Cloud Coverage High	total cloud cover of high clouds (higher than 400hPa level) in percent
04120	Total Cloud Coverage Medium	total cloud cover of medium clouds (between 800 and 400hPa level) in percent
04121	Total Cloud Coverage Low	total cloud cover of low clouds (below 800 hPa level) in percent
04150	DCF Cloud Base	
04151	DCF Cloud Tops	
04152	DCF Total Cloud Coverage	
04160	WWMCA Modified Cloud Top Height	
04170	Cloud Free Line of Sight	
04201	Precipitation 3h	amount of precipitation in a 3 hours time interval before forecast time
04202	Precipitation 6h	amount of precipitation in a 6 hours time interval before forecast time
04203	Precipitation 12h	amount of precipitation in a 12 hours time interval before forecast time
04204	Total Precipitation	amount of precipitation accumulated since start time of the model run
04205	Precipitable Water	total water content integrated over a vertical column of the atmosphere
04206	Accumulated Rain 3h	water equivalent of rainfall in a 3 hours time interval before forecast time
04207	Accumulated Rain 6h	water equivalent of rainfall in a 6 hours time interval before forecast time
04208	Accumulated Rain 12h	water equivalent of rainfall in a 12 hours time interval before forecast time
04220	Accumulated Snow 3h	water equivalent of snowfall during last 3 hours before forecast time
04221	Accumulated Snow 6h	water equivalent of snowfall during last 6 hours before forecast time
04222	Accumulated Snow 12h	water equivalent of snowfall during last 12 hours before forecast time
04223	Accumulated Snow 24h	water equivalent of snowfall during last 24 hours before forecast time
04242	Total Column Precipitation	
04243	Total Column Precipitation 3h	
04244	Thunderstorm Potential Index + Cummulative Precipitation 3h	
04301	Freezing Level	level of 0°C isotherm in hundreds of feet
04302	Icing Base	base height of icing conditions in hundreds of feet above mean sea level
04303	Icing Top	top height of icing conditions in hundreds of feet above mean sea level
04304	Icing Vertical Code	continuous or discontinuous behaviour of icing conditions in a vertical column of the atmosphere
04305	Icing Degree Code	intensity of icing conditions on pressure levels
04306	Icing Max Base	lowest level of highest intensity of icing in hundreds of feet above mean sea level
04307	Icing Max Top	highest level of highest intensity of icing in hundreds of feet above mean sea level
04308	Icing Max Code	highest intensity of icing conditions integrated from icing base up to icing top level
04309	Height of Minus 10 Deg C	
04451	Turbulence Intensity Upper UIR	turbulence intensity applied on medium large aircraft (example A320) derived from the eddy dissipation rate (EDR) in some vertical space
04452	Turbulence Intensity Lower UIR	turbulence intensity applied on medium large aircraft (example A320) derived from the eddy dissipation rate (EDR) in some vertical space
04453	Turbulence Intensity Upper FIR	turbulence intensity applied on medium large aircraft (example A320) derived from the eddy dissipation rate (EDR) in some vertical space
04454	Turbulence Intensity Lower FIR	turbulence intensity applied on medium large aircraft (example A320) derived from the eddy dissipation rate (EDR) in some vertical space
04501	Temperature + gpm + Wind	temperature, geopotential height and wind barbs on pressure level
04502	Wind Speed + Geopotential + Temperature	
04503	Geopotential + Temperature	
04511	Relative Humidity	degree of saturation of the airmass at 2m above ground in %

04512	Relative Humidity + Geopotential + Temperature	
04513	Wind + Temperature + Relative Humidity	
04523	Windbarbs + Beaufort	wind barbs on gridpoints and mean wind speed in isolines on pressure levels and at 10m above ground
04524	Streamlines	trace of air parcels and mean wind speed in isolines on pressure levels and at 10m above ground
04535	Vertical Velocity Omega	upward motion (blue colours) and downward motion (red colours) of air parcels
04536	Relative Vorticity	
04556	Geopotential Height	
04557	Geopotential Height + Relative Humidity	
04601	Total Precipitation of at Least 5mm	
04602	Total Precipitation of at Least 10mm	
04603	Total Precipitation of at Least 20mm	
04604	Temperature Anomaly of at Least Plus 2K 2 Day Period	
04605	Temperature Anomaly of at Least Plus 2K 3 Day Period	
04606	Temperature Anomaly of at Least Plus 2K 5 Day Period	
04607	Temperature Anomaly Less than Minus 2K 2 Day Period	
04608	Temperature Anomaly Less than Minus 2K 3 Day Period	
04609	Temperature Anomaly Less than Minus 2K 5 Day Period	
04610	Temperature Anomaly Greater Than Plus 8K	
04611	Temperature Anomaly Less Than Minus 8K	
04612	Wind Gust Greater Than 20m/s	
04613	Wind Gust Greater Than 25m/s	
04614	95Percent Probable Visibility Less than 5km	
04615	Percentage of Thunderstorm Risk	
04901	Risk of Forest Fire	
04902	Forest Fire Intensity	
04999	Confidence Index	
05001	Upper Air Wind and Temperature Charts on FL	wind speed, wind direction and temperature on given flightlevel
05401	Windshear FL150 to FL200 + Wind FL180	
05402	Windshear FL200 to FL250 + Wind FL240	
05403	Windshear FL250 to FL300 + Wind FL300	
05404	Windshear FL350 to FL400 + Wind FL400	
05405	Windshear FL400 to FL450 + Wind FL450	
05406	Windshear FL450 to FL500 + Wind FL480	
05407	Windshear FL500 to FL550 + Wind FL530	
05408	Windshear FL550 to FL600 + Wind FL580	
05409	Windshear FL600 to FL650 + Wind FL630	
05555	Turbulence Intensity	
05556	Turbulence Intensity FL100 to FL240 DVSI	

05557	Turbulence Intensity FL240 to FL420 DVSI	
05558	Turbulence Intensity FL50 to FL100 DVSI	
06001	Heat Stress Index	human inpact of sensible heat, ruled by temperature, moisture, cloud cover and wind speed.
06002	Wind Chill	characterizes the cooling effect of the air, ruled by temperature and wind speed.
06003	Wind Chill - 28OWS	
07001	NATO JOAF	guidance for flying weather conditions based on Annex M of NATO AD 080-034.
07002	NATO JOAF TEXT	description of weather development in NATO JOAF area based on Annex M of NATO AD 080-034
07003	Surface Analysis	satellite image, pressure distribution and fronts at surface level
07004	Synoptic Prognosis	
07005	Horizontal Weather Depiction	
07006	Surface Analysis - 21OWS	
07007	Surface Analysis + Satellite Picture	
07008	JOAF - 21OWS	
07009	JOAF Torrejon - 21OWS	
07010	JOAF Uedem - 21OWS	
07101	Satellite Analysis	
07102	Satellite Analysis + Cities	
07103	Satellite Analysis + Radar	
07201	3Hour Time Phased Thunderstorms	
07202	Hazard Depiction Turbulence SFC to FL180	
07203	Hazard Depiction Turbulence FL180 to FL500	
07204	Hazard Depiction ICING SFC to FL180	
07205	Hazard Depiction ICING FL180 to FL500	
07206	Lower Level Icing GALWEM quarter DEG	
07207	Upper Level Icing GALWEM quarter DEG	
07208	Lower Level Turbulence GALWEM quarter DEG	
07209	Upper Level Turbulence GALWEM quarter DEG	
07210	Hazard Depiction ICING FL100 to FL500	
07301	SFC WX GALWEM quarter DEG	
07302	SFC PROG GALWEM quarter DEG	
07303	TSTORMS GALWEM quarter DEG	
07304	Derived minus 10 DEG C Height depicted at Flight Level + Hazards	
07401	200MB Analysis	
07402	300MB Analysis	
07403	500MB Analysis	
07404	700MB Analysis	
07405	850MB Continuity	
07406	925MB Analysis	
07501	Weather and Sea Bulletin	
07502	Medium Range Weather and Sea Bulletin	
07503	Weather and Sea Bulletin for Shipping	
07504	Medium Range Weather and Sea Bulletin for Shipping	

07505	Weather report for coastal area	
07510	METOC Report	
07511	METOC Warning	
08002	Crosssection - CAN	
09001	Tephigram	
09002	SKEW-T - 28OWS	
09003	Tephigram - CAN	
10001	Meteogram	
10002	Meteogram - 28OWS	
10003	Meteogram - 557WW	
10004	Meteogram - CAN	
11001	Sea Surface Temperature	This product will show the allocation of sea surface temperatures calculated from radiation.
11002	Direction of Wind Waves	direction of the short sea surface waves shown by arrows
11003	Direction of Swell Waves	direction of the long sea surface waves shown by arrows
11004	Mean Period of Wind Waves	duration from one wave peak to the next
11005	Mean Period of Swell Waves	duration from one wave peak to the next
11006	Significant Height of Swell Waves	mean height of the highest third of the long sea surface waves
11007	Significant Wave Height + Direction of Swell and Wind Waves	significant height and direction of wind- and swell waves
11008	Sea Water Potential Temperature	water temperature in levels below sea level reduced by and expansion factor (to compensate the cooling of a rising water parcel)
11009	Mixed Layer Depth	depth of the well mixed surface layer with homogenious wave propagation.
11011	Current	velocity of the submarine water flow in several levels below sea surface.
11012	Salinity	salt content per volume for several levels below sea surface
11013	Sea Surface Temperature + Ice Coverage	
11014	Significant total swell height + mean direction and mean period of total swell	
11015	Significant wave height + mean wave direction and mean wave period	
11016	Ice Concentration	
11017	Ice Age	
11018	Wave Height + Direction of Swell and Wind Waves	
11019	NCODA Sea Surface Temperature	
11020	sea surface height	
11021	potential density	
11022	water temperature	
11023	total velocity	
11024	barotropic velocity	
11025	sound speed	
11026	depth of sound minimum	
11027	Significant Wave Height	
11028	Period + Direction + Height of Swell Waves	
11029	Ambient Noise 50Hz at Depth	
11030	Ambient Noise 100Hz at Depth	
11031	Ambient Noise 150Hz at Depth	
11032	Ambient Noise 300Hz at Depth	
11040	Sea State	
11041	OSTIA Sea Surface Temperature	
11042	Sea State WvGlEGRR	
11043	FNAt Sea Surface Temperature	
11044	Current FMed	

11045	FMed Sea Surface Temperature	
11050	Significant Wave Height and Swell Direction	
11051	Significant Wave Height and Swell Direction WvGI	
11052	Sea Medium Temperature	
11053	Sea Medium Currents	
12001	Chemical Downwind Report	
12002	Basic Wind Report	
12003	Effective Downwind Report	
13001	Seasonal Forecast Part 1	
13002	Seasonal Forecast Part 2	
13003	Seasonal Forecast Part 3	
13004	Seasonal Forecast Part 4	
13005	Seasonal Forecast Part 5	
13101	Unified Weather Forecast	
13201	30yr Climate Normals for period 1961-1990	
13202	Station Climatology	
13203	Wind Rose month	
13204	Wind Rose year	
14001	Daily Geophysical Report	
14002	Global Space Environment Situational Awareness	
14003	Impacts to HF comm	
14004	Impacts to UHF SATCOM Operations	
14005	SWA Space Environment Situational Awareness	
14006	Mediterranean Space Environment Situational Awareness	
14007	Space Weather Outlook	
16001	Seastate + Pressure + Weather + Wind	
16002	Seastate + Wind	
T0001	Test 1	
T0002	Test 2	
...	…	

Table A.7 - Area

This table shows only some examples of valid entries for the Area subfield. The complete list is, as all other tables, available in electronic format.

ID	Name
001	Global
002	Mediterranean Sea
003	Mediterranean Center
004	Mediterranean East
005	Mediterranean West
006	Kosovo
007	Black Sea
008	Europe
009	NorthPolar
010	Afghanistan
011	Southwest Asia
012	Baltic
013	Germany
014	France
015	North Atlantic
016	German Coast
017	North Sea
018	Baltic Sea
…	…
BIKF	BIKF - KEVLAVIK
DIAP	DIAP - ABIDJA FELIX HOUPHOUET BOIGNY INTERNATIONAL
DIBK	DIBK - BOUAKE
DIOD	DIOD - ODIENNE
EBBL	EBBL - KLEINE BROGEL
EBBR	EBBR - BRUSSELS
EBFS	EBFS - FLORENNES
EGQL	EGQL - LEUCHARS
EGXC	EGXC - CONINGSBY
EHLW	EHLW - LEEUWARDEN
EHVK	EHVK - VOLKEL
EKSP	EKSP - SKRYDSTRUP
ENBO	ENBO - BODO
EPKS	EPKS - KRZESINY
EPLK	EPLK - LASK
EPMB	EPMB - MALBORK
EQAN	EQAN - MONS
ETAR	ETAR - RAMSTEIN AB
…	…
10224	10224 - BREMEN
10235	10235 - SOLTAU
10249	10249 - BOIZENBURG
10253	10253 - LUECHOW
10261	10261 - SEEHAUSEN
10264	10264 - MARNITZ
…	…
E0001	ZZZ001
R0001	Al-DHAFRA-Radar
…	…

Table A.8 – Level

ID	Description
hPa	Pressure level
ft	feet
m	meter(s)
FL	flight level (aviation)
mbs	meters below (sea) surface
…	…

Table A.9 - Model Type / Data Source

ID	Name
000	Unknown
001	RSM
002	GSM
003	ICON
004	Bologna
005	WAWFOR
006	EUMETNET
007	MSG-2
008	MULTIMODEL
009	GEM-Global
010	GEPS-Global
011	GIOPS
012	RADAR
013	OBSERVATION
014	IODC
015	GALWEM
016	GFS
017	21OWS
018	MET-11
019	Fleet Numercial Meteorology and Oceanography Center
020	NCODA
021	DCF
022	WWMCA
023	Marine Weather Service Hamburg
024	DEU Navy HQ
025	UKMO
…	…

Table A.10 - Scales

ID	Name
	No Info
001	Global
002	Mesoscale
003	Microscale
004	Regional
005	Local

Table A.11 – Variant

ID	Name
1	greyscale
2	Low resolution
3	10-year based
…	…

ANNEX B
ACRONYMS

ACO	Allied Command Operations
ACOMEX	ACO METOC information exchange
AML	Additional Military Layer
AN	Assisting Nation
ASRM	Active Sonar Risk Mitigation
ASW	Anti-Submarine Warfare
ATP	Allied Tactical Publication
Bi-SC	Bi Strategic Command
CBRN	Chemical, Biological, Radiological and Nuclear
CCIR	Commander Critical Information Requirements
CJSOR	Combined Joint Statement of Requirements
CJTF	Combined Joint Task Force
CMO	Chief METOC Officer
CPOE	Comprehensive Preparation of the Operational Environment
CoN	Coordinating Nation
COP	Common Operational Picture
DIPCLEAR	Diplomatic Clearance
DMGIC	Defence Maritime Geospatial Intelligence Centre
DSA	Defence Situational Awareness
EXOPLAN	Exercise Operational Plan
HN	Host Nation
IAW	In Accordance With
IDA	Integrated Decision Aid
IMETOC	Integrated METOC
JALLC	Joint Analysis Lessons Learned Centre
JFC	Joint Force Command
JMC	Joint Meteorological Centre (Canada)
JOA	Joint Operations Area
LN	Lead Nation
MARCOM	Allied Maritime Command
MC	Military Committee
MCWG	Military Committee Working Group
METOC	Meteorological and Oceanographic
MILOC	Military Oceanography
NAC	North Atlantic Council
NCOP	NATO Common Operating Picture
NCS	NATO Command Structure
NFS	NATO Force Structure
NSODB	NATO Standard Oceanographic Data Base
NSWAN	NATO XXXXXX Wide Area Network
OML	Outline Mark-up Language

OPCOM	Operational Command
OPLAN	Operation Plan
OPP	Operations Planning Process
PN	Participating Nation
RAP	Recognised Air Picture
REA	Rapid Environmental Assessment
REAC	REA Coordinator
REACdr	REA Commander
REA DH	REA Data Hub
REASCL	REA Support Cell
REP	Recognised Environmental Picture
RLP	Recognised Land Picture
RMP	Recognised Maritime Picture
SHAPE	Supreme Headquarters Allied Powers Europe
SLOC	Sea Lines of Communication
SMO	Staff METOC Officer
SSC	Single Service Command
TDA	Tactical Decision Aid
UAS	Unmanned Aerial System
UKHO	United Kingdom Hydrographic Office
UNCLOS	U.N. Convention on the Law of the Seas
UUV	Unmanned Underwater Vehicle

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