



International Civil Aviation Organization

**Eight Meeting of the Communications/Navigation/Surveillance and
Meteorology Sub-Group (CNS/MET SG/8) of APANPIRG**

Bangkok, Thailand, 12-16 July 2004

**Agenda Item 10: Review of the implementation of ICAO Warning Systems:
2) tropical cyclone watch**

**(FK) TROPICAL CYCLONE ADVISORY
Example, Discussion, Proposals**

(Presented by International Air Transport Association)

SUMMARY

This paper presents an analysis of the format and content of the tropical cyclone advisories issued by different TCAC and some proposals for their improvement.

1. INTRODUCTION

1.1 The attached document presents an analysis of the TC advisories issued by the TCAC (Tropical Cyclone Advisory Centres) during a period of a few months in the second half of 2003. It highlights the problems, errors and deviations to the internally agreed standard format. As a conclusion, a draft proposal for an improved TC advisory is added for further discussion.

2. ACTION TAKEN

2.1 The meeting is invited to:

- a) review the analysis of the TC advisories and note the common errors and outstanding problems; and
- b) review and comment on the draft proposal for amendment of the TC advisory format.

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(FK) Tropical Cyclone Advisory

Examples, Discussion, Proposals

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1 Introduction

This document is a collection of issued TC advisories by the TCAC (Tropical Cyclone Advisory Centres) during the past months. It highlights the problems, error and deviation to the internally agreed standard format.

As a conclusion a draft proposal for an improved TC advisory is added for further discussion.

2 Tropical Cyclone Advisory

2.1 Standard format of FK messages according ICAO Annex 3:

FORMAT OF TROPICAL CYCLONE ADVISORY ACCORDING TO ICAO ANNEX 3, XIV EDITION, July 2001 (p. 3.7.2)

1.	TC ADVISORY	
2.	DTG:	Year, month, date (yyyymmdd)/time (in UTC) (using "Z") of issue
3.	TCAC:	Name of TCAC (location indicator or full name)
4.	TC:	Name of tropical cyclone
5.	NR:	Advisory number (starting with "01" for each cyclone)
6.	PSN:	Position of the centre in degrees and minutes ("Nnnnn" or "Snnnn", "Wnnnn" or "Ennnn")
7.	MOV:	Direction and speed of movement respectively to at least eight compass points ("N", "NE", "E", "SE", "S", "SW", "W", "NW") and in km/h (or kt)
8.	C:	Central pressure (in hPa)
9.	MAX WIND:	Maximum surface wind near the centre (mean over 10 minutes, in km/h (or kt))
10.	FCST PSN + 12 HR:	Forecast of centre position for fixed valid time of UTC (12 hours after time of issuance of the advisory)
11.	FCST MAX WIND + 12 HR	Forecast of maximum surface wind for fixed valid time of UTC (12 hours after time of issuance of the advisory)
12.	FCST PNS + 18 HR:	Forecast of centre position for fixed valid time of UTC (18 hours after the issuance of the advisory)
13.	FCST MAX WIND + 18 HR:	Forecast of maximum surface wind for fixed valid time of UTC (18 hours after the issuance of the advisory)
14.	FCST PSN + 24 HR:	Forecast of centre position for fixed valid time of UTC (24 hours after issuance of the advisory)
15.	FCST MAX WIND + 24 HR:	Forecast of maximum surface wind for fixed valid time of UTC (24 hours after the issuance of the advisory)
16.	NXT MSG:	Expected year month date (yyyymmdd)/time (in UTC) (using "Z") of issuance of next advisory (using "BFR", if applicable) or "NO MSG EXP"

2.2 *Example of a correct Tropical Cyclone Advisory (FK)*

(Keywords in **BOLD**)

1 TC ADVISORY
2 **DTG:** 20020125/0000Z
3 **TCAC:** LA REUNION
4 **TC:** EDDY
5 **NR:** 01
6 **PSN:** S1336 E08842
7 **MOV:** S 6KMH
8 **C:** 990HPA
9 **MAX WIND:** 80KMH
10 **FCST PSN + 12HR:** 251200 S1430 E08800
11 **FCST MAX WIND + 12HR:** 88KMH
12 **FCST PSN + 18HR:** 251800 S1530 E08730
13 **FCST MAX WIND + 18HR:** 88KMH
14 **FCST PSN + 24HR:** 260000 S1600 E08640
15 **FCST MAX WIND + 24HR:** 110KMH
16 **NEXT MSG:** 20020125/1200Z

3 Examples and Discussion

In the following chapters for each TCAC an example of an issued TC advisory is selected to discuss the problems and deviations to the required message format of TC advisories according ICAO Annex 3. Not all deviations cause problems in an automated message processing nor it has a major impact in operation.

Nevertheless some of the described problems must be solved by the TCAC or by an improvement of the TC advisory itself.

3.1 TCAC Darwin (ADRM)

```
FKAU03 ADRM 090500
TC ADVISORY
DTG:                20031209/0400Z
TCAC:               DARWIN
TC:                 JANA
NR:                 09
PSN:                S1036 E09924
MOV:                SSE 08KT
C:                  960HPA
MAX WIND:           75KT
FCST PSN +6 HR:     091000 S1118 E09930
FCST MAX WIND +6 HR: 75KT
FCST PSN +12 HR:    091600 S1206 E09930
FCST MAX WIND +12 HR: 70KT
FCST PSN +18 HR:    092200 S1242 E09936
FCST MAX WIND +18 HR: 70KT
FCST PSN +24 HR:    100400 S1324 E09930
FCST MAX WIND +24 HR: 60KT
NXT MSG:            20031209/1100Z
=
```

The above example of a TC advisory is perfect. Nearly all of the issued TC advisories from TCAC Darwin are correct, but there are still some cases where the format deviates from the standard. Following deviations are found:

NXT MSG: FINAL

This deviation has no direct impact in an automated process and can be interpreted as ‚NO MSG EXP‘.

TC: DEVELOPING TROPICAL LOW
TC: EX-TROPICAL CYCLONE DEBBIE
TC: SEVERE TROPICAL CYCLONE DEBBIE

The label TC is reserved for the name of the tropical cyclone only. Any additional information can cause some problems in automatic assignment.

MOV: 200 06KT

The direction of TC movement should be given compass points and not in degree.
Must be solved or avoided by the responsible TCAC.

3.2 TCAC La Reunion (FMEE)

FKIO20 FMEE 041200
TC ADVISORY
DTG: 20040104/1200Z
TCAC: REUNION
TC: DARIUS
NR: 04
PSN: S2954 E06148
MOV: SE 27KT
C: 993HPA
MAX WIND: 40KT
FCST PSN +12HR: 050000 S3442 E06518
FCST MAX WIND +12HR: 40KT
FCST PSN +18HR: 050600 S3951 E06739
FCST MAX WIND +18HR: 40KT
FCST PSN +24HR: 051200 S4500 E07000
FCST MAX WIND +24HR: 40KT
NXT MSG: 20040104/1800Z
=

The above example of a TC advisory is perfect. Nearly all of the issued TC advisories from TCAC Reunion are correct, but there are still some cases where the format deviates from the standard. Following deviations are found:

FCST PSN +12HR: 041800 S3206 E06212
FCST MAX WIND +12HR: 40KT
FCST PSN +18HR:
FCST MAX WIND +18HR:
FCST PSN +24HR:
FCST MAX WIND +24HR:

TCAC Reunion has issued TC advisories without providing a forecast for T+18h and T+24h. This case is not foreseen in the definition in ICAO Annex 3.

NR: 04

It obvious that TCAC Reunion has misunderstood the sequence numbering. FMEE is does not start the advisory number with 01 for each cyclone. FMEE is counting the number of TC in a year. During the current TC season 4 TC has been observed in the area of responsibility of TCAC Reunion and the last TC DARIUS was number 4 and 04 is given in all TC advisories related to this TC.

Must be solved by the responsible TCAC.

3.3 ***TCAC Miami (KHNC)***

```
FKNT25 KNHC 051450
TCANT5
TROPICAL STORM ODETTE ICAO ADVISORY NUMBER 5
NWS TPC/NATIONAL HURRICANE CENTER MIAMI FL
1500Z FRI DEC 05 2003
TC ADVISORY
DTG:                20031205/1500Z
TCAC:               KNHC
TC:                 ODETTE
NR:                 005
PSN:                N1412 W07412
MOV:                ENE 04KT
C:                  0993HPA
MAX WIND:           045KT
FCST PSN + 12 HR:   060000 N1430 W07342
FCST MAX WIND + 12 HR: 050KT
FCST PSN + 18 HR:   060600 N1545 W07306
FCST MAX WIND + 18 HR: 055KT
FCST PSN + 24 HR:   061200 N1700 W07230
FCST MAX WIND + 24 HR: 055KT
NXT MSG:            20031205/2100Z
=
```

Although TCAC Miami is adding several additional line to the TC advisory is the TC advisory nearly perfect. But there are still some cases where the format deviates from the standard. Following deviations are found:

NR: 005

TCAC Miami is using a 3 digit sequence number instead 2 digits as required.

MOV: N SLOWLY

Slowly is a undefined value.

CORRECT SPEED OF MOTION FROM 8 KT TO 10 KT

If it is necessary to issue a rectified TC advisory TCAC Miami is adding a line indicating the differences to the previous advisory.

3.4 TCAC Nadi (NFFN)

FKPS01 NFFN 061200
NFFN TC ADVISORY
DTG:200401061200Z
TCAC: NFFN
TC: HETA
NR: 19
PSN: S2130 W16830
MOV: SE20KT
C: 925HPA
MAX WIND: 100KT
FCST PSN + 12 HR: S2424 W16542
FCST MAX WIND + 12 HR: 85KT
FCST PSN + 18 HR: S2554 W16406
FCST MAX WIND + 18 HR: 75KT
FCST PSN + 24 HR: S2712 W16242
FCST MAX WIND + 24 HR: 65KT
NXT MSG: 20040106/1930Z
=

The above example of a TC advisory is perfect. All of the issued TC advisories from TCAC Nadi are correct. There is only one case where the format deviates from the standard. Following deviations are found:

MOV: STAT

STAT means STATIONARY, but this is not foreseen in the current version of the TC advisory format in ICAO Annex 3

3.5 TCAC Tokyo (RJTD)

FKPQ30 RJTD 201200
TC ADVISORY
DTG: 20030520/1200Z
TCAC: TOKYO
TC: TS 0303 CHAN-HOM (0303)
NR: 02
PSN: N0820 E15040
MOV: NW SLOWLY
C: 998HPA
MAX WIND: 35KT
FCST PSN +12HR: 210000 N0855 E15005
FCST MAX WIND +12HR: 40KT
FCST PSN +18HR: NIL
FCST MAX WIND +18HR: NIL
FCST PSN +24HR: 211200 N0930 E14930
FCST MAX WIND +24HR: 45KT
NXT MSG: 20030520/1800Z
=

The above example of a TC advosry is build according the format described in ICAO Annex 3. There is two item which cause some problems or are incorrect.

TC: TS 0303 CHAN-HOM (0303)

TCAC Tokyo is adding a number and the status of the TC to the name of the TC. This is a local procedure and is not in line with the international rules. Tokyo is changing the preparation procedure for TC advisory and starting in the next TC season only the TC name will be provided.

FCST PSN +18HR: NIL
FCST MAX WIND +18HR: NIL

Tokyo is not providing a 18hr forecast. It envisaged that this gap will be filled in early 2004.

Additionally deviation to the required TC advisory is found:

MOV: NW SLOWLY

Slowly is a undefined value.

3.6 ***TCAC Honolulu (PHFO)***

FKPA23 PHFO 050841
TCAPA3 TROPICAL DEPRESSION JIMENA ICAO ADVISORY NUMBER 34
NWS CENTRAL PACIFIC HURRICANE CENTER HONOLULU HI
0900Z FRI SEP 05 2003
TC ADVISORY
DTG: 20030905/0900Z
TCAC: PHFO
TC: JIMENA
NR: 034
PSN: N1330 W17954
MOV: W 16KT
C: 1009HPA
MAX WIND: 030KT
FCST PSN + 12 HR: 051800 N1330 E17736
FCST MAX WIND + 12 HR: 025KT
FCST PSN + 18 HR: 060000 N1345 E17606
FCST MAX WIND + 18 HR: 027KT
FCST PSN + 24 HR: 060600 N1400 E17436
FCST MAX WIND + 24 HR: 025KT
NXT MSG: NO MSG EXP...LAST FROM CPHC
=

Although TCAC Honolulu is adding several additional line to the TC advisory is the TC advisory nearly perfect. But there are still some cases where the format deviates from the standard. Following deviations are found:

NR: 005

TCAC Miami is using a 3 digit sequence number instead 2 digits as required.

3.7 ***TCAC New Dehli***

Till today no TC advisory was issued by TCAC New Dehli.

4 Proposal

The discussion in the previous chapters is leading to a proposal for changes in the TC Advisory in ICAO Annex 3. These changes will improve the reliability of the TC advisory and the message processing. The proposed changes are in **bold** letters.

DRAFT FORMAT OF TC ADVISORY ACCORDING TO ICAO Annex 3

1.	TC ADVISORY	
2.	DTG:	Year, month, date (yyyymmdd)/time (in UTC) (using "Z") of issue
3.	TCAC:	Name of TCAC (location indicator or full name)
4.	TC:	Name of tropical cyclone or "UNNAMED"
4a	TC STAT:	Status of TC TD – Tropical Depression TS – Tropical Storm STS – Severe Tropical Storm TC – Tropical Cyclone
5.	NR:	Advisory number (starting with "1", "01" or "001" for each cyclone)
6.	PSN:	Position of the centre in degrees and minutes ("Nnnnn" or "Snnnn", "Wnnnn" or "Ennnn")
7.	MOV:	Direction and speed of movement respectively to at least eight compass points ("N", "NE", "E", "SE", "S", "SW", "W", "NW") and in km/h (or kt) Speed of movement in km/h (or kt) or SLOWLY (< 3kt) or STAT (< 1kt)
8.	C:	Central pressure (in hPa)
8a	DIA HIGH WIND:	Diameter of high speed area in NM
8b	TOPS FRQ CB:	Height of TOPS of frequent CB in hundreds of feet
8c	DIA FRQ CB:	Diameter of frequent CB area in NM
9.	MAX WIND:	Maximum surface wind near the centre (mean over 10 minutes, in km/h (or kt))
10.	FCST PSN + 12 HR:	Forecast of centre position for fixed valid time of UTC (12 hours after time of issuance of the advisory)
11.	FCST MAX WIND + 12 HR	Forecast of maximum surface wind for fixed valid time of UTC (12 hours after time of issuance of the advisory)
12.	FCST PSN + 18 HR:	Forecast of centre position for fixed valid time of UTC (18 hours after the issuance of the advisory)
13.	FCST MAX WIND + 18 HR:	Forecast of maximum surface wind for fixed valid time of UTC (18 hours after the issuance of the advisory)
14.	FCST PSN + 24 HR:	Forecast of centre position for fixed valid time of UTC (24 hours after issuance of the advisory)
15.	FCST MAX WIND + 24 HR:	Forecast of maximum surface wind for fixed valid time of UTC (24 hours after the issuance of the advisory)

16.	NXT MSG:	Expected year month date (yyyymmdd)/time (in UTC) (using "Z") of issuance of next advisory (using "BFR", if applicable) or "NO MSG EXP"
16a	RMK:	Additional Information