APPENDIX A

ABBREVIATIONS AND DEFINITIONS

1. Certain words that appear frequently in this report are abbreviated as follows:

CINCPAC	Commander in Chief, Pacific
CINCPACAF	Commander in Chief, Pacific Air Force
CIRC	circular
CLD(S)	cloud(s)
CTR	center
DEF	defined
DEG	degree
DIA	diameter
DIV	divergence
ELLIP	elliptical
ELONG	elongated
FAFWC	Fuchu Air Force Weather Central, Fuchu Air Station, Japan
54WRS	54th Weather Reconnaissance Squadron, Andersen Air Force Base, Guam, M. I.
56WRS	56th Weather Reconnaissance Squadron, Yokota Air Base, Japan
FNWF	Fleet Numerical Weather Facility, Monterey, California
FT, ft	feet
FWC/JTWC	Fleet Weather Central/Joint Typhoon Warning Center, Guam, M. I.
INDEF	indefinite
ITC	Intertropical Zone of Convergence
JMA	Japan Meteorological Agency
JMG/PACOM	Joint Meteorological Group, Pacific Command
K(KILO) Time	Mariana Islands local time
KT(S), kt(s)	knot(s)
MI, mi	nautical miles
MB(S), mb(s)	millibar(s)
MPT	Mid-Pacific trough
NA	not applicable
NMC	National Meteorological Center (formerly JNWP, Joint Numerical Weather Prediction)
NWSC	National Weather Satellite Center (formerly METSATLAB)
ORIEN	oriented

QUAD(S)	quadrant(s)
RAD	radius
SFC	surface
θe	Equivalent Potential Temperature
VW-1	Airborne Early Warning Squadron One, NAS Agana, Guam
WESTPAC	Western North Pacific Area
WND	wind
Z(Zulu) Time	Greenwich mean time

2. Points of the compass are abbreviated: N, SE, WNW, etc.

3. Latitude and longitude are abbreviated: 30N 140E, etc.

4. The following define and clarify certain words and phrases that appear in the tables, "Land Radar and Aircraft Fixes," Chapter IV.

A. FIX NO. - This number corresponds to the number of the fix plotted on the "Best Track Chart."

B. TIME - The date-time group of the fix

C. LAT. - Latitude of the fix

D. LONG. - Longitude of the fix.

E. UNIT, METHOD & ACCY -

(1) UNIT - The unit that made the fix: 54 - 54WRS, 56 - 56WRS, 315 - 315th Air Division

(2) METHOD - The method used to make the fix: P - penetration, R - radar, T - triangulation, LND/RDR - land radar

(3) ACCY - The estimated accuracy of the fix in nautical miles

F. MIN SLP MB - The minimum sea level pressure in millibars

G. MAX SFC WND - The maximum observed surface wind in knots

H. MIN 700MB HGT - The minimum 700mb height in feet

I. MAX 700MB WND - The maximum 700mb wind in knots

J. 700MB T/Td (^{o}C) - The maximum 700mb temperature and dewpoint in degrees centigrade

5. Synoptic tracks in the JTWC tropic area are:

A. Round Robin to two coordinates and flight time 10 plus hours with synoptic reports normally every hour. Legs

are flown at 1500 ft, 700mb and 500mb at JTWC request.

B. TRANSPAC diversion to one coordinate not less than 5 DEG off course. Flight altitude will normally be 700mb or 500mb.

6. An investigation is the traverse of a reconnaissance aircraft over an area containing a suspected circulation that has been assigned a cyclone number.

7. A fix is the determination of the position of a tropical cyclone at a precise time. Generally, the term "fix" is used when the position of the cyclone has been determined by a reconnaissance aircraft penetration or by airborne, land or ship radar. In the case of a reconnaissance aircraft penetration, the actual fix may be based on one or all of the following: visual observation, radar, surface pressure, surface or upper level winds, constant pressure height, and temperature/dew point.

8. A sortie is defined as a flight by one aircraft with one or more objectives; i.e., it may make one or more fixes and/or one or more investigations on one or more tropical cyclones.

9. The term "tropical cyclone" or "cyclone" as used in this publication has two definitions dependent upon usage.

A. "Tropical cyclone" or "cyclone" is used to describe a suspected tropical cyclonic circulation which appears capable of intensification, and to which has been assigned a "cyclone number" for the purposes of reconnaissance and to assure that records regarding it are not confused with those of another circulation.

B. "Tropical cyclone" or "cyclone" is used in the general sense, e.g., "Typhoon JOAN was the most intense tropical cyclone of 1959," or "Tropical cyclones more frequently develop during August and September."

(1) A "Tropical Depression" as used by JTWC is a tropical cyclone with a confirmed cyclonic circulation for which warnings are being issued and whose surface wind speeds do not exceed 33 kts. Tropical depressions are numbered and often abbreviated TD.

(2) A "Tropical Storm" is a tropical cyclone in which the maximum surface wind speed is no more than 63 kts

but greater than 33 kts in warning status. Tropical storms are named and sometimes abbreviated TS.

(3) A "Typhoon" is a tropical cyclone located W of 180 DEG longitude in which the maximum surface wind speed is 64 kts or greater in warning status. Typhoons are named.

10. A "Stidd Diagram" or "checkerboard" is a chart on which a continuous plot of surface observations is maintained for a series of stations. The observations for each individual station are plotted in either a horizontal or vertical line.

11. The "M-2 Field" is the correction for the coriolis parameter applied to the 500mb double space mean.

12. Recurvature - that point at which the cyclone ceases movement to the W of N and commences moving to the E of N.

13. Vortices:

A. Embedded vortex of easterly wave - closed cyclonic circulation along easterly wave and separated from ITC

B. Junction vortex - closed cyclonic circulation at the junction of easterly wave and ITC

C. Embedded vortex of ITC - closed cyclonic circulation along ITC with absence of easterly wave

APPENDIX B

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APPENDIX C

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Guam Named Disaster Area

Vera Due To Rip Into Shikoku

TOKYO (S&S)—Typhoon Vera ... 75-mile-an-hour winds ...

Flood, Fire Ravage Luzon, P. I.

MANILA, July 21 (AP)—Flood and fire battered the Philippines main island of Luzon today.

Tens of thousands were homeless and damage ran into millions of dollars, ...

The Endless Battle Between Men and Typhoons

TOKYO (S&S) There's always cause of temperature variations ... storm." It becomes a full-fledged ... hurling killers, wiping out human ...

Taipei Braces For Amy

TOKYO (S&S)—Taipei was brace... Typhoon Louise ... 127 ... southeast of Tokyo at 9 a.m. Wednesday. The typhoon was ... moving northwest across the ocean ... strike across the Philippines and Taiwan. Twelve persons were reported ... Philippines as ... brought by the storm ...

Typhoon-Buffeted Boats Radio SOS

AGANA MAR. Guam (PIO)—Two Japanese tuna boats, fighting the 85 mile-an-hour winds and heavy seas of Typhoon Emma, have sent an SOS, a U.S. Navy-directed ... search-and-rescue effort was started ... Wednesday.

... more powerful than a hydrogen bomb blast.

Seas along coastal boundaries ... Asian nations become ... radioed an SOS Tuesday which was picked up and relayed to ... Guam by the Maritime Shipping ... Board in Japan.

No radio communication has been established with the Marianas ...

'Nora' Batters ... of Korea

Typhoon Smacks Philippines; ... 18 Missing

Typhoon Heads for Japan

2 Typhoons Stand Still In Pacific

TOKYO (S&S) — Weathermen said two big typhoons were churning up high waves in the open Pacific Saturday with 100-mile-an-...

China-Bound ... After Hitting ...

Thousands Homeless In Wake of Opel

TOKYO (S&S)—Typhoon Opel, which cut a path of death and destruction across Taiwan Monday, was fast losing force Tuesday as it swept across the China mainland.

Officials on Taiwan Tuesday said they were still unable to determine the exact number of dead left by Opel because of the communications smash left by the giant storm as it smashed power and telephone lines.

AP reported from Taipei that 12 persons were killed by the typhoon. UPI said 42 persons had been killed, all in the village Tilan on the northeast coast of Taiwan.

Nationalist police said the storm, which hit the island with 150 mile an hour winds, had left at least 1,000 persons injured and thousands homeless.

Air Force Weather Central said Tuesday that Opel had lost much of her force over the China mainland and had been downgraded to a tropical depression.

Her winds were comparatively slight but Opel brought heavy rains to the mainland, weathermen said.

Typhoon Destroys 95 Pct. Of Guam Civilian Buildings

Guam Havoc 'Worse Than WW II'

Gilda Winds Hit 133 MPH

TOKYO (S&S)—Typhoon Gilda ... 152 mile-an-hour winds was 871 miles northeast of Manila ... Saturday and Typhoon Storm Harriet was downgraded to a tropical depression as the swept across Thailand.

The Joint Typhoon Warning Center on Guam said Gilda ...

HEADS FOR KOREA

Amy Floods U.S. Sites in Taipei

Typhoon Heading For Iwo

TOKYO (S&S) — Powerful Ty...

PACIFIC AR... EDITION OF ... EAST

245 AIR EDITION

Storms Peril Japan, Korea

TOKYO (S&S)—Typhoon Sarah was heading slowly toward the Tsushima Strait between Japan and Korea Monday while her more powerful sister Ruth was on a course that could take her close to Tokyo.

U.S. Air Force Weather Central at Fuchu AB, Japan, said Sarah was 207 miles north of Okinawa Monday morning.

The typhoon with 85 mile-an-hour center winds was creeping north toward the strait ...

Typhoon Batters East USSR

MOSCOW (AP)—Typhoon Karma struck coastal regions of the ... Soviet Union ... damage, the Soviet news ... Tass reported.

Tass said overflowing ... weakened by the typhoon ... bridges ... and disrupted ... in more than ...

The report ... Primorye ... of Sakhalin ... It said ... storm ... Pacific ...

Storm Harriet Killed 700 In Thai Areas

Typhoon Routs Thousands In P.I., Veers Toward China

WANDA KILLS 39

Typhoon Disaster Hits Hong Kong

HONG KONG (AP)—Typhoon Wanda swooped down on this crowded British colony Saturday. In a few nightmarish hours it left ... persons dead, ... injured and ... homeless.

Reports ... flooded ... Saturday ... toll ...

Whips Formosa--Scores Dead

Kaemi Rov 270 miles north of ... Manila, ... relief operations ... launched in the ... Red Cross and civilian ... efforts to help the victims.

Helicopters and paramedic ... Manila were still teams also were standing by to ... 3 feet of water ...

Typhoon Lucy Crosses Vietnam

SAIGON (UPI)—Typhoon Lucy hit the Republic of Vietnam's east coast early Saturday and then moved across the central delta area toward the Gulf of Siam.

But U.S. and Vietnamese officials said damage from the storm was reported to be much less than anticipated because the typhoon had lost much of its punch by the time it hit the coastline.

U.S. Air Force weather ... Saigon area ... winds died down ... city by early ...

However, damage to crops along ... and in the ... could be ... Saigon.

Joan Losing Force; New Storm Off P.I.

TOKYO (S&S)—Tropical Storm Joan lost much of its punch Wednesday and was downgraded to "extra tropical" after sweeping across the Taiwan peninsula Tuesday and into the Japan Sea.

Storm signals, however, have been raised in the central Philippines.

Sea Battle

Thailand Storm Toll Soaring—1,000 Dead, Lost

BANGKOK (AP)—The toll of dead and missing in the vicious storm that raked southern Thailand last ...

Typhoon Lashes Tiny Isle

TOKYO (S&S)—The 37 Japanese ... stationed on the ... island in the mid-Pacific ... injury Tuesday as powerful Typhoon Emma lashed the island with 80 mile-an-hour ...

The Japan Meteorological Agency said Emma's heading ...

Kate Fades After Hitting P.I., Taiwan

TOKYO (S&S)—Typhoon Dinah with 100 mile-an-hour winds ... reported to pass with 30 miles of the southern tip of Taiwan within the next 24 hours.

The Joint Typhoon Warning Center at Guam said the typhoon was moving at 18 m.p.h. ... northwest at 9 a.m. Tuesday some 379 miles east southeast of Taiwan.

Center of the typhoon was estimated at 100 miles south west of Taiwan, Taipei.

Meanwhile, tropical storm Emma materialized 267 miles south of Guam and at 9 a.m. was moving west northwest at about seven m.p.h.

Emma's maximum winds were estimated at 67 m.p.h.

Center of the new tropical storm was 710 miles north northeast of Yap, according to the Joint Typhoon Warning Center.

Dinah Due To Skirt Taiwan

TOKYO (S&S)—Typhoon Louise took over the storm spotlight from a suddenly docile Kate Tuesday as her center winds increased to 104 miles an hour about 360 miles north east of Iwo Jima.

Force Weather Central, Fuchu, would receive winds of about ... as a result of Louise's past.

The Fuchu weatherman said the "outlook" for Louise has the typhoon hitting Shikoku, about 190 miles southeast of Tokyo, at 9 a.m. Thursday.

He emphasized that this was not a forecast but an "outlook" and that ...

Dinah Misses Taiwan

TOKYO (S&S)—Typhoon Dinah missed Taiwan with her 115-mile-an-hour winds Wednesday morning.

Dinah swept by the southernmost tip of Taiwan at 3 a.m. and moved in on China and the ...

Floods Threaten Wide Area of P.I.

TRACKING 'KILLERS'

Typhoon ... Hits R...

...-Eye Peeled for Typhoon

New Storm Born in Pacific

Opel Kills 30 on Taiwan

TAIPEI (UPI) — Typhoon Opel shrieked across Taiwan during the night at murderous speeds of up to 170 miles ... and moved westward toward the China mainland Monday morning.

The police administration said high winds and collapsing buildings killed 30 persons and injured more than 200 in the east central town of Yilan, 30 miles southeast of Taipei.

... more died from their ... hundred homes were ... and 200 badly damaged.

... feared the fatality list ... higher when reports from other areas come in.

Another hour vanished at Yilan ... Island in a due west course pounding within 30 miles of Taipei with center winds of 160 m.p.h.

At midnight Sunday winds of 110 m.p.h. were whipping Taipei itself. Thirty-eight persons were injured there in Saturday and 3,600 persons were forced out of their ...

Homeless Toll 70,000 In Luzon

MANILA, July 24 (AP)—An estimated 70,000 people were homeless today on the Philippines' main island of Luzon after six days of monsoon rains -- and still the rains came.

The Social Welfare Administration was attempting ...

80-MPH Typhoon Skims Past Okinawa

Lucy's Wake—Cholera

MANILA (S&S)—Health authorities here have traced an outbreak of cholera in the central Philippines to polluted water from a local supply so that was damaged by Typhoon Lucy last month.

Officials who arrived in Manila from the stricken town reported eight deaths and 47 cholera cases. An immunization program has been launched in the area by health personnel.

Typhoon Amy Took 12 Lives in P.I.

Heavy rains accompanying typhoon Amy took 12 lives in the Philippines, the constabulary reported Saturday.

Four others were listed as missing and killed. Amy ...