

NOAA Technical Memorandum NWS WR-194



ANNUAL DATA AND VERIFICATION TABULATION
EASTERN NORTH PACIFIC TROPICAL STORMS AND HURRICANES 1985

Salt Lake City, Utah
March 1986

**U.S. DEPARTMENT OF
COMMERCE**

National Oceanic and
Atmospheric Administration

National Weather
Service



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National Weather Service, Western Region Subseries

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- 92 Smoke Management in the Willamette Valley. Earl M. Bates, May 1974. (COM-74-11277/AS)
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San Francisco, California
March 1986

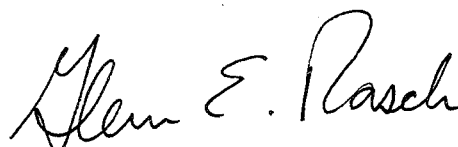
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TABLE OF CONTENTS

	<u>PAGE</u>
List of Tables	iv
I. Introduction	1
II. Objective Forecast Techniques	1
III. Verification	1
IV. Data Summaries	1
V. References	2

LIST OF TABLES

		<u>PAGE</u>
TABLE 1	Verification of 1985 Tropical Storms and Hurricane Forecasts	3
TABLE 2	Summary of Eastern North Pacific Tropical Cyclones, 1985	3
TABLES 3-24	Individual Tropical Cyclone Statistics	4-22

ANNUAL DATA AND VERIFICATION TABULATION
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I. INTRODUCTION

This is the seventh report of an annual series covering eastern North Pacific tropical cyclone activity. Data are provided by the National Weather Service, the National Earth Satellite Service Field Station - San Francisco, California, and the Chief, Aerial Reconnaissance Coordination, all Hurricanes (CARCAH), Miami, Florida.

II. OBJECTIVE FORECAST TECHNIQUES

Tropical cyclone prediction models used by Eastern Pacific Hurricane Center (EPHC) forecasters include:

1. EPHC77 (Leftwich and Neumann, 1977). A statistical-synoptic model.
2. EPHC81 (Leftwich, 1981). A statistical-dynamic model.
3. EPCLIPER (Neumann, 1982). A simulated analog model based on persistence and climatology.
4. EPANALOG (Jarrell, Mauck, and Renard, 1975). An analog model.
5. SANBAR (Sanders and Burpee, 1968). A filtered barotropic model.

In addition to the above models, forecasters also make use of NMC analyses and prognoses.

III. VERIFICATION

Verification statistics for the 1985 season are shown in Table 1. The forecast displacement error is the vector difference between the forecast displacement and the actual displacement computed from operational advisory positions. Depressions are not verified.

IV. DATA SUMMARIES

A summary of the 1985 eastern North Pacific tropical cyclone statistics is given in Table 2. Best-track, operational positions, and position errors are given in Tables 3-24.

U. S. Air Force reconnaissance aircraft flew into two of the eastern North Pacific tropical cyclones during the 1985 season. Three flights were made, all during the month of September, while cyclones were three to four hundred nautical miles west-southwest of the tip of Baja California. The first flight, with one penetration, was made into Hurricane Sandra on 12 September by aircraft returning from standby reconnaissance in Hawaii. The second and third flights were made into Hurricane Terry on 21 and 22 September, with two penetrations of the cyclone each day.

Even as satellite imagery continues to improve and is one of the more important tools used by tropical forecasters, aircraft reconnaissance and ship reports are invaluable in providing comparative observations.

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TABLE 1
1985 FORECAST ERRORS*

	FORECAST PERIOD		
	24 HR	48 HR	72 HR
EPHC FORECASTERS	167(90)/346	293(158)/291	417(225)/224
EPANALOG	161(87)/321	293(158)/275	411(222)/209
EPHC77	163(88)/317	274(148)/272	374(202)/206
CLIPER	163(88)/323	293(158)/276	402(217)/210
EPHC81	161(87)/144	315(170)/115	447(241)/88

* Average error in kilometers (nautical miles)/number of cases.

TABLE 2
Summary of Eastern North Pacific Tropical Cyclones of 1985
(Includes only those cyclones that reached hurricane HU or tropical storm TS)

NO.	NAME	CLASS	DATES	MAX(KTS)	DAMAGE (\$MILLION)	DEATHS
1	Andres	TS	5-12 Jun	60	Unknown	Unknown
2	Blanco	HU	6-16 Jun	105	"	"
3	Carlos	TS	7-10 Jun	35	"	"
4	Dolores	HU	26 Jun - 5 Jul	100	"	"
5	Enrique	TS	27 Jun - 1 Jul	35	"	"
6	Fefa	TS	2-6 Jul	60	"	"
7	Guillermo	TS	7-12 Jul	50	"	"
8	Hilda	TS	18-20 Jul	35	"	"
9	Jimena	HU	20-29 Jul	115	"	"
10	Ignacio	TS	21-22 Jul	60	"	"
11	Kevin	TS	29 Jul - 6 Aug	55	"	"
12	Linda	TS	29 Jul - 4 Aug	45	"	"
13	Marty	HU	6-13 Aug	65	"	"
14	Nora	TS	19-23 Aug	40	"	"
15	Olaf	HU	22-31 Aug	75	"	"
16	Pauline	HU	27 Aug - 5 Sep	75	"	"
17	Rick	HU	1-9 Sep	125	"	"
18	Sandra	HU	5-17 Sep	110	"	"
19	Terry	HU	15-24 Sep	110	"	"
20	Vivian	TS	18-21 Sep	35	"	"
21	Waldo	HU	7-9 Oct	90	"	"
22	Xina	HU	25 Oct - 5 Nov	100	"	"

ANDRES.....

DATE/TIME (GMT)	BEST TRACK		OPERATIONAL POSITION		POSITION ERROR	24 HOUR FORECAST ERROR			48 HOUR FORECAST ERROR			72 HOUR FORECAST ERROR					
	LAT.	LONG.	LAT.	LONG.	(N.MI.)	LAT.	LONG.	(N.MI.)	LAT.	LONG.	(N.MI.)	LAT.	LONG.	(N.MI.)			
6 500	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.		
6 506	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.		
6 512	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.		
6 518	15.7	100.1	15.7	100.3	11.5	16.5	103.9	86.	17.3	106.7	262.	17.9	109.5	329.			
6 600	16.0	101.7	16.0	101.5	11.5	17.0	105.2	75.	18.0	108.6	241.	20.0	111.4	390.			
6 606	16.2	103.0	16.1	102.2	46.3	17.3	105.4	132.	18.4	108.1	299.	19.6	110.9	387.			
6 612	16.4	104.1	16.5	103.8	18.3	17.2	107.3	145.	18.0	110.5	278.	18.8	113.7	302.			
6 618	16.7	105.3	16.6	105.4	8.3	16.8	109.5	98.	17.0	113.0	182.	17.1	116.5	153.			
6 700	16.9	106.5	17.0	106.5	6.0	18.0	110.8	133.	18.5	114.2	270.	18.7	118.0	229.			
6 706	17.2	108.0	17.4	107.7	20.9	18.7	112.0	222.	20.0	116.0	357.	20.7	118.5	330.			
6 712	17.0	109.8	17.6	109.8	36.0	18.4	115.1	283.	19.4	119.5	404.	20.3	123.7	356.			
6 718	16.6	110.9	16.6	111.2	17.2	16.0	116.1	193.	17.0	120.0	272.	18.1	123.4	219.			
6 800	16.0	111.8	16.5	112.5	50.3	16.3	116.0	180.	16.3	118.6	121.	16.3	118.6	216.			
6 806	15.2	112.4	15.0	111.9	31.3	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.			
6 812	14.5	112.8	14.1	113.1	29.6	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.			
6 818	14.1	113.3	14.0	113.5	13.0	12.6	116.3	121.	12.9	119.6	163.	14.8	122.1	211.			
6 900	13.9	113.9	14.0	114.0	8.3	14.0	117.2	61.	14.3	120.1	136.	14.6	123.2	204.			
6 906	13.9	114.5	14.2	114.6	18.9	15.1	117.0	87.	16.2	119.4	232.	17.7	122.3	0.			
6 912	14.0	115.2	14.0	115.3	5.8	14.1	117.9	147.	14.6	120.6	254.	15.5	123.8	0.			
6 918	14.5	116.0	14.6	116.0	6.0	15.2	118.7	139.	15.2	121.4	249.	14.5	123.7	0.			
61000	15.2	117.0	15.0	117.0	12.0	15.3	119.8	139.	15.2	122.4	240.	15.3	124.9	0.			
61006	15.5	118.3	15.2	118.5	21.4	15.9	122.2	73.	15.8	125.5	0.	15.6	128.9	0.			
61012	15.4	119.6	15.6	119.9	21.1	15.2	125.2	21.	14.6	128.5	0.	13.6	131.7	0.			
61018	15.3	120.9	15.2	121.1	13.0	14.8	126.1	38.	14.8	129.4	0.	15.0	132.8	0.			
61100	15.3	122.1	15.3	122.2	5.8	15.7	126.6	8.	16.0	130.2	0.	16.2	133.8	0.			
61106	15.4	123.3	15.3	123.3	6.0	15.6	127.8	0.	15.6	132.4	0.	15.4	137.0	0.			
61112	15.5	124.3	15.4	124.9	35.3	15.3	130.0	0.	15.4	134.6	0.	15.7	138.8	0.			
61118	15.6	125.4	15.3	125.7	25.0	15.3	130.2	0.	15.4	135.1	0.	15.7	140.2	0.			
61200	15.7	126.5	15.8	126.5	6.0	16.2	130.6	0.	16.5	133.1	0.	16.8	136.9	0.			
61206	15.8	127.7	0.0	0.0	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.			
61212	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.			
61218	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.			
MEAN VECTOR ERRORS (N.MI)								119.					247.				
NUMBER OF CASES								20					16				

TABLE 3

BLANCA.....

DATE/TIME (GMT)	BEST TRACK		OPERATIONAL POSITION		POSITION ERROR (N.MI.)	24 HOUR FORECAST ERROR			48 HOUR FORECAST ERROR			72 HOUR FORECAST ERROR					
	LAT.	LONG.	LAT.	LONG.		LAT.	LONG.	(N.MI.)	LAT.	LONG.	(N.MI.)	LAT.	LONG.	(N.MI.)			
6 600	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.			
6 606	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.			
6 612	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.			
6 618	10.2	92.8	10.0	92.0	48.3	11.1	97.3	141.	11.7	100.5	121.	12.3	103.8	145.			
6 700	10.3	93.5	10.5	93.0	31.6	11.5	97.0	83.	12.2	100.2	64.	12.6	104.0	126.			
6 706	10.6	94.1	10.5	93.7	24.1	11.2	96.8	48.	11.8	100.4	72.	12.3	104.0	109.			
6 712	10.8	94.8	10.6	94.4	26.3	11.0	97.2	87.	11.4	100.0	118.	11.8	102.8	132.			
6 718	11.2	95.7	11.1	94.9	46.9	12.3	98.3	34.	13.3	101.9	19.	13.8	105.6	90.			
6 800	11.6	96.6	11.7	95.6	58.4	12.8	99.4	21.	13.9	103.1	61.	14.3	106.7	107.			
6 806	12.0	97.6	12.0	96.7	52.1	13.5	100.5	30.	14.7	105.2	152.	15.5	110.1	255.			
6 812	12.3	98.6	12.4	97.6	58.1	13.5	101.4	39.	14.9	105.2	116.	16.0	109.2	159.			
6 818	12.7	99.6	12.7	98.7	51.8	13.9	102.5	60.	15.1	106.4	125.	17.0	110.0	185.			
6 900	12.9	100.5	13.1	99.6	53.3	14.3	103.3	82.	15.4	105.7	47.	16.3	110.4	162.			
6 906	13.1	101.2	13.0	100.5	41.0	13.5	104.4	94.	14.0	107.8	142.	14.6	112.1	281.			
6 912	13.3	101.8	13.2	100.8	58.3	13.6	103.3	21.	14.0	106.0	95.	14.7	109.3	48.			
6 918	13.4	102.4	13.4	101.6	46.1	14.4	104.5	17.	15.5	107.5	17.	16.7	111.0	104.			
61000	13.7	103.0	13.6	102.1	52.4	14.2	104.8	49.	14.6	107.5	45.	15.0	110.1	48.			
61006	13.9	103.7	13.7	102.8	53.4	14.1	105.4	68.	14.8	108.3	63.	15.4	111.8	50.			
61012	14.3	104.5	13.9	103.5	62.4	14.7	105.8	63.	15.4	108.5	23.	16.2	111.2	41.			
61018	14.6	105.3	14.6	104.3	57.4	15.9	107.2	24.	17.0	110.3	93.	17.9	113.4	112.			
61100	15.0	106.0	15.0	105.0	57.3	16.5	107.9	72.	17.5	111.1	114.	17.9	114.5	96.			
61106	15.3	106.7	15.2	105.7	57.6	16.4	108.4	96.	17.4	111.1	90.	18.1	113.9	101.			
61112	15.4	107.5	15.5	106.5	57.6	16.5	109.5	75.	17.3	112.2	74.	17.9	114.9	77.			
61118	15.5	108.2	15.5	107.2	57.4	15.8	110.2	37.	16.2	113.2	35.	16.8	116.3	11.			
61200	15.3	108.7	15.3	107.8	51.7	15.3	107.8	142.	15.3	113.0	83.	16.5	116.7	49.			
61206	15.4	109.3	15.2	107.3	115.7	15.1	109.3	115.	15.4	113.2	113.	16.2	116.6	117.			
61212	15.6	109.9	15.4	108.9	58.6	15.9	111.1	48.	16.4	113.6	105.	17.3	116.3	184.			
61218	15.7	110.6	15.6	109.6	57.5	16.3	112.2	24.	17.2	114.8	100.	18.5	117.2	209.			
61300	15.9	111.3	15.8	110.2	63.3	16.2	113.0	44.	16.5	115.7	105.	17.3	118.5	155.			
61306	16.0	112.1	15.9	111.1	57.6	16.1	114.9	32.	16.4	118.3	32.	17.3	120.4	87.			
61312	16.2	112.8	16.1	111.9	51.8	16.6	115.0	24.	17.2	117.8	98.	18.4	120.5	121.			
61318	16.3	113.7	16.2	112.6	63.2	16.7	115.7	46.	17.3	118.4	122.	18.2	121.1	119.			
61400	16.5	114.6	16.5	113.7	51.4	17.2	117.2	30.	18.0	120.2	79.	19.9	123.6	0.			
61406	16.6	115.5	16.6	114.7	45.7	17.0	118.3	13.	17.3	122.1	17.	17.5	125.8	0.			
61412	16.7	116.4	16.7	115.4	57.2	17.3	118.8	42.	18.0	122.1	48.	18.8	126.0	0.			
61418	16.8	117.4	16.8	116.5	51.4	17.1	120.2	18.	17.7	123.6	50.	18.5	126.6	0.			
61500	16.9	118.5	16.8	117.5	57.5	17.0	121.5	18.	17.2	124.8	0.	17.2	128.0	0.			
61506	17.0	119.5	16.9	118.5	57.5	17.2	122.2	18.	17.5	125.6	0.	17.8	129.0	0.			
61512	17.1	120.4	17.1	119.5	51.4	17.5	123.4	71.	18.1	127.2	0.	18.8	130.7	0.			
61518	17.1	121.4	17.0	120.5	51.8	17.2	124.2	75.	17.5	127.5	0.	18.1	130.9	0.			
61600	17.1	122.1	17.1	121.2	51.4	17.4	124.4	0.	17.6	127.6	0.	18.8	130.7	0.			
61606	17.2	122.7	17.1	121.9	46.1	17.3	124.9	0.	0.0	0.0	0.	17.8	130.5	0.			
61612	17.2	123.3	17.2	122.2	62.9	17.2	123.9	0.	0.0	0.0	0.	0.0	0.0	0.			
61618	17.2	123.8	17.2	122.9	51.4	17.2	124.6	0.	0.0	0.0	0.	0.0	0.0	0.			
MEAN VECTOR ERRORS (N.MI)								54.					80.	120.			
NUMBER OF CASES								37					33	29			

TABLE 4

CARLOS.....

DATE/TIME (GMT)	BEST TRACK		OPERATIONAL POSITION		POSITION ERROR	24 HOUR FORECAST		ERROR	48 HOUR FORECAST		ERROR	72 HOUR FORECAST		ERROR
	LAT.	LONG.	LAT.	LONG.	(N.MI.)	LAT.	LONG.	(N.MI.)	LAT.	LONG.	(N.MI.)	LAT.	LONG.	(N.MI.)
6 700	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
6 706	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
6 712	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
6 718	8.7	119.0	8.7	119.0	0.0	9.1	121.1	31.	9.5	123.5	182.	10.0	126.0	0.
6 800	8.8	119.5	8.7	119.5	6.0	8.9	121.5	24.	9.4	124.7	274.	10.0	126.0	0.
6 806	8.7	119.9	8.8	119.9	6.0	9.3	122.0	54.	10.0	124.6	210.	10.5	127.6	0.
6 812	8.7	120.3	8.7	120.3	0.0	8.7	121.9	55.	8.7	123.7	194.	8.8	125.3	0.
6 818	8.6	120.7	8.6	121.0	17.8	8.5	124.5	231.	9.0	129.0	0.	0.0	0.0	0.
6 900	8.5	120.9	8.5	121.5	35.5	8.5	124.1	238.	9.1	126.3	0.	0.0	0.0	0.
6 906	8.4	121.0	8.5	121.6	36.1	8.6	122.6	86.	9.0	123.6	0.	0.0	0.0	0.
6 912	8.3	120.8	8.5	121.0	16.9	8.6	121.3	72.	8.7	122.0	0.	8.8	123.0	0.
6 918	8.4	120.6	8.5	120.6	6.0	9.0	121.0	0.	9.2	122.0	0.	0.0	0.0	0.
61000	8.8	120.5	8.9	120.1	24.4	9.5	119.7	0.	10.0	120.3	0.	10.1	121.7	0.
61006	9.3	120.5	9.0	121.2	45.2	10.1	122.6	0.	0.0	0.0	0.	0.0	0.0	0.
61012	9.8	120.4	9.5	120.5	19.0	11.7	121.3	0.	0.0	0.0	0.	0.0	0.0	0.
61018	11.0	120.0	0.0	0.0	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
MEAN VECTOR ERRORS (N.MI)								99.			215.			0.
NUMBER OF CASES								8			4			0

TABLE 5

DOLORES

DATE/TIME (GMT)	BEST TRACK		OPERATIONAL POSITION		POSITION ERROR (N.MI.)	24 HOUR FORECAST ERROR			48 HOUR FORECAST ERROR			72 HOUR FORECAST ERROR		
	LAT.	LONG.	LAT.	LONG.		LAT.	LONG.	(N.MI.)	LAT.	LONG.	(N.MI.)	LAT.	LONG.	(N.MI.)
62600	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
62606	9.6	102.5	9.7	102.5	6.0	10.3	106.5	12.	11.1	110.3	79.	12.0	114.0	138.
62612	9.7	103.5	9.7	103.5	0.0	10.2	107.3	12.	10.7	111.2	85.	11.5	115.7	210.
62618	9.8	104.3	9.8	104.5	11.7	10.3	108.6	72.	10.9	112.6	137.	11.7	117.5	214.
62700	9.9	105.1	9.9	105.6	29.1	10.4	109.6	80.	11.1	113.5	161.	12.0	117.5	210.
62706	10.1	105.9	10.1	106.5	34.9	10.7	110.5	89.	11.5	114.2	168.	12.1	117.5	225.
62712	10.3	106.7	10.2	107.5	47.0	10.6	111.6	109.	11.4	115.5	216.	12.0	119.8	240.
62718	10.5	107.5	10.5	107.4	5.8	11.2	110.8	120.	11.9	114.5	222.	13.5	118.4	211.
62800	10.9	108.4	10.8	108.3	8.3	11.5	112.1	138.	12.6	115.9	200.	13.7	119.7	227.
62806	11.5	109.4	10.8	109.0	47.9	11.6	112.2	193.	12.6	115.5	259.	13.5	119.5	307.
62812	12.3	110.5	11.5	110.0	56.0	12.5	113.3	197.	13.7	116.9	209.	14.6	120.4	295.
62818	13.0	111.7	13.0	111.7	0.0	14.7	116.6	27.	15.8	120.6	30.	16.4	124.4	151.
62900	13.6	112.8	13.7	112.8	6.0	16.3	116.8	67.	17.4	120.7	70.	18.0	125.0	142.
62906	14.3	114.0	14.3	114.0	0.0	16.3	118.8	38.	17.6	123.4	35.	18.5	127.0	144.
62912	14.7	115.2	15.0	115.5	24.8	16.4	120.4	52.	17.2	125.2	87.	17.7	129.3	180.
62918	15.1	116.4	15.1	116.4	0.0	16.3	121.0	23.	17.6	126.5	103.	17.9	129.9	190.
63000	15.5	117.4	15.5	117.6	11.3	16.8	122.2	24.	17.6	126.5	138.	18.0	130.8	206.
63006	15.7	118.5	15.7	118.6	5.6	16.7	123.0	49.	17.7	127.0	190.	18.3	131.2	223.
63012	16.0	119.6	16.0	119.6	0.0	17.0	123.7	68.	17.8	127.7	194.	18.3	131.9	252.
63018	16.4	120.7	16.3	120.6	8.2	17.0	124.5	115.	17.5	128.3	247.	17.8	132.4	306.
7 100	16.8	121.8	16.9	121.8	6.0	18.2	126.1	104.	19.5	129.5	169.	20.3	133.1	194.
7 106	17.5	122.8	17.5	122.8	0.0	19.0	126.6	125.	19.9	130.0	191.	20.7	133.1	223.
7 112	18.1	124.1	18.1	124.0	5.5	20.4	128.3	54.	21.1	133.3	67.	21.1	137.8	195.
7 118	18.9	125.3	18.8	125.2	8.1	21.4	130.0	41.	22.4	134.2	18.	23.0	138.4	118.
7 200	19.9	126.5	19.9	126.5	0.0	23.1	131.2	113.	24.8	134.5	111.	25.7	137.7	57.
7 206	20.5	127.9	20.8	127.7	21.0	23.9	132.9	132.	24.3	136.2	53.	24.8	139.4	121.
7 212	20.8	129.2	20.7	129.2	6.0	21.4	134.8	57.	21.4	139.8	253.	0.0	0.0	0.
7 218	21.0	130.5	21.0	130.6	5.5	22.0	135.9	83.	22.5	140.2	218.	22.5	144.4	460.
7 300	21.4	131.6	21.3	131.8	12.4	22.2	137.2	131.	22.6	141.3	277.	22.6	145.3	0.
7 306	21.8	132.8	21.7	132.8	6.0	22.7	136.9	90.	23.5	141.2	246.	24.2	145.3	0.
7 312	22.2	133.6	22.0	134.0	24.9	23.3	138.7	144.	24.3	143.3	346.	24.9	148.1	0.
7 318	22.5	134.4	22.5	134.5	5.5	23.8	137.4	45.	24.6	140.7	221.	25.1	145.4	0.
7 400	23.0	135.0	23.0	135.0	0.0	24.0	137.6	68.	24.6	140.0	0.	24.2	141.5	0.
7 406	23.4	135.6	23.6	135.6	12.0	24.9	136.7	81.	0.0	0.0	0.	0.0	0.0	0.
7 412	23.8	136.2	24.0	136.2	12.0	24.0	139.1	96.	0.0	0.0	0.	0.0	0.0	0.
7 418	24.2	136.6	24.2	136.7	5.5	25.4	139.0	121.	0.0	0.0	0.	0.0	0.0	0.
7 500	24.9	137.0	25.0	137.0	6.0	27.9	137.9	0.	0.0	0.0	0.	0.0	0.0	0.
7 506	25.6	137.3	25.7	137.4	8.1	29.3	138.3	0.	0.0	0.0	0.	0.0	0.0	0.
7 512	26.4	137.4	26.7	137.5	18.8	30.1	136.1	0.	0.0	0.0	0.	0.0	0.0	0.
7 518	26.9	137.6	26.9	137.5	5.5	29.5	136.5	0.	0.0	0.0	0.	0.0	0.0	0.

MEAN VECTOR ERRORS (N.MI)

85.

161.

209.

NUMBER OF CASES

35

31

26

TABLE 6

ENRIQUE

DATE/TIME (GMT)	BEST TRACK		OPERATIONAL POSITION		POSITION ERROR (N.MI.)	24 HOUR FORECAST			48 HOUR FORECAST			72 HOUR FORECAST		
	LAT.	LONG.	LAT.	LONG.		LAT.	LONG.	ERROR (N.MI)	LAT.	LONG.	ERROR (N.MI.)	LAT.	LONG.	ERROR (N.MI.)
62700	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
62706	9.8	123.8	9.5	124.0	21.5	9.7	128.0	86.	10.1	131.8	180.	10.3	135.4	229.
62712	10.0	124.7	9.6	125.0	29.7	10.0	129.0	91.	10.7	132.3	140.	11.3	136.1	192.
62718	10.3	125.5	9.5	126.0	56.2	9.8	129.6	137.	10.1	133.1	200.	10.5	136.9	211.
62800	10.7	126.4	10.2	126.2	32.2	10.9	129.3	106.	10.9	131.3	244.	10.8	133.4	333.
62806	11.0	127.3	11.0	127.4	5.8	12.2	131.1	48.	12.8	135.0	78.	13.1	138.3	76.
62812	11.5	128.2	11.3	128.2	12.0	12.2	131.6	51.	12.7	135.0	123.	12.7	138.7	0.
62818	11.9	129.0	12.0	129.0	6.0	13.1	133.0	29.	13.8	136.9	26.	14.4	141.0	0.
62900	12.9	129.9	12.6	129.8	18.9	14.1	132.8	70.	14.6	136.2	102.	14.9	139.5	0.
62906	13.0	131.0	13.0	131.0	0.0	14.5	134.9	25.	14.6	139.2	34.	14.4	143.0	0.
62912	13.2	132.0	13.0	131.9	13.3	13.4	135.9	66.	13.6	140.0	0.	13.7	144.0	0.
62918	13.6	133.0	13.4	132.6	26.2	14.5	136.4	31.	15.2	140.2	0.	15.5	143.8	0.
63000	13.8	134.0	14.0	134.0	12.0	15.3	138.2	68.	16.4	142.6	0.	17.0	146.6	0.
63006	14.0	135.0	14.1	135.0	6.0	14.5	139.2	31.	14.7	143.0	0.	14.9	146.5	0.
63012	14.0	136.0	14.5	136.0	30.0	15.4	139.9	0.	15.9	143.8	0.	0.0	0.0	0.
63018	14.1	136.9	14.0	136.5	24.1	14.0	140.0	0.	14.2	144.0	0.	14.7	148.2	0.
7 100	14.2	137.8	14.2	137.9	5.8	14.7	141.6	0.	15.0	145.1	0.	14.0	148.6	0.
7 106	14.3	138.7	14.3	138.7	0.0	14.7	142.0	0.	14.9	145.0	0.	15.2	148.0	0.
7 112	14.4	139.5	0.0	0.0	0.0	14.8	143.3	0.	15.0	147.0	0.	15.6	149.9	0.
7 118	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.

MEAN VECTOR ERRORS (N.MI)								65.			125.			208.
NUMBER OF CASES								13			9			5

TABLE 7

DATE/TIME (GMT)	BEST TRACK		OPERATIONAL POSITION		POSITION ERROR	24 HOUR FORECAST ERROR			48 HOUR FORECAST ERROR			72 HOUR FORECAST ERROR		
	LAT.	LONG.	LAT.	LONG.	(N.MI.)	LAT.	LONG.	(N.MI.)	LAT.	LONG.	(N.MI.)	LAT.	LONG.	(N.MI.)
7 200	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
7 206	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
7 212	14.8	102.2	15.0	101.0	67.5	16.4	105.2	88.	20.0	107.0	112.	0.0	0.0	0.
7 218	15.1	103.2	14.6	103.6	37.5	15.5	108.4	171.	17.0	112.6	282.	20.0	115.8	229.
7 300	15.5	104.4	15.4	104.3	8.2	16.6	109.0	176.	17.6	113.0	265.	19.0	117.1	320.
7 306	16.2	105.6	15.8	105.3	29.3	17.5	109.6	197.	19.0	113.8	205.	20.3	117.7	289.
7 312	17.0	106.5	16.7	106.7	21.2	18.6	110.9	231.	19.0	114.8	222.	20.2	118.8	304.
7 318	18.1	107.2	18.1	107.2	0.0	21.4	109.7	29.	23.3	112.0	91.	24.5	114.3	102.
7 400	19.3	107.8	19.3	107.8	0.0	22.1	109.8	61.	23.4	113.2	95.	23.7	117.1	0.
7 406	20.1	108.5	20.5	108.2	29.1	25.0	109.4	238.	0.0	0.0	0.	0.0	0.0	0.
7 412	20.6	109.0	21.5	108.2	69.6	25.2	108.2	302.	0.0	0.0	0.	0.0	0.0	0.
7 418	20.9	109.7	21.0	110.0	17.5	21.7	113.0	45.	22.0	115.9	171.	22.2	118.8	0.
7 500	21.2	110.3	21.2	110.3	0.0	22.1	113.1	39.	22.8	116.1	0.	22.9	119.1	0.
7 506	21.4	110.9	21.4	111.2	16.5	22.4	114.5	83.	23.4	117.4	0.	0.0	0.0	0.
7 512	21.6	111.5	21.4	111.8	20.4	21.7	114.7	61.	0.0	0.0	0.	0.0	0.0	0.
7 518	21.8	112.0	21.8	112.2	11.0	22.5	114.8	103.	0.0	0.0	0.	0.0	0.0	0.
7 600	22.0	112.4	22.0	112.4	0.0	22.8	114.4	0.	0.0	0.0	0.	0.0	0.0	0.
7 606	22.4	112.8	22.3	113.0	12.5	23.6	114.9	0.	0.0	0.0	0.	0.0	0.0	0.
7 612	22.8	113.0	22.4	113.9	54.9	23.0	116.7	0.	0.0	0.0	0.	0.0	0.0	0.
7 618	23.3	113.1	23.2	113.1	6.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
MEAN VECTOR ERRORS (N.MI)								130.			180.			249.
NUMBER OF CASES								14			8			5

TABLE 8

GUILLEMO.....

DATE/TIME (GMT)	BEST TRACK		OPERATIONAL POSITION		POSITION ERROR (N.MI.)	24 HOUR FORECAST			48 HOUR FORECAST			72 HOUR FORECAST		
	LAT.	LONG.	LAT.	LONG.		LAT.	LONG.	ERROR (N.MI.)	LAT.	LONG.	ERROR (N.MI.)	LAT.	LONG.	ERROR (N.MI.)
7 700	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
7 706	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
7 717	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
7 718	12.1	99.8	12.2	100.0	12.8	13.7	104.8	26.	14.7	109.0	332.	15.3	112.6	510.
7 800	12.5	101.1	12.4	101.3	12.8	13.7	106.3	102.	14.9	111.0	390.	14.0	115.1	472.
7 806	13.0	102.4	12.8	101.7	41.3	13.9	105.6	201.	15.0	109.4	888.	15.7	113.6	592.
7 817	13.8	103.8	13.2	103.1	53.5	14.4	107.6	240.	15.2	111.7	511.	15.8	115.8	554.
7 818	14.6	105.1	13.9	104.4	57.6	15.5	108.9	287.	16.5	112.8	443.	16.8	116.8	500.
7 900	15.5	106.4	15.4	106.4	6.0	17.4	111.3	240.	18.5	115.3	335.	19.0	118.7	0.
7 906	16.7	107.9	16.7	107.5	22.6	20.0	111.9	626.	21.2	115.7	276.	22.0	119.8	0.
7 912	18.2	109.3	18.0	109.4	13.3	21.8	114.2	106.	22.8	117.4	214.	23.5	120.3	0.
7 918	19.6	110.5	20.1	110.3	32.1	25.5	114.0	247.	27.7	116.9	414.	28.6	119.6	0.
71000	20.6	111.9	21.4	111.3	58.7	24.4	115.3	702.	25.5	120.5	0.	25.9	125.0	0.
71006	21.5	113.7	22.8	122.7	513.6	26.1	116.9	230.	27.5	118.9	0.	28.0	120.0	0.
71012	22.0	115.6	23.5	115.7	139.9	26.3	118.5	223.	28.6	121.9	0.	0.0	0.0	0.
71018	22.6	117.2	22.6	117.2	0.0	24.3	123.6	91.	0.0	0.0	0.	0.0	0.0	0.
71100	23.1	118.6	23.1	118.7	5.6	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
71106	23.3	119.9	23.5	120.0	13.3	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
71112	23.3	121.2	23.5	121.2	12.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
71118	23.1	123.8	23.1	122.6	67.7	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.

MEAN VECTOR ERRORS (N.MI)

NUMBER OF CASES

217.

13

423.

9

525.

5

TABLE 9

HILDA

DATE/TIME (GMT)	BEST TRACK		OPERATIONAL POSITION		POSITION ERROR	24 HOUR FORECAST ERROR			48 HOUR FORECAST ERROR			72 HOUR FORECAST ERROR		
	LAT.	LONG.	LAT.	LONG.	(N.MI.)	LAT.	LONG.	(N.MI.)	LAT.	LONG.	(N.MI.)	LAT.	LONG.	(N.MI.)
71800	17.7	112.0	17.5	112.5	30.3	19.6	116.4	198.	21.5	120.5	237.	23.4	124.4	0.
71806	18.5	112.5	18.5	112.5	0.0	21.5	114.0	54.	0.0	0.0	0.	0.0	0.0	0.
71812	19.5	112.8	19.5	112.5	16.7	22.9	113.9	85.	0.0	0.0	0.	0.0	0.0	0.
71818	20.5	113.1	20.6	113.0	8.2	24.7	114.2	166.	0.0	0.0	0.	0.0	0.0	0.
71900	21.5	113.5	21.6	113.6	8.2	25.4	115.5	203.	29.2	117.3	0.	0.0	0.0	0.
71906	22.0	114.1	22.4	113.9	26.5	25.4	116.2	203.	27.6	119.6	0.	0.0	0.0	0.
71912	22.7	114.9	22.3	115.3	23.1	25.3	118.5	192.	0.0	0.0	0.	0.0	0.0	0.
71918	22.3	115.7	22.3	115.7	0.0	22.3	118.2	0.	0.0	0.0	0.	0.0	0.0	0.
72000	22.2	116.5	22.1	116.3	12.7	21.7	119.0	0.	21.8	121.9	0.	22.2	125.4	0.
72006	22.2	117.3	22.2	117.4	5.6	22.3	120.7	0.	22.7	124.0	0.	0.0	0.0	0.
72012	22.1	118.4	22.1	118.4	0.0	21.9	122.4	0.	22.0	126.4	0.	0.0	0.0	0.
72018	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
MEAN VECTOR ERRORS (N.MI)								157.	237.			0.		
NUMBER OF CASES								7	1			0		

TABLE 10

JIMENA.....

DATE/TIME (GMT)	BEST TRACK		OPERATIONAL POSITION		POSITION ERROR (N.MI.)	24 HOUR FORECAST			48 HOUR FORECAST			72 HOUR FORECAST					
	LAT.	LONG.	LAT.	LONG.		LAT.	LONG.	ERROR (N.MI.)	LAT.	LONG.	ERROR (N.MI.)	LAT.	LONG.	ERROR (N.MI.)			
72000	11.5	103.7	11.5	103.6	5.8	11.9	106.0	12.	12.5	109.0	129.	13.2	112.9	159.			
72006	11.5	104.5	11.5	104.4	5.8	11.8	108.1	56.	12.6	112.0	150.	13.5	116.0	243.			
72012	11.6	105.4	11.4	105.3	13.3	11.5	108.8	93.	12.0	112.0	176.	12.9	116.2	262.			
72018	11.8	106.3	11.3	105.7	46.0	11.1	108.8	174.	11.3	112.0	233.	12.0	116.0	310.			
72100	12.2	107.2	11.9	106.2	60.6	12.2	109.1	144.	12.7	111.6	180.	13.5	115.6	245.			
72106	12.8	107.7	12.3	107.3	37.8	13.0	110.7	102.	14.0	114.6	163.	15.0	118.4	216.			
72112	13.4	108.2	12.7	107.8	47.9	13.4	111.2	92.	14.5	115.0	143.	15.1	118.9	237.			
72118	13.9	109.0	14.0	108.9	8.3	15.6	112.9	103.	16.6	116.4	122.	17.3	120.2	209.			
72200	14.5	109.8	14.5	109.8	12.0	16.1	113.4	84.	17.3	117.0	120.	18.3	120.6	194.			
72206	14.6	110.3	14.7	110.6	18.1	15.8	114.1	82.	16.8	118.1	144.	17.5	122.3	275.			
72212	14.9	110.8	14.9	111.5	39.7	15.8	115.3	110.	16.8	119.3	197.	17.8	123.2	298.			
72218	15.2	111.4	15.1	111.2	12.8	16.2	113.6	58.	17.3	116.4	62.	18.3	120.4	136.			
72300	15.7	112.0	15.7	112.0	0.0	17.1	114.7	17.	18.4	117.7	48.	19.4	121.1	99.			
72306	16.0	112.7	16.0	112.7	0.0	17.6	115.8	8.	19.0	119.4	87.	19.6	123.1	156.			
72312	16.4	113.4	16.4	113.5	5.6	17.5	116.7	46.	18.5	120.6	149.	19.3	123.9	186.			
72318	16.8	114.2	16.9	114.3	8.2	18.6	117.7	60.	20.0	121.3	125.	20.6	125.2	201.			
72400	17.2	115.0	17.3	114.9	8.2	18.9	118.1	47.	20.2	121.3	82.	21.1	125.0	174.			
72406	17.6	115.6	17.5	115.7	8.2	18.8	118.9	70.	19.9	122.2	104.	20.2	125.9	177.			
72412	18.0	116.1	18.0	116.1	0.0	19.3	119.8	85.	20.5	121.9	54.	21.4	125.1	73.			
72418	18.5	116.7	18.3	116.7	12.0	19.4	119.0	48.	20.4	121.7	54.	20.9	124.5	144.			
72500	19.0	117.3	19.1	117.3	6.0	21.3	119.6	45.	22.9	122.5	61.	23.9	125.1	150.			
72506	19.5	117.9	19.6	118.0	8.1	21.7	120.8	48.	23.1	123.9	42.	23.9	127.4	133.			
72512	19.9	118.5	20.0	118.5	6.0	21.5	121.0	25.	22.8	123.8	62.	23.3	126.8	221.			
72518	20.2	119.2	20.2	119.1	5.5	21.3	121.5	11.	21.9	124.6	101.	22.0	128.2	212.			
72600	20.6	119.9	20.6	119.9	0.0	21.5	122.8	32.	22.3	126.1	91.	22.9	129.5	0.			
72606	20.9	120.7	20.9	120.7	0.0	22.1	124.0	21.	23.7	127.5	123.	23.1	130.9	0.			
72612	21.3	121.5	21.2	121.3	12.6	22.0	124.2	53.	22.5	127.5	186.	22.7	130.8	0.			
72618	21.6	122.2	21.3	121.7	33.0	22.0	124.2	119.	22.0	126.7	292.	21.6	129.3	0.			
72700	22.0	123.0	22.0	123.0	0.0	23.1	126.2	78.	24.2	129.5	0.	24.9	133.1	0.			
72706	22.3	123.8	22.4	123.8	6.0	23.8	127.2	141.	24.6	130.4	0.	24.9	133.8	0.			
72712	22.6	124.9	22.6	124.9	0.0	23.6	129.0	104.	24.2	133.2	0.	24.9	137.4	0.			
72718	22.7	126.1	22.7	126.2	5.5	23.1	130.7	61.	23.0	135.0	0.	0.0	0.0	0.			
72800	22.9	127.6	22.9	127.6	0.0	23.3	133.3	0.	23.6	136.4	0.	23.8	143.6	0.			
72806	23.0	129.2	23.0	129.6	22.2	22.8	136.4	0.	23.0	142.7	0.	23.4	149.0	0.			
72812	23.1	130.6	23.1	130.8	11.1	23.2	136.2	0.	23.0	140.0	0.	0.0	0.0	0.			
72818	23.2	131.8	23.2	131.8	0.0	23.0	135.5	0.	0.0	0.0	0.	0.0	0.0	0.			
MEAN VECTOR ERRORS (N.MI)								70.					124.				
NUMBER OF CASES								32					28				

TABLE 11

IGNACIO

DATE/TIME (GMT)	BEST TRACK		OPERATIONAL POSITION		POSITION ERROR	24 HOUR FORECAST		ERROR	48 HOUR FORECAST		ERROR	72 HOUR FORECAST		ERROR
	LAT.	LONG.	LAT.	LONG.	(N.MI.)	LAT.	LONG.	(N.MI.)	LAT.	LONG.	(N.MI.)	LAT.	LONG.	(N.MI.)
72100	13.2	134.4	13.2	134.4	0.0	13.5	138.9	19.	13.7	142.3	0.	13.6	146.5	0.
72106	13.2	135.5	13.1	135.5	6.0	13.4	139.7	8.	13.7	144.2	0.	14.5	148.6	0.
72112	13.3	136.5	13.3	136.5	0.0	13.5	141.1	0.	14.0	144.9	0.	14.2	149.2	0.
72118	13.3	137.4	13.3	137.5	5.8	13.5	141.5	0.	13.8	145.6	0.	14.2	149.9	0.
72200	13.4	138.6	13.4	138.6	0.0	13.6	143.1	0.	13.9	147.0	0.	14.2	151.2	0.
72206	13.5	139.6	13.5	139.6	0.0	13.7	143.6	0.	13.7	147.6	0.	13.8	151.7	0.
72212	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
72218	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
MEAN VECTOR ERRORS (N.MI)								13.			0.			0.
NUMBER OF CASES								2			0			0

TABLE 12

KEVIN

DATE/TIME (GMT)	BEST TRACK		OPERATIONAL POSITION		POSITION ERROR (N.MI.)	24 HOUR FORECAST			48 HOUR FORECAST			72 HOUR FORECAST					
	LAT.	LONG.	LAT.	LONG.		LAT.	LONG.	ERROR (N.MI.)	LAT.	LONG.	ERROR (N.MI.)	LAT.	LONG.	ERROR (N.MI.)			
72900	13.9	102.6	13.8	102.6	6.0	14.5	105.3	35.	15.4	108.4	76.	16.5	112.1	6.			
72906	14.0	103.4	13.4	103.3	36.5	14.1	107.3	36.	15.1	111.5	50.	16.0	116.6	238.			
72912	14.2	104.2	13.7	104.3	30.5	14.4	108.1	18.	15.8	112.8	64.	17.4	117.3	246.			
72918	14.4	105.1	14.2	104.2	52.8	15.2	106.8	113.	16.6	110.2	78.	18.0	114.0	17.			
73000	14.5	106.0	14.5	104.7	74.0	15.6	107.8	112.	17.5	111.2	83.	18.6	115.3	29.			
73006	14.6	106.8	14.7	107.2	23.5	15.7	111.3	39.	16.8	115.2	150.	18.0	119.6	212.			
73012	14.7	107.8	14.7	108.1	17.0	15.6	112.2	30.	16.7	116.2	190.	18.0	120.3	246.			
73018	14.9	108.8	14.8	108.7	8.3	15.6	112.5	68.	16.8	116.6	150.	18.0	120.5	234.			
73100	15.2	109.7	15.2	109.7	0.0	15.9	113.8	99.	17.1	117.7	175.	18.2	121.6	249.			
73106	15.5	110.4	15.4	110.7	18.0	16.7	115.0	139.	18.0	119.0	179.	19.8	122.5	232.			
73112	15.7	111.0	15.7	111.7	39.5	16.8	115.2	133.	18.0	118.7	165.	19.7	122.2	166.			
73118	16.0	111.6	16.0	111.4	11.3	16.9	113.4	71.	18.2	115.7	96.	19.5	118.5	120.			
8 100	16.4	112.2	16.5	112.7	6.0	18.1	113.9	56.	19.5	115.6	115.	20.3	117.7	197.			
8 106	16.8	112.9	17.0	112.6	20.6	18.9	114.8	68.	20.9	117.6	70.	22.2	120.6	124.			
8 112	17.3	113.6	17.5	113.0	35.5	19.7	114.8	81.	21.4	117.1	143.	22.9	119.8	222.			
8 118	17.7	114.3	17.8	114.2	8.2	19.7	116.5	16.	21.7	118.7	123.	23.2	121.4	224.			
8 200	18.2	114.9	18.3	114.9	6.0	20.3	117.8	27.	21.9	120.8	87.	22.9	124.1	146.			
8 206	18.7	115.6	18.9	116.0	25.2	21.7	119.9	132.	22.3	123.2	122.	24.0	126.5	168.			
8 212	19.1	116.1	19.4	116.2	18.8	21.5	119.2	78.	22.9	122.2	139.	24.0	125.3	199.			
8 218	19.5	116.9	19.5	116.7	11.1	20.9	119.3	69.	22.3	122.1	160.	23.6	125.1	254.			
8 300	19.9	117.6	19.9	117.6	0.0	21.4	120.7	61.	22.7	124.1	137.	23.5	127.9	167.			
8 306	20.0	118.4	20.0	118.4	0.0	20.6	121.5	28.	21.6	124.8	103.	22.4	128.4	163.			
8 312	20.2	119.3	20.2	119.3	0.0	20.9	122.9	13.	22.1	124.9	147.	22.8	128.0	262.			
8 318	20.4	120.3	20.4	120.4	5.5	21.3	123.7	54.	22.3	126.8	133.	23.5	129.5	257.			
8 400	20.5	121.7	20.5	121.2	0.0	20.9	125.1	28.	21.3	128.9	63.	21.5	132.7	0.			
8 406	20.6	122.0	20.6	122.0	0.0	21.1	125.4	67.	21.4	128.7	140.	21.6	132.1	0.			
8 412	20.7	123.1	20.7	123.0	5.5	21.2	126.8	34.	21.6	129.5	168.	22.3	132.3	0.			
8 418	20.8	124.3	20.6	124.3	12.0	20.9	128.0	46.	21.8	131.4	124.	23.7	133.1	0.			
8 500	21.0	125.3	20.9	125.6	17.7	21.2	130.1	19.	21.7	134.7	0.	22.1	139.4	0.			
8 506	21.2	126.5	21.2	126.6	5.5	22.1	130.8	37.	23.4	134.8	0.	25.0	138.2	0.			
8 512	21.3	127.6	21.3	127.4	11.1	21.6	131.5	56.	22.0	134.3	0.	22.4	137.0	0.			
8 518	21.4	128.8	21.1	128.8	18.0	21.2	133.1	33.	21.4	137.2	0.	22.2	140.7	0.			
8 600	21.5	130.0	21.5	130.0	0.0	22.1	134.7	0.	22.6	139.4	0.	23.1	144.7	0.			
8 606	21.6	131.2	21.6	131.2	0.0	22.2	135.9	0.	22.9	140.7	0.	0.0	0.0	0.			
8 612	21.5	132.5	21.5	132.5	0.0	21.6	136.8	0.	22.2	140.2	0.	0.0	0.0	0.			
8 618	21.5	133.7	21.5	133.6	5.5	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.			
MEAN VECTOR ERRORS (N.MI)								59.					123.				
NUMBER OF CASES								32					28				

TABLE 13

LTNDA

DATE/TIME (GMT)	BEST TRACK		OPERATIONAL POSITION		POSITION ERROR (N.M.I.)	24 HOUR FORECAST		ERROR (N.M.I.)	48 HOUR FORECAST		ERROR (N.M.I.)	72 HOUR FORECAST		ERROR (N.M.I.)
	LAT.	LONG.	LAT.	LONG.		LAT.	LONG.		LAT.	LONG.		LAT.	LONG.	
72900	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
72906	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
72912	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
72918	12.3	123.3	12.0	122.0	77.6	13.0	127.5	58.	13.9	133.5	48.	14.0	139.6	314.
73000	12.7	124.7	12.7	124.7	0.0	13.4	130.1	13.	14.3	134.1	37.	14.4	138.3	230.
73006	13.0	126.0	13.0	125.6	23.1	14.1	130.6	53.	14.9	135.1	63.	15.6	139.3	250.
73012	13.2	127.3	13.7	127.3	0.0	14.2	132.6	8.	14.8	138.5	223.	15.3	144.5	550.
73018	13.3	128.6	13.0	128.5	18.9	13.3	133.5	67.	13.9	138.6	258.	14.3	143.7	454.
73100	13.5	129.8	13.6	130.0	13.0	14.2	135.0	87.	15.1	139.5	295.	15.5	142.9	365.
73106	13.6	130.9	14.0	131.5	42.1	15.0	137.3	188.	16.1	142.8	454.	16.6	148.3	634.
73112	13.7	131.8	14.1	132.5	46.9	14.8	136.8	127.	15.4	141.1	353.	15.9	145.9	457.
73118	13.9	132.6	14.1	132.7	13.3	14.8	136.8	145.	15.7	140.8	277.	16.7	144.2	328.
8 100	14.1	133.3	14.1	133.5	11.5	14.4	136.8	145.	14.8	139.9	206.	14.8	142.9	267.
8 106	14.4	133.8	14.5	134.1	18.2	15.5	137.5	146.	16.5	141.0	214.	17.1	144.8	299.
8 112	14.7	134.1	15.4	134.7	54.3	16.7	137.5	161.	17.7	140.0	135.	18.4	143.0	0.
8 118	14.9	134.2	15.0	134.3	8.3	16.0	135.0	60.	17.2	136.6	112.	18.0	139.2	0.
8 200	15.1	134.4	15.1	134.4	0.0	15.7	134.9	101.	16.1	136.0	185.	0.0	0.0	0.
8 206	15.4	134.7	15.2	135.0	21.0	16.0	137.6	21.	16.4	140.0	64.	16.9	143.0	0.
8 212	15.6	135.3	15.5	135.0	18.2	16.3	136.8	70.	17.1	138.9	0.	17.8	141.6	0.
8 218	15.8	135.9	15.7	136.0	8.3	16.4	139.0	37.	17.0	142.1	0.	17.3	145.5	0.
8 300	16.1	136.6	16.1	136.6	0.0	17.0	139.5	31.	17.7	142.8	0.	0.0	0.0	0.
8 306	16.3	137.2	16.2	137.3	8.3	16.6	139.8	49.	0.0	0.0	0.	0.0	0.0	0.
8 312	16.6	137.8	16.5	138.0	12.9	17.0	140.9	0.	17.3	144.2	0.	0.0	0.0	0.
8 318	16.9	138.5	16.8	138.5	6.0	17.6	141.2	0.	18.2	144.3	0.	0.0	0.0	0.
8 400	17.2	139.0	17.2	139.0	0.0	18.1	141.5	0.	0.0	0.0	0.	0.0	0.0	0.
8 406	17.4	139.7	17.4	139.6	5.7	17.9	141.7	0.	18.0	144.2	0.	18.0	146.9	0.
8 412	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
8 418	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
MEAN VECTOR ERRORS (N.M.I)								83.			195.			377.
NUMBER OF CASES								19			15			11

TABLE 14

MARTY.....

DATE/TIME (GMT)	BEST TRACK		OPERATIONAL POSITION		POSITION ERROR	24 HOUR FORECAST ERROR			48 HOUR FORECAST ERROR			72 HOUR FORECAST ERROR					
	LAT.	LONG.	LAT.	LONG.	(N.MT.)	LAT.	LONG.	(N.MT.)	LAT.	LONG.	(N.MT.)	LAT.	LONG.	(N.MT.)			
8 600	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.			
8 606	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.			
8 612	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.			
8 618	14.1	106.2	13.2	108.2	127.0	14.2	111.4	144.	14.9	114.4	123.	15.5	117.0	163.			
8 700	14.7	107.3	14.3	109.2	111.1	15.6	113.5	149.	17.0	117.5	224.	17.7	122.1	326.			
8 706	15.2	108.4	14.6	110.4	119.1	16.2	114.5	153.	18.0	118.5	269.	19.4	122.2	307.			
8 712	15.9	109.4	15.0	111.5	131.3	16.1	116.0	189.	17.1	120.2	316.	17.4	124.3	383.			
8 718	16.4	110.4	16.4	110.4	0.0	18.2	114.3	93.	19.8	118.3	199.	20.3	121.7	164.			
8 800	16.8	111.4	16.9	111.3	8.2	18.6	115.0	125.	20.3	118.8	190.	21.3	121.8	160.			
8 806	17.2	112.0	17.3	112.1	8.2	19.1	115.2	141.	21.0	118.6	183.	22.8	121.7	179.			
8 812	17.3	112.7	17.6	113.1	28.7	19.0	116.8	153.	20.1	120.5	166.	20.9	123.9	138.			
8 818	17.3	113.3	16.8	113.6	34.5	16.7	116.7	95.	17.1	120.3	151.	18.0	124.4	199.			
8 900	17.4	113.7	17.0	113.6	24.6	17.2	115.5	75.	18.5	118.2	104.	20.6	120.9	161.			
8 906	17.5	114.3	17.1	113.9	32.8	17.6	115.6	88.	18.7	117.6	187.	20.4	120.0	278.			
8 912	17.6	114.8	17.4	114.7	13.2	17.7	117.0	90.	18.5	119.8	199.	19.5	122.9	230.			
8 918	17.8	115.5	17.8	115.5	0.0	18.8	118.3	50.	19.9	121.3	86.	20.9	124.4	152.			
81000	18.1	116.4	18.1	116.4	0.0	19.2	119.9	21.	20.2	123.1	83.	20.9	126.5	174.			
81006	18.4	117.1	18.4	116.9	11.0	19.7	119.6	59.	20.9	122.2	152.	21.8	124.8	219.			
81012	18.7	117.9	19.0	117.8	18.8	22.0	121.0	46.	23.5	122.5	191.	25.2	124.2	171.			
81018	19.0	118.8	19.3	119.0	21.0	20.9	123.9	79.	22.4	127.3	65.	23.6	131.2	270.			
81100	19.4	119.7	19.5	119.7	6.0	20.7	123.4	49.	21.6	127.2	139.	22.1	131.1	0.			
81106	19.9	120.5	20.0	120.6	8.1	21.8	123.6	62.	23.3	126.3	104.	24.0	129.3	0.			
81112	20.4	121.5	21.4	121.5	60.0	22.9	125.3	42.	24.1	129.4	149.	24.5	133.5	0.			
81118	20.9	122.6	20.8	122.5	8.1	22.3	126.7	41.	23.4	130.6	257.	0.0	0.0	0.			
81200	21.4	123.6	21.5	123.6	6.0	23.2	127.8	85.	24.6	132.2	0.	25.9	136.4	0.			
81206	21.9	124.6	21.9	124.7	5.4	23.2	129.0	166.	24.0	133.2	0.	24.6	136.9	0.			
81212	22.3	125.5	22.3	125.7	10.9	23.4	129.7	190.	24.2	133.8	0.	0.0	0.0	0.			
81218	23.0	126.1	22.8	126.2	13.2	24.2	129.2	173.	0.0	0.0	0.	0.0	0.0	0.			
81300	23.9	126.5	23.8	126.4	8.1	27.4	127.1	0.	0.0	0.0	0.	0.0	0.0	0.			
81306	24.8	127.0	25.0	126.7	20.2	29.0	129.3	0.	32.3	127.0	0.	0.0	0.0	0.			
81312	25.7	127.3	25.7	127.3	0.0	28.8	129.1	0.	0.0	0.0	0.	0.0	0.0	0.			
81318	28.7	127.6	26.7	127.6	120.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.			
MEAN VECTOR ERRORS (N.MI)								107.					168.				
NUMBER OF CASES								25					21				

TABLE 15

NORA

DATE/TIME (GMT)	BEST TRACK		OPERATIONAL POSITION		POSITION ERROR (N.MI.)	24 HOUR FORECAST ERROR			48 HOUR FORECAST ERROR			72 HOUR FORECAST ERROR		
	LAT.	LONG.	LAT.	LONG.		LAT.	LONG.	(N.MI.)	LAT.	LONG.	(N.MI.)	LAT.	LONG.	(N.MI.)
81900	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
81906	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
81912	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
81918	15.5	111.8	15.2	111.5	24.7	16.1	115.7	89.	17.3	119.8	95.	18.4	123.6	207.
82000	15.9	112.8	15.8	112.8	6.0	17.0	116.8	65.	18.7	120.6	98.	19.9	124.4	155.
82006	16.5	114.0	16.2	114.0	18.0	17.8	118.3	44.	19.8	121.9	62.	21.7	125.4	107.
82012	17.0	115.3	16.8	115.5	16.3	18.8	120.0	49.	20.7	123.5	56.	22.5	126.3	102.
82018	17.3	116.6	17.3	116.6	0.0	19.3	120.8	62.	21.2	124.2	68.	23.3	127.5	0.
82100	17.5	117.8	17.5	117.8	0.0	18.3	122.7	66.	18.7	127.6	217.	18.8	132.3	0.
82106	17.8	119.0	17.5	119.0	18.0	18.0	123.3	103.	18.8	127.2	234.	20.0	131.2	0.
82112	18.0	120.1	18.0	120.2	5.5	19.0	124.7	103.	20.0	128.0	210.	21.4	130.8	0.
82118	18.4	121.1	18.3	121.1	6.0	19.7	125.2	103.	21.1	128.6	0.	22.6	131.3	0.
82200	19.0	122.0	19.3	122.2	21.1	22.1	124.2	100.	26.5	124.4	0.	29.1	123.7	0.
82206	19.8	123.2	19.7	123.0	12.6	22.8	126.3	39.	0.0	0.0	0.	0.0	0.0	0.
82212	20.6	124.4	20.7	124.5	8.2	23.7	128.2	25.	0.0	0.0	0.	0.0	0.0	0.
82218	21.3	125.3	21.4	125.4	8.2	24.6	129.5	0.	0.0	0.0	0.	0.0	0.0	0.
82300	22.1	126.1	22.0	126.0	8.2	24.2	128.8	0.	25.0	131.0	0.	0.0	0.0	0.
82306	22.7	127.0	22.7	127.0	0.0	25.3	130.2	0.	0.0	0.0	0.	0.0	0.0	0.
82312	23.5	127.8	23.5	127.8	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
82318	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
MEAN VECTOR ERRORS (N.MI)								71.			130.			145.
NUMBER OF CASES								12			8			4

TABLE 16

OLAF.....

DATE/TIME (GMT)	BEST TRACK		OPERATIONAL POSITION		POSITION ERROR (N.MI.)	24 HOUR FORECAST			48 HOUR FORECAST			72 HOUR FORECAST		
	LAT.	LONG.	LAT.	LONG.		LAT.	LONG.	ERROR (N.MI.)	LAT.	LONG.	ERROR (N.MI.)	LAT.	LONG.	ERROR (N.MI.)
82200	12.9	102.2	12.5	102.5	29.7	13.5	106.0	61.	14.4	109.7	188.	15.3	113.3	271.
82206	13.0	102.8	13.0	102.8	0.0	14.0	105.4	69.	15.5	108.6	174.	17.2	112.4	283.
82212	13.1	103.5	13.1	103.5	0.0	13.8	106.4	53.	0.0	0.0	0.	0.0	0.0	0.
82218	13.1	104.1	13.1	104.2	5.8	13.3	107.3	64.	0.0	0.0	0.	0.0	0.0	0.
82300	13.0	104.7	13.0	105.1	22.9	13.5	109.0	126.	14.6	113.2	247.	16.7	118.9	409.
82306	12.9	105.2	13.0	106.0	46.3	13.2	110.1	144.	14.3	113.9	238.	16.0	118.0	303.
82312	12.8	105.8	13.0	106.8	58.6	13.1	110.5	119.	0.0	0.0	0.	0.0	0.0	0.
82318	12.7	106.3	12.7	106.4	5.7	12.9	109.1	35.	13.4	112.6	227.	14.0	116.2	361.
82400	12.7	106.9	12.7	107.0	5.7	13.0	109.9	35.	14.0	112.9	240.	16.0	117.0	288.
82406	12.7	107.4	12.7	107.7	17.1	13.3	111.2	71.	14.1	115.0	270.	15.4	118.9	364.
82412	12.8	108.0	12.7	108.5	29.2	12.9	111.9	80.	13.3	115.6	349.	14.0	119.1	476.
82418	13.0	108.6	12.9	108.5	8.3	13.5	110.9	204.	14.3	113.7	361.	15.4	116.8	487.
82500	13.7	109.3	13.0	109.3	42.0	13.9	112.7	243.	15.4	116.5	325.	17.2	120.9	350.
82506	14.6	109.9	13.1	110.0	90.2	14.1	113.3	252.	15.2	116.9	377.	17.0	120.8	441.
82512	15.7	110.3	13.3	110.6	145.0	14.7	113.5	263.	16.3	116.5	387.	18.0	119.4	462.
82518	16.9	111.1	16.9	111.1	0.0	20.4	114.4	77.	22.6	117.8	225.	24.1	121.0	372.
82600	17.8	112.1	17.9	112.0	8.2	21.7	116.0	74.	23.0	119.4	229.	23.6	123.0	373.
82606	18.4	113.3	18.3	113.3	6.0	20.5	117.6	58.	17.2	121.5	408.	19.3	125.4	266.
82612	19.1	114.5	19.0	114.4	8.1	21.3	118.7	76.	23.0	122.1	231.	25.0	125.5	284.
82618	20.0	115.7	20.0	115.7	0.0	22.8	120.1	106.	25.3	123.3	300.	27.5	125.7	398.
82700	20.8	116.9	20.8	116.9	0.0	23.2	121.7	108.	25.1	125.5	258.	26.8	128.5	250.
82706	21.4	118.2	21.4	118.0	10.8	23.7	122.0	206.	25.6	125.2	321.	27.1	128.1	236.
82712	21.8	119.9	21.9	119.9	6.0	23.7	125.3	98.	26.1	128.1	258.	28.6	129.7	247.
82718	22.1	121.9	22.0	121.8	8.1	22.3	127.6	29.	23.4	131.4	73.	25.5	133.6	186.
82800	22.4	123.7	22.5	123.5	12.1	26.8	129.5	423.	30.0	133.5	464.	31.5	137.0	495.
82806	22.4	125.0	22.8	125.6	40.2	24.8	133.2	280.	26.5	139.7	550.	27.0	145.0	780.
82812	22.3	126.4	22.3	126.7	10.9	22.7	130.4	65.	23.0	132.8	178.	23.2	134.1	259.
82818	22.0	127.6	21.9	127.3	17.4	21.7	131.4	69.	22.9	133.6	228.	23.8	135.1	0.
82900	21.8	128.5	21.8	128.5	0.0	21.7	132.6	156.	22.2	136.0	384.	22.9	139.0	0.
82906	21.9	129.0	21.8	129.3	17.4	21.9	132.7	176.	22.3	136.5	400.	23.0	140.0	0.
82912	22.2	129.5	22.0	129.5	12.0	22.5	131.3	140.	23.3	132.2	195.	24.5	133.3	0.
82918	22.5	130.0	22.5	130.5	27.2	24.0	132.0	118.	25.6	134.0	0.	0.0	0.0	0.
83000	22.9	130.1	22.9	130.1	0.0	25.5	130.1	19.	0.0	0.0	0.	0.0	0.0	0.
83006	23.5	130.1	23.6	130.1	6.0	25.9	129.8	40.	0.0	0.0	0.	0.0	0.0	0.
83012	24.3	130.2	24.5	130.0	16.2	27.5	129.8	90.	0.0	0.0	0.	0.0	0.0	0.
83018	25.1	130.3	25.1	130.2	5.4	28.0	130.0	0.	0.0	0.0	0.	0.0	0.0	0.
83100	25.7	130.4	25.8	130.2	12.4	28.9	129.9	0.	0.0	0.0	0.	0.0	0.0	0.
83106	26.0	130.5	26.1	130.5	6.0	27.6	131.2	0.	0.0	0.0	0.	0.0	0.0	0.
83112	0.0	0.0	26.3	130.8	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
83118	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.

MEAN VECTOR ERRORS (N.MI.)
NUMBER OF CASES

121.
35

269.
28

358.
24

TABLE 17

PAULINE.....

DATE/TIME (GMT)	BEST TRACK		OPERATIONAL POSITION		POSITION ERROR	24 HOUR FORECAST ERROR			48 HOUR FORECAST ERROR			72 HOUR FORECAST ERROR					
	LAT.	LONG.	LAT.	LONG.	(N.MI.)	LAT.	LONG.	(N.MI.)	LAT.	LONG.	(N.MI.)	LAT.	LONG.	(N.MI.)			
82700	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.			
82706	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.			
82712	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.			
82718	15.8	104.1	16.7	105.0	74.8	18.3	110.0	208.	18.9	114.8	462.	19.8	119.5	457.			
82800	15.5	105.0	16.5	105.5	66.5	18.0	109.7	265.	19.3	114.0	430.	20.3	117.6	397.			
82806	14.8	105.5	16.5	106.5	117.0	17.4	110.6	227.	18.7	114.6	331.	20.1	118.5	359.			
82812	13.9	106.1	15.7	106.8	115.3	15.7	110.3	78.	16.5	113.7	168.	18.1	117.6	226.			
82818	13.1	106.9	15.7	107.6	161.1	15.5	110.6	186.	16.3	114.4	150.	18.0	118.5	223.			
82900	12.8	107.9	13.9	108.0	66.3	13.9	112.0	90.	14.5	115.8	35.	15.9	119.7	118.			
82906	12.6	108.9	13.9	109.1	78.9	14.0	113.2	38.	15.5	117.2	75.	17.2	120.0	210.			
82912	12.6	109.9	14.4	110.4	111.8	15.6	114.7	131.	17.1	118.6	189.	18.9	122.2	300.			
82918	12.6	110.9	12.4	110.5	26.1	12.8	114.4	61.	13.8	117.9	65.	15.3	121.4	92.			
83000	12.9	111.9	12.4	112.0	30.6	13.2	116.9	95.	14.5	121.0	55.	16.2	125.1	167.			
83006	13.0	112.8	13.4	113.0	26.6	15.1	117.2	55.	16.6	120.9	163.	18.2	124.8	219.			
83012	13.4	133.6	13.7	113.6	*1153	14.6	117.4	31.	16.0	121.1	136.	17.1	125.0	140.			
83018	13.7	114.6	13.8	114.6	6.0	15.3	118.4	67.	16.6	122.3	144.	18.8	125.6	234.			
83100	13.9	115.6	14.0	115.5	8.3	15.3	119.3	94.	16.8	123.1	150.	17.7	127.4	134.			
83106	14.0	116.7	14.4	116.6	24.7	15.8	120.5	121.	17.4	124.4	168.	19.0	128.0	221.			
83112	14.1	117.8	14.4	116.9	54.8	15.2	120.1	135.	16.1	123.5	135.	17.1	127.3	196.			
83118	14.0	119.0	14.3	118.9	18.9	14.9	123.5	72.	15.8	127.8	89.	16.7	131.4	29.			
9 100	13.9	119.9	14.0	120.2	18.3	13.9	125.4	142.	14.8	130.0	134.	15.2	134.2	175.			
9 106	13.9	120.7	13.9	121.2	28.8	13.6	125.1	80.	14.1	129.4	85.	15.3	133.3	123.			
9 112	14.0	121.5	13.9	122.0	29.4	14.0	126.0	59.	14.5	130.0	95.	15.7	134.0	115.			
9 118	14.1	122.2	14.2	122.5	18.2	14.7	124.9	95.	15.4	129.2	120.	16.6	132.8	161.			
9 200	14.3	123.1	14.3	123.0	5.7	14.9	126.7	73.	15.3	130.8	96.	15.9	135.7	153.			
9 206	14.5	124.2	14.6	124.2	6.0	15.3	128.6	37.	16.2	133.1	75.	17.1	137.9	73.			
9 212	14.8	125.3	14.8	125.4	5.7	15.3	129.9	54.	16.1	134.4	90.	17.1	139.0	85.			
9 218	15.2	126.6	15.0	126.5	13.3	15.9	130.8	32.	16.7	135.0	79.	17.6	139.0	0.			
9 300	15.5	127.8	15.5	127.8	0.0	16.5	132.2	37.	17.4	135.6	79.	18.3	140.6	0.			
9 306	15.8	128.8	15.5	129.2	29.1	16.5	134.5	141.	17.5	139.2	79.	18.9	143.4	0.			
9 312	16.2	130.0	16.0	130.5	31.0	16.3	135.7	112.	16.7	140.8	112.	18.3	145.0	0.			
9 318	16.7	130.9	16.4	131.0	18.9	17.7	135.0	21.	19.6	138.1	0.	22.3	140.3	0.			
9 400	17.1	132.0	16.7	131.6	33.1	17.9	135.0	94.	19.3	138.6	0.	19.8	142.6	0.			
9 406	17.3	133.0	17.0	132.1	54.5	18.5	134.6	200.	19.6	137.4	0.	20.1	141.3	0.			
9 412	17.7	134.2	17.6	134.3	8.3	18.9	138.8	67.	19.8	142.8	0.	20.3	144.8	0.			
9 418	18.0	136.6	18.0	135.2	80.0	19.5	139.4	0.	20.7	143.4	0.	21.7	146.9	0.			
9 500	18.2	136.6	18.3	136.6	6.0	19.1	141.7	0.	19.5	144.8	0.	19.9	148.0	0.			
9 506	18.2	138.1	18.3	138.1	6.0	18.4	143.5	0.	18.6	148.3	0.	19.3	152.6	0.			
9 512	18.3	139.8	18.3	139.8	0.0	18.5	146.3	0.	19.1	151.6	0.	19.7	155.2	0.			
9 518	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.			
EAN VECTOR ERRORS (N.MI)									100.					143.			192.
NUMBER OF CASES									32					28			24

TABLE 18

RICK.....

DATE/TIME (GMT)	BEST TRACK		OPERATIONAL POSITION		POSITION ERROR (N.MI.)	24 HOUR FORECAST ERROR			48 HOUR FORECAST ERROR			72 HOUR FORECAST ERROR				
	LAT.	LONG.	LAT.	LONG.		LAT.	LONG.	(N.MI.)	LAT.	LONG.	(N.MI.)	LAT.	LONG.	(N.MI.)		
9 100	14.1	106.5	14.0	106.6	8.3	14.5	110.7	34.	15.9	115.4	59.	17.1	119.5	255.		
9 106	14.2	107.7	14.0	107.6	13.3	14.2	111.7	109.	15.5	115.5	58.	17.0	119.3	224.		
9 112	14.6	108.8	14.1	108.6	32.2	14.8	112.5	42.	16.0	116.5	79.	17.6	120.0	277.		
9 118	14.8	110.1	14.7	110.1	6.0	15.8	114.8	63.	17.2	118.9	251.	18.4	122.7	350.		
9 200	15.0	111.7	14.8	111.2	12.0	15.3	116.0	61.	15.8	120.7	252.	16.7	125.4	334.		
9 206	15.3	112.1	16.0	111.4	58.2	17.6	115.5	173.	18.9	119.3	335.	20.0	122.8	456.		
9 212	15.3	113.0	15.5	112.4	36.9	15.8	116.5	67.	16.2	120.6	201.	17.2	124.6	326.		
9 218	15.1	113.9	15.2	113.9	6.0	14.9	118.0	123.	15.5	122.1	176.	16.7	126.1	283.		
9 300	14.8	114.7	15.0	115.0	21.2	14.8	119.1	142.	15.0	122.9	166.	15.9	127.5	238.		
9 306	14.4	115.3	14.8	116.2	57.6	14.7	120.3	140.	15.1	124.5	187.	15.9	128.6	238.		
9 312	14.0	115.8	14.7	116.7	67.0	14.8	121.6	159.	16.0	126.0	278.	17.7	130.5	352.		
9 318	13.7	116.4	14.0	116.1	25.1	13.1	119.1	94.	13.0	122.2	219.	13.7	125.5	292.		
9 400	13.3	117.4	13.6	117.0	29.4	13.5	119.4	134.	14.4	122.6	284.	16.6	126.0	396.		
9 406	13.0	118.5	13.4	118.3	26.7	13.3	122.5	59.	14.0	126.7	139.	15.4	130.3	206.		
9 412	12.8	119.6	13.0	119.6	12.0	12.8	124.1	60.	13.0	128.6	67.	14.0	132.2	110.		
9 418	12.7	120.7	12.9	120.7	12.0	12.9	125.0	72.	13.7	129.4	84.	14.7	133.7	96.		
9 500	12.5	121.8	12.6	121.5	18.5	12.6	125.4	90.	13.1	129.4	125.	14.0	133.3	134.		
9 506	12.3	123.1	12.4	122.9	13.1	12.3	127.6	25.	12.7	131.8	47.	14.0	136.2	27.		
9 512	12.2	124.4	11.8	124.0	33.4	11.9	129.0	8.	12.4	133.1	46.	13.2	137.1	126.		
9 518	12.1	125.9	12.0	125.8	8.4	12.0	130.9	51.	12.0	135.5	98.	12.0	140.1	272.		
9 600	12.2	127.0	12.0	126.8	16.7	12.1	131.2	40.	13.0	135.6	54.	14.2	139.8	163.		
9 606	12.4	128.1	12.0	127.9	26.6	12.2	132.3	40.	13.2	136.5	72.	14.4	140.4	178.		
9 612	12.5	129.2	12.0	129.1	30.6	12.0	133.7	54.	12.7	138.0	165.	13.3	142.2	0.		
9 618	12.6	130.4	12.7	130.4	6.0	13.8	134.9	38.	15.2	139.3	94.	16.7	143.4	0.		
9 700	12.7	131.5	12.7	131.5	0.0	13.2	135.8	44.	14.4	140.0	157.	16.0	144.1	0.		
9 706	12.8	132.6	12.8	132.6	0.0	13.3	136.6	67.	14.1	140.4	195.	15.1	144.4	0.		
9 712	13.0	133.6	12.9	133.7	8.3	13.6	138.2	120.	14.8	142.3	0.	15.8	145.0	0.		
9 718	13.3	134.5	13.3	134.5	0.0	14.2	138.5	113.	15.7	141.9	0.	17.0	145.0	0.		
9 800	13.9	135.5	13.9	135.6	5.8	16.2	139.3	46.	18.3	142.9	0.	20.3	146.5	0.		
9 806	14.4	136.4	14.4	136.4	0.0	16.4	140.3	71.	17.5	144.1	0.	18.2	148.3	0.		
9 812	15.3	137.1	15.3	137.1	0.0	18.1	140.4	0.	20.7	143.3	0.	24.8	144.2	0.		
9 818	16.0	137.9	16.0	137.9	0.0	19.3	140.6	0.	22.4	142.5	0.	25.5	143.0	0.		
9 900	16.7	138.7	16.7	138.7	0.0	19.2	142.2	0.	20.7	145.6	0.	22.1	149.1	0.		
9 906	17.2	139.4	17.2	139.4	0.0	19.1	142.3	0.	20.0	145.5	0.	20.5	148.8	0.		
9 912	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.		
9 918	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.		
MEAN VECTOR ERRORS (N.MI)								78.					149.			
NUMBER OF CASES								30					26			

TABLE 19

TERRY.....

DATE/TIME (GMT)	BEST TRACK		OPERATIONAL POSITION		POSITION ERROR (N.MI.)	24 HOUR FORECAST			48 HOUR FORECAST			72 HOUR FORECAST				
	LAT.	LONG.	LAT.	LONG.		LAT.	LONG.	ERROR (N.MI)	LAT.	LONG.	ERROR (N.MI.)	LAT.	LONG.	ERROR (N.MI.)		
91500	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.		
91506	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.		
91512	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.		
91518	12.2	98.5	11.8	98.5	24.0	13.4	102.9	63.	15.0	107.4	99.	17.7	111.3	207.		
91600	12.3	99.4	11.8	99.4	30.0	12.4	104.1	69.	13.6	107.9	129.	15.3	111.6	190.		
91606	12.5	100.3	11.8	100.4	42.4	12.1	104.5	63.	13.1	108.6	176.	14.4	112.8	276.		
91612	12.6	101.2	11.5	101.1	66.3	11.4	104.0	116.	11.6	107.0	261.	12.2	110.4	322.		
91618	12.7	102.1	12.7	102.1	0.0	13.1	105.7	67.	13.6	109.0	159.	14.5	112.3	243.		
91700	13.0	103.0	13.0	103.1	5.7	13.6	107.0	99.	14.5	111.0	187.	16.5	114.3	230.		
91706	13.3	104.0	12.8	103.7	34.5	13.2	106.8	152.	14.6	110.3	173.	17.3	114.0	175.		
91712	13.8	104.9	13.2	104.7	37.8	14.1	108.2	112.	15.8	111.7	162.	18.0	115.3	214.		
91718	14.4	105.8	14.2	105.9	13.3	16.0	109.6	87.	17.6	112.8	161.	19.0	116.2	233.		
91800	14.9	106.5	15.1	106.3	16.4	17.3	108.7	42.	19.4	110.1	72.	21.7	111.3	175.		
91806	15.4	107.1	15.7	107.2	18.8	19.1	109.7	121.	22.8	112.2	251.	27.8	114.0	506.		
91812	15.8	107.6	15.9	107.7	8.2	17.9	110.4	57.	20.3	112.6	117.	22.8	114.5	190.		
91818	16.1	108.1	16.1	108.1	0.0	17.8	110.1	8.	19.8	112.1	54.	23.6	112.8	234.		
91900	16.6	108.6	16.6	108.6	0.0	18.7	109.3	87.	20.7	111.0	136.	23.2	112.2	234.		
91906	17.0	109.0	17.2	109.0	12.0	19.6	110.6	67.	22.2	111.9	181.	26.0	113.3	359.		
91912	17.4	109.5	17.5	109.5	6.0	19.7	110.8	80.	22.3	112.1	183.	25.9	113.3	338.		
91918	17.8	110.1	17.9	110.0	8.1	20.3	111.7	87.	22.8	113.0	185.	26.2	113.8	338.		
92000	18.2	110.7	18.4	110.8	13.2	20.7	113.3	102.	23.4	115.4	187.	27.0	114.2	368.		
92006	18.4	111.2	18.7	111.3	18.8	20.2	113.5	53.	21.6	115.4	73.	23.0	118.0	88.		
92012	18.6	111.6	18.6	111.6	0.0	19.2	113.6	32.	20.3	115.7	32.	21.9	117.7	70.		
92018	18.9	112.1	18.9	112.1	0.0	19.9	114.0	23.	20.8	116.1	25.	21.8	118.5	127.		
92100	19.1	112.6	19.1	112.7	5.5	19.9	115.0	24.	20.6	117.3	54.	21.1	119.7	0.		
92106	19.4	113.1	19.4	113.1	0.0	20.5	115.8	13.	21.6	118.4	73.	22.0	121.2	233.		
92112	19.7	113.8	19.7	113.8	0.0	20.8	116.2	17.	22.0	118.6	66.	23.3	121.3	235.		
92118	20.0	114.4	20.0	114.4	0.0	21.3	117.0	36.	23.0	119.3	61.	24.8	121.4	252.		
92200	20.3	114.9	20.3	115.0	5.4	21.6	117.3	38.	22.8	120.0	0.	24.2	122.6	0.		
92206	20.5	115.4	20.4	115.6	12.3	21.3	117.9	54.	22.3	120.1	210.	24.0	121.8	0.		
92212	20.8	115.9	20.8	115.9	0.0	21.9	117.9	67.	23.1	119.5	259.	24.4	121.4	0.		
92218	21.0	116.3	21.1	116.4	8.0	22.1	118.1	115.	23.3	119.8	355.	24.7	121.3	0.		
92300	21.4	116.7	21.3	116.7	6.0	22.2	118.2	0.	23.4	119.5	0.	24.6	120.8	0.		
92306	22.1	117.4	21.8	117.1	24.1	23.9	118.1	165.	26.2	118.3	0.	28.5	117.8	0.		
92312	23.0	118.1	23.0	118.1	0.0	26.3	119.8	84.	29.4	120.7	0.	32.1	121.1	0.		
92318	23.9	118.9	23.9	118.8	5.4	27.2	120.4	125.	30.0	121.3	0.	32.4	121.1	0.		
92400	24.8	119.7	0.0	0.0	0.0	28.9	122.9	0.	33.0	122.7	0.	0.0	0.0	0.		
92406	25.8	120.4	25.8	120.3	5.4	29.9	122.5	0.	31.2	122.5	0.	0.0	0.0	0.		
92412	27.4	120.9	27.2	121.0	13.1	31.0	122.0	0.	32.5	121.8	0.	0.0	0.0	0.		
92418	29.0	121.6	29.0	121.6	0.0	34.7	122.7	0.	0.0	0.0	0.	0.0	0.0	0.		
MEAN VECTOR ERRORS (N.MI)								73.				146.				243.
NUMBER OF CASES								32				28				24

TABLE 21

VIVIAN.....

DATE/TIME (GMT)	BEST TRACK		OPERATIONAL POSITION		POSITION ERROR (N.MI.)	24 HOUR FORECAST		ERROR	48 HOUR FORECAST		ERROR	72 HOUR FORECAST		ERROR
	LAT.	LONG.	LAT.	LONG.	(N.MI.)	LAT.	LONG.	(N.MI.)	LAT.	LONG.	(N.MI.)	LAT.	LONG.	(N.MI.)
91800	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
91806	13.3	116.7	13.8	117.6	60.0	14.3	120.0	127.	15.3	122.2	231.	17.1	124.1	330.
91812	13.8	117.1	14.0	117.7	36.7	14.9	116.3	105.	15.5	115.2	193.	16.1	113.5	334.
91818	14.3	117.5	14.3	117.5	0.0	15.1	116.0	116.	15.6	114.4	238.	16.1	112.3	393.
91900	14.6	117.7	15.0	117.9	26.6	17.3	118.3	126.	19.8	118.6	312.	22.3	118.0	0.
91906	14.8	117.8	14.9	117.9	8.3	16.0	118.8	54.	17.9	119.6	201.	20.8	120.1	0.
91912	14.9	117.9	15.1	118.1	16.7	16.3	118.6	78.	17.9	119.4	211.	20.0	120.1	0.
91918	15.0	118.0	15.0	118.0	0.0	15.9	119.2	58.	17.7	118.7	210.	19.6	118.9	0.
92000	15.2	118.2	15.2	118.2	0.0	16.2	118.7	97.	18.0	119.0	0.	20.9	119.0	0.
92006	15.2	118.4	15.3	118.2	13.0	16.0	120.0	102.	17.2	122.6	0.	18.0	125.2	0.
92012	15.1	118.6	15.0	118.5	8.3	15.3	118.7	57.	16.4	119.4	0.	18.2	121.3	0.
92018	15.0	118.8	15.2	118.5	21.1	15.6	119.0	85.	16.6	119.3	0.	18.1	119.4	0.
92100	14.8	118.9	14.6	118.5	26.1	15.1	117.9	0.	17.0	118.4	0.	19.0	119.0	0.
92106	14.6	119.0	14.6	119.0	0.0	14.7	119.6	0.	15.2	120.3	0.	15.2	121.3	0.
92112	14.4	119.0	14.4	119.0	0.0	14.4	118.5	0.	15.7	118.7	0.	17.7	119.8	0.
92118	14.2	118.9	14.2	118.8	5.8	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
MEAN VECTOR ERRORS (N.MI)								91.			228.			353.
NUMBER OF CASES								11			7			3

TABLE 22

WALDO.....

DATE/TIME (GMT)	BEST TRACK		OPERATIONAL POSITION		POSITION ERROR (N.MI.)	24 HOUR FORECAST			48 HOUR FORECAST			72 HOUR FORECAST				
	LAT.	LONG.	LAT.	LONG.		LAT.	LONG.	ERROR (N.MI)	LAT.	LONG.	ERROR (N.MI.)	LAT.	LONG.	ERROR (N.MI.)		
10 700	15.0	106.1	15.0	106.3	10.8	16.0	111.2	165.	17.8	114.7	399.	20.4	117.1	0.		
10 706	15.8	107.3	15.2	107.3	36.0	16.3	111.3	216.	17.4	115.1	514.	19.5	118.6	0.		
10 712	16.8	108.1	16.9	108.0	8.1	21.1	109.7	30.	25.8	109.9	130.	0.0	0.0	0.		
10 718	17.6	108.8	17.6	108.8	0.0	21.4	111.0	68.	26.0	112.3	0.	0.0	0.0	0.		
10 800	18.5	109.3	18.5	109.3	0.0	22.8	110.5	79.	0.0	0.0	0.	0.0	0.0	0.		
10 806	19.5	109.6	19.6	109.8	12.4	25.1	109.0	133.	0.0	0.0	0.	0.0	0.0	0.		
10 812	20.5	109.7	20.6	109.7	6.0	25.5	109.1	83.	0.0	0.0	0.	0.0	0.0	0.		
10 818	21.2	109.7	21.2	109.8	5.4	24.5	109.5	0.	0.0	0.0	0.	0.0	0.0	0.		
10 900	22.1	109.3	22.1	109.3	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.		
10 906	23.1	108.3	23.0	108.2	8.1	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.		
10 912	0.0	0.0	25.2	107.6	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.		
10 918	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.		
MEAN VECTOR ERRORS (N.MI)								114.					347.			
NUMBER OF CASES								7					3			

TABLE 23

DATE/TIME (GMT)	BEST TRACK		OPERATIONAL POSITION		POSITION ERROR	24 HOUR FORECAST			48 HOUR FORECAST			72 HOUR FORECAST		
	LAT.	LONG.	LAT.	LONG.	(N.MI.)	LAT.	LONG.	ERROR (N.MI)	LAT.	LONG.	ERROR (N.MI.)	LAT.	LONG.	ERROR (N.MI.)
102500	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
102506	12.0	111.5	12.0	112.0	29.5	12.1	112.5	82.	0.0	0.0	0.	0.0	0.0	0.
102512	11.8	111.9	12.0	111.5	26.2	12.1	111.8	238.	12.8	113.4	386.	13.8	116.0	248.
102518	11.6	112.4	11.7	111.5	52.8	12.5	111.6	326.	0.0	0.0	0.	0.0	0.0	0.
102600	11.5	113.6	11.5	113.0	34.6	11.4	114.1	224.	13.1	117.2	147.	15.1	118.4	212.
102606	11.5	114.7	11.4	113.7	58.4	11.3	114.5	259.	12.0	117.3	160.	13.8	117.8	205.
102612	11.4	115.8	11.5	115.8	6.0	11.6	117.5	136.	13.8	122.0	111.	16.0	125.0	220.
102618	11.4	116.9	11.7	117.1	21.3	12.2	119.5	40.	15.3	125.8	326.	18.4	128.0	404.
102700	11.3	117.7	11.3	117.9	11.5	11.3	120.0	70.	13.0	125.8	346.	16.1	128.3	395.
102706	11.3	118.5	11.3	118.9	23.0	11.3	120.9	107.	12.9	126.7	350.	15.2	129.2	493.
102712	11.6	119.0	11.3	119.8	49.4	11.4	121.6	136.	12.8	127.0	382.	15.2	129.7	546.
102718	11.9	119.4	11.6	119.2	21.4	11.7	119.3	129.	13.4	120.2	201.	15.4	120.3	176.
102800	12.3	119.7	12.4	119.6	8.2	13.3	119.8	243.	17.5	119.5	118.	20.6	117.0	185.
102806	12.8	119.9	12.8	119.9	0.0	13.8	120.1	93.	16.8	120.5	56.	18.8	120.0	59.
102812	13.2	120.2	13.2	120.2	0.0	14.3	120.6	96.	18.3	120.2	31.	20.6	119.2	156.
102818	13.7	120.5	13.5	120.5	12.0	14.4	120.5	138.	17.7	119.9	36.	20.6	119.2	167.
102900	14.3	120.8	17.0	121.5	166.8	14.7	120.9	142.	18.8	121.6	133.	20.7	120.3	280.
102906	15.0	121.1	15.0	121.1	0.0	16.5	121.5	72.	20.9	121.1	199.	23.9	119.1	535.
102912	15.7	121.2	15.8	121.2	6.0	17.6	121.3	46.	22.6	119.7	278.	24.8	117.2	0.
102918	16.5	121.3	16.6	121.2	8.2	18.2	121.0	63.	22.6	119.0	274.	25.0	116.8	0.
103000	17.0	121.4	17.0	121.5	5.7	20.8	121.0	173.	23.4	120.1	436.	25.8	116.9	786.
103006	17.6	121.0	17.6	121.0	0.0	20.1	120.3	136.	23.1	119.1	487.	26.4	117.5	850.
103012	17.7	120.6	18.1	120.7	24.7	20.0	119.3	121.	21.8	117.5	0.	23.2	115.4	684.
103018	17.7	120.0	18.3	119.9	36.5	19.2	117.5	61.	20.4	115.4	0.	21.5	113.0	611.
103100	17.7	119.6	18.4	119.3	45.4	20.1	116.0	290.	21.9	114.0	606.	22.5	113.3	658.
103106	17.4	119.4	18.0	119.4	36.0	18.1	118.8	186.	18.2	118.0	358.	18.5	117.1	370.
103112	17.0	119.2	18.0	119.1	60.3	18.3	117.4	0.	18.8	115.4	439.	19.4	113.0	544.
103118	16.4	119.0	18.2	117.7	131.8	18.1	114.8	0.	17.8	112.0	471.	17.4	109.0	570.
11 100	15.8	118.8	16.2	119.0	26.7	15.6	117.2	187.	16.3	115.7	244.	16.6	113.5	336.
11 106	15.0	118.6	15.0	118.6	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
11 112	14.5	118.6	0.0	0.0	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
11 118	14.0	118.6	0.0	0.0	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
11 200	13.5	118.5	12.8	118.6	42.4	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
11 206	13.2	118.4	12.3	118.9	61.6	11.0	118.7	94.	10.2	119.6	248.	9.7	120.7	35.
11 212	12.9	118.3	12.3	118.9	50.5	11.4	121.2	200.	11.4	123.5	412.	0.0	0.0	0.
11 218	12.6	118.1	12.5	118.0	8.4	11.0	117.6	65.	0.0	0.0	0.	0.0	0.0	0.
11 300	12.3	118.0	12.5	118.0	12.0	12.1	118.2	196.	11.8	119.2	18.	11.9	120.3	0.
11 306	12.1	117.9	12.4	118.0	18.9	11.9	118.1	149.	11.4	118.6	126.	11.3	119.5	0.
11 312	11.7	117.8	11.6	117.8	6.0	11.2	117.9	84.	11.0	118.3	0.	0.0	0.0	0.
11 318	11.3	117.8	11.9	117.0	59.4	11.6	116.5	12.	11.5	116.5	0.	0.0	0.0	0.
11 400	10.9	117.9	11.2	115.0	172.4	11.2	115.2	236.	11.0	115.8	0.	11.0	116.2	0.
11 406	10.5	118.2	11.5	115.6	165.0	11.4	115.8	273.	11.1	116.5	0.	11.2	117.6	0.
11 412	10.2	118.6	11.5	116.5	146.6	11.2	117.0	0.	0.0	0.0	0.	0.0	0.0	0.
11 418	10.1	119.1	11.8	116.5	184.5	11.8	115.8	0.	0.0	0.0	0.	0.0	0.0	0.
11 500	10.0	119.6	11.5	119.2	93.1	11.6	121.0	0.	12.0	123.0	0.	12.2	125.0	0.
11 506	10.0	120.2	10.0	120.2	0.0	10.1	122.5	0.	11.4	124.6	0.	13.5	125.7	0.
11 512	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
11 518	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
MEAN VECTOR ERRORS (N.MI)								146.			244.			389.
NUMBER OF CASES								35			28			25

TABLE 24

- 121 Climatological Prediction of Cumulonimbus Clouds in the Vicinity of the Yucca Flat Weather Station. R. F. Quiring, June 1977. (PB-271-704/AS)
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- 125 Statistical Guidance on the Prediction of Eastern North Pacific Tropical Cyclone Motion - Part II. Preston W. Leftwich and Charles J. Neumann, August 1977. (PB-273-155/AS)
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- 130 Flash-Flood Procedure. Ralph C. Hatch and Gerald Williams, May 1978. (PB-286-014/AS)
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