NOAA Technical Memorandum NWS WR-186

ANNUAL DATA AND VERIFICATION TABULATION EASTERN NORTH PACIFIC TROPICAL STORMS AND HURRICANES 1983

Salt Lake City, Utah
March 1984

U.S. DEPARTMENT OF COMMERCE / National Oceanic and Atmospheric Administration / National Weather Service

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E. B. Gunther and R. L. Cross

Eastern Pacific Hurricane Center
San Francisco, California
March 1984

UNITED STATES
DEPARTMENT OF COMMERCE
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National Oceanic and
Atmospheric Administration
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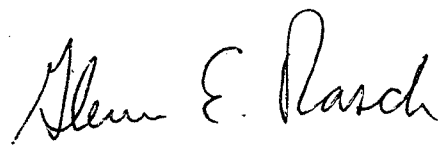
This publication has been reviewed and is approved for publication by Scientific Services Division, Western Region.



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I. INTRODUCTION

This is the fifth 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, 1972). 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 1983 season are shown in Table 1. The forecast displacement error is the vector difference between the forecast displacement and the actual displacement computed from best-track positions. The initial position error is not subtracted from the forecast error, and depressions are not verified.

IV. DATA SUMMARIES

A summary of the 1983 eastern north Pacific tropical cyclone statistics is given in Table 2. Best track, operational positions, and position errors are given in Tables 3-26.

U.S. Air Force reconnaissance aircraft made three penetrations into Hurricane Ismael in mid August and two penetrations into Hurricane Manuel in September. NOAA research aircraft also analyzed two storms. One penetration was made into Hurricane Raymond while two penetrations were made into Hurricane Tico, both in October.

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.

V. REFERENCES

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TABLE 1

Verification of 1983 Tropical Storm and Hurricane Forecasts

Forecast Method	Forecasts Displacement Errors in Nautical Miles (Errors/Cases)		
	24HR	48HR	72HR
OFFICIAL	86/362	172/288	237/219
EPANALOG	88/346	170/282	235/211
EPHC77	89/340	174/277	251/213
CLIPER	87/349	175/285	242/219
EPHC81	90/142	175/121	252/93

TABLE 2

Summary of Eastern North Pacific Tropical Cyclones 1983
(Includes only those Storms that Reached Hurricane HU or Tropical Storm TS)

NO.	NAME	CLASS	DATES	MAX(KTS)	DAMAGE ($million)	DEATHS
1	ADOLPH	HU	21-28 MAY	95		
2	BARBARA	HU	9-18 JUN	115		
3	COSME	TS	2-5 JUL	35		
4	DALILIA	TS	5-12 JUL	60		
5	ERICK	TS	12-16 JUL	55		
6	FLOSSIE	TS	17-21 JUL	50		
7	GIL	HU	23 JUL-1 AUG	80		
8	HENRIETTE	HU	27 JUL-6 AUG	115		
10	ISMAEL	HU	8-14 AUG	85		
12	JULIETTE	TS	24 AUG-1 SEP	50		
13	KIKO	HU	31 AUG-9 SEP	125		
14	LORENA	HU	6-14 SEP	100		
15	MANUEL	HU	12-20 SEP	100		
16	NARDA	TS	21-27 SEP	50		
17	OCTAVE	TS	27 SEP-2 OCT	45		
18	PRISCILLA	HU	30 SEP-7 OCT	100		
19	RAYMOND	HU	8-14 OCT	125		
20	SONIA	TS	9-12 OCT	35		
21	TICO	HU	11-19 OCT	115	66*	9*
23	VELMA	TS	1-3 NOV	35		
24	WINNIE	HU	4-7 DEC	80		

*MEXICO

ADOLPH

DATE/TIME (GMT)	BEST TRACK LAT.	BEST TRACK LONG.	OPERATIONAL POSITION LAT.	OPERATIONAL POSITION LONG.	POSITION ERROR (N.MI.)	24 HOUR FORECAST LAT.	24 HOUR FORECAST LONG.	24 HOUR FORECAST ERROR (N.MI)	48 HOUR FORECAST LAT.	48 HOUR FORECAST LONG.	48 HOUR FORECAST ERROR (N.MI.)	72 HOUR FORECAST LAT.	72 HOUR FORECAST LONG.	72 HOUR FORECAST ERROR (N.MI.)
52100	5.7	92.0	5.7	92.0	0.0	6.1	96.0	156.	0.0	0.0	0.	0.0	0.0	0.
52106	7.0	93.0	7.0	93.0	0.0	8.4	95.5	113.	0.0	0.0	0.	0.0	0.0	0.
52112	8.0	94.3	8.0	94.3	0.0	9.2	98.9	12.	10.0	104.0	179.	10.0	109.0	323.
52118	7.9	94.9	7.9	94.9	0.0	8.6	99.0	25.	9.3	103.5	121.	9.6	108.9	312.
52200	8.7	96.0	8.7	96.0	0.0	10.3	100.0	54.	11.1	104.2	108.	12.0	107.9	182.
52206	9.0	97.3	9.0	97.3	0.0	10.3	101.5	69.	10.9	105.8	159.	11.2	110.0	298.
52212	9.2	99.1	9.2	99.1	0.0	10.0	104.5	208.	10.1	109.4	343.	9.8	114.0	543.
52218	9.0	98.9	9.0	98.9	0.0	9.4	103.2	102.	9.9	107.5	236.	9.8	111.5	395.
52300	9.4	99.9	9.4	99.9	0.0	10.3	103.9	93.	10.8	108.0	224.	10.9	112.2	407.
52306	9.7	100.5	9.7	100.5	0.0	10.7	104.0	72.	11.2	107.7	189.	11.5	111.5	394.
52312	9.6	101.0	9.6	101.0	0.0	10.2	104.1	109.	10.9	107.2	195.	11.4	110.9	415.
52318	9.7	101.5	9.7	101.5	0.0	10.4	104.3	127.	10.9	107.3	199.	11.5	111.1	452.
52400	10.8	102.4	10.8	102.4	0.0	12.0	105.0	66.	12.9	107.8	130.	13.5	110.4	386.
52406	11.6	103.2	11.6	103.2	0.0	13.4	106.0	30.	14.0	108.7	175.	14.4	112.3	473.
52412	12.0	103.9	12.0	103.9	0.0	13.7	106.1	24.	14.4	108.6	201.	14.4	110.8	433.
52418	12.5	104.5	12.5	104.5	0.0	14.2	106.4	6.	14.7	108.7	224.	14.8	110.8	457.
52500	13.1	105.0	13.1	105.0	0.0	14.6	107.0	41.	15.7	109.2	257.	16.7	111.3	424.
52506	13.5	105.5	13.5	105.5	0.0	14.9	107.3	79.	15.6	109.3	287.	15.7	112.2	518.
52512	13.8	105.7	13.8	105.7	0.0	15.4	107.0	92.	16.1	108.7	274.	16.2	110.6	0.
52518	14.1	106.4	14.1	106.4	0.0	15.5	108.2	178.	16.2	109.9	360.	16.8	111.9	0.
52600	14.5	106.3	14.5	106.3	0.0	16.0	107.4	157.	17.8	108.3	268.	0.0	0.0	0.
52606	15.3	106.0	15.3	106.0	0.0	17.9	105.7	39.	0.0	0.0	0.	0.0	0.0	0.
52612	15.9	105.5	15.9	105.5	0.0	18.3	104.2	62.	0.0	0.0	0.	0.0	0.0	0.
52618	16.5	105.3	16.5	105.3	0.0	18.7	104.0	137.	0.0	0.0	0.	0.0	0.0	0.
52700	17.4	105.1	17.4	105.1	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
52706	18.2	105.1	18.2	105.1	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
52712	19.0	105.0	19.0	105.0	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
52718	20.5	105.5	20.5	105.5	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
52800	21.7	106.0	21.7	106.0	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
52806	22.2	106.2	22.2	106.2	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
52812	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.
52818	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)								85.			217.			401.
NUMBER OF CASES								24			19			16

TABLE 3.

BARBARA

DATE/TIME (GMT)	BEST TRACK LAT.	BEST TRACK LONG.	OPERATIONAL POSITION LAT.	OPERATIONAL POSITION LONG.	POSITION ERROR (N.MI.)	24 HOUR FORECAST LAT.	24 HOUR FORECAST LONG.	24 HOUR FORECAST ERROR (N.MI)	48 HOUR FORECAST LAT.	48 HOUR FORECAST LONG.	48 HOUR FORECAST ERROR (N.MI.)	72 HOUR FORECAST LAT.	72 HOUR FORECAST LONG.	72 HOUR FORECAST ERROR (N.MI.)
6 900	11.2	93.9	11.2	93.6	17.6	11.6	96.5	84.	12.4	99.5	143.	13.8	104.3	134.
6 906	11.2	95.1	11.1	94.5	35.6	11.4	97.7	103.	12.3	101.1	140.	13.8	105.8	109.
6 912	11.2	96.2	11.1	96.7	29.9	11.5	102.2	93.	12.0	107.0	193.	12.6	111.6	211.
6 918	11.2	97.2	11.1	97.9	41.4	11.5	102.7	121.	12.5	107.0	180.	13.2	111.8	170.
61000	11.1	98.1	11.3	97.9	16.7	12.3	101.8	67.	13.8	105.8	124.	14.8	108.8	122.
61006	11.0	99.3	11.0	99.4	5.8	11.2	103.3	6.	12.4	107.1	6.	14.8	111.1	97.
61012	11.0	100.5	11.0	100.7	11.7	11.6	105.4	96.	12.8	109.7	102.	13.8	113.2	131.
61018	11.0	101.6	11.0	100.7	52.6	11.4	104.0	8.	12.0	107.8	84.	12.8	111.9	48.
61100	11.0	102.5	11.2	101.6	53.8	12.0	105.3	12.	13.2	108.8	76.	13.8	113.0	47.
61106	11.1	103.1	11.2	103.2	8.3	12.0	106.8	35.	13.3	110.6	6.	15.4	114.2	130.
61112	11.3	103.7	11.3	103.8	5.8	12.3	107.2	47.	13.8	110.8	27.	15.5	114.5	122.
61118	11.5	104.5	11.5	104.1	23.2	12.6	107.3	95.	14.0	110.8	51.	15.4	114.1	81.
61200	11.9	105.5	11.8	105.3	13.0	13.2	108.0	123.	14.4	110.7	97.	16.0	114.2	72.
61206	12.2	106.7	12.5	107.1	29.2	14.6	110.7	79.	16.4	114.0	173.	17.4	117.3	231.
61212	12.5	107.8	12.4	108.0	13.0	13.6	112.8	106.	15.0	117.2	242.	16.4	121.0	405.
61218	12.9	109.0	12.9	108.9	5.7	14.6	113.1	114.	15.2	116.9	216.	16.8	120.7	380.
61300	13.1	109.9	13.2	110.1	13.0	14.4	114.1	118.	15.3	118.0	250.	16.0	121.5	431.
61306	13.3	110.4	13.3	110.5	5.7	14.2	113.3	42.	15.0	116.2	128.	15.7	119.4	331.
61312	13.4	111.0	13.4	111.0	0.0	14.2	113.6	29.	15.1	116.3	139.	16.1	119.6	356.
61318	13.5	111.5	13.5	111.5	0.0	14.1	113.8	31.	14.8	116.3	163.	15.3	119.2	292.
61400	13.6	112.2	13.7	112.2	6.0	14.3	114.9	78.	15.0	118.2	268.	15.5	121.5	392.
61406	13.7	112.6	13.8	112.7	8.3	14.7	115.2	76.	15.7	118.0	257.	16.5	120.8	341.
61412	13.9	113.1	13.9	113.2	5.7	14.5	115.3	108.	15.1	117.5	283.	15.6	120.4	319.
61418	14.3	113.6	14.3	113.3	17.0	15.6	114.6	61.	16.7	116.3	115.	18.2	117.9	81.
61500	14.7	113.8	14.9	113.7	13.2	17.2	114.9	46.	20.2	115.4	85.	24.1	114.3	320.
61506	15.1	114.0	15.2	114.0	6.0	17.2	114.0	24.	18.6	113.0	153.	19.7	110.0	469.
61512	15.7	114.1	15.8	114.0	8.2	17.7	113.9	31.	18.8	113.4	179.	20.1	111.0	0.
61518	16.4	114.1	16.5	114.1	6.0	19.3	113.8	100.	22.1	115.0	210.	0.0	0.0	0.
61600	17.0	114.2	17.1	114.1	8.2	19.8	113.8	118.	22.9	111.5	393.	0.0	0.0	0.
61606	17.5	114.3	17.6	114.0	18.0	20.0	112.8	164.	22.7	109.3	528.	0.0	0.0	0.
61612	18.0	114.5	18.2	113.8	41.3	20.2	113.0	203.	22.5	109.1	0.	0.0	0.0	0.
61618	18.5	115.0	18.3	115.2	16.5	18.9	117.9	43.	19.8	120.8	0.	18.5	123.5	0.
61700	18.8	115.5	18.8	115.6	5.6	18.8	115.6	133.	20.3	121.1	0.	0.0	0.0	0.
61706	19.0	116.0	19.3	115.6	28.9	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
61712	19.3	116.6	19.4	116.5	8.2	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
61718	19.5	117.1	19.5	117.5	22.6	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
61800	19.8	117.7	19.8	117.7	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
61806	20.0	118.4	20.0	118.3	5.6	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
61812	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.
61818	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)								79.			167.			224.
NUMBER OF CASES								33			30			26

TABLE 4.

COSME

DATE/TIME (GMT)	BEST TRACK LAT.	BEST TRACK LONG.	OPERATIONAL POSITION LAT.	OPERATIONAL POSITION LONG.	POSITION ERROR (N.MI.)	24 HOUR FORECAST LAT.	24 HOUR FORECAST LONG.	24 HOUR FORECAST ERROR (N.MI)	48 HOUR FORECAST LAT.	48 HOUR FORECAST LONG.	48 HOUR FORECAST ERROR (N.MI.)	72 HOUR FORECAST LAT.	72 HOUR FORECAST LONG.	72 HOUR FORECAST ERROR (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	10.5	109.5	10.5	109.5	0.0	11.3	113.3	84.	12.1	117.1	340.	12.5	120.2	313.
7 212	10.8	109.8	10.8	110.6	46.4	11.4	115.1	58.	12.1	119.5	399.	12.7	123.2	388.
7 218	11.3	109.9	12.0	111.8	117.3	13.0	116.9	164.	13.8	121.5	422.	14.5	125.8	411.
7 300	11.7	110.0	12.5	112.4	146.4	13.6	115.7	296.	0.0	0.0	0.	0.0	0.0	0.
7 306	12.0	110.0	12.7	113.3	194.8	13.2	115.1	216.	0.0	0.0	0.	0.0	0.0	0.
7 312	12.3	110.3	11.0	114.2	238.0	11.5	118.0	323.	0.0	0.0	0.	0.0	0.0	0.
7 318	12.7	110.4	11.0	115.0	284.1	11.4	118.7	356.	0.0	0.0	0.	0.0	0.0	0.
7 400	13.0	110.7	12.8	110.7	12.0	13.9	113.0	242.	15.0	116.0	0.	16.5	119.0	0.
7 406	14.0	111.4	13.2	111.4	48.0	14.9	114.3	190.	16.3	118.0	0.	0.0	0.0	0.
7 412	14.8	112.8	13.3	112.8	90.0	14.7	116.3	176.	16.3	119.5	0.	0.0	0.0	0.
7 418	15.5	114.3	15.7	114.5	16.6	18.0	118.5	60.	0.0	0.0	0.	0.0	0.0	0.
7 500	16.4	115.7	16.7	116.0	25.0	18.3	120.8	0.	0.0	0.0	0.	0.0	0.0	0.
7 506	16.7	117.0	16.7	117.0	0.0	18.0	120.9	0.	0.0	0.0	0.	0.0	0.0	0.
7 512	17.0	118.2	17.0	118.2	0.0	18.0	122.6	0.	0.0	0.0	0.	0.0	0.0	0.
7 518	17.6	119.4	17.7	119.5	8.3	20.0	123.5	0.	0.0	0.0	0.	0.0	0.0	0.
MEAN VECTOR ERRORS (N.MI)								197.			387.			371.
NUMBER OF CASES								11			3			3

TABLE 5.

DALILIA

DATE/TIME (GMT)	BEST TRACK LAT.	BEST TRACK LONG.	OPERATIONAL POSITION LAT.	OPERATIONAL POSITION LONG.	POSITION ERROR (N.MI.)	24 HOUR FORECAST LAT.	24 HOUR FORECAST LONG.	24 HOUR FORECAST ERROR (N.MI)	48 HOUR FORECAST LAT.	48 HOUR FORECAST LONG.	48 HOUR FORECAST ERROR (N.MI.)	72 HOUR FORECAST LAT.	72 HOUR FORECAST LONG.	72 HOUR FORECAST ERROR (N.MI.)
7 500	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.
7 506	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.
7 512	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.
7 518	12.2	101.4	12.1	101.4	6.0	12.8	104.8	17.	14.3	108.3	108.	15.7	112.5	236.
7 600	12.4	102.3	12.8	102.4	24.7	14.1	106.6	98.	15.7	110.4	112.	17.4	114.2	162.
7 606	12.7	103.1	12.6	104.0	51.6	13.7	108.5	146.	14.9	112.5	235.	16.2	116.8	247.
7 612	13.1	104.0	12.7	105.0	61.8	13.5	109.4	153.	14.9	113.8	277.	16.0	118.1	273.
7 618	13.5	104.7	13.0	104.6	30.5	13.9	108.0	133.	15.3	111.5	272.	16.5	115.5	285.
7 700	13.9	105.6	13.2	105.2	47.8	14.1	108.3	186.	16.3	115.2	233.	16.3	115.2	359.
7 706	14.5	106.5	13.8	106.0	50.7	15.3	109.4	166.	16.6	113.5	253.	17.7	117.7	231.
7 712	15.3	107.4	14.3	106.9	66.3	16.0	110.4	193.	17.6	113.8	268.	18.5	117.3	280.
7 718	16.1	108.2	16.1	108.2	0.0	18.9	111.8	80.	21.0	115.0	182.	22.6	117.0	365.
7 800	16.9	109.2	17.1	109.1	13.2	20.3	112.1	130.	22.7	113.6	373.	25.0	113.8	625.
7 806	18.0	110.3	18.0	110.0	16.7	21.0	113.4	143.	22.5	115.5	319.	24.0	117.3	478.
7 812	18.9	111.5	19.0	111.6	8.2	22.1	115.0	165.	24.4	117.3	359.	25.9	119.1	583.
7 818	19.6	113.0	19.6	113.0	0.0	22.4	117.0	132.	24.8	119.1	357.	25.6	121.5	445.
7 900	20.0	114.4	20.1	114.4	6.0	21.9	119.0	101.	24.0	121.0	283.	0.0	0.0	0.
7 906	20.3	115.8	20.2	115.8	6.0	21.8	120.8	90.	23.3	125.0	211.	0.0	0.0	0.
7 912	20.5	117.0	20.5	117.4	22.1	21.3	122.8	83.	21.9	127.0	169.	0.0	0.0	0.
7 918	20.6	118.2	20.5	118.2	6.0	20.9	122.1	70.	0.0	0.0	0.	0.0	0.0	0.
71000	20.5	119.4	20.4	119.8	22.9	20.1	124.8	62.	0.0	0.0	0.	0.0	0.0	0.
71006	20.3	120.6	20.3	120.7	5.5	20.3	125.0	38.	0.0	0.0	0.	0.0	0.0	0.
71012	20.2	121.8	20.2	121.9	5.5	20.3	126.3	74.	0.0	0.0	0.	0.0	0.0	0.
71018	20.0	122.9	20.0	122.9	0.0	20.0	126.9	26.	0.0	0.0	0.	0.0	0.0	0.
71100	19.9	123.8	20.0	123.7	8.2	19.8	127.4	0.	0.0	0.0	0.	0.0	0.0	0.
71106	19.8	124.7	19.8	124.6	5.5	19.8	126.3	0.	0.0	0.0	0.	0.0	0.0	0.
71112	19.7	125.5	19.1	126.6	70.7	18.8	131.5	0.	0.0	0.0	0.	0.0	0.0	0.
71118	19.6	126.5	19.8	126.5	12.0	20.1	130.3	0.	0.0	0.0	0.	0.0	0.0	0.
MEAN VECTOR ERRORS (N.MI)								109.			251.			351.
NUMBER OF CASES								21			16			13

TABLE 6.

ERICK

DATE/TIME (GMT)	BEST TRACK LAT.	BEST TRACK LONG.	OPERATIONAL POSITION LAT.	OPERATIONAL POSITION LONG.	POSITION ERROR (N.MI.)	24 HOUR FORECAST LAT.	24 HOUR FORECAST LONG.	24 HOUR FORECAST ERROR (N.MI)	48 HOUR FORECAST LAT.	48 HOUR FORECAST LONG.	48 HOUR FORECAST ERROR (N.MI.)	72 HOUR FORECAST LAT.	72 HOUR FORECAST LONG.	72 HOUR FORECAST ERROR (N.MI.)
71200	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.
71206	10.6	103.7	10.5	104.0	18.3	11.5	107.9	32.	12.7	111.9	163.	14.3	117.0	255.
71212	10.7	104.5	11.2	103.5	64.8	12.3	107.4	71.	13.4	111.2	255.	14.1	115.2	383.
71218	10.8	105.5	11.1	105.0	34.0	11.8	108.9	73.	12.4	112.8	293.	13.1	116.9	385.
71300	11.2	106.5	10.7	106.7	32.2	11.0	110.7	188.	11.3	114.1	393.	11.7	117.7	472.
71306	11.8	107.5	11.0	107.7	49.4	11.5	111.8	233.	12.1	116.1	395.	12.6	120.0	411.
71312	12.4	108.6	12.4	108.6	0.0	14.8	112.7	134.	16.2	116.6	233.	17.0	120.6	154.
71318	13.2	110.0	12.8	109.6	33.1	14.5	113.7	157.	15.8	117.9	214.	16.3	122.5	201.
71400	14.2	111.4	14.0	111.6	16.6	15.9	116.0	98.	18.1	119.6	73.	18.5	122.6	0.
71406	15.2	112.8	15.2	113.0	11.4	17.6	118.2	61.	18.6	122.2	93.	0.0	0.0	0.
71412	16.1	114.0	16.2	114.5	29.2	18.9	118.8	31.	19.9	123.2	87.	21.0	127.1	0.
71418	16.9	115.0	16.8	115.0	6.0	19.5	120.4	103.	20.2	122.2	40.	21.0	126.0	0.
71500	17.6	116.1	17.5	116.3	12.9	21.2	122.2	177.	20.7	123.7	0.	21.3	126.7	0.
71506	18.3	117.0	18.5	117.7	41.7	22.0	124.1	242.	0.0	0.0	0.	0.0	0.0	0.
71512	18.7	117.8	19.4	118.9	75.5	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
71518	19.2	118.7	19.3	118.6	8.3	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
71600	19.4	119.6	19.3	119.8	12.9	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
71606	19.5	120.4	19.4	120.8	23.6	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
71612	19.6	121.1	19.3	121.8	43.8	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
71618	19.7	121.9	19.6	121.9	6.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
MEAN VECTOR ERRORS (N.MI)								123.			203.			323.
NUMBER OF CASES								13			11			7

TABLE 7.

FLOSSIE

DATE/TIME (GMT)	BEST TRACK LAT.	BEST TRACK LONG.	OPERATIONAL POSITION LAT.	OPERATIONAL POSITION LONG.	POSITION ERROR (N.MI.)	24 HOUR FORECAST LAT.	24 HOUR FORECAST LONG.	24 HOUR FORECAST ERROR (N.MI)	48 HOUR FORECAST LAT.	48 HOUR FORECAST LONG.	48 HOUR FORECAST ERROR (N.MI.)	72 HOUR FORECAST LAT.	72 HOUR FORECAST LONG.	72 HOUR FORECAST ERROR (N.MI.)
71700	18.3	104.9	16.4	105.0	114.1	15.7	108.7	204.	16.8	110.2	171.	18.6	111.6	160.
71706	18.0	104.9	15.8	105.7	139.6	15.1	109.2	217.	15.9	111.0	225.	17.6	113.3	185.
71712	17.7	105.0	15.4	106.5	162.2	14.9	110.1	241.	15.7	112.9	242.	17.3	115.9	193.
71718	17.5	105.1	17.2	105.3	21.3	16.7	106.7	187.	17.1	108.0	306.	18.5	110.0	392.
71800	17.6	106.1	17.5	105.7	23.3	18.1	107.4	154.	18.7	109.0	269.	19.3	110.8	392.
71806	18.0	107.1	17.4	106.3	57.6	17.6	107.9	186.	18.5	109.7	292.	19.8	111.6	398.
71812	18.5	108.0	17.6	107.0	78.0	18.1	109.8	128.	0.0	0.0	0.	0.0	0.0	0.
71818	18.9	108.8	19.1	108.8	12.0	21.3	112.1	60.	23.0	114.6	187.	25.0	116.8	0.
71900	19.3	109.5	19.6	109.6	18.9	21.6	112.9	51.	23.0	115.2	192.	24.0	117.5	0.
71906	19.7	110.5	19.6	110.4	8.2	20.7	113.8	36.	22.0	116.7	128.	23.4	119.4	0.
71912	20.0	111.3	19.5	111.5	32.0	20.2	115.5	18.	21.4	118.6	71.	0.0	0.0	0.
71918	20.3	112.2	20.3	112.2	0.0	22.8	115.7	147.	23.5	118.3	0.	25.5	119.0	0.
72000	20.5	113.2	20.8	113.2	18.0	22.0	116.7	93.	22.7	119.5	0.	23.2	122.3	0.
72006	20.5	114.4	20.5	114.4	0.0	20.9	118.2	23.	21.6	121.0	0.	22.5	123.8	0.
72012	20.5	115.5	20.5	115.5	0.0	20.6	119.5	16.	20.8	123.0	0.	21.0	126.5	0.
72018	20.5	116.6	20.5	116.6	0.0	20.9	120.7	0.	21.1	124.1	0.	21.4	127.6	0.
72100	20.6	117.6	20.7	117.6	6.0	21.2	121.4	0.	22.1	125.2	0.	0.0	0.0	0.
72106	20.8	118.6	20.8	118.6	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
72112	20.8	119.7	20.8	119.7	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
72118	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)								117.			208.			287.
NUMBER OF CASES								15			10			6

TABLE 8.

DATE/TIME (GMT)	BEST TRACK LAT.	BEST TRACK LONG.	OPERATIONAL POSITION LAT.	OPERATIONAL POSITION LONG.	POSITION ERROR (N.MI.)	24 HOUR FORECAST LAT.	24 HOUR FORECAST LONG.	24 HOUR FORECAST ERROR (N.MI)	48 HOUR FORECAST LAT.	48 HOUR FORECAST LONG.	48 HOUR FORECAST ERROR (N.MI.)	72 HOUR FORECAST LAT.	72 HOUR FORECAST LONG.	72 HOUR FORECAST ERROR (N.MI.)
72300	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.
72306	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.
72312	11.0	95.3	11.0	95.0	17.5	12.1	99.3	89.	13.4	103.6	235.	14.7	108.4	183.
72318	11.3	96.6	11.3	96.6	0.0	12.3	100.9	113.	13.7	105.4	105.	14.9	109.8	216.
72400	11.5	98.2	11.5	97.7	29.1	12.8	102.2	165.	14.5	106.7	147.	16.0	110.8	285.
72406	11.7	99.7	11.6	99.7	6.0	12.2	105.9	35.	13.6	111.0	122.	14.9	115.5	228.
72412	11.9	101.2	11.9	100.8	23.3	12.9	106.0	106.	14.1	111.3	131.	15.2	116.5	186.
72418	12.0	102.8	12.0	102.8	0.0	13.0	108.8	134.	14.5	113.5	174.	16.0	118.0	219.
72500	12.2	104.2	12.5	105.0	49.6	13.9	111.2	207.	15.4	116.0	274.	17.3	119.6	255.
72506	12.3	105.2	11.7	105.6	42.9	12.3	111.7	135.	13.6	116.5	197.	14.2	121.6	192.
72512	12.3	106.3	11.5	107.1	66.8	11.8	113.0	166.	12.3	117.7	117.	12.8	121.8	219.
72518	12.3	107.3	12.4	106.6	40.9	13.0	110.5	106.	13.8	114.5	103.	14.5	118.5	185.
72600	12.3	108.2	12.4	108.0	13.0	12.8	112.5	70.	13.8	116.9	12.	15.0	121.0	133.
72606	12.2	109.4	12.3	109.4	6.0	12.7	114.0	78.	13.7	118.0	35.	15.0	121.7	195.
72612	12.0	110.4	12.2	110.2	16.7	12.4	114.7	60.	12.8	119.0	192.	13.1	123.4	288.
72618	11.8	111.5	12.0	112.0	31.3	11.8	117.1	92.	12.2	122.0	252.	12.5	127.0	368.
72700	11.7	112.8	11.8	113.1	18.3	11.6	118.0	142.	12.7	122.7	254.	14.0	127.2	314.
72706	11.8	113.8	11.4	114.0	26.6	11.3	118.3	174.	12.2	122.5	316.	13.6	126.6	403.
72712	12.3	114.9	12.2	115.7	46.2	12.6	120.7	205.	13.3	125.3	247.	14.5	129.7	347.
72718	13.0	116.0	12.9	116.0	6.0	14.1	120.0	147.	15.3	123.8	245.	16.3	127.3	393.
72800	13.7	117.2	13.8	117.1	8.2	15.9	121.0	91.	17.2	124.7	214.	18.5	128.0	336.
72806	14.5	118.4	14.2	118.3	18.9	16.3	122.3	122.	17.9	126.2	210.	19.2	129.7	294.
72812	15.4	119.8	15.9	119.8	30.0	18.7	123.9	124.	20.1	127.3	192.	22.0	131.2	274.
72818	16.2	121.1	16.3	121.1	6.0	18.4	125.4	53.	19.5	129.5	182.	20.3	133.6	245.
72900	16.9	122.3	16.9	122.2	5.6	18.8	126.8	42.	20.3	130.6	164.	21.0	134.2	303.
72906	17.5	123.5	17.2	124.2	43.2	18.8	129.1	61.	20.1	132.7	116.	20.9	135.8	0.
72912	18.0	125.0	17.4	125.6	49.3	18.0	131.3	136.	19.0	135.8	102.	19.7	140.0	0.
72918	18.6	126.3	18.6	126.3	0.0	20.2	131.6	56.	21.3	136.0	108.	22.0	139.4	0.
73000	19.3	127.6	19.2	127.8	12.7	21.2	132.8	53.	22.8	137.3	176.	0.0	0.0	0.
73006	19.8	129.3	19.8	129.3	0.0	21.5	134.7	54.	23.0	138.2	0.	0.0	0.0	0.
73012	20.3	130.8	20.2	130.7	8.2	21.1	136.1	26.	22.2	141.2	0.	23.5	145.9	0.
73018	20.4	132.0	20.6	132.5	30.5	21.8	138.3	53.	22.8	143.6	0.	23.5	148.8	0.
73100	20.6	133.4	20.6	133.5	5.6	20.8	138.7	50.	0.0	0.0	0.	0.0	0.0	0.
73106	20.7	134.8	20.6	134.7	8.2	20.9	129.3	0.	0.0	0.0	0.	0.0	0.0	0.
73112	20.8	136.4	20.7	135.9	28.7	20.8	140.8	0.	0.0	0.0	0.	0.0	0.0	0.
73118	21.0	137.9	21.0	137.9	0.0	21.3	143.7	0.	0.0	0.0	0.	0.0	0.0	0.
8 100	20.9	139.5	20.8	139.6	8.2	20.7	145.8	0.	0.0	0.0	0.	0.0	0.0	0.
8 106	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.
8 112	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.
8 118	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)								102.			171.			264.
NUMBER OF CASES								31			27			23

TABLE 9.

HENRIETTE

DATE/TIME (GMT)	BEST TRACK LAT.	BEST TRACK LONG.	OPERATIONAL POSITION LAT.	OPERATIONAL POSITION LONG.	POSITION ERROR (N.MI.)	24 HOUR FORECAST LAT.	24 HOUR FORECAST LONG.	24 HOUR FORECAST ERROR (N.MI)	48 HOUR FORECAST LAT.	48 HOUR FORECAST LONG.	48 HOUR FORECAST ERROR (N.MI.)	72 HOUR FORECAST LAT.	72 HOUR FORECAST LONG.	72 HOUR FORECAST ERROR (N.MI.)
72700	11.2	95.0	11.5	95.4	29.2	13.2	100.0	64.	19.8	104.6	435.	21.1	109.2	553.
72706	11.3	96.0	11.5	95.6	26.3	12.4	99.1	53.	13.3	103.6	90.	14.2	108.7	152.
72712	11.5	97.0	11.5	97.0	0.0	12.5	100.7	56.	13.9	105.0	122.	15.2	110.0	213.
72718	11.8	98.1	11.9	98.3	13.1	13.0	102.7	19.	14.0	107.0	121.	14.6	111.8	166.
72800	12.0	99.1	12.3	99.4	25.1	13.6	103.5	61.	15.0	107.0	211.	16.4	110.2	355.
72806	12.3	100.3	12.4	100.0	18.5	13.8	103.7	105.	15.0	108.0	215.	15.9	112.4	303.
72812	12.5	101.3	12.8	101.6	25.0	14.3	106.3	120.	15.6	110.9	220.	17.1	115.0	316.
72818	12.5	102.4	12.7	102.6	16.7	13.7	106.9	107.	14.9	111.9	180.	15.8	116.6	225.
72900	12.4	103.6	12.6	103.7	13.3	13.0	108.3	70.	14.0	113.0	140.	15.6	117.3	200.
72906	12.3	104.9	12.5	104.9	12.0	12.7	109.6	48.	13.7	114.1	138.	14.7	118.5	147.
72912	12.2	106.2	12.3	106.3	8.4	12.2	111.5	13.	13.5	117.2	89.	15.5	121.9	125.
72918	12.0	107.6	12.1	107.7	8.4	11.9	113.0	12.	12.8	117.8	36.	14.3	123.0	38.
73000	11.9	108.7	11.9	108.7	0.0	11.9	113.7	43.	13.1	118.2	53.	14.3	122.7	78.
73006	11.9	110.1	12.0	110.0	8.3	12.6	114.8	64.	14.1	119.3	89.	15.4	123.7	70.
73012	11.9	111.6	12.0	111.6	6.0	12.5	117.0	30.	13.5	121.9	35.	14.5	126.5	83.
73018	12.0	113.0	12.1	113.0	6.0	12.8	118.6	64.	13.7	123.7	71.	14.5	128.4	125.
73100	12.0	114.3	12.1	114.4	8.3	12.4	120.4	84.	13.5	124.9	102.	14.3	129.2	166.
73106	12.0	115.5	12.0	115.7	11.5	12.2	120.8	55.	13.4	125.2	115.	14.2	129.4	195.
73112	12.0	116.7	12.1	116.7	6.0	12.3	121.6	74.	12.6	126.5	194.	13.0	130.6	307.
73118	12.2	117.7	12.2	117.7	0.0	12.6	122.2	80.	13.1	126.6	196.	13.6	131.0	312.
8 100	12.5	119.0	12.7	119.0	12.0	14.2	124.1	44.	15.7	129.0	81.	17.4	133.0	112.
8 106	12.9	120.1	12.9	120.2	5.7	14.3	124.7	61.	15.3	129.0	139.	16.4	132.9	220.
8 112	13.5	121.4	13.5	121.3	5.7	14.6	125.9	72.	15.2	130.0	183.	16.0	134.1	279.
8 118	14.1	122.6	13.9	122.5	13.3	15.1	127.3	72.	18.1	132.3	38.	17.1	137.2	243.
8 200	14.6	123.7	14.9	123.9	21.2	16.9	129.0	24.	17.9	133.0	83.	18.7	137.3	193.
8 206	15.2	124.8	15.3	124.9	8.2	17.0	129.6	33.	18.2	133.2	124.	19.2	137.3	208.
8 212	15.8	126.1	15.8	126.0	5.6	17.6	130.4	46.	18.8	133.8	144.	19.5	137.7	247.
8 218	16.3	127.4	16.3	127.3	5.5	18.0	131.7	48.	19.8	135.3	103.	21.4	138.6	197.
8 300	16.8	128.6	17.0	128.6	12.0	18.8	133.8	29.	19.9	137.9	130.	20.7	142.4	427.
8 306	17.4	129.8	17.4	130.0	10.9	18.9	134.9	42.	20.0	139.0	166.	21.3	142.7	482.
8 312	18.0	131.0	18.1	131.0	6.0	19.9	135.5	32.	21.2	139.6	189.	22.2	143.2	0.
8 318	18.6	132.1	18.7	132.1	6.0	20.4	136.5	42.	21.9	140.5	231.	22.7	144.8	0.
8 400	19.1	133.2	19.2	133.5	17.5	20.8	138.1	90.	22.7	141.1	291.	24.9	144.1	0.
8 406	19.8	134.3	19.6	134.8	29.9	21.0	140.0	147.	22.2	144.4	518.	23.4	147.3	0.
8 412	20.6	135.4	20.4	135.7	20.3	22.1	140.5	194.	23.2	144.6	0.	23.8	148.6	0.
8 418	21.3	136.2	21.1	136.5	20.3	23.0	140.8	207.	24.5	144.6	0.	25.5	147.8	0.
8 500	21.8	136.9	21.9	137.0	8.1	24.0	139.9	191.	25.4	142.4	0.	26.4	145.6	0.
8 506	22.7	137.4	22.6	138.0	33.4	24.7	141.8	318.	25.9	146.0	0.	26.9	149.3	0.
8 512	23.5	137.5	23.6	137.4	8.1	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
8 518	24.5	137.5	24.5	137.4	5.5	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
8 600	25.8	137.0	25.8	137.0	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
8 606	26.9	136.5	27.0	136.5	6.0	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	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)								77.			155.			225.
NUMBER OF CASES								38			34			30

TABLE 10.

NINE-E

DATE/TIME (GMT)	BEST TRACK LAT.	BEST TRACK LONG.	OPERATIONAL POSITION LAT.	OPERATIONAL POSITION LONG.	POSITION ERROR (N.MI.)	24 HOUR FORECAST LAT.	24 HOUR FORECAST LONG.	24 HOUR FORECAST ERROR (N.MI)	48 HOUR FORECAST LAT.	48 HOUR FORECAST LONG.	48 HOUR FORECAST ERROR (N.MI.)	72 HOUR FORECAST LAT.	72 HOUR FORECAST LONG.	72 HOUR FORECAST ERROR (N.MI.)
8 300	11.2	105.0	11.0	105.0	12.0	12.2	109.9	65.	13.5	114.8	163.	14.5	120.8	321.
8 306	11.4	106.2	11.3	106.4	13.0	12.5	111.0	90.	13.7	115.5	149.	14.8	120.0	226.
8 312	12.0	107.3	12.0	107.4	5.8	13.9	111.9	82.	14.9	116.7	153.	15.8	121.5	321.
8 318	12.4	108.1	12.5	108.6	29.4	14.2	113.4	117.	15.4	118.2	191.	16.0	122.4	305.
8 400	12.8	108.9	12.2	108.8	36.5	12.9	112.4	97.	13.9	116.1	115.	15.6	120.2	200.
8 406	13.2	109.8	12.2	109.5	62.4	12.9	113.6	116.	14.3	117.6	127.	15.6	121.6	249.
8 412	13.7	110.6	14.0	110.5	18.9	15.6	114.2	19.	16.8	118.6	150.	17.4	123.2	0.
8 418	14.1	111.3	14.1	111.4	5.7	15.6	115.1	17.	16.9	118.9	97.	17.8	122.6	0.
8 500	14.5	112.2	14.5	112.2	0.0	15.8	115.6	13.	17.0	119.2	99.	18.7	122.7	0.
8 506	14.8	113.1	14.8	113.2	5.7	15.8	117.5	70.	16.6	121.6	213.	17.5	125.8	0.
8 512	15.1	113.9	15.3	114.1	16.6	16.9	118.0	116.	18.2	122.0	0.	19.2	126.0	0.
8 518	15.5	114.7	15.4	114.9	12.9	16.5	118.9	107.	17.2	123.2	0.	17.8	127.6	0.
8 600	15.8	115.3	15.7	115.4	8.3	16.7	118.6	93.	17.5	122.4	0.	18.0	126.8	0.
8 606	16.3	116.0	16.0	116.3	24.9	17.3	119.4	87.	18.6	122.6	0.	19.6	125.8	0.
8 612	16.8	116.7	16.7	116.0	40.6	19.0	117.3	0.	0.0	0.0	0.	0.0	0.0	0.
8 618	17.3	117.3	17.4	117.3	6.0	19.4	120.2	0.	0.0	0.0	0.	0.0	0.0	0.
8 700	17.8	117.8	18.1	117.9	18.9	20.8	120.0	0.	0.0	0.0	0.	0.0	0.0	0.
8 706	0.0	0.0	18.4	118.4	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
8 712	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.
8 718	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.			146.			270.
NUMBER OF CASES								14			10			6

TABLE 11.

ISMAEL

DATE/TIME (GMT)	BEST TRACK LAT.	BEST TRACK LONG.	OPERATIONAL POSITION LAT.	OPERATIONAL POSITION LONG.	POSITION ERROR (N.MI.)	24 HOUR FORECAST LAT.	24 HOUR FORECAST LONG.	24 HOUR FORECAST ERROR (N.MI)	48 HOUR FORECAST LAT.	48 HOUR FORECAST LONG.	48 HOUR FORECAST ERROR (N.MI.)	72 HOUR FORECAST LAT.	72 HOUR FORECAST LONG.	72 HOUR FORECAST ERROR (N.MI.)
8 800	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.
8 806	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.
8 812	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.
8 818	12.6	106.5	12.8	106.5	12.0	13.7	110.3	78.	14.7	114.2	237.	15.5	118.3	368.
8 900	13.2	107.6	13.1	107.9	18.0	14.5	113.1	129.	15.7	117.3	274.	16.5	121.0	416.
8 906	13.7	108.6	13.4	109.0	28.9	15.0	113.3	104.	16.3	117.1	250.	17.0	120.4	397.
8 912	14.5	109.5	14.1	110.1	41.3	15.8	114.4	133.	17.3	118.7	264.	18.5	122.7	459.
8 918	15.3	110.5	14.8	111.0	41.0	16.7	114.9	139.	18.1	118.7	244.	19.1	122.6	433.
81000	16.0	111.4	16.0	111.5	5.5	18.4	115.5	83.	20.5	118.9	163.	23.0	121.7	262.
81006	16.6	112.1	16.3	112.1	18.0	18.2	115.4	106.	19.7	118.7	208.	21.0	121.8	358.
81012	17.4	112.8	17.4	112.8	0.0	19.4	115.6	66.	20.0	118.2	234.	22.1	121.5	301.
81018	18.4	113.5	18.6	113.5	12.0	21.8	116.1	38.	24.0	118.4	72.	25.4	121.0	160.
81100	19.4	114.5	19.4	114.5	0.0	22.4	117.6	73.	24.3	119.4	115.	26.4	121.0	134.
81106	20.0	115.0	19.9	114.9	8.0	22.3	117.1	35.	24.1	118.7	105.	25.9	120.4	157.
81112	20.5	115.5	20.5	115.5	0.0	22.4	117.2	79.	24.7	117.8	66.	27.0	117.2	155.
81118	21.2	115.9	21.2	115.9	0.0	24.1	116.9	12.	27.0	117.2	67.	30.0	117.0	0.
81200	21.9	116.3	21.9	116.4	5.3	24.7	117.6	16.	27.3	119.1	21.	28.7	121.0	0.
81206	22.5	116.5	22.5	116.5	0.0	24.8	117.0	34.	26.8	118.5	88.	28.7	120.0	0.
81212	23.5	116.8	23.6	116.6	12.2	26.7	117.0	69.	29.4	118.4	67.	32.6	120.8	0.
81218	24.3	117.0	24.2	117.1	8.0	27.4	118.2	43.	30.7	119.1	0.	33.0	119.5	0.
81300	24.8	117.3	24.9	117.4	8.0	28.1	118.1	58.	30.5	119.6	0.	0.0	0.0	0.
81306	25.3	117.6	25.3	117.3	15.9	27.4	117.3	102.	28.3	118.3	0.	0.0	0.0	0.
81312	25.8	117.9	25.8	117.8	5.3	28.0	118.3	72.	0.0	0.0	0.	0.0	0.0	0.
81318	26.7	118.3	26.7	118.4	5.3	29.5	120.0	0.	0.0	0.0	0.	0.0	0.0	0.
81400	27.4	118.6	27.3	118.7	8.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
81406	28.0	118.7	28.2	119.0	19.9	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
81412	28.7	118.6	28.7	119.4	42.4	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
81418	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)								74.			155.			300.
NUMBER OF CASES								20			16			12

TABLE 12.

ELEVEN-E

DATE/TIME (GMT)	BEST TRACK LAT.	BEST TRACK LONG.	OPERATIONAL POSITION LAT.	OPERATIONAL POSITION LONG.	POSITION ERROR (N.MI.)	24 HOUR FORECAST LAT.	24 HOUR FORECAST LONG.	24 HOUR FORECAST ERROR (N.MI)	48 HOUR FORECAST LAT.	48 HOUR FORECAST LONG.	48 HOUR FORECAST ERROR (N.MI.)	72 HOUR FORECAST LAT.	72 HOUR FORECAST LONG.	72 HOUR FORECAST ERROR (N.MI.)
81500	22.0	110.3	22.0	110.2	5.5	22.3	110.7	112.	0.0	0.0	0.	0.0	0.0	0.
81506	22.3	110.6	22.3	110.5	5.5	23.4	112.1	32.	24.8	114.4	0.	26.5	116.6	0.
81512	22.7	110.9	23.0	110.8	18.8	25.0	112.3	82.	26.6	114.1	0.	28.1	115.9	0.
81518	23.0	111.2	23.2	111.5	20.3	24.9	113.2	0.	26.9	114.8	0.	28.6	116.0	0.
81600	23.4	111.4	23.8	111.9	36.4	25.8	113.7	0.	0.0	0.0	0.	0.0	0.0	0.
81606	23.6	111.5	23.9	112.3	47.3	25.3	113.7	0.	0.0	0.0	0.	0.0	0.0	0.
81612	23.8	111.6	23.8	111.6	0.0	24.8	112.1	0.	0.0	0.0	0.	0.0	0.0	0.
81618	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)								75.			0.			0.
NUMBER OF CASES								3			0			0

TABLE 13.

JULIETTE

DATE/TIME (GMT)	BEST TRACK LAT.	BEST TRACK LONG.	OPERATIONAL POSITION LAT.	OPERATIONAL POSITION LONG.	POSITION ERROR (N.MI.)	24 HOUR FORECAST LAT.	24 HOUR FORECAST LONG.	24 HOUR FORECAST ERROR (N.MI)	48 HOUR FORECAST LAT.	48 HOUR FORECAST LONG.	48 HOUR FORECAST ERROR (N.MI.)	72 HOUR FORECAST LAT.	72 HOUR FORECAST LONG.	72 HOUR FORECAST ERROR (N.MI.)
82400	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.
82406	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.
82412	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.
82418	11.2	107.4	11.2	107.4	0.0	12.3	110.9	78.	0.0	0.0	0.	0.0	0.0	0.
82500	11.8	108.3	11.8	108.3	0.0	13.8	111.8	25.	15.4	115.2	117.	16.8	118.5	70.
82506	12.3	109.3	12.3	109.3	0.0	14.2	113.2	18.	15.6	116.9	97.	16.5	120.5	186.
82512	12.9	110.1	12.9	110.1	0.0	14.9	113.9	108.	16.4	117.5	135.	17.5	119.8	114.
82518	13.4	111.2	13.6	111.0	16.5	16.0	114.3	181.	18.1	117.1	144.	20.4	119.9	149.
82600	13.7	112.4	14.1	112.1	29.5	15.9	115.9	125.	17.2	118.8	93.	18.4	121.7	142.
82606	13.9	113.5	14.5	113.2	39.8	15.9	117.0	114.	17.0	120.7	191.	18.1	123.3	194.
82612	13.8	114.5	14.0	115.5	58.3	14.6	120.2	130.	15.6	124.0	374.	16.8	127.2	382.
82618	13.9	115.3	13.6	116.2	54.8	13.6	120.8	259.	14.3	125.3	459.	15.5	129.3	494.
82700	14.1	116.0	13.9	116.5	31.0	15.7	120.0	165.	15.8	123.8	310.	17.0	126.8	285.
82706	14.6	116.3	14.0	117.1	58.2	14.6	120.8	258.	15.5	124.0	307.	16.7	127.2	314.
82712	15.0	116.6	14.2	118.0	93.2	15.0	121.4	256.	16.2	124.8	282.	17.5	127.9	306.
82718	15.9	117.0	15.7	116.9	13.3	18.1	118.7	17.	19.8	120.7	110.	21.3	123.3	163.
82800	16.6	117.3	16.6	117.3	0.0	19.7	119.2	72.	21.4	121.0	194.	22.8	122.3	244.
82806	17.2	117.6	17.4	117.4	16.4	20.2	118.4	119.	21.9	120.1	236.	0.0	0.0	0.
82812	17.8	118.0	17.5	117.8	21.2	19.5	118.7	131.	21.4	120.2	230.	0.0	0.0	0.
82818	18.1	118.6	18.3	118.5	13.2	20.1	120.4	132.	21.6	122.4	192.	0.0	0.0	0.
82900	18.2	119.1	18.5	119.2	18.9	20.0	121.7	103.	21.3	124.2	132.	0.0	0.0	0.
82906	18.2	119.7	18.9	120.0	45.2	20.2	122.7	115.	21.2	125.6	98.	20.4	119.9	354.
82912	18.3	120.3	19.2	121.0	66.7	20.5	124.4	167.	21.7	127.4	180.	18.4	121.7	0.
82918	18.3	120.9	18.0	121.1	21.2	18.0	124.3	54.	18.7	127.3	185.	18.1	123.3	0.
83000	18.4	121.6	18.3	122.0	23.2	18.9	125.2	64.	19.8	128.5	193.	16.8	127.2	0.
83006	18.5	122.3	18.4	122.0	17.8	19.2	124.3	45.	0.0	0.0	0.	15.5	129.3	0.
83012	18.6	122.8	18.3	122.6	21.2	18.5	124.9	116.	0.0	0.0	0.	17.0	126.8	0.
83018	18.8	123.5	18.6	123.6	13.2	19.1	126.3	131.	0.0	0.0	0.	16.7	127.2	0.
83100	19.2	124.1	19.1	124.1	6.0	20.1	126.5	90.	0.0	0.0	0.	17.5	127.9	0.
83106	19.7	124.4	19.7	124.9	28.0	0.0	0.0	0.	0.0	0.0	0.	21.3	123.3	0.
83112	20.3	124.7	20.4	124.5	12.7	0.0	0.0	0.	0.0	0.0	0.	22.8	122.3	0.
83118	20.7	125.0	20.9	125.0	12.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
9 100	21.2	125.4	21.2	125.4	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
9 106	21.8	125.8	22.0	126.0	16.4	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
9 112	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.
9 118	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)								118.			203.			243.
NUMBER OF CASES								26			21			14

TABLE 14.

KIKO

DATE/TIME (GMT)	BEST TRACK LAT.	BEST TRACK LONG.	OPERATIONAL POSITION LAT.	OPERATIONAL POSITION LONG.	POSITION ERROR (N.MI.)	24 HOUR FORECAST LAT.	24 HOUR FORECAST LONG.	24 HOUR FORECAST ERROR (N.MI)	48 HOUR FORECAST LAT.	48 HOUR FORECAST LONG.	48 HOUR FORECAST ERROR (N.MI.)	72 HOUR FORECAST LAT.	72 HOUR FORECAST LONG.	72 HOUR FORECAST ERROR (N.MI.)
83100	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.
83106	11.9	101.3	12.2	102.1	49.3	13.3	105.3	134.	14.9	109.0	238.	16.5	112.6	321.
83112	12.2	101.7	12.3	102.6	52.1	13.0	105.7	170.	13.8	108.9	242.	14.6	112.1	337.
83118	12.5	102.0	12.5	102.5	28.6	13.7	105.8	147.	14.7	109.2	211.	16.1	113.0	315.
9 100	12.9	102.3	12.8	102.5	12.9	14.1	107.5	199.	15.6	107.5	107.	17.3	110.4	152.
9 106	13.4	102.7	13.3	103.0	18.1	14.8	105.3	62.	16.2	108.0	94.	17.5	111.0	158.
9 112	13.9	103.1	13.8	102.9	12.8	15.3	105.0	48.	16.6	107.6	102.	17.9	110.6	133.
9 118	14.5	103.6	14.7	103.5	13.2	17.3	105.5	54.	19.5	107.9	41.	20.8	110.2	79.
9 200	15.0	104.2	15.3	104.3	18.9	17.7	107.0	46.	19.6	109.2	6.	20.6	111.9	29.
9 206	15.4	104.8	15.8	105.0	26.5	17.9	107.8	47.	19.5	110.4	34.	20.4	114.0	71.
9 212	16.0	105.4	16.0	105.4	0.0	17.9	108.0	29.	19.5	110.8	36.	20.5	113.6	32.
9 218	16.6	106.0	16.7	106.2	12.7	18.5	109.0	45.	19.9	112.2	54.	20.8	115.5	86.
9 300	17.1	106.6	17.1	106.5	5.6	18.7	109.2	54.	20.0	112.0	48.	21.5	114.8	17.
9 306	17.7	107.0	17.5	107.1	13.2	19.5	109.4	50.	21.2	111.7	68.	22.7	114.1	78.
9 312	18.2	107.6	18.3	107.7	8.2	20.4	110.2	43.	21.7	122.8	527.	22.5	115.3	25.
9 318	18.9	108.4	19.0	108.4	6.0	21.1	110.9	49.	22.8	113.7	103.	24.1	116.5	115.
9 400	19.4	109.1	19.6	109.3	16.3	22.2	112.1	92.	24.3	114.7	168.	25.7	116.3	205.
9 406	20.0	110.0	20.0	110.1	5.5	22.1	112.9	66.	23.9	115.1	132.	25.9	117.1	216.
9 412	20.2	110.8	20.1	110.9	8.2	21.3	114.1	43.	22.0	117.5	106.	22.8	120.8	168.
9 418	20.5	111.5	20.6	111.6	8.1	21.9	114.8	66.	23.0	118.0	111.	23.9	121.1	181.
9 500	20.7	112.1	20.7	112.4	16.5	21.4	115.4	51.	22.7	118.3	97.	23.8	121.0	138.
9 506	20.9	112.9	21.0	112.9	6.0	21.8	115.8	45.	22.7	118.4	66.	23.7	121.2	109.
9 512	21.0	113.3	21.0	113.4	5.5	21.5	115.8	43.	22.6	117.9	13.	23.4	120.1	45.
9 518	21.2	113.8	21.1	114.0	12.5	21.8	116.2	24.	22.8	118.0	21.	24.3	119.6	8.
9 600	21.5	114.4	21.5	114.5	5.4	22.4	116.7	8.	23.3	118.7	24.	24.3	120.4	60.
9 606	21.7	114.9	21.7	115.0	5.4	23.0	116.9	47.	24.3	118.5	79.	25.8	119.9	0.
9 612	22.0	115.4	22.2	115.6	16.2	23.9	117.5	92.	23.9	117.5	104.	27.5	119.9	0.
9 618	22.2	116.0	22.2	116.2	10.9	23.2	118.3	42.	24.0	120.3	41.	25.4	122.0	0.
9 700	22.3	116.5	22.3	116.6	5.4	23.0	118.3	23.	23.9	120.4	83.	25.3	122.0	0.
9 706	22.4	117.1	22.3	117.3	12.4	22.8	119.7	33.	23.7	121.1	0.	24.6	122.7	0.
9 712	22.5	117.7	22.4	117.8	8.1	22.8	120.2	74.	23.3	122.3	0.	24.0	124.6	0.
9 718	22.7	118.1	22.5	118.2	13.2	23.0	120.2	88.	23.5	122.0	0.	0.0	0.0	0.
9 800	22.9	118.4	22.9	118.7	16.3	23.4	120.5	113.	23.9	122.5	0.	0.0	0.0	0.
9 806	23.3	119.0	23.2	119.3	17.4	24.5	121.4	0.	27.3	122.0	0.	0.0	0.0	0.
9 812	23.7	119.3	23.8	119.4	8.1	25.0	120.7	0.	0.0	0.0	0.	0.0	0.0	0.
9 818	24.3	119.7	24.4	119.7	6.0	26.4	120.9	0.	0.0	0.0	0.	0.0	0.0	0.
9 900	25.0	119.9	25.2	119.9	12.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
9 906	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.
9 912	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)								67.			106.			128.
NUMBER OF CASES								32			28			24

TABLE 15.

LORENA

DATE/TIME (GMT)	BEST TRACK LAT.	BEST TRACK LONG.	OPERATIONAL POSITION LAT.	OPERATIONAL POSITION LONG.	POSITION ERROR (N.MI.)	24 HOUR FORECAST LAT.	24 HOUR FORECAST LONG.	24 HOUR FORECAST ERROR (N.MI)	48 HOUR FORECAST LAT.	48 HOUR FORECAST LONG.	48 HOUR FORECAST ERROR (N.MI.)	72 HOUR FORECAST LAT.	72 HOUR FORECAST LONG.	72 HOUR FORECAST ERROR (N.MI.)
9 600	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.
9 606	15.4	100.0	15.5	100.0	6.0	15.7	102.2	65.	16.4	105.1	137.	17.3	108.1	129.
9 612	15.3	100.3	15.8	101.0	49.7	17.0	103.6	162.	18.8	106.0	216.	20.2	108.7	124.
9 618	15.3	100.5	15.5	100.5	12.0	15.9	101.8	35.	16.8	104.3	0.	17.6	106.9	113.
9 700	15.2	100.8	15.5	100.5	24.8	16.0	102.0	24.	16.8	104.1	91.	17.7	106.8	186.
9 706	15.2	101.0	15.2	101.2	11.3	15.9	103.5	41.	17.2	105.9	67.	18.7	108.9	105.
9 712	15.3	101.3	15.1	101.6	20.8	15.5	103.4	42.	16.9	105.3	154.	18.8	108.4	169.
9 718	15.4	101.5	15.4	101.5	0.0	15.9	103.2	83.	17.3	105.9	165.	20.0	109.0	156.
9 800	15.5	102.0	15.6	102.0	6.0	16.1	103.6	141.	17.1	105.8	253.	19.2	108.3	235.
9 806	15.9	102.9	15.8	102.8	8.2	17.2	105.8	68.	18.7	108.9	105.	20.2	112.2	75.
9 812	16.5	103.8	16.2	103.4	28.7	17.6	106.3	88.	19.0	108.9	140.	20.7	111.6	130.
9 818	17.1	104.7	16.8	104.3	28.7	18.8	107.2	54.	20.4	110.3	79.	21.5	112.7	107.
9 900	17.6	105.5	17.8	105.3	16.3	19.9	109.0	21.	21.6	112.7	59.	23.2	116.4	71.
9 906	18.1	106.3	18.3	106.1	16.3	20.5	109.5	37.	22.1	112.0	78.	23.4	114.5	136.
9 912	18.6	107.2	18.9	107.0	21.1	20.9	109.9	48.	22.5	112.4	102.	23.5	115.0	176.
9 918	19.0	108.2	19.1	108.1	8.2	20.8	111.5	8.	22.3	114.6	36.	23.1	116.8	112.
91000	19.6	109.3	19.7	109.3	6.0	21.4	112.9	57.	23.0	115.8	48.	24.3	117.6	150.
91006	20.0	110.0	20.1	110.0	6.0	22.0	113.6	59.	23.5	116.7	54.	25.3	118.7	178.
91012	20.3	110.6	20.6	110.7	18.8	22.4	113.5	62.	24.3	115.4	174.	25.8	117.8	252.
91018	20.7	111.5	20.9	111.6	13.2	22.6	114.6	54.	24.0	116.9	127.	24.8	119.4	198.
91100	20.9	112.2	20.8	112.1	8.1	22.0	114.7	57.	23.2	117.0	166.	24.1	119.5	251.
91106	21.1	113.0	21.2	113.0	6.0	22.2	115.8	60.	23.7	118.3	152.	25.3	120.4	266.
91112	21.4	113.8	21.4	113.8	0.0	22.2	116.7	86.	23.7	119.3	128.	25.6	120.8	266.
91118	21.7	114.7	21.7	114.6	5.4	22.3	117.8	63.	23.8	120.4	147.	25.7	122.3	0.
91200	22.1	115.7	22.2	115.7	6.0	24.0	119.2	70.	25.9	121.8	131.	28.1	123.5	0.
91206	22.5	116.8	22.6	116.8	6.0	24.3	120.4	74.	25.1	122.8	136.	27.4	123.6	0.
91212	22.6	117.9	22.9	118.1	16.2	24.1	122.3	57.	25.8	125.0	45.	0.0	0.0	0.
91218	22.9	118.9	22.8	118.8	8.1	23.8	122.6	42.	25.4	125.7	0.	0.0	0.0	0.
91300	23.1	120.0	23.1	120.0	0.0	24.0	124.7	71.	24.9	129.2	0.	0.0	0.0	0.
91306	23.5	121.1	23.2	121.0	18.8	24.5	125.0	45.	0.0	0.0	0.	0.0	0.0	0.
91312	24.0	122.1	23.4	121.6	45.0	24.6	125.0	61.	0.0	0.0	0.	0.0	0.0	0.
91318	24.5	123.1	24.4	123.0	8.1	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
91400	24.9	124.0	25.0	124.0	6.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
91406	25.1	124.9	25.2	125.3	22.5	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
91412	25.3	125.8	25.4	125.7	8.1	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
91418	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)								61.			115.			163.
NUMBER OF CASES								30			26			22

TABLE 16.

DATE/TIME (GMT)	BEST TRACK LAT.	BEST TRACK LONG.	OPERATIONAL POSITION LAT.	OPERATIONAL POSITION LONG.	POSITION ERROR (N.MI.)	24 HOUR FORECAST LAT.	24 HOUR FORECAST LONG.	24 HOUR FORECAST ERROR (N.MI)	48 HOUR FORECAST LAT.	48 HOUR FORECAST LONG.	48 HOUR FORECAST ERROR (N.MI.)	72 HOUR FORECAST LAT.	72 HOUR FORECAST LONG.	72 HOUR FORECAST ERROR (N.MI.)
91200	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.
91206	11.9	99.2	12.0	99.2	6.0	13.0	102.6	50.	14.6	106.3	63.	16.0	110.0	46.
91212	12.3	100.1	12.2	99.9	13.0	13.3	103.2	37.	14.9	106.8	64.	16.6	110.9	47.
91218	12.7	100.9	12.9	100.8	13.3	14.7	104.2	74.	16.3	107.4	108.	17.8	110.8	70.
91300	13.0	101.8	13.4	102.0	26.6	15.3	105.9	107.	17.7	109.5	166.	20.1	112.1	204.
91306	13.3	102.8	13.6	103.2	29.1	14.9	107.4	124.	16.2	111.5	128.	18.0	115.1	166.
91312	13.4	103.7	13.1	103.8	18.9	13.6	107.1	58.	14.4	110.8	113.	15.8	114.8	147.
91318	13.5	104.4	13.5	104.5	5.7	14.3	108.3	48.	15.5	112.4	100.	16.7	116.2	190.
91400	13.6	105.2	13.7	105.1	8.3	14.2	108.4	54.	15.3	112.0	84.	17.0	115.7	157.
91406	13.8	105.9	13.8	105.6	17.0	14.6	108.3	84.	15.9	111.4	88.	17.5	114.5	145.
91412	14.2	106.8	14.0	106.2	36.0	15.0	108.9	104.	16.4	111.9	66.	17.8	114.8	188.
91418	14.7	107.7	14.5	107.5	16.5	15.9	110.8	53.	17.4	113.9	66.	18.5	116.9	215.
91500	15.0	108.5	15.1	108.5	6.0	17.1	112.0	24.	18.7	115.0	54.	18.7	115.0	266.
91506	15.6	109.3	15.5	109.4	8.2	17.2	112.8	26.	18.7	115.8	92.	20.0	118.9	232.
91512	16.1	110.3	16.2	110.2	8.1	18.3	113.6	84.	20.2	116.8	94.	21.6	120.0	232.
91518	16.5	111.2	16.7	111.2	12.0	18.7	115.2	104.	20.5	118.6	166.	22.3	121.7	236.
91600	16.9	112.0	16.7	112.0	12.0	18.1	115.7	108.	19.6	119.0	228.	20.6	122.1	343.
91606	17.3	112.5	17.0	112.4	18.8	18.3	115.3	100.	19.7	118.1	237.	20.7	120.4	363.
91612	17.8	113.0	17.2	112.7	39.6	18.3	115.0	157.	19.7	117.6	312.	21.2	120.1	390.
91618	18.3	113.6	18.4	113.4	12.2	20.8	115.3	85.	23.5	117.3	131.	25.8	119.4	163.
91700	19.2	114.2	19.2	114.2	0.0	22.0	116.3	55.	24.8	118.0	101.	27.9	119.0	80.
91706	19.9	114.8	19.9	114.8	0.0	22.4	116.9	77.	24.4	118.7	146.	25.6	120.4	279.
91712	20.8	115.4	20.9	115.3	8.0	23.6	116.7	99.	25.9	118.4	105.	27.5	119.8	178.
91718	22.0	116.1	22.0	116.1	0.0	26.3	118.2	74.	30.7	118.4	136.	0.0	0.0	0.
91800	22.8	116.8	22.8	116.8	0.0	27.0	118.5	90.	31.0	117.7	120.	0.0	0.0	0.
91806	23.6	117.4	23.6	117.4	0.0	27.5	118.8	64.	31.7	117.7	114.	0.0	0.0	0.
91812	24.3	118.2	24.9	117.8	41.7	29.7	118.6	127.	32.1	117.6	122.	0.0	0.0	0.
91818	24.9	118.8	25.2	118.8	18.0	29.2	120.1	71.	33.2	119.4	0.	0.0	0.0	0.
91900	25.7	119.4	25.8	119.5	8.0	29.8	120.7	110.	0.0	0.0	0.	0.0	0.0	0.
91906	26.6	119.7	26.7	119.6	8.0	31.1	129.0	553.	0.0	0.0	0.	0.0	0.0	0.
91912	27.6	119.4	27.6	118.9	26.3	31.3	116.9	110.	0.0	0.0	0.	0.0	0.0	0.
91918	28.5	119.0	28.5	119.0	0.0	32.3	117.1	0.	0.0	0.0	0.	0.0	0.0	0.
92000	29.2	118.7	29.2	118.7	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
92006	29.8	118.5	29.9	118.4	8.0	32.5	117.9	0.	33.3	118.7	0.	0.0	0.0	0.
92012	30.3	118.7	30.3	118.7	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
92018	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)								97.			123.			197.
NUMBER OF CASES								30			26			22

TABLE 17.

NARDA

DATE/TIME (GMT)	BEST TRACK LAT.	BEST TRACK LONG.	OPERATIONAL POSITION LAT.	OPERATIONAL POSITION LONG.	POSITION ERROR (N.MI.)	24 HOUR FORECAST LAT.	24 HOUR FORECAST LONG.	24 HOUR FORECAST ERROR (N.MI)	48 HOUR FORECAST LAT.	48 HOUR FORECAST LONG.	48 HOUR FORECAST ERROR (N.MI.)	72 HOUR FORECAST LAT.	72 HOUR FORECAST LONG.	72 HOUR FORECAST ERROR (N.MI.)
92100	15.1	112.0	15.1	112.0	0.0	15.9	115.9	27.	17.0	119.3	68.	18.1	122.1	155.
92106	15.2	112.9	15.5	112.5	29.2	16.0	115.7	63.	16.8	118.8	117.	17.7	121.9	175.
92112	15.4	113.8	15.8	113.9	24.7	16.3	116.4	94.	16.8	120.8	63.	17.7	123.2	138.
92118	15.5	114.7	15.6	114.7	6.0	16.1	118.4	34.	27.4	122.0	679.	18.3	125.3	145.
92200	15.5	115.7	15.5	115.7	0.0	15.6	119.7	19.	16.5	122.9	50.	18.2	125.7	140.
92206	15.5	116.7	15.6	116.7	6.0	15.8	120.4	13.	16.5	123.8	46.	17.8	126.8	117.
92212	15.6	117.7	15.7	117.9	12.9	16.2	121.8	21.	17.1	125.2	78.	18.2	128.2	127.
92218	15.7	118.6	15.8	118.9	18.2	16.1	122.7	6.	17.1	126.4	85.	18.0	129.2	99.
92300	15.8	119.6	15.9	119.6	6.0	15.9	123.1	23.	16.3	126.6	19.	17.1	130.0	58.
92306	15.8	120.6	15.9	120.6	6.0	16.3	124.1	27.	16.9	127.5	54.	17.8	130.4	108.
92312	15.9	121.5	16.0	121.5	6.0	16.5	124.8	36.	17.0	128.6	54.	17.5	132.1	63.
92318	16.0	122.5	16.1	122.6	8.3	16.4	126.9	81.	16.5	130.6	58.	16.3	134.8	32.
92400	15.9	123.5	15.9	123.5	0.0	15.4	127.4	63.	15.3	130.7	66.	15.7	134.0	136.
92406	15.9	124.3	15.9	124.3	0.0	15.9	128.0	24.	16.0	131.4	35.	16.4	134.8	154.
92412	15.9	125.0	15.9	124.7	17.2	15.8	128.0	34.	16.0	131.3	96.	16.1	134.7	257.
92418	15.9	125.8	15.9	125.6	11.5	16.1	128.8	49.	16.2	131.9	159.	16.3	135.1	0.
92500	16.0	126.6	16.0	126.5	5.7	15.9	130.0	50.	15.9	133.5	156.	15.8	137.0	0.
92506	16.0	127.5	16.0	127.6	5.7	16.4	131.2	29.	16.3	134.3	183.	16.1	137.8	0.
92512	16.1	128.5	16.1	128.5	0.0	16.1	132.4	43.	16.0	136.5	164.	15.9	140.8	0.
92518	16.4	129.6	16.4	129.6	0.0	17.0	133.7	53.	17.1	137.6	0.	17.1	141.5	0.
92600	16.4	130.7	16.4	130.7	0.0	16.7	134.8	70.	16.7	138.6	0.	16.6	142.8	0.
92606	16.5	131.9	16.5	131.7	11.5	16.7	135.7	99.	0.0	0.0	0.	0.0	0.0	0.
92612	16.6	133.2	16.7	132.8	23.8	17.2	136.8	126.	0.0	0.0	0.	0.0	0.0	0.
92618	16.8	134.6	16.8	134.6	0.0	17.1	140.2	0.	0.0	0.0	0.	0.0	0.0	0.
92700	16.9	136.0	16.9	136.0	0.0	17.5	141.7	0.	18.5	144.7	0.	19.9	147.7	0.
92706	17.1	137.5	17.0	137.4	8.3	17.6	143.1	0.	0.0	0.0	0.	0.0	0.0	0.
92712	17.3	139.0	17.3	139.0	0.0	18.1	144.3	0.	0.0	0.0	0.	0.0	0.0	0.
92718	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)								47.			117.			127.
NUMBER OF CASES								23			19			15

TABLE 18.

OCTAVE

DATE/TIME (GMT)	BEST TRACK LAT.	BEST TRACK LONG.	OPERATIONAL POSITION LAT.	OPERATIONAL POSITION LONG.	POSITION ERROR (N.MI.)	24 HOUR FORECAST LAT.	24 HOUR FORECAST LONG.	24 HOUR FORECAST ERROR (N.MI)	48 HOUR FORECAST LAT.	48 HOUR FORECAST LONG.	48 HOUR FORECAST ERROR (N.MI.)	72 HOUR FORECAST LAT.	72 HOUR FORECAST LONG.	72 HOUR FORECAST ERROR (N.MI.)
92700	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.
92706	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.
92712	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.
92718	11.8	118.3	11.8	118.2	5.8	13.1	122.9	90.	14.4	126.2	311.	15.4	128.5	495.
92800	12.2	119.4	12.0	119.5	13.3	13.1	123.5	126.	14.5	126.8	346.	15.8	129.9	606.
92806	12.6	120.3	12.0	120.0	39.9	13.3	123.6	210.	14.5	126.7	374.	15.9	129.4	612.
92812	12.9	121.1	12.5	121.3	26.6	13.8	124.9	333.	15.1	127.9	443.	17.6	128.9	531.
92818	13.5	121.7	13.9	121.6	24.6	16.6	123.4	167.	19.1	124.7	311.	21.5	125.4	386.
92900	14.2	121.9	14.4	121.8	13.2	16.9	122.6	133.	19.3	123.0	227.	21.5	124.1	344.
92906	14.6	121.9	15.5	120.8	81.1	18.2	118.6	172.	20.8	116.4	214.	23.7	114.5	165.
92912	14.9	121.7	15.7	119.5	130.6	17.5	116.2	252.	19.7	112.8	393.	21.9	109.5	456.
92918	15.1	121.4	15.2	120.9	28.3	16.5	118.4	92.	18.5	115.8	227.	21.0	112.5	0.
93000	15.4	121.1	15.4	120.9	11.0	16.3	119.0	78.	17.5	116.7	303.	18.9	114.3	0.
93006	15.7	120.8	15.9	120.4	25.1	18.2	117.8	68.	21.4	115.9	154.	25.8	114.0	0.
93012	16.0	120.4	16.0	120.3	5.5	17.3	118.8	114.	19.3	117.2	288.	23.9	115.7	0.
93018	16.6	119.8	16.5	120.0	12.6	19.2	117.3	143.	0.0	0.0	0.	0.0	0.0	0.
10 100	17.6	119.4	17.5	119.5	8.2	20.4	117.7	121.	0.0	0.0	0.	0.0	0.0	0.
10 106	18.5	119.0	18.2	119.0	18.0	21.9	116.2	120.	0.0	0.0	0.	0.0	0.0	0.
10 112	19.9	118.7	19.0	119.7	77.2	22.8	116.5	92.	0.0	0.0	0.	0.0	0.0	0.
10 118	21.3	118.5	21.3	118.5	0.0	26.0	117.3	0.	0.0	0.0	0.	0.0	0.0	0.
10 200	22.3	117.9	22.4	118.0	8.2	27.7	115.6	0.	0.0	0.0	0.	0.0	0.0	0.
10 206	23.2	117.6	23.5	117.5	18.8	28.7	115.2	0.	0.0	0.0	0.	0.0	0.0	0.
10 212	24.0	117.3	24.1	117.4	8.2	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
10 218	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)								144.			299.			449.
NUMBER OF CASES								16			12			8

TABLE 19.

PRISCILLA

DATE/TIME (GMT)	BEST TRACK LAT.	BEST TRACK LONG.	OPERATIONAL POSITION LAT.	OPERATIONAL POSITION LONG.	POSITION ERROR (N.MI.)	24 HOUR FORECAST LAT.	24 HOUR FORECAST LONG.	24 HOUR FORECAST ERROR (N.MI)	48 HOUR FORECAST LAT.	48 HOUR FORECAST LONG.	48 HOUR FORECAST ERROR (N.MI.)	72 HOUR FORECAST LAT.	72 HOUR FORECAST LONG.	72 HOUR FORECAST ERROR (N.MI.)
93000	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.
93006	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.
93012	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.
93018	11.8	108.6	11.7	108.5	8.3	12.5	111.8	27.	13.7	115.0	0.	15.0	118.0	31.
10 100	12.0	109.3	11.6	109.0	29.6	12.0	111.7	80.	13.3	115.2	40.	15.9	118.2	42.
10 106	12.2	110.0	12.3	110.0	6.0	13.8	113.5	36.	15.5	116.8	85.	18.5	118.9	182.
10 112	12.5	110.7	12.7	111.0	21.0	14.1	114.5	36.	15.5	117.5	70.	17.5	121.0	158.
10 118	12.7	111.6	12.9	111.6	12.0	14.1	114.7	30.	15.6	117.4	48.	17.5	120.0	63.
10 200	12.9	112.7	13.0	112.6	8.2	14.0	116.0	30.	15.3	119.1	52.	22.2	121.7	279.
10 206	13.2	113.6	13.2	113.5	5.7	14.5	117.2	61.	15.9	119.7	79.	17.8	122.0	185.
10 212	13.4	114.2	13.5	114.4	12.8	14.8	118.0	58.	16.3	121.1	150.	18.5	123.6	280.
10 218	13.6	114.9	13.7	115.0	8.2	14.9	117.9	24.	16.2	120.0	96.	18.0	122.0	242.
10 300	13.8	115.5	13.9	115.5	6.0	15.0	118.2	12.	16.5	120.7	145.	18.2	122.6	294.
10 306	14.1	116.2	14.2	116.2	6.0	15.7	118.7	21.	17.2	120.8	154.	18.5	122.4	324.
10 312	14.4	116.9	14.4	117.1	11.2	15.1	120.2	125.	16.2	122.1	298.	18.3	123.9	417.
10 318	14.7	117.5	14.8	117.5	6.0	16.0	119.9	102.	17.8	121.6	241.	19.9	122.7	395.
10 400	15.1	118.1	15.2	118.2	8.1	17.1	120.5	112.	19.3	122.1	223.	21.7	123.3	348.
10 406	15.6	118.4	15.5	118.4	6.0	17.2	120.0	131.	19.8	121.2	229.	22.5	121.2	0.
10 412	16.4	118.7	16.4	118.5	10.9	19.6	119.0	36.	22.0	119.0	196.	24.3	118.1	0.
10 418	17.4	119.0	17.4	118.9	5.5	21.8	118.9	51.	25.3	116.3	261.	28.5	115.6	0.
10 500	18.4	119.1	18.3	119.0	8.1	22.2	118.3	90.	25.9	117.0	197.	29.4	115.1	0.
10 506	19.3	119.3	19.2	119.1	12.5	23.0	118.2	114.	26.7	115.2	0.	0.0	0.0	0.
10 512	20.2	119.4	20.2	119.0	21.9	24.1	117.7	184.	27.0	115.1	0.	0.0	0.0	0.
10 518	21.4	119.7	21.4	119.7	0.0	25.1	119.4	113.	0.0	0.0	0.	0.0	0.0	0.
10 600	22.5	120.0	22.4	119.9	8.1	26.8	120.0	27.	0.0	0.0	0.	0.0	0.0	0.
10 606	23.6	120.5	23.5	120.2	17.5	28.1	120.5	0.	0.0	0.0	0.	0.0	0.0	0.
10 612	24.9	120.9	24.7	121.0	13.2	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
10 618	26.0	120.9	26.3	121.0	18.8	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
10 700	26.9	120.5	26.9	120.5	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
10 706	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.
10 712	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.
10 718	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)								68.			143.			231.
NUMBER OF CASES								22			18			14

TABLE 20.

RAYMOND

DATE/TIME (GMT)	BEST TRACK LAT.	BEST TRACK LONG.	OPERATIONAL POSITION LAT.	OPERATIONAL POSITION LONG.	POSITION ERROR (N.MI.)	24 HOUR FORECAST LAT.	24 HOUR FORECAST LONG.	24 HOUR FORECAST ERROR (N.MI)	48 HOUR FORECAST LAT.	48 HOUR FORECAST LONG.	48 HOUR FORECAST ERROR (N.MI.)	72 HOUR FORECAST LAT.	72 HOUR FORECAST LONG.	72 HOUR FORECAST ERROR (N.MI.)
10 800	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.
10 806	12.4	104.4	13.0	105.0	30.1	13.9	109.1	144.	15.0	113.0	162.	16.1	116.0	306.
10 812	12.3	105.1	12.2	105.2	8.4	12.2	109.4	56.	12.3	113.8	41.	12.9	118.7	143.
10 818	12.3	105.8	12.3	105.9	5.9	12.3	108.8	59.	12.3	112.2	241.	12.4	116.0	399.
10 900	12.3	106.4	12.5	106.4	12.0	12.5	109.4	117.	12.6	112.5	308.	12.7	115.8	498.
10 906	12.3	107.4	12.5	107.1	21.3	12.3	110.0	164.	12.1	112.8	387.	12.1	115.6	621.
10 912	12.3	108.6	12.5	108.5	13.3	12.5	112.4	124.	12.5	117.0	240.	12.8	121.6	356.
10 918	12.3	109.8	12.4	109.8	6.0	12.4	114.3	120.	12.8	118.3	263.	13.3	122.0	435.
101000	12.2	110.5	12.4	111.4	53.8	12.4	116.3	87.	12.3	121.0	199.	12.4	125.6	373.
101006	12.1	113.1	12.3	112.8	21.1	12.2	118.4	59.	13.0	121.2	288.	15.2	123.6	498.
101012	12.0	114.6	12.2	114.5	13.3	12.2	120.0	67.	12.9	124.0	219.	13.8	127.3	454.
101018	11.9	116.3	12.0	116.3	6.0	12.0	122.4	53.	13.0	127.4	137.	15.6	131.1	315.
101100	12.0	117.9	11.9	117.7	13.1	11.9	123.6	83.	12.1	128.8	226.	12.4	134.0	359.
101106	12.1	119.5	12.2	119.4	8.3	12.8	125.2	71.	13.6	129.5	187.	15.9	132.0	424.
101112	12.4	121.2	12.5	121.1	8.3	13.9	127.2	23.	15.0	131.8	183.	16.6	136.1	0.
101118	12.7	122.8	12.8	122.8	6.0	14.0	129.0	26.	15.6	135.0	99.	17.8	140.5	0.
101200	13.0	124.3	13.1	124.3	6.0	14.2	129.4	127.	15.0	134.3	250.	15.7	138.3	0.
101206	13.5	126.2	13.6	126.1	8.3	14.8	131.8	38.	16.4	135.7	208.	18.8	137.6	0.
101212	13.8	127.7	13.9	127.6	8.3	15.5	132.5	139.	17.0	135.3	0.	19.0	139.6	0.
101218	14.3	129.4	14.2	129.4	6.0	15.5	134.4	133.	16.4	138.2	0.	18.1	141.0	0.
101300	14.8	131.4	14.8	131.5	5.8	16.3	138.0	32.	17.7	142.5	0.	19.2	146.3	0.
101306	15.2	133.2	15.3	132.2	37.9	16.3	137.3	119.	16.9	142.4	0.	17.2	146.0	0.
101312	15.6	134.9	15.6	134.9	0.0	16.4	140.2	0.	17.0	144.2	0.	17.1	148.2	0.
101318	16.1	136.6	16.4	136.5	18.9	17.8	141.8	0.	18.7	145.1	0.	18.6	148.1	0.
101400	16.6	138.0	16.8	138.2	16.6	19.0	144.7	0.	20.1	149.4	0.	20.6	154.4	0.
101406	16.8	139.4	16.8	139.3	5.8	17.1	144.0	0.	17.0	148.8	0.	17.0	153.6	0.
101412	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.
101418	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)								88.			214.			399.
NUMBER OF CASES								21			17			13

TABLE 21.

SONIA

DATE/TIME (GMT)	BEST TRACK LAT.	BEST TRACK LONG.	OPERATIONAL POSITION LAT.	OPERATIONAL POSITION LONG.	POSITION ERROR (N.MI.)	24 HOUR FORECAST LAT.	24 HOUR FORECAST LONG.	24 HOUR FORECAST ERROR (N.MI)	48 HOUR FORECAST LAT.	48 HOUR FORECAST LONG.	48 HOUR FORECAST ERROR (N.MI.)	72 HOUR FORECAST LAT.	72 HOUR FORECAST LONG.	72 HOUR FORECAST ERROR (N.MI.)
10 900	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.
10 906	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.
10 912	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.
10 918	13.4	130.2	13.2	130.1	13.3	14.6	133.0	74.	15.8	135.4	209.	0.0	0.0	0.
101000	13.8	131.0	13.9	130.7	18.4	15.8	132.4	183.	17.5	133.5	0.	19.6	134.2	0.
101006	14.2	131.9	14.5	131.3	39.2	17.3	132.8	268.	20.0	133.7	0.	0.0	0.0	0.
101012	14.5	132.9	14.9	132.9	24.0	17.5	135.2	212.	20.6	136.0	0.	0.0	0.0	0.
101018	14.6	134.1	15.0	134.2	24.7	17.0	138.8	168.	0.0	0.0	0.	0.0	0.0	0.
101100	14.6	135.2	14.6	135.3	5.8	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
101106	14.4	136.5	14.6	136.5	12.0	14.9	141.1	0.	0.0	0.0	0.	0.0	0.0	0.
101112	14.3	137.6	14.6	137.3	25.0	15.0	141.0	0.	0.0	0.0	0.	0.0	0.0	0.
101118	14.2	138.6	14.2	138.6	0.0	13.5	140.5	0.	0.0	0.0	0.	0.0	0.0	0.
MEAN VECTOR ERRORS (N.MI)								181.			209.			0.
NUMBER OF CASES								5			1			0

TABLE 22.

TICO

DATE/TIME (GMT)	BEST TRACK LAT.	BEST TRACK LONG.	OPERATIONAL POSITION LAT.	OPERATIONAL POSITION LONG.	POSITION ERROR (N.MI.)	24 HOUR FORECAST LAT.	24 HOUR FORECAST LONG.	24 HOUR FORECAST ERROR (N.MI)	48 HOUR FORECAST LAT.	48 HOUR FORECAST LONG.	48 HOUR FORECAST ERROR (N.MI.)	72 HOUR FORECAST LAT.	72 HOUR FORECAST LONG.	72 HOUR FORECAST ERROR (N.MI.)
101100	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.
101106	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.
101112	8.5	100.4	8.5	101.4	58.0	9.3	104.8	168.	11.4	108.2	340.	14.2	111.0	474.
101118	8.7	100.9	8.5	102.2	77.0	9.1	105.5	174.	9.7	109.5	466.	10.0	113.4	688.
101200	8.8	101.4	8.7	103.0	93.7	9.2	106.3	252.	9.8	110.2	511.	10.3	114.3	718.
101206	9.1	102.0	8.9	103.4	82.7	9.3	106.4	271.	10.0	109.5	483.	10.0	112.5	629.
101212	9.4	102.6	9.8	102.0	42.1	11.9	104.3	122.	14.0	106.8	238.	15.2	108.5	253.
101218	10.2	102.9	10.0	102.7	16.6	12.2	104.7	148.	13.8	107.1	253.	17.2	108.8	250.
101300	11.2	102.9	11.6	102.8	24.7	15.5	103.6	86.	18.0	105.7	174.	19.4	108.4	262.
101306	12.1	102.9	12.1	102.8	5.7	15.4	103.5	58.	17.6	104.2	80.	19.6	105.5	157.
101312	13.0	102.9	13.2	102.7	16.5	17.3	103.1	127.	0.0	0.0	0.	0.0	0.0	0.
101318	13.8	102.9	13.7	102.7	12.9	17.2	102.6	96.	0.0	0.0	0.	0.0	0.0	0.
101400	14.2	102.9	14.3	102.8	8.3	17.1	102.6	84.	0.0	0.0	0.	0.0	0.0	0.
101406	14.7	102.9	14.7	102.8	5.7	17.3	102.6	96.	0.0	0.0	0.	0.0	0.0	0.
101412	15.3	103.1	15.2	102.9	12.9	17.6	103.1	100.	0.0	0.0	0.	0.0	0.0	0.
101418	15.7	103.3	15.7	103.2	5.7	17.6	103.7	80.	19.6	104.0	211.	0.0	0.0	0.
101500	16.1	103.6	16.0	103.5	8.3	17.6	104.3	61.	19.8	105.0	219.	0.0	0.0	0.
101506	16.2	103.9	16.3	103.9	6.0	17.9	104.7	61.	19.6	105.4	209.	21.4	105.4	347.
101512	16.3	104.2	16.4	104.3	8.2	17.7	105.7	17.	19.2	106.9	157.	20.7	107.8	200.
101518	16.5	104.5	16.5	104.5	0.0	17.7	105.8	62.	19.3	106.8	194.	21.8	107.4	221.
101600	16.8	104.9	16.7	104.8	8.2	17.6	106.6	71.	19.2	107.4	180.	21.1	107.5	125.
101606	17.1	105.4	17.0	105.2	12.6	18.3	106.3	127.	20.0	107.0	228.	23.0	106.7	148.
101612	17.2	106.0	17.5	105.9	18.8	19.6	107.2	162.	22.1	108.1	246.	25.2	107.7	178.
101618	17.3	106.8	17.3	106.8	0.0	17.9	110.2	34.	18.1	114.5	249.	18.4	119.2	0.
101700	17.4	107.4	17.3	107.8	22.8	17.9	110.8	35.	18.8	113.3	231.	20.0	114.2	0.
101706	17.5	108.4	17.6	108.4	6.0	18.5	111.3	42.	19.4	114.3	347.	20.0	117.4	0.
101712	17.5	109.0	17.5	109.0	0.0	17.6	112.0	103.	17.7	115.0	529.	17.9	118.6	0.
101718	17.6	109.7	17.6	109.7	0.0	18.1	113.0	169.	18.8	115.7	0.	20.0	118.0	0.
101800	17.9	110.1	17.8	110.2	8.1	19.0	112.5	184.	20.1	113.4	0.	21.3	113.1	0.
101806	18.3	110.4	18.3	110.6	11.0	20.2	111.6	188.	21.9	112.3	0.	23.7	112.6	0.
101812	18.8	110.4	18.8	110.7	16.5	21.1	110.2	192.	23.3	109.1	0.	0.0	0.0	0.
101818	19.3	110.2	19.3	110.3	5.5	22.0	109.1	0.	24.7	107.1	0.	0.0	0.0	0.
101900	20.1	109.5	20.2	109.5	6.0	22.6	106.1	0.	0.0	0.0	0.	0.0	0.0	0.
101906	21.1	108.3	21.1	108.4	5.5	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
101912	22.3	107.0	22.3	107.0	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
101918	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)								116.			277.			332.
NUMBER OF CASES								29			20			14

TABLE 23.

TWENTY TWO-E

DATE/TIME (GMT)	BEST TRACK LAT.	BEST TRACK LONG.	OPERATIONAL POSITION LAT.	OPERATIONAL POSITION LONG.	POSITION ERROR (N.MI.)	24 HOUR FORECAST LAT.	24 HOUR FORECAST LONG.	24 HOUR FORECAST ERROR (N.MI)	48 HOUR FORECAST LAT.	48 HOUR FORECAST LONG.	48 HOUR FORECAST ERROR (N.MI.)	72 HOUR FORECAST LAT.	72 HOUR FORECAST LONG.	72 HOUR FORECAST ERROR (N.MI.)
101800	14.3	100.0	14.0	100.0	18.0	16.2	102.8	0.	17.2	104.9	0.	18.2	105.9	0.
101806	15.6	101.0	15.7	101.0	6.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
101812	17.0	102.0	17.1	102.0	6.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
101818	18.0	102.7	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)								0.			0.			0.
NUMBER OF CASES								0			0			0

TABLE 24.

VELMA

DATE/TIME (GMT)	BEST TRACK LAT.	BEST TRACK LONG.	OPERATIONAL POSITION LAT.	OPERATIONAL POSITION LONG.	POSITION ERROR (N.MI.)	24 HOUR FORECAST LAT.	24 HOUR FORECAST LONG.	24 HOUR FORECAST ERROR (N.MI)	48 HOUR FORECAST LAT.	48 HOUR FORECAST LONG.	48 HOUR FORECAST ERROR (N.MI.)	72 HOUR FORECAST LAT.	72 HOUR FORECAST LONG.	72 HOUR FORECAST ERROR (N.MI.)
11 100	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.
11 106	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.
11 112	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.
11 118	7.9	100.9	7.8	100.8	8.4	7.8	103.4	40.	8.3	105.7	0.	9.4	108.5	0.
11 200	7.9	101.6	7.7	101.5	13.4	8.1	104.1	21.	9.0	106.9	0.	11.0	110.0	0.
11 206	8.0	102.2	7.6	102.1	24.7	7.4	104.5	83.	8.2	107.3	0.	9.7	110.3	0.
11 212	8.0	103.1	7.4	102.5	50.7	7.4	104.8	0.	7.6	107.2	0.	7.9	110.1	0.
11 218	8.2	103.8	8.4	103.7	13.4	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
11 300	8.3	104.4	8.3	104.4	0.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
11 306	8.5	105.0	8.6	105.2	13.3	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
11 312	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.
11 318	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)								48.			0.			0.
NUMBER OF CASES								3			0			0

TABLE 25.

WINNIE

DATE/TIME (GMT)	BEST TRACK LAT.	BEST TRACK LONG.	OPERATIONAL POSITION LAT.	OPERATIONAL POSITION LONG.	POSITION ERROR (N.MI.)	24 HOUR FORECAST LAT.	24 HOUR FORECAST LONG.	24 HOUR FORECAST ERROR (N.MI)	48 HOUR FORECAST LAT.	48 HOUR FORECAST LONG.	48 HOUR FORECAST ERROR (N.MI.)	72 HOUR FORECAST LAT.	72 HOUR FORECAST LONG.	72 HOUR FORECAST ERROR (N.MI.)
12 400	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.
12 406	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.
12 412	12.9	102.9	12.8	102.9	6.0	14.6	103.5	112.	16.5	103.6	38.	0.0	0.0	0.
12 418	13.9	103.9	13.9	103.7	11.4	18.5	103.8	109.	0.0	0.0	0.	0.0	0.0	0.
12 500	14.5	104.3	14.9	104.5	26.6	17.8	105.9	114.	20.0	106.2	219.	0.0	0.0	0.
12 506	15.3	104.4	15.3	104.5	5.7	18.8	104.6	112.	0.0	0.0	0.	0.0	0.0	0.
12 512	16.1	104.2	16.2	104.5	18.1	18.7	103.7	103.	0.0	0.0	0.	0.0	0.0	0.
12 518	16.6	104.1	16.7	104.1	6.0	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
12 600	17.0	104.1	17.0	104.1	0.0	18.9	103.6	116.	0.0	0.0	0.	0.0	0.0	0.
12 606	17.0	104.1	17.0	104.1	0.0	18.3	104.1	78.	18.9	104.1	0.	0.0	0.0	0.
12 612	17.0	104.1	17.0	104.0	5.7	18.9	103.9	114.	0.0	0.0	0.	0.0	0.0	0.
12 618	17.0	104.1	17.0	104.0	5.7	18.8	103.8	0.	0.0	0.0	0.	0.0	0.0	0.
12 700	17.0	104.1	17.0	104.0	5.7	18.2	103.0	0.	0.0	0.0	0.	0.0	0.0	0.
12 706	17.0	104.1	17.0	104.0	5.7	18.1	103.1	0.	0.0	0.0	0.	0.0	0.0	0.
12 712	17.0	104.1	17.0	104.0	5.7	0.0	0.0	0.	0.0	0.0	0.	0.0	0.0	0.
12 718	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)								107.			129.			0.
NUMBER OF CASES								8			2			0

TABLE 26.

NOAA Technical Memoranda NWS WR: (Continued)

121 Climatological Prediction of Cumulonimbus Clouds in the Vicinity of the Yucca Flat Weather Station. R. F. Quiring, June 1977. (PB-271-704/AS)
122 A Method for Transforming Temperature Distribution to Normality. Morris S. Webb, Jr., June 1977. (PB-271-742/AS)
124 Statistical Guidance for Prediction of Eastern North Pacific Tropical Cyclone Motion - Part I. Charles J. Neumann and Preston W. Leftwich, August 1977. (PB-272-661)
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)
127 Development of a Probability Equation for Winter-Type Precipitation Patterns in Great Falls, Montana. Kenneth B. Mielke, February 1978.(PB-281-387/AS)
128 Hand Calculator Program to Compute Parcel Thermal Dynamics. Dan Gudgel, April 1978. (PB-283-080/AS)
129 Fire Whirls. David W. Goens, May 1978. (PB-283-866/AS)
130 Flash-Flood Procedure. Ralph C. Hatch and Gerald Williams, May 1978. (PB-286-014/AS)
131 Automated Fire-Weather Forecasts. Mark A. Mollner and David E. Olsen, September 1978. (PB-289-916/AS)
132 Estimates of the Effects of Terrain Blocking on the Los Angeles WSR-74C Weather Radar. R. G. Pappas, R. Y. Lee, B. W. Finke, October 1978.(PB289767/AS)
133 Spectral Techniques in Ocean Wave Forecasting. John A. Jannuzzi, October 1978. (PB291317/AS)
134 Solar Radiation. John A. Jannuzzi, November 1978. (PB291195/AS)
135 Application of a Spectrum Analyzer in Forecasting Ocean Swell in Southern California Coastal Waters. Lawrence P. Kierulff, January 1979. (PB292716/AS)
136 Basic Hydrologic Principles. Thomas L. Dietrich, January 1979. (PB292247/AS)
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140 Influence of Cloudiness on Summertime Temperatures in the Eastern Washington Fire Weather District. James Holcomb, April 1979. (PB298674/AS)
141 Comparison of LFM and MFM Precipitation Guidance for Nevada During Doreen. Christopher Hill, April 1979. (PB298613/AS)
142 The Usefulness of Data from Mountaintop Fire Lookout Stations in Determining Atmospheric Stability. Jonathan W. Corey, April 1979. (PB298899/AS)
143 The Depth of the Marine Layer at San Diego as Related to Subsequent Cool Season Precipitation Episodes in Arizona. Ira S. Brenner, May 1979. (PB298817/AS)
144 Arizona Cool Season Climatological Surface Wind and Pressure Gradient Study. Ira S. Brenner, May 1979. (PB298900/AS)
145 On the Use of Solar Radiation and Temperature Models to Estimate the Snap Bean Maturity Date in the Willamette Valley. Earl M. Bates, August 1979. (PB80-160971)
146 The BART Experiment. Morris S. Webb, October 1979. (PB80-155112)
147 Occurrence and Distribution of Flash Floods in the Western Region. Thomas L. Dietrich, December 1979. (PB80-160344)
149 Misinterpretations of Precipitation Probability Forecasts. Allan H. Murphy, Sarah Lichtenstein, Baruch Fischhoff, and Robert L. Winkler, February 1980. (PB80-174576)
150 Annual Data and Verification Tabulation - Eastern and Central North Pacific Tropical Storms and Hurricanes 1979. Emil B. Gunther and Staff, EPHC, April 1980. (PB80-220486)
151 NMC Model Performance in the Northeast Pacific. James E. Overland, PMEL-ERL, April 1980. (PB80-196033)
152 Climate of Salt Lake City, Utah. Wilbur E. Figgins, June 1980. (PB80-225493) (Out of print.)
153 An Automatic Lightning Detection System in Northern California. James E. Rea and Chris E. Fontana, June 1980. (PB80-225592)
154 Regression Equation for the Peak Wind Gust 6 to 12 Hours in Advance at Great Falls During Strong Downslope Wind Storms. Michael J. Oard, July 1980. (PB81-108367)
155 A Raininess Index for the Arizona Monsoon. John H. TenHarkel, July 1980. (PB81-106494)
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160 Eastern North Pacific Tropical Cyclone Occurrences During Intraseasonal Periods. Preston W. Leftwich and Gail M. Brown, February 1981. (PB81-205494)
161 Solar Radiation as a Sole Source of Energy for Photovoltaics in Las Vegas, Nevada, for July and December. Darryl Randerson, April 1981. (PB81-224503)
162 A Systems Approach to Real-Time Runoff Analysis with a Deterministic Rainfall-Runoff Model. Robert J. C. Burnash and R. Larry Ferral, April 1981. (PB81-224495)
163 A Comparison of Two Methods for Forecasting Thunderstorms at Luke Air Force Base, Arizona. Lt. Colonel Keith R. Cooley, April 1981. (PB81-225393)
164 An Objective Aid for Forecasting Afternoon Relative Humidity Along the Washington Cascade East Slopes. Robert S. Robinson, April 1981. (PB81-23078)
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168 Forecasting the Onset of Coastal Gales Off Washington-Oregon. John R. Zimmerman and William D. Burton, August 1981. (PB82-127051)
169 A Statistical-Dynamical Model for Prediction of Tropical Cyclone Motion in the Eastern North Pacific Ocean. Preston W. Leftwich, Jr., October 1981.
170 An Enhanced Plotter for Surface Airways Observations. Andrew J. Spry and Jeffrey L. Anderson, October 1981. (PB82-153883)
171 Verification of 72-Hour 500-mb Map-Type Predictions. R. F. Quiring, November 1981. (PB82-158098)
172 Forecasting Heavy Snow at Wenatchee, Washington. James W. Holcomb, December 1981. (PB82-177783)
173 Central San Joaquin Valley Type Maps. Thomas R. Crossan, December 1981. (PB82-196064)
174 ARAP Test Results. Mark A. Mathewson, December 1981. (PB82-193103)
175 Annual Data and Verification Tabulation Eastern North Pacific Tropical Storms and Hurricanes 1981. Emil B. Gunther and Staff, June 1982.(PB82-252420)
176 Approximations to the Peak Surface Wind Gusts from Desert Thunderstorms. Darryl Randerson, June 1982. (PB82-253089)
177 Climate of Phoenix, Arizona. Robert J. Schmidli, April 1969 (revised March 1983).
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183 500 Millibar Sign Frequency Teleconnection Charts - Spring. Lawrence B. Dunn, January, 1984.
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185 500 Millibar Sign Frequency Teleconnection Charts - Summer. Lawrence B. Dunn, March 1984.

NOAA SCIENTIFIC AND TECHNICAL PUBLICATIONS

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